R E P O R T

SECOND SEMI-ANNUAL 2011 GROUNDWATER MONITORING REPORT

SLIC CASE #RO0002892
CHEVRON PIPELINE COMPANY
SUNOL SPILL
2793 CALAVERAS RD.
SUNOL, CA

Prepared for
Alameda County Health Agency
1131 Harbor Bay Parkway
Alameda, CA 94502

December 2011

URS Corporation
1333 Broadway, Suite 800
Oakland, CA 94612

26817159

Chevron

Global Gas

Stephen Gwin
Environmental Specialist

Health, Environment & Safety
Chevron Pipe Line Company
4800 Fournace Place
Bellaire, TX 77401
Tel 713-432-6598
Fax 713-432-3477
gwst@chevron.com

December 1, 2011

Mr. Jerry Wickham
Department of Environmental Health
Alameda County Health Agency
1131 Harbor Bay Parkway
Alameda, CA 94502

Dear Mr. Wickham:

I declare, under penalty of perjury, that the information and/or recommendations contained in URS' report titled "**SLIC Case No. RO0002892, Chevron Sunol Pipeline, 2793 Calaveras Road, Sunol, CA – Second Semi-Annual 2011 Groundwater Monitoring Report**" are true and correct to the best of my knowledge at the present time.

Sincerely,

Stephen Gwin

SG/rf

This letter report ("**Second Semi-Annual 2011 Groundwater Monitoring Report**") was prepared under my direct supervision. The information presented in this report is based on our review of available data obtained during our quarterly sampling activities and our previous subsurface investigation efforts. To the best of our knowledge, we have incorporated into our recommendations all relevant data pertaining to the Chevron Pipeline Company's Sunol Spill Site in Sunol, California.

The Second Semi-Annual 2011 Groundwater Monitoring Report discussed herein was developed in accordance with the standard of care used to develop this type of report. The assumptions that were made and the recommendations for continued field activities were based on our professional experience and protocols reported in the literature for similar investigations.

Approved by:
URS CORPORATION

Joe Morgan III
Senior Project Manager

URS

December 1, 2011

Mr. Jerry Wickham
Department of Environmental Health
Alameda County Health Agency
1131 Harbor Bay Parkway
Alameda, California 94502

Subject: SLIC Case No. RO0002892, Chevron Pipeline Company, Sunol Spill, 2793 Calaveras Rd, Sunol, CA, Second Semi-Annual 2011 Groundwater Monitoring Report

Dear Mr. Wickham:

A December 30, 2005 letter provided by the Alameda County Environmental Health Department (ACEHD) staff requested the initiation of a quarterly groundwater monitoring program for the Chevron Pipeline Company (CPL) Sunol Spill Site (Site). In a letter dated December 10, 2010, the ACEHD agreed to change the quarterly groundwater monitoring program to semi-annual. In response to this request and on behalf of CPL, URS Corporation (URS) has prepared this second semi-annual 2011 Site Groundwater Monitoring Report.

If you have any questions on this report, please call Mr. Joe Morgan of URS at 510-874-3201.

Sincerely,

URS CORPORATION

Robert Horwath, P.G.
Senior Geologist

Joe Morgan III
Project Manager

cc: Mr. Stephen Gwin, Chevron Pipeline Company
Ms. Rachel Naccarati, URS Oakland

URS Corporation
1333 Broadway, Suite 800
Oakland, CA 94612-1924
Tel: 510.893-3600
Fax: 510.874.3268
www.urscorp.com

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URS Corporation
1333 Broadway, Suite 800
Oakland, CA 94612-1924
Tel: 510.893-3600
Fax: 510.874.3268
www.urscorp.com

On August 22 and 23, 2011, URS conducted field activities to assess the groundwater conditions at the Chevron Pipeline Company (CPL) Sunol Spill Site (Site). A Site vicinity map is included as Figure 1. Groundwater monitoring wells and surface water sampling locations are provided on Figure 2.

URS gauged the depth to groundwater at wells MW-1 through MW-4 and MW-8 through MW-11. URS collected groundwater samples for laboratory analysis from groundwater monitoring wells MW-1, MW-3, and MW-8 through MW-11. Wells MW-2 and MW-4 were not sampled due because the depth to groundwater level in the wells was below bedrock. URS also collected a surface water sample from the very small stream, located northwest of the release location. Monitoring wells MW-5 through MW-7 were abandoned on June 23, 2008, and are no longer part of the groundwater monitoring program.

1.1 SITE HYDROGEOLOGY

Prior to collecting groundwater samples, depth to groundwater measurements were recorded from wells MW-1 through MW-4 and MW-8 through MW-11 from the top of casing using an electronic oil/water interface probe. A Light non-aqueous phase liquid (LNAPL) sheen was measured at 0.01 ft in MW-1 and MW-3 during the second semi-annual 2011 event. Depth to groundwater measurements are presented in Table 1 and calculated groundwater elevations above mean sea level are presented in Table 2.

Unconfined Water Bearing Zone

The groundwater surface elevation decreased in all wells (MW-1 through MW-4 and MW-8 through MW-11) relative to the last sampling event in March 2011. Depth to groundwater was below measured bedrock elevations which resulted in a hydraulic disconnect of wells MW-2 and MW-4. The groundwater elevations for wells MW-1, MW-3 and MW-9 through MW-11 were 291.00, 290.95, 290.55, 290.32, and 291.16 feet above average mean sea level (msl), respectively. The groundwater elevation for MW-8, which is screened in an apparent hillside groundwater recharge source for the Valley Crest Tree Company's (nursery) unconfined water-bearing zone, was 313.96 feet above msl.

Based on water level data from MW-1 through MW-4 and MW-9 through MW-11, the local groundwater flow direction within the nursery's unconfined water-bearing zone is in a northeast direction with a calculated hydraulic gradient of 0.005 feet/feet. The seasonal groundwater recharge from the hillside appears to flow into the unconfined nursery water-bearing zone on a limited basis. Well MW-8 was not included in URS groundwater contour development because it is screened in a different water bearing zone.

Figure 3 provides groundwater contours for the unconfined water-bearing zone as well as bedrock surface elevations for the gravel-siltstone contact for comparison.

2.1 QUARTERLY MONITORING ACTIVITIES

After measuring the depth to groundwater at each well, URS conducted groundwater sampling on August 22 and 23, 2011. The rationale for the method used at each monitoring well is described below:

- MW-1, MW-3 and MW-8 through MW-11 were sampled using low-flow methods.
- A surface water sample was collected using a clean disposable cup from the very small stream northwest of the release location.

