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TRANSMITTAL

DATE: February 5, 2009

REFERENCE NO.: 240612

PROJECT NAME: 1784 150th Avenue, San Leandro

TO: Jerry Wickham
Alameda County Health Care Services Agency
1131 Harbor Bay Parkway, Suite 250
Alameda, California 94502

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COMMENTS:
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Completed by: Peter Schaefer [Please Print]

Signed: Peter Schaefer

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Jerry Wickham
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Re: Shell-branded Service Station
1784 150th Avenue
San Leandro, California
SAP Code 136019
Incident No. 98996068
Agency Case No. RO0000367

Dear Mr. Wickham:

The attached document is provided for your review and comment. Upon information and belief, I declare, under penalty of perjury, that the information contained in the attached document is true and correct.

If you have any questions or concerns, please call me at (707) 865-0251.

Sincerely,

Denis L. Brown
Project Manager

AQUIFER PUMPING TEST AND MULTI-PHASE EXTRACTION PILOT TEST REPORT

SHELL-BRANDED SERVICE STATION
1784 150TH AVENUE
SAN LEANDRO, CALIFORNIA

SAP CODE	136019
INCIDENT NO.	98996068
AGENCY NO.	RO0000367

Prepared by:
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1.0 INTRODUCTION

Conestoga-Rovers & Associates (CRA), prepared this *Aquifer Pumping Test and Multi-Phase Extraction Pilot Test Report* on behalf of Equilon Enterprises LLC dba Shell Oil Products US (Shell) for the referenced site, as requested in Alameda County Health Care Services Agency's (ACHCSA) January 18, 2008 correspondence to Shell. The aquifer pumping test (APT) and multi-phase extraction (MPE) test were performed to provide information needed to evaluate the appropriate interim remedial option to address dissolved-phase petroleum hydrocarbons detected in groundwater. The APT and MPE test were performed in accordance with CRA's April 23, 2008 *Pilot Test Work Plan* approved by ACHCSA in a June 27, 2008 correspondence to Shell. Copies of the above-referenced ACHCSA letters are provided in Appendix A. The following sections discuss the site background, the local and regional hydrogeology, the extent of hydrocarbon impact, and the APT and MPE data and conclusions.

2.0 SITE BACKGROUND

The subject site is an active Shell-branded Service Station located on the southern side of 150th Avenue in a primarily residential area of San Leandro, California (Figure 1). The site layout includes three fuel underground storage tanks (USTs), two fuel dispenser islands, a former waste oil UST, and a station building (Figure 2). A summary of previous work performed at the site and additional background information is contained in Appendix B.

2.1 GEOLOGY AND HYDROGEOLOGY

2.1.1 TOPOGRAPHY

The site is at about 50 feet above mean sea level and is located at the base of the San Leandro Hills, which lie northeast of the site across Highway 580 (Figure 1). Local topography slopes westward.

2.1.2 GEOGRAPHY

Sediments in the vicinity are Quaternary alluvial deposits derived from Mesozoic marine and Pliocene and Mesozoic intrusive rocks of the Diablo Range. The site is located on the western edge of the Hayward Fault Zone. Previous investigations indicate that the site is underlain by unconsolidated sediments which are predominantly fine-grained, low permeability clay and silt, interbedded with moderate to high permeability sand and gravel lenses.

2.1.3 GROUNDWATER

Local drinking water is supplied by the East Bay Municipal Utility District, not groundwater. An area well survey conducted in 1992 identified 21 wells within ½ mile, but none of the wells was directly down gradient from the site. Groundwater depths generally range between 17 and 30 feet below grade (fbg) onsite and 4 to 20 fbg in off-site wells. Groundwater level measurements have not shown a consistent or reliable gradient or flow direction, although the predominant flow direction since 1999 has been to the northwest. In September 2008, depth to water measurements ranged from approximately 15 to 27 fbg and the general groundwater flow direction was to the northwest.

2.2 EXTENT OF PETROLEUM HYDROCARBON IMPACT

2.2.1 DELINEATION OF IMPACTED SOIL

Elevated concentrations of petroleum constituents in the vadose zone soils have been found beneath dispensers and product piping, in boring SB-23 from 5 fbg to groundwater, and at lower concentrations around the tank complex in borings B-19, B-21, and B-21. Some vadose zone impact is also apparent at offsite boring MW-12. The other borings installed both on and off of this site have not indicated vadose zone soil impact; rather, the soil impact observed is at the soil/water interface which is more representative of groundwater impact. Thus, impacted soil is adequately delineated and appears to be in close proximity to the fueling equipment at this site.

2.2.2 DELINEATION OF SMEAR ZONE

Elevated concentrations of petroleum constituents sorbed to the soil in the smear zone, at and below the water table, have generally been found between 25 and 30 fbg. The smear-zone contamination is presented in the site cross-sections (Figures 3 and 4).

2.2.3 HORIZONTAL DELINEATION OF IMPACTED GROUNDWATER

Horizontally, the first encountered groundwater at this site appears to be adequately defined by MW-5, BH-7, MW-4, MW-13, SB-13, BH-5, and SB-12 to the west, northwest, and north of the site. Further delineation is provided by MW-6, SB-17, SB-18, MW-3, and MW-10 to the southwest, south, southeast, and east.

2.2.4 VERTICAL DELINEATION OF IMPACTED GROUNDWATER

Vertical groundwater data from CPT-1 and CPT-2 onsite indicate that the majority of groundwater impact is concentrated at the shallower depths. There is an upward vertical gradient at this site which helps minimize vertical migration downward. Data from CPT-3, CPT-5, CPT-6, and MW-9 show that the deeper zone is not impacted to the northeast, southeast, southwest, or northwest of the site.

3.0 AQUIFER PUMPING TEST

As discussed, the APT was performed to evaluate remedial options to achieve migration control of dissolved hydrocarbon impacts from the site. CRA conducted the field activities for the APT from November 5th to November 7th, 2008. A site-specific health and safety plan was prepared for the pilot test and maintained on site throughout the test.

3.1 TEST EQUIPMENT AND PROCEDURES

At extraction wells EW-1 and EW-2, CRA performed separate step-drawdown tests followed by rising-head groundwater-recovery tests. The step-drawdown tests consisted of three steps to estimate the maximum sustainable groundwater extraction (GWE) rate. During the step-drawdown tests, the GWE rate was incrementally increased (stepped) after the groundwater level in the pumping well stabilizes. Flow steps were predicated on data collected from the previous step and the height of the remaining water column in the well. After the completion of a step-drawdown tests, a rising-head groundwater-recovery test was conducted. The purpose of rising-head groundwater-recovery tests is to obtain additional data to estimate the hydraulic conductivity and transmissivity of soil in the immediate site vicinity. A rising-head groundwater-recovery test was performed by measuring the rising groundwater level at regular intervals in the extraction and observation wells until the extraction well had recovered to 90% of its pre-pumping water level. The construction of the extraction and observation wells is presented in Table 1.

Groundwater was extracted from each well using an electric submersible pump. The following parameters were monitored and recorded during each test: elapsed time, GWE flow rate, volume extracted, well drawdown, and recharge. Except well recharge, this data was collected approximately every 30 minutes. Drawdown and recharge were calculated from pressure head measurements collected from the extraction and observation wells using MiniTroll™ pressure transducer/data loggers. One day before the APT, the transducers were installed and programmed to record background static water levels. During the APT, water levels in the extraction and observation wells were checked manually with an electronic water level indicator to provide water level data for additional observation wells, confirm pressure transducer readings, and provide backup documentation. Test data was compiled on test-specific field data sheets.

The extracted groundwater is temporarily stored in an on-site Baker tank until a vacuum truck is coordinated to remove and transport water from the Baker tank to the Shell's Martinez Refinery in Martinez, California for recycling.

3.2 PERFORMANCE AND DATA COLLECTION

As previously discussed, CRA performed step-drawdown tests followed by rising-head groundwater recovery tests. The step-drawdown tests consisted of three steps to estimate the maximum sustainable GWE rate. The step tests for EW-1 and EW-2 are summarized below.

The step-drawdown test of EW-1 occurred on November 6, 2008. Extraction from EW-1 began at a GWE rate of approximately 2.0 gallon per minute (gpm), followed by 2.5 gpm and then 3.0 gpm. Prior to beginning the step test, approximately 11.24 feet of water column was measured at EW-1. At flow rates of 2.0, 2.5, and 3.0 gpm the water column was reduced to 8.09, 5.98, and 2.23 feet, respectively. The maximum observed drawdown in EW-1 was 9.01 feet and the water level recharged to 90% of static conditions in approximately 10 minutes. The observed drawdown is graphed relative to the distance from EW-1 in Figure 5.

Following the completion of the recovery test of EW-1 and observations wells on November 6th, a step-drawdown test was performed at EW-2 on November 7th. Extraction from EW-2 began at a GWE rate of approximately 1.0 gpm, followed by 1.5 gpm and then 2.5 gpm. Prior to beginning the step test, approximately 14.05 feet of water column was measured at EW-2. At flow rates of 1.0, 1.5, and 2.5 gpm the water column was reduced to 10.50, 10.41, and 6.24 feet, respectively. The maximum observed drawdown in EW-2 was 7.81 feet and the water level recharged to 90% of static conditions in approximately 6 minutes. The observed drawdown is graphed relative to the distance from EW-2 in Figure 6. The APT drawdown and recovery data is presented in Table 2. Copies of the data forms used during testing are included in Appendix C.

During the step-drawdown test of EW-1, approximately 1,112 gallons of groundwater were extracted resulting in the recovery of approximately 0.761 pound (lb) of total petroleum hydrocarbons as gasoline (TPHg), 0.012 lb of methyl tertiary butyl ether (MTBE), and 0.048 lb of benzene in the dissolved phase. During the step-drawdown test of EW-2, approximately 975 gallons of groundwater were extracted resulting in the recovery of approximately 0.555 lb of TPHg, 0.009 lb of MTBE, and 0.045 lb of benzene in the dissolved phase. The mass-removal calculations are based on laboratory analytical results from the December 19, 2008 quarterly samples. Extraction wells EW-1 and EW-2

were not sampled during this sampling event therefore the results of the nearest piezometer samples, P-1B and P-3B, were used. The groundwater production and mass removal data are presented in Table 3. The lab report is included in Appendix D.

3.3 AQUIFER ANALYSES

CRA analyzed the pump test results using AquiferTest for Windows® version 3.01 software from Waterloo Hydrogeologic, Inc. CRA used the AquiferTest program to analyze the drawdown and recovery data observed in onsite wells using the Cooper-Jacob Steptest method and the Theis Steptest method to estimate the transmissivity and hydraulic conductivity of this water-bearing zone. The program was used to analyze the post step-test recovery data from observation wells by the Theis Recovery method to estimate the transmissivity and hydraulic conductivity of this water-bearing zone. Appendix E presents the pump test analysis reports.

The Cooper-Jacob method assumes the following:

1. The aquifer is confined and has an apparent infinite extent;
2. The aquifer is homogenous, isotropic, and of uniform thickness over the area influenced by pumping;
3. The piezometric surface was horizontal prior to pumping;
4. The well is pumped step-wise or intermittently at a variable rate, or it pumped intermittently at a constant discharge rate;
5. The well is fully penetrating;
6. Water removed from storage is discharged instantaneously with decline in head;
7. The well diameter is small, so well storage is negligible; and
8. Flow toward the well is at an unsteady state.

The Theis Steptest method assumes the following:

1. The aquifer is confined and has an apparent infinite extent;
2. The aquifer is homogenous, isotropic, and of uniform thickness over the area influenced by pumping;
3. The piezometric surface was horizontal prior to pumping;
4. The well is pumped at a variable rate;
5. The well is fully penetrating;

6. Water removed from storage is discharged instantaneously with decline in head; and
7. The well diameter is small, so well storage is negligible.

Since the aquifer may not be of uniform thickness, and the wells may not fully penetrate the water-bearing zone, the assumptions are not completely satisfied, and the results should be considered approximate.

The Theis Recovery method assumes the following:

1. The aquifer is confined and has an apparent infinite extent;
2. The aquifer is homogenous, isotropic, and of uniform thickness over the area influenced by pumping;
3. The piezometric surface was horizontal prior to pumping;
4. The well is fully penetrating and pumped at a constant rate;
5. Water removed from storage is discharged instantaneously with decline in head; and
6. The well diameter is small, so well storage is negligible.

These assumptions are similar to those made for the Cooper-Jacob and Theis Steptest analyses discussed above, and similarly, may not be entirely fulfilled by site conditions. Consequently, the results should be considered approximate.

From both extraction wells, the maximum observed well yield was approximately 2.5 gpm. At 2.5 gpm the water level stabilized in EW-1 after 485 minutes of pumping and in EW-2 after 450 minutes of pumping.

While extracting from EW-1, drawdown was observed in EW-1 and observation wells EW-2, P-1A, P-1B, P-2A, P-4A, P-4B, MW-1A, MW-1B, and MW-12. While extracting from EW-2, drawdown was observed in EW-2 and observation wells P-1A, P-1B, P-2A, P-2B, P-3A, P-3B, P-4A, P-4B, MW-11, MW-2B, and MW-12. Any drawdown observed in other observation wells was negligible compared with the natural background groundwater fluctuation.

The EW-1 step-test water-level drawdown and recovery data from observation wells P-1A, P-1B, and P-2A and the EW-2 step-test water-level drawdown and recovery data from observation wells P-1A, P-1B, and P-2A was deemed sufficient for formal analysis and validation of the capture zone model. The piezometer well (P wells) data was chosen for analysis over the monitoring wells (MW) data because the piezometer wells were installed with screens targeting the smear zone.

The table below presents the results of the analyses of the step and recovery tests.

Pumping Well ID	*Pumping Test*	*Analysis Method*	*Transmissivity (ft^2/s)*	*Conductivity (ft/s)*
EW-1	Step	Cooper-Jacob	4.64E-03	3.50E-04
EW-1	Step	Theis	2.84E-03	2.14E-04
EW-1	Recovery	Theis	3.68E-03	2.77E-04
EW-2	Step	Cooper-Jacob	3.16E-03	2.23E-04
EW-2	Step	Theis	4.82E-03	3.39E-04
EW-2	Recovery	Theis	4.35E-03	3.07E-04
Average Values for EW-1			3.72E-03	2.80E-04
Average Values for EW-2			4.11E-03	2.90E-04

ft^2/s = feet squared per second ft/s = feet per second

The Cooper-Jacob Steptest, Theis Steptest, and Theis Recovery Analysis of both extraction wells are consistent with the hydraulic conductivity of clay (Todd, 1980). Historical geological investigation has identified that the site is underlain by unconsolidated sediments which are predominantly fine-grained, low permeability clay and silt, interbedded with moderate to high permeability sand and gravel lenses.

3.4 CAPTURE ANALYSES

Using the aquifer pump test data and analysis results, the theoretical capture zone created by continuous and infinite extraction was calculated using the following equations (Javendal & Tsang, Ground Water, Vol. 24, No. 5, p616-625, 1986):

$Y_{MAX.\ UPGRADIENT} = Q/(Bu)$

$Y_{PERPENDICULAR\ WIDTH\ TO\ PUMPING\ WELL} = Q/(2Bu)$

$Y_{STAGNATION\ POINT} = Q/(2*pi*Bu)$

where; Q = flow rate
K = hydraulic conductivity
B = aquifer thickness
I = gradient
u = KI

The estimated capture zones from the APT are presented in Appendix E and summarized below. The flow rate used in this conceptual model is considered the long-term aquifer yield. The aquifer thickness and groundwater gradient were calculated from the most recent groundwater monitoring event data. This capture zone model assumes infinitely long and continuous extraction. CRA believes this conceptual model is appropriate for the site and for evaluating the appropriate remedial option.

Results:	*EW-1*	*EW-2*
Maximum up-gradient width of capture zone (feet)	188	166
Capture zone perpendicular to pumping well (feet)	94	83
Distance to down-gradient stagnation point (feet)	30	26
Optimal distance between two wells on a line (feet)	60	53
Optimal distance between three or more wells on a line (feet)	75	66

4.0 MULTI-PHASE EXTRACTION PILOT TEST

The MPE pilot test was performed to provide information needed to evaluate remedial options to remove hydrocarbons that are apparently sorbed into the soil matrix beneath the site. From November 11th through November 19th, 2008, CRA performed a MPE pilot test at the referenced site. With MPE, both groundwater and soil vapors are extracted. Groundwater is extracted using a submersible pump installed in the extraction well. Soil vapors are extracted by applying a vacuum directly to the well casing. MPE was evaluated as a possible remedial technology because previous assessments demonstrated that petroleum hydrocarbons are likely present below the water table and soil vapor extraction without water table depression would not be sufficient to remove these hydrocarbons.

4.1 TEST EQUIPMENT AND PROCEDURES

At extraction wells EW-1 and EW-2, CRA performed individual-well step tests followed by a combined-well constant-rate test. As during the APT, groundwater was extracted from each well using an electric submersible pump. The initial GWE rate for the respective well was based on the maximum sustainable yield determined during the aquifer pump test. A vacuum was applied to the extraction well to remove hydrocarbon-bearing soil vapor. During the step test, the applied extraction-well casing-vacuum was systematically increased (steps) to determine the optimum casing vacuum that would yield the highest obtainable mass-removal rate. After each extraction well was tested individually, a combined-well constant rate test using both wells was performed for a 48-hour period. The combined-well constant rate test was performed with the casing vacuum set as close to optimum as the equipment allow with extraction occurring from two wells.

Critical components for MPE testing included an extraction device, water storage, and a vapor abatement device. A mobile unit equipped with a liquid-ring pump as a vacuum source and a thermal oxidizer to abate vapors prior to discharge to the atmosphere was used for testing. The mobile unit was powered by a diesel-fired generator and propane was used as an auxiliary fuel for the thermal oxidizer. The mobile unit was equipped with a vapor-liquid separator to remove entrained groundwater from the vapor stream. Groundwater was pumped to the temporary storage tank for storage during the test.

Following the APT, the submersible pressure transducers remained in the piezometers and other observation wells to continue gathering water table elevation data prior to and during MPE testing. During the test, CRA measured parameters such as elapsed time,

GWE flow rate, groundwater volume extracted, applied wellhead vacuum, hydrocarbon concentration in extracted vapor, extracted vapor flow rate, and induced vacuum at the piezometers and other observation wells. A Horiba gas analyzer, calibrated to isobutylene, was used to field measure hydrocarbon vapor concentrations from the extraction wells. A Thomas Industries vacuum pump was used to collect soil vapor samples in one-liter Tedlar bags for laboratory analysis to compare with field readings. A TSI thermoanemometer was used to measure vapor extraction airflow rates and air temperature. A manometer was used to measure the vacuum applied at the extraction wellheads and induced in the observation wells. Water level was checked manually at the observation wells periodically with an electronic water level indicator to confirm pressure transducer readings and provide backup documentation. Test data was compiled on test-specific field data sheets.

Operational data parameters were initially collected every 30 minutes during the individual-well step testing, then in 60 minute intervals during the combined-well constant-rate testing. While the equipment operated continuously during the 48 hour constant rate testing period, data parameters were only monitored during typical working hours (approximately 7 am to 5 pm).

4.2 PERFORMANCE AND DATA COLLECTION

As previously discussed, CRA performed a MPE step test for each extraction well followed by a combined-well constant-rate test. The step tests for EW-1, EW-2 and the combined-well constant-rate test are summarized below. The data for the tests can be found in Tables 4 through 7.

4.2.1 EW-1 AND EW-2 MPE STEP TEST

On November 10th, 2008, prior to beginning the test, depth to water measurements were collected from extraction wells and observation wells. The observation wells were used to monitor water table drawdown and induced vacuum during the test. Observation well drawdown was measured every minute for the duration of the test using submersible pressure transducers and field measurements were collected every half hour. A summary of the groundwater drawdown and induced vacuum data is presented in Table 4.

CRA performed step tests on EW-1 on November 11th and on EW-2 on November 12th to determine the optimal settings to attain the highest vapor phase mass removal rate. Soil

vapor samples were collected in Tedlar bags at the influent sample port of the thermal oxidizer during the pilot test. The soil vapor samples were analyzed for TPHg, benzene, toluene, ethylbenzene, and xylenes (BTEX), and MTBE at a California certified laboratory. Soil vapor analytical reports are included in Appendix D and summarized in Table 5.

Throughout the test, CRA measured the cumulative groundwater extraction volume, the applied vacuum at the manifold and well casing, air flow rates on the influent side and pressure (discharge) side of the blower, vapor concentrations at the oxidizer inlet and outlet, induced vacuum at the observation wells, and water levels in the observation wells.

Copies of the data forms used during testing are included in Appendix C. The groundwater extraction and mass removal data is presented in Table 3 and the soil vapor extraction and mass removal data is presented in Table 6.

4.2.2 COMBINED-WELL MPE CONSTANT-RATE TEST

On November 13th, 2008, CRA began the combined-well MPE constant-rate test extracting from EW-1 and EW-2.

CRA was unable to continue testing when the onsite generator shut off due to a shortage of fuel. The generator was refueled and restarted, but shut off shortly after due to additional mechanical malfunctions. CRA postponed further testing to the following week in order to test the system continuously for 48 hours.

On November 17th, 2008, CRA restarted the combined-well MPE constant-rate test. CRA performed the constant rate test, to determine the feasibility of a vapor phase remediation system.

Throughout the test, CRA measured the cumulative groundwater extraction volume; the applied vacuum at the manifold and well casing; air flow rates on the influent, from both EW-1 and EW-2, and the pressure (discharge) side of the blower; vapor concentrations at the oxidizer inlet (including EW-1 and EW-2) and outlet; induced vacuum at the observation wells; and water levels in the observation wells.

Observation well drawdown was measured every minute for the duration of the test using submersible pressure transducers. The water level was checked manually at the observation wells periodically with an electronic water level indicator to confirm

pressure transducer readings and provide backup documentation. Induced vacuum measurements were periodically collected at the observation wells. A summary of the groundwater drawdown and induced vacuum data is presented in Table 4.

Soil vapor samples were collected in Tedlar bags from the oxidizer influent sample port, EW-1, and EW-2. The soil vapor samples were analyzed for TPHg, BTEX, and MTBE at a California certified laboratory. Soil vapor analytical results are included in Appendix D and summarized in Table 5.

The groundwater extraction and mass removal data is presented in Table 3 and the soil vapor extraction and mass removal data is presented in Table 6.

4.3 ANALYSES

CRA analyzed the MPE pilot test data to determine the feasibility of MPE as an appropriate interim remedial option to address dissolved-phase petroleum hydrocarbons detected in groundwater at the site.

4.3.1 EW-1 AND EW-2 STEP TESTS

Soil vapor well flow rates measured during the EW-1 step test varied from 18.1 to 33.6 standard cubic feet per minute (scfm). The soil vapor extraction rate was generally constant from the beginning to the end of the step test period, with an average flow of approximately 24.4 scfm. The applied casing vacuum steps were 50, 75, 100, and 150 inches of water column (in. H2O) during the EW-1 step test.

Soil vapor well flow rates measured during the EW-2 step test varied from 11.9 to 35.0 scfm. The soil vapor extraction rate generally increased from the beginning to the end of the step test, with an average flow of approximately 24.3 scfm. The applied casing vacuum steps were 50, 100, 150, and 200 inches H2O during the EW-2 step test.

Based on the observed flow rates, temperature, pressure, and laboratory analytical data, an estimated 4.25 lb of TPHg was removed in soil vapor at an average mass removal rate of 13.6 lb/day during the EW-1 step test. Following the EW-1 step test and before the EW-2 step test, the mobile unit was allowed to continue extraction from EW-1 overnight, removing an estimated additional 9.4 lb of vapor-phase TPHg from EW-1. An estimated 3.4 lb of vapor-phase TPHg was removed during the EW-2 step test at an average mass removal rate of 11.9 lb/day. During the EW-1 and EW-2 step-test activities

approximately 17.1 lb of vapor-phase TPHg was removed. The flow, applied casing vacuum, and mass removal rate are graphed over time in Figure 7.

During the step tests, CRA periodically measured vacuum at nearby observation wells. During the EW-1 step test induced vacuum was measured in only one well, MW-1A, at 6.9 in. H2O. During the EW-2 step test induced vacuum was measured at two observation wells, MW-11 and MW-2B, at 20.9 and 0.5 inches H2O, respectively.

During the step tests the drawdown observed in the observation wells ranged between negligible and 1.5 feet. The limited drawdown did not result in the water levels falling to the top of the smear zone at 25 fbg in observation wells. The observed drawdown during the step tests is presented on Figures 5 and 6.

During the EW-1 and EW-2 step-test activities 7,494 gallons of groundwater were extracted resulting in the recovery of approximately 4.92 lb of TPHg, 0.078 lb of MTBE, and 0.334 lb of benzene in the dissolved phase. As calculated for the mass-removal during the APT, the laboratory results of December 19, 2008 samples from P-1B and P-3B were used in the calculations. The groundwater production and mass removal data are presented in Table 3.

4.3.2 COMBINED-WELL MPE CONSTANT-RATE TEST

The soil-vapor combined-well flow rate measured during the test varied from 43.3 to 51.7 scfm. The soil-vapor extraction flow rate was generally constant from the beginning to the end of the constant-rate test period, with an average flow of approximately 47.7 scfm. The applied casing vacuum was set to approximately 220 inches H2O at EW-1 and 200 inches H2O at EW-2.

Based on the observed flow rates, temperature, pressure, and laboratory analytical data, an estimated 58.9 lb of TPHg was removed in soil vapor at an average mass removal rate of 31.6 lb/day during the combined-well constant-rate test.

Theoretical effective radii of influence (ROI) were calculated, and are presented in Table 7, using the Johnson-Kemblowski equation. The effective radius of influence is typically defined as an observed vacuum that is greater than or equal to 1% of the vacuum applied to the extraction well. Using this equation, the EW-1 vacuum ROI was estimated to be 32.2 feet and the EW-2 vacuum ROI was estimated to be between 19.5 and 21.8 feet.

During the combined-well constant-rate test the drawdown observed in the observation wells ranged between negligible and 2.2 feet. The limited drawdown resulted in the water level barely reaching the very top of the smear zone at 25 fbg in some observation wells.

During the combined-well constant-rate test 29,631 gallons of groundwater were extracted resulting in the recovery of approximately 18.7 lb of TPHg, 0.394 lb of MTBE, and 1.35 lb of benzene in the dissolved phase. As calculated for the mass-removal during the APT and MPE step tests, the laboratory results of December 19, 2008 samples from P-1B and P-3B were used in the calculations. The groundwater production and mass removal data are presented in Table 3.

4.3.3 CAPTURE ANALYSES

Using the aquifer pump test data and analysis results, the theoretical capture zone created by continuous and infinite extraction was calculated using the following equations (Javendal & Tsang, Ground Water, Vol. 24, No. 5, p616-625, 1986):

$Y_{MAX.\ UPGRADIENT} = Q/(Bu)$

$Y_{PERPENDICULAR\ WIDTH\ TO\ PUMPING\ WELL} = Q/(2Bu)$

$Y_{STAGNATION\ POINT} = Q/(2*pi*Bu)$

where;
Q = flow rate
K = hydraulic conductivity
B = aquifer thickness
I = gradient
u = KI

This estimated capture zone from the DPE tests are presented in Appendix E and summarized below. The flow rate used in this conceptual model is considered the long-term aquifer yield. The aquifer thickness and groundwater gradient were calculated from the most recent groundwater monitoring event data. This capture zone model assumes infinitely long and continuous extraction. CRA believes this conceptual model is appropriate for the site and for evaluating the appropriate remedial option.

Results:	*EW-1*	*EW-2*
Max up-gradient width of capture zone (feet)	276	401
Capture zone perpendicular to pumping well (feet)	138	201
Distance to down-gradient stagnation point (feet)	44	64
Optimal distance between two wells on a line (feet)	88	128
Optimal distance between three or more wells on a line (feet)	110	160

5.0 CONCLUSIONS AND RECOMMENDATIONS

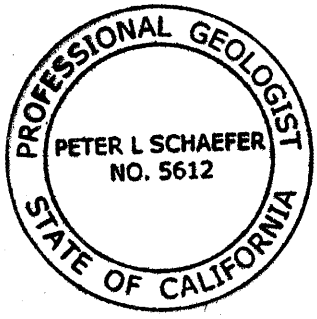
The following conclusions have been made relating to the APT and DPE pilot-test activities conducted between November 5 and 19, 2008:

- The groundwater capture zone, with and without MPE, is quite good indicating that dissolved-phase plume migration can be controlled through groundwater extraction;
- The pilot test groundwater production rate was high, which is not favorable for DPE;
- The dual-phase extraction pilot test activities did not effectively dewater the smear zone in and around the extraction wells; and
- The vapor-phase hydrocarbon concentrations and mass removal rate dropped significantly during the test, but this is likely due to the limited volume of smear zone that was dewatered.

These conclusions suggest that GWE can control dissolved-phase plume migration; and DPE will not be an effective method for removing the hydrocarbon mass remaining in the saturated soils in the source area.

All of Which is Respectfully Submitted,
CONESTOGA-ROVERS & ASSOCIATES

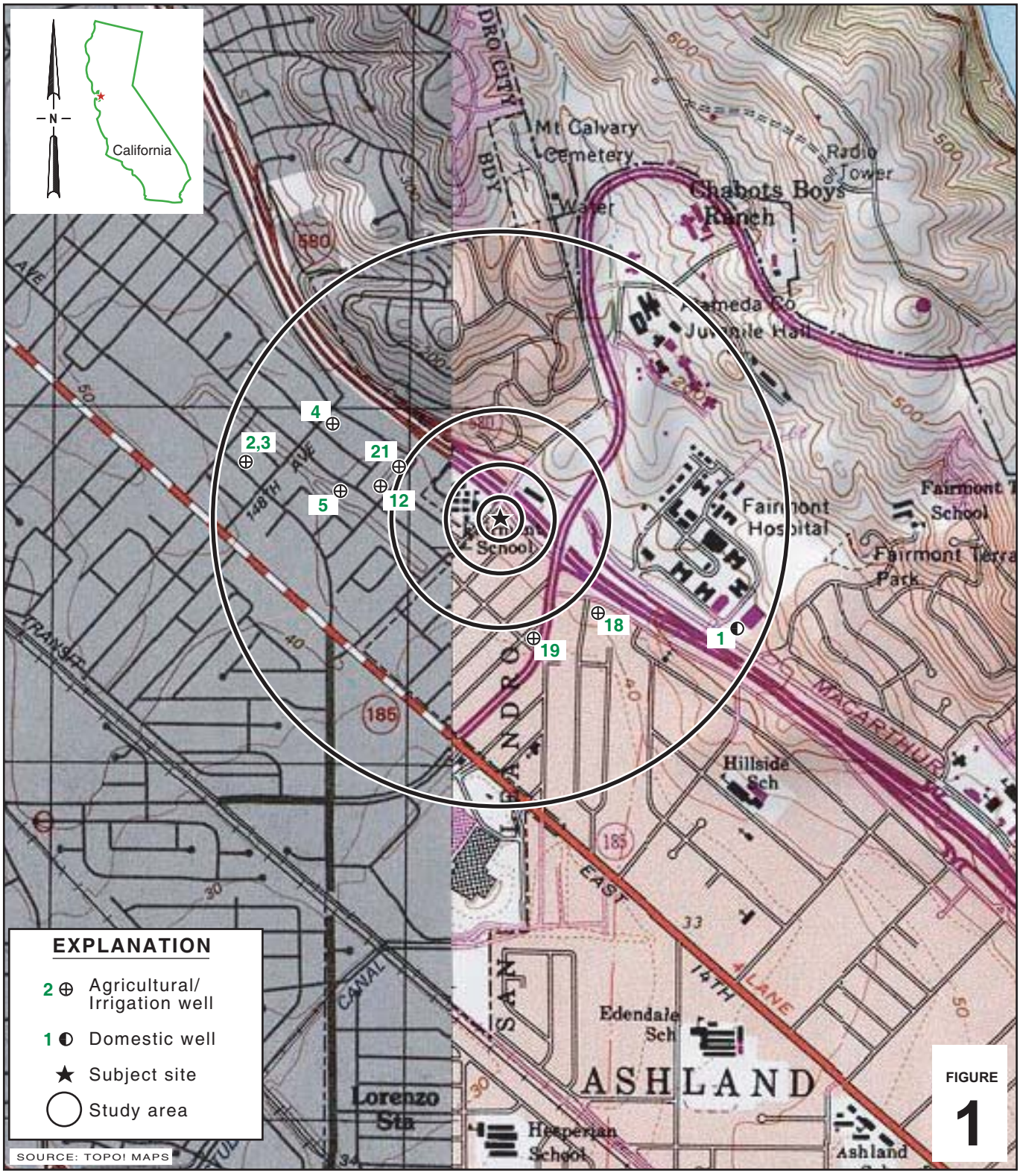
Peter Schaefer, CHG, CEG



Trey Jackson

FIGURES

11/03/08



I:\Shell\6-chars\2406--\240612-San Leandro 1784 150th\240612-FIGURES\240612 VICINITY.AI

FIGURE 1

0 1/8 1/4 1/2 1

SCALE : 1" = 1/4 MILE

Shell-branded Service Station

1784 150th Avenue

San Leandro, California

CONESTOGA-ROVERS & ASSOCIATES

Vicinity Map

02/05/09

Site Plan

EXPLANATION

- EW-1 — Extraction well location
- MW-3 — Monitoring well location
- MW-6 — Deeper monitoring well location
- MW-1 — Destroyed well location
- CPT-1 — CPT location (CRA, 8/29-30/07)
- B-1 — Soil boring location (CRA, 9/14/07)
- SVP-1 — Soil vapor probe location (CRA, 8/28/07)
- WO-1-6.5 — Soil sample location (Cambria, 5/25/06)
- S-19 — Soil boring location (Cambria, 5/23-25/06)
- D-1-5.0 — Soil sample location (Cambria, 04/05/05)
- D-1-3.5 — Soil sample location (Cambria, 03/22/05)
- SB-17 — Soil boring location (Cambria, 9/04)
- SB-10 — Soil boring location (Cambria, 6/03)
- SB-9 — Soil boring location (Cambria, 10/02)
- SVS-11 — Soil boring location (Cambria, 11/98)
- SVS-1 — Soil boring location (Cambria, 7/96)
- BH-7 — Soil boring location (Weiss, 3/95)
- A — Dispenser soil sample location (Weiss, 3/95)
- BH-1 — Soil boring location (Weiss, 6/94)
- ❶ — Dispenser number
- Product piping

I-580

I-580 OFF-RAMP

PORTOFINO CIRCLE

PORTOFINO DRIVE

150TH AVENUE

FREEDOM AVENUE

Brick Sound Wall

BH-4 · BH-5 · BH-7 · BH-9 · BH-10 · BH-1 located 215' SE · BH-6 located 360' SE

SB-12 · SB-13 · SB-14 · SB-16 · SB-9 · SB-10 · SB-11 · SB-15 · SB-21 · SB-20 · SB-19 · SB-22 · SB-23 · SB-17 · SB-18

SVS-9 · SVS-8 · SVS-7 · SVS-6 · SVS-5 · SVS-4 · SVS-11 · SVS-3 · SVS-12 · SVS-2 · SVS-1 · SVS-10 · SVS-13 · SVS-15

MW-9 · SB-25/ MW-13 · MW-7 · SB-24/MW-12 · MW-8 · MW-4 · MW-10 · MW-3 · MW-2 · MW-11 · MW-1 · MW-1B · MW-1A · MW-2B

CPT-3 · CPT-2 · CPT-1 · CPT-5

P-4A · P-4B · P-3A · P-3B · P-2B · P-2A · P-1B · P-1A

EW-1 · EW-2 · SVP-1 · SVP-2 · SVP-3 · SVP-4 · B-1

P-1-2.5, P-1-5.0 · D-4-3.5 · D-4-5.0 · P-2-3.5, P-2-5.0 · D-2-3.5 · D-2-5.0 · D-3-3.5 · P-3-3.0 · D-1-5.0 · D-1-3.5 · P-4-2.5 · P-4-5.0

Shell Station
1784 150th Ave.

Dispenser Islands · Former Dispenser Island · Former W/O UST · USTs · Station Building · Air Comp. · Storage · Parking Lot · Denny's Restaurant *15015 Freedom Ave.*

Residential · Residential (Townhouses)

MH

0 20 40 80
Scale (ft)

0 10 20 40
Scale (ft)

FIGURE
2

Shell-branded Service Station
1784 150th Avenue
San Leandro, California

CONESTOGA-ROVERS & ASSOCIATES

I:\Shell\6-chars\2406--\240612-San Leandro 1784 150th\240612-FIGURES\240612 SITE PLAN.DWG

12/17/07

Geologic Cross Section A-A'

A — Northwest — A'

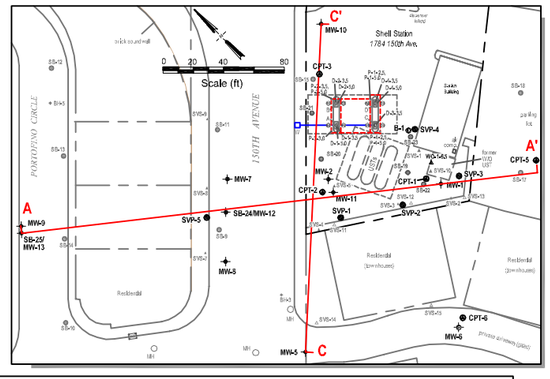
Southeast

MW-13 41.59' | MW-9 41.65' (4'SW) | SB-14 NS (7'NE) | MW-12 44.10' (2'NE) | PL | CPT-2 NS (1'SW) | MW-2 45.79' (12'SW) | MW-11 45.58' (3'SW) | Shell Station 1784 150th Ave. | SB-19 NS (10'SW) | SB-22 NS (1'SW) | CPT-1 NS (2'SW) | MW-1 49.10' | PL | SB-17 NS (1'SW) | CPT-5 NS (8'SW)

Residential | ~107' | PORTOFINO CIRCLE | 150th AVENUE | sidewalk | parking lot | UST PIT | FORMER W/O UST PIT | Groundwater Flow Direction

Elevation, in feet above mean sea level

Approximate depth in feet below grade



EXPLANATION

Well ID – Well Designation

Elev. — TOC Elevation, in feet above msl (NS = Not Surveyed)

(offset) — Offset distance and direction to cross-section line

— Groundwater Monitoring Well or Soil Boring

— Well Screen Interval

— Bottom of boring

◄ Approximate Soil Sample Location

Interval of Discrete Soil Sample Results (Grouped for Clarity)

NA Not analyzed

ND TPHg, benzene, and MTBE all not detected

TPHg / Benzene / MTBE — Concentrations in Soil, in mg/kg; (MTBE analyzed by EPA Method 8020 in parentheses, all others by EPA Method 8260 or NA)

TPHg / Benzene / MTBE — Concentrations in Groundwater, in µg/L (09/11/07)

▼ Depth of Groundwater (09/11/07)

Inferred Potentiometric Surface

◄ Grab Groundwater Sample Depth

(6/26/00) ▽ Depth and Date of First Encountered Groundwater

<50 / <0.50 / <1.0 — CPT Groundwater Sampling Interval and Concentrations, in µg/L (08/29-31/07)

N/R No Recovery

= Fine-Grained Soils

= Coarse-Grained Soils

= Fill (Tank Pit)

Scale (ft) 0 10 20

FIGURE 3

Shell-branded Service Station
1784 150th Avenue
San Leandro, California

CONESTOGA-ROVERS & ASSOCIATES

I:\SONOMA.SHELL\SAN LEANDRO 1784 150th\FIGURES\X-SECT A-A'.DWG

12/17/07

Geologic Cross Section C-C'

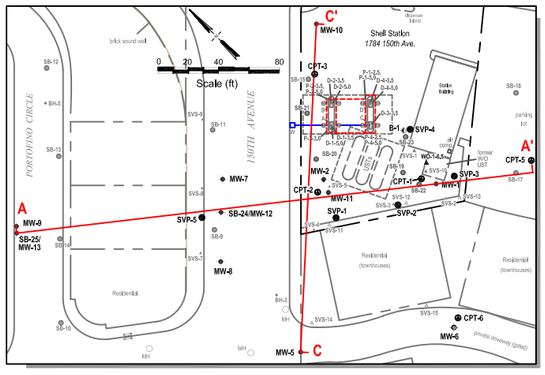
C Southwest — C' Northeast

MW-5	SVS-14	SVS-11	CPT-2	MW-11	MW-2	SB-20	SB-21	SB-15	CPT-3	MW-10
41.46'	NS (6'NW)	NS (15'NW)	NS (6'NW)	45.58' (13'NW)	45.79' (10'NW)	NS (4'NW)	NS (3'SE)	NS (4'SE)	NS	50.64'

PRIVATE DRIVEWAY — PL

Elevation, in feet above mean sea level

Approximate depth in feet below grade



EXPLANATION

= Fine-Grained Soils

= Coarse-Grained Soils

Approximate Soil Sample Location

Interval of Discrete Soil Sample Results (Grouped for Clarity)

NA — Not analyzed

ND — TPHg, benzene, and MTBE all not detected

TPHg / Benzene / MTBE — Concentrations in Soil, in mg/kg; (MTBE analyzed by EPA Method 8020 in parentheses, all others by EPA Method 8260 or NA)

Well ID – Well Designation

Elev. — TOC Elevation, in feet above msl (NS = Not Surveyed)

(offset) — Offset distance and direction to cross-section line

Groundwater Monitoring Well or Soil Boring

Well Screen Interval

Bottom of boring

TPHg / Benzene / MTBE — Concentrations in Groundwater, in µg/L (09/11/07)

Depth of Groundwater (09/11/07)

Inferred Potentiometric Surface

Grab Groundwater Sample Depth

(6/26/00) — Depth and Date of First Encountered Groundwater

<50 / <0.50 / <1.0 — CPT Groundwater Sampling Interval and Concentrations, in µg/L (08/29-31/07)

N/R — No Recovery

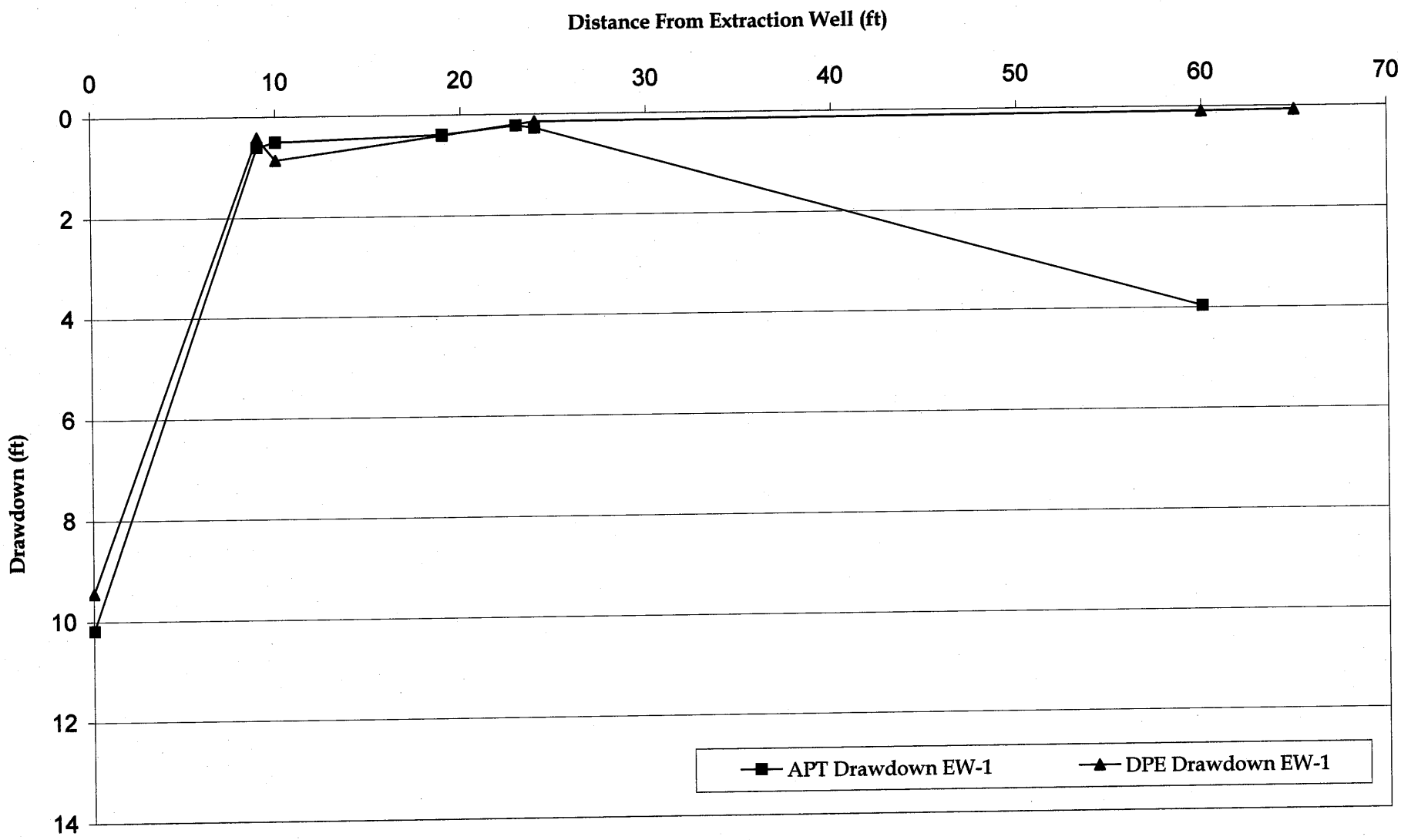
Scale (ft): 0 — 10 — 20

FIGURE 4

Shell-branded Service Station
1784 150th Avenue
San Leandro, California

CONESTOGA-ROVERS & ASSOCIATES

I:\SONOMA.SHELL\SAN LEANDRO 1784 150th\FIGURES\X-SECT C-C'.DWG



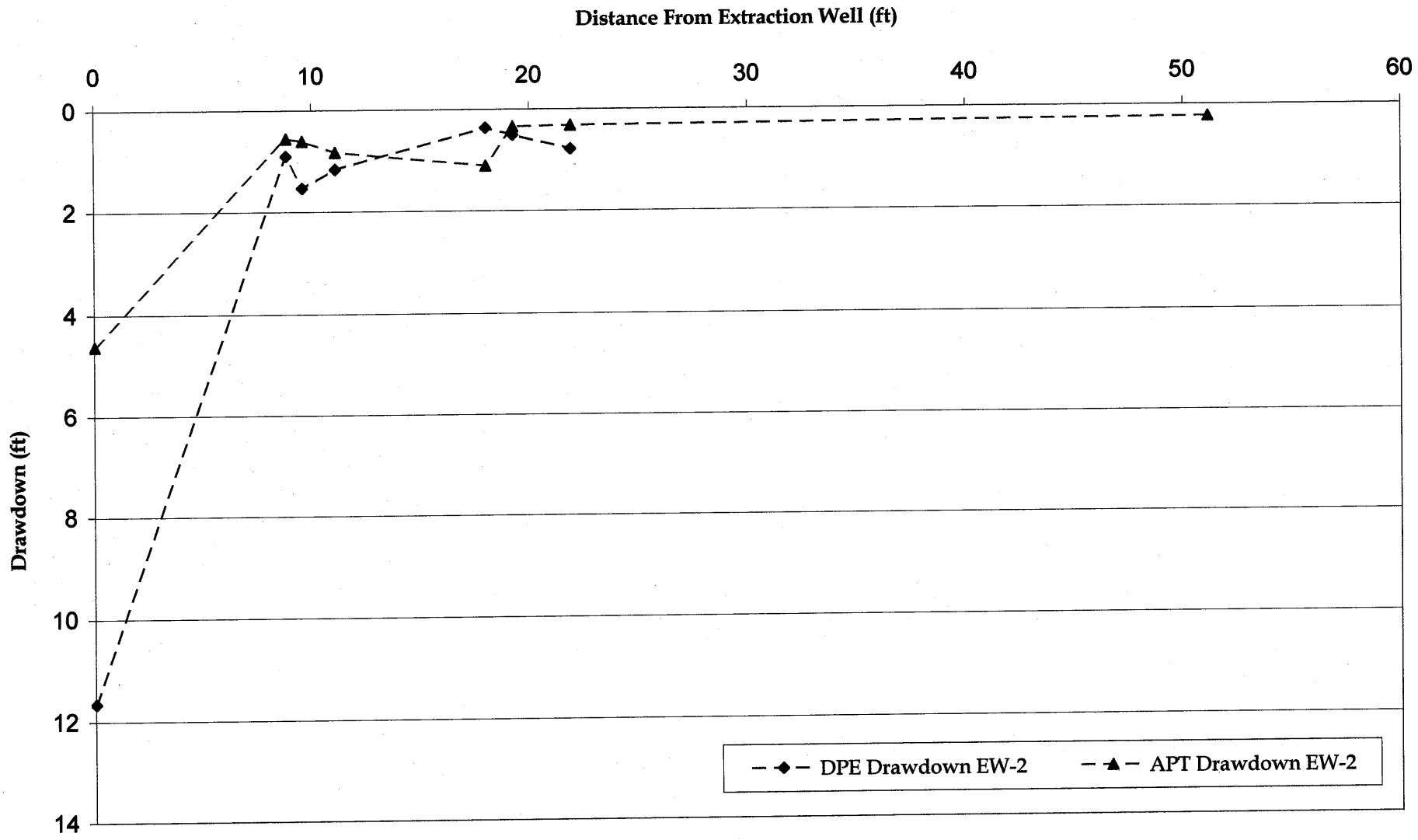
EW-1 Drawdown vs. Distance Graph

Shell Service Station
1784 150th Avenue
San Leandro, California

CONESTOGA-ROVERS & ASSOCIATES

Figure
5

CRA 240612(4)



EW-2 Drawdown vs. Distance Graph

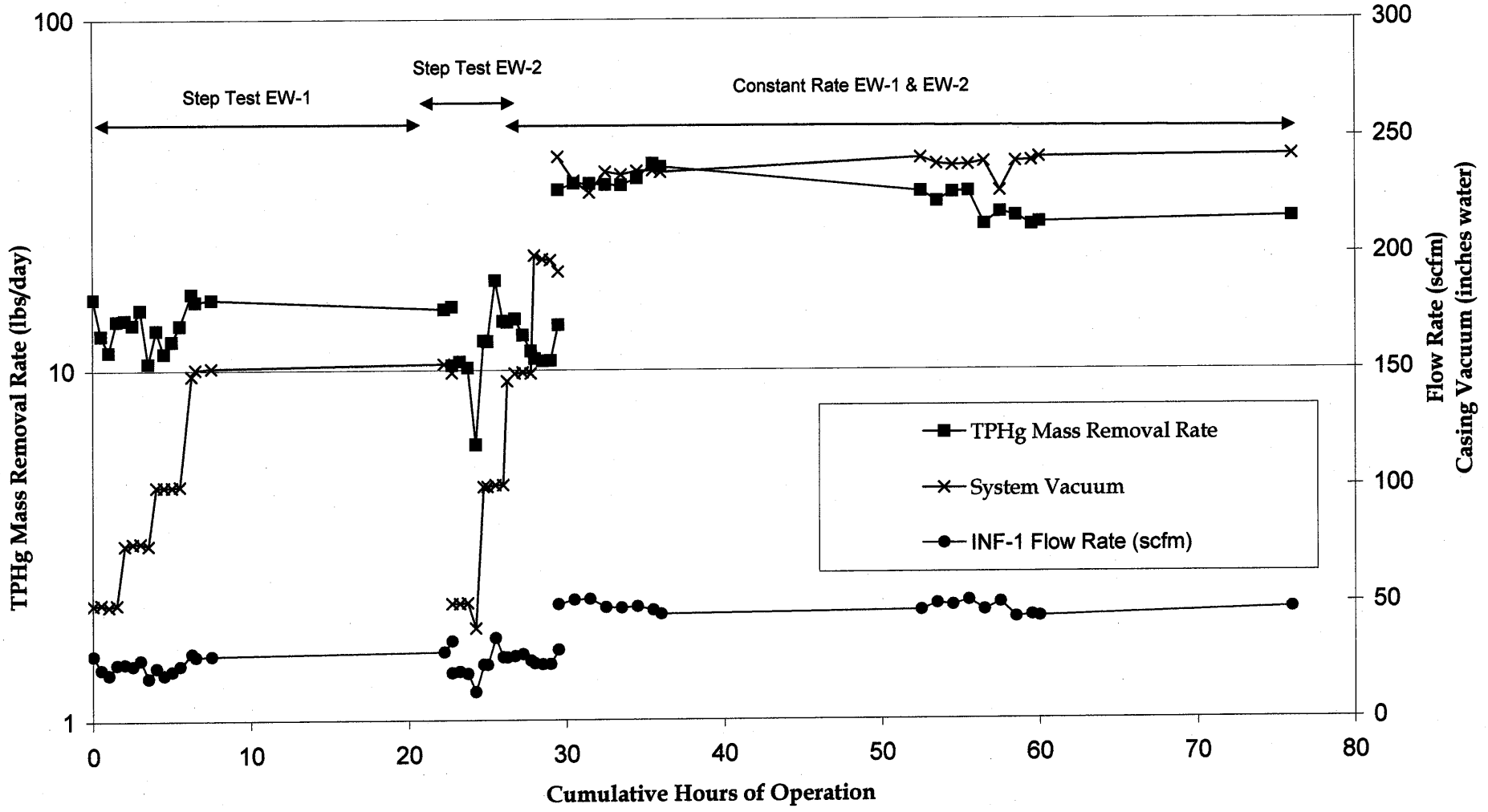
Shell Service Station
1784 150th Avenue
San Leandro, California

CONESTOGA-ROVERS & ASSOCIATES

Figure

6

CRA 240612(4)



Shell Service Station
1784 150th Avenue
San Leandro, California

CONESTOGA-ROVERS & ASSOCIATES

Mass Removal Rate and Flow/Vacuum vs. Time Graph

Figure

7

CRA 240612(4)

TABLES

TABLE 1

WELL AND BORING DATA
SHELL-BRANDED SERVICE STATION
1784 150TH STREET, SAN LEANDRO, CALIFORNIA

Well or Boring ID	*Boring Type*	*Completion Date*	*TOC Elevation (ft msl)*	*Total Depth (fbg)*	*Sample Interval (ft)*	*GW Depth First (fbg)*	*GW Depth Static (fbg)*	*Screen Diameter (In)*	*Screen Depth Top*	*Screen Depth Bottom*	*Comments*
MW-1 (BH-A)	HSA	3/5/1986	49.10	45.0	5'	33.5		4	30.0	45.0	
MW-2 (BH-B)	HSA	2/3/1988	45.79	45.0	5'	24.00		4	25.0	45.0	
MW-3 (BH-C)	HSA	2/4/1988	51.92	42.0	5'	29.00		4	22.0	42.0	
MW-4 (BH-10)	HSA	3/2/1991	40.45	30.0	5'	23.0		2	5.0	27.0	grouted bottom from 27 to 30 fbg
MW-5	HSA	10/23/1997	41.46	25.0	5'	20.0		2	10.0	25.0	
MW-6	HSA	10/23/1997	41.50	20.0	5'	8.0		2	5.0	20.0	
MW-7	HSA	3/14/1998	44.45	32.0	cont	24.5		2	22.0	27.0	
MW-8	HSA	10/3/1998	43.27	27.5	cont	21.0		2	19.0	24.0	
MW-9	HSA	11/18/1999	41.65	35.0	cont	20.0		2	30.0	35.0	
MW-10	HSA	11/19/1999	50.64	32.0	cont	23.5		2	28.0	32.0	
MW-11	HSA	11/19/1999	45.58	25.0	cont	23.5		2	15.0	25.0	
MW-12 (SB-24)	HSA	2/24/2002	44.10	30.0	cont	24.0		2	18.0	28.0	
MW-13 (SB-25)	HSA	5/23/2002	41.59	35	cont	22		2	14	24	hydropunch 20-24' & 31-35'
EW-1	HSA	9/2/2004	48.44	36	cont	33		4	21	36	
EW-2	HSA	9/3/2004	44.52	34	cont	20		4	18	33	
P-1A	HSA	9/7/2004	47.74	27	none	NA		4	12	27	
P-2A	HSA	9/1/2004	47.65	27	cont	NA		4	12	27	
P-3A	HSA	9/7/2004	48.81	23	none	NA		4	8	23	
P-4A	HSA	9/26/2004	49.02	23	none	NA		4	8	23	
P-1B	HSA	9/3/2004	44.56	36	cont	34		4	26	36	
P-2B	HSA	9/3/2004	44.62	36	cont	NA		4	26	36	
P-3B	HSA	9/4/2004	45.00	33	cont	NA		4	23	33	
P-4B	HSA	9/4/2004	44.93	33	cont	NA		4	23	33	
MW-1A	HSA	9/1/2004	48.99	27	cont	NA		4	17	27	
MW-1B	HSA	10/27/2004	49.07	50	5' to 40', cont 40'-50'	NA		4	45	50	
MW-2B	HSA	10/27/2004	44.96	50	5' to 35', cont 35'-50'	NA		4	45	50	
BH-1	HSA	6/5/1990	NA	25.5	5'	24.0	NA	NA	NA	NA	hydropunch to 27.3'
BH-2	HSA	6/5/1990	NA	34.0	5'	34.0	NA	NA	NA	NA	hydropunch 23-27'; no water

TABLE 1

WELL AND BORING DATA
SHELL-BRANDED SERVICE STATION
1784 150TH STREET, SAN LEANDRO, CALIFORNIA

Well or Boring ID	*Boring Type*	*Completion Date*	*TOC Elevation (ft msl)*	*Total Depth (fbg)*	*Sample Interval (ft)*	*GW Depth First (fbg)*	*GW Depth Static (fbg)*	*Screen Diameter (In)*	*Screen Depth Top*	*Screen Depth Bottom*	*Comments*
BH-3	HSA	6/5/1990	NA	25.0	5'	25.0	NA	NA	NA	NA	hydropunch 18-22'; no water
BH-4	HSA	6/6/1990	NA	30	5'	30	NA	NA	NA	NA	hydropunch 21.5-25'; no water
BH-5	HSA	6/6/1990	NA	20.0	5'	20.00	NA	NA	NA	NA	hydropunch 20-24'
BH-6	HSA	6/6/1990	NA	25.0	5'	24.50	NA	NA	NA	NA	hydropunch 25-27'
BH-7	GP	2/13/1991	NA	20.0	cont.	17.0	NA	NA	NA	NA	hydropunch 17-20'
BH-8	GP	2/13/1991	NA	25.0	cont.	None	NA	NA	NA	NA	hydropunch 16-20' & 20-25'; no water.
BH-9	GP	2/14/1991	NA	23.0	cont.	19.5	NA	NA	NA	NA	hydropunch 20-23'
SB-10	GP	6/22/1999	NA	40.0	cont.	25.0	13.3	NA	NA	NA	
SB-11	GP	6/23/1999	NA	32.0	cont.	28.0	19.9	NA	NA	NA	
SB-12	GP	6/23/1999	NA	40.0	cont.	25.0	10.8	NA	NA	NA	
SB-13	GP	6/24/1999	NA	40.0	cont.	24.0	NA	NA	NA	NA	
SB-14	GP	6/23/1999	NA	40.0	cont.	24.0	7.6	NA	NA	NA	
SB-15	GP	6/25/1999	NA	36.0	cont.	25.0	NA	NA	NA	NA	
SB-16	GP	6/22/1999	NA	40.0	cont.	24.0	14.2	NA	NA	NA	
SB-17	GP	9/12/2000	NA	36.0	cont.	34.0	28.5	NA	NA	NA	
SB-18	GP	9/12/2000	NA	32.0	cont.	32.0	27.6	NA	NA	NA	
SB-19	GP	5/23/2002	NA	30.0	cont.	28.0	NA	NA	NA	NA	
SB-20	GP	5/24/2002	NA	30.0	cont.	23.0	NA	NA	NA	NA	
SB-21	GP	5/23/2002	NA	28.0	cont.	27.0	NA	NA	NA	NA	
SB-22	GP	5/24/2002	NA	30.0	cont.	NA	NA	NA	NA	NA	
SB-23	GP	5/23/2002	NA	30.0	cont.	15.5	NA	NA	NA	NA	

Notes:

TOC = Top of casing elevation relative to mean sea level
ft = Feet
msl = Mean sea level
fbg = feet below grade
GW = Groundwater

TABLE 1

WELL AND BORING DATA
SHELL-BRANDED SERVICE STATION
1784 150TH STREET, SAN LEANDRO, CALIFORNIA

Well or Boring ID	*Boring Type*	*Completion Date*	*TOC Elevation (ft msl)*	*Total Depth (fbg)*	*Sample Interval (ft)*	*GW Depth First (fbg)*	*GW Depth Static (fbg)*	*Screen Diameter (In)*	*Screen Depth Top*	*Screen Depth Bottom*	*Comments*

in = Inches
HSA = Hollow stem auger
GP = Geoprobe
cont. = continuous sampling
NA = Not available
5' = sample collection at 5 foot intervals

TABLE 2

DRAWDOWN DATA
AQUIFER PUMPING TEST
SHELL SERVICE STATION
1784 150th AVENUE
SAN LEANDRO, CALIFORNIA

Date	Time (min)	Flow Rate (gpm)	Totalizer Reading EW-1 or EW-2	Flow Total (gal)	EW-1 DTW (ft)	EW-2 DTW (ft)	P-1A DTW (ft)	P-1B DTW (ft)	P-2A DTW (ft)	P-2B DTW (ft)	P-3A DTW (ft)	P-3B DTW (ft)	P-4A DTW (ft)	P-4B DTW (ft)	MW-1A DTW (ft)	MW-1B DTW (ft)	MW-11 DTW (ft)	MW-2B DTW (ft)	MW-12 DTW (ft)	Notes
11/5/08 Static					23.82	18.86	22.02	22.12	23.23	23.47	18.86	19.04	19.17	19.30	23.39	23.50	19.56	18.55	18.59	
Total Depth					35.06	32.91	27.13	35.29	26.94	35.16	22.51	32.43	22.65	32.85	26.27	49.71	24.84	48.65	27.76	
APT Step Test EW-1																				
11/6/08 8:10	0	0.0	155916.0	0.0	22.638	18.759	21.926	21.959	23.118	23.301	18.907	19.069	19.211	19.326	*23.39*	*23.50*			18.586	Start of test
9:15	1	2.0	156061.5	145.5	26.863	18.739	22.008	22.355	23.277	23.375	18.914	19.090	19.215	19.344	*23.57*	*23.70*			18.581	
9:45	95	2.0	156122.6	206.6	26.974	18.797	22.041	22.364	23.300	23.361	18.914	19.082	19.215	19.340	*23.58*	*23.70*			18.575	
10:15	125	2.0	156153.8	237.8	26.975	18.732	18.732	22.106	22.375	23.326	23.381	18.918	19.088	19.219	*18.58*	*23.70*			19.344	
10:45	155	2.0	156212.6	296.6	26.887	18.682	22.121	22.377	23.345	23.391	18.920	19.078	19.221	19.348	*23.60*	*23.70*			18.577	
11:15	185	2.0	156271.1	355.1	26.912	18.671	22.159	22.379	23.348	23.387	18.916	19.080	19.219	19.344	*23.61*	*23.70*			18.569	
11:45	215	2.0	156275.0	359.0	26.902	18.723	22.214	22.405	23.366	23.394	18.910	19.073	19.209	19.338	*23.61*	*23.70*			18.561	
12:15	245	2.0	156385.1	469.1	26.966	22.736	22.245	22.401	23.400	23.388	18.903	19.075	19.203	19.333	*23.61*	*23.70*			18.552	end of step 1
12:30	260	2.5	156454.5	538.5	28.780	22.719	22.245	22.495	23.398	23.397	18.903	19.078	19.203	19.333	*23.63*	*23.70*			18.548	
13:15	305	2.5	156539.2	623.2	28.922	22.616	22.290	22.520	23.440	23.409	18.910	19.078	19.209	19.340					18.552	
13:45	335	2.5	156600.4	684.4	28.976	22.651	22.319	22.545	23.455	23.433	18.907	19.077	19.207	19.338	*23.65*	*23.71*			18.548	
14:15	365	2.5	156671.0	755.0	28.992	22.199	22.341	22.570	23.472	23.429	18.905	19.069	19.207	19.337	*23.65*	*23.71*			18.544	
14:45	395	2.5	156757.5	841.5	29.004	22.033	22.364	22.549	23.492	23.424	18.907	19.073	19.207	19.336	*23.65*	*23.71*			18.546	
15:15	425	2.5	156828.5	912.5	29.002	22.009	22.378	22.573	23.491	23.430	18.914	19.080	19.213	19.344	*23.66*	*23.72*			18.552	
15:45	455	2.5	156887.3	971.3	29.063	22.397	22.399	22.557	23.504	23.446	18.917	19.084	19.219	19.346	*23.67*	*23.73*			18.556	
16:15	485	2.5	156966.2	1050.2	29.081	22.195	22.411	22.568	23.508	23.428	18.921	19.088	19.221	19.350					18.552	end of step 2
16:45	515	3.0	157027.5	1111.5	32.833	21.957	22.418	22.570	23.511	23.422	18.920	19.086	19.221	19.350					18.557	end test
17:20	550	0.0	157027.5	1111.5	32.833	21.928	22.436	22.573	23.515	23.456	18.928	19.092	19.230	19.358					18.567	
17:30	560	0.0	157027.5	1111.5	23.564	21.789	22.431	22.486	23.518	23.427	18.928	19.094	19.232	19.356					18.577	0% recharge in EW-
APT Step Test EW-2						6.247														
11/7/08 7:00	0	0.0	82561.7	0.0	22.516	22.036	22.052	22.075	23.248	23.316	18.881	19.052	19.190	19.312					18.560	
7:30	30	1.0	82602.0	40.3	22.531	23.926	22.047	22.092	23.250	23.302	19.108	19.281	19.254	19.425					18.567	Start of test
8:00	60	1.0	82636.1	74.4	22.534	24.046	22.055	22.100	23.259	23.320	19.185	19.315	19.302	19.452			*19.98*	*19.56*	18.579	
8:30	90	1.0	82672.0	110.3	22.516	24.222	22.065	22.113	23.265	23.298	19.217	19.335	19.329	19.465			*20.10*	*19.57*	18.581	
9:00	120	1.0	82697.2	135.5	22.529	22.411	22.069	22.100	23.282	23.323	19.213	19.242	19.338	19.430					18.575	end of step 1
Stopped test to switch out pump																				
11/7/08 11:30	120	1.5	82697.6	135.9	22.565	17.581	22.086	22.116	23.295	23.323	18.897	19.048	19.207	19.313					18.548	
12:00	150	1.5	82755.4	193.7	22.597	21.574	22.121	22.187	23.310	23.324	19.162	19.383	19.278	19.476					18.557	
12:30	180	1.5	82814.0	252.3	22.614	21.952	22.132	22.200	23.328	23.340	19.262	19.437	19.329	19.511					18.542	
13:00	210	1.5	82873.0	311.3	22.626	22.125	22.150	22.224	23.344	23.336	19.306	19.452	19.362	19.530			*20.24*	*19.60*	18.544	
13:30	240	1.5	82932.3	370.6	22.670	22.339	22.167	22.240	23.368	23.356	19.332	19.469	19.385	19.544			*20.26*	*19.60*	18.548	
14:00	270	1.5	82992.3	430.6	22.663	22.503	22.184	22.265	23.367	23.354	19.349	19.473	19.402	19.555			*20.28*	*19.61*	18.554	end of step 2
14:30	300	2.5	83101.7	540.0	22.672	23.262	22.198	22.260	23.387	23.355	19.361	19.480	19.416	19.563					18.558	
15:00	330	2.5	83160.0	598.3	22.698	26.484	22.224	22.287	23.403	23.366	19.419	19.584	19.447	19.626			*20.35*	*19.67*	18.565	
15:30	360	2.5	83222.3	660.6	22.692	26.437	22.212	22.288	23.409	23.366	19.432	19.581	19.460	19.624					18.569	
16:00	390	2.5	83303.0	741.3	22.712	26.663	22.225	22.297	23.413	23.367	19.452	19.597	19.480	19.642			*20.39*	*19.67*	18.581	
16:30	420	2.5	83389.0	827.3	22.723	26.640	22.232	22.314	23.420	23.375	19.460	19.603	19.495	19.647			*20.40*	*19.67*	18.587	
17:00	450	2.5	83463.0	901.3	22.721	26.548	22.240	22.312	23.417	23.336	19.476	19.610	19.510	19.656			*20.40*	*19.67*	18.596	

TABLE 2

DRAWDOWN DATA
AQUIFER PUMPING TEST
SHELL SERVICE STATION
1784 150th AVENUE
SAN LEANDRO, CALIFORNIA

Date	Time (min)	Flow Rate (gpm)	Totalizer Reading EW-1 or EW-2	Flow Total (gal)	EW-1 DTW (ft)	EW-2 DTW (ft)	P-1A DTW (ft)	P-1B DTW (ft)	P-2A DTW (ft)	P-2B DTW (ft)	P-3A DTW (ft)	P-3B DTW (ft)	P-4A DTW (ft)	P-4B DTW (ft)	MW-1A DTW (ft)	MW-1B DTW (ft)	MW-11 DTW (ft)	MW-2B DTW (ft)	MW-12 DTW (ft)	Notes
17:30	480	2.5	83537.0	975.3	22.720	26.402	22.248	22.313	23.433	23.371	19.492	19.614	19.516	19.658					18.602	end of step 3
17:36	486	0.0	83537.0	975.3	22.709	21.674	22.248	22.306	23.429	23.385	19.490	19.523	19.518	19.620					18.629	0% recharge in EW-1
11/5/08 Background Water Level Fluctuation (ft)					**0.185**	**0.806**	**0.125**	**0.149**	**0.131**	**0.148**	**0.038**	**0.054**	**0.050**	**0.043**					**0.073**	
APT Step Test EW-1																				
Distance from EW-1 (ft)					**0.0**		**10**	**9**	**19**	**20**	**68**	**69**	**60**	**65**	**24**	**23**	**55**	**63**	**125**	
Max Depth to Water (ft)					**32.833**	**22.736**	**22.436**	**22.573**	**23.515**	23.456	18.928	19.092	19.230	19.358	**23.67**	**23.73**			18.567	
Max Drawdown (ft)					**10.195**	**3.977**	**0.510**	**0.614**	**0.397**	0.155	0.021	0.023	0.019	0.032	**0.28**	**0.23**			-0.019	
APT Step Test EW-2																				
Distance from EW-2 (ft)						**0.0**	**48.5**	**51.2**			**9.6**	**8.8**	**21.9**	**19.3**			**11.1**	**18**	**75**	
Max Depth to Water (ft)					22.723	**26.663**	22.248	**22.314**	23.433	23.371	**19.492**	**19.614**	**19.516**	**19.658**			**20.40**	**19.67**	18.602	
Max Drawdown (ft)					0.207	**4.627**	0.196	**0.239**	0.185	0.055	**0.611**	**0.562**	**0.326**	**0.346**			**0.840**	**1.120**	0.042	

Abbreviations/Notes:
APT = aquifer pump test
min = minutes
gpm = gallons per minute
gal = gallons
DTW = depth to water (feet below top of casing)
ft = feet
"Blank" cell = No measurement
Extraction well drawdown data measured automatically using a pressure transducer.
Extraction well drawdown data measured manually using a water level meter.

TABLE 3

GROUNDWATER PRODUCTION DATA
AQUIFER PUMPING TEST AND DUAL-PHASE EXTRACTION PILOT TEST
SHELL SERVICE STATION
1784 150th AVENUE
SAN LEANDRO, CALIFORNIA

						TPHg					MTBE					Benzene				
						EW-1		EW-2		EW-1 & EW-2	EW-1		EW-2		EW-1 & EW-2	EW-1		EW-2		EW-1 & EW-2
Date:Time (mm/dd/yy hh:mm)	Cumulative Operation Time (hours)	Groundwater Totalizer EW-1 (gallons)	Groundwater Totalizer EW-2 (gallons)	Cumulative Volume (gallons)	Groundwater Extraction Rate (gpm)	Mass Removed (lb)	Cumulative Mass Removed (lb)	Mass Removed (lb)	Cumulative Mass Removed (lb)	Cumulative Mass Removed (lb)	Mass Removed (lb)	Cumulative Mass Removed (lb)	Mass Removed (lb)	Cumulative Mass Removed (lb)	Cumulative Mass Removed (lb)	Mass Removed (lb)	Cumulative Mass Removed (lb)	Mass Removed (lb)	Cumulative Mass Removed (lb)	Cumulative Mass Removed (lb)
APT EW-1 Step																				
11/6/08 8:15	0.00	155,916		0	0.00	0.000	0.000			0.000	0.000	0.000			0.000	0.000	0.000			0.000
9:15	1.00	156,062		146	2.43	0.100	0.100			0.100	0.002	0.002			0.002	0.006	0.006			0.006
9:45	1.50	156,123		207	2.04	0.042	0.141			0.141	0.001	0.002			0.002	0.003	0.009			0.009
10:15	2.00	156,154		238	1.04	0.021	0.163			0.163	0.000	0.003			0.003	0.001	0.010			0.010
10:45	2.50	156,213		297	1.96	0.040	0.203			0.203	0.001	0.003			0.003	0.003	0.013			0.013
11:15	3.00	156,271		355	1.95	0.040	0.243			0.243	0.001	0.004			0.004	0.003	0.015			0.015
11:45	3.50	156,275		359	0.13	0.003	0.246			0.246	0.000	0.004			0.004	0.000	0.016			0.016
12:15	4.00	156,385		469	3.67	0.075	0.321			0.321	0.001	0.005			0.005	0.005	0.020			0.020
12:45	4.50	156,455		539	2.31	0.047	0.368			0.368	0.001	0.006			0.006	0.003	0.023			0.023
13:15	5.00	156,539		623	2.82	0.058	0.426			0.426	0.001	0.007			0.007	0.004	0.027			0.027
13:45	5.50	156,600		684	2.04	0.042	0.468			0.468	0.001	0.007			0.007	0.003	0.030			0.030
14:15	6.00	156,671		755	2.35	0.048	0.517			0.517	0.001	0.008			0.008	0.003	0.033			0.033
14:45	6.50	156,758		842	2.88	0.059	0.576			0.576	0.001	0.009			0.009	0.004	0.037			0.037
15:15	7.00	156,829		913	2.37	0.049	0.624			0.624	0.001	0.010			0.010	0.003	0.040			0.040
15:45	7.50	156,887		971	1.96	0.040	0.665			0.665	0.001	0.011			0.011	0.003	0.042			0.042
16:15	8.00	156,966		1,050	2.63	0.054	0.719			0.719	0.001	0.011			0.011	0.003	0.046			0.046
16:45	8.50	157,028		1,112	2.04	0.042	0.761			0.761	0.001	0.012			0.012	0.003	0.048			0.048
APT EW-2 Step																				
11/7/08 7:00	8.50		82,562	1,112	0.00			0.000	0.000	0.761			0.000	0.000	0.012			0.000	0.000	0.048
7:30	9.00		82,602	1,152	1.34			0.024	0.024	0.784			0.000	0.000	0.012			0.002	0.002	0.050
8:00	9.50		82,636	1,186	1.14			0.020	0.043	0.804			0.000	0.001	0.013			0.002	0.004	0.052
8:30	10.00		82,672	1,222	1.20			0.021	0.064	0.825			0.000	0.001	0.013			0.002	0.005	0.053
Stopped test to switch out pump																				
11/7/08 11:30	10.00		82,698	1,247	0.00			0.000	0.064	0.825			0.000	0.001	0.013			0.000	0.005	0.053
12:00	10.50		82,755	1,305	1.93			0.034	0.098	0.859			0.001	0.002	0.014			0.003	0.008	0.056
12:30	11.00		82,814	1,364	1.95			0.034	0.132	0.893			0.001	0.002	0.014			0.003	0.011	0.059
13:00	11.50		82,873	1,423	1.97			0.034	0.167	0.927			0.001	0.003	0.015			0.003	0.014	0.062
13:30	12.00		82,932	1,482	1.98			0.035	0.202	0.962			0.001	0.003	0.015			0.003	0.016	0.065
14:00	12.50		82,992	1,542	2.00			0.035	0.237	0.997			0.001	0.004	0.016			0.003	0.019	0.067
14:30	13.00		83,102	1,652	3.65			0.064	0.300	1.06			0.001	0.005	0.017			0.005	0.024	0.073
15:00	13.50		83,160	1,710	1.94			0.034	0.335	1.10			0.001	0.005	0.017			0.003	0.027	0.075
15:30	14.00		83,222	1,772	2.08			0.036	0.371	1.13			0.001	0.006	0.018			0.003	0.030	0.078
16:00	14.50		83,303	1,853	2.69			0.047	0.418	1.18			0.001	0.007	0.019			0.004	0.034	0.082
16:30	15.00		83,389	1,939	2.87			0.050	0.468	1.23			0.001	0.007	0.019			0.004	0.038	0.086
17:00	15.50		83,463	2,013	2.47			0.043	0.512	1.27			0.001	0.008	0.020			0.004	0.042	0.090
17:30	16.00		83,537	2,087	2.47			0.043	0.555	1.32			0.001	0.009	0.021			0.004	0.045	0.093
DPE EW-1 Step Test																				
11/11/08 9:00	16.00	157,491		2,087	0.00	0.000	0.761			1.32	0.000	0.012			0.021	0.000	0.048			0.093
9:30	16.50	157,591		2,187	3.33	0.068	0.829			1.38	0.001	0.013			0.022	0.004	0.053			0.098
10:00	17.00	157,691		2,286	3.32	0.068	0.897			1.45	0.001	0.014			0.023	0.004	0.057			0.102
10:30	17.50	157,791		2,387	3.34	0.069	0.966			1.52	0.001	0.015			0.024	0.004	0.061			0.106
11:00	18.00	157,866		2,462	2.51	0.052	1.017			1.57	0.001	0.016			0.025	0.003	0.065			0.110
11:30	18.50	157,963		2,559	3.23	0.066	1.083			1.64	0.001	0.017			0.026	0.004	0.069			0.114
12:00	19.00	158,071		2,667	3.60	0.074	1.157			1.71	0.001	0.018			0.027	0.005	0.073			0.119
12:30	19.50	158,190		2,786	3.97	0.081	1.239			1.79	0.001	0.020			0.028	0.005	0.079			0.124
13:00	20.00	158,270		2,866	2.67	0.055	1.294			1.85	0.001	0.021			0.029	0.003	0.082			0.127
13:30	20.50	158,400		2,996	4.33	0.089	1.383			1.94	0.001	0.022			0.031	0.006	0.088			0.133
14:00	21.00	158,500		3,096	3.33	0.068	1.451			2.01	0.001	0.023			0.032	0.004	0.092			0.137
14:30	21.50	158,621		3,216	4.02	0.082	1.533			2.09	0.001	0.024			0.033	0.005	0.097			0.142
15:15	22.25	158,853		3,449	5.17	0.159	1.692			2.25	0.003	0.027			0.036	0.010	0.107			0.152
15:30	22.50	158,903		3,499	3.33	0.034	1.727			2.28	0.001	0.027			0.036	0.002	0.109			0.155
16:30	23.50	159,064		3,660	2.68	0.110	1.837			2.39	0.002	0.029			0.038	0.007	0.116			0.162
11/12/08 7:15	38.25	162,780		7,376	4.20	2.543	4.38			4.93	0.040	0.07			0.078	0.161	0.28			0.323
7:45	38.75	162,864		7,460	2.80	0.057	4.44			4.99	0.001	0.07			0.079	0.004	0.28			0.327
DPE EW-2 Step Test																				
11/12/08 9:00	38.75		83,716	7,460	0.00			0.000	0.555	4.99			0.000	0.009	0.079			0.000	0.045	0.327
9:30	39.25		83,815	7,559	3.30			0.058	0.613	5.05			0.001	0.010	0.080			0.005	0.050	0.331
10:00	39.75		83,926	7,670	3.70			0.065	0.677	5.11			0.001	0.011	0.081			0.005	0.055	0.337
10:30	40.25		84,050	7,794	4.13			0.072	0.750	5.19			0.001	0.012	0.082			0.006	0.061	0.342
10:45	40.50		84,125	7,869	5.00			0.044	0.794	5.23			0.001	0.012	0.083			0.004	0.065	0.346
11:15	41.00		84,276	8,020	5.03			0.088	0.882	5.32			0.001	0.014	0.084			0.007	0.072	0.353

TABLE 3

GROUNDWATER PRODUCTION DATA
AQUIFER PUMPING TEST AND DUAL-PHASE EXTRACTION PILOT TEST
SHELL SERVICE STATION
1784 150th AVENUE
SAN LEANDRO, CALIFORNIA

						TPHg					MTBE					Benzene				
						EW-1		EW-2		EW-1 & EW-2	EW-1		EW-2		EW-1 & EW-2	EW-1		EW-2		EW-1 & EW-2
Date:Time (mm/dd/yy hh:mm)	Cumulative Operation Time (hours)	Groundwater Totalizer EW-1 (gallons)	Groundwater Totalizer EW-2 (gallons)	Cumulative Volume (gallons)	Groundwater Extraction Rate (gpm)	Mass Removed (lb)	Cumulative Mass Removed (lb)	Mass Removed (lb)	Cumulative Mass Removed (lb)	Cumulative Mass Removed (lb)	Mass Removed (lb)	Cumulative Mass Removed (lb)	Mass Removed (lb)	Cumulative Mass Removed (lb)	Cumulative Mass Removed (lb)	Mass Removed (lb)	Cumulative Mass Removed (lb)	Mass Removed (lb)	Cumulative Mass Removed (lb)	Cumulative Mass Removed (lb)
11:45	41.50		84,430	8,174	5.13			0.090	0.972	5.41			0.001	0.015	0.086			0.007	0.079	0.360
12:15	42.00		84,586	8,330	5.20			0.091	1.063	5.50			0.001	0.017	0.087			0.007	0.087	0.368
12:30	42.25		84,677	8,421	6.07			0.053	1.116	5.55			0.001	0.018	0.088			0.004	0.091	0.372
13:00	42.75		84,831	8,575	5.13			0.090	1.206	5.64			0.001	0.019	0.089			0.007	0.098	0.380
13:30	43.25		85,000	8,744	5.63			0.099	1.305	5.74			0.002	0.021	0.091			0.008	0.106	0.388
14:00	43.75		85,177	8,920	5.88			0.103	1.408	5.84			0.002	0.022	0.092			0.008	0.115	0.396
14:15	44.00		85,250	8,994	4.90			0.043	1.451	5.89			0.001	0.023	0.093			0.003	0.118	0.399
14:45	44.50		85,443	9,187	6.43			0.113	1.563	6.00			0.002	0.025	0.095			0.009	0.127	0.409
15:15	45.00		85,637	9,381	6.47			0.113	1.677	6.11			0.002	0.026	0.097			0.009	0.137	0.418
15:45	45.50		85,837	9,581	6.67			0.117	1.794	6.23			0.002	0.028	0.099			0.010	0.146	0.427
DPE Constant Rate Test EW-1 & EW-2																				
11/12/08 16:30	45.50	163,140	86,056	9,581	0.00	0.000	4.44	0.000	1.794	6.23	0.000	0.070	0.000	0.028	0.099	0.000	0.28	0.000	0.146	0.427
11/13/08 14:00	67.00	167,224	90,741	18,350	6.80	2.794	7.23	2.74	4.53	11.8	0.044	0.115	0.04	0.071	0.186	0.177	0.46	0.22	0.369	0.827
Test stopped due to generator failure, restart on 11/17/08																				
11/17/08 8:00	67.00	167,292	90,803	18,350	0.00	0.000	7.23	0.000	4.53	11.8	0.000	0.115	0.000	0.071	0.186	0.000	0.46	0.000	0.369	0.827
9:00	68.00	167,755	91,191	19,201	14.2	0.317	7.55	0.227	4.76	12.3	0.005	0.120	0.004	0.075	0.194	0.020	0.48	0.018	0.387	0.866
10:00	69.00	168,072	91,472	19,799	10.0	0.217	7.76	0.164	4.92	12.7	0.003	0.123	0.003	0.077	0.200	0.014	0.49	0.013	0.401	0.893
11:00	70.00	168,346	91,732	20,333	8.90	0.187	7.95	0.152	5.07	13.0	0.003	0.126	0.002	0.080	0.206	0.012	0.50	0.012	0.413	0.917
12:00	71.00	168,621	91,992	20,868	8.92	0.188	8.14	0.152	5.22	13.4	0.003	0.129	0.002	0.082	0.211	0.012	0.52	0.012	0.425	0.942
13:00	72.00	168,871	92,251	21,377	8.48	0.171	8.31	0.151	5.38	13.7	0.003	0.132	0.002	0.084	0.216	0.011	0.53	0.012	0.438	0.965
14:00	73.00	169,119	92,493	21,867	8.17	0.170	8.48	0.141	5.52	14.0	0.003	0.134	0.002	0.087	0.221	0.011	0.54	0.012	0.449	0.987
14:30	73.50	169,250	92,615	22,120	8.43	0.090	8.57	0.071	5.59	14.2	0.001	0.136	0.001	0.088	0.224	0.006	0.54	0.006	0.455	1.00
11/18/08 7:00	90.00	172,770	96,411	29,436	7.39	2.409	11.0	2.217	7.81	18.8	0.038	0.174	0.035	0.123	0.297	0.153	0.70	0.181	0.636	1.33
8:00	91.00	172,973	96,639	29,867	7.18	0.139	11.1	0.133	7.94	19.1	0.002	0.176	0.002	0.125	0.301	0.009	0.71	0.011	0.646	1.35
9:00	92.00	173,160	96,842	30,257	6.49	0.128	11.2	0.118	8.06	19.3	0.002	0.178	0.002	0.127	0.305	0.008	0.71	0.010	0.656	1.37
10:00	93.00	173,355	97,065	30,675	6.98	0.133	11.4	0.131	8.19	19.6	0.002	0.180	0.002	0.129	0.309	0.008	0.72	0.011	0.667	1.39
11:00	94.00	173,546	97,280	31,081	6.77	0.131	11.5	0.126	8.31	19.8	0.002	0.182	0.002	0.131	0.313	0.008	0.73	0.010	0.677	1.41
12:00	95.00	173,740	97,500	31,495	6.90	0.133	11.6	0.129	8.44	20.1	0.002	0.185	0.002	0.133	0.317	0.008	0.74	0.010	0.687	1.43
13:00	96.00	173,933	97,720	31,908	6.88	0.132	11.8	0.129	8.57	20.3	0.002	0.187	0.002	0.135	0.321	0.008	0.75	0.010	0.698	1.44
14:00	97.00	174,130	97,942	32,327	6.98	0.135	11.9	0.130	8.70	20.6	0.002	0.189	0.002	0.137	0.326	0.009	0.76	0.011	0.708	1.46
14:30	97.50	174,220	98,046	32,521	6.47	0.062	12.0	0.061	8.76	20.7	0.001	0.190	0.001	0.138	0.327	0.004	0.76	0.005	0.713	1.47
11/19/08 6:30	113.50	177,186	101,632	39,073	6.82	2.029	14.0	2.095	10.9	24.9	0.032	0.222	0.033	0.171	0.393	0.129	0.89	0.171	0.884	1.77
7:30	114.50	177,215	101,742	39,212	2.32	0.020	14.0	0.064	10.9	24.9	0.000	0.222	0.001	0.172	0.394	0.001	0.89	0.005	0.889	1.78
12/19/08																				
			Total Gallons Extr:	39,212		TPHg Conce	82,000 a		70,000 b		MTBE Conc	1,300 a		1,100 b		Benzene Co	5,200 a		5,700 b	
						Total Pounds	14.0		10.9	24.9	Total Pound	0.222		0.172	0.394	Total Pound	0.89		0.889	1.78