2.1.1 MW-1 through MW-4, and MW-8 through MW-11

Low-flow purging rates of 200-400 milliliters per minute (mL/min) were used, dependent on the rate of recharge at each monitoring well. The low-flow groundwater sampling forms are included in Appendix A.

In addition to monitoring the water level at each monitoring well during low-flow sampling, the following geochemical parameters: temperature, pH, conductivity, oxidation reduction potential (ORP), and dissolved oxygen (DO) of the purged groundwater were measured using an in-line flow-through cell and multi-parameter Horiba U-22 meter. The multi-parameter meter was calibrated prior the sampling event. During purging, the parameter readings described above were recorded every 3 minutes until the parameters stabilized.

Parameters were considered to be stable when three consecutive readings were within the following guidelines: pH +/- 0.2 pH units, conductivity +/- 3% of reading, ORP +/- 20 millivolts (mV), DO +/- 0.2 milligrams per liter (mg/L).

After monitoring all field parameters, the flow-through cell was detached and groundwater samples were collected directly from the pump tubing.

2.1.2 Surface Water Sample

The sampling location along the very small stream is located at the base of the alluvial terrace within the Alameda Creek floodplain and is shown on Figure 2. The former sampling point (SW-Creek, sampled prior to the first quarter of 2007) is also provided on Figure 2 for reference. To the west, beyond the current sampling location, the very small stream fans out into the floodplain and surface flow terminates within floodplain grasses. A stream sample was collected on August 23, 2011 using a clean disposable container.

3.1 ANALYTICAL PROGRAM

The groundwater samples from wells MW-1, MW-3 and MW-8 through MW-11 were collected in clean laboratory provided containers. The containers were labeled with project specific identification, packed to prevent breakage, and placed on ice in a cooler with a trip blank immediately after collection. The samples were submitted to Lancaster Analytical Laboratory in Lancaster, Pennsylvania, a California Certified Laboratory, under URS chain-of-custody procedures. The samples were analyzed on a standard turn-around-time.

Groundwater samples collected during quarterly sampling activities were analyzed for the following parameters:

Gasoline Compounds

- Total petroleum hydrocarbons – gasoline range organics (TPH-GRO) by N. CA LUFT GRO
- Benzene, toluene, ethylbenzene, xylenes (BTEX) by USEPA Method 8260B

ORP, DO, and pH were the only geochemical parameters collected from the monitoring wells because they were field measured parameters. All other geochemical parameters were not collected from wells MW-1, MW-3 and MW-8 through MW-11 due to lack of sufficient quantities groundwater in the monitoring wells. Nitrate, manganese, ferrous iron, dissolved iron, sulfate, methane, total dissolved solids and alkalinity were not measured.

3.2 GROUNDWATER ANALYTICAL RESULTS DISCUSSION

A tabulated summary of the analytical results for the gasoline compounds are presented in Table 3. Complete laboratory analytical results and chain of custody forms are presented as Appendix B.

3.2.1 Unconfined Water-Bearing Zone Monitoring Wells

The unconfined water bearing zone wells sampled during the second semi-annual 2011 event included

MW-1, MW-3 and MW-8 through MW-11. The second semi-annual 2011 groundwater sample results are as follows:

- The MW-1 sample contained TPH-GRO at 960 µg/L, toluene at 1 µg/L, and total xylenes at 2 µg/L. Benzene and ethylbenzene analytical results were below their respective laboratory method detection limits. TPH-GRO sample results decreased since the sampling event in March 2011. Toluene and total xylenes sample results increased since the sampling event in March 2011. Monitoring well MW-1 has not been consistently sampled due to the groundwater in the well being hydraulically disconnected from the aquifer. TPH-GRO and BTEX concentrations have decreased since sampling activities began in 2006.
- The MW-3 sample contained toluene at 2 µg/L, ethylbenzene at 1 µg/L and total xylenes at 5 µg/L. TPH-GRO and benzene analytical results were below their respective laboratory method detection limits. Toluene has not been detected in MW-3 since 2006. Ethylbenzene and total xylenes, have not been detected since sampling activities began in 2006.
- The MW-8 sample contained TPH-GRO at 72,000 µg/L, benzene at 1,200 µg/L, toluene at 15,000 µg/L, ethylbenzene at 3,200 µg/L, and total xylenes at 15,000 µg/L. TPH-GRO, toluene, ethylbenzene and total xylenes have increased since the sampling event in March 2011. Benzene concentrations decreased since the sampling event in March 2011. All analytes except for ethylbenze have remained the same or decreased since the December 2010 sampling event.

- The MW-9 sample contained TPH-GRO at 7,900 µg/L, toluene at 2 µg/L, ethylbenzene at 46 µg/L, and total xylenes at 200 µg/L. Benzene analytical results was below its laboratory reporting method detection limit. TPH-GRO and toluene, ethylbenzene and total xylenes concentrations have increased since the March 2011 sampling event, but decreased since sampling started in 2006.
- The MW-10 sample contained total xylenes at 0.6 µg/L. All other analytical results from MW-10 were below their laboratory reporting limits.
- All analytical results from MW-11 were below their respective laboratory reporting limits for TPH-GRO and BTEX. The analytical results are consistent with the March 2011 sampling event.

Groundwater analytical results are presented in Table 3.

3.2.2 Surface Water Sample

A surface water sample was collected on August 23, 2011. TPH-GRO and BTEX were below their respective laboratory reporting limits in the sample collected from the stream (Table 3).

3.2.3 Geochemical Analytical Results

The groundwater samples collected from MW-1, MW-3 and MW-8 through MW-11were also analyzed for a selection of field measured geochemical parameters. URS will continue to collect a complete set of geochemical parameters when possible from all monitoring wells. Current and historical geochemical results are presented in Table 4. Nitrate, manganese, ferrous iron, dissolved iron, sulfate, methane, total dissolved solids and alkalinity were not measured due to lack of sufficient groundwater in the well.

3.2.3.1 Oxidation Reduction Potential

ORP in groundwater generally ranges from -400 mV (reducing conditions) to +800 mV (oxidizing conditions). ORP levels in MW-1 ranged from -99 mV to -276 mV. During this sampling event, ORP levels in MW-3 ranged from -33 mV to -193 mV. ORP levels in MW-8 ranged from -122 mV to -261 mV. ORP levels in MW-9 ranged from -207 mV to -451 mV. ORP levels in MW-10 ranged from 62 mV to 9 mV. ORP levels in MW-11 ranged from -5 mV to -46 mV. In general, reducing conditions appear to exist at the Site.

3.2.3.2 Dissolved Oxygen

DO is the most thermodynamically favored electron acceptor used in the aerobic biodegradation of petroleum hydrocarbons. Final DO concentrations, measured as milligrams per liter (mg/L), for MW-1, MW-3, MW-8, MW-9, MW-10, and MW-11 were reported as follows: 2.34 mg/L, 2.15 mg/L, 1.18 mg/L, 2.23 mg/L, 0.00 mg/L, and 2.89 mg/L respectively.

3.2.3.3 Nitrates

After DO has been depleted in the groundwater, nitrate may be consumed during the anaerobic biodegradation of TPH-g and BTEX. In this process, called denitrification, nitrate is reduced to nitrite and ultimately to nitrogen gas. Reduced nitrate concentrations in a hydrocarbon-impacted area compared to the areas outside the plume suggest that anaerobic biodegradation is occurring under nitrate-reducing conditions. In general, nitrate levels in MW-2 through MW-4, MW-10, and MW-11 (perimeter wells) are higher than in MW-1, MW-8, and MW-9 (interior wells). No wells were sampled for nitrates during the second semi-annual sampling event.

3.2.3.4 Ferrous Iron

After both DO and nitrate are depleted in anaerobic groundwater, ferric iron in soil may be consumed by anaerobic biodegradation. In this process, ferric iron in soil is reduced to ferrous iron, which is soluble in water. Therefore, if groundwater has relatively high levels of ferrous iron, anaerobic biodegradation may be occurring. No wells were sampled for ferrous iron during the second semi-annual sampling event.

3.2.3.5 Sulfate

After DO, nitrate and ferric iron are depleted in anaerobic groundwater; sulfate may be consumed in the anaerobic biodegradation process. Sulfate is reduced to sulfide, which reacts with ferric iron on soil particles to precipitate out as various sulfides of iron and can also lead to higher ferrous iron concentrations. Iron sulfides are re-oxidized to iron oxides in the presence of oxygen in the vadose zone. Any dissolved sulfides are oxidized at the plume fringes where impacted groundwater mixes with non-impacted groundwater. If reported sulfate concentrations vary inversely with hydrocarbon concentrations, anaerobic biodegradation of fuel hydrocarbons is likely occurring under sulfate-reducing conditions. No wells were sampled for sulfate during the second semi-annual sampling event.

3.2.3.6 Methane

The final step in the anaerobic biodegradation process is methanogenesis. When all soluble electron acceptors such as DO, nitrate, ferric iron, and sulfate are depleted, groundwater conditions become conducive to fermentation, and methane is generated by methanogenesis. The only electron acceptor available for the methanogenesis is carbon from carbon dioxide. This source of carbon dioxide is primarily from the by-products of previous stages of anaerobic biodegradation. Without methanogenesis, a great deal of carbon (in the form of fermentation products) would accumulate in anaerobic environments. No wells were sampled for methane during the second semi-annual sampling event.

3.2.3.7 TPH-g and BTEX Concentration Trends

TPH-g and BTEX concentrations have steadily decreased since the pipeline release in all wells except MW-8. The highest concentrations of TPH-g (990 µg/L in 2006 to 78,000 µg/L in December, 2010) were in groundwater at well MW-8 located on the eastern side of Calaveras Road. The highest concentrations of benzene (76 µg/L in 2006 to 2,000 µg/L in December, 2010) were in groundwater at well MW-8. The highest concentrations of toluene (57 µg/L in 2006 to 16,000 µg/L in September, 2010) were in groundwater at well MW-8. The highest concentrations of ethylbenzene (69 µg/L in 2006 to 3,200 µg/L in September, 2010 and August, 2011) were in groundwater at well MW-8. The highest concentrations of total xylenes (190 µg/L in March, 2010 to 17,000 µg/L in 2006) were in groundwater at well MW-9.

SUMMARY OF QA/QC REVIEW PARAMETERS

The quality assurance/quality control (QA/QC) program includes using standard sample collection procedures in the field and established analytical methodologies in the laboratory. Laboratory and field QC sample results were evaluated to assess the quality of the individual sample results and overall method performance. Analytical performance was evaluated on a "batch QC" basis by evaluating the QC sample results for groups of samples that were prepared and analyzed together. The data evaluation performed included a review of:

- Blanks (laboratory method blanks and trip blanks)
- Spikes (laboratory control sample spikes, matrix control spikes, blank spikes and surrogate spikes)

- Duplicates (laboratory control sample duplicates and field duplicates)
- Sample Integrity (chain-of-custody documentation, sample preservation, and holding time compliance)

Method Holding Times

Analytical methods have prescribed holding times. The method holding time is defined as the maximum amount of time after collection that a sample may be held prior to extraction and/or analysis. Sample integrity becomes questionable for samples extracted and/or analyzed outside of the prescribed holding times due to degradation and/or volatilization of the sample. All samples were analyzed within the appropriate hold times.

Method Blanks

Method blanks are prepared in the laboratory using deionized, distilled (Reagent Grade Type II) water. Method blanks are extracted and/or analyzed following the same procedures as an environmental sample. Analysis of the method blank indicates potential sources of contamination from laboratory procedures (e.g. contaminated reagents, improperly cleaned laboratory equipment) or persistent contamination due to the presence of certain compounds in the ambient laboratory environment. The QA/QC review identifies method blanks with detections of target analytes and evaluates the effect of the detections on associated sample results. All reported results for the laboratory method blanks were nondetect (less than the laboratory reporting limit), indicating no evidence of contamination from laboratory instrumentation.

Trip Blanks

Trip blanks are samples of deionized, distilled (Reagent Grade Type II) water that are prepared in the laboratory, taken to the field, retained on site throughout sample collection, returned to the laboratory, and analyzed with the environmental samples. The QA/QC review identifies trip blanks with detections of target analytes and evaluates the effect of the detections on associated sample results. One trip blank was analyzed during this sampling event. The trip blank did not have detections of any target analytes, indicating no evidence of contamination during shipment of the laboratory samples.

Matrix Spikes and Laboratory Control Samples

Matrix spikes (MS), matrix spike duplicates (MSD), laboratory control samples (LCS) and laboratory control sample duplicates (LCSD) are analyzed by the laboratory to evaluate the accuracy and precision of the sample extraction and analysis procedures and to evaluate potential matrix interference. Matrix interference, the effect of the sample matrix on the analysis, may partially or completely mask the response of analytical instrumentation to the target analyte(s). Matrix interference may have a varying impact on the accuracy and precision of the extraction and/or analysis procedures, and may bias the sample results high or low.