Notes:
Mass removed based on the formula: volume extracted (gallons) x concentration (mg/L) x (g/10^6mg) x (pound/453.6g) x (3.785 L/gal)
Period operational flow rate based on the formula: (cumulative volume (cf)) / (current hour meter reading - last hour meter reading (hr)) / (60 (min/hr))
gpm = gallons per minute
TPHg, MTBE, and benzene analyzed by EPA Method 8260B
TPHg = Total Petroleum Hydrocarbons as Gasoline
MTBE = Methyl tertiary butyl ether
µg / L = micrograms per liter
lb = pounds
APT = aquifer pump test
DPE = dual-phase extraction
a - analytical data from nearby piezometer well P-1B
b - analytical data from nearby piezometer well P-3B

TABLE 4

DRAWDOWN AND INDUCED VACUUM DATA
DUAL-PHASE EXTRACTION PILOT TEST
SHELL SERVICE STATION
1784 150th AVENUE
SAN LEANDRO, CALIFORNIA

Date	Hour Meter (Hrs)	Casing Vac (in WC) (EW-1)	Casing Vac (in WC) (EW-2)	P-1A		P-1B		P-2A		P-2B		P-3A		P-3B		P-4A		P-4B		MW-1A		MW-1B		MW-11		MW-2B		MW-12		Notes
				DTW (ft)	Vac (in WC)	DTW (ft)	Vac (in WC)	DTW (ft)	Vac (in WC)	DTW (ft)	Vac (in WC)	DTW (ft)	Vac (in WC)	DTW (ft)	Vac (in WC)	DTW (ft)	Vac (in WC)	DTW (ft)	Vac (in WC)	DTW (ft)	Vac (in WC)	DTW (ft)	Vac (in WC)	DTW (ft)	Vac (in WC)	DTW (ft)	Vac (in WC)	DTW (ft)	Vac (in WC)	
Total Depth		35.06 ft	32.91 ft	27.13		35.29		26.94		35.16		22.51		32.43		22.65		32.85		26.27		49.71		24.84		27.76				Total Depth
DPE Step Test EW-1																														
11/11/08 Static			DTW=20.46 ft	22.460		22.770		23.740		23.440		19.030		19.210		19.330		19.460		23.46		23.50						18.690		Static level
11/11/08 9:00	10146.1	50.0		22.460		22.777		23.739		23.449		19.036		19.211		19.339		19.468		23.52								18.697		Start of test
9:30	10146.7	50.0		22.560	0.00	22.744	0.000	23.756	0.00	23.425	0.00	19.046		19.217		19.349	0.00	19.472	0.00		2.5							18.701		
10:00	10147.2	49.5		22.623		22.724		23.752		23.430		19.056		19.230		19.362		19.483		23.61								18.712		
10:30	10147.6	49.7		22.682	0.00	22.721	0.000	23.764	0.00	23.409	0.00	19.058		19.222		19.366	0.00	19.481	0.00		2.5							18.708		end of step 1
11:00	10148.2	75.0		22.733		22.778		23.770		23.431		19.058		19.224		19.368		19.483		23.62								18.706		
11:30	10148.6	75.8		22.801	0.00	22.826	0.000	23.816	0.00	23.447	0.00	19.052		19.224		19.366	0.00	19.481	0.00		3.4							18.695		
12:00	10149.1	76.3		22.868		22.834		23.835		23.454		19.048		19.222		19.362		19.477		23.65								18.687		
12:30	10149.6	75.2		22.909	0.00	22.840	0.000	23.853	0.00	23.454	0.00	19.050		19.222		19.361	0.00	19.477	0.00		3.5							18.699		end of step 2
13:00	10150.2	100.0		22.942		22.925		23.881		23.458		19.052		19.230		19.366		19.483		23.61								18.683		
13:30	10150.6	100.0		23.020	0.00	22.932	0.000	23.924	0.00	23.483	0.00	19.056		19.224		19.370	0.00	19.487	0.00		4.3							18.682		
14:00	10151.1	100.0		23.054		22.947		23.943		23.487		19.064		19.235		19.378		19.497		23.61								18.691		
14:30	10151.7	100.4		23.084	0.00	22.968	0.000	23.957	0.00	23.486	0.00	19.072		19.241		19.387	0.00	19.502	0.00		4.3							18.697		end of step 3
15:15	10152.4	147.5		23.204		23.191		24.085		23.534		19.092		19.267		19.409		19.529		23.57								18.712		
15:30	10152.6	150.2		23.243	0.00	23.193	0.000	24.123	0.00	23.540	0.00	19.101		19.272		19.416	0.00	19.533	0.00		6.8							18.715		
15:45	10152.8	150.3		23.285		23.170		24.130		23.550		19.109		19.278		19.426		19.541		23.61	6.8							18.717		
16:00	10153.1	150.9		23.334	0.00	23.160	0.000	24.151	0.00	23.547	0.00	19.109		19.274		19.424	0.00	19.539	0.00		6.9							18.718		end of step 4
DPE Step Test EW-2																														
11/12/08 Static		DTW=23.82 ft	DTW=19.25 ft	23.068		22.296		23.590		23.321		19.402		19.820		19.534		19.821						19.95		19.70		18.781		Static level
11/12/08 9:00	10169.2		50.0	23.068		22.296		23.590		23.321		19.402		19.820		19.534		19.821						20.51		19.91		18.781		Start of test
9:30	10169.6		49.9	22.935		22.306		23.560		23.322		19.913	0.00	20.023	0.00	19.739	0.00	19.937	0.00						4.6		0.0	18.794		
10:00	10170.2		50.3	22.814		22.320		23.527		23.325		20.010		20.119		19.821		19.994						20.72		19.94		18.805		
10:30	10170.6		39.3	22.737		22.305		23.497		23.306		19.988	0.00	20.020	0.00	19.834	0.00	19.963	0.00						4.8		0.0	18.805		end of step 1
10:45	10170.8		100.0	22.716		22.323		23.498		23.310		20.081		20.177		19.873		20.037						20.72		19.96		18.807		
11:15	10171.4		100.0	22.674		22.322		23.486		23.308		20.267	0.00	20.274	0.00	19.965	0.00	20.097	0.00						9.9		0.5	18.811		
11:45	10171.9		100.8	22.635		22.377		23.493		23.324		20.308		20.279		20.000		20.104						20.90		19.98		18.802		
12:15	10172.4		98.6	22.612		22.375		23.513		23.332		20.312	0.00	20.261	0.00	20.010	0.00	20.092	0.00						9.4		0.0	18.796		end of step 2
12:30	10172.6		149.2	22.596		22.379		23.505		23.334		20.326		20.350		20.023		20.130						20.89		19.99		18.799		
13:00	10173.1		148.5	22.593		22.407		23.514		23.363		20.539	0.00	20.491	0.00	20.109	0.00	20.209	0.00						14.5		0.0	18.807		
13:30	10173.6		149.1	22.563		22.424		23.534		23.363		20.593		20.499		20.147		20.222						21.02		20.02		18.806		
14:00	10174.1		148.7	22.549		22.449		23.539		23.356		20.604	0.00	20.469	0.00	20.165	0.00	20.216	0.00						14.8		0.0	18.798		end of step 3
14:15	10174.4		199.0	22.556		22.455		23.553		23.363		20.620		20.570		20.180		20.260						20.96		20.05		18.811		
14:45	10174.9		197.4	22.556		22.455		23.553		23.363		20.620	0.00	20.570	0.00	20.180	0.00	20.260	0.00						19.7		0.0	18.811		
15:15	10175.4		197.0	22.543		22.509		23.570		23.375		20.894		20.693		20.304		20.331						21.12		20.07		18.831		
15:45	10175.9		192.2	22.536		22.498		23.578		23.381		20.943	0.00	20.727	0.00	20.323	0.00	20.329	0.00						20.9		0.0	18.840		end of step 4
DPE Constant Rate Test EW-1																														
11/12/08 16:30	10176.6	159	147.3	22.839		23.567		23.995		23.611		20.922		20.663		20.350		20.340		23.51		24.18		21.11		20.10		18.860		
17:00	10177.1	159.6	147.5	23.056	0.00	23.476	0.00	24.197	0.00	23.616	0.00	20.900	0.00	20.635	0.00	20.364	0.00	20.338	0.00		8.40		0.00		19.40		0.00	18.879		
18:00	*10178.1*	*159*	*147*	23.438		23.382		24.314		23.609		20.855		20.600		20.370		20.336										18.898		
19:00	10179.1	*159*	*147*	23.641		23.338		24.339		23.618		20.833		20.568		20.370		20.325										18.906		
20:00	*10180.1*	*159*	*147*	23.745		23.308		24.335		23.611		20.817		20.552		20.375		20.328										18.919		
21:00	10181.1	*159*	*147*	23.798		23.272		24.338		23.596		20.810		20.541		20.383		20.332										18.934		
22:00	*10182.1*	*159*	*147*	23.829		23.248		24.335		23.592		20.806		20.515		20.379		20.322										18.934		
23:00	10183.1	*159*	*147*	23.865		23.253		24.314		23.591		20.810		20.511		20.383		20.326										18.938		
11/13/08 0:00	*10184.1*	*159*	*147*	23.872		23.210		24.314		23.584		20.788		20.494		20.376		20.318										18.936		
1:00	10185.1	*159*	*147*	23.900		23.192		24.325		23.586		20.770		20.472		20.373		20.311										18.943		
2:00	*10186.1*	*159*	*147*	23.923		23.202		24.308		23.592		20.729		20.435		20.358		20.296										18.929		
3:00	10187.1	*159*	*147*	23.930		23.196		24.315		23.579		20.705		20.420		20.350		20.293										18.941		
4:00	*10188.1*	*159*	*147*	23.917		23.163		24.290		23.593		20.684		20.401		20.344		20.285										18.944		
5:00	10189.1	*159*	*147*	23.927		23.169		24.292		23.575		20.680		20.400		20.335		20.281										18.939		
6:00	*10190.1*	*159*	*147*	23.925		23.181		24.299		23.585		20.751		20.429		20.358		20.291										18.941		
7:00	10191.1	*159*	*147*	23.906		23.153		24.294		23.573		20.767		20.429		20.373		20.297										18.952		
8:00	*10192.1*	*159*	*147*	23.650		22.452		23.868		23.406		19.914		19.640		19.934		19.840										18.921		
11/13/08 13:00	10191.6	206.5	192.3	22.751		23.078		23.706		23.495		19.387		19.745		19.609		19.812		23.76		24.01		20.21		20.02		18.781		
11/13/08 14:00	10192.7	214.5	196	23.356	0.60	23.748	0.00	24.409	0.00	23.712	0.00	20.702	0.00	20.453	0.00	20.205	0.00	20.265	0.00		10.10		0.00		21.10		0.00	18.839		
11/17/08				22.403		23.097		23.656		23.517		19.116		19.658		19.434		19.715		23.51		24.18		21.11		20.10		18.829		Static level
11/17/08 8:00	10193.5	23.89	20.75	22.920		23.610		24.180		24.500		19.550		19.860		19.800		19.660		23.71		23.89		19.89		19.75				
9:00	10194.5			23.380		24.300		25.000		25.070		21.140		20.990		20.500		20.330		23.55		24.29		20.90		20.09				
10:00	10195.6	206.4	197.1		0.50		0.000		0.70		0.00		0.00		0.00		0.00		0.00		6.70		0.00		20.90		0.00			
11:00	10196.5	213.4	194.6		1.40		0.000		0.80		0.00		0.00		0.00		0.00		0.00		10.50		0.00		21.50		0.00			
12:00	10197.4	*210*	*194*	24.510		24.140		25.180		25.020		21.350		21.020		20.780		20.470		23.73		24.29		21.15		20.14				
13:00	10198.5	*210*	*194*	24.570		24.100		25.150		25.000		21.350		21.010		20.790		20.480		23.73		24.24		21.02		20.15				
14:00	10199.5	207.8	193.8	22.448	2.20	22.437	0.000	23.646	0.70	23.418	0.00	19.017	0.00	19.214		19.344	0.00	19.469	0.00		10.30		0.00		20.50		(a)	18.709		

TABLE 4

DRAWDOWN AND INDUCED VACUUM DATA
DUAL-PHASE EXTRACTION PILOT TEST
SHELL SERVICE STATION
1784 150th AVENUE
SAN LEANDRO, CALIFORNIA

Date	Hour Meter (Hrs)	Casing Vac (in WC) (EW-1)	Casing Vac (in WC) (EW-2)	P-1A		P-1B		P-2A		P-2B		P-3A		P-3B		P-4A		P-4B		MW-1A		MW-1B		MW-11		MW-2B		MW-12		Notes
				DTW (ft)	Vac (in WC)	DTW (ft)	Vac (in WC)	DTW (ft)	Vac (in WC)	DTW (ft)	Vac (in WC)	DTW (ft)	Vac (in WC)	DTW (ft)	Vac (in WC)	DTW (ft)	Vac (in WC)	DTW (ft)	Vac (in WC)	DTW (ft)	Vac (in WC)	DTW (ft)	Vac (in WC)	DTW (ft)	Vac (in WC)	DTW (ft)	Vac (in WC)	DTW (ft)	Vac (in WC)	
14:30	10200.0	213.7	196.6	22.440	3.00	22.470	0.000	23.646	1.30	23.418	0.00	19.015	0.00	19.213		19.340	0.00	19.465	0.00		10.90		0.00		22.40		(a)	18.713		
15:00	*10201.0*	*215*	*200*	22.444		22.478		23.663		23.420		19.017		19.216		19.340		19.467										18.713		
16:00	10202.0	*215*	*200*	22.429		22.452		23.656		23.438		19.022		19.220		19.344		19.469										18.725		
17:00	*10203.0*	*215*	*200*	22.427		22.465		23.655		23.439		19.028		19.222		19.350		19.482										18.735		
18:00	10204.0	*215*	*200*	22.423		22.439		23.637		23.430		19.040		19.239		19.359		19.487										18.750		
19:00	*10205.0*	*215*	*200*	22.414		22.432		23.647		23.411		19.040		19.237		19.361		19.487										18.754		
20:00	10206.0	*215*	*200*	22.409		22.438		23.630		23.422		19.038		19.237		19.357		19.485										18.754		
21:00	*10207.0*	*215*	*200*	22.398		22.439		23.630		23.401		19.042		19.242		19.361		19.489										18.756		
22:00	10208.0	*215*	*200*	22.384		22.435		23.612		23.425		19.050		19.248		19.369		19.496										18.767		
23:00	*10209.0*	*215*	*200*	22.385		22.432		23.618		23.428		19.052		19.250		19.372		19.498										18.769		
11/18/08 0:00	10210.0	*215*	*200*	22.370		22.403		23.607		23.410		19.056		19.255		19.376		19.504										18.775		
1:00	*10211.0*	*215*	*200*	22.373		22.400		23.602		23.403		19.054		19.257		19.373		19.500										18.771		
2:00	10212.0	*215*	*200*	22.385		22.420		23.609		23.395		19.044		19.252		19.363		19.495										18.762		
3:00	*10213.0*	*215*	*200*	22.385		22.420		23.607		23.405		19.040		19.244		19.361		19.491										18.756		
4:00	10214.0	*215*	*200*	22.380		22.405		23.608		23.409		19.044		19.250		19.365		19.495										18.763		
5:00	*10215.0*	*215*	*200*	22.375		22.419		23.608		23.417		19.046		19.250		19.365		19.497										18.763		
6:00	10216.0	*215*	*200*	22.377		22.403		23.598		23.408		19.044		19.248		19.363		19.495										18.763		
7:00	10216.6	221.2	202.9	22.358	2.70	22.396	0.000	23.602	0.90	23.395	0.00	19.056		19.259	0.00	19.376	0.00	19.506	0.00		10.10		0.00		20.40		0.00	18.779		
8:00	10217.5	219.6	201.8	22.350		22.392		23.580		23.402		19.058		19.263		19.378		19.509		23.73		24.25		21.04		(a)		18.783		
9:00	10218.5	218.3	201.4	22.348		22.375		23.591		23.414		19.056		19.267		19.376		19.505		24.70		23.96		22.08		20.19		18.777		
10:00	10219.5	220.6	201.8	22.354	3.10	22.384	0.000	23.573	1.30	23.397	0.00	19.056		19.272	0.00	19.378	0.00	19.509	0.00		9.70		0.00		19.80		0.00	18.775		
11:00	10220.5	219.3	199.1	22.357	3.30	22.380	0.000	23.587	1.20	23.406	0.00	19.050		19.256	0.00	19.369	0.00	19.503	0.00		10.00		0.00		20.20		0.00	18.771		
12:00	10221.5	218.8	201.4	22.373		22.406		23.594		23.411		19.030		19.243		19.351		19.487		23.70		24.23		(a)		(a)		18.744		
13:00	10222.5	219.9	202.7	22.380		22.421		23.608		23.406		19.022		19.244		19.343		19.482		24.29		24.26		20.84		20.15		18.736		
14:00	10223.5	221.5	204.1	22.392	3.30	22.445	0.000	23.626	1.20	23.428	0.00	19.019		19.228	0.00	19.340	0.00	19.478	0.00		10.00		0.00		19.80		0.00	18.735		
14:30	10224.0	221.9	204.9	22.399	3.30	22.451	0.000	23.629	1.00	23.431	0.00	19.021		19.230	0.00	19.340	0.00	19.474	0.00		10.00		0.00		19.80		0.00	18.737		
15:00	*10225.0*	*223*	*205*	24.365		23.404		24.610		23.705		20.672		20.298		20.407		20.304										19.041		
16:00	10226.0	*223*	*205*	24.349		23.408		24.615		23.716		20.672		20.302		20.418		20.308										19.047		
17:00	*10227.0*	*223*	*205*	24.314		23.437		24.605		23.736		20.698		20.331		20.436		20.325										19.063		
18:00	10228.0	*223*	*205*	24.311		23.398		24.610		23.729		20.720		20.324		20.447		20.327										19.070		
19:00	*10229.0*	*223*	*205*	24.308		23.390		24.608		23.716		20.716		20.320		20.447		20.327										19.070		
20:00	10230.0	*223*	*205*	24.297		23.406		24.606		23.724		20.725		20.337		20.457		20.338										19.084		
21:00	*10231.0*	*223*	*205*	24.281		23.380		24.590		23.718		20.737		20.339		20.465		20.342										19.093		
22:00	10232.0	*223*	*205*	24.268		23.372		24.577		23.699		20.731		20.344		20.467		20.344										19.091		
23:00	*10233.0*	*223*	*205*	24.272		23.387		24.575		23.698		20.718		20.330		20.465		20.338										19.094		
11/19/08 0:00	10234.0	*223*	*205*	24.261		23.338		24.563		23.693		20.720		20.333		20.465		20.338										19.095		
1:00	*10235.0*	*223*	*205*	24.264		23.350		24.560		23.701		20.710		20.330		20.457		20.336										19.086		
2:00	10236.0	*223*	*205*	24.257		23.364		24.563		23.706		20.720		20.331		20.467		20.342										19.096		
3:00	*10237.0*	*223*	*205*	24.265		23.353		24.568		23.696		20.712		20.326		20.464		20.336										19.090		
4:00	10238.0	*223*	*205*	24.245		23.336		24.560		23.707		20.712		20.330		20.468		20.340										19.096		
5:00	*10239.0*	*223*	*205*	24.253		23.359		24.555		23.685		20.710		20.328		20.468		20.338										19.097		
6:00	10240.0	*223*	*205*	24.254		23.339		24.563		23.702		20.706		20.321		20.462		20.334										19.088		
6:30	10240	224.7	206.2	24.256	2.60	23.322	0.000	24.590		23.710	0.00	20.712	0.00	20.328	0.00	20.470	0.00	20.342	0.00	23.76	9.50	24.28	0.00	21.21	18.80	20.24	0.00	19.101		
7:00	10240.7	224.7	206.2	24.253	2.70	23.332	0.000	24.560		23.714	0.00	20.712	0.00	20.318	0.00	20.474	0.00	20.340	0.00		9.60		0.00		18.90		0.00	19.119		
7:30	10241.1			23.994		23.279		24.514		23.696		20.716		20.304		20.486		20.344										19.111		
11/5/08 Background Water Level Fluctuation				**0.125**		**0.149**		**0.131**		**0.148**		**0.038**		**0.054**		**0.050**		**0.043**										**0.073**		
DPE Step Test of EW-1																														
Distance from EW-1 (ft)				**10.0**		**9.0**		**19.0**		**20.0**		**65**				**60.0**		**65.0**		**24.0**								**125**		
Max Depth to Water (ft)				**23.334**		**23.193**		**24.151**		**23.550**		**19.109**		**19.278**		**19.426**		**19.541**		**23.61**								**18.718**		
Max Drawdown (ft)				**0.874**		**0.423**		**0.411**		0.110		**0.079**		0.068		**0.096**		**0.081**		**0.150**								0.028		
DPE Step Test of EW-2																														
Distance from EW-2 (ft)				**48.5**		**51.2**		**75.8**		**74.0**		**9.6**		**8.8**		**21.9**		**19.3**						**11.1**		**18**		**75**		
Max Depth to Water (ft)				**23.068**		**22.509**		**23.590**		**23.381**		**20.943**		**20.727**		**20.323**		**20.331**						**21.12**		**20.07**		**18.840**		
Max Drawdown (ft)				0.000		0.213		0.000		0.060		**1.541**		**0.907**		**0.789**		**0.510**						**1.170**		**0.370**		0.059		
DPE Constant Rate Test of EW-1 and EW-2																														
Distance from EW-1 (ft)				**10.0**		**9.0**		**19.0**		**20.0**		**68.0**		**69.0**		**60.0**		**65.0**		**24.0**		**23.0**		**55.0**		**63.0**		**125**		
Distance from EW-2 (ft)				**48.5**		**51.2**		**75.8**		**74.0**		**9.6**		**8.8**		**21.9**		**19.3**		**30**		**35**		**11.1**		**18**		**75**		
Max Depth to Water (ft)				**24.570**		**24.300**		**25.180**		**25.070**		**21.350**		**21.020**		**20.790**		**20.480**		**24.70**		24.29		**22.08**		20.24		**19.119**		
Max Drawdown (ft)				**2.167**		**1.203**		**1.524**		**1.553**		**2.234**		**1.362**		**1.356**		**0.765**		**1.19**		0.11		**0.97**		0.14		**0.290**		

Abbreviations/Notes:

DTW = depth to water (feet below top of casing)

"Blank" cell = No measurement

Extraction well drawdown data measured in the field.

DPE = dual phase extraction

ft = feet

in WC = inches of water column

(a) = PCS vacuum truck blocking wells, no measurements collected

TABLE 5

VAPOR SAMPLE ANALYTICAL RESULTS
DUAL-PHASE EXTRACTION PILOT TEST
SHELL SERVICE STATION
1784 150th AVENUE
SAN LEANDRO, CALIFORNIA

Sample ID	Sampling Date	Sampling Time	TPHg	Benzene	Toluene	Ethylbenzene	Xylenes	MTBE	Methane (%v)
			ppmv						
EW-1M	11/11/08	16:20	----	----	----	----	----	----	2.15
EW-1	11/11/08	16:30	1,800	0.58	0.70	1.4	2.3	<0.90	----
INF-2	11/11/08	16:40	590	0.18	0.25	0.46	1.09	<0.30	----
EW-1	11/12/08	7:30	1,400	2.6	0.73	2.7	5.4	<0.60	----
EW-2	11/12/08	10:20	1,600	1.0	1.1	3.4	4.99	<0.90	----
EW-2	11/12/08	15:40	1,400	3.2	1.3	7.9	16.7	<0.80	----
EW-2	11/12/08	15:45	----	----	----	----	----	----	<0.50
INF-1	11/12/08	16:20	1,600	2.8	0.9	4.7	9.9	<0.80	----
EW-1	11/12/08	16:25	61	0.070	0.012	0.082	0.163	<0.032	----
EW-2	11/12/08	16:40	1,100	2.5	1.1	7.1	15.5	<0.60	----
EW-2	11/13/08	14:25	690	1.4	1.3	4.2	12.4	<0.40	----
EW-1	11/13/08	14:30	1,300	3.7	0.69	4.0	9.0	<0.60	----
INF-1	11/13/08	14:35	990	2.5	0.97	3.6	9.2	<0.50	----
INF-1	11/17/08	9:25	1,100	1.7	0.85	2.0	5.63	<0.60	----
INF-2	11/17/08	9:30	1,200	1.8	0.79	2.2	5.96	<0.60	----
EW-1	11/17/08	9:35	1,200	2.7	0.87	2.1	5.23	<0.60	----
EW-2	11/17/08	9:40	750	0.84	1.0	2.4	7.3	<0.60	----
EW-1	11/17/08	14:30	1,200	3.1	0.74	2.9	4.02	<0.60	----
EW-2	11/17/08	14:35	590	0.96	0.99	3.4	11.7	<0.30	----
INF-2	11/17/08	14:40	1,200	2.3	1.0	3.1	9.0	<0.60	----
EW-1	11/18/08	7:30	1,000	3.5	1.1	3.3	9.23	<0.60	----
EW-2	11/18/08	7:35	430	1.3	1.5	3.4	12.4	0.25	----
INF-2	11/18/08	7:40	920	2.9	1.4	3.9	12.7	<0.50	----
EW-1	11/18/08	14:40	890	3.0	1.0	2.5	6.91	<0.50	----
EW-2	11/18/08	14:45	370	1.1	1.1	2.5	8.6	0.21	----

TABLE 5

VAPOR SAMPLE ANALYTICAL RESULTS
DUAL-PHASE EXTRACTION PILOT TEST
SHELL SERVICE STATION
1784 150th AVENUE
SAN LEANDRO, CALIFORNIA

Sample ID	*Sampling Date*	*Sampling Time*	*TPHg*	*Benzene*	*Toluene*	*Ethylbenzene*	*Xylenes*	*MTBE*	*Methane (%v)*
			←			*ppmv*			→
INF-2	11/18/08	14:50	810	3.3	0.92	4.1	7.2	0.31	----
EW-1	11/19/08	6:55	890	3.7	1.2	3.2	9.1	<0.50	----
EW-2	11/19/08	7:00	340	1.2	1.2	2.6	9.4	0.21	----
INF-2	11/19/08	7:05	770	2.7	1.1	2.5	7.6	<0.40	----

Abbreviations/Notes:
TPHg analyzed by method TO-3M
BTEX analyzed by method TO-15
MTBE analyzed by method TO-15
ppmv = Parts per million by volume
TPHg = C2-C10 Hydrocarbons as hexane
INF-1 = The undiluted vapor stream from the well field containing entrained water
INF-2 = Post-knockout vapor stream that may have been diluted as necessary
---- = Sample not analyzed for the constituent

TABLE 6

DUAL-PHASE EXTRACTION PERFORMANCE DATA
DUAL-PHASE EXTRACTION PILOT TEST
SHELL SERVICE STATION
1784 150th AVENUE
SAN LEANDRO, CALIFORNIA

Date	Hours on (hours)	Hour Meter (hours)	R Pump Vacuum ("Hg)	Dilution Flow (cfm)	Influent 1 TPHg Conc. (ppmV)	nfluent Vacuum ("H2O)	Influent 1 Flow Rate (acfm)	Influent 1 Temp. (°F)	Influent 1 Flow Rate (scfm)	Influent 2 TPHg Conc. (ppmv)	Influent 2 Pressure ("H2O)	Influent 2 Temp. (°F)	Influent 2 Flow Rate (scfm)	EW-1 TPHg Conc. (ppmV)	EW-1 Vacuum ("H2O)	EW-1 Temp. (°F)	EW-1 Flow Rate (scfm)	EW-2 TPHg Conc. (ppmV)	EW-2 Vacuum ("H2O)	EW-2 Temp. (°F)	EW-2 Flow Rate (scfm)	Effluent Temp. (°F)	TPHg Conc. (ppmv)	TPHg Removal Rate (lbs/day)	TPHg Cumulative Mass Removed (lbs)	Benzene Conc. (ppmv)	Benzene Removal Rate (lbs/day)	Benzene Cumulative Mass Removed (lbs)
Step Test EW-1																												
11/11/08 9:00	0.0	10146.1	15.5	over		49.5	31.9	67.6	27.6		3.3	129.5	101		49.5	67.6	27.6					1,669		15.9	0.000		0.005	0.000
9:30	0.5	10146.6	15.5	over		50.0	25.4	72.4	21.8		3.4	133.9	106		50.0	72.4	21.8					1,656		12.6	0.262		0.004	0.000
10:00	1.0	10147.1	15.5	over		49.0	22.8	73.9	19.5		3.5	134.0	106		49.0	73.9	19.5					1,654		11.3	0.497		0.003	0.000
10:30	1.5	10147.6	15.5	over		49.7	27.8	70.9	23.9		3.4	136.8	103		49.7	70.9	23.9					1,634		13.8	0.784		0.004	0.000
11:00	2.0	10148.1	16.5	over		75.2	30.2	71.5	24.1		3.0	134.0	93		75.2	71.5	24.1					1,671		13.9	1.07		0.004	0.000
11:30	2.5	10148.6	16.5	over		76.0	29.3	71.7	23.3		2.7	137.1	94		76.0	71.7	23.3					1,506		13.5	1.35		0.004	0.000
12:00	3.0	10149.1	16.5	over		76.3	32.5	73.8	25.7		2.7	138.4	95		76.3	73.8	25.7					1,470		14.9	1.66		0.004	0.000
12:30	3.5	10149.6	16.5	over		75.2	22.8	74.4	18.1		2.6	139.2	94		75.2	74.4	18.1					1,463		10.4	1.88		0.003	0.001
13:00	4.0	10150.1	18.5	82.5		100.0	30.7	75.2	22.5		2.1	134.4	77		100.0	75.2	22.5					1,537		13.0	2.15		0.004	0.001
13:30	4.5	10150.6	18.5	79.0		100.0	26.3	74.1	19.3		2.0	133.9	74		100.0	74.1	19.3					1,535		11.2	2.38		0.003	0.001
14:00	5.0	10151.1	18.5	83.5		100.0	28.4	72.6	20.9		2.1	133.1	74		100.0	72.6	20.9					1,541		12.1	2.64		0.004	0.001
14:30	5.5	10151.6	18.5	82.5		100.4	31.6	73.8	23.2		2.0	133.0	74		100.4	73.8	23.2					1,545		13.4	2.92		0.004	0.001
15:15	6.2	10152.4	22.5	20.7		147.5	45.7	70.7	28.5		1.1	119.1	44		147.5	70.7	28.5					1,671		16.5	3.43		0.005	0.001
15:30	6.5	10152.7	19.0	55.5		150.2	43.7	68.9	27.1		1.8	126.9	73		150.2	68.9	27.1					1,651		15.7	3.59		0.005	0.001
16:30	7.5	10153.1	19.0	53.0	1,800	150.8	44.5	70.6	27.4	590	1.8	128.6	72	1,800	150.8	70.6	27.4					1,627	1,800	15.8	4.25	0.58	0.005	0.001
11/12/08 7:15	22.3	10168.3	19.5	59.1		152.5	46.8	65.4	29.0		1.8	127.7	69		152.5	65.4	29.0					1,588		14.9	13.4		0.013	0.009
7:45	22.7	10168.9	19.5	58.7	1,400	148.8	54.2	71.2	33.6		2.1	127.6	64	1,400	148.8	71.2	33.6					1,583	1,400	15.1	13.7	2.6	0.025	0.010
Step Test EW-2																												
11/12/08 9:00	22.7	10169.1	28.0	over		50.0	23.1	64.6	20.1		0.0	96.5	17						50.0	64.6	20.1	1,448		10.3	13.7		0.006	0.010
9:30	23.3	10169.6	27.5	over		50.0	23.7	65.8	20.6		0.1	98.0	17						50.0	65.8	20.6	1,461		10.6	13.9		0.006	0.010
10:00	23.7	10170.1	28.0	over		50.3	23.2	75.5	19.7		0.0	104.6	16						50.3	75.5	19.7	1,619		10.1	14.1		0.006	0.010
10:30	24.2	10170.6	28.5	over	1,600	39.3	13.4	68.3	11.9		0.0	102.0	17					1,600	39.3	68.3	11.9	1,735	1,600	6.12	14.3	1.0	0.003	0.010
11:00	24.8	10170.9	23.0	28.1		100.0	31.8	68.5	23.6		1.0	119.6	48						100.0	68.5	23.6	1,641		12.1	14.5		0.007	0.010
11:15	25.0	10171.4	23.0	35.5		100.0	31.8	71.7	23.5		0.8	123.3	47						100.0	71.7	23.5	1,627		12.0	14.6		0.007	0.011
11:45	25.5	10171.5	23.0	33.9		100.8	47.2	66.9	35.0		0.9	125.3	46						100.8	66.9	35.0	1,622		18.0	15.0		0.010	0.011
12:15	26.0	10172.4	23.0	38.8		100.8	36.3	69.9	26.8		0.9	128.5	47						100.8	69.9	26.8	1,615		13.8	15.3		0.008	0.011
12:30	26.3	10172.6	19.0	69.4		145.2	42.1	68.5	26.6		1.9	132.7	72						145.2	68.5	26.6	1,550		13.7	15.4		0.008	0.011
13:00	26.7	10173.1	19.0	73.1		148.5	43.6	68.8	27.2		1.8	132.9	72						148.5	68.8	27.2	1,516		14.0	15.7		0.008	0.011
13:30	27.2	10173.6	19.0	66.8		148.9	45.0	70.2	28.0		1.8	131.4	72						148.9	70.2	28.0	1,502		12.6	16.0		0.026	0.012
14:00	27.7	10174.1	19.0	68.4		148.5	40.2	67.3	25.2		2.0	132.6	71						148.5	67.3	25.2	1,496		11.3	16.2		0.023	0.012
14:15	28.0	10174.4	17.5	73.5		199.0	47.6	67.7	24.0		2.1	134.2	84						199.0	67.7	24.0	1,476		10.8	16.3		0.022	0.012
14:45	28.5	10174.9	17.5	74.7		197.4	46.5	67.5	23.6		2.2	133.7	87						197.4	67.5	23.6	1,455		10.6	16.6		0.022	0.013
15:15	29.0	10175.4	17.5	75.1		197.0	46.4	65.8	23.7		2.4	133.4	92						197.0	65.8	23.7	1,450		10.6	16.8		0.022	0.013
15:45	29.5	10175.9	17.5	67.3	1,400	192.0	57.2	66.0	29.9		2.5	132.2	92					1,400	192.0	66.0	29.9	1,483	1,400	13.4	17.1	3.2	0.028	0.014
Constant Rate Test EW-1 & EW-2																												
11/17/08 8:00	29.5	10193.5	19.0	0.0		241.5	123.0	65.3	49.5		2.1	117.4	85		221.2	62.2	27.8		209.1	61.1	18.8	1,492		32.8	17.1		0.045	0.014
9:00	30.5	10194.5	18.0	0.0	1,100	231.1	121.5	71.4	51.4	1,200	2.3	135.5	89	1,200	209.4	68.4	30.9	750	196.2	66.5	19.6	1,514	1,200	34.1	18.5	1.8	0.046	0.016
10:00	31.5	10195.5	18.0	0.0		226.1	119.0	71.6	51.7		2.3	142.1	89		206.4	69.3	31.4		197.1	67.3	19.6	1,469		34.1	19.9		0.046	0.018
11:00	32.5	10196.5	18.0	0.0		235.0	116.5	72.2	48.1		2.2	141.0	88		213.4	69.9	32.7		194.6	67.8	24.3	1,469		33.8	21.3		0.046	0.020
12:00	33.5	10197.5	18.0	0.0		233.7	115.5	74.1	47.8		2.1	142.3	88		214.4	69.4	30.0		196.7	68.3	28.0	1,466		33.7	22.7		0.046	0.022
13:00	34.5	10198.5	18.0	0.0		235.3	118.0	73.9	48.5		2.0	144.5	92		214.8	70.9	35.2		199.2	70.3	23.6	1,465		35.3	24.2		0.061	0.024
14:00	35.5	10199.5	18.0	0.0		235.5	114.0	72.4	46.9		2.3	141.3	101		207.8	69.4	33.5		193.8	69.6	21.9	1,435		38.8	25.8		0.068	0.027
14:30	36.0	10200.0	18.0	0.0		234.7	109.0	71.5	45.1	1,200	2.2	143.4	99	1,200	213.7	72.5	29.5	590	196.6	72.7	21.5	1,654	1,200	38.0	26.6	2.3	0.066	0.028
11/18/08 7:00	52.5	10216.5	18.5	0.0		240.8	114.0	60.0	46.5		2.3	128.1	109		221.2	58.2	29.5		202.9	56.1	21.3	1,602		32.3	48.8		0.092	0.092
8:00	53.5	10217.5	18.5	0.0		238.1	120.5	65.6	49.4	920	2.4	132.1	102	1,000	217.2	63.9	30.7	430	201.8	58.5	21.3	1,593	920	30.2	50.1	2.9	0.086	0.095
9:00	54.5	10218.5	18.5	0.0		237.5	118.5	67.7	48.6		2.2	135.0	109		218.3	65.5	29.3		201.4	65.2	22.4	1,573		32.2	51.4		0.092	0.099
10:00	55.5	10219.5	19.0	0.0		237.8	125.5	74.8	50.7		2.0	140.4	110		220.6	70.2	30.5		201.8	64.7	32.7	1,555		32.4	52.7		0.093	0.103
11:00	56.5	10220.5	19.0	0.0		239.1	115.5	71.9	46.5		2.0	141.0	100		219.3	70.3	30.0		199.1	66.8	22.8	1,553		26.0	53.8		0.096	0.107
12:00	57.5	10221.5	18.5	0.0		226.7	115.0	71.1	49.8		2.0	138.1	108		218.8	67.8	31.5		201.4	67.0	22.5	1,553		28.2	55.0		0.104	0.111
13:00	58.5	10222.5	18.5	0.0		239.2	107.0	69.2	43.3		2.0	138.6	106		220.5	67.4	27.9		203.1	65.3	21.6	1,547		27.4	56.1		0.101	0.116
14:00	59.5	10223.5	19.0	0.0		239.6	109.5	69.3	44.2		2.0	133.3	100		221.5	67.8	28.5		204.1	66.3	21.7	1,555		25.9	57.2		0.096	0.120
14:30	60.0	10224.0	19.0	0.0		241.0	109.0	69.4	43.6	810	2.0	133.3	101	890	221.5	67.8	28.3	370	204.1	66.5	21.6	1,554	810	26.3	57.8	3.3	0.097	0.122
11/19/08 6:30	76.0	10240.0	19.0	0.0		242.0	118.0	66.7	47.2	770	2.2	128.0	110	890	224.7	58.9	25.6	340	206.2	59.2	22.9	1,582	770	27.2	75.9	2.7	0.087	0.179
Totals:																									**75.9**			**0.179**

TABLE 6

DUAL-PHASE EXTRACTION PERFORMANCE DATA
DUAL-PHASE EXTRACTION PILOT TEST
SHELL SERVICE STATION
1784 150th AVENUE
SAN LEANDRO, CALIFORNIA

Notes and Abbreviations:

Influent 1 = The undiluted vapor stream from the well field containing entrained water
Influent 2 = Post-knockout vapor stream that may have been diluted as necessary
Over Range = reading too high to be read by measuring device
scfm = acfm((406.8-discharge pressure in"H2O)/406.9)((528/(discharge temperature in degF + 460))
degF = 1.8(degC)+32
Hydrocarbon Removal/Emission Rate = Rate based on Bay Area Air Quality Management District's Manual of Procedures for S
TPHg Removal Rate = lab concentration (ppmv) x system flowrate (scfm) x (1lb-mole/386 ft³) x molecular weight (86 lb/lb-
Benzene Removal Rate = same equation as above using a molecular weight of 78.11 lb/lb-mole for Benzene
"Blank" cell = No measurement
TPHg analyzed by Method TO-3M
BTEX and MTBE analyzed by method TO-15

DPE = two-phase extraction
"Hg = inches of mercury
cfm = cubic feet per minute
Conc. = concentraion
"H2O = inches of water column
acfm = actual cubic feet per minute
scfm = standard cubic feet per minute
F = degrees Fahrenheit
ppmv = parts per million by volume
lbs = pounds
TPHg = Total Petroleum Hydrocarbons as Gasoline
MTBE = Methyl tertiary butyl ether

PILOT TEST VACUUM RADIUS OF INFLUENCE ESTIMATES
DUAL-PHASE EXTRACTION PILOT TEST
SHELL SERVICE STATION
1784 150th AVENUE
SAN LEANDRO, CALIFORNIA

Extraction Well	*Monitoring Wells*	*Rw (ft)*	*r (ft)*	*Pw ("H_2O)*	*Pw(abs) (psi)*	*Pr ("H_2O)*	*Pr (abs) (psi)*	*Ri* [1] *(ft)*
EX-1	MW-1A	0.166	24	150.9	9.2	6.90	14.4	32.2
EX-2	MW-11	0.166	11.1	192.2	8	20.9	13.9	21.8
EX-2	MW-2B	0.166	19	100.00	11	0.5	14.7	19.5

Abbreviations & Notes:

Rw = Radius of extraction well (feet)

r = Distance of monitoring well from extraction well (feet)

Pw = Gauge pressure (vacuum) measured at extraction well (measured in inches of mercury and converted to inches of water column). Extraction

Pw(abs) = Absolute pressure at extraction well (calculated in pounds per square inc

Pr = Gauge pressure (vacuum) measured at respective observation well (measured in inches of water column). The values used were the maximum observed vacuums measured at that respective well during

Pr (abs) = Absolute pressure at observation well (calculated in pounds per square i

Patm = Standard atmospheric pressure (14.696 psia or 406.8 inches of water colu

Ri = Calculated radius of influence (feet)

[1] Based on the steady-state radial pressure distribution equation from "A Practical Approach to the Design, Operation, and Monitoring of In Situ Soil Venting Systems", P.C. Johnson, C.C. Stanley, M.W. Kemblowski, D.L. Byers, and J.D. Cothart, Groundwater Monitor and Review, Spring 1990:

Ri = [Rw] / [r/Rw]^[(1-(Patm/Pw(abs))^2)/(((Pr/Pw(abs))^2)-1)]

ft = feet

"H_2O = inches of water

psi = pounds per square inch

APPENDIX A

REGULATORY CORRESPONDENCE

ALAMEDA COUNTY
HEALTH CARE SERVICES
AGENCY
DAVID J. KEARS, Agency Director

JAN 2 2 2008
RECEIVED

ENVIRONMENTAL HEALTH SERVICES
ENVIRONMENTAL PROTECTION
1131 Harbor Bay Parkway, Suite 250
Alameda, CA 94502-6577
(510) 567-6700
FAX (510) 337-9335

January 18, 2008

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

Bhushan K. Bansal
Bansal, Inc.
1784 150th Avenue
San Leandro, CA 94578-1826

Subject: Fuel Leak Case No. RO0000367 and Geotracker Global ID T0600101230, Shell#13-6017, 1784 150th Avenue, San Leandro, CA 94578

Dear Mr. Brown and Mr. Bansal:

Alameda County Environmental Health (ACEH) staff has reviewed the fuel leak case file for the above-referenced site including the documents entitled, "Supplemental Subsurface Investigation Report," dated December 17, 2007 and "Groundwater Monitoring and Remediation Report – Third Quarter 2007," dated November 9, 2007. Both reports were prepared on Shell's behalf by Conestoga-Rovers & Associates.

The Supplemental Subsurface Investigation Report presents results from five cone penetration test (CPT) borings, one direct push soil boring, and five soil vapor probes. Total petroleum hydrocarbons as gasoline (TPHg) were detected in soil vapor from three of the five soil vapor probes at concentrations that exceed Environmental Screening Levels (San Francisco Bay Regional Water Quality Control Board November 2007) for residential land use. TPHg, benzene, and MTBE were detected in grab groundwater samples collected from the CPT borings at concentrations up to 3,600, 41, and 1,100 micrograms per liter (µg/L), respectively. The Supplemental Subsurface Investigation Report recommends destruction and replacement of wells MW-1 and MW-2, installation of a shallow zone monitoring well near boring B-1, and re-sampling vapor probes SVP-1 through SVP-5. As discussed in the technical comments below, we generally concur with these recommendations.

Interim groundwater extraction was conducted periodically at the site from July 2002 to August 2007. Periodic groundwater extraction was discontinued at the site because periodic extraction was not effective in reducing the concentrations of dissolved hydrocarbons and oxygenates. ACEH concurred with discontinuation of periodic groundwater extraction on August 14, 2007. During the most recently reported groundwater sampling event on September 11, 2007, TPHg, benzene, and MTBE were detected in groundwater at concentrations up to 45,000, 8,100, and 5,700 µg/L, respectively. Remediation is required for this site in order to address the elevated concentrations of fuel hydrocarbons and oxygenates that persist in soil and groundwater at the site. We request that you submit a Pilot Test Work Plan or Draft Corrective Action Plan **by April 25, 2008.**

We request that you address the following technical comments, perform the proposed work, and send us the reports described below.

TECHNICAL COMMENTS

1. **Destruction and Replacement of Wells MW-1 and MW-2.** We concur with the proposed destruction and replacement of long screen wells MW-1 and MW-2. Please present plans for these activities in the Work Plan for Well Decommissioning and Well Installation requested below.

2. **Installation of Additional Monitoring Well near Boring B-1.** We have no objection to installation of an additional monitoring well to monitor shallow groundwater near boring B-1. Please present plans for well installation in the Work Plan for Well Decommissioning and Well Installation requested below.

3. **Re-Sampling of Soil Vapor Probes.** Based on the elevated concentrations of TPHg detected in soil vapor samples from probes SVP-1 through SVP-5, additional sampling of soil vapor probes SVP-1 through SVP-5 is required. Please present the results from re-sampling of the probes **no later than March 28, 2008.**

4. **TPHg Concentration in Soil Vapor from SVP-5.** We do not agree with the conclusion in the Executive Summary of the Supplemental Subsurface Investigation Report that the UST system at the site is not the likely source of the elevated concentration of TPHg detected in soil vapor from probe SVP-5. The Supplemental Subsurface Investigation Report postulates that an unknown source of petroleum contamination exists in the vadose zone in the area of MW-12. In reviewing historical data for the site, we find little indication of a separate source of contamination in this area. Five soil samples were collected on May 26, 2006 from soil boring SB-24, which is the soil boring associated with well MW-12. The highest concentration of TPHg (848 mg/kg) was detected in the soil sample collected from the capillary fringe at a depth of 24 feet bgs. Soil samples collected at shallower depths contained less than 2.39 mg/kg of TPHg. These results indicate that soil contamination in this off-site area is more likely the result of groundwater migration from the site. Elevated concentrations of BTEX were detected in soil vapor samples previously collected from locations SVS-7 through SVS-9 in the off-site area west of 150th Avenue. Soil vapor samples were collected from four depths in SVS-9. The highest concentrations of benzene were detected in the two lowermost soil vapor samples. These results are also consistent with contamination that has migrated with groundwater rather than a separate vadose zone source.

5. **Site Remediation.** Interim groundwater extraction has not reduced the concentrations of dissolved hydrocarbons at the site. Based on both historic and recent site assessment activities, a significant source of fuel hydrocarbons and oxygenates remains at the site. Therefore, we request that you submit a Pilot Test Work Plan or Draft Corrective Action Plan **by April 25, 2008** to initiate site cleanup.

TECHNICAL REPORT REQUEST

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

- **March 28, 2008** – Work Plan for Well Decommissioning and Well Installation and Sampling Results from Soil Vapor Probes SVP-1 through SVP-5
- **April 25, 2008** – Pilot Test Work Plan or Draft Corrective Action Plan
- **45 days after end of each quarter** – Quarterly Monitoring Reports

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.

ELECTRONIC SUBMITTAL OF REPORTS

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. Instructions for submission of electronic documents to the Alameda County Environmental Cleanup Oversight Program ftp site are provided on the attached "Electronic Report Upload (ftp) Instructions." Please do not submit reports as attachments to electronic mail.

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. Submission of reports to the Geotracker website does not fulfill the requirement to submit documents to the Alameda County ftp site. In September 2004, the SWRCB adopted regulations that require electronic submittal of information for 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 monitor wells, and other data to the Geotracker database over the Internet. Beginning July 1, 2005, electronic submittal of a complete copy of all necessary reports was required in Geotracker (in PDF format). Please visit the SWRCB website for more information on these requirements (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.

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,

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

Enclosure: ACEH Electronic Report Upload (ftp) Instructions

cc: Peter Schaefer, Conestoga-Rovers & Associates, 5900 Hollis Street, Suite A
Emeryville, CA 94608

Ana Friel, Conestoga-Rovers & Associates, 19449 Riverside Drive, Suite 230
Sonoma, CA 95476

Donna Drogos, ACEH
Jerry Wickham, ACEH
File

ALAMEDA COUNTY
HEALTH CARE SERVICES
AGENCY
DAVID J. KEARS, Agency Director

ENVIRONMENTAL HEALTH SERVICES
ENVIRONMENTAL PROTECTION
1131 Harbor Bay Parkway, Suite 250
Alameda, CA 94502-6577
(510) 567-6700
FAX (510) 337-9335

June 27, 2008

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

Bhushan K. Bansal
Bansal, Inc.
1784 150th Avenue
San Leandro, CA 94578-1826

Subject: Fuel Leak Case No. RO0000367 and Geotracker Global ID T0600101230, Shell#13-6017, 1784 150th Avenue, San Leandro, CA 94578

Dear Mr. Brown and Mr. Bansal:

Alameda County Environmental Health (ACEH) staff has reviewed the fuel leak case file for the above-referenced site including the documents entitled, "*Well Destruction and Installation Work Plan*," dated March 17, 2008, "*Soil Vapor Probe Sampling Report*," dated March 25, 2008, and "*Pilot Test Work Plan*," dated April 23, 2008. All three documents were prepared on Shell's behalf by Conestoga-Rovers & Associates.

The "*Well Destruction and Installation Work Plan*," proposes the destruction of wells MW-1 and MW-2, installing two replacement wells near MW-1, and installing a groundwater monitoring well near boring B-1. The "*Soil Vapor Probe Sampling Report*," presents the results from sampling of the five soil vapor probes at the site. The "*Pilot Test Work Plan*," proposes the installation of additional groundwater extraction wells and piezometers to conduct pilot tests for groundwater extraction and multi-phase extraction. The proposed scope of work in the "*Well Destruction and Installation Work Plan*," and "*Pilot Test Work Plan*," may be implemented provided that the technical comments below are addressed and incorporated during the proposed field investigation. Submittal of a revised Work Plan or Work Plan Addendum is not required unless an alternate scope of work outside that described in the Work Plan and technical comments below is proposed.

We request that you address the following technical comments, perform the proposed work, and send us the reports described below.

TECHNICAL COMMENTS

1. **Replacement for Well MW-2.** The "*Well Destruction and Installation Work Plan*," does not propose well replacement following destruction of well MW-2 since nearby well MW-11 is screened within the shallow water-bearing zone. We concur that a replacement well within the shallow water-bearing zone is not necessary based on the proximity of well MW-11. However, a well is needed to monitor the water-bearing zone between approximately 45 and

50 feet bgs that was observed and sampled in boring CPT-2. Therefore, we request that you install a replacement well within this lower water-bearing interval following destruction of well MW-2. Please present the results in the Pilot Test report requested below.

2. **Sampling Soil Vapor Probes.** The "*Soil Vapor Probe Sampling Report*," recommends an additional soil vapor sampling event. Based on the elevated concentrations of TPHg detected in soil vapor samples from probes SVP-1 through SVP-5, we concur with the proposal to conduct an additional sampling event for soil vapor probes SVP-1 through SVP-5. Please present the results from soil vapor sampling of the probes **no later than October 27, 2008.**

3. **Pilot Testing.** The proposed pilot test scope of work is generally acceptable. Please present results from the pilot testing in the Pilot Test Report requested below.

4. **Electronic Submittal of Documents.** We note that the "*Pilot Test Work Plan*," dated April 23, 2008 was submitted in hard copy to ACEH and in electronic format to the State Water Resource Control Board's Geotracker website but was not submitted in electronic format to the ACEH ftp site. ACEH maintains our case files online in electronic format and requires electronic submittal of documents for the case files. Therefore, please submit an electronic copy of the "*Pilot Test Work Plan*," dated April 23, 2008 to the ACEH ftp site according to the instructions for Electronic Submittal of Reports provided below.

TECHNICAL REPORT REQUEST

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

- **October 27, 2008** – Sampling Results from Soil Vapor Probes SVP-1 through SVP-5
- **December 12, 2008** – Pilot Test Report
- **45 days after end of each quarter** – Quarterly Monitoring Reports

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.

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 PDF format). Please visit the SWRCB website for more information on these requirements (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.

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,

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

Enclosure: ACEH Electronic Report Upload (ftp) Instructions

cc: Peter Schaefer, Conestoga-Rovers & Associates, 5900 Hollis Street, Suite A
Emeryville, CA 94608

Ana Friel, Conestoga-Rovers & Associates, 19449 Riverside Drive, Suite 230
Sonoma, CA 95476

Donna Drogos, ACEH
Jerry Wickham, ACEH
File

Alameda County Environmental Cleanup Oversight Programs (LOP and SLIC)	**ISSUE DATE:** July 5, 2005
	REVISION DATE: December 16, 2005
	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 dehloptoxic@acgov.org
         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 ftp 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.

3) 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

SITE HISTORY

SITE HISTORY

1986 Waste Oil Tank Removal: According to an October 13, 1989 letter from Weiss Associates (Weiss) of Emeryville, California to Shell, Petroleum Engineering of Santa Rosa, California removed a 550-gallon waste-oil tank from the site in November 1986). Immediately following the tank removal, Blaine Tech Services, Inc. (Blaine) of San Jose, California collected soil samples (Soil #1 and Soil #2) beneath the former tank at 8 and 11 feet below grade (fbg). Soil #1 and Soil #2 contained petroleum oil and grease at 196 and 167 milligrams per kilogram (mg/kg), respectively. The tank pit was over-excavated to a total depth of 16 fbg, but no additional soil samples were reportedly collected. Groundwater was not encountered in the tank excavation. A new 550-gallon fiberglass waste-oil tank was installed in the same location.

1990 Well Installation: In March 1990, Weiss advanced soil boring BH-A, which was converted to groundwater monitoring well MW-1, adjacent to the waste-oil tank. In a soil sample collected at 29 fbg, 35 mg/kg total petroleum hydrocarbons as gasoline (TPHg) and 0.23 mg/kg benzene were detected.

1992 Well Installations: In February 1992, Weiss advanced soil borings BH-B and BH-C, which were converted to monitoring wells MW-2 and MW-3. A soil sample collected near the water table from the boring for well MW-2 (21.5 fbg) contained 79 mg/kg TPHg. Soil samples from boring BH-C, which is located over 100 feet cross-gradient of the tanks, contained up to 68 mg/kg TPHg at 31.5 fbg.

1992 Well Survey: In 1992, Weiss reviewed the California Department of Water Resources (DWR) and Alameda County records to identify water wells within a ½-mile radius of the site. A total of 21 wells were identified: 12 monitoring wells, eight irrigation wells and one domestic well. No municipal wells were identified. The eight irrigation wells and one domestic well are more than 1,000 feet from the site.

1994 Subsurface Investigation: In June 1994, Weiss advanced six soil borings (BH-1 through BH-6) on and off site. No hydrocarbons were detected in soil samples from any borings, except for 0.013 mg/kg benzene in boring BH-3 at 16 fbg. No hydrocarbons were detected in grab groundwater samples from borings BH-1, BH-4, BH-5, and BH-6. The maximum concentrations of 120,000 micrograms per liter (µg/l) TPHg and 25,000 µg/l benzene were detected in the grab groundwater sample collected from boring BH-3. These results were presented in Weiss' October 13, 1994 *Subsurface Investigation* report.

1995 Well Installation: In February and March 1995, Weiss advanced four soil borings (BH-7 through BH-10) and converted BH-10 to monitoring well MW-4. No petroleum hydrocarbons were detected in any of the soil samples. Up to 100 µg/l TPHg and 1.0 µg/l benzene were detected in grab groundwater samples from BH-7 and BH-9. No TPHg or benzene was detected in the grab groundwater sample from BH-10. Groundwater was not encountered in soil boring BH-8. These results were presented in Weiss' June 13, 1995 *Subsurface Investigation Report and First Quarter 1995 Monitoring Results.*

1996 Soil Vapor Survey and Soil Sampling: In July 1996, Weiss conducted a subsurface investigation to obtain site-specific data for a risk-based corrective action (RBCA) evaluation of the site. Soil vapor and soil samples were collected from the vadose zone at 10 on- and off-site locations (SVS-1 through SVS-10). The highest soil vapor hydrocarbon concentrations were detected near the northwest corner of the UST complex (sample SVS-5 at 3.0 fbg, which contained 7,600 parts per million by volume [ppmv] benzene). No TPHg, benzene, toluene, ethylbenzene, and xylenes (BTEX), or methyl tertiary-butyl ether (MTBE) was detected in any of the soil samples except for 1.1 mg/kg TPHg detected in sample SVS-5 at 18 to 20 fbg. Weiss concluded that depleted oxygen concentrations and elevated carbon dioxide and methane concentrations in the vadose zone indicated that biodegradation was occurring. These results were presented in Weiss' February 7, 1997 *Soil Vapor Survey Report.*

1997 RBCA Evaluation: In 1997, Weiss prepared a RBCA evaluation for the site. RBCA analysis results indicated that BTEX, MTBE, 1,2-dichloroethane, and tetrachloroethylene concentrations detected in soil and groundwater beneath the site did not exceed a target risk level of 10^{-5} for residential indoor or outdoor air exposure pathways. However, a risk threshold exceedance was identified associated with ingestion of groundwater from a hypothetical well 25 feet down gradient of the source. These results were presented in Weiss' April 27, 1998 *RBCA Summary Report.*

1997 Dispenser and Turbine Sump Upgrade: The dispensers and turbine sumps at the station were upgraded in December 1997. Cambria Environmental Technology, Inc. (Cambria) collected soil samples Disp-A through Disp-D from beneath the dispenser islands during upgrade activities. Up to 590 mg/kg TPHg (Disp-C at 4.5 fbg), 1.8 mg/kg benzene (Disp-C at 2.0 fbg), and 1.4 mg/kg MTBE (Disp-C at 2.0 fbg) were detected. These results were presented in Cambria's March 27, 2008 *Dispenser Soil Sampling* report.

1998 Soil Vapor Survey and Soil Sampling: In November 1998, Cambria conducted a subsurface investigation to obtain site-specific data for an updated RBCA evaluation of the site. Soil samples, soil vapor samples, and grab groundwater samples were collected from the vadose zone at three on-site and three off-site locations (SVS-11 through SVS-16). In soil vapor, maximum concentrations of 2.7 ppmv TPHg (C5+ hydrocarbons) and 0.17 ppmv TPHg (C2-C4 hydrocarbons) were detected at 10 fbg in borings SVS-14 and SVS-15, respectively. A maximum concentration of 0.0099 ppmv benzene was detected in SVS-16 at 5 fbg. In soil, 1.6 mg/kg TPHg and 0.0050 mg/kg benzene were detected in boring SVS-11 at 19.5 fbg. No TPHg or benzene was detected in any other soil samples. TPHg and benzene were detected using EPA Method 8020 in groundwater from borings SVS-11 and SVS-12 at concentrations up to 130,000 µg/l TPHg and 18,000 µg/l benzene. These results were presented in Cambria's September 17, 1999 *Risk-Based Corrective Action* report.

1999 RBCA Evaluation: In September 1999, Cambria prepared a RBCA evaluation for the site. Cambria analyzed the following potential exposure pathways: off-site ingestion of groundwater, on-site ingestion of surficial soil, volatilization of benzene from soil or groundwater into on-site or off-site indoor air, and migration of benzene soil vapor to on-site or off-site outdoor air. Results of Tier 1 and Tier 2 RBCA analyses indicated that contaminants within soil and groundwater did not present significant health risks. These results were presented in Cambria's September 17, 1999 *Risk-Based Corrective Action* report.

2001 Off-Site Monitoring Well Installation: Two monitoring wells (MW-5 and MW-6) were installed off site to the southwest. Soil sample results from this investigation indicated only minimal MTBE impact (0.012 mg/kg) to off-site soil southwest of the site. This finding was corroborated by Cambria's 1998 subsurface investigation, in which no TPHg or benzene and only low MTBE concentrations were detected in soil from three borings (SVS-14 through SVS-16) along the private driveway. These results were presented in Cambria's December 20, 2001 *Offsite Monitoring Well Installation Report.*

2002-2004 Mobile Groundwater Extraction (GWE): In July 2002, semi-monthly GWE was begun using monitoring well MW-2, and it continued on a monthly basis until March 2004. Beginning in March 2004, monthly GWE was performed using well MW-2 and MW-11 once per month each, so that GWE was conducted twice per month at the site. The GWE frequency was increased to weekly (from both MW-2 and MW-11) beginning in May 2004. Mobile GWE ceased on August 24, 2004. Approximately 19.6 pounds of TPHg, 3.45 pounds of benzene, and 5.12 pounds of MTBE had been removed during these activities.

2002 Off-Site Monitoring Well Installation: Two monitoring wells (MW-7 and MW-8) and one soil boring (SB-9) were installed off-site and northwest of the site in 150th Avenue. Soil sample results collected during this investigation indicated minimal TPHg and BTEX impact to off-site soil northwest of the site. Grab groundwater samples indicated elevated TPHg and benzene concentrations were present in groundwater northwest of the site beneath 150th Avenue. These results were presented in Cambria's November 18, 2002 *Offsite Monitoring Well Installation Report.*

2003 Soil and Groundwater Investigation: Six soil borings (SB-10 through SB-14 and SB-16) were advanced to the northwest of the site in both 150th Avenue and Portofino Circle; one boring (SB-15) was advanced on site. Initial groundwater was encountered between 24 and 28 fbg during drilling activities. During the investigation, MTBE was only detected in on-site grab groundwater sample SB-15-W at 40 µg/l. The highest TPHg concentration was detected in SB-14-W at 67,000 µg/l, and the highest benzene concentration was detected in SB-15-W at 530 µg/l. TPHg was detected only in soil samples SB-11-30' and SB-15-36' at concentrations of 650 mg/kg and 1.4 mg/kg, respectively. Benzene was detected only in soil sample SB-15-35' at 0.10 mg/kg. Based on typical groundwater depths in nearby well MW-7, it was determined that samples SB-11-30' and SB-15-36' were saturated, and results may be more indicative of chemical concentrations in groundwater. These results were presented in Cambria's August 28, 2008 *Soil and Water Investigation Report and Work Plan.*

2003 Sensitive Receptor Survey (SRS): In October 2003, Cambria completed an SRS at Shell's request. The SRS targeted the following as potential sensitive receptors: basements within 200 feet, surface water and sensitive habitats within 500 feet, hospitals, residential care, and childcare facilities within 1,000 feet, and water wells within ½ mile. No basements, surface water, sensitive habitats, or educational and childcare facilities were identified within the search radius. The Fairmont Hospital campus, located at 15400 Foothill Boulevard, is located approximately 1,100 feet from the site, just outside the target radius of 1,000 feet.

To update the 1992 well survey performed by Weiss, Cambria researched DWR records in September 2003 and located no additional well records for locations within ½ mile of the site. The closest identified water well potentially used for drinking water is a well installed in 1952 and listed as a "domestic well." This well is located at Fairmont Hospital, approximately 2,445 feet east-southeast of the site. The well is reportedly 138 feet deep and has a screened interval between 62 and 95 fbg. The well's status and operation frequency are unknown. Due to the well's distance from the site and the site's observed groundwater flow directions, it is unlikely that this well would be impacted by groundwater from the site.

2003 Monitoring Well Installation: On November 19 and 20, 2003, Cambria installed on-site and off-site wells MW-9, MW-10, and MW-11. Proposed off-site soil borings were not completed due to access agreement issues. MTBE was detected in two soil samples (MW-11-20' and MW-11-24.5') at concentrations of 0.039 and 1.4 mg/kg, respectively. TPHg was detected in four soil samples (MW-10-30', MW-10-31.5', MW-11-20', and MW-11-24.5') at concentrations of 14, 230, 1.8, and 330 mg/kg, respectively. All soil samples with detectable hydrocarbon and MTBE concentrations were saturated soil samples, so identified results appeared more indicative of chemical concentrations in groundwater than soil. These results were presented in Cambria's January 12, 2004 *Soil and Water Investigation and Monitoring Well Installation Report.*

September 2004 Off-Site Investigation: Two soil borings (SB-17 and SB-18) were installed southeast of the site. No TPHg, BTEX, or fuel oxygenates were detected in soil samples from the borings. Grab groundwater samples collected contained up to 55 µg/l TPHg, and no benzene or fuel oxygenates. Results of the investigation are reported in Cambria's December 17, 2004 *Soil and Water Investigation Report.*

2004 Temporary GWE System Installation: On September 13, 2004, Cambria completed installation and began operation of a temporary GWE system. The temporary GWE system was installed as an interim remedial measure to address the elevated petroleum hydrocarbon and MTBE concentrations in groundwater near the west corner of the site. On November 8, 2004, Cambria stopped the temporary GWE system to conduct interim remediation by dual phase extraction (DPE). During these temporary GWE activities approximately 0.448 pounds of TPHg, 0.036 pounds of benzene, and 0.121 pounds of MTBE were removed from the subsurface.

2004 DPE: During the period November 8 through November 13, 2004, DPE was conducted in on-site wells MW-2 and MW-11 as an interim remedial action to reduce hydrocarbon concentrations in groundwater near the western corner of the site and to

progress the site toward closure. Based on operating parameters and vapor sample analytical results, the total TPHg, benzene, and MTBE vapor-phase masses removed from well MW-11 are estimated at 165 pounds, 0.291 pounds, and 0.063 pounds, respectively. The total TPHg, benzene, and MTBE vapor-phase masses removed from well MW-2 are estimated at 0.073 pounds, 0.0002 pounds, and 0.001 pounds, respectively. The total TPHg, benzene and MTBE liquid-phase masses removed from wells MW-2 and MW-11 during interim remediation are estimated at 5.31 pounds, 0.193 pounds, and 0.143 pounds, respectively.

2005 Temporary GWE System: Upon completing the interim remedial action, Cambria intended to immediately resume operating the temporary GWE system. However, the restart was delayed due to repaving the site's parking lot. The temporary GWE system operated between January 10 and April 13, 2005. Because detected TPHg and MTBE concentrations were higher in well MW-11 than in well MW-2, MW-11 was chosen for extraction. During these activities, approximately 19.04 pounds of TPHg, 1.69 pounds of benzene, and 3.94 pounds of MTBE were removed from the subsurface. Because of facility upgrades work, Cambria removed the temporary GWE system between March and June 2005. These results were presented in Cambria's June 23, 2005 *Interim Remediation Report.*

2005 Fuel System Upgrade: Under contract to Shell, Armer Norman of Pacheco, California replaced the fuel dispensers and piping and upgraded UST sumps between March and May 2005. On March 22 and April 4, 2005, soil samples were collected beneath each of the four dispensers and the product piping joints. TPHg was detected in 11 samples, with a maximum concentration of 4,100 mg/kg in sample P-4-5.0. Benzene was detected in six samples, with a maximum concentration of 11 mg/kg in sample P-4-2.5. MTBE was detected in five samples, with a maximum concentration of 0.18 mg/kg in sample D-1-3.5. Tertiary-butyl alcohol (TBA) was detected in sample D-3-3.5 at a concentration of 0.023 mg/kg. Lead was detected in four samples, with a maximum concentration of 75.7 mg/kg in sample D-1-3.5. These results were presented in Cambria's June 1, 2005 *Dispenser and Piping Upgrade Sampling Report.*

2005 Periodic GWE Restart: In September 2005, monthly GWE was re-instated using monitoring well MW-11, and because of the observed presence of SPH in well MW-1, bimonthly extraction from MW-1 was initiated in September 2006. These activities are ongoing as of December 2006 and are reported in the monitoring reports.

May 2006 Waste Oil Tank Removal: On May 25, 2006, Wayne Perry, Inc. (Wayne Perry) of Sacramento, California removed one 550-gallon, dual-wall fiberglass waste oil UST.

Cambria collected one soil sample (WO-1-6.5) from the sidewall of the UST excavation at a depth of 6.5 fbg. The soil sample contained up to 45 mg/kg oil and grease, 4.3 mg/kg TPHd, 25.4 mg/kg chromium, 7.09 mg/kg lead, 19.0 mg/kg nickel, and 58.4 mg/kg zinc. Based on these concentrations, Shell submitted an Underground Storage Tank Unauthorized Release (Leak)/Site Contamination Report (Unauthorized Release Report) on June 6, 2006. All detections were below SFBRWQCB environmental screening levels for shallow soil (fewer than 3 meters below grade) where groundwater is a current or potential drinking water source for residential land use areas. Based on these results, no further investigation of waste oil constituents was conducted. These results were presented in Cambria's August 4, 2006 *Underground Storage Tank Removal Report.*

May 2006 Subsurface Investigation (SB-19 through SB-25; MW-12 & MW-13): The purpose of this investigation was to determine the vertical and horizontal extent of soil and groundwater impact. Seven soil borings were advanced, two of which were converted to groundwater monitoring wells. Shallow soil samples collected from borings SB-19, SB-20, SB-21, SB-22, and SB-24 did not contain TPHg or BTEX concentrations exceeding applicable published San Francisco Bay Regional Water Quality Control Board environmental screening levels (ESLs). Up to 1,060 mg/kg TPHg and 1.38 µg/l benzene were detected in soil samples collected from the capillary fringe zone in borings SB-19, SB-20, SB-21, SB-23, and SB-24. These detections are considered to be more indicative of groundwater conditions. Fuel oxygenate concentrations were near or below their respective reporting limits in all soil samples collected, and none of the low detections exceeded applicable ESLs. Based on this, the horizontal extent of petroleum hydrocarbons has been defined at the site, and the vertical extent has been defined to the typical groundwater table. TPHg, BTEX, and fuel oxygenate concentrations in grab groundwater samples collected from approximately 20 and 31 fbg in boring SB-25 were also near or below their respective reporting limits. None of the low detections in the grab groundwater samples collected exceed applicable ESLs. Based on this, the vertical extent of petroleum hydrocarbons in groundwater northwest of the site is defined. These results were presented in Cambria's July 26, 2006 *Subsurface Investigation Report.*

February 2007 Agency Response with Proposed Future Actions: Cambria responded to ACEH's August 29, 2006 letter which requested updated cross-sections and discussion of other issues. Cambria provided revised cross-sections A-A' and C-C', a discussion of delineation of the extent of petroleum hydrocarbons in soil and groundwater, and a risk evaluation based on these delineations. In addition, Cambria proposed delineation of the vertical extent of petroleum hydrocarbons in groundwater and a shallow soil vapor investigation at the site. These materials and discussions were presented in Cambria's February 14, 2007 *Agency Response with Proposed Future Actions.*

October 2007 Cone-Penetrometer Test Borings and Soil Vapor Probe Installation and Sampling: Conestoga-Rovers & Associates (CRA) drilled and sampled five CPT borings (CPT-1 through CPT-3, CPT-5, and CPT-6), drilled and sampled one geoprobe boring (B-1), and installed five soil vapor probes (SVP-1 through SVP-5). Vertical groundwater data from CPT-1 and CPT-2 onsite indicated that the majority of groundwater impact is concentrated at the shallower depths. Data from CPT-3, CPT-5, CPT-6, and MW-9 shows that the deeper zone is not impacted to the northeast, southeast, or southwest of the site. Soil vapor samples from SVP-1, SVP-4, and SVP-5 exceeded the San Francisco Bay Regional Water Quality Control Board (RWQCB) environmental screening levels (ESLs) for TPHg for residential indoor air, and the TPHg concentration in SVP-5 exceeded the commercial ESL. None of the BTEX or MTBE concentrations exceeded any of the indoor air ESLs. These results were presented in CRA's December 19, 2007 *Supplemental Subsurface Investigation Report.*

2008 Additional Soil Vapor Monitoring: CRA conducted three rounds of soil vapor sampling in 2008. In off-site probe SVP-5 TPHg concentrations exceeded residential and commercial land use RWQCB ESLs in two of the four events, ethylbenzene concentrations exceeded residential and commercial land use RWQCB ESLs during the September 17, 2008 event, and benzene and xylenes concentrations exceeded residential land use RWQCB ESLs during the September 17, 2008 event. The results from these sampling events are presented in CRA's October 24, 2008 *Soil Vapor Probe Sampling Report.*

Groundwater Monitoring Program: Groundwater quarterly groundwater sampling began in March 1990. Historically, the maximum concentrations of TPHg have been observed in well MW-1 (up to 790,000 µg/l in June 1996); maximum concentrations of benzene have been observed in well MW-2 (up to 36,000 µg/l in March 1993); and maximum concentrations of MTBE have been observed in well MW-2 (up to 32,000 µg/l in February 2002). Separate phase hydrocarbons (SPH) have been observed intermittently in wells MW-1 and MW-2 historically. SPH re-occurred in well MW-1 in July 2008 and was present in well MW-11 in March 2008. During the September 29, 2008 sample event no SHP was observed and the maximum dissolved phase concentrations of TPHg, benzene, and MTBE observed in on-site wells were 110,000 (MW-11), 7,900 (MW-1), and 2,300 (MW-1) µg/l, respectively.

APPENDIX C

FIELD DATA SHEETS

EW-1 AND EW-2 COMBINED DPE TEST DATA FORM

Site Address: 1784 150th St, San Leandro, CA
Project No. 240612-2008-13

Date: 11/05/08
Technician: Ryan Messinger, Mark Johnson
Project Mgr: Peter Schaeffer

Date/ Time (hh:mm)	Hour Meter (hrs)	Gasing Vac (in.WC) (EW-1)	Casing Vac (in.WC) (EW-2)		Vac.RO* (inWC) / DTW											
					P-1A	P-1B	P-2A	P-2B	P-3A	P-3B	P-4A	P-5B	MW-1A	MW-1B	MW-11	MW-12
Collect Data Hourly		start DTW: 23.82	18.86													
11/05/08 08:00				DTW	22.02	22.12	23.23	23.47	18.86	19.04	19.17	19.30	23.39	23.50	19.56	18.55
:00				DTW												
:00				VAC												
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				DTW												
				VAC												

NOTES:

Check LPG tank level. Call for refill.

Check Baker tank level. Call for pump-out.

S=sample

* Transducer

Destruction Efficiency = (Inf-2 - Eff)/(Inf-2)

EW-1 AND EW-2 COMBINED DPE TEST DATA FORM

Site Address: 1784 150th St, San Leandro, CA
Project No. 240612-2008-13

Date: 11/05/08
Technician: Ryan Messinger, ~~Brian~~ Mark Johnson
Project Mgr: Peter Schaeffer

Date / Time (hh:mm)	Hour Meter (Hrs)	Casing Vac (in.WC) (EW-1)	Casing Vac (in.WC) (EW-2)		Vac.ROI (in.WC) / DTW P-1A*	P-1B	P-2A	P-2B	P-3A	P-3B	P-4A	P-4B	MW-1A	MW-1B	MW-11	MW-12
Collect Data Hourly		Start DTW: 23.82	18.86													
11/05/08 08:00				DTW	22.02	22.12	23.23	23.47	18.86	19.04	19.17	19.30	23.39	23.50	19.56	18.55
:00				DTW												
:00				VAC												
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				VAC												

NOTES:
Check LPG tank level. Call for refill.
Check Baker tank level. Call for pump-out.
S=sample
* Transducer
Destruction Efficiency = (Inf-2 - Eff)/(Inf-2)

EW-1 AND EW-2 COMBINED DPE TEST DATA FORM

Site Address: 1784 150th St, San Leandro, CA
Project No. 240612-2008-13
Date:
Technician:
Project Mgr: Peter Schaeffer

MW-2 EW-1 EW-2 Distance

Date/ Time (hh:mm)	Hour Meter (hrs)	Casing Vac (in WC) (EW-1)	Casing Vac (in WC) (EW-2)		Vac ROI (in WC) / DTW											
					develop P-1A	P-1B	prog P-2A	prog P-2B	P-3A	P-3B	P-4A	develop P-4B	X MW-1A	X MW-1	MW-11	✓ Track (MW-12)
Collect Data Hourly		prog	Set													
:00				DTW												
DTW :00	20.24	23.28	19.58	DTW	22.65	~~22~~.50	23.67	23.91	19.59	19.59		19.79	23.85	23.96	20.51	
TD :00	—	35.06	32.91	VAC	27.13	35.29	26.94	35.16	22.51	32.43		32.85	~~26.45~~	~~24.88~~	24.64	
Trail Depth :00	—	34.50	32.50	VAC	26.50	34.50	26.50	34.5	22.00	32.00		32.50	~~26.00~~	~~24.50~~	24.50	
Trail Serial# :00	—			DTW			81616	86933	125746	126245		~~211273~~	~~1234~~	—	1334	
Programmed :00				DTW			✓	✓	✓	✓	damaged	✓	✓		✓	
:00				VAC												
:00				VAC								125713				
Distance from MW-2 :00				DTW												
EW-2 :00				DTW	48'5"	51'2"	75'9"	74'	9'7"	8'10"	21'1"	19'3"			11'1"	
				VAC												
				DTW												
				VAC												
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				VAC												

NOTES:
Check LPG tank level. Call for refill.
Check Baker tank level. Call for pump-out.
S=sample
* Transducer
Destruction Efficiency = (Inf-2 - Eff)/(Inf-2)

CRA PUMP TEST DATA FORM PAGE 1

Project Name: **Shell Pump Test - Bayfair**
Project No.: **240612**
Location:
1784 150th St
San Leandro, CA
Personnel:
Troll ID# :
Troll Depth (fbg):

Pump OD: **3"**
Pump Pipe OD:
Well Casing ID: **4-inch**
TD: **36'**
Screened Interval: **21-36' fbg**
Pump Intake Depth:
Available Dwdn:

Date: 11-5, 11-6-08
Constant Q:
Step Test: X
Pumping Well: EW-1
Observation Wells/Distance from Pumping Well:

EW-1 Start DTW: 23.82
EW-2 Start DTW:

STARTING TOTALIZER READING 155916.0

DATE / TIME	ELAP. TIME (min.)	FLOW RATE (gpm)	FLOW TOTAL (gal)	DEPTH TO WATER P-1A	P-1B	P-2A	P-2B	P-4A	P-4B	MW-1 A	MW-1 B	MW-12**	EW-1
11/5/08 0800	N/A	N/A	N/A	22.02	22.12	23.23	23.47	19.17	19.30	23.39	23.50	18.55	
8:15 11-6-08	0	0	155916.0									N/M	22.91
09:15	60	2	156061.5	22.06	22.47	23.35	23.67	19.31	19.37	23.57	23.70		27.22
09:45	90	2	156212.0	22.12	22.48	23.39	23.67	19.32	19.38	23.58	23.70		27.27
10:15	120	2	156153.8	22.28	22.50	23.41	23.67	19.34	19.40	23.60	23.70		27.33
10:45	150	2	156212.6	22.28	22.52	23.47	23.67	19.34	19.40	23.60	23.70		27.35
11:15	180	2	156271.1	22.28	22.55	23.53	23.67	19.35	19.40	23.61	23.70		27.38
11:45	210	2	156275.0	22.28	22.56	23.51	23.67	19.35	19.40	23.61	23.70		27.38
12:15	240	2	156385.1	22.28	22.58	23.51	23.67	19.35	19.40	23.61	23.70		27.38
12:45	270	2.5	156454.5	22.30	22.60	23.55	23.69	19.30	19.38	23.63	23.70		29.25
13:15	300	2.5	156537.2	tech	meeting	-	continue	call					29.41
13:45	330	2.5	156600.4	22.39	22.63	23.54	23.72	19.28	19.36	23.65	23.71		29.43
14:15	360	2.5	156671.0	22.41	22.63	23.54	23.73	19.28	19.36	23.65	23.71		29.44
14:45	420	2.5	156757.5	22.43	22.63	23.58	23.74	19.29	19.35	23.65	23.71		29.44
15:15	480	2.5	156828.5	22.45	22.65	23.52	23.75	19.30	19.35	23.66	23.72		29.47
15:45	510	2.5	156887.3	22.46	22.65	23.52	23.76	19.33	19.36	23.67	23.73		29.51
16:15	540	2.5	156966.2										29.48
16:45	600	3.0	157027.5										29.45
17:00	630	Pump Stopped.		17:04 Pump Started.					17:06 Pump Started.				
17:30	660		157134.0										

** Gather DTW for MW-12 only when there are two people on site

2.5 GPM set at 12:27.

CRA

PUMP TEST DATA FORM

PAGE ___ ___

Project Name: **Shell Pump Test - Bayfair**
Project No.: **240612**
Location:
1784 150th St
San Leandro, CA
Personnel:
Troll ID# :
Troll Depth (fbg):

Pump OD: **3"**
Pump Pipe OD:
Well Casing ID: **4-inch**
TD:
Screened Interval: **18-34' fbg**
Pump Intake Depth:
Available Dwdn:

Date:
Constant Q:
Step Test:
Pumping Well: EW-2
Observation Wells/Distance from Pumping Well:

* MW-2 IS DESTROYED.

STARTING TOTALIZER READING 82561.7

DATE / TIME	ELAP. TIME (min.)	FLOW RATE (gpm)	FLOW TOTAL (gal)	DEPTH TO WATER									
				P-1A	P-1B	P-3A	P-3B	P-4A	P-4B	*MW-2 B	MW-11	MW-12**	EW-2
7~	0	0	82561.7									N/M	
07:30	30	1	82602.0	22.42	22.78	19.55	19.82	19.65	19.54	19.56	19.98		22.30
08:00	60	1	82636.1	22.73	22.78	19.63	19.85	19.68	19.55	19.57	20.10		22.74
08:30	90	1	82672.0	PSC ARRIVED			W.I.I	RETURN	11/7/08 @	7:30			
09:00	STOP	0	82697.2		PUMP	STOPPED		TROUBLE	SHOOT	PULL	EW-1	7 SWAP PUMPS	
/		0											20.51
11:30	0	1.5	82697.6										24.65
12:00	30	1.5	82755.4										N/M
12:30	60	1.5	82814.0										25.11
13:00	90	1.5	82873.0	22.70	22.80	19.76	19.98	19.75	19.64	19.60	20.24		25.28
13:30	120	1.5	82932.3	22.70	22.79	19.77	20.0	19.76	19.64	19.60	20.26		25.40
14:00	150	1.5	82992.3	22.71	22.79	19.79	20.01	19.78	19.65	19.61	20.28		30.50
14:30 14:45	195	2.5	83101.7	STEP	UP TO	2.5 GPM @		14:30	UNTIL	14:45	TOTALIZER	FROM @ 14:45	29.49
15:00 15:01 TOUT	210	2.5	83160.0	22.73	22.82	19.87	20.11	19.83	19.73	19.67	20.35		29.59
15:30	240	2.5	83222.3										29.70
16:00	270	2.5	83303.0	22.74	22.82	19.90	20.14	19.87	19.73	19.67	20.39		29.81
16:33	300	2.5	83388.0	22.75	22.83	19.92	20.15	19.88	19.75	19.67	20.40		29.85
17:00	330	2.5	83463.0	22.75	22.85	19.92	20.15	19.88	19.75	19.67	20.40		29.92
17.28	360		83537.0	SHUT	DOWN								

22.03 — 21.28 — -1.47' TO

** Gather DTW for MW-12 only when there are two people on site

CONESTOGA-ROVERS & ASSOCIATES

DAILY FIELD REPORT

Submit copy to Company Safety Officer

Project Name: Bayfine	CRA Mgr: Peter	Field Rep: Mark
Project Number: 240612	Date: 11/5/08	Site Address: 1784 150 TH San Leandro
General Tasks: Set up for Pilot Testing		
Emergency Drill Conducted:		
HASP Meeting Conducted (Y/N): Y	Equipment Checked (Y/N): Y	PID Calibrated (Y/N): N/A

Time	Activity/Comments	SWA
5:30	In Maintenance for Parts Pick up, Well Seals, Plants, Hose	
6:25	On Site, Meet w/ Ryan, Meet Bruce & Set Tank	HASP
	Start Laying out Mini-Trols & Well Head Fittings.	
	Measure DTW's Start Setting up Transducers	
	Well Locations on Map do not coincide with actual	
	Well Locations.	
	Generator on Site. (Red-D-Arc) HASP	
	Continue Mini-Trol Install	
3:00	SWA, Star, SPSA - Review Traffic Safety Handbook	SWA
	with Ryan. Create a Plan of Action for Mini-	
	-Trol Installation into MW-12 Located in Street. on	
	150 TH Ave. Well is Located on The L.H. Side of #1	
	Lane. Used Cones, Road Work Ahead Sign. and	
	Both Service Trucks for Protection. Traffic Appeared	
	to Be Low. Set up. Mini-Trol Installation went well	
	with out incident. Trouble w/ Break Down, As Vehicles	
	were Passing Close To The Barricades and Service	
	Vehicles at 40-50 MPH. I never Turned My	
	Back To Traffic. One Vehicle was Headed Towards	
	The Last Cones & Barricades As I was Picking	
	Them up. The Vehicle did not move From The	
	Blocked Lane until I started Swinging The	
	Delinator at The Vehicle. The Vehicle Passed 3'-4'	
	From Me and The Service Vehicle.	
	Set up Extraction Pumps, Well Heads & Transducers.	
6	Secure & Depart.	