The MS or MSD is prepared by adding a known quantity of the target compound(s) to a sample. The sample is then extracted and/or analyzed as a typical environmental sample and the results are reported as percent recovery. The spike percent recovery is defined as:

$$\text{Recovery (\%)} = \frac{\text{spike analysis result - original sample concentration}}{\text{concentration of spike addition}} \text{ x100\%}$$

MS and MSD recoveries are reviewed for compliance with laboratory-established control limits to evaluate the accuracy of the extraction and/or analysis procedures.

LCS and LCSD are prepared exactly like MS and MSD using a clean control matrix rather than an environmental sample. Typical control matrices include Reagent Grade Type II water and clean sand. LCS and LCSD are used to evaluate laboratory accuracy independent of matrix effects.

The QA/QC review identifies spike recoveries outside laboratory control limits and evaluates the effect of these recoveries on the associated sample results. All reported LCS/LCSD and MS/MSD sample recoveries were within laboratory QC limits.

Laboratory Duplicate Analyses

Duplicate analyses are performed by the laboratory to evaluate the precision of analytical procedures. The laboratory may perform MSD and/or LSD analyses.

Precision is evaluated by calculating a relative percent difference (RPD) using the following equation:

$$\text{RPD (\%)} = \left| \frac{(\text{Spike Concentration} - \text{Spike Duplicate Concentration})}{\frac{1}{2}(\text{Spike Concentration} + \text{Spike Duplicate Concentration})} \right| \text{ x } 100\%$$

The RPD is compared to laboratory-established control limits to evaluate analytical precision. The QA/QC review identifies RPDs outside laboratory control limits and evaluates the effect of these recoveries on the associated sample results. All laboratory duplicate analyses were less than 10% which is within laboratory QC limits.

Field Duplicate Analyses

Field duplicate samples are collected in the field and analyzed to evaluate the heterogeneity of the matrices. One field duplicate sample, MW-X (duplicate of MW-9), was collected during this sampling event. Noted in the laboratory report, the reporting limits were raised in the field duplicate due to interference from the sample matrix. The QA/QC review identifies relative percent (%) difference (RPD) less than 10% for compounds detected in the field sample and corresponding field duplicate sample. All field sample/duplicate sample pair RPDs less than 20% indicates homogeneity of the sample matrix.

Surrogate Recoveries

Surrogates are organic compounds that are similar to the target analytes in terms of their chemical structures and response to the analytical instrumentation, but are not usually detected in environmental samples. Surrogates are added to each environmental and laboratory QC sample to monitor the effect of the matrix on the accuracy of the extraction and/or analysis of organic analytes. Results for surrogate analyses are reported in terms of percent recovery (defined above). Reported recoveries are compared to laboratory-established control limits to evaluate sample-specific accuracy. The QA/QC review identifies surrogate recoveries outside laboratory control limits and evaluates the effect of these recoveries on the sample results. All surrogate recoveries were within laboratory QC limits, or were outside laboratory QC limits but did not require qualification, with the exception of the following:

- High Trifluorotoluene-F surrogate recovery was observed for total petroleum hydrocarbon-gasoline (TPH-GRO) analysis in sample MW-1. The TPH-GRO detection in sample MW-1 was qualified as estimated, and flagged with a "J."

EXPLANATION OF ANALYTICAL DATA QUALIFIERS

The analytical data were reviewed and qualified following USEPA guidelines for organic data review (USEPA, 2008) and inorganic data review (USEPA, 2010). A "J" qualifier indicates that the analyte was positively identified, but that the associated numerical value is an approximate concentration of the analyte in the sample. A "UJ" qualifier indicates that the analyte was not detected above the reported sample quantitation limit (i.e., the laboratory reporting limit). However, the reported quantitation limit is approximate and may or may not represent the actual limit of quantitation necessary to accurately and precisely measure the analyte in the sample. An "R" qualifier indicates that the sample results were rejected due to serious deficiencies in the ability to analyze the sample and meet quality control criteria, and therefore, the presence or absence of the analyte could not be verified.

SUMMARY OF QA/QC REVIEW FINDINGS

The results of the data evaluation are summarized in the following paragraphs.

High Trifluorotoluene-F surrogate recovery was observed for total petroleum hydrocarbon-gasoline (TPH-GRO) analysis in sample MW-1. The TPH-GRO detection in sample MW-1 was qualified as estimated, and flagged with a "J."

Chain-of-custody documentation is complete and consistent. Samples were preserved as required per method specifications. All samples were analyzed within method specified holding times, except as noted. Based on the data quality evaluation, no systematic problems were detected and the overall data objectives for sample contamination, precision, accuracy, and sample integrity were met. These analytical data are of acceptable quality and may be used for their intended purposes.

Semi-annual groundwater monitoring field activities conducted on August 22 and 23, 2011 included measuring the depth to groundwater at monitoring wells MW-1 through MW-4 and MW-8 through MW-11 and collecting analytical samples from wells MW-1, MW-3 and MW-8 through MW-11, and the stream. The findings are as follows:

- LNAPL was observed in MW-1 and MW-3 at a thickness of 0.01 feet during the second semi-annual 2011 groundwater monitoring activities.
- The groundwater elevations decreased in all wells since the last sampling event in March 2011.
- The MW-1 sample contained TPH-GRO at 960 µg/L, toluene at 1 µg/L, and total xylenes at 2 µg/L. Benzene and ethylbenzene analytical results were below the respective laboratory method detection limits. TPH-GRO sample results decreased since the sampling event in March 2011. Monitoring well MW-1 has not been consistently sampled due to the well being hydraulically disconnected from the aquifer. TPH-GRO and BTEX concentrations have decreased since sampling activities began in 2006.
- The MW-3 sample contained toluene at 2 µg/L, ethylbenzene at 1 µg/L and total xylenes at 5 µg/L. TPH-GRO and benzene analytical results were below the respective laboratory method detection limits. Toluene, has not been detected in MW-3 since 2006. Ethylbenzene and total xylenes, have not been detected since sampling activities began in 2006.
- The MW-8 sample contained TPH-GRO at 72,000 µg/L, benzene at 1,200 µg/L, toluene at 15,000 µg/L, ethylbenzene at 3,200 µg/L, and total xylenes at 15,000 µg/L. TPH-GRO, toluene, ethylbenzene and total xylenes have increased since the sampling event in March 2011. Benzene concentrations decreased since the sampling event in March 2011. All analytes except for ethylbenze have remained the same or decreased since the December 2010 sampling event.
- The MW-9 sample contained TPH-GRO at 7,900 µg/L, toluene at 2 µg/L, ethylbenzene at 46 µg/L, and total xylenes at 200 µg/L. Benzene analytical results was below the laboratory reporting method detection limit. TPH-GRO and toluene, ethylbenzene and total xylenes concentrations have increased since the March 2011 sampling event, but decreased since sampling started in 2006.
- Groundwater samples collected from well MW-10 have remained non-detect since the sampling event in December 2009 with the exception of a detection of toluene at 1 µg/L in December 2010 and a detection of total xylenes at 0.6 µg/L during this second semi-annual sampling event.
- All analytical results from MW-11 were below laboratory reporting limits for TPH-GRO and BTEX. Groundwater samples collected from well MW-11 have remained non-detect since the sampling event in September 2010.
- Other than the initial release (August 2005), the known petroleum hydrocarbon along the hillside has had limited contact with groundwater which is the transportation mechanism for petroleum hydrocarbons to the nursery.

Based on the August 2011 field observations and analytical results URS makes the following recommendations:

- Continue monthly groundwater gauging to assess the effect of seasonal and long-term groundwater elevation fluctuations within the unconfined water-bearing zone.
- Continue semi-annual groundwater monitoring.
- Implement the 2011 Data Gaps Investigation upon approval from the ACEHD.

No evaluation is thorough enough to preclude the possibility that materials that are currently considered hazardous or materials that may be considered hazardous in the future may be present at a site. Since regulatory evaluation criteria are constantly changing, concentrations of contaminants presently considered nonhazardous may, in the future, fall under different regulatory standards and require remediation. Opinions and judgments expressed herein, which are based on understanding and interpretation of current regulatory standards, should not be construed as legal opinions. This document and the information contained herein have been prepared solely for use by CPL, and reliance on this report by third parties will be at such party's sole risk.

Services performed by URS were conducted in a manner consistent with that level of care and skill ordinarily exercised by other professional consultants under similar circumstances. No other representations to CPL, either expressed or implied, and no warranty or guarantee is included or intended for the semiannual groundwater monitoring report. The program described in this report is based upon the information acquired during the various investigations at the Site. It is possible that variations at the Site could exist beyond or between points explored during the course of the investigations. Also, changes in conditions could occur at some time in the future due to possible contamination migration, variations in rainfall, temperature, and/or other factors not apparent at the time of the various field activities.

Opinions relating to the environmental, geologic, and hydrogeologic conditions are based on limited data and actual conditions may vary from those encountered at the times and locations where the data was obtained, despite the use of due professional care.

Any reliance on this report by any other party shall be at such a party's sole risk unless that party has written authorization from URS to use this document. The purpose of this restriction is to attempt to protect the interests for whom the report may be appropriately directed.

TABLE 1
Monitoring Well Groundwater Levels
Second Semi-Annual 2011 Groundwater Monitoring Report
Chevron Sunol Pipeline

Well ID	Screen Interval (feet bgs)[1]	Date	Depth to Groundwater (feet TOC-N)[2]	Depth to Product (feet TOC-N)	Product Thickness (feet)
MW-1	29.3-39.3	2/21/2006	36.34	--	--
		6/7/2006	34.28	--	--
		8/22/2006	37.11	37.08	0.03
		11/14/2006	37.05	--	--
		2/20/2007	36.14	--	--
		6/5/2007	37.21	--	--
		9/12/2007	37.67	37.55	0.12
		12/11/2007	37.49	37.46	0.03
		3/19/2008	35.94	--	--
		5/20/2008	35.51	--	--
		6/5/2008	35.69	--	--
		9/18/2008	37.62	37.61	0.01
		12/15/2008	37.53	37.52	0.01
		3/27/2009	35.24	--	--
		6/9/2009	37.05	--	--
		9/28/2009	37.61	--	--
		12/9/2009	37.56	--	--
		3/9/2010	34.41	--	--
		6/23/2010	37.49	--	--
		9/29/2010	37.36	--	--
		12/14/2010	37.11	--	--
		3/28/2011	32.19	--	--
		8/22/2011	37.04	37.03	0.01
MW-2	23.3-38.3	2/21/2006	32.19	--	--
		6/7/2006	30.23	--	--
		8/22/2006	33.11	--	--
		11/14/2006	33.01	--	--
		2/20/2007	31.93	--	--
		6/5/2007	33.23	--	--
		9/12/2007	33.62	--	--
		12/5/2007	33.52	--	--
		3/19/2008	31.76	--	--
		5/20/2008	31.41	--	--
		6/5/2008	31.56	--	--
		9/18/2008	33.65	--	--
		12/15/2008	33.59	--	--
		3/27/2009	31.14	--	--
		6/9/2009	33.08	--	--
		9/28/2009	33.62	--	--
		12/9/2009	33.61	--	--
		3/9/2010	30.36	--	--
		6/23/2010	32.66	--	--
		9/29/2010	33.41	--	--
		12/14/2010	33.12	--	--
		3/28/2011	28.10	--	--
		8/22/2011	33.07	--	--
MW-3	21.3-36.3	2/21/2006	31.97	--	--
		6/7/2006	30.91	--	--
		8/22/2006	34.66	--	--
		11/14/2006	34.71	--	--
		2/20/2007	31.66	--	--
		6/5/2007	34.63	--	--
		9/12/2007	34.71	--	--
		12/11/2007	34.77	--	--
		3/19/2008	31.64	--	--
		5/20/2008	31.26	--	--
		6/5/2008	31.45	--	--
		9/18/2008	34.81	--	--
		12/15/2008	34.79	--	--
		3/27/2009	30.87	--	--

TABLE 1
Monitoring Well Groundwater Levels
Second Semi-Annual 2011 Groundwater Monitoring Report
Chevron Sunol Pipeline