SWA Key:				
1: SPSA/Task Change	2: Pedestrian in Proximity	3: Unauthorized Personnel	4: Review Work Process	
5: Inspection	6: Safety Orientation	7: Uncontrollable Factor	8: Minor First Aid	9: Major (explain in notes)

Hours _____ Miles _____ Other _____ Shared _____

CONESTOGA-ROVERS & ASSOCIATES

DAILY FIELD REPORT

Submit copy to Company Safety Officer

Project Name: Bayfair	CRA Mgr: Rick	Field Rep: Mark
Project Number: 240612	Date: 11/6/04	Site Address: 1764 150TH San Leandro
General Tasks: Pump Test.		
Emergency Drill Conducted:		
HASP Meeting Conducted (Y/N): Y	Equipment Checked (Y/N): Y	PID Calibrated (Y/N): N/A

Time	Activity/Comments	SWA
5:30	IN MARTINEZ YARD. TO PICK UP MISSING FLOAT SWITCH.	
6:25	ON SITE SET FLOATS	
	MOB TO ORCHARD SUPPLY FOR HOSE CLAMPS.	
	COMPLETE SET UP. PREP FOR START UP.	
8:15	START APT ON EW-1	
	STARTING TEST @ 2 GPM	
9:00	CALL TREY, SOW, FIELD FORMS DO NOT INDICATE	
	DATA COLLECTION FREQUENCY. NOTIFIED TREY THAT	
	TEST STARTED @ 2 GPM. COLLECT DATA EVERY 30	
	MINUTES FOR STEP TEST AND EVERY 60 MINUTES FOR	
	THE CONSTANT RATE TEST.	
	ALSO; TRAFFIC CONTROL WILL BE NEEDED FOR	
	MW-12 DATA / TRANSDUCER RETRIEVAL & REMOVAL.	
11:56	PULL EW-2 PUMP. AND MEASURE @ 30" LONG. NEEDED	
	TO MAXIMIZE PUMP LENGTH. WATER LEVEL PROBE	
	HANGING UP 4" ABOVE TOP OF PUMP. IN EW-1	
	CONTINUE DATA COLLECTION, CALL TREY.	

SWA Key:				
1: SPSA/Task Change	2: Pedestrian in Proximity	3: Unauthorized Personnel	4: Review Work Process	
5: Inspection	6: Safety Orientation	7: Uncontrollable Factor	8: Minor First Aid	9: Major (explain in notes)

Hours _____ Miles _____ Other _____ Shared _____

CONESTOGA-ROVERS & ASSOCIATES

DAILY FIELD REPORT

Submit copy to Company Safety Officer

Project Name: Bayfair	CRA Mgr: Peter J	Field Rep: Mark
Project Number: 240612	Date: 11/7/09	Site Address: 1784 150th San Leandro
General Tasks:		
Emergency Drill Conducted:		
HASP Meeting Conducted (Y/N): Y	Equipment Checked (Y/N): Y	PID Calibrated (Y/N): N/A

Time	Activity/Comments	SWA
5:25	Pick up Pressure Switch from MAKO. Mob to Site.	
6	Arrive on Site. Set up Exclusion Zones.	
	Check Equipment, START Generator	
7-	START EW-2 APT.	
	Dan L. on Site for STEP Observation.	
	Paul R. on Site, for Feedback Session & Review.	
9-	Pump STOPPED. Pull Pump Troubleshoot Pump	
	PSC on Site, MAS no PPE.	
11:30	START Pump Test (APT) on EW-2	
	Collect Data Run Field Forms.	
1-		

SWA Key:				
5: Inspection	6: Safety Orientation	7: Uncontrollable Factor	8: Minor First Aid	9: Major (explain in notes)

Hours _____ Miles _____ Other _____ Shared _____

CONESTOGA-ROVERS & ASSOCIATES

DAILY FIELD REPORT

Submit copy to Company Safety Officer

Project Name: Brayton Shell	CRA Mgr: Peter S.	Field Rep: Mark
Project Number: 240612	Date: 11/13/08	Site Address: 1784 150 TH AVE. San Leandro
General Tasks:		
Emergency Drill Conducted:		
HASP Meeting Conducted (Y/N): Y	Equipment Checked (Y/N): Y	PID Calibrated (Y/N): Y

Time	Activity/Comments	SWA
6:20	ON SITE, SYSTEM ON, BAKER TANK @ 1/2 FULL.	
	BOTH PUMPS RUNNING TOTALING 10.5 GPM.	
	GENERATOR SHOWS 3/8 TANK OF FUEL PROPANE @ 35%	
	SET UP & CALIBRATE MONITORING EQUIPMENT	
7:-	PSC ARRIVES ON SITE. HASP	
7:15	PACIFIC STARTS PETROLEUM ON SITE HASP.	
	GENERATOR SHUT DOWN. SHOWS ALARMS;	
	OVER CRANK, OVER SPEED. ASKED PSP IF THEY	
	SHUT DOWN GENERATOR, MIC. STATED NO HE DID NOT.	
	AFTER SEVERAL ATTEMPTS TO START I CALLED RED-D-ARC.	
	FOR SERVICE / NEW GENERATOR	
	CALL RUSH, CALLED MATT.	
	RED-D-ARC ON SITE, GENY RAN OUT OF FUEL, LOOSE HOSE	
	PREVENTED ME FROM ACHIEVING PRIME.	
9:22	START GENERATOR, START GWE PUMPS, RE-CALIBRATE	
	MONITORING EQUIPMENT. START SOLECO	
10:00	NOTICE NOISE FROM GENERATOR, SHUT DOWN GENY.	
	OPENED UP GENERATOR, BELT COMMING UNRAVELED.	
	CALL MATT, CALL RED-D-ARC.	
	RED-D-ARC ON SITE.	
	HIGHWAY TECHNOLOGY ON SITE	
12:40	START GWE PUMPS, START SOLECO, RECALIBRATE	
	MONITORING EQUIPMENT.	
2:-	TRAV CALLS - SHUT DOWN, RE-START. TEST ON MONDAY	
3:30	SECURE & DEPART	

A Key:	1: SPSA/Task Change	2: Pedestrian in Proximity	3: Unauthorized Personnel	4: Review Work Process
5: Inspection	6: Safety Orientation	7: Uncontrollable Factor	8: Minor First Aid	9: Major (explain in notes)

Hours _____ Miles _____ Other _____ Shared _____

CONESTOGA-ROVERS & ASSOCIATES

DAILY FIELD REPORT

Submit copy to Company Safety Officer

Project Name: BayFair	CRA Mgr: Peter S.	Field Rep: Mark / Luke
Project Number: 240612	Date: 11/17/06	Site Address: 1782 / 150 TH SAN Leandro
General Tasks: PILOT TEST.		
Emergency Drill Conducted:		
HASP Meeting Conducted (Y/N): Y	Equipment Checked (Y/N): Y	PID Calibrated (Y/N): Y

Time	Activity/Comments	SWA
6:20	ON SITE, Review HASP & SOW Sign in.	
	Set up & Calibrate Monitoring Equipment.	
	Set up Extraction Pumps.	
	Measure DTW's	
	START LWE Pumps & Dewatering wells	
	START SolEco & bring to Temp.	
8-	START VAPOR EXTRACTION	
	Collect DATA AS PER SOW.	
	Collect VAPOR Samples	
	Continue DATA Collection	
2-	PSC ARRIVES ON SITE W/ SPOTTER & FLAG MAN. HASP	
2-	CAL Scrubber ARRIVES ON SITE FOR Samples Pickup	
	Continue DATA Collection AS PER SOW.	
	Collect END OF DAY VAPOR Samples.	
3:15	Secure & Depart.	

SWA Key:	1: SPSA/Task Change	2: Pedestrian in Proximity	3: Unauthorized Personnel	4: Review Work Process
5: Inspection	6: Safety Orientation	7: Uncontrollable Factor	8: Minor First Aid	9: Major (explain in notes)

Hours _____ Miles _____ Other _____ Shared _____

CONESTOGA-ROVERS & ASSOCIATES

DAILY FIELD REPORT

Submit copy to Company Safety Officer

Project Name: Bayfair	CRA Mgr: Peter J	Field Rep: Mark / Melissa
Project Number: 240612	Date: 11/18/08	Site Address: 1784 150th Ave. San Leandro
General Tasks: Pilot Test.		
Emergency Drill Conducted:		
HASP Meeting Conducted (Y/N): Y	Equipment Checked (Y/N): Y	PID Calibrated (Y/N): Y

Time	Activity/Comments	SWA
6:30	on Site, System Running upon Arrival.	
	Review HASP, SOW, & Sign in	
	Set up & calibrate Monitoring Equipment.	
6:55	Melissa on Site - HASP & SOW Review, Sign in.	
7	START DATA Collection	
7:30	Collect Vapor Samples	
	Continue DATA Collection As Per SOW.	
12-	PSC Arrives on Site	
1-	PSC Departs.	
	Continue DATA Collection	
	Collect Vapor Samples - End of Day	
3-	Secure & Depart - System on.	

SWA Key:	1: SPSA/Task Change	2: Pedestrian in Proximity	3: Unauthorized Personnel	4: Review Work Process
5: Inspection	6: Safety Orientation	7: Uncontrollable Factor	8: Minor First Aid	9: Major (explain in notes)

Hours _____ Miles _____ Other _____ Shared _____

EW-1 DPE TEST DATA FORM

Site Address: 1784 150th St, San Leandro, CA
Project No. 240612-2008-13

Date: 11-11-08
Technician: Mark Johnson
Project Mgr: Peter Schaeffer

Date/ Time (min)	Hour Meter (hrs)	LR Pump Vac (ins Hg)	Dilution Flow (cfm)	Well Vapor Conc (ppmv) (EW-1)	Casing Vac (in WC)	Well (INF-1) Temp (Deg C)	Well (INF-1) Flow (cfm)	Inf-2 Vapor Conc (ppmv)	System Vac/Press (in WC)	Inf-2/System Temp (Deg C)	Inf-2 Flow (cfm)	EFF Vapor Conc (ppmv)	Combustion Temp (deg C)	DAQ Flow (cfm)	Destruction Efficiency (Inf-2 - Eff)/Inf-2	Knockout Flow Totalizer (gallons)	Pump Flow Totalizer (gallons)
9/18/08 STATIC	10145.0	16														0	
Collect data every half hour																	
STEP TEST #1																	
9:00 0	10146.1	15.5	OVER SCALE	4340	49.5	67.6	32.9	535	51.2	128.5	114. 3.3		1665	198		0	157491.0
9:30 30	10146.6	15.5	OVER	4920	50.0	72.4	28.4	474	53.1	133.9	120. 3.4		1656	179		0	157571.0
10:00 60	10147.1	15.5	OVER	4950	49.0	73.9	22.8	485	52.9	134.0	120. 3.5		1654	155		0	157670.5
10:30 90	10147.6	15.5	OVER	4950	49.7	70.9	27.8	466	53.4	136.8	117. 3.4		1634	199		0	157790.7
STEP TEST #2																	
11:00 0	10148.1	12.5	OVER	5000	75.2	71.5	30.2	688	79.0	134.0	106. 3.0		1671	199		0	157866.0
11:30 30	10149.6	16.5	OVER	4670	76.0	77.7	25.3	675	77.8	137.1	107 2.7		1506	189		0	157963.0
12:00 60	10149.1	16.5	OVER	4830	76.3	73.8	32.5	640	79.8	138.4	109. 2.7		1470	199		0	158071.0
12:30 90	10147.6	16.5	OVER	4870	75.2	74.4	22.1	688	79.7	139.2	108 2.6		1463	177		0	158190.0
STEP TEST #3																	
13:00 0	10150.1	18.5	82.5	4160	100.0	75.2	30.7	950	103.1	134.4	87.0 2.1		1537	199		0	158270.0
13:30 30	10150.6	18.5	79.0	4370	100.0	74.1	26.3	935	103.2	133.9	84.5 2.0		1535	195		0	158400.0
14:00 60	10151.1	18.5	83.5	4080	100.0	72.6	28.4	915	103.7	133.1	83.5 2.1		1541	194		0	158500.0
14:30 90	10151.6	18.5	82.5	4090	100.4	73.8	31.6	914	103.0	133.0	83.5 2.0		1545	194		0	158620.5
STEP TEST #4																	
3:18 0	10152.4	22.5	20.7	3840	147.5	70.7	45.7	2230	252.0	119.1	98.4 1.1		1671	165		0	158853
3:34 30		19.	55.5	3960	150.2	68.9	43.7	1622	155.7	126.9	81.5 1.8		1651	188		0	158903
60						70.0	44.5										
90	10153.1	19.	53.0	3900	150.8	70.6	44.5	1500	155.6	128.6	81. 1.8		1627	189		0	159064.0

NOTES:
Check LPG tank level. Call for refill.
Check Baker tank level. Call for pump-out.
S=sample
* Transducer
Destruction Efficiency = (Inf-2 - Eff)/(Inf-2)

EW-1 DPE TEST DATA FORM

Site Address: 1784 150th St, San Leandro, CA
Project No. 240612-2008-13
Date: 11/11 Tuesday
Technician: Mark Johnson
Project Mgr: Peter Schaeffer

Date/ Time (min)	Hour Meter (hrs)	Casing Vac (In WC) (EW-1)		Distance from extraction well (feet) Vac RGI (in WC) / DTW P-1A	P-1B	P-2A	P-2B	P-4A	P-4B	MW-1A	MW-1C
~~9/18/08~~ STATIC	EW-2 10046	23.61	⇐ DTW	22.69	22.72	23.91	24.13	19.55	19.40	23.46	
Monday 11/10 Tuesday 11/11	Collect data every half hour		DTW	23.09	23.39	24.36	24.49	19.67	19.52	23.52	
STEP TEST #1	10146.1	50"									
0	~~10146.2~~	~~50"~~	DTW	~~23.77~~	~~23.25~~	~~24.66~~	~~24.4~~	~~19.83~~	~~19.48~~	~~23.47~~	
30	~~10146.5~~	~~49.5"~~	VAC	0	0	0	0	0	0	~~2.5~~	
60	10147.2	49.5"	DTW	23.26	23.39	24.38	24.49	19.68	19.52	23.61	
90	10147.6	49.7"	VAC	0	0	0	0	0	0	2.5	
STEP TEST #2				23.37							
0	10148.2	75"	DTW	~~23.37~~	23.45	24.40	24.51	19.69	19.55	23.62	
30	10148.6	75.8"	VAC	0	0	0	0	0	0	3.4	
12:00 60	10149.1	76.3"	DTW	23.48	23.48	24.45	24.52	19.69	19.53	23.63	
90	10149.6	75.2"	VAC	0	0	0	0	0	0	3.5	
STEP TEST #3											
0	10150.2	100"	DTW	23.56	23.55	24.49	24.56	19.69	19.52	23.61	
30	10150.6	100.0"	VAC	0	0	0	0	0	0	4.3	
60	10151.1	100.0"	DTW	23.65	23.57	24.52	24.58	19.70	19.55	23.61	
90	10151.7	100.4"	VAC	0	0	0	0	0	0	4.3	
STEP TEST #4											
0	10152.4	147.5"	DTW	23.81	23.80	24.67	24.71	19.73	19.58	23.57	
15	10152.6	150.2"	VAC	0	0	0	0	0	0	6.8	
30	10152.8	150.3"	DTW	23.88	23.80	24.70	24.72	19.73	19.59	23.61	
45	10153.1	150.9"	VAC	0	0	0	0	0	0	6.9	

NOTES:
Check LPG tank level. Call for refill.
Check Baker tank level. Call for pump-out.
S=sample
* Transducer
Destruction Efficiency = (Inf-2 - Eff)/(Inf-2)

EW-1 DPE TEST DATA FORM

Site Address: 1784 150th St, San Leandro, CA
Project No. 240612-2008-13

Date: 11-11-08
Technician: Mark Johnson
Project Mgr: Peter Schaeffer

Inf-2 pressure

Date/ Time (min)	Hour Meter (hrs)	LR Pump Vac (in Hg)	Dilution Flow (cfm)	Well Vapor Conc (ppmV) (EW-1)	Casing Vac (in WC)	Well (INF-1) Temp (Deg C)	Well (INF-1) Flow (cfm)	Inf-2 Vapor Conc (ppmv)	System Vac/Press (inWC)	Inf-2/System Temp (Deg C)	Inf-2 Flow (cfm)	EFF Vapor Conc (ppmv)	Combustion Temp (deg C)	DAQ Flow (cfm)	Destruction Efficiency (Inf-2 - EFF)/(Inf-2)	Knockout Flow Totalizer (gallons)	Pump Flow Totalizer (gallons)
Collect Data Hourly	10145.0																
8:30 :00		21	56.5	5750	100"	62.4	27.5	1346	101.4	123.9/3.3	101.	1	1720	179		Ø	157410
:00																	
11/12/08 7:15 :00	10168.3	19.5	59.1	2610	152.5	66.4	46.8	1115	153.5	127.7 1.8	78.2		1588	188		Ø	162780
7:45 :00	10168.9	19.5	58.7	2700	148.8	71.2	54.2	1092	152.1	129.6 2.1	71.8		1583	187		Ø	162864
:00																	
:00																	
:00																	
:00																	
:00																	
:00																	

NOTES:
Check LPG tank level: Call for refill.
Check Baker tank level. Call for pump-out.
S=sample
* Transducer
Destruction Efficiency = (Inf-2 - Eff)/(Inf-2)

EW-1 DPE TEST DATA FORM

Site Address: 1784 150th St, San Leandro, CA
Project No. 240612-2008-13
Date:
Technician: Mark Johnson
Project Mgr: Peter Schaeffer

Date/ time (hrs)	Hour Meter (hrs)	Casing Vac (in-WC) (EW-1)		Distance from extraction well (feet) - Vac ROI (in-WC)/DTW							
				P-1A	P-1B	P-2A	P-2B	P-4A	P-4B	MW-1A/C	MW-4
Collect Data Hourly			VAC								
11/12 - 7:00	10168.3	152.5	~~DTW~~	0.0	0.0	0.6	0.0	truck	truck	6.2	0.0
7:45:00	10169.9	148.8	DTW	24.19	23.69	24.74	24.72	truck	truck	28.71	29.02
:00			VAC								
:00			VAC								
:00			DTW								
:00			DTW								
:00			VAC								
:00			VAC								
:00			DTW								
:00			DTW								

NOTES:
Check LPG tank level. Call for refill.
Check Baker tank level. Call for pump-out.
S=sample
* Transducer
Destruction Efficiency = (Inf-2 - Eff)/(Inf-2)

EW-2 DPE TEST DATA FORM

Site Address: 1784 150th St, San Leandro, CA
Project No. 240612-2008-13

Date: 11/12/08
Technician: Mark Johnson
Project Mgr: Peter Schaeffer

INF-1 ; "H2O INF 2

Date/ Time (min)	Hour Meter (hrs)	LR Pump Vac (in. Hg)	Dilution Flow (cfm)	Well Vapor Conc (ppmv) (EW-2)	Casing Vac (in WC)	Well Temp (Deg C) INF-1	Well Flow (cfm) INF-1	Inf-2 Vapor Conc (ppmv)	System Vac/Press (in WC)	Inf-2/System Temp (Deg C)	Inf-2 Flow (cfm)	EFF Vapor Conc (ppmv)	Combustion Temp (deg C)	DAQ Flow (cfm)	Destruction Efficiency (Inf-2 - EFF)/(Inf-2)	Knockout Flow Meter (gallons)	Pump Flow Meter (gallons)
9/18/08 STATIC																Ø	835462
Collect data every half hour																	
STEP TEST #1																	
9:00	10169.1	28	Ø	2010	50"	64.6	23.1	2060	50.1	96.5	18.7	.0		1448	144		Ø	83116.0
7:30	10169.6	27.5	Ø	2540	50	65.8	23.7	2100	51.3	98.0	18.6	.1		1461	145		Ø	83815.0
10:00 60	10170.1	28	Ø	9210	70 / 50.3	75.5	23.2	2380	70.1	104.6	17.7	.0		1619	144		Ø	83822.0
10:30 90	10170.6	28.5	Ø	3020	39.3	68.3	13.4	2170	35.7	102.0	18.0	.0		1735	144		Ø	84050.0
STEP TEST #2																	
10:45 0	10170.9	23	28.1	3510	100.0	68.5	31.9	1277	104.2	119.6	53.5	1.0		1241	163		Ø	84125.0
11:15 30	10171.4	23	35.5	2710	100.0	71.7	31.8	982	107.5	123.3	52.5	.8		1627	163		Ø	84226.0
11:45 60	10171.9	23	33.9	2860	100.8	66.9	47.2	974	104.2	125.3	52.0	.9		1622	164		Ø	84430.0
12:15 90	10172.4	23.	38.8	2700	100.8	69.9	36.3	884	105.4	128.5	53.0	.7	Ø	1675	164		Ø	84586.0
STEP TEST #3																	
12:30 0	10172.6	19	69.4	2410	149.2	68.5	42.1	824	163.3	132.7	81.5	1.9		1556	191		Ø	84677.0
13:00 30	10173.1	19	73.1	2180	148.5	68.8	43.6	784	163.1	132.9	82.0	1.9		1516	191		Ø	84815.0
13:30 60	10173.6	19	66.8	2080	148.9	70.2	45.0	778	163.4	131.4	81.5	1.8		1502	192		Ø	85000.0
14:00 90	10174.1	19	68.4	2200	149.5	67.3	40.2	736	163.2	132.6	81.0	2.0		1496	192		Ø	85146.5
STEP TEST #4																	
14:15 0	10174.4	17.5	73.5	2120	199.0	67.7	47.6	792	226.6	134.2	96.0	2.1		1476	199		Ø	85250.0
14:45 30	10174.9	17.5	74.7	1840	199.4	67.5	46.5	818	223.7	133.7	99.0	2.2		1455	198		Ø	85443.0
15:15 60	10175.4	17.5	78.1	1911	197.0	65.8	46.4	751	226.5	133.4	104.0	2.4		1450	199		Ø	85637.0
90	10175.9	17.5	67.3	2070	192.	66.0	57.2	900	223.8	132.2	104.0	2.3	O	1483	197			85837.0

NOTES:
Check LPG tank level. Call for refill.
Check Baker tank level. Call for pump-out.
S=sample
* Transducer
Destruction Efficiency = (Inf-2 - Eff)/(Inf-2)

KS - 800 675 1700

EW-2 DPE TEST DATA FORM

Site Address: 1784 150th St, San Leandro, CA
Project No. 240612-2008-13

Date: 11/12/08 TRAY
Technician: Mark Johnson & Matt Lindberg
Project Mgr: Peter Schaeffer

Date/ Time (hh:mm)	Hour Meter (hrs)	Casing Vac (in WC) (EW-2)		Distance from extraction well (feet) Vac ROI (in WC) / DTW P-3A	P-3B	P-4A	P-4B	MW-11	MW-12	MW-2
11/12/08 9:30										
9/18/08 STATIC		119.25	DTW	19.59	19.84	19.86	19.66	19.95	S	19.70

Collect data every half hour 33.05TD

STEP TEST #1

9:00 0	10169.2	50.0-dewat	DTW	20.19	20.54	20.54	20.01	20.51	Street	19.91
9:30 30	10169.6	49.9	VAC	0.0	0.0	0.0	0.0	4.6	street	0.0
10:00 60	10170.2	50.3	DTW	20.47	20.63	20.21	20.09	20.72	street	19.94
10:30 90	10170.6	39.3	VAC	0.0	0.0	0.0	0.0	4.8	street	0.0

STEP TEST #2

0	1070.8	100.0	DTW	20.48	20.69	20.25	20.15	20.72	street	19.96
30	10171.4	100.0	VAC	0.0	0.0	0.0	0.0	7.9	N/m	.5
60	10171.9	100.8	DTW	20.77	20.92	20.39	20.22	20.90	N/m	19.98
90	10172.4	98.6	VAC	0.0	0.0	0.0	0.0	9.4	N/M	0.0

MW-1A .8

STEP TEST #3

0	1072.6	149.2	DTW	20.99	20.91	20.41	20.27	20.89	street	19.99
30	10173.1	148.5	VAC	0.0	0.0	0.0	0.0	14.5	street	0.0
60	10173.6	149.1	DTW	21.05	21.05	20.45	20.35	21.02		20.02
90	10174.1	148.7	VAC	0.0	0.0	0.0	0.0	14.8		0.0

STEP TEST #4

0	10174.4	199.0	DTW	21.09	21.15	~~20.56~~ 20.58	~~20.34~~ 20.40	20.96		20.05
30	10174.9	197.4	VAC	0.0	0.0	0.0	0.0	19.7		0.0
60	10175.4	197.0	DTW	21.35	21.26	20.71	20.41	21.12		20.07
90	10175.9	192.2	VAC	0.0	0.0	0.0	0.0	20.9		0.0

NOTES:
Check LPG tank level. Call for refill.
Check Baker tank level. Call for pump-out.
S=sample
* Transducer
Destruction Efficiency=(Inf-2 - Eff)/(Inf-2)

APPENDIX D

CERTIFIED ANAYTICAL REPORTS

Calscience
Environmental
Laboratories, Inc.

November 21, 2008

Matthew Lundberg
Conestoga-Rovers & Associates
5900 Hollis Street, Suite A
Emeryville, CA 94608-2008

Subject: **Calscience Work Order No.: 08-11-1074**
Client Reference: 1784 150th Ave., San Leandro, CA

Dear Client:

Enclosed is an analytical report for the above-referenced project. The samples included in this report were received 11/12/2008 and analyzed in accordance with the attached chain-of-custody.

Unless otherwise noted, all analytical testing was accomplished in accordance with the guidelines established in our Quality Systems Manual, applicable standard operating procedures, and other related documentation. The original report of subcontracted analysis, if any, is provided herein, and follows the standard Calscience data package. The results in this analytical report are limited to the samples tested and any reproduction thereof must be made in its entirety.

If you have any questions regarding this report, please do not hesitate to contact the undersigned.

Sincerely,

Calscience Environmental
Laboratories, Inc.
Jessie Kim
Project Manager

Calscience Environmental Laboratories, Inc.

Analytical Report

Conestoga-Rovers & Associates
5900 Hollis Street, Suite A
Emeryville, CA 94608-2008

Date Received: 11/12/08
Work Order No: 08-11-1074
Preparation: N/A
Method: EPA TO-3M

Project: 1784 150th Ave., San Leandro, CA

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
EW-1	**08-11-1074-1-A**	**11/11/08 10:45**	**Air**	**GC 13**	**N/A**	**11/12/08 15:03**	**081112L02**

Parameter	Result	RL	DF	Qual	Units
TPH as Gasoline	2200	24	8		ppm (v/v)

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Method Blank	**098-01-005-1,557**	**N/A**	**Air**	**GC 13**	**N/A**	**11/12/08 13:09**	**081112L02**

Parameter	Result	RL	DF	Qual	Units
TPH as Gasoline	ND	3.0	1		ppm (v/v)

RL - Reporting Limit , DF - Dilution Factor , Qual - Qualifiers

Calscience Environmental Laboratories, Inc.

Analytical Report

Conestoga-Rovers & Associates		Date Received:	11/12/08
5900 Hollis Street, Suite A		Work Order No:	08-11-1074
Emeryville, CA 94608-2008		Preparation:	N/A
		Method:	EPA TO-15
		Units:	ppm (v/v)
Project: 1784 150th Ave., San Leandro, CA			Page 1 of 1

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
EW-1	**08-11-1074-1-A**	**11/11/08 10:45**	**Air**	**GC/MS YY**	**N/A**	**11/13/08 03:45**	**081112L01**

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
Benzene	0.43	0.30	600		p/m-Xylene	ND	1.2	600	
Toluene	0.78	0.30	600		o-Xylene	ND	0.30	600	
Ethylbenzene	0.41	0.30	600		Methyl-t-Butyl Ether (MTBE)	ND	1.2	600	
Surrogates:	REC (%)	Control Limits		Qual	Surrogates:	REC (%)	Control Limits		Qual
1,4-Bromofluorobenzene	99	57-129			1,2-Dichloroethane-d4	98	47-137		
Toluene-d8	82	78-156							

Method Blank	**097-09-002-7,849**	**N/A**	**Air**	**GC/MS YY**	**N/A**	**11/12/08 13:37**	**081112L01**

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
Benzene	ND	0.00050	1		p/m-Xylene	ND	0.0020	1	
Toluene	ND	0.00050	1		o-Xylene	ND	0.00050	1	
Ethylbenzene	ND	0.00050	1		Methyl-t-Butyl Ether (MTBE)	ND	0.0020	1	
Surrogates:	REC (%)	Control Limits		Qual	Surrogates:	REC (%)	Control Limits		Qual
1,4-Bromofluorobenzene	91	57-129			1,2-Dichloroethane-d4	98	47-137		
Toluene-d8	98	78-156							

RL - Reporting Limit , DF - Dilution Factor , Qual - Qualifiers

Calscience Environmental Laboratories, Inc.

Quality Control - Duplicate

Conestoga-Rovers & Associates
5900 Hollis Street, Suite A
Emeryville, CA 94608-2008

Date Received: 11/12/08
Work Order No: 08-11-1074
Preparation: N/A
Method: EPA TO-3M

Project: 1784 150th Ave., San Leandro, CA

Quality Control Sample ID	Matrix	Instrument	Date Prepared:	Date Analyzed:	Duplicate Batch Number
08-11-1073-1	**Air**	**GC 13**	**N/A**	**11/12/08**	**081112D02**

Parameter	Sample Conc	DUP Conc	RPD	RPD CL	Qualifiers
TPH as Gasoline	410	390	4	0-20	

RPD - Relative Percent Difference , CL - Control Limit

Calscience Environmental Laboratories, Inc.

Quality Control - LCS/LCS Duplicate

Conestoga-Rovers & Associates
5900 Hollis Street, Suite A
Emeryville, CA 94608-2008

Date Received: N/A
Work Order No: 08-11-1074
Preparation: N/A
Method: EPA TO-15

Project: 1784 150th Ave., San Leandro, CA

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	LCS/LCSD Batch Number
097-09-002-7,849	**Air**	**GC/MS YY**	**N/A**	**11/12/08**	**081112L01**

Parameter	LCS %REC	LCSD %REC	%REC CL	RPD	RPD CL	Qualifiers
Benzene	109	108	60-156	1	0-40	
Toluene	102	101	56-146	1	0-43	
Ethylbenzene	111	111	52-154	0	0-38	
p/m-Xylene	100	100	42-156	0	0-41	
o-Xylene	106	105	52-148	0	0-38	

RPD - Relative Percent Difference , CL - Control Limit

Calscience Environmental Laboratories, Inc.

Glossary of Terms and Qualifiers

Work Order Number: 08-11-1074

Qualifier	Definition
*	See applicable analysis comment.
1	Surrogate compound recovery was out of control due to a required sample dilution, therefore, the sample data was reported without further clarification.
2	Surrogate compound recovery was out of control due to matrix interference. The associated method blank surrogate spike compound was in control and, therefore, the sample data was reported without further clarification.
3	Recovery of the Matrix Spike (MS) or Matrix Spike Duplicate (MSD) compound was out of control due to matrix interference. The associated LCS and/or LCSD was in control and, therefore, the sample data was reported without further clarification.
4	The MS/MSD RPD was out of control due to matrix interference. The LCS/LCSD RPD was in control and, therefore, the sample data was reported without further clarification.
5	The PDS/PDSD associated with this batch of samples was out of control due to a matrix interference effect. The associated batch LCS/LCSD was in control and, hence, the associated sample data was reported with no further corrective action required.
A	Result is the average of all dilutions, as defined by the method.
B	Analyte was present in the associated method blank.
C	Analyte presence was not confirmed on primary column.
E	Concentration exceeds the calibration range.
H	Sample received and/or analyzed past the recommended holding time.
J	Analyte was detected at a concentration below the reporting limit and above the laboratory method detection limit. Reported value is estimated.
ME	LCS Recovery Percentage is within LCS ME Control Limit range.
N	Nontarget Analyte.
ND	Parameter not detected at the indicated reporting limit.
Q	Spike recovery and RPD control limits do not apply resulting from the parameter concentration in the sample exceeding the spike concentration by a factor of four or greater.
U	Undetected at the laboratory method detection limit.
X	% Recovery and/or RPD out-of-range.
Z	Analyte presence was not confirmed by second column or GC/MS analysis.

Shell Oil Products Chain Of Custody Record

LAB (LOCATION)
- ☑ CALSCIENCE (_____)
- ☐ SPL (_____)
- ☐ XENCO (_____)
- ☐ TEST AMERICA (_____)
- ☐ OTHER (_____)

Please Check Appropriate Box:
☑ ENV. SERVICES | ☐ MOTIVA RETAIL | ☐ SHELL RETAIL
☐ MOTIVA SD&CM | ☐ CONSULTANT | ☐ LUBES
☐ SHELL PIPELINE | ☐ OTHER _____

Print Bill To Contact Name: Denis Brown

INCIDENT # (ENV SERVICES): 98996068

☐ CHECK IF NO INCIDENT # APPLIES

DATE: 11/11/08

PAGE: 1 of 1

PO #:

SAP #:

SAMPLING COMPANY: Conestoga-Rovers & Associates	LOG CODE: CRAW	SITE ADDRESS: Street and City: 1784 150th Ave, San Leandro	State: CA
GLOBAL ID NO.: T0600101230			
ADDRESS: 5900 Hollis St, Ste A, Emeryville, CA 94608		EDF DELIVERABLE TO (Name, Company, Office Location): Brenda Carter, CRA, Emeryville	PHONE NO.: 510-420-3343
E-MAIL: shelledf@craworld.com	CONSULTANT PROJECT NO.: 240612-2008-13		
PROJECT CONTACT (Hardcopy or PDF Report to): Matthew Lundberg		SAMPLER NAME(S) (Print): Mark Johnson	LAB USE ONLY: 11-1074
TELEPHONE: 510-420-3346	FAX: 510.420.9170	E-MAIL: mlundberg@craworld.com	

TURNAROUND TIME (CALENDAR DAYS): ☑ STANDARD (14 DAY) ☐ 5 DAYS ☐ 3 DAYS ☐ 2 DAYS ☐ 24 HOURS ☐ RESULTS NEEDED ON WEEKEND

☐ LA - RWQCB REPORT FORMAT ☐ UST AGENCY:

SPECIAL INSTRUCTIONS OR NOTES :
cc reports to tjackson@craworld.com & pschaefer@craworld.com
Results should be reported in ppmv
PLEASE RUN ONLY ONE SAMPLE. USE DUPLICATE ONLY IF ORIGINAL IS DEPLETED.

☑ SHELL CONTRACT RATE APPLIES
☐ STATE REIMBURSEMENT RATE APPLIES
☐ EDD NOT NEEDED
☑ RECEIPT VERIFICATION REQUESTED

REQUESTED ANALYSIS

LAB USE ONLY	Field Sample Identification	SAMPLING DATE	SAMPLING TIME	MATRIX	PRESERVATIVE: HCL	HNO3	H2SO4	NONE	OTHER	NO. OF CONT.	TPH - Purgeable (TO-3M)	TPH - Extractable (8015M)	BTEX (TO-15)	5 Oxygenates (8260B)	MTBE (TO-15)	TBA (8260B)	DIPE (8260B)	TAME (8260B)	ETBE (8260B)	1,2 DCA (8260B)	EDB (8260B)	Ethanol (8260B)	Methanol (8015M)	Methane (ASTM D1946)					TEMPERATURE ON RECEIPT C° / Container PID Readings or Laboratory Notes
				VA				x		2	x		x		x														~~Tedlar Bag~~
				VA				x		2	x		x		x														~~Tedlar Bag~~
1	EW-1	11/11/08	10:45	VA				x		2	X		X		X										x	mg				Tedlar Bag

Relinquished by: (Signature)	Received by: (Signature)	Date	Time
Mark Johnson	CEL	11-11-08	1200
Relinquished by: (Signature) 11/11/08 Tom Gridley TO GSO 1730	Received by: (Signature)	Date	Time
Relinquished by: (Signature) GSO 5107205S3	Received by: (Signature) Dannyle CEL	Date 11/12/08	Time 10:30

05/2006 Revision

NOV-11-2008 11:22 CAMBRIA P.01/03

Page 7 of 8

Calscience Environmental Laboratories, Inc.

WORK ORDER #: 08-11-1074

SAMPLE RECEIPT FORM

Cooler 0 of 0

CLIENT: CRA

DATE: 11/12/08

TEMPERATURE: (Criteria: 0.0 °C – 6.0 °C, not frozen)

Temperature _____.____ °C - 0.2 °C (CF) = _____.____ °C ☐ Blank ☐ Sample

☐ Sample(s) outside temperature criteria (PM/APM contacted by:_____).

☐ Sample(s) outside temperature criteria but received on ice/chilled on same day of sampling.

☐ **Received at ambient temperature, placed on ice for transport by Courier.**

Ambient Temperature: ☑ Air ☐ Filter ☐ Metals Only ☐ PCBs Only **Initial:** D.C

CUSTODY SEALS INTACT:

☐ Cooler ☐_____ ☐ No (Not Intact) ☐ Not Present ☑ N/A **Initial:** D.C

☐ Sample ☐_____ ☐ No (Not Intact) ☑ Not Present **Initial:**

SAMPLE CONDITION:

	Yes	No	N/A
Chain-Of-Custody document(s) received with samples.....	☑	☐	☐
Sampler's name indicated on COC.....	☑	☐	☐
Sample container label(s) consistent with COC.....	☑	☐	☐
Sample container(s) intact and good condition.....	☑	☐	☐
Correct containers and volume for analyses requested.....	☑	☐	☐
Analyses received within holding time.....	☑	☐	☐
Proper preservation noted on sample label(s).....	☐	☐	☑
Volatile analysis container(s) free of headspace.....	☐	☐	☑
Tedlar bag(s) free of condensation.....	☑	☐	☐

CONTAINER TYPE:

Solid: ☐4ozCGJ ☐8ozCGJ ☐16ozCGJ ☐Sleeve ☐EnCores® ☐TerraCores® ☐_____

Water: ☐VOA ☐VOAh ☐VOAna_2 ☐125AGB ☐125AGBh ☐125AGBpo_4 ☐1AGB ☐1AGBna_2 ☐1AGBs ☐500AGB ☐500AGBs ☐250CGB ☐250CGBs ☐1PB ☐500PB ☐500PBna ☐250PB ☐250PBn ☐125PB ☐125PBznna ☐100PBsterile ☐100PBna_2 ☐_____ ☐_____ ☐_____

Air: ☑Tedlar® ☐Summa® ☐_____ **Checked/Labeled by:**

Container: C:Clear A:Amber P:Poly/Plastic G:Glass J:Jar B:Bottle **Reviewed by:**

Preservative: h:HCL n:HNO_3 na_2:$Na_2S_2O_3$ na:NaOH po_4:H_3PO_4 s:H_2SO_4 znna:$ZnAc_2$+NaOH **Scanned by:**

Calscience Environmental Laboratories, Inc.

December 01, 2008

Matthew Lundberg
Conestoga-Rovers & Associates
5900 Hollis Street, Suite A
Emeryville, CA 94608-2008

Subject: **Calscience Work Order No.: 08-11-1147**
Client Reference: 1784 150th Ave., San Leandro, CA

Dear Client:

Enclosed is an analytical report for the above-referenced project. The samples included in this report were received 11/13/2008 and analyzed in accordance with the attached chain-of-custody.

Unless otherwise noted, all analytical testing was accomplished in accordance with the guidelines established in our Quality Systems Manual, applicable standard operating procedures, and other related documentation. The original report of subcontracted analysis, if any, is provided herein, and follows the standard Calscience data package. The results in this analytical report are limited to the samples tested and any reproduction thereof must be made in its entirety.

If you have any questions regarding this report, please do not hesitate to contact the undersigned.

Sincerely,

Calscience Environmental
Laboratories, Inc.
Jessie Kim
Project Manager

Calscience Environmental Laboratories, Inc.

Analytical Report

Conestoga-Rovers & Associates
5900 Hollis Street, Suite A
Emeryville, CA 94608-2008

Date Received: 11/13/08
Work Order No: 08-11-1147
Preparation: N/A
Method: ASTM D-1946

Project: 1784 150th Ave., San Leandro, CA

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
EW-1M	**08-11-1147-3-A**	**11/11/08 16:20**	**Air**	**GC 34**	**N/A**	**11/13/08 13:23**	**081113L01**

Parameter	Result	RL	DF	Qual	Units
Methane	2.15	0.500	1		%v

Method Blank	**099-03-002-684**	**N/A**	**Air**	**GC 34**	**N/A**	**11/13/08 08:56**	**081113L01**

Parameter	Result	RL	DF	Qual	Units
Methane	ND	0.500	1		%v

RL - Reporting Limit , DF - Dilution Factor , Qual - Qualifiers

Calscience Environmental Laboratories, Inc.

Analytical Report

Conestoga-Rovers & Associates
5900 Hollis Street, Suite A
Emeryville, CA 94608-2008

Date Received: 11/13/08
Work Order No: 08-11-1147
Preparation: N/A
Method: EPA TO-3M

Project: 1784 150th Ave., San Leandro, CA

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
EW-1	**08-11-1147-1-A**	**11/11/08 16:30**	**Air**	**GC 13**	**N/A**	**11/13/08 15:28**	**081113L01**

Parameter	Result	RL	DF	Qual	Units
TPH as Gasoline	1800	12	4		ppm (v/v)

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
INF-2	**08-11-1147-2-A**	**11/11/08 16:40**	**Air**	**GC 13**	**N/A**	**11/13/08 14:19**	**081113L01**

Parameter	Result	RL	DF	Qual	Units
TPH as Gasoline	590	3.0	1		ppm (v/v)

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
EW-1	**08-11-1147-4-A**	**11/12/08 07:30**	**Air**	**GC 13**	**N/A**	**11/13/08 15:12**	**081113L01**

Parameter	Result	RL	DF	Qual	Units
TPH as Gasoline	1400	12	4		ppm (v/v)

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
EW-2	**08-11-1147-5-A**	**11/12/08 10:20**	**Air**	**GC 13**	**N/A**	**11/13/08 15:02**	**081113L01**

Parameter	Result	RL	DF	Qual	Units
TPH as Gasoline	1600	12	4		ppm (v/v)

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Method Blank	**098-01-005-1,555**	**N/A**	**Air**	**GC 13**	**N/A**	**11/13/08 09:42**	**081113L01**

Parameter	Result	RL	DF	Qual	Units
TPH as Gasoline	ND	3.0	1		ppm (v/v)

RL - Reporting Limit , DF - Dilution Factor , Qual - Qualifiers

Calscience Environmental Laboratories, Inc.