Well ID	Screen Interval (feet bgs)[1]	Date	Depth to Groundwater (feet TOC-N)[2]	Depth to Product (feet TOC-N)	Product Thickness (feet)
MW-3 cont.	21.3-36.3	6/9/2009	34.48	--	--
		9/28/2009	34.82	--	--
		12/9/2009	34.83	--	--
		3/9/2010	30.60	--	--
		6/23/2010	33.94	--	--
		9/29/2010	34.80	--	--
		12/14/2010	33.05	--	--
		3/28/2011	28.78	--	--
		8/22/2011	34.70	--	--
MW-4	30.7-40.7	2/21/2006	36.72	--	--
		6/7/2006	35.76	--	--
		8/22/2006	38.79	--	--
		11/14/2006	38.84	--	--
		2/20/2007	36.54	--	--
		6/5/2007	38.77	--	--
		9/12/2007	38.93	--	--
		12/11/2008	39.00	--	--
		3/19/2008	36.29	--	--
		5/20/2008	36.27	--	--
		6/5/2008	36.38	--	--
		9/18/2008	39.03	--	--
		12/15/2008	39.03	--	--
		3/27/2009	36.10	--	--
		6/9/2009	38.62	--	--
		9/28/2009	39.04	--	--
		12/9/2009	39.09	--	--
		3/9/2010	35.69	--	--
		6/23/2010	37.41	--	--
		9/29/2010	38.98	--	--
		12/14/2010	37.61	--	--
		3/28/2011	33.63	--	--
		8/22/2011	38.88	--	--
MW-8	14.5-24.5	8/22/2006	18.71	--	--
		11/14/2006	18.73	--	--
		2/20/2007	19.23	--	--
		6/5/2007	20.48	--	--
		9/12/2007	21.47	--	--
		12/11/2007	19.58	--	--
		Q1 2008	NM	--	--
		Q2 2008	NM	--	--
		9/18/2008	21.67	--	--
		12/15/2008	20.73	--	--
		3/27/2009	19.54	--	--
		6/9/2009	23.31	--	--
		9/28/2009	22.58	--	--
		12/9/2009	20.66	20.65	0.01
		3/9/2010	18.97	--	--
		6/23/2010	19.82	--	--
		9/29/2010	22.23	22.22	0.01
		12/14/2010	20.26	--	--
		3/28/2011	18.40	--	--
		8/22/2011	19.97	--	--
MW-9	36.0-46.0	8/22/2006	42.59	42.55	0.04
		11/14/2006	42.62	42.54	0.08
		2/20/2007	41.91	41.86	0.05
		6/5/2007	42.71	42.69	0.02
		9/12/2007	43.09	43.01	0.08
		12/11/2007	42.91	--	--
		3/20/2007	41.76	41.75	0.01
		12/11/2007	42.91	--	--
		5/20/2008	41.33	--	--
		6/5/2008	41.57	--	--

TABLE 1
Monitoring Well Groundwater Levels
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Chevron Sunol Pipeline

Well ID	Screen Interval (feet bgs)[1]	Date	Depth to Groundwater (feet TOC-N)[2]	Depth to Product (feet TOC-N)	Product Thickness (feet)
MW-9 cont.	36.0-46.0	9/18/2008	43.07	--	--
		12/15/2008	43.00	--	--
		3/27/2009	41.02	--	--
		6/9/2009	42.53	--	--
		9/28/2009	43.02	--	--
		12/9/2009	42.99	--	--
		3/9/2010	39.97	--	--
		6/23/2010	41.94	--	--
		9/29/2010	42.81	--	--
		12/14/2010	42.60	--	--
		3/28/2011	37.70	--	--
		8/22/2011	42.52	--	--
MW-10	40.3-55.3	9/5/2007	54.86	--	--
		12/12/2007	46.84	--	--
		3/20/2008	44.41	--	--
		5/20/2008	44.09	--	--
		6/5/2008	43.67	--	--
		9/18/2008	45.89	--	--
		12/15/2008	45.91	--	--
		3/27/2009	43.82	--	--
		6/9/2009	45.19	--	--
		9/28/2009	45.94	--	--
		12/9/2009	46.02	--	--
		3/9/2010	42.62	--	--
		6/23/2010	44.52	--	--
		9/29/2010	45.89	--	--
		12/14/2010	45.77	--	--
		3/28/2011	40.41	--	--
		8/22/2011	45.57	--	--
MW-11	37.0-47.0	9/6/2007	Dry	--	--
		12/12/2007	42.73	--	--
		3/20/2008	37.29	--	--
		5/20/2008	37.06	--	--
		6/4/2008	37.18	--	--
		9/18/2008	38.97	--	--
		12/15/2008	39.36	--	--
		3/27/2009	36.87	--	--
		6/9/2009	38.30	--	--
		9/28/2009	39.21	--	--
		12/9/2009	39.73	--	--
		3/9/2010	36.28	--	--
		6/23/2010	37.72	--	--
		9/29/2010	44.84	--	--
		12/14/2010	39.56	--	--
		3/28/2011	34.25	--	--
		8/22/2011	38.73	--	--

Notes:
NM - Not measured
1. Screen intervals measured from feet below ground surface (feet bgs)
2. Groundwater and product levels measured from top of casing - north (TOC-N).
3. MW-5 through MW-7 abandoned 6/23/08.

TABLE 2
Monitoring Well Groundwater Elevations
Second Semi-Annual 2011 Groundwater Monitoring Report
Chevron Sunol Pipeline

Well ID	Date Completed	Ground Surface Elevation (feet msl)[1]	Top of Casing Elevation (feet msl)[1, 2]	Date Measured	Groundwater Elevation (feet msl)[1]	Product Elevation (feet msl)[1]	Product Thickness (feet)
MW-1	10/20/2005	328.49	328.04	2/21/2006	291.70	--	--
				6/7/2006	293.76	--	--
				8/22/2006	290.93	290.96	0.03
				11/14/2006	290.99	--	--
				2/20/2007	291.90	--	--
				6/5/2007	290.83	--	--
				9/12/2007	290.37	--	--
				12/11/2007	290.55	290.58	0.03
				3/19/2008	292.10	--	--
				5/20/2008	292.53	--	--
				6/5/2008	292.35	--	--
				9/18/2008	290.42	290.43	0.01
				12/15/2008	290.51	290.52	0.01
				3/27/2009	292.80	--	--
				6/9/2009	290.99	--	--
				9/28/2009	290.43	--	--
				12/9/2009	290.48	--	--
				3/9/2010	293.63	--	--
				6/23/2010	290.55	--	--
				9/28/2010	290.68	--	--
				12/14/2010	290.93	--	--
				3/28/2011	295.85	--	--
				8/22/2011	291.00	291.01	0.01
MW-2	10/21/2005	324.85	324.15	2/21/2006	291.96	--	--
				6/7/2006	293.92	--	--
				8/22/2006	291.04	--	--
				11/14/2006	291.14	--	--
				2/20/2007	292.22	--	--
				6/5/2007	290.92	--	--
				9/12/2007	290.53	--	--
				12/5/2007	290.63	--	--
				3/19/2008	292.39	--	--
				5/20/2008	292.74	--	--
				6/5/2008	292.59	--	--
				9/18/2008	290.50	--	--
				12/15/2008	290.56	--	--
				3/27/2009	293.01	--	--
				6/9/2009	291.07	--	--
				9/28/2009	290.53	--	--
				12/9/2009	290.54	--	--
				3/9/2010	293.79	--	--
				6/23/2010	291.49	--	--
				9/28/2010	290.74	--	--
				12/14/2010	291.03	--	--
				3/28/2011	296.05	--	--
				8/22/2011	291.08	--	--
MW-3	10/21/2005	326.05	325.65	2/21/2006	293.68	--	--
				6/7/2006	294.74	--	--
				8/22/2006	290.99	--	--
				11/14/2006	290.94	--	--
				2/20/2007	293.99	--	--
				6/5/2007	291.02	--	--
				9/12/2007	290.94	--	--
				12/11/2007	290.88	--	--
				3/19/2008	294.01	--	--
				5/20/2008	294.39	--	--
				6/5/2008	294.20	--	--
				9/18/2008	290.84	--	--
				12/15/2008	290.86	--	--