Analytical Report

Conestoga-Rovers & Associates
5900 Hollis Street, Suite A
Emeryville, CA 94608-2008

Date Received: 11/13/08
Work Order No: 08-11-1147
Preparation: N/A
Method: EPA TO-15
Units: ppm (v/v)

Project: 1784 150th Ave., San Leandro, CA

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
EW-1	**08-11-1147-1-A**	**11/11/08 16:30**	**Air**	**GC/MS NN**	**N/A**	**11/13/08 23:58**	**081113L01**

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
Benzene	0.58	0.22	450		p/m-Xylene	2.3	0.90	450	
Toluene	0.70	0.22	450		o-Xylene	ND	0.22	450	
Ethylbenzene	1.4	0.22	450		Methyl-t-Butyl Ether (MTBE)	ND	0.90	450	
Surrogates:	REC (%)	Control Limits		Qual	Surrogates:	REC (%)	Control Limits		Qual
1,4-Bromofluorobenzene	98	57-129			1,2-Dichloroethane-d4	101	47-137		
Toluene-d8	100	78-156							

INF-2	**08-11-1147-2-A**	**11/11/08 16:40**	**Air**	**GC/MS NN**	**N/A**	**11/14/08 00:45**	**081113L01**

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
Benzene	0.18	0.075	150		p/m-Xylene	0.94	0.30	150	
Toluene	0.25	0.075	150		o-Xylene	0.15	0.075	150	
Ethylbenzene	0.46	0.075	150		Methyl-t-Butyl Ether (MTBE)	ND	0.30	150	
Surrogates:	REC (%)	Control Limits		Qual	Surrogates:	REC (%)	Control Limits		Qual
1,4-Bromofluorobenzene	99	57-129			1,2-Dichloroethane-d4	99	47-137		
Toluene-d8	98	78-156							

EW-1	**08-11-1147-4-A**	**11/12/08 07:30**	**Air**	**GC/MS NN**	**N/A**	**11/14/08 01:35**	**081113L01**

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
Benzene	2.6	0.15	300		p/m-Xylene	5.1	0.60	300	
Toluene	0.73	0.15	300		o-Xylene	0.30	0.15	300	
Ethylbenzene	2.7	0.15	300		Methyl-t-Butyl Ether (MTBE)	ND	0.60	300	
Surrogates:	REC (%)	Control Limits		Qual	Surrogates:	REC (%)	Control Limits		Qual
1,4-Bromofluorobenzene	99	57-129			1,2-Dichloroethane-d4	100	47-137		
Toluene-d8	99	78-156							

EW-2	**08-11-1147-5-A**	**11/12/08 10:20**	**Air**	**GC/MS NN**	**N/A**	**11/14/08 02:23**	**081113L01**

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
Benzene	1.0	0.22	450		p/m-Xylene	4.3	0.90	450	
Toluene	1.1	0.22	450		o-Xylene	0.69	0.22	450	
Ethylbenzene	3.4	0.22	450		Methyl-t-Butyl Ether (MTBE)	ND	0.90	450	
Surrogates:	REC (%)	Control Limits		Qual	Surrogates:	REC (%)	Control Limits		Qual
1,4-Bromofluorobenzene	99	57-129			1,2-Dichloroethane-d4	100	47-137		
Toluene-d8	101	78-156							

RL - Reporting Limit , DF - Dilution Factor , Qual - Qualifiers

Calscience Environmental Laboratories, Inc.

Analytical Report

Conestoga-Rovers & Associates	Date Received:	11/13/08
5900 Hollis Street, Suite A	Work Order No:	08-11-1147
Emeryville, CA 94608-2008	Preparation:	N/A
	Method:	EPA TO-15
	Units:	ppm (v/v)

Project: 1784 150th Ave., San Leandro, CA

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Method Blank	**097-09-002-7,850**	**N/A**	**Air**	**GC/MS NN**	**N/A**	**11/13/08 13:41**	**081113L01**

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
Benzene	ND	0.00050	1		p/m-Xylene	ND	0.0020	1	
Toluene	ND	0.00050	1		o-Xylene	ND	0.00050	1	
Ethylbenzene	ND	0.00050	1		Methyl-t-Butyl Ether (MTBE)	ND	0.0020	1	
Surrogates:	REC (%)	Control Limits		Qual	Surrogates:	REC (%)	Control Limits		Qual
1,4-Bromofluorobenzene	95	57-129			1,2-Dichloroethane-d4	96	47-137		
Toluene-d8	94	78-156							

RL - Reporting Limit , DF - Dilution Factor , Qual - Qualifiers

Calscience Environmental Laboratories, Inc.

Quality Control - Duplicate

Conestoga-Rovers & Associates		Date Received:	11/13/08
5900 Hollis Street, Suite A		Work Order No:	08-11-1147
Emeryville, CA 94608-2008		Preparation:	N/A
		Method:	EPA TO-3M

Project: 1784 150th Ave., San Leandro, CA

Quality Control Sample ID	Matrix	Instrument	Date Prepared:	Date Analyzed:	Duplicate Batch Number
08-11-1108-2	**Air**	**GC 13**	**N/A**	**11/13/08**	**081113D01**

Parameter	Sample Conc	DUP Conc	RPD	RPD CL	Qualifiers
TPH as Gasoline	69	69	0	0-20	

RPD - Relative Percent Difference , CL - Control Limit

Calscience Environmental Laboratories, Inc.

Quality Control - LCS/LCS Duplicate

Conestoga-Rovers & Associates
5900 Hollis Street, Suite A
Emeryville, CA 94608-2008

Date Received: N/A
Work Order No: 08-11-1147
Preparation: N/A
Method: ASTM D-1946

Project: 1784 150th Ave., San Leandro, CA

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	LCS/LCSD Batch Number
099-03-002-684	**Air**	**GC 34**	**N/A**	**11/13/08**	**081113L01**

Parameter	LCS Conc	LCSD Conc	RPD	RPD CL	Qualifiers
Carbon Dioxide	9.290	9.656	4	0-30	
Oxygen + Argon	3.249	3.521	8	0-30	
Nitrogen	9.471	10.35	9	0-30	

RPD - Relative Percent Difference , CL - Control Limit

Calscience Environmental Laboratories, Inc.

Quality Control - LCS/LCS Duplicate

Conestoga-Rovers & Associates
5900 Hollis Street, Suite A
Emeryville, CA 94608-2008

Date Received: N/A
Work Order No: 08-11-1147
Preparation: N/A
Method: EPA TO-15

Project: 1784 150th Ave., San Leandro, CA

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	LCS/LCSD Batch Number
097-09-002-7,850	**Air**	**GC/MS NN**	**N/A**	**11/13/08**	**081113L01**

Parameter	LCS %REC	LCSD %REC	%REC CL	RPD	RPD CL	Qualifiers
Benzene	100	102	60-156	2	0-40	
Toluene	97	100	56-146	3	0-43	
Ethylbenzene	94	97	52-154	3	0-38	
p/m-Xylene	93	95	42-156	3	0-41	
o-Xylene	92	94	52-148	3	0-38	

RPD - Relative Percent Difference , CL - Control Limit

Calscience Environmental Laboratories, Inc.

Glossary of Terms and Qualifiers

Work Order Number: 08-11-1147

Qualifier	Definition
*	See applicable analysis comment.
1	Surrogate compound recovery was out of control due to a required sample dilution, therefore, the sample data was reported without further clarification.
2	Surrogate compound recovery was out of control due to matrix interference. The associated method blank surrogate spike compound was in control and, therefore, the sample data was reported without further clarification.
3	Recovery of the Matrix Spike (MS) or Matrix Spike Duplicate (MSD) compound was out of control due to matrix interference. The associated LCS and/or LCSD was in control and, therefore, the sample data was reported without further clarification.
4	The MS/MSD RPD was out of control due to matrix interference. The LCS/LCSD RPD was in control and, therefore, the sample data was reported without further clarification.
5	The PDS/PDSD associated with this batch of samples was out of control due to a matrix interference effect. The associated batch LCS/LCSD was in control and, hence, the associated sample data was reported with no further corrective action required.
A	Result is the average of all dilutions, as defined by the method.
B	Analyte was present in the associated method blank.
C	Analyte presence was not confirmed on primary column.
E	Concentration exceeds the calibration range.
H	Sample received and/or analyzed past the recommended holding time.
J	Analyte was detected at a concentration below the reporting limit and above the laboratory method detection limit. Reported value is estimated.
ME	LCS Recovery Percentage is within LCS ME Control Limit range.
N	Nontarget Analyte.
ND	Parameter not detected at the indicated reporting limit.
Q	Spike recovery and RPD control limits do not apply resulting from the parameter concentration in the sample exceeding the spike concentration by a factor of four or greater.
U	Undetected at the laboratory method detection limit.
X	% Recovery and/or RPD out-of-range.
Z	Analyte presence was not confirmed by second column or GC/MS analysis.

Shell Oil Products Chain Of Custody Record

LAB (LOCATION)
☑ CALSCIENCE ( )
☐ SPL ( )
☐ XENCO ( )
☐ TEST AMERICA ( )
☐ OTHER ( )

Please Check Appropriate Box:
☑ ENV. SERVICES ☐ MOTIVA RETAIL ☐ SHELL RETAIL
☐ MOTIVA SD&OM ☐ CONSULTANT ☐ LUBES
☐ SHELL PIPELINE ☐ OTHER

Print Bill To Contact Name: Denis Brown
INCIDENT # (ENV SERVICES): 98996068
☐ CHECK IF NO INCIDENT # APPLIES
DATE:
PO #
SAP #
PAGE: 1 of 1

SAMPLING COMPANY: Conestoga-Rovers & Associates
LOG CODE: CRAW
ADDRESS: 5900 Hollis St, Ste A, Emeryville, CA 94608
PROJECT CONTACT (Hardcopy or PDF Report to): Matthew Lundberg
TELEPHONE: 510.420.3346 FAX: 510.420.9170 E-MAIL: mlundberg@craworld.com

SITE ADDRESS: Street and City: 1784 150th Ave, San Leandro
State: CA
GLOBAL ID NO.: T0600101230
EDF DELIVERABLE TO (Name, Company, Office Location): Brenda Carter, CRA, Emeryville
PHONE NO.: 510-420-3343
E-MAIL: shelledf@craworld.com
CONSULTANT PROJECT NO.: 240612-2008-13
SAMPLER NAME(S) PRINT: Mark Johnson
LAB USE ONLY: 11-1147

TURNAROUND TIME (CALENDAR DAYS):
☑ STANDARD (14 DAY) ☐ 5 DAYS ☐ 3 DAYS ☐ 2 DAYS ☐ 24 HOURS ☐ RESULTS NEEDED ON WEEKEND
☐ LA - RWQCB REPORT FORMAT ☐ UST AGENCY:

SPECIAL INSTRUCTIONS OR NOTES:
cc reports to tjackson@craworld.com & pschaefer@craworld.com
Results should be reported in ppmv

☑ SHELL CONTRACT RATE APPLIES
☐ STATE REIMBURSEMENT RATE APPLIES
☐ EDD NOT NEEDED
☑ RECEIPT VERIFICATION REQUESTED

REQUESTED ANALYSIS

LAB USE ONLY	Field Sample Identification	SAMPLING DATE	SAMPLING TIME	MATRIX	PRESERVATIVE HCL	HNO3	H2SO4	NONE	OTHER	NO. OF CONT.	TPH - Purgeable (TO-3M)	TPH - Extractable (8015M)	BTEX (TO-15)	5 Oxygenates (8260B)	MTBE (TO-15)	TBA (8260B)	DIPE (8260B)	TAME (8260B)	ETBE (8260B)	1,2 DCA (8260B)	EDB (8260B)	Ethanol (8260B)	Methanol (8015M)	Methane (ASTM D1946)	TEMPERATURE ON RECEIPT C°
1	EW-1	11/11	16:31	VA				x		2	x		x		x										Tedlar Bag
2	INF-2	11/11	16:41	VA				x		2	x		x		x										Tedlar Bag
3	~~EW-2~~ EW-1 DUP	11/11	16:20	VA				x		2														x	Tedlar Bag
4	EW-1	11/12	09:39	VA				x		2	x		x		x										TEDLAR BAG
5	EW-2	11/12	10:20	VA				x		2	x		x		x										TEDLAR BAG

Note-Only process the duplicate bag if the first bag arrives deflated.
Container PID Readings or Laboratory Notes

Relinquished by: (Signature) Mark Johnson
Received by: (Signature) CRW
Date: 11-12-08 Time: 1240

Relinquished by: (Signature) 11/12/08
Tom O'Malley TO GSO 1730
Received by: (Signature)
Date: Time:

Relinquished by: (Signature)
6505107730169
Received by: (Signature) Wbatts CE
Date: 11/13/08 Time: 1000

05/2008 Revision

NOV-11-2008 11:22 CAMBRIA

Calscience Environmental Laboratories, Inc.

WORK ORDER #: 08-11-1147

SAMPLE RECEIPT FORM

Box Cooler 0 of 0

CLIENT: CRA

DATE: 11 / 13 / 08

TEMPERATURE: (Criteria: 0.0 °C – 6.0 °C, not frozen)

Temperature ____.____ °C - 0.2 °C (CF) = ____.____ °C ☐ Blank ☐ Sample

☐ Sample(s) outside temperature criteria (PM/APM contacted by:_____).

☐ Sample(s) outside temperature criteria but received on ice/chilled on same day of sampling.

☐ **Received at ambient temperature, placed on ice for transport by Courier.**

Ambient Temperature: ☑ Air ☐ Filter ☐ Metals Only ☐ PCBs Only **Initial:** WB

CUSTODY SEALS INTACT:

☐ Cooler ☐_____ ☐ No (Not Intact) ☑ Not Present ☐ N/A **Initial:** WB

☐ Sample ☐_____ ☐ No (Not Intact) ☑ Not Present **Initial:** PS

SAMPLE CONDITION:

	Yes	No	N/A
Chain-Of-Custody document(s) received with samples	☑	☐	☐
Sampler's name indicated on COC	☑	☐	☐
Sample container label(s) consistent with COC	☑	☐	☐
Sample container(s) intact and good condition	☑	☐	☐
Correct containers and volume for analyses requested	☑	☐	☐
Analyses received within holding time	☑	☐	☐
Proper preservation noted on sample label(s)	☐	☐	☑
Volatile analysis container(s) free of headspace	☐	☐	☑
Tedlar bag(s) free of condensation	☑	☐	☐

CONTAINER TYPE:

Solid: ☐4ozCGJ ☐8ozCGJ ☐16ozCGJ ☐Sleeve ☐EnCores® ☐TerraCores® ☐_____

Water: ☐VOA ☐VOAh ☐VOAna_2 ☐125AGB ☐125AGBh ☐125AGBpo_4 ☐1AGB ☐1AGBna_2 ☐1AGBs ☐500AGB ☐500AGBs ☐250CGB ☐250CGBs ☐1PB ☐500PB ☐500PBna ☐250PB ☐250PBn ☐125PB ☐125PBznna ☐100PBsterile ☐100PBna_2 ☐_____ ☐_____ ☐_____

Air: ☑Tedlar® ☐Summa® ☐_____

Container: C:Clear A:Amber P:Poly/Plastic G:Glass J:Jar B:Bottle

Preservative: h:HCL n:HNO_3 na_2:$Na_2S_2O_3$ na:NaOH po_4:H_3PO_4 s:H_2SO_4 znna:$ZnAc_2$+NaOH

Checked/Labeled by: PS

Reviewed by: WB

Scanned by: PS

Calscience Environmental Laboratories, Inc.

December 02, 2008

Matthew Lundberg
Conestoga-Rovers & Associates
5900 Hollis Street, Suite A
Emeryville, CA 94608-2008

Subject: **Calscience Work Order No.: 08-11-1364**
Client Reference: 1784 150th Ave., San Leandro, CA

Dear Client:

Enclosed is an analytical report for the above-referenced project. The samples included in this report were received 11/14/2008 and analyzed in accordance with the attached chain-of-custody.

Unless otherwise noted, all analytical testing was accomplished in accordance with the guidelines established in our Quality Systems Manual, applicable standard operating procedures, and other related documentation. The original report of subcontracted analysis, if any, is provided herein, and follows the standard Calscience data package. The results in this analytical report are limited to the samples tested and any reproduction thereof must be made in its entirety.

If you have any questions regarding this report, please do not hesitate to contact the undersigned.

Sincerely,

Calscience Environmental
Laboratories, Inc.
Jessie Kim
Project Manager

Calscience Environmental Laboratories, Inc.

Analytical Report

Conestoga-Rovers & Associates
5900 Hollis Street, Suite A
Emeryville, CA 94608-2008

Date Received: 11/14/08
Work Order No: 08-11-1364
Preparation: N/A
Method: ASTM D-1946

Project: 1784 150th Ave., San Leandro, CA

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
EW-2 (15:45)	**08-11-1364-2-A**	**11/12/08 15:45**	**Air**	**GC 34**	**N/A**	**11/14/08 14:14**	**081114L02**

Parameter	Result	RL	DF	Qual	Units
Methane	ND	0.500	1		%v

Method Blank	**099-03-002-687**	**N/A**	**Air**	**GC 34**	**N/A**	**11/14/08 08:50**	**081114L02**

Parameter	Result	RL	DF	Qual	Units
Methane	ND	0.500	1		%v

RL - Reporting Limit , DF - Dilution Factor , Qual - Qualifiers

Calscience Environmental Laboratories, Inc.

Analytical Report

Conestoga-Rovers & Associates
5900 Hollis Street, Suite A
Emeryville, CA 94608-2008

Date Received: 11/14/08
Work Order No: 08-11-1364
Preparation: N/A
Method: EPA TO-3M

Project: 1784 150th Ave., San Leandro, CA

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
EW-2 (15:40)	**08-11-1364-1-A**	**11/12/08 15:40**	**Air**	**GC 39**	**N/A**	**11/14/08 18:03**	**081114L02**

Parameter	Result	RL	DF	Qual	Units
TPH as Gasoline	1400	12	4		ppm (v/v)

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
INF-1 (16:20)	**08-11-1364-3-A**	**11/12/08 16:20**	**Air**	**GC 39**	**N/A**	**11/14/08 19:11**	**081114L02**

Parameter	Result	RL	DF	Qual	Units
TPH as Gasoline	1600	12	4		ppm (v/v)

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
EW-1 (16:25)	**08-11-1364-4-A**	**11/12/08 16:25**	**Air**	**GC 39**	**N/A**	**11/14/08 19:41**	**081114L02**

Parameter	Result	RL	DF	Qual	Units
TPH as Gasoline	61	3.0	1		ppm (v/v)

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
EW-2 (16:40)	**08-11-1364-5-A**	**11/12/08 16:40**	**Air**	**GC 39**	**N/A**	**11/14/08 18:13**	**081114L02**

Parameter	Result	RL	DF	Qual	Units
TPH as Gasoline	1100	12	4		ppm (v/v)

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
EW-1 (14:30)	**08-11-1364-6-A**	**11/13/08 14:30**	**Air**	**GC 39**	**N/A**	**11/14/08 18:22**	**081114L02**

Parameter	Result	RL	DF	Qual	Units
TPH as Gasoline	1300	12	4		ppm (v/v)

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
EW-2 (14:25)	**08-11-1364-7-A**	**11/13/08 14:25**	**Air**	**GC 39**	**N/A**	**11/14/08 17:42**	**081114L02**

Parameter	Result	RL	DF	Qual	Units
TPH as Gasoline	690	3.0	1		ppm (v/v)

RL - Reporting Limit , DF - Dilution Factor , Qual - Qualifiers

Calscience Environmental Laboratories, Inc.

Analytical Report

Conestoga-Rovers & Associates
5900 Hollis Street, Suite A
Emeryville, CA 94608-2008

Date Received: 11/14/08
Work Order No: 08-11-1364
Preparation: N/A
Method: EPA TO-3M

Project: 1784 150th Ave., San Leandro, CA

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
INF-1 (14:35)	**08-11-1364-8-A**	**11/13/08 14:35**	**Air**	**GC 39**	**N/A**	**11/14/08 18:31**	**081114L02**

Parameter	Result	RL	DF	Qual	Units
TPH as Gasoline	990	12	4		ppm (v/v)

Method Blank	**098-01-005-1,565**	**N/A**	**Air**	**GC 39**	**N/A**	**11/14/08 13:32**	**081114L02**

Parameter	Result	RL	DF	Qual	Units
TPH as Gasoline	ND	3.0	1		ppm (v/v)

RL - Reporting Limit , DF - Dilution Factor , Qual - Qualifiers

Calscience Environmental Laboratories, Inc.

Analytical Report

Conestoga-Rovers & Associates		Date Received:	11/14/08
5900 Hollis Street, Suite A		Work Order No:	08-11-1364
Emeryville, CA 94608-2008		Preparation:	N/A
		Method:	EPA TO-15
		Units:	ppm (v/v)

Project: 1784 150th Ave., San Leandro, CA

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
EW-2 (15:40)	**08-11-1364-1-A**	**11/12/08 15:40**	**Air**	**GC/MS YY**	**N/A**	**11/15/08 12:40**	**081115L01**

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
Benzene	3.2	0.20	400		p/m-Xylene	14	0.80	400	
Toluene	1.3	0.20	400		o-Xylene	2.7	0.20	400	
Ethylbenzene	7.9	0.20	400		Methyl-t-Butyl Ether (MTBE)	ND	0.80	400	
Surrogates:	REC (%)	Control Limits		Qual	Surrogates:	REC (%)	Control Limits		Qual
1,4-Bromofluorobenzene	102	57-129			1,2-Dichloroethane-d4	103	47-137		
Toluene-d8	85	78-156							

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
INF-1 (16:20)	**08-11-1364-3-A**	**11/12/08 16:20**	**Air**	**GC/MS YY**	**N/A**	**11/15/08 13:24**	**081115L01**

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
Benzene	2.8	0.20	400		p/m-Xylene	8.5	0.80	400	
Toluene	0.85	0.20	400		o-Xylene	1.4	0.20	400	
Ethylbenzene	4.7	0.20	400		Methyl-t-Butyl Ether (MTBE)	ND	0.80	400	
Surrogates:	REC (%)	Control Limits		Qual	Surrogates:	REC (%)	Control Limits		Qual
1,4-Bromofluorobenzene	100	57-129			1,2-Dichloroethane-d4	101	47-137		
Toluene-d8	86	78-156							

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
EW-1 (16:25)	**08-11-1364-4-A**	**11/12/08 16:25**	**Air**	**GC/MS YY**	**N/A**	**11/15/08 14:07**	**081115L01**

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
Benzene	0.070	0.0080	16		p/m-Xylene	0.15	0.032	16	
Toluene	0.012	0.0080	16		o-Xylene	0.013	0.0080	16	
Ethylbenzene	0.082	0.0080	16		Methyl-t-Butyl Ether (MTBE)	ND	0.032	16	
Surrogates:	REC (%)	Control Limits		Qual	Surrogates:	REC (%)	Control Limits		Qual
1,4-Bromofluorobenzene	100	57-129			1,2-Dichloroethane-d4	101	47-137		
Toluene-d8	87	78-156							

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
EW-2 (16:40)	**08-11-1364-5-A**	**11/12/08 16:40**	**Air**	**GC/MS YY**	**N/A**	**11/15/08 14:51**	**081115L01**

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
Benzene	2.5	0.15	300		p/m-Xylene	13	0.60	300	
Toluene	1.1	0.15	300		o-Xylene	2.5	0.15	300	
Ethylbenzene	7.1	0.15	300		Methyl-t-Butyl Ether (MTBE)	ND	0.60	300	
Surrogates:	REC (%)	Control Limits		Qual	Surrogates:	REC (%)	Control Limits		Qual
1,4-Bromofluorobenzene	102	57-129			1,2-Dichloroethane-d4	101	47-137		
Toluene-d8	82	78-156							

RL - Reporting Limit , DF - Dilution Factor , Qual - Qualifiers

Calscience Environmental Laboratories, Inc.

Analytical Report

Conestoga-Rovers & Associates
5900 Hollis Street, Suite A
Emeryville, CA 94608-2008

Date Received: 11/14/08
Work Order No: 08-11-1364
Preparation: N/A
Method: EPA TO-15
Units: ppm (v/v)

Project: 1784 150th Ave., San Leandro, CA

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
EW-1 (14:30)	**08-11-1364-6-A**	**11/13/08 14:30**	**Air**	**GC/MS YY**	**N/A**	**11/15/08 15:35**	**081115L01**

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
Benzene	3.7	0.15	300		p/m-Xylene	8.2	0.60	300	
Toluene	0.69	0.15	300		o-Xylene	0.80	0.15	300	
Ethylbenzene	4.0	0.15	300		Methyl-t-Butyl Ether (MTBE)	ND	0.60	300	
Surrogates:	REC (%)	Control Limits		Qual	Surrogates:	REC (%)	Control Limits		Qual
1,4-Bromofluorobenzene	102	57-129			1,2-Dichloroethane-d4	100	47-137		
Toluene-d8	82	78-156							

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
EW-2 (14:25)	**08-11-1364-7-A**	**11/13/08 14:25**	**Air**	**GC/MS YY**	**N/A**	**11/15/08 16:19**	**081115L01**

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
Benzene	1.4	0.10	200		p/m-Xylene	10	0.40	200	
Toluene	1.3	0.10	200		o-Xylene	2.4	0.10	200	
Ethylbenzene	4.2	0.10	200		Methyl-t-Butyl Ether (MTBE)	ND	0.40	200	
Surrogates:	REC (%)	Control Limits		Qual	Surrogates:	REC (%)	Control Limits		Qual
1,4-Bromofluorobenzene	104	57-129			1,2-Dichloroethane-d4	100	47-137		
Toluene-d8	84	78-156							

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
INF-1 (14:35)	**08-11-1364-8-A**	**11/13/08 14:35**	**Air**	**GC/MS YY**	**N/A**	**11/15/08 17:03**	**081115L01**

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
Benzene	2.5	0.12	250		p/m-Xylene	7.9	0.50	250	
Toluene	0.97	0.12	250		o-Xylene	1.3	0.12	250	
Ethylbenzene	3.6	0.12	250		Methyl-t-Butyl Ether (MTBE)	ND	0.50	250	
Surrogates:	REC (%)	Control Limits		Qual	Surrogates:	REC (%)	Control Limits		Qual
1,4-Bromofluorobenzene	103	57-129			1,2-Dichloroethane-d4	100	47-137		
Toluene-d8	83	78-156							

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Method Blank	**097-09-002-7,896**	**N/A**	**Air**	**GC/MS YY**	**N/A**	**11/15/08 11:56**	**081115L01**

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
Benzene	ND	0.00050	1		p/m-Xylene	ND	0.0020	1	
Toluene	ND	0.00050	1		o-Xylene	ND	0.00050	1	
Ethylbenzene	ND	0.00050	1		Methyl-t-Butyl Ether (MTBE)	ND	0.0020	1	
Surrogates:	REC (%)	Control Limits		Qual	Surrogates:	REC (%)	Control Limits		Qual
1,4-Bromofluorobenzene	97	57-129			1,2-Dichloroethane-d4	100	47-137		
Toluene-d8	99	78-156							

RL - Reporting Limit , DF - Dilution Factor , Qual - Qualifiers

Calscience Environmental Laboratories, Inc.

Quality Control - Duplicate

Conestoga-Rovers & Associates	Date Received:	11/14/08
5900 Hollis Street, Suite A	Work Order No:	08-11-1364
Emeryville, CA 94608-2008	Preparation:	N/A
	Method:	EPA TO-3M

Project: 1784 150th Ave., San Leandro, CA

Quality Control Sample ID	Matrix	Instrument	Date Prepared:	Date Analyzed:	Duplicate Batch Number
08-11-1365-2	**Air**	**GC 39**	**N/A**	**11/14/08**	**081114D02**

Parameter	Sample Conc	DUP Conc	RPD	RPD CL	Qualifiers
TPH as Gasoline	8.4	8.3	1	0-20	

RPD - Relative Percent Difference , CL - Control Limit

Calscience Environmental Laboratories, Inc.

Quality Control - LCS/LCS Duplicate

Conestoga-Rovers & Associates	Date Received:	N/A
5900 Hollis Street, Suite A	Work Order No:	08-11-1364
Emeryville, CA 94608-2008	Preparation:	N/A
	Method:	ASTM D-1946

Project: 1784 150th Ave., San Leandro, CA

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	LCS/LCSD Batch Number
099-03-002-687	**Air**	**GC 34**	**N/A**	**11/14/08**	**081114L02**

Parameter	LCS Conc	LCSD Conc	RPD	RPD CL	Qualifiers
Carbon Dioxide	8.847	9.610	8	0-30	
Oxygen + Argon	3.265	3.759	14	0-30	
Nitrogen	9.655	11.20	15	0-30	

RPD - Relative Percent Difference , CL - Control Limit

Calscience Environmental Laboratories, Inc.

Quality Control - LCS/LCS Duplicate

Conestoga-Rovers & Associates	Date Received:	N/A
5900 Hollis Street, Suite A	Work Order No:	08-11-1364
Emeryville, CA 94608-2008	Preparation:	N/A
	Method:	EPA TO-15

Project: 1784 150th Ave., San Leandro, CA

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	LCS/LCSD Batch Number
097-09-002-7,896	**Air**	**GC/MS YY**	**N/A**	**11/15/08**	**081115L01**

Parameter	LCS %REC	LCSD %REC	%REC CL	RPD	RPD CL	Qualifiers
Benzene	114	108	60-156	5	0-40	
Toluene	104	101	56-146	3	0-43	
Ethylbenzene	114	109	52-154	4	0-38	
p/m-Xylene	102	98	42-156	4	0-41	
o-Xylene	108	104	52-148	4	0-38	

RPD - Relative Percent Difference , CL - Control Limit

Calscience Environmental Laboratories, Inc.

Glossary of Terms and Qualifiers

Work Order Number: 08-11-1364

Qualifier	Definition
*	See applicable analysis comment.
1	Surrogate compound recovery was out of control due to a required sample dilution, therefore, the sample data was reported without further clarification.
2	Surrogate compound recovery was out of control due to matrix interference. The associated method blank surrogate spike compound was in control and, therefore, the sample data was reported without further clarification.
3	Recovery of the Matrix Spike (MS) or Matrix Spike Duplicate (MSD) compound was out of control due to matrix interference. The associated LCS and/or LCSD was in control and, therefore, the sample data was reported without further clarification.
4	The MS/MSD RPD was out of control due to matrix interference. The LCS/LCSD RPD was in control and, therefore, the sample data was reported without further clarification.
5	The PDS/PDSD associated with this batch of samples was out of control due to a matrix interference effect. The associated batch LCS/LCSD was in control and, hence, the associated sample data was reported with no further corrective action required.
A	Result is the average of all dilutions, as defined by the method.
B	Analyte was present in the associated method blank.
C	Analyte presence was not confirmed on primary column.
E	Concentration exceeds the calibration range.
H	Sample received and/or analyzed past the recommended holding time.
J	Analyte was detected at a concentration below the reporting limit and above the laboratory method detection limit. Reported value is estimated.
ME	LCS Recovery Percentage is within LCS ME Control Limit range.
N	Nontarget Analyte.
ND	Parameter not detected at the indicated reporting limit.
Q	Spike recovery and RPD control limits do not apply resulting from the parameter concentration in the sample exceeding the spike concentration by a factor of four or greater.
U	Undetected at the laboratory method detection limit.
X	% Recovery and/or RPD out-of-range.
Z	Analyte presence was not confirmed by second column or GC/MS analysis.

Shell Oil Products Chain Of Custody Record

LAB (LOCATION)
- ☑ CALSCIENCE (_____)
- ☐ SPL (_____)
- ☐ XENCO (_____)
- ☐ TEST AMERICA (_____)
- ☐ OTHER (_____)

Please Check Appropriate Box:
☑ ENV. SERVICES | ☐ MOTIVA RETAIL | ☐ SHELL RETAIL
☐ MOTIVA SD&CM | ☐ CONSULTANT | ☐ LUBES
☐ SHELL PIPELINE | ☐ OTHER _____

Print Bill To Contact Name: Denis Brown
PO #
INCIDENT # (ENV SERVICES): 9 8 9 9 6 0 6 8
SAP #
☐ CHECK IF NO INCIDENT # APPLIES
DATE: 11/12/08
PAGE: 1 of 1

SAMPLING COMPANY: Conestoga-Rovers & Associates
LOG CODE: CRAW
SITE ADDRESS: Street and City: 1784 150th Ave, San Leandro
State: CA
GLOBAL ID NO.: T0600101230
ADDRESS: 5900 Hollis St, Ste A, Emeryville, CA 94608
EDF DELIVERABLE TO (Name, Company, Office Location): Brenda Carter, CRA, Emeryville
PHONE NO.: 510-420-3343
E-MAIL: shelledf@craworld.com
CONSULTANT PROJECT NO.: 240612-2008-13
PROJECT CONTACT (Hardcopy or PDF Report to): Matthew Lundberg
TELEPHONE: 510-420-3346
FAX: 510.420.9170
E-MAIL: mlundberg@craworld.com
SAMPLER NAME(S) (Print): Mark Johnson
LAB USE ONLY: 08-11-1364

TURNAROUND TIME (CALENDAR DAYS):
☑ STANDARD (14 DAY) ☐ 5 DAYS ☐ 3 DAYS ☐ 2 DAYS ☐ 24 HOURS ☐ RESULTS NEEDED ON WEEKEND

☐ LA - RWQCB REPORT FORMAT ☐ UST AGENCY:

SPECIAL INSTRUCTIONS OR NOTES :
cc reports to tjackson@craworld.com & pschaefer@craworld.com
Results should be reported in ppmv

☑ SHELL CONTRACT RATE APPLIES
☐ STATE REIMBURSEMENT RATE APPLIES
☐ EDD NOT NEEDED
☑ RECEIPT VERIFICATION REQUESTED

REQUESTED ANALYSIS

LAB USE ONLY	Field Sample Identification	SAMPLING DATE	SAMPLING TIME	MATRIX	PRESERVATIVE HCL	HNO3	H2SO4	NONE	OTHER	NO. OF CONT.	TPH - Purgeable (TO-3M)	TPH - Extractable (8015M)	BTEX (TO-15)	5 Oxygenates (8260B)	MTBE (TO-15)	TBA (8260B)	DIPE (8260B)	TAME (8260B)	ETBE (8260B)	1,2 DCA (8260B)	EDB (8260B)	Ethanol (8260B)	Methanol (8015M)	Methane (ASTM D1946)	TEMPERATURE ON RECEIPT C°
1	EW-2	11/12	15:40	VA				x		2	x		x		x										Tedlar Bag
				VA				x		2	x		x		x										Tedlar Bag
2	~~EW-2~~ EW-2		15:45	VA				x		2														x	Tedlar Bag
3	INF-1		16:20	VA				x		2	x		x		x										
4	EW-1		16:25	VA				x		2	x		x		x										
5	EW-2		16:40	VA				x		2	x		x		x										
6	~~EW-1~~																								
6	EW-1	11/13	14:30	VA				x		2	x		x		x										
7	EW-2	11/13	14:25	VA				x		2	x		x		x										
8	INF-1	11/13	14:35	VA				x		2	x		x		x										

Note-Only process the duplicate bag if the first bag arrives deflated.
Container PID Readings or Laboratory Notes

Relinquished by: (Signature)	Received by: (Signature)	Date:	Time:
Mark Johnson	Tom O'Malley CEL	11/13/08	1440
Tom O'Malley TO GSO 11/13/08 1730			
GSO 5M0738767	Danny G CEL	11/14/08	10:30

05/2/06 Revision

Calscience Environmental Laboratories, Inc.

WORK ORDER #: 08-11-1364

SAMPLE RECEIPT FORM

Cooler 0 of 0

CLIENT: CRA DATE: 11/14/08

TEMPERATURE: (Criteria: 0.0 °C – 6.0 °C, not frozen)

Temperature ____.____ °C - 0.2 °C (CF) = ____.____ °C ☐ Blank ☐ Sample

☐ Sample(s) outside temperature criteria (PM/APM contacted by:_____).

☐ Sample(s) outside temperature criteria but received on ice/chilled on same day of sampling.

☐ **Received at ambient temperature, placed on ice for transport by Courier.**

Ambient Temperature: ☑ Air ☐ Filter ☐ Metals Only ☐ PCBs Only **Initial:** D.L

CUSTODY SEALS INTACT:

☐ Cooler ☐_____ ☐ No (Not Intact) ☐ Not Present ☑ N/A **Initial:** D.L

☐ Sample ☐_____ ☐ No (Not Intact) ☑ Not Present **Initial:** D.L

SAMPLE CONDITION:

	Yes	No	N/A
Chain-Of-Custody document(s) received with samples	☑	☐	☐
Sampler's name indicated on COC	☑	☐	☐
Sample container label(s) consistent with COC	☑	☐	☐
Sample container(s) intact and good condition	☑	☐	☐
Correct containers and volume for analyses requested	☑	☐	☐
Analyses received within holding time	☑	☐	☐
Proper preservation noted on sample label(s)	☐	☐	☑
Volatile analysis container(s) free of headspace	☐	☐	☑
Tedlar bag(s) free of condensation	☑	☐	☐

CONTAINER TYPE:

Solid: ☐4ozCGJ ☐8ozCGJ ☐16ozCGJ ☐Sleeve ☐EnCores® ☐TerraCores® ☐_____

Water: ☐VOA ☐VOAh ☐VOAna_2 ☐125AGB ☐125AGBh ☐125AGBpo_4 ☐1AGB ☐1AGBna_2 ☐1AGBs ☐500AGB ☐500AGBs ☐250CGB ☐250CGBs ☐1PB ☐500PB ☐500PBna ☐250PB ☐250PBn ☐125PB ☐125PBznna ☐100PBsterile ☐100PBna_2 ☐_____ ☐_____ ☐_____

Air: ☑Tedlar® ☐Summa® ☐_____ **Checked/Labeled by:** D.L

Container: C:Clear A:Amber P:Poly/Plastic G:Glass J:Jar B:Bottle **Reviewed by:** YL

Preservative: h:HCL n:HNO_3 na_2:$Na_2S_2O_3$ na:NaOH po_4:H_3PO_4 s:H_2SO_4 znna:$ZnAc_2$+NaOH **Scanned by:** D.L

Calscience Environmental Laboratories, Inc.

December 03, 2008

Matthew Lundberg
Conestoga-Rovers & Associates
19449 Riverside Drive, Suite 230
Sonoma, CA 95476-6955

Subject: **Calscience Work Order No.: 08-11-1592**
Client Reference: 1784 150th Ave., San Leandro, CA

Dear Client:

Enclosed is an analytical report for the above-referenced project. The samples included in this report were received 11/18/2008 and analyzed in accordance with the attached chain-of-custody.

Unless otherwise noted, all analytical testing was accomplished in accordance with the guidelines established in our Quality Systems Manual, applicable standard operating procedures, and other related documentation. The original report of subcontracted analysis, if any, is provided herein, and follows the standard Calscience data package. The results in this analytical report are limited to the samples tested and any reproduction thereof must be made in its entirety.

If you have any questions regarding this report, please do not hesitate to contact the undersigned.

Sincerely,

Calscience Environmental
Laboratories, Inc.
Jessie Kim
Project Manager

Calscience Environmental Laboratories, Inc.

Analytical Report

Conestoga-Rovers & Associates		Date Received:	11/18/08
19449 Riverside Drive, Suite 230		Work Order No:	08-11-1592
Sonoma, CA 95476-6955		Preparation:	N/A
		Method:	EPA TO-3M

Project: 1784 150th Ave., San Leandro, CA

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
INF-1	**08-11-1592-1-A**	**11/17/08 09:25**	**Air**	**GC 39**	**N/A**	**11/18/08 14:02**	**081118L01**

Parameter	Result	RL	DF	Qual	Units
TPH as Gasoline	1100	30	10		ppm (v/v)

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
INF-2	**08-11-1592-2-A**	**11/17/08 09:30**	**Air**	**GC 39**	**N/A**	**11/18/08 14:20**	**081118L01**

Parameter	Result	RL	DF	Qual	Units
TPH as Gasoline	1200	30	10		ppm (v/v)

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
EW-1	**08-11-1592-3-A**	**11/17/08 09:35**	**Air**	**GC 39**	**N/A**	**11/18/08 14:29**	**081118L01**

Parameter	Result	RL	DF	Qual	Units
TPH as Gasoline	1200	30	10		ppm (v/v)

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
EW-2	**08-11-1592-4-A**	**11/17/08 09:40**	**Air**	**GC 39**	**N/A**	**11/18/08 14:38**	**081118L01**

Parameter	Result	RL	DF	Qual	Units
TPH as Gasoline	750	30	10		ppm (v/v)

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Method Blank	**098-01-005-1,570**	**N/A**	**Air**	**GC 39**	**N/A**	**11/18/08 09:04**	**081118L01**

Parameter	Result	RL	DF	Qual	Units
TPH as Gasoline	ND	3.0	1		ppm (v/v)

RL - Reporting Limit , DF - Dilution Factor , Qual - Qualifiers

Calscience Environmental Laboratories, Inc.

Analytical Report

Conestoga-Rovers & Associates	Date Received:	11/18/08
19449 Riverside Drive, Suite 230	Work Order No:	08-11-1592
Sonoma, CA 95476-6955	Preparation:	N/A
	Method:	EPA TO-15
	Units:	ppm (v/v)

Project: 1784 150th Ave., San Leandro, CA

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
INF-1	**08-11-1592-1-A**	**11/17/08 09:25**	**Air**	**GC/MS DD**	**N/A**	**11/18/08 22:16**	**081118L01**

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
Benzene	1.7	0.15	300		p/m-Xylene	4.9	0.60	300	
Toluene	0.85	0.15	300		o-Xylene	0.73	0.15	300	
Ethylbenzene	2.0	0.15	300		Methyl-t-Butyl Ether (MTBE)	ND	0.60	300	
Surrogates:	REC (%)	Control Limits		Qual	Surrogates:	REC (%)	Control Limits		Qual
1,4-Bromofluorobenzene	92	57-129			1,2-Dichloroethane-d4	126	47-137		
Toluene-d8	111	78-156							

INF-2	**08-11-1592-2-A**	**11/17/08 09:30**	**Air**	**GC/MS DD**	**N/A**	**11/18/08 23:06**	**081118L01**

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
Benzene	1.8	0.15	300		p/m-Xylene	5.2	0.60	300	
Toluene	0.79	0.15	300		o-Xylene	0.76	0.15	300	
Ethylbenzene	2.2	0.15	300		Methyl-t-Butyl Ether (MTBE)	ND	0.60	300	
Surrogates:	REC (%)	Control Limits		Qual	Surrogates:	REC (%)	Control Limits		Qual
1,4-Bromofluorobenzene	90	57-129			1,2-Dichloroethane-d4	99	47-137		
Toluene-d8	101	78-156							

EW-1	**08-11-1592-3-A**	**11/17/08 09:35**	**Air**	**GC/MS DD**	**N/A**	**11/18/08 23:55**	**081118L01**

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
Benzene	2.7	0.15	300		p/m-Xylene	4.8	0.60	300	
Toluene	0.87	0.15	300		o-Xylene	0.43	0.15	300	
Ethylbenzene	2.1	0.15	300		Methyl-t-Butyl Ether (MTBE)	ND	0.60	300	
Surrogates:	REC (%)	Control Limits		Qual	Surrogates:	REC (%)	Control Limits		Qual
1,4-Bromofluorobenzene	76	57-129			1,2-Dichloroethane-d4	93	47-137		
Toluene-d8	98	78-156							

EW-2	**08-11-1592-4-A**	**11/17/08 09:40**	**Air**	**GC/MS DD**	**N/A**	**11/19/08 00:44**	**081118L01**

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
Benzene	0.84	0.12	250		p/m-Xylene	6.0	0.50	250	
Toluene	1.0	0.12	250		o-Xylene	1.3	0.12	250	
Ethylbenzene	2.4	0.12	250		Methyl-t-Butyl Ether (MTBE)	ND	0.50	250	
Surrogates:	REC (%)	Control Limits		Qual	Surrogates:	REC (%)	Control Limits		Qual
1,4-Bromofluorobenzene	77	57-129			1,2-Dichloroethane-d4	90	47-137		
Toluene-d8	96	78-156							

RL - Reporting Limit , DF - Dilution Factor , Qual - Qualifiers

Calscience Environmental Laboratories, Inc.

Analytical Report

Conestoga-Rovers & Associates	Date Received:	11/18/08
19449 Riverside Drive, Suite 230	Work Order No:	08-11-1592
Sonoma, CA 95476-6955	Preparation:	N/A
	Method:	EPA TO-15
	Units:	ppm (v/v)

Project: 1784 150th Ave., San Leandro, CA

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Method Blank	**097-09-002-7,881**	**N/A**	**Air**	**GC/MS DD**	**N/A**	**11/18/08 14:30**	**081118L01**

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
Benzene	ND	0.00050	1		p/m-Xylene	ND	0.0020	1	
Toluene	ND	0.00050	1		o-Xylene	ND	0.00050	1	
Ethylbenzene	ND	0.00050	1		Methyl-t-Butyl Ether (MTBE)	ND	0.0020	1	
Surrogates:	REC (%)	Control Limits		Qual	Surrogates:	REC (%)	Control Limits		Qual
1,4-Bromofluorobenzene	87	57-129			1,2-Dichloroethane-d4	109	47-137		
Toluene-d8	94	78-156							

RL - Reporting Limit , DF - Dilution Factor , Qual - Qualifiers

Calscience Environmental Laboratories, Inc.

Quality Control - Duplicate

Conestoga-Rovers & Associates	Date Received:	11/18/08
19449 Riverside Drive, Suite 230	Work Order No:	08-11-1592
Sonoma, CA 95476-6955	Preparation:	N/A
	Method:	EPA TO-3M

Project: 1784 150th Ave., San Leandro, CA

Quality Control Sample ID	Matrix	Instrument	Date Prepared:	Date Analyzed:	Duplicate Batch Number
INF-1	**Air**	**GC 39**	**N/A**	**11/18/08**	**081118D01**

Parameter	Sample Conc	DUP Conc	RPD	RPD CL	Qualifiers
TPH as Gasoline	1100	1100	3	0-20	

RPD - Relative Percent Difference , CL - Control Limit

Calscience Environmental Laboratories, Inc.

Quality Control - LCS/LCS Duplicate

Conestoga-Rovers & Associates
19449 Riverside Drive, Suite 230
Sonoma, CA 95476-6955

Date Received: N/A
Work Order No: 08-11-1592
Preparation: N/A
Method: EPA TO-15

Project: 1784 150th Ave., San Leandro, CA

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	LCS/LCSD Batch Number
097-09-002-7,881	**Air**	**GC/MS DD**	**N/A**	**11/18/08**	**081118L01**

Parameter	LCS %REC	LCSD %REC	%REC CL	RPD	RPD CL	Qualifiers
Benzene	102	105	60-156	2	0-40	
Toluene	105	105	56-146	0	0-43	
Ethylbenzene	104	104	52-154	0	0-38	
p/m-Xylene	103	102	42-156	1	0-41	
o-Xylene	104	103	52-148	1	0-38	

RPD - Relative Percent Difference , CL - Control Limit

Calscience Environmental Laboratories, Inc.

Glossary of Terms and Qualifiers

Work Order Number: 08-11-1592

Qualifier	Definition
*	See applicable analysis comment.
1	Surrogate compound recovery was out of control due to a required sample dilution, therefore, the sample data was reported without further clarification.
2	Surrogate compound recovery was out of control due to matrix interference. The associated method blank surrogate spike compound was in control and, therefore, the sample data was reported without further clarification.
3	Recovery of the Matrix Spike (MS) or Matrix Spike Duplicate (MSD) compound was out of control due to matrix interference. The associated LCS and/or LCSD was in control and, therefore, the sample data was reported without further clarification.
4	The MS/MSD RPD was out of control due to matrix interference. The LCS/LCSD RPD was in control and, therefore, the sample data was reported without further clarification.
5	The PDS/PDSD associated with this batch of samples was out of control due to a matrix interference effect. The associated batch LCS/LCSD was in control and, hence, the associated sample data was reported with no further corrective action required.
A	Result is the average of all dilutions, as defined by the method.
B	Analyte was present in the associated method blank.
C	Analyte presence was not confirmed on primary column.
E	Concentration exceeds the calibration range.
H	Sample received and/or analyzed past the recommended holding time.
J	Analyte was detected at a concentration below the reporting limit and above the laboratory method detection limit. Reported value is estimated.
ME	LCS Recovery Percentage is within LCS ME Control Limit range.
N	Nontarget Analyte.
ND	Parameter not detected at the indicated reporting limit.
Q	Spike recovery and RPD control limits do not apply resulting from the parameter concentration in the sample exceeding the spike concentration by a factor of four or greater.
U	Undetected at the laboratory method detection limit.
X	% Recovery and/or RPD out-of-range.
Z	Analyte presence was not confirmed by second column or GC/MS analysis.

From: Lundberg, Matthew
To: Jessie Kim;
cc: Jackson, Treysa;
Subject: RE: Leaking tedlar bags from 1784 150th Ave., San Leandro, CA
Date: Tuesday, November 18, 2008 11:38:02 AM

Ok. Please do all you can to run these samples. Thanks!
Thanks,
Matthew Lundberg
Conestoga-Rovers & Associates (CRA)
5900 Hollis Street, Suite A
Emeryville, CA 94608
P.510.420.3346
F.510.420.9170

-----Original Message-----
From: Jessie Kim [mailto:JKim@calscience.com]
Sent: Tuesday, November 18, 2008 11:37 AM
To: Lundberg, Matthew
Cc: Jackson, Treysa
Subject: RE: Leaking tedlar bags from 1784 150th Ave., San Leandro, CA
I think so. When we received them, they were leaking.
-----Original Message-----
From: Lundberg, Matthew [mailto:mlundberg@craworld.com]
Sent: Tuesday, November 18, 2008 11:32 AM
To: Jessie Kim
Cc: Jackson, Treysa
Subject: RE: Leaking tedlar bags from 1784 150th Ave., San Leandro, CA

Hi Jessie,
Did these break during transit?
Thanks,
Matthew Lundberg
Conestoga-Rovers & Associates (CRA)
5900 Hollis Street, Suite A
Emeryville, CA 94608
P.510.420.3346
F.510.420.9170

-----Original Message-----
From: Jessie Kim [mailto:JKim@calscience.com]
Sent: Tuesday, November 18, 2008 11:31 AM
To: Lundberg, Matthew
Subject: Leaking tedlar bags from 1784 150th Ave., San Leandro, CA
Importance: High
Hi Matthew,
We received the tedlar bags from the above referenced site today. I got informed that both tedlar bags for sample EW-2 are leaking.
I just like to let you know that we try to transfer those to other bags.

Thanks!
Best Regards,

Shell Oil Products Chain Of Custody Record

LAB (LOCATION)
- ☑ CALSCIENCE (_____)
- ☐ SPL (_____)
- ☐ XENCO (_____)
- ☐ TEST AMERICA (_____)
- ☐ OTHER (_____)

Please Check Appropriate Box:
☑ ENV. SERVICES | ☐ MOTIVA RETAIL | ☐ SHELL RETAIL
☐ MOTIVA SD&CM | ☐ CONSULTANT | ☐ LUBES
☐ SHELL PIPELINE | ☐ OTHER _____

Print Bill To Contact Name: Denis Brown
PO #

INCIDENT # (ENV SERVICES): 9 8 9 9 6 0 6 8
SAP #

☐ CHECK IF NO INCIDENT # APPLIES
DATE: 11-17-08
PAGE: 1 of 1

SAMPLING COMPANY: Conestoga-Rovers & Associates	LOG CODE: CRAW	SITE ADDRESS: Street and City: 1784 150th Ave, San Leandro	State: CA
GLOBAL ID NO.: T0600101230			
ADDRESS: 19449 Riverside Drive, Suite 230, Sonoma, California 95476		EDF DELIVERABLE TO (Name, Company, Office Location): Brenda Carter, CRA, Emeryville	PHONE NO.: 510-420-3343
E-MAIL: shelledf@craworld.com	CONSULTANT PROJECT NO.: 240612-2008-13		
PROJECT CONTACT (Hardcopy or PDF Report to): Matthew Lundberg		SAMPLER NAME(S) (Print): Mark Johnson	LAB USE ONLY: 11-1592
TELEPHONE: 510-420-3346	FAX: 510.420.9170	E-MAIL: mlundberg@craworld.com	

TURNAROUND TIME (CALENDAR DAYS): ☑ STANDARD (14 DAY) ☐ 5 DAYS ☐ 3 DAYS ☐ 2 DAYS ☐ 24 HOURS ☐ RESULTS NEEDED ON WEEKEND

☐ LA - RWQCB REPORT FORMAT ☐ UST AGENCY:

SPECIAL INSTRUCTIONS OR NOTES :
cc reports to tjackson@craworld.com & pschaefer@craworld.com
Results should be reported in ppmv

☑ SHELL CONTRACT RATE APPLIES
☐ STATE REIMBURSEMENT RATE APPLIES
☐ EDD NOT NEEDED
☑ RECEIPT VERIFICATION REQUESTED

REQUESTED ANALYSIS

LAB USE ONLY	Field Sample Identification	SAMPLING DATE	SAMPLING TIME	MATRIX	PRESERVATIVE HCL	HNO3	H2SO4	NONE	OTHER	NO. OF CONT.	TPH - Purgeable (TO-3M)	TPH - Extractable (8015M)	BTEX (TO-15)	5 Oxygenates (8260B)	MTBE (TO-15)	TBA (8260B)	DIPE (8260B)	TAME (8260B)	ETBE (8260B)	1,2 DCA (8260B)	EDB (8260B)	Ethanol (8260B)	Methanol (8015M)	Methane (ASTM D1946)	TEMPERATURE ON RECEIPT C° / Note-Only process the duplicate bag if the first bag arrives deflated. / Container PID Readings or Laboratory Notes
1	INF-1	11/17/08	09:25	VA				x		2	x		x		x										Tedlar Bag
2	INF-2	11-17	09:30	VA				x		2	x		x		x										Tedlar Bag
3	EW-1	11-17	09:35	VA				x		2	x		x		x										TEDLAR BAG
4	EW-2	11-17	09:40	VA				x		2	x		x		x										TEDLAR BAG

Relinquished by: (Signature) Mark Johnson	Received by: (Signature) Tom Oppelley CEL	Date: 11/17/08	Time: 1348
Relinquished by: (Signature) Tom Oppelley TO GSO	Received by: (Signature)	Date: 11/17/08	Time: 1730
Relinquished by: (Signature) GSO # 510755752	Received by: (Signature) Mary A. CEL	Date: 11/18/08	Time: 10:15

05/2/06 Revision

Calscience Environmental Laboratories, Inc.

WORK ORDER #: 08-11-1591

SAMPLE RECEIPT FORM

BOX ~~Cooler~~ 1 of 1

CLIENT: CRA DATE: 11 / 18 / 08

TEMPERATURE: (Criteria: 0.0 °C – 6.0 °C, not frozen)

Temperature ____•____ °C - 0.2 °C (CF) = ____•____ °C ☐ Blank ☐ Sample

☐ Sample(s) outside temperature criteria (PM/APM contacted by:_____).

☐ Sample(s) outside temperature criteria but received on ice/chilled on same day of sampling.

☐ **Received at ambient temperature, placed on ice for transport by Courier.**

Ambient Temperature: ☑ Air ☐ Filter ☐ Metals Only ☐ PCBs Only **Initial:** RS

CUSTODY SEALS INTACT:

☐ Cooler ☑ BOX ☐ No (Not Intact) ☐ Not Present ☐ N/A **Initial:** RS

☐ Sample ☐ _____ ☐ No (Not Intact) ☑ Not Present **Initial:** YL

SAMPLE CONDITION:

	Yes	No	N/A
Chain-Of-Custody document(s) received with samples.....	☑	☐	☐
Sampler's name indicated on COC.....	☑	☐	☐
Sample container label(s) consistent with COC.....	☑	☐	☐
Sample container(s) intact and good condition.....	☐	☑	☐
Correct containers and volume for analyses requested.....	☑	☐	☐
Analyses received within holding time.....	☑	☐	☐
Proper preservation noted on sample label(s).....	☐	☐	☑
Volatile analysis container(s) free of headspace.....	☐	☐	☑
Tedlar bag(s) free of condensation.....	☑	☐	☐

CONTAINER TYPE:

Solid: ☐4ozCGJ ☐8ozCGJ ☐16ozCGJ ☐Sleeve ☐EnCores® ☐TerraCores® ☐_____

Water: ☐VOA ☐VOAh ☐VOAna_2 ☐125AGB ☐125AGBh ☐125AGBpo_4 ☐1AGB ☐1AGBna_2 ☐1AGBs ☐500AGB ☐500AGBs ☐250CGB ☐250CGBs ☐1PB ☐500PB ☐500PBna ☐250PB ☐250PBn ☐125PB ☐125PBznna ☐100PBsterile ☐100PBna_2 ☐_____ ☐_____ ☐_____

Air: 2 ☑Tedlar® ☐Summa® ☐_____

Container: C:Clear A:Amber P:Poly/Plastic G:Glass J:Jar B:Bottle

Preservative: h:HCL n:HNO_3 na_2:$Na_2S_2O_3$ na:NaOH po_4:H_3PO_4 s:H_2SO_4 znna:$ZnAc_2$+NaOH

Checked/Labeled by: YL

Reviewed by: AO

Scanned by: YL

Calscience Environmental Laboratories, Inc.

WORK ORDER #: 08-11-11K92

SAMPLE ANOMALY FORM

CHAIN OF CUSTODY (COC):

- ☐ **Not relinquished by client – no signature**
- ☐ **No date/time relinquished**
- ☐ **COC not received with samples** – notify PM
- ☐ **Incomplete information regarding samples, tests, etc.**

Comments:

SAMPLES - CONTAINERS & LABELS:

- ☐ **Samples NOT RECEIVED but listed on COC**
- ☐ **Samples received but NOT LISTED on COC**
- ☐ **Holding time expired** – list sample ID(s) and test
- ☐ **Insufficient quantities for analysis** – list test
- ☐ **Improper container(s) used** – list test
- ☐ **No preservative noted on label** – list test and notify lab
- ☐ **Sample labels illegible** – note test/container type
- ☐ **Sample labels do not match COC** – Note in comments
  - ☐ **Sample ID**
  - ☐ **Date and Time Collected**
  - ☐ **Project Information**
  - ☐ **# of containers**
- ☒ **Sample containers compromised** – Note in comments
  - ☒ **Leaking**
  - ☐ **Broken**
  - ☐ **Without Labels**
- ☐ **Other:** _____

Comments:

(-4) two Tedlar bags leaking, transfer to one Tedlar bag (new)

HEADSPACE – Containers with Bubble > 6mm or ¼ inch:

Sample #	Container ID(s)	# of Vials Received	Sample #	Container ID(s)	# of Vials Received	Sample #	Container ID(s)	# of RSK or CO_2 or DO or Organic Lead Received

Comments: _____

Initial / Date YL 11/18/08

Calscience Environmental Laboratories, Inc.

December 01, 2008

Matthew Lundberg
Conestoga-Rovers & Associates
19449 Riverside Drive, Suite 230
Sonoma, CA 95476-6955

Subject: **Calscience Work Order No.: 08-11-1712**
Client Reference: 1784 150th Ave., San Leandro, CA

Dear Client:

Enclosed is an analytical report for the above-referenced project. The samples included in this report were received 11/19/2008 and analyzed in accordance with the attached chain-of-custody.

Unless otherwise noted, all analytical testing was accomplished in accordance with the guidelines established in our Quality Systems Manual, applicable standard operating procedures, and other related documentation. The original report of subcontracted analysis, if any, is provided herein, and follows the standard Calscience data package. The results in this analytical report are limited to the samples tested and any reproduction thereof must be made in its entirety.

If you have any questions regarding this report, please do not hesitate to contact the undersigned.

Sincerely,

Calscience Environmental
Laboratories, Inc.
Jessie Kim
Project Manager

Calscience Environmental Laboratories, Inc.

Analytical Report

Conestoga-Rovers & Associates
19449 Riverside Drive, Suite 230
Sonoma, CA 95476-6955

Date Received: 11/19/08
Work Order No: 08-11-1712
Preparation: N/A
Method: EPA TO-3M

Project: 1784 150th Ave., San Leandro, CA

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
EW-1	**08-11-1712-1-A**	**11/17/08 14:30**	**Air**	**GC 39**	**N/A**	**11/19/08 15:37**	**081119L01**

Parameter	Result	RL	DF	Qual	Units
TPH as Gasoline	1200	15	5		ppm (v/v)

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
EW-2	**08-11-1712-2-A**	**11/17/08 14:35**	**Air**	**GC 39**	**N/A**	**11/19/08 15:50**	**081119L01**

Parameter	Result	RL	DF	Qual	Units
TPH as Gasoline	590	15	5		ppm (v/v)

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
INF-2	**08-11-1712-3-A**	**11/17/08 14:40**	**Air**	**GC 39**	**N/A**	**11/19/08 16:02**	**081119L01**

Parameter	Result	RL	DF	Qual	Units
TPH as Gasoline	1200	15	5		ppm (v/v)

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
EW-1	**08-11-1712-4-A**	**11/18/08 07:30**	**Air**	**GC 39**	**N/A**	**11/19/08 16:14**	**081119L01**

Parameter	Result	RL	DF	Qual	Units
TPH as Gasoline	1000	15	5		ppm (v/v)

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
EW-2	**08-11-1712-5-A**	**11/18/08 07:35**	**Air**	**GC 39**	**N/A**	**11/19/08 16:25**	**081119L01**

Parameter	Result	RL	DF	Qual	Units
TPH as Gasoline	430	15	5		ppm (v/v)

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
INF-2	**08-11-1712-6-A**	**11/18/08 07:40**	**Air**	**GC 39**	**N/A**	**11/19/08 16:35**	**081119L01**

Parameter	Result	RL	DF	Qual	Units
TPH as Gasoline	920	15	5		ppm (v/v)

RL - Reporting Limit , DF - Dilution Factor , Qual - Qualifiers

Calscience Environmental Laboratories, Inc.

Analytical Report

Conestoga-Rovers & Associates
19449 Riverside Drive, Suite 230
Sonoma, CA 95476-6955

Date Received:	11/19/08
Work Order No:	08-11-1712
Preparation:	N/A
Method:	EPA TO-3M

Project: 1784 150th Ave., San Leandro, CA

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Method Blank	**098-01-005-1,569**	**N/A**	**Air**	**GC 39**	**N/A**	**11/19/08 08:41**	**081119L01**

Parameter	Result	RL	DF	Qual	Units
TPH as Gasoline	ND	3.0	1		ppm (v/v)

RL - Reporting Limit , DF - Dilution Factor , Qual - Qualifiers

Calscience Environmental Laboratories, Inc.

Analytical Report

Conestoga-Rovers & Associates
19449 Riverside Drive, Suite 230
Sonoma, CA 95476-6955

Date Received: 11/19/08
Work Order No: 08-11-1712
Preparation: N/A
Method: EPA TO-15
Units: ppm (v/v)

Project: 1784 150th Ave., San Leandro, CA

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
EW-1	**08-11-1712-1-A**	**11/17/08 14:30**	**Air**	**GC/MS ZZ**	**N/A**	**11/19/08 20:41**	**081119L01**

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
Benzene	3.1	0.15	300		p/m-Xylene	3.4	0.60	300	
Toluene	0.74	0.15	300		o-Xylene	0.62	0.15	300	
Ethylbenzene	2.9	0.15	300		Methyl-t-Butyl Ether (MTBE)	ND	0.60	300	
Surrogates:	REC (%)	Control Limits		Qual	Surrogates:	REC (%)	Control Limits		Qual
1,4-Bromofluorobenzene	109	57-129			1,2-Dichloroethane-d4	126	47-137		
Toluene-d8	95	78-156							

EW-2	**08-11-1712-2-A**	**11/17/08 14:35**	**Air**	**GC/MS ZZ**	**N/A**	**11/19/08 21:25**	**081119L01**

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
Benzene	0.96	0.075	150		p/m-Xylene	9.6	0.30	150	
Toluene	0.99	0.075	150		o-Xylene	2.1	0.075	150	
Ethylbenzene	3.4	0.075	150		Methyl-t-Butyl Ether (MTBE)	ND	0.30	150	
Surrogates:	REC (%)	Control Limits		Qual	Surrogates:	REC (%)	Control Limits		Qual
1,4-Bromofluorobenzene	111	57-129			1,2-Dichloroethane-d4	115	47-137		
Toluene-d8	89	78-156							

INF-2	**08-11-1712-3-A**	**11/17/08 14:40**	**Air**	**GC/MS ZZ**	**N/A**	**11/19/08 22:09**	**081119L01**

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
Benzene	2.3	0.15	300		p/m-Xylene	7.9	0.60	300	
Toluene	1.0	0.15	300		o-Xylene	1.1	0.15	300	
Ethylbenzene	3.1	0.15	300		Methyl-t-Butyl Ether (MTBE)	ND	0.60	300	
Surrogates:	REC (%)	Control Limits		Qual	Surrogates:	REC (%)	Control Limits		Qual
1,4-Bromofluorobenzene	108	57-129			1,2-Dichloroethane-d4	113	47-137		
Toluene-d8	91	78-156							

EW-1	**08-11-1712-4-A**	**11/18/08 07:30**	**Air**	**GC/MS ZZ**	**N/A**	**11/19/08 22:54**	**081119L01**

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
Benzene	3.5	0.15	300		p/m-Xylene	8.3	0.60	300	
Toluene	1.1	0.15	300		o-Xylene	0.93	0.15	300	
Ethylbenzene	3.3	0.15	300		Methyl-t-Butyl Ether (MTBE)	ND	0.60	300	
Surrogates:	REC (%)	Control Limits		Qual	Surrogates:	REC (%)	Control Limits		Qual
1,4-Bromofluorobenzene	107	57-129			1,2-Dichloroethane-d4	110	47-137		
Toluene-d8	92	78-156							

RL - Reporting Limit , DF - Dilution Factor , Qual - Qualifiers

Calscience Environmental Laboratories, Inc.

Analytical Report

Conestoga-Rovers & Associates		Date Received:	11/19/08
19449 Riverside Drive, Suite 230		Work Order No:	08-11-1712
Sonoma, CA 95476-6955		Preparation:	N/A
		Method:	EPA TO-15
		Units:	ppm (v/v)

Project: 1784 150th Ave., San Leandro, CA

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
EW-2	**08-11-1712-5-A**	**11/18/08 07:35**	**Air**	**GC/MS ZZ**	**N/A**	**11/19/08 23:39**	**081119L01**

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
Benzene	1.3	0.050	100		p/m-Xylene	9.9	0.20	100	
Toluene	1.5	0.050	100		o-Xylene	2.5	0.050	100	
Ethylbenzene	3.4	0.050	100		Methyl-t-Butyl Ether (MTBE)	0.25	0.20	100	
Surrogates:	REC (%)	Control Limits		Qual	Surrogates:	REC (%)	Control Limits		Qual
1,4-Bromofluorobenzene	110	57-129			1,2-Dichloroethane-d4	107	47-137		
Toluene-d8	85	78-156							

INF-2	**08-11-1712-6-A**	**11/18/08 07:40**	**Air**	**GC/MS ZZ**	**N/A**	**11/20/08 00:24**	**081119L01**

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
Benzene	2.9	0.12	250		p/m-Xylene	11	0.50	250	
Toluene	1.4	0.12	250		o-Xylene	1.7	0.12	250	
Ethylbenzene	3.9	0.12	250		Methyl-t-Butyl Ether (MTBE)	ND	0.50	250	
Surrogates:	REC (%)	Control Limits		Qual	Surrogates:	REC (%)	Control Limits		Qual
1,4-Bromofluorobenzene	108	57-129			1,2-Dichloroethane-d4	106	47-137		
Toluene-d8	89	78-156							

Method Blank	**097-09-002-7,874**	**N/A**	**Air**	**GC/MS ZZ**	**N/A**	**11/19/08 11:17**	**081119L01**

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
Benzene	ND	0.00050	1		p/m-Xylene	ND	0.0020	1	
Toluene	ND	0.00050	1		o-Xylene	ND	0.00050	1	
Ethylbenzene	ND	0.00050	1		Methyl-t-Butyl Ether (MTBE)	ND	0.0020	1	
Surrogates:	REC (%)	Control Limits		Qual	Surrogates:	REC (%)	Control Limits		Qual
1,4-Bromofluorobenzene	107	57-129			1,2-Dichloroethane-d4	131	47-137		
Toluene-d8	98	78-156							

RL - Reporting Limit , DF - Dilution Factor , Qual - Qualifiers

Calscience Environmental Laboratories, Inc.

Quality Control - Duplicate

Conestoga-Rovers & Associates		Date Received:	11/19/08
19449 Riverside Drive, Suite 230		Work Order No:	08-11-1712
Sonoma, CA 95476-6955		Preparation:	N/A
		Method:	EPA TO-3M

Project: 1784 150th Ave., San Leandro, CA

Quality Control Sample ID	Matrix	Instrument	Date Prepared:	Date Analyzed:	Duplicate Batch Number
08-11-1713-1	**Air**	**GC 39**	**N/A**	**11/19/08**	**081119D01**

Parameter	Sample Conc	DUP Conc	RPD	RPD CL	Qualifiers
TPH as Gasoline	300	320	4	0-20	

RPD - Relative Percent Difference , CL - Control Limit

Calscience Environmental Laboratories, Inc.

Quality Control - LCS/LCS Duplicate

Conestoga-Rovers & Associates
19449 Riverside Drive, Suite 230
Sonoma, CA 95476-6955

Date Received: N/A
Work Order No: 08-11-1712
Preparation: N/A
Method: EPA TO-15

Project: 1784 150th Ave., San Leandro, CA

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	LCS/LCSD Batch Number
097-09-002-7,874	**Air**	**GC/MS ZZ**	**N/A**	**11/19/08**	**081119L01**

Parameter	LCS %REC	LCSD %REC	%REC CL	RPD	RPD CL	Qualifiers
Benzene	89	101	60-156	13	0-40	
Toluene	90	105	56-146	15	0-43	
Ethylbenzene	103	118	52-154	13	0-38	
p/m-Xylene	106	121	42-156	13	0-41	
o-Xylene	109	123	52-148	13	0-38	

RPD - Relative Percent Difference , CL - Control Limit

Calscience Environmental Laboratories, Inc.

Glossary of Terms and Qualifiers

Work Order Number: 08-11-1712

Qualifier	Definition
*	See applicable analysis comment.
1	Surrogate compound recovery was out of control due to a required sample dilution, therefore, the sample data was reported without further clarification.
2	Surrogate compound recovery was out of control due to matrix interference. The associated method blank surrogate spike compound was in control and, therefore, the sample data was reported without further clarification.
3	Recovery of the Matrix Spike (MS) or Matrix Spike Duplicate (MSD) compound was out of control due to matrix interference. The associated LCS and/or LCSD was in control and, therefore, the sample data was reported without further clarification.
4	The MS/MSD RPD was out of control due to matrix interference. The LCS/LCSD RPD was in control and, therefore, the sample data was reported without further clarification.
5	The PDS/PDSD associated with this batch of samples was out of control due to a matrix interference effect. The associated batch LCS/LCSD was in control and, hence, the associated sample data was reported with no further corrective action required.
A	Result is the average of all dilutions, as defined by the method.
B	Analyte was present in the associated method blank.
C	Analyte presence was not confirmed on primary column.
E	Concentration exceeds the calibration range.
H	Sample received and/or analyzed past the recommended holding time.
J	Analyte was detected at a concentration below the reporting limit and above the laboratory method detection limit. Reported value is estimated.
ME	LCS Recovery Percentage is within LCS ME Control Limit range.
N	Nontarget Analyte.
ND	Parameter not detected at the indicated reporting limit.
Q	Spike recovery and RPD control limits do not apply resulting from the parameter concentration in the sample exceeding the spike concentration by a factor of four or greater.
U	Undetected at the laboratory method detection limit.
X	% Recovery and/or RPD out-of-range.
Z	Analyte presence was not confirmed by second column or GC/MS analysis.

Shell Oil Products Chain Of Custody Record

LAB (LOCATION)
- ☑ CALSCIENCE (_____)
- ☐ SPL (_____)
- ☐ XENCO (_____)
- ☐ TEST AMERICA (_____)
- ☐ OTHER (_____)

Please Check Appropriate Box:
☑ ENV. SERVICES | ☐ MOTIVA RETAIL | ☐ SHELL RETAIL
☐ MOTIVA SD&CM | ☐ CONSULTANT | ☐ LUBES
☐ SHELL PIPELINE | ☐ OTHER _____

Print Bill To Contact Name: Denis Brown
PO #
INCIDENT # (ENV SERVICES): 9 8 9 9 6 0 6 8 ☐ CHECK IF NO INCIDENT # APPLIES
SAP #
DATE: 11/17/08
PAGE: 1 of 1

SAMPLING COMPANY: Conestoga-Rovers & Associates	LOG CODE: CRAW	SITE ADDRESS: Street and City: 1784 150th Ave, San Leandro	State: CA
GLOBAL ID NO.: T0600101230			
ADDRESS: 19449 Riverside Drive, Suite 230, Sonoma, California 95476		EDF DELIVERABLE TO (Name, Company, Office Location): Brenda Carter, CRA, Emeryville	PHONE NO.: 510-420-3343
E-MAIL: shelledf@craworld.com	CONSULTANT PROJECT NO.: 240612-2008-13		
PROJECT CONTACT (Hardcopy or PDF Report to): Matthew Lundberg		SAMPLER NAME(S) (Print): Mark Johnson	LAB USE ONLY: 11-1712
TELEPHONE: 510-420-3346	FAX: 510.420.9170	E-MAIL: mlundberg@craworld.com	

TURNAROUND TIME (CALENDAR DAYS): ☑ STANDARD (14 DAY) ☐ 5 DAYS ☐ 3 DAYS ☐ 2 DAYS ☐ 24 HOURS ☐ RESULTS NEEDED ON WEEKEND

☐ LA - RWQCB REPORT FORMAT ☐ UST AGENCY:

SPECIAL INSTRUCTIONS OR NOTES :
cc reports to tjackson@craworld.com & pschaefer@craworld.com
Results should be reported in ppmv

☑ SHELL CONTRACT RATE APPLIES
☐ STATE REIMBURSEMENT RATE APPLIES
☐ EDD NOT NEEDED
☑ RECEIPT VERIFICATION REQUESTED

REQUESTED ANALYSIS

LAB USE ONLY	Field Sample Identification	SAMPLING DATE	SAMPLING TIME	MATRIX	PRESERVATIVE HCL	HNO3	H2SO4	NONE	OTHER	NO. OF CONT.	TPH - Purgeable (TO-3M)	TPH - Extractable (8015M)	BTEX (TO-15)	5 Oxygenates (8260B)	MTBE (TO-15)	TBA (8260B)	DIPE (8260B)	TAME (8260B)	ETBE (8260B)	1,2 DCA (8260B)	EDB (8260B)	Ethanol (8260B)	Methanol (8015M)	Methane (ASTM D1946)	TEMPERATURE ON RECEIPT C° / Container PID Readings or Laboratory Notes
1	EW-1	11-17-08	14:30	VA				x		2	x		x		x										Tedlar Bag
2	EW-2	11-17	14:35	VA				x		2	x		x		x										Tedlar Bag
3	INF-2	11-17	14:40	VA				x		2	x		x		x										Tedlar bAG
4	EW-1	11-18	07:30	VA				x		2	x		x		x										
5	EW-2	11-18	07:35	VA				x		2	x		x		x										
6	INF-2	11-18	07:40	VA				x		2	x		x		x										

Note-Only process the duplicate bag if the first bag arrives deflated.

Relinquished by: (Signature) Mark Johnson	Received by: (Signature) Tom O'Malley CEL	Date: 11/18/08	Time: 1340
Relinquished by: (Signature) Tom O'Malley TO 650 11/18/08 1730	Received by: (Signature)	Date:	Time:
Relinquished by: (Signature) G.S.O. 5707623333	Received by: (Signature)	Date: 11/19/08	Time: 1020

05/2/06 Revision

Calscience Environmental Laboratories, Inc.

WORK ORDER #: 08-11-17112

SAMPLE RECEIPT FORM

Box Cooler 1 of 1

CLIENT: Conestoga-Rovers DATE: 11/19/08

TEMPERATURE: (Criteria: 0.0 °C – 6.0 °C, not frozen)

Temperature ____.____ °C - 0.2 °C (CF) = ____.____ °C ☐ Blank ☐ Sample

☐ Sample(s) outside temperature criteria (PM/APM contacted by:_____).

☐ Sample(s) outside temperature criteria but received on ice/chilled on same day of sampling.

☐ **Received at ambient temperature, placed on ice for transport by Courier.**

Ambient Temperature: ☑ Air ☐ Filter ☐ Metals Only ☐ PCBs Only **Initial:** WSC

CUSTODY SEALS INTACT:

☐ Cooler ☑ Box ☐ No (Not Intact) ☐ Not Present ☐ N/A **Initial:** WSC

☐ Sample ☐ _____ ☐ No (Not Intact) ☑ Not Present **Initial:** WS

SAMPLE CONDITION:

	Yes	No	N/A
Chain-Of-Custody document(s) received with samples	☑	☐	☐
Sampler's name indicated on COC	☑	☐	☐
Sample container label(s) consistent with COC	☑	☐	☐
Sample container(s) intact and good condition	☑	☐	☐
Correct containers and volume for analyses requested	☑	☐	☐
Analyses received within holding time	☑	☐	☐
Proper preservation noted on sample label(s)	☐	☐	☑
Volatile analysis container(s) free of headspace	☐	☐	☑
Tedlar bag(s) free of condensation	☑	☐	☐

CONTAINER TYPE:

Solid: ☐4ozCGJ ☐8ozCGJ ☐16ozCGJ ☐Sleeve ☐EnCores® ☐TerraCores® ☐_____

Water: ☐VOA ☐VOAh ☐VOAna_2 ☐125AGB ☐125AGBh ☐125AGBpo_4 ☐1AGB ☐1AGBna_2 ☐1AGBs ☐500AGB ☐500AGBs ☐250CGB ☐250CGBs ☐1PB ☐500PB ☐500PBna ☐250PB ☐250PBn ☐125PB ☐125PBznna ☐100PBsterile ☐100PBna_2 ☐_____ ☐_____ ☐_____

Air: ☑Tedlar® ☐Summa® ☐_____ **Checked/Labeled by:** WS

Container: C:Clear A:Amber P:Poly/Plastic G:Glass J:Jar B:Bottle **Reviewed by:** _____

Preservative: h:HCL n:HNO_3 na_2:$Na_2S_2O_3$ na:NaOH po_4:H_3PO_4 s:H_2SO_4 znna:$ZnAc_2$+NaOH **Scanned by:** WS

Calscience Environmental Laboratories, Inc.

December 03, 2008

Matthew Lundberg
Conestoga-Rovers & Associates
19449 Riverside Drive, Suite 230
Sonoma, CA 95476-6955

Subject: **Calscience Work Order No.: 08-11-1829**
Client Reference: 1784 150th Ave., San Leandro, CA

Dear Client:

Enclosed is an analytical report for the above-referenced project. The samples included in this report were received 11/20/2008 and analyzed in accordance with the attached chain-of-custody.

Unless otherwise noted, all analytical testing was accomplished in accordance with the guidelines established in our Quality Systems Manual, applicable standard operating procedures, and other related documentation. The original report of subcontracted analysis, if any, is provided herein, and follows the standard Calscience data package. The results in this analytical report are limited to the samples tested and any reproduction thereof must be made in its entirety.

If you have any questions regarding this report, please do not hesitate to contact the undersigned.

Sincerely,

Calscience Environmental
Laboratories, Inc.
Jessie Kim
Project Manager

Calscience Environmental Laboratories, Inc.

Analytical Report

Conestoga-Rovers & Associates
19449 Riverside Drive, Suite 230
Sonoma, CA 95476-6955

Date Received: 11/20/08
Work Order No: 08-11-1829
Preparation: N/A
Method: EPA TO-3M

Project: 1784 150th Ave., San Leandro, CA

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
EW-1 (11/18)	**08-11-1829-1-A**	**11/18/08 14:40**	**Air**	**GC 13**	**N/A**	**11/20/08 15:03**	**081120L01**

Parameter	Result	RL	DF	Qual	Units
TPH as Gasoline	890	15	5		ppm (v/v)

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
EW-2 (11/18)	**08-11-1829-2-A**	**11/18/08 14:45**	**Air**	**GC 13**	**N/A**	**11/20/08 13:45**	**081120L01**

Parameter	Result	RL	DF	Qual	Units
TPH as Gasoline	370	3.0	1		ppm (v/v)

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
INF-2 (11/18)	**08-11-1829-3-A**	**11/18/08 14:50**	**Air**	**GC 13**	**N/A**	**11/20/08 14:43**	**081120L01**

Parameter	Result	RL	DF	Qual	Units
TPH as Gasoline	810	7.5	2.5		ppm (v/v)

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
EW-1 (11/19)	**08-11-1829-4-A**	**11/19/08 06:55**	**Air**	**GC 13**	**N/A**	**11/20/08 15:13**	**081120L01**

Parameter	Result	RL	DF	Qual	Units
TPH as Gasoline	890	15	5		ppm (v/v)

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
EW-2 (11/19)	**08-11-1829-5-A**	**11/19/08 07:00**	**Air**	**GC 13**	**N/A**	**11/20/08 14:14**	**081120L01**

Parameter	Result	RL	DF	Qual	Units
TPH as Gasoline	340	3.0	1		ppm (v/v)

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
INF-2 (11/19)	**08-11-1829-6-A**	**11/19/08 07:05**	**Air**	**GC 13**	**N/A**	**11/20/08 14:53**	**081120L01**

Parameter	Result	RL	DF	Qual	Units
TPH as Gasoline	770	7.5	2.5		ppm (v/v)

RL - Reporting Limit , DF - Dilution Factor , Qual - Qualifiers

Calscience Environmental Laboratories, Inc.

Analytical Report

Conestoga-Rovers & Associates
19449 Riverside Drive, Suite 230
Sonoma, CA 95476-6955

Date Received:	11/20/08
Work Order No:	08-11-1829
Preparation:	N/A
Method:	EPA TO-3M

Project: 1784 150th Ave., San Leandro, CA

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Method Blank	**098-01-005-1,577**	**N/A**	**Air**	**GC 13**	**N/A**	**11/20/08 08:37**	**081120L01**

Parameter	Result	RL	DF	Qual	Units
TPH as Gasoline	ND	3.0	1		ppm (v/v)

RL - Reporting Limit , DF - Dilution Factor , Qual - Qualifiers

Calscience Environmental Laboratories, Inc.

Analytical Report

Conestoga-Rovers & Associates
19449 Riverside Drive, Suite 230
Sonoma, CA 95476-6955

Date Received: 11/20/08
Work Order No: 08-11-1829
Preparation: N/A
Method: EPA TO-15
Units: ppm (v/v)

Project: 1784 150th Ave., San Leandro, CA

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
EW-1 (11/18)	**08-11-1829-1-A**	**11/18/08 14:40**	**Air**	**GC/MS DD**	**N/A**	**11/21/08 14:42**	**081121L01**

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
Benzene	3.0	0.12	250		p/m-Xylene	6.1	0.50	250	
Toluene	1.0	0.12	250		o-Xylene	0.81	0.12	250	
Ethylbenzene	2.5	0.12	250		Methyl-t-Butyl Ether (MTBE)	ND	0.50	250	
Surrogates:	REC (%)	Control Limits		Qual	Surrogates:	REC (%)	Control Limits		Qual
1,4-Bromofluorobenzene	96	57-129			1,2-Dichloroethane-d4	92	47-137		
Toluene-d8	95	78-156							

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
EW-2 (11/18)	**08-11-1829-2-A**	**11/18/08 14:45**	**Air**	**GC/MS DD**	**N/A**	**11/21/08 15:31**	**081121L01**

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
Benzene	1.1	0.050	100		p/m-Xylene	7.0	0.20	100	
Toluene	1.1	0.050	100		o-Xylene	1.6	0.050	100	
Ethylbenzene	2.5	0.050	100		Methyl-t-Butyl Ether (MTBE)	0.21	0.20	100	
Surrogates:	REC (%)	Control Limits		Qual	Surrogates:	REC (%)	Control Limits		Qual
1,4-Bromofluorobenzene	96	57-129			1,2-Dichloroethane-d4	86	47-137		
Toluene-d8	99	78-156							

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
INF-2 (11/18)	**08-11-1829-3-A**	**11/18/08 14:50**	**Air**	**GC/MS DD**	**N/A**	**11/21/08 16:18**	**081121L01**

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
Benzene	3.3	0.050	100		p/m-Xylene	5.4	0.80	400	
Toluene	0.92	0.050	100		o-Xylene	1.8	0.050	100	
Ethylbenzene	4.1	0.050	100		Methyl-t-Butyl Ether (MTBE)	0.31	0.20	100	
Surrogates:	REC (%)	Control Limits		Qual	Surrogates:	REC (%)	Control Limits		Qual
1,4-Bromofluorobenzene	99	57-129			1,2-Dichloroethane-d4	84	47-137		
Toluene-d8	91	78-156							

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
EW-1 (11/19)	**08-11-1829-4-A**	**11/19/08 06:55**	**Air**	**GC/MS DD**	**N/A**	**11/21/08 17:54**	**081121L01**

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
Benzene	3.7	0.12	250		p/m-Xylene	8.0	0.50	250	
Toluene	1.2	0.12	250		o-Xylene	1.1	0.12	250	
Ethylbenzene	3.2	0.12	250		Methyl-t-Butyl Ether (MTBE)	ND	0.50	250	
Surrogates:	REC (%)	Control Limits		Qual	Surrogates:	REC (%)	Control Limits		Qual
1,4-Bromofluorobenzene	94	57-129			1,2-Dichloroethane-d4	80	47-137		
Toluene-d8	97	78-156							

RL - Reporting Limit , DF - Dilution Factor , Qual - Qualifiers

Calscience Environmental Laboratories, Inc.

Analytical Report

Conestoga-Rovers & Associates		Date Received:	11/20/08
19449 Riverside Drive, Suite 230		Work Order No:	08-11-1829
Sonoma, CA 95476-6955		Preparation:	N/A
		Method:	EPA TO-15
		Units:	ppm (v/v)

Project: 1784 150th Ave., San Leandro, CA

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
EW-2 (11/19)	**08-11-1829-5-A**	**11/19/08 07:00**	**Air**	**GC/MS DD**	**N/A**	**11/21/08 18:43**	**081121L01**

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
Benzene	1.2	0.050	100		p/m-Xylene	7.6	0.20	100	
Toluene	1.2	0.050	100		o-Xylene	1.8	0.050	100	
Ethylbenzene	2.6	0.050	100		Methyl-t-Butyl Ether (MTBE)	0.21	0.20	100	
Surrogates:	REC (%)	Control Limits		Qual	Surrogates:	REC (%)	Control Limits		Qual
1,4-Bromofluorobenzene	96	57-129			1,2-Dichloroethane-d4	83	47-137		
Toluene-d8	98	78-156							

INF-2 (11/19)	**08-11-1829-6-A**	**11/19/08 07:05**	**Air**	**GC/MS DD**	**N/A**	**11/21/08 19:30**	**081121L01**

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
Benzene	2.7	0.10	200		p/m-Xylene	6.5	0.40	200	
Toluene	1.1	0.10	200		o-Xylene	1.1	0.10	200	
Ethylbenzene	2.5	0.10	200		Methyl-t-Butyl Ether (MTBE)	ND	0.40	200	
Surrogates:	REC (%)	Control Limits		Qual	Surrogates:	REC (%)	Control Limits		Qual
1,4-Bromofluorobenzene	91	57-129			1,2-Dichloroethane-d4	84	47-137		
Toluene-d8	97	78-156							

Method Blank	**097-09-002-7,901**	**N/A**	**Air**	**GC/MS DD**	**N/A**	**11/21/08 13:20**	**081121L01**

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
Benzene	ND	0.00050	1		p/m-Xylene	ND	0.0020	1	
Toluene	ND	0.00050	1		o-Xylene	ND	0.00050	1	
Ethylbenzene	ND	0.00050	1		Methyl-t-Butyl Ether (MTBE)	ND	0.0020	1	
Surrogates:	REC (%)	Control Limits		Qual	Surrogates:	REC (%)	Control Limits		Qual
1,4-Bromofluorobenzene	86	57-129			1,2-Dichloroethane-d4	91	47-137		
Toluene-d8	92	78-156							

RL - Reporting Limit , DF - Dilution Factor , Qual - Qualifiers

Calscience Environmental Laboratories, Inc.