TABLE 2
Monitoring Well Groundwater Elevations
Second Semi-Annual 2011 Groundwater Monitoring Report
Chevron Sunol Pipeline

Well ID	Date Completed	Ground Surface Elevation (feet msl)[1]	Top of Casing Elevation (feet msl)[1, 2]	Date Measured	Groundwater Elevation (feet msl)[1]	Product Elevation (feet msl)[1]	Product Thickness (feet)
MW-3 cont.				3/27/2009	294.78	--	--
				6/9/2009	291.17	--	--
				9/28/2009	290.83	--	--
				12/9/2009	290.82	--	--
				3/9/2010	295.05	--	--
				6/23/2010	291.71	--	--
				9/28/2010	290.85	--	--
				12/14/2010	292.60	--	--
				3/28/2011	296.87	--	--
				8/22/2011	290.95	--	--
MW-4	1/31/2006	329.97	329.67	2/21/2006	292.95	--	--
				6/7/2006	293.91	--	--
				8/22/2006	290.88	--	--
				11/14/2006	290.83	--	--
				2/20/2007	293.13	--	--
				6/5/2007	290.90	--	--
				9/12/2007	290.74	--	--
				12/11/2007	290.67	--	--
				3/19/2008	293.38	--	--
				5/20/2008	293.40	--	--
				6/5/2008	293.29	--	--
				9/18/2008	290.64	--	--
				12/15/2008	290.64	--	--
				3/27/2009	293.57	--	--
				6/9/2009	291.05	--	--
				9/28/2009	290.63	--	--
				12/9/2009	290.58	--	--
				3/9/2010	293.98	--	--
				6/23/2010	292.26	--	--
				9/28/2010	290.69	--	--
				12/14/2010	292.06	--	--
				3/28/2011	296.04	--	--
				8/22/2011	290.79	--	--
MW-8	8/15/2006	335.23	333.93	8/22/2006	315.22	--	--
				11/14/2006	315.20	--	--
				2/20/2007	314.70	--	--
				6/5/2007	313.45	--	--
				9/12/2007	312.46	--	--
				12/11/2007	314.35	--	--
				Q1 2008	NM	--	--
				Q2 2008	NM	--	--
				9/18/2008	312.26	--	--
				12/15/2008	313.20	--	--
				3/27/2009	314.39	--	--
				6/9/2009	310.62	--	--
				9/28/2009	311.35	--	--
				12/9/2009	313.27	313.28	0.01
				3/9/2010	314.96	--	--
				6/23/2010	314.11	--	--
				9/28/2010	311.70	311.71	0.01
				12/14/2010	313.67	--	--
				3/28/2011	315.53	--	--
				8/22/2011	313.96	--	--
MW-9	8/16/2006	333.49	333.07	8/22/2006	290.48	290.52	0.04
				11/14/2006	290.45	290.53	0.08
				2/20/2007	291.16	291.21	0.05
				6/5/2007	290.36	290.38	0.02
				9/12/2007	289.98	290.06	0.08
				12/11/2007	290.16	--	--
				3/20/2007	291.31	--	--
				12/11/2007	290.16	--	--

TABLE 2
Monitoring Well Groundwater Elevations
Second Semi-Annual 2011 Groundwater Monitoring Report
Chevron Sunol Pipeline

Well ID	Date Completed	Ground Surface Elevation (feet msl)[1]	Top of Casing Elevation (feet msl)[1, 2]	Date Measured	Groundwater Elevation (feet msl)[1]	Product Elevation (feet msl)[1]	Product Thickness (feet)
MW-9 cont.				5/20/2008	291.74	--	--
				6/5/2008	291.50	--	--
				9/18/2008	290.00	--	--
				12/15/2008	290.07	--	--
				3/27/2009	292.05	--	--
				6/9/2009	290.54	--	--
				9/28/2009	290.05	--	--
				12/9/2009	290.08	--	--
				3/9/2010	293.10	--	--
				6/23/2010	291.13	--	--
				9/28/2010	290.47	--	--
				3/28/2011	295.37	--	--
				8/22/2011	290.55	--	--
MW-10	9/5/2007	336.55	335.89	9/12/2007	281.03	--	--
				12/12/2007	289.05	--	--
				3/20/2008	291.48	--	--
				5/20/2008	291.80	--	--
				6/5/2008	292.22	--	--
				9/18/2008	290.00	--	--
				12/15/2008	289.98	--	--
				3/27/2009	292.07	--	--
				6/9/2009	290.70	--	--
				9/28/2009	289.95	--	--
				12/9/2009	289.87	--	--
				3/9/2010	293.27	--	--
				6/23/2010	291.37	--	--
				9/28/2010	290.00	--	--
				12/14/2010	290.12	--	--
				3/28/2011	295.48	--	--
				8/22/2011	290.32	--	--
MW-11	9/6/2007	330.29	329.89	9/12/2007	Dry	--	--
				12/12/2007	287.16	--	--
				3/20/2008	292.60	--	--
				5/20/2008	292.83	--	--
				6/5/2008	292.71	--	--
				9/18/2008	290.92	--	--
				12/15/2008	290.53	--	--
				3/27/2009	293.02	--	--
				6/9/2009	291.59	--	--
				9/28/2009	290.68	--	--
				12/9/2009	290.16	--	--
				3/9/2010	293.61	--	--
				6/23/2010	292.17	--	--
				9/28/2010	285.05	--	--
				10/14/2010	290.33	--	--
				3/28/2011	295.64	--	--
				8/22/2011	291.16	--	--

Notes:
NM - Not measured
1. All elevations displayed in feet above average mean sea level (msl).
2. Groundwater and product elevations calculated from depths as measured from top of casing - north.
MW-1 through MW-3 surveyed on October 31, 2005.
MW-4 through MW-7 surveyed on February 14, 2006.
MW-8 and MW-9 surveyed on November 10, 2006.
MW-10 and MW-11 surveyed on September 13, 2007.
MW-5 through MW-7 abandoned 6/23/08.