Quality Control - Duplicate

Conestoga-Rovers & Associates
19449 Riverside Drive, Suite 230
Sonoma, CA 95476-6955

Date Received: 11/20/08
Work Order No: 08-11-1829
Preparation: N/A
Method: EPA TO-3M

Project: 1784 150th Ave., San Leandro, CA

Quality Control Sample ID	Matrix	Instrument	Date Prepared:	Date Analyzed:	Duplicate Batch Number
08-11-1783-6	**Air**	**GC 13**	**N/A**	**11/20/08**	**081120D01**

Parameter	Sample Conc	DUP Conc	RPD	RPD CL	Qualifiers
TPH as Gasoline	33000	32000	4	0-20	

RPD - Relative Percent Difference , CL - Control Limit

Calscience Environmental Laboratories, Inc.

Quality Control - LCS/LCS Duplicate

Conestoga-Rovers & Associates
19449 Riverside Drive, Suite 230
Sonoma, CA 95476-6955

Date Received: N/A
Work Order No: 08-11-1829
Preparation: N/A
Method: EPA TO-15

Project: 1784 150th Ave., San Leandro, CA

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	LCS/LCSD Batch Number
097-09-002-7,901	**Air**	**GC/MS DD**	**N/A**	**11/21/08**	**081121L01**

Parameter	LCS %REC	LCSD %REC	%REC CL	RPD	RPD CL	Qualifiers
Benzene	99	107	60-156	8	0-40	
Toluene	98	109	56-146	10	0-43	
Ethylbenzene	92	102	52-154	10	0-38	
p/m-Xylene	89	98	42-156	9	0-41	
o-Xylene	87	96	52-148	10	0-38	

RPD - Relative Percent Difference , CL - Control Limit

Calscience Environmental Laboratories, Inc.

Glossary of Terms and Qualifiers

Work Order Number: 08-11-1829

Qualifier	Definition
*	See applicable analysis comment.
1	Surrogate compound recovery was out of control due to a required sample dilution, therefore, the sample data was reported without further clarification.
2	Surrogate compound recovery was out of control due to matrix interference. The associated method blank surrogate spike compound was in control and, therefore, the sample data was reported without further clarification.
3	Recovery of the Matrix Spike (MS) or Matrix Spike Duplicate (MSD) compound was out of control due to matrix interference. The associated LCS and/or LCSD was in control and, therefore, the sample data was reported without further clarification.
4	The MS/MSD RPD was out of control due to matrix interference. The LCS/LCSD RPD was in control and, therefore, the sample data was reported without further clarification.
5	The PDS/PDSD associated with this batch of samples was out of control due to a matrix interference effect. The associated batch LCS/LCSD was in control and, hence, the associated sample data was reported with no further corrective action required.
A	Result is the average of all dilutions, as defined by the method.
B	Analyte was present in the associated method blank.
C	Analyte presence was not confirmed on primary column.
E	Concentration exceeds the calibration range.
H	Sample received and/or analyzed past the recommended holding time.
J	Analyte was detected at a concentration below the reporting limit and above the laboratory method detection limit. Reported value is estimated.
ME	LCS Recovery Percentage is within LCS ME Control Limit range.
N	Nontarget Analyte.
ND	Parameter not detected at the indicated reporting limit.
Q	Spike recovery and RPD control limits do not apply resulting from the parameter concentration in the sample exceeding the spike concentration by a factor of four or greater.
U	Undetected at the laboratory method detection limit.
X	% Recovery and/or RPD out-of-range.
Z	Analyte presence was not confirmed by second column or GC/MS analysis.

Shell Oil Products Chain Of Custody Record

LAB (LOCATION)
- ☑ CALSCIENCE (_____)
- ☐ SPL (_____)
- ☐ XENCO (_____)
- ☐ TEST AMERICA (_____)
- ☐ OTHER (_____)

Please Check Appropriate Box:
- ☑ ENV. SERVICES
- ☐ MOTIVA RETAIL
- ☐ SHELL RETAIL
- ☐ MOTIVA SD&CM
- ☐ CONSULTANT
- ☐ LUBES
- ☐ SHELL PIPELINE
- ☐ OTHER _____

Print Bill To Contact Name: Denis Brown

PO #

INCIDENT # (ENV SERVICES): 9 8 9 9 6 0 6 8

SAP #

☐ CHECK IF NO INCIDENT # APPLIES

DATE: 11-18-08

PAGE: 1 of 1

SAMPLING COMPANY: Conestoga-Rovers & Associates	LOG CODE: CRAW	SITE ADDRESS: Street and City: 1784 150th Ave, San Leandro	State: CA
ADDRESS: 19449 Riverside Drive, Suite 230, Sonoma, California 95476		GLOBAL ID NO.: T0600101230	
PROJECT CONTACT (Hardcopy or PDF Report to): Matthew Lundberg		EDF DELIVERABLE TO (Name, Company, Office Location): Brenda Carter, CRA, Emeryville	PHONE NO.: 510-420-3343
TELEPHONE: 510-420-3346	FAX: 510.420.9170	E-MAIL: mlundberg@craworld.com	E-MAIL: shelledf@craworld.com
SAMPLER NAME(S) (Print): Mark Johnson		CONSULTANT PROJECT NO.: 240612-2008-13	LAB USE ONLY: 11-1829

TURNAROUND TIME (CALENDAR DAYS):
☑ STANDARD (14 DAY) ☐ 5 DAYS ☐ 3 DAYS ☐ 2 DAYS ☐ 24 HOURS ☐ RESULTS NEEDED ON WEEKEND

☐ LA - RWQCB REPORT FORMAT ☐ UST AGENCY:

SPECIAL INSTRUCTIONS OR NOTES :
cc reports to tjackson@craworld.com & pschaefer@craworld.com
Results should be reported in ppmv

- ☑ SHELL CONTRACT RATE APPLIES
- ☐ STATE REIMBURSEMENT RATE APPLIES
- ☐ EDD NOT NEEDED
- ☑ RECEIPT VERIFICATION REQUESTED

REQUESTED ANALYSIS

LAB USE ONLY	Field Sample Identification	SAMPLING DATE	SAMPLING TIME	MATRIX	PRESERVATIVE HCL	HNO3	H2SO4	NONE	OTHER	NO. OF CONT.	TPH - Purgeable (TO-3M)	TPH - Extractable (8015M)	BTEX (TO-15)	5 Oxygenates (8260B)	MTBE (TO-15)	TBA (8260B)	DIPE (8260B)	TAME (8260B)	ETBE (8260B)	1,2 DCA (8260B)	EDB (8260B)	Ethanol (8260B)	Methanol (8015M)	Methane (ASTM D1946)	TEMPERATURE ON RECEIPT C°	Container PID Readings or Laboratory Notes
1	EW-1	11-18	14:40	VA				x		2	x		x		x											Tedlar Bag
2	EW-2	11-18	14:45	VA				x		2	x		x		x											Tedlar Bag
3	INF-2	11-18	14:50	VA				x		2	x		x		x											
4	EW-1	11-19	06:58	VA				x		2	x		x		x											
5	EW-2	11-19	07:00	VA				x		2	x		x		x											
6	INF-2	11-19	07:05	VA				x		2	x		x		x											

Note-Only process the duplicate bag if the first bag arrives deflated.

Relinquished by: (Signature) Mark Johnson	Received by: (Signature) Tom O'Malley CER	Date: 11/19/08	Time: 0928
Relinquished by: (Signature) Tom O'Malley TO GSO 1730 11/19/08	Received by: (Signature)	Date: 11/20/08	Time: 1000
Relinquished by: (Signature) 510770270	Received by: (Signature)	Date:	Time:

05/2/06 Revision

Calscience Environmental Laboratories, Inc.

WORK ORDER #: 08-11-11629

SAMPLE RECEIPT FORM

Box ~~Cooler~~ 1 of 1

CLIENT: CRA

DATE: 11/20/08

TEMPERATURE: (Criteria: 0.0 °C – 6.0 °C, not frozen)

Temperature ____.____ °C - 0.2 °C (CF) = ____.____ °C ☐ Blank ☐ Sample

☐ Sample(s) outside temperature criteria (PM/APM contacted by:_____).

☐ Sample(s) outside temperature criteria but received on ice/chilled on same day of sampling.

☐ **Received at ambient temperature, placed on ice for transport by Courier.**

Ambient Temperature: ☑ Air ☐ Filter ☐ Metals Only ☐ PCBs Only **Initial:** JP

CUSTODY SEALS INTACT:

☐ Cooler ☐_____ ☐ No (Not Intact) ☑ Not Present ☐ N/A **Initial:** JP

☐ Sample ☐_____ ☐ No (Not Intact) ☑ Not Present **Initial:** WS

SAMPLE CONDITION:

	Yes	No	N/A
Chain-Of-Custody document(s) received with samples	☑	☐	☐
Sampler's name indicated on COC	☑	☐	☐
Sample container label(s) consistent with COC	☑	☐	☐
Sample container(s) intact and good condition	☑	☐	☐
Correct containers and volume for analyses requested	☑	☐	☐
Analyses received within holding time	☑	☐	☐
Proper preservation noted on sample label(s)	☐	☐	☑
Volatile analysis container(s) free of headspace	☐	☐	☑
Tedlar bag(s) free of condensation	☑	☐	☐

CONTAINER TYPE:

Solid: ☐4ozCGJ ☐8ozCGJ ☐16ozCGJ ☐Sleeve ☐EnCores® ☐TerraCores® ☐_____

Water: ☐VOA ☐VOAh ☐VOAna_2 ☐125AGB ☐125AGBh ☐125AGBpo_4 ☐1AGB ☐1AGBna_2 ☐1AGBs ☐500AGB ☐500AGBs ☐250CGB ☐250CGBs ☐1PB ☐500PB ☐500PBna ☐250PB ☐250PBn ☐125PB ☐125PBznna ☐100PBsterile ☐100PBna_2 ☐_____ ☐_____ ☐_____

Air: ☑Tedlar® ☐Summa® ☐_____

Checked/Labeled by: WS

Reviewed by: M

Scanned by: WS

Container: C:Clear A:Amber P:Poly/Plastic G:Glass J:Jar B:Bottle

Preservative: h:HCL n:HNO_3 na_2:$Na_2S_2O_3$ na:NaOH po_4:H_3PO_4 s:H_2SO_4 znna:$ZnAc_2$+NaOH

APPENDIX E

AQUIFER ANALYSIS

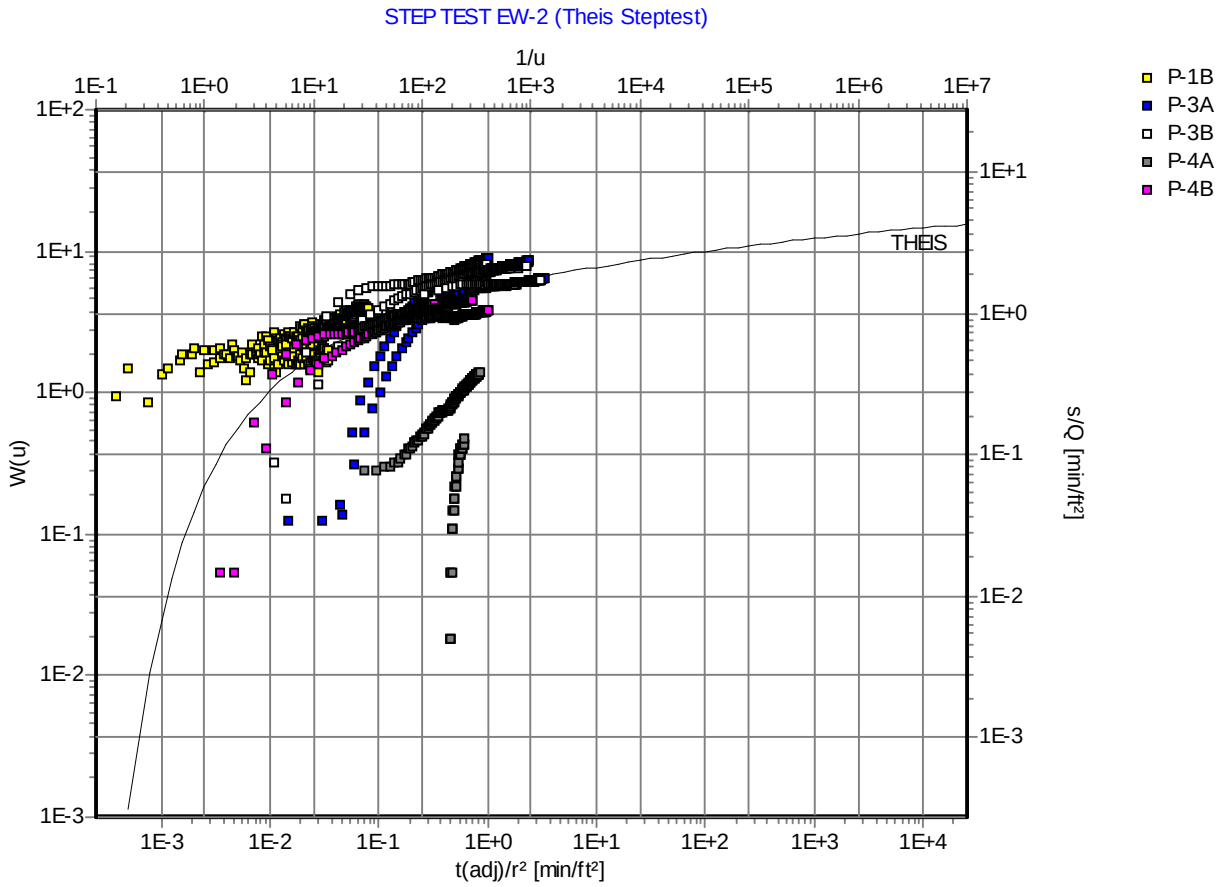
Conestoga-Rovers & Associates, Inc.
5900 Hollis Street, Suite A
Emeryville, California
Phone 510-420-0700

Pumping Test Analysis Report

Project: 1784 150th St, San Leandro, CA

No: 240612

Client: Shell OPUS



Test name: **STEP TEST EW-2**

Analysis method: **Theis Steptest**

Analysis results:	Transmissivity:	4.82E-3 [ft²/s]	Conductivity:	3.39E-4 [ft/s]
	Storativity:	2.90E-3		
Test parameters:	Pumping well:	EW-2	Aquifer thickness:	14.19 [ft]
	Screen radius:	0 [ft]	Confined aquifer	
	Screen length:	15 [ft]		
	Casing radius:	0.1667 [ft]		
	Discharge rate:	1.2818471 [U.S.		

Comments:

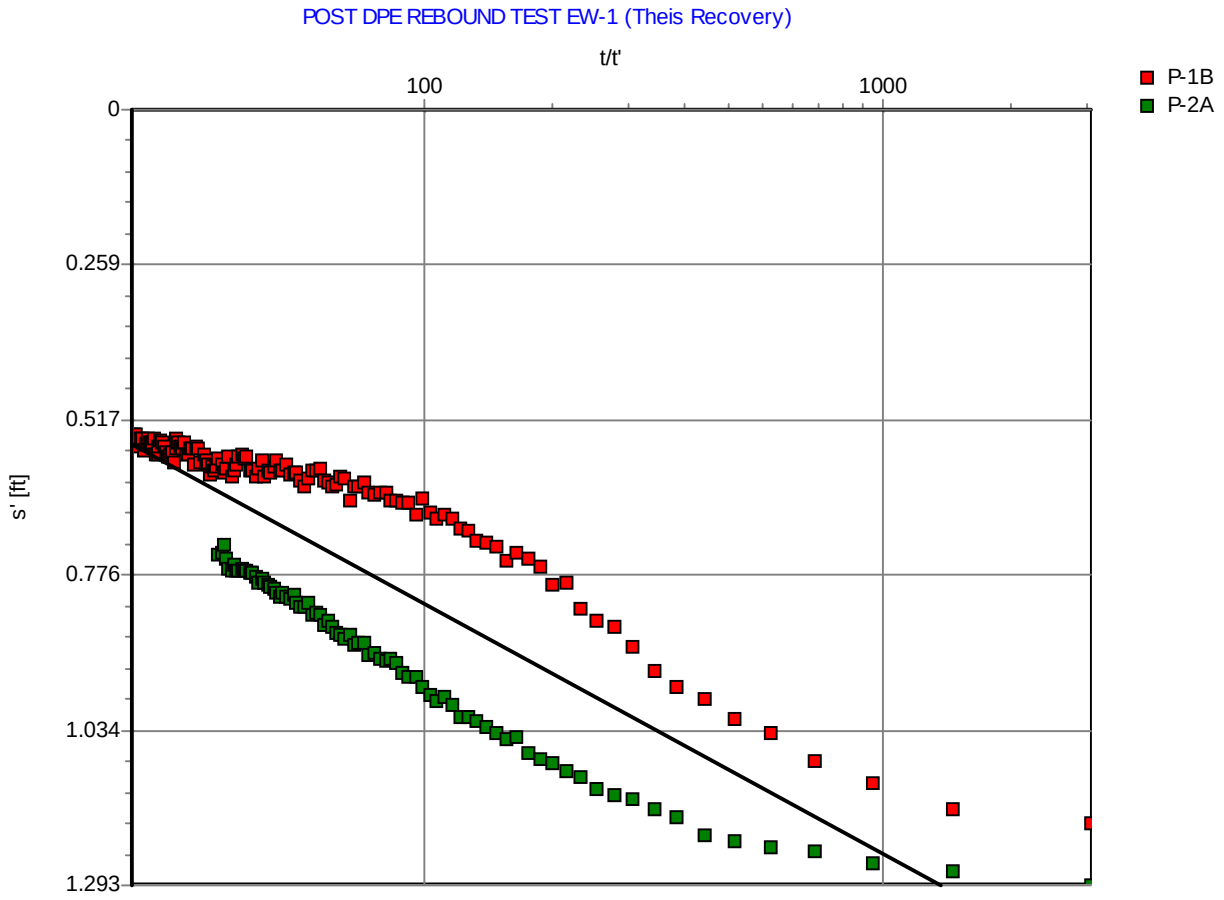
Evaluated by:

Date: 12/18/20

Conestoga-Rovers & Associates, Inc.
5900 Hollis Street, Suite A
Emeryville, California
Phone 510-420-0700

Pumping Test Analysis Report

Project:	1784 150th St, San Leandro, CA
No:	240612
Client:	Shell OPUS



Test name: **POST DPE REBOUND TEST EW-1**

Analysis method: **Theis Recovery**

Analysis results:				
	Transmissivity:	3.68E-3 [ft²/s]	Conductivity:	2.77E-4 [ft/s]

Test parameters:				
	Pumping well:	EW-1	Aquifer thickness:	13.27 [ft]
	Screen radius:	0 [ft]	Confined aquifer	
	Screen length:	15 [ft]		
	Casing radius:	0.1667 [ft]		
	Discharge rate:	3.76 [U.S. gal/min]		
	Pump Time	2850 [min]		

Comments:

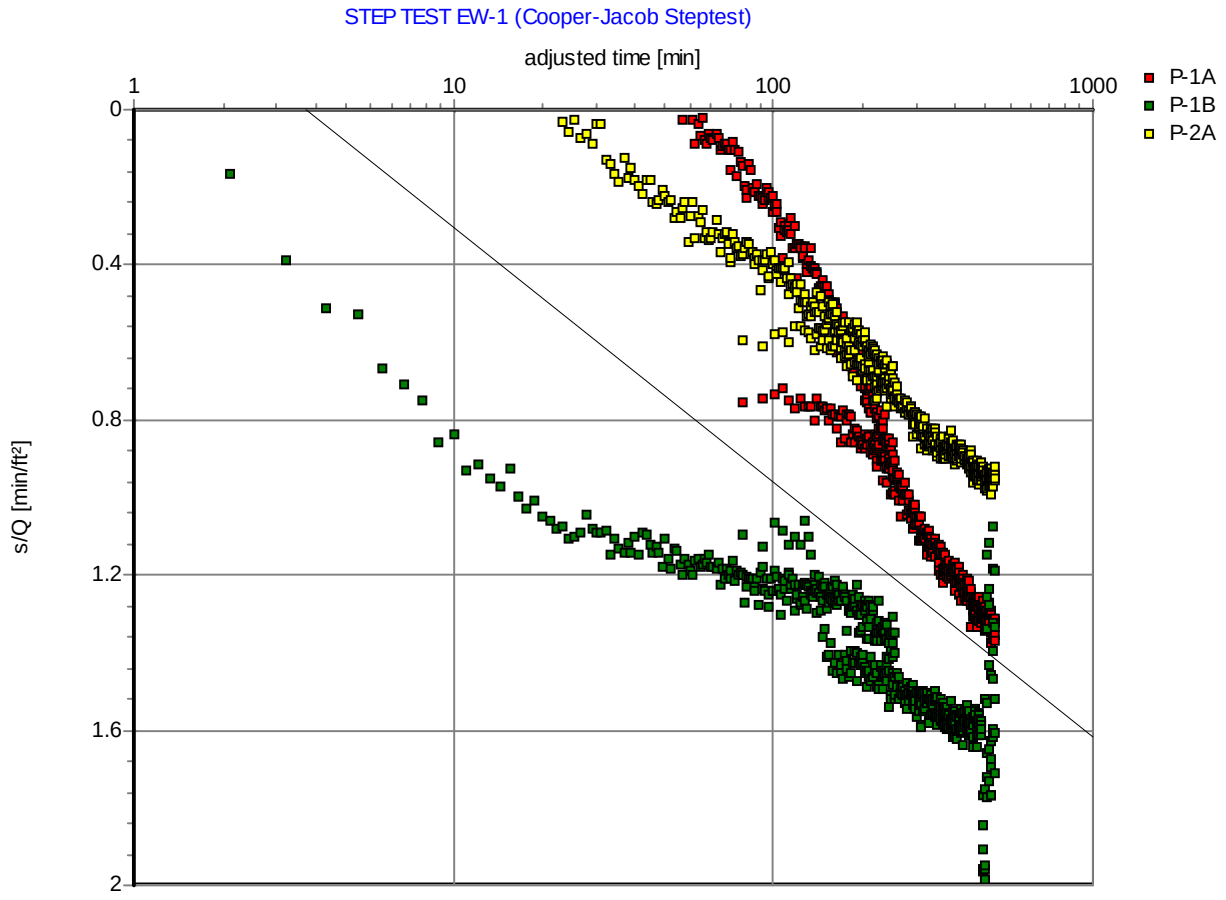
Evaluated by:

Date: 12/18/20

Conestoga-Rovers & Associates, Inc.
5900 Hollis Street, Suite A
Emeryville, California
Phone 510-420-0700

Pumping Test Analysis Report

Project:	1784 150th St, San Leandro, CA
No:	240612
Client:	Shell OPUS



Test name: **STEP TEST EW-1**

Analysis method: **Cooper-Jacob Steptest**

Analysis results:				
	Transmissivity:	4.64E-3 [ft²/s]	Conductivity:	3.50E-4 [ft/s]

Test parameters:				
	Pumping well:	EW-1	Aquifer thickness:	13.27 [ft]
	Screen radius:	0 [ft]	Confined aquifer	
	Screen length:	15 [ft]		
	Casing radius:	0.1667 [ft]		
	Discharge rate:	2.2833935 [U.S.		

Comments:

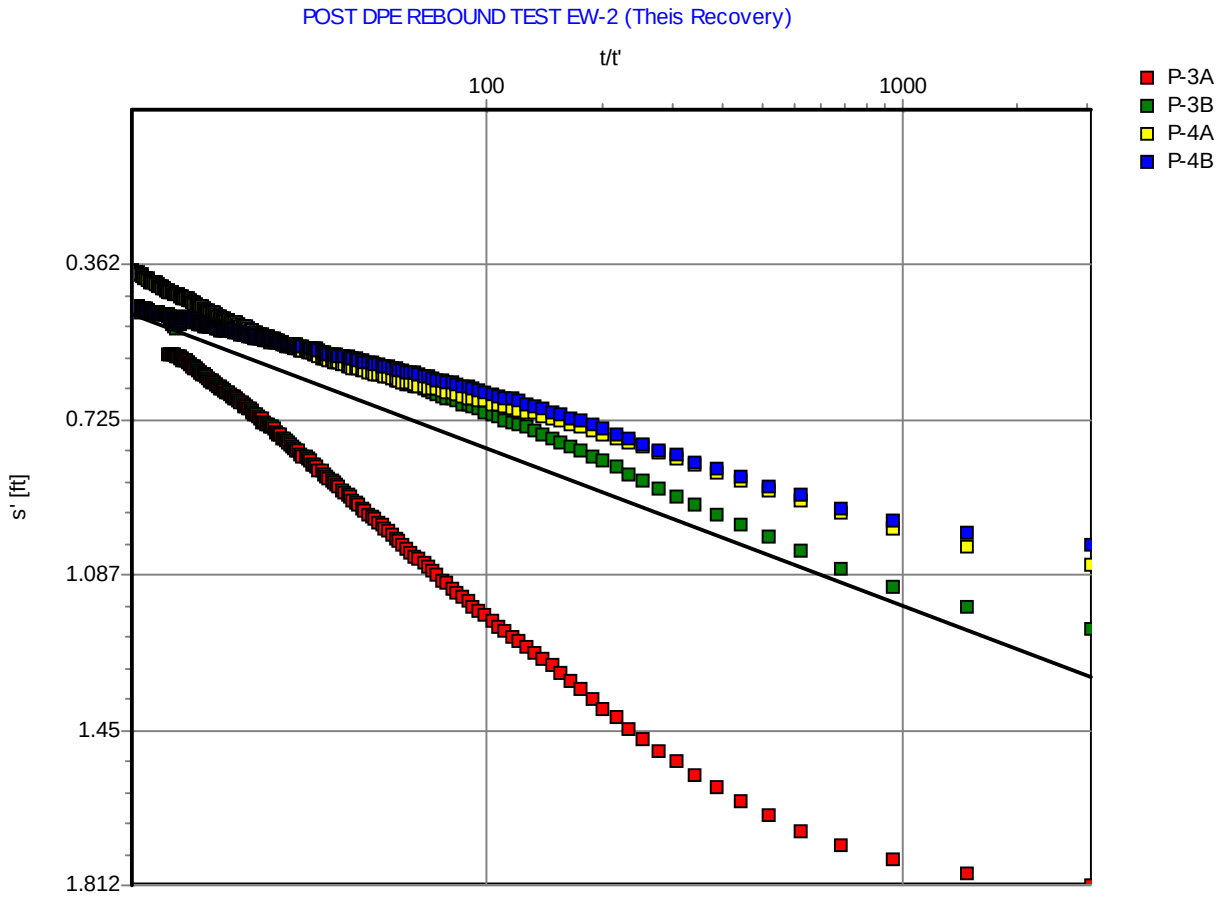
Evaluated by: JS

Date: 12/18/20

Conestoga-Rovers & Associates, Inc.
5900 Hollis Street, Suite A
Emeryville, California
Phone 510-420-0700

Pumping Test Analysis Report

Project:	1784 150th St, San Leandro, CA
No:	240612
Client:	Shell OPUS



Test name: **POST DPE REBOUND TEST EW-2**

Analysis method: **Theis Recovery**

Analysis results:				
	Transmissivity:	4.35E-3 [ft²/s]	Conductivity:	3.07E-4 [ft/s]

Test parameters:				
	Pumping well:	EW-2	Aquifer thickness:	14.19 [ft]
	Screen radius:	0 [ft]	Confined aquifer	
	Screen length:	15 [ft]		
	Casing radius:	0.1667 [ft]		
	Discharge rate:	3.92 [U.S. gal/min]		
	Pump Time	2850 [min]		

Comments:

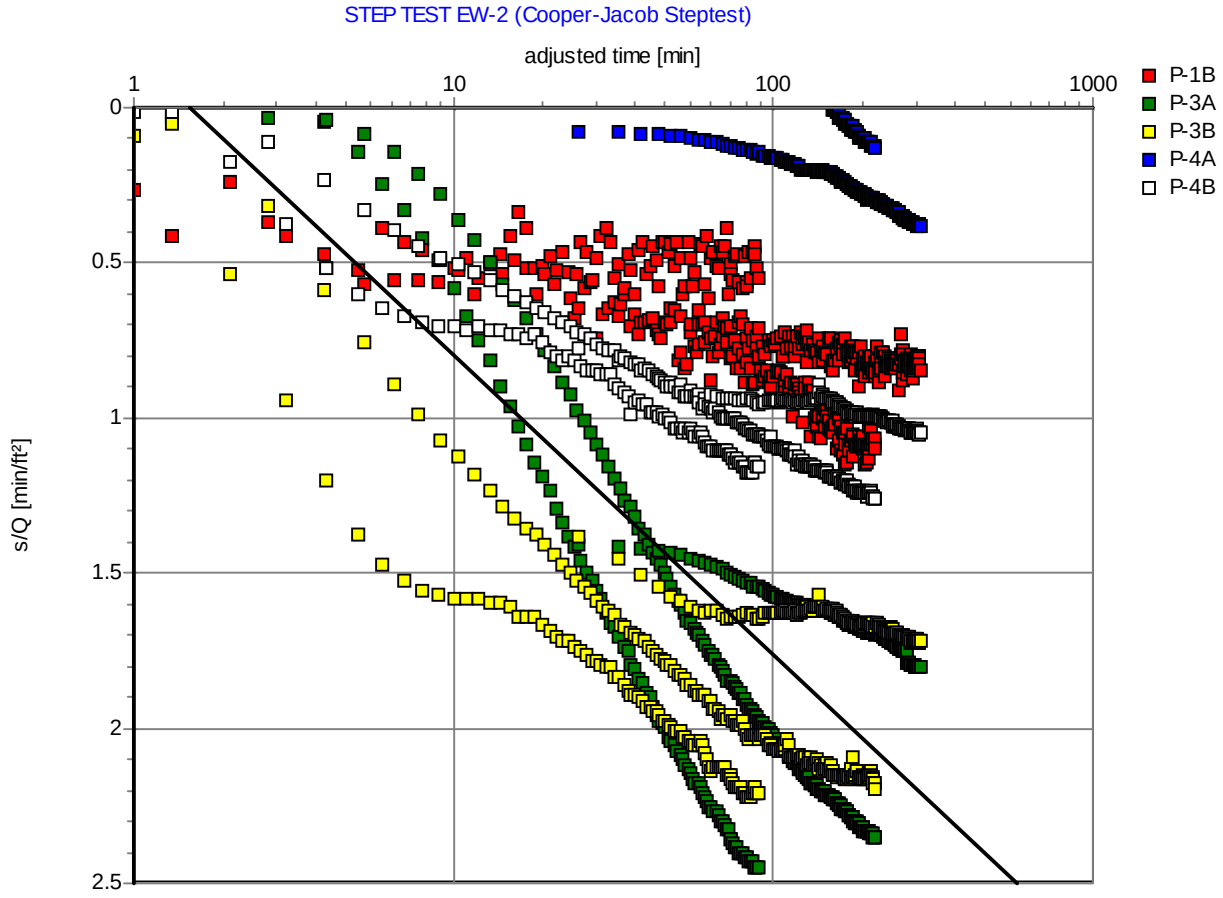
Evaluated by: JS

Date: 12/18/20

Conestoga-Rovers & Associates, Inc.
5900 Hollis Street, Suite A
Emeryville, California
Phone 510-420-0700

Pumping Test Analysis Report

Project:	1784 150th St, San Leandro, CA
No:	240612
Client:	Shell OPUS



Test name: **STEP TEST EW-2**

Analysis method: **Cooper-Jacob Steptest**

Analysis results:	Transmissivity:	3.16E-3 [ft²/s]	Conductivity:	2.23E-4 [ft/s]
	Storativity:	1.85E-3		
Test parameters:	Pumping well:	EW-2	Aquifer thickness:	14.19 [ft]
	Screen radius:	0 [ft]	Confined aquifer	
	Screen length:	15 [ft]		
	Casing radius:	0.1667 [ft]		
	Discharge rate:	1.2818471 [U.S.		

Comments:

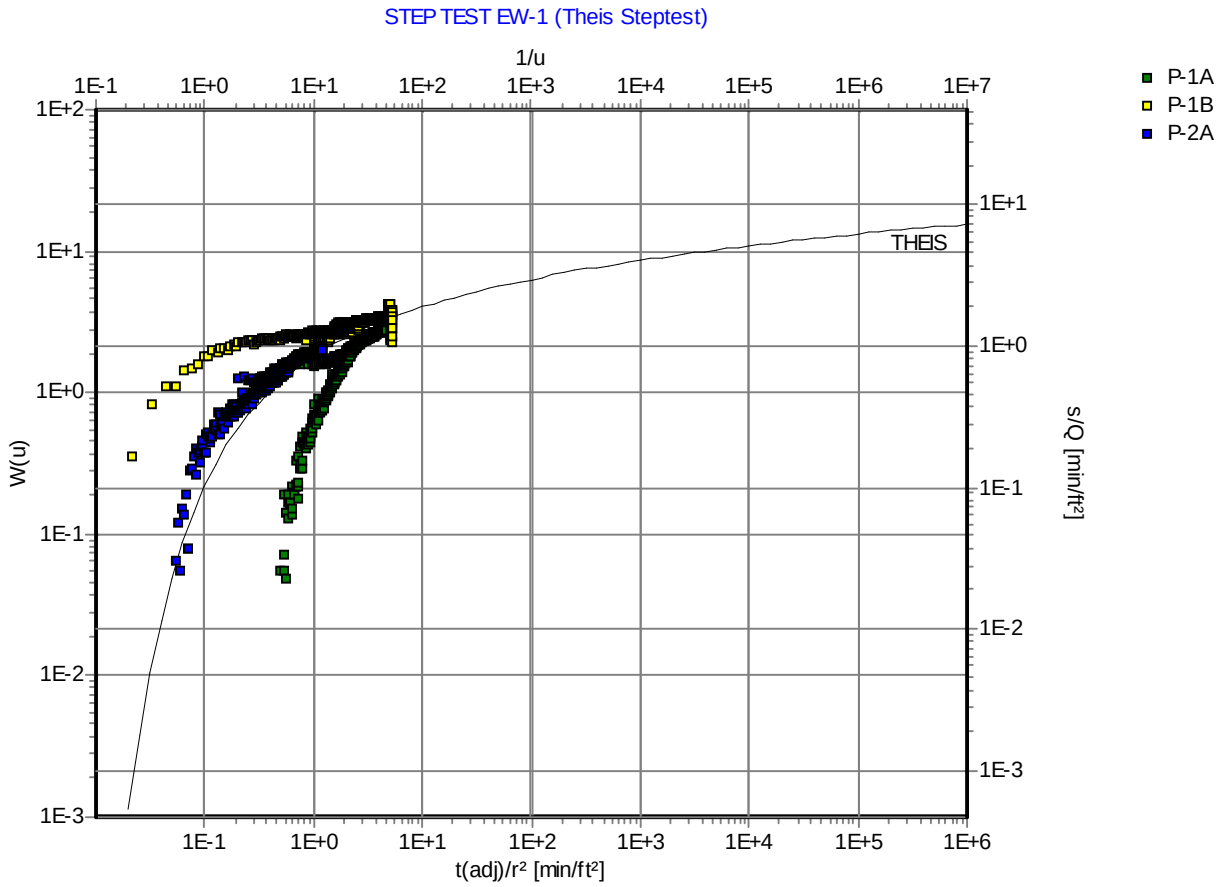
Evaluated by:

Date: 12/18/20

Conestoga-Rovers & Associates, Inc.
5900 Hollis Street, Suite A
Emeryville, California
Phone 510-420-0700

Pumping Test Analysis Report

Project:	1784 150th St, San Leandro, CA
No:	240612
Client:	Shell OPUS



Test name: **STEP TEST EW-1**

Analysis method: **Theis Steptest**

Analysis results:	Transmissivity:	2.84E-3 [ft²/s]	Conductivity:	2.14E-4 [ft/s]
	Storativity:	6.81E-2		
Test parameters:	Pumping well:	EW-1	Aquifer thickness:	13.27 [ft]
	Screen radius:	0 [ft]	Confined aquifer	
	Screen length:	15 [ft]		
	Casing radius:	0.1667 [ft]		
	Discharge rate:	2.2833935 [U.S.		

Comments:

Evaluated by: JS

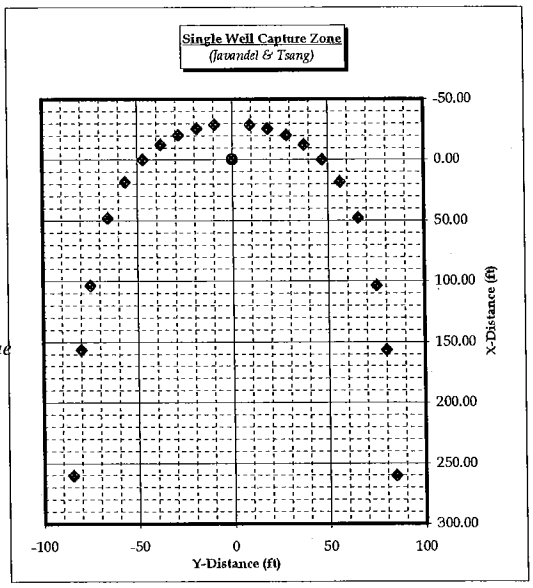
Date: 12/18/20

EW-1 Aquifer Pump Test

Javendal & Tsang, Ground Water, Vol.24, No.5, p.616-625, 1986
Capture zone from a single GW extraction well

Q =	2.16	gpm	*Enter values in gray boxes. Others are calculated*
Kh =	32.3136	ft/day	
Gradient (I) =	0.005	ft/ft	
Aq.Thkness (B):	13.7	feet	
u=Kh*I=	1.12E-04	ft/min	
Bu=	1.54E-03	sq.ft/min	
Q/Bu =	188	feet	*Max upgradient width of capture zone*
Q/2Bu=	94	feet	*Capture zone width perpendicular to pumping well*
Q/(2*pi*Bu)=	30	feet	*Distance to downgradient Stagnation Point*
0.32Q/Bu=	60	feet	*Optimal Distance between two wells on a line*
0.4Q/Bu=	75	feet	*Optimal Distance between three or more wells on a line*

NOTE: Model assumes infinte and continuous extraction

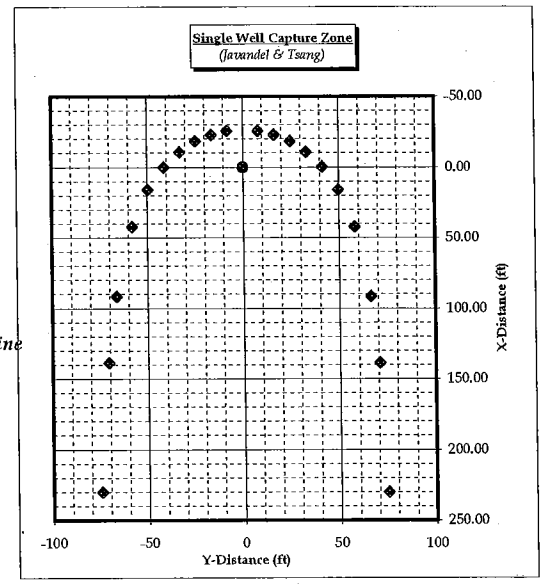


EW-2 Aquifer Pump Test

Javendal & Tsang, Ground Water, Vol.24, No.5, p.616-625, 1986
Capture zone from a single GW extraction well

Q =	2.11	gpm	*Enter values in gray boxes. Others are calculated*
Kh =	34.4756	ft/day	
Gradient (I) =	0.005	ft/ft	
Aq.Thkness (B):	14.19	feet	
u=Kh*I=	1.20E-04	ft/min	
Bu=	1.70E-03	sq.ft/min	
Q/Bu =	166	feet	*Max upgradient width of capture zone*
Q/2Bu=	83	feet	*Capture zone width perpendicular to pumping well*
Q/(2*pi*Bu)=	26	feet	*Distance to downgradient Stagnation Point*
0.32Q/Bu=	53	feet	*Optimal Distance between two wells on a line*
0.4Q/Bu=	66	feet	*Optimal Distance between three or more wells on a line*

NOTE: Model assumes infinte and continuous extraction

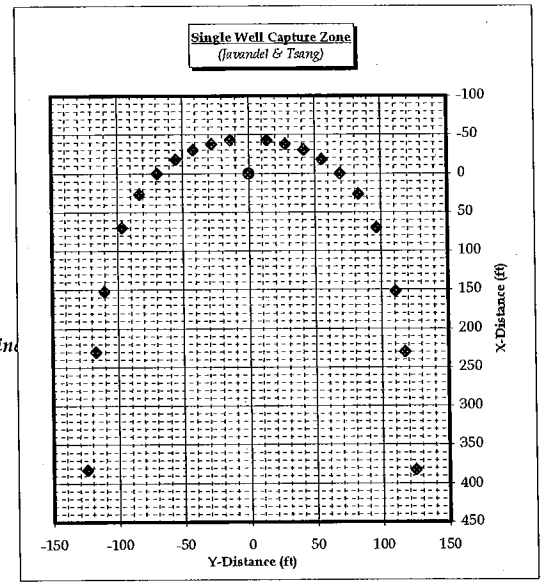


EW-1 Dual-phase Extraction Test

Javendal & Tsang, Ground Water, Vol.24, No.5, p.616-625, 1986
Capture zone from a single GW extraction well

Q =	3.49	gpm	*Enter values in gray boxes. Others are calculated*
Kh =	35.5104	ft/day	
Gradient (I) =	0.005	ft/ft	
Aq.Thkness (B):	13.7	feet	
u=Kh*I=	1.23E-04	ft/min	
Bu=	1.69E-03	sq.ft/min	
Q/Bu =	276	feet	*Max upgradient width of capture zone*
Q/2Bu=	138	feet	*Capture zone width perpendicular to pumping well*
Q/(2*pi*Bu)=	44	feet	*Distance to downgradient Stagnation Point*
0.32Q/Bu=	88	feet	*Optimal Distance between two wells on a line*
0.4Q/Bu=	110	feet	*Optimal Distance between three or more wells on a lin*

NOTE: Model assumes infinte and continuous extraction



EW-2 Dual-phase Extraction Test

Javendal & Tsang, Ground Water, Vol.24, No.5, p.616-625, 1986
Capture zone from a single GW extraction well

Q =	5.25	gpm	*Enter values in gray boxes. Others are calculated*
Kh =	35.5104	ft/day	
Gradient (I) =	0.005	ft/ft	
Aq.Thkness (B):	14.19	feet	
u=Kh*I=	1.23E-04	ft/min	
Bu=	1.75E-03	sq.ft/min	
Q/Bu =	401	feet	*Max upgradient width of capture zone*
Q/2Bu=	201	feet	*Capture zone width perpendicular to pumping well*
Q/(2*pi*Bu)=	64	feet	*Distance to downgradient Stagnation Point*
0.32Q/Bu=	128	feet	*Optimal Distance between two wells on a line*
0.4Q/Bu=	160	feet	*Optimal Distance between three or more wells on a lin*

NOTE: Model assumes infinte and continuous extraction