TABLE 3
Summary of Groundwater Analytical Results Gasoline Compounds
Second Semi-Annual 2011
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Chevron Sunol Pipeline

Well ID	Date	Gasoline Compounds				
		TPH-GRO	Benzene	Toluene	Ethylbenzene	Xylenes
		(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)
MW-1	2/22/2006	**57,000**	**38**	**2,700**	**3,000**	**8,700**
	6/8/2006	**37,000**	**10**	**330**	**120**	**8,200**
	Q3 2006[2)]	NS	NS	NS	NS	NS
	11/15/2006	**38,000**	**14**	**110**	**38**	**5,900**
	2/21/2007	**18,000**	**4**	**7**	**8**	**1,600**
	6/5/2007	**17,000**	**3**	**7**	**4**	**1,100**
	Q3 2007[2)]	NS	NS	NS	NS	NS
	Q4 20072[)]	NS	NS	NS	NS	NS
	3/19/2008	**12,000**	**0.8**	**1**	**1**	**320**
	6/6/2008	**8,200**	**1**	**2**	**3**	**150**
	Q3 2008[3)]	NS	NS	NS	NS	NS
	Q4 2008[3)]	NS	NS	NS	NS	NS
	3/31/2009	**3,700**	<0.5	**1**	**1**	**44**
	6/10/2009	**5,000**	<0.5	<0.5	**0.7**	**13**
	Q3 2009 [3)]	NS	NS	NS	NS	NS
	Q4 2009 [3)]	NS	NS	NS	NS	NS
	3/10/2010	**3,800**	<0.5	<0.5	<0.5	**4**
	Q2 2010 [3)]	NS	NS	NS	NS	NS
	Q3 2010 [3)]	NS	NS	NS	NS	NS
	12/14/2010	**1,900**	**0.8**	**1**	**0.7**	**3**
	3/29/2011	**1,200**	<0.5	<0.5	<0.5	<0.5
	8/23/2011	**960**	<0.5	**1**	<0.5	**2**
MW-2	2/21/2006[1)]	<50 / <50	<0.5 / <0.5	<0.5 / <0.5	<0.5 / <0.5	<0.5 / <0.5
	6/7/2006	<50	<0.5	<0.5	<0.5	<0.5
	8/23/2006	<50	0.5	<0.5	<0.5	<0.5
	11/14/2006	<50	**0.7**	<0.5	<0.5	<0.5
	2/21/2007	<50	<0.5	<0.5	<0.5	<0.5
	6/5/2007	<50	<0.5	<0.5	<0.5	<0.5
	Q3 2007[3)]	NS	NS	NS	NS	NS
	Q4 2007[3)]	NS	NS	NS	NS	NS
	3/19/2008	<50	<0.5	<0.5	<0.5	<0.5
	6/5/2008 [1)]	<50 / <50	<0.5 / <0.5	<0.5 / <0.5	<0.5 / <0.5	<0.5 / <0.5
	Q3 2008[3)]	NS	NS	NS	NS	NS
	Q4 2008[3)]	NS	NS	NS	NS	NS
	3/27/2009	<50	<0.5	<0.5	<0.5	<0.5
	Q2 2009 [3)]	NS	NS	NS	NS	NS
	Q3 2009 [3)]	NS	NS	NS	NS	NS
	Q4 2009 [3)]	NS	NS	NS	NS	NS
	3/10/2010	<50	<0.5	<0.5	<0.5	**2**
	6/23/2010	<50	<0.5	<0.5	<0.5	<0.5
	Q3 2010 [3)]	NS	NS	NS	NS	NS
	Q4 2010 [3)]	NS	NS	NS	NS	NS
	3/28/2011	<50	<0.5	<0.5	<0.5	<0.5
	Q3 2011 [3)]	NS	NS	NS	NS	NS
MW-3	2/21/2006	<50	<0.5	<0.5	<0.5	<0.5
	6/7/2006	<50	<0.5	<0.5	<0.5	<0.5
	8/23/2006	**170**	<0.5	<0.5	<0.5	<0.5
	11/14/2006	**86**	<0.5	**1**	<0.5	<0.5
	2/21/2007	<50	<0.5	<0.5	<0.5	<0.5
	Q2 2007[3)]	NS	NS	NS	NS	NS
	Q3 2007[3)]	NS	NS	NS	NS	NS

TABLE 3
Summary of Groundwater Analytical Results Gasoline Compounds
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Well ID	Date	Gasoline Compounds				
		TPH-GRO	Benzene	Toluene	Ethylbenzene	Xylenes
		(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)
MW-3 cont.	Q4 2007[3)]	NS	NS	NS	NS	NS
	3/19/2008	<50	<0.5	<0.5	<0.5	<0.5
	6/5/2008	<50	<0.5	<0.5	<0.5	<0.5
	Q3 2008[3)]	NS	NS	NS	NS	NS
	Q4 2008[3)]	NS	NS	NS	NS	NS
	3/31/2009	<50	<0.5	<0.5	<0.5	<0.5
	Q2 2009 [3)]	NS	NS	NS	NS	NS
	Q3 2009 [3)]	NS	NS	NS	NS	NS
	Q4 2009 [3)]	NS	NS	NS	NS	NS
	3/9/2010	<50	<0.5	<0.5	<0.5	<0.5
	Q2 2010 [3)]	NS	NS	NS	NS	NS
	Q3 2010 [3)]	NS	NS	NS	NS	NS
	Q4 2010 [3)]	NS	NS	NS	NS	NS
	3/28/2011	<50	<0.5	<0.5	<0.5	<0.5
	8/23/2011	<50	<0.5	**2**	**1**	**5**
MW-4	2/21/2006	<50	<0.5	<0.5	<0.5	<0.5
	6/7/2006	<50	<0.5	<0.5	<0.5	<0.5
	8/23/2006	**70**	**0.6**	<0.5	<0.5	**1**
	11/15/2006	<50	<0.5	<0.5	<0.5	0.5
	2/21/2007	<50	<0.5	<0.5	<0.5	<0.5
	Q2 2007[3)]	NS	NS	NS	NS	NS
	Q3 2007[3)]	NS	NS	NS	NS	NS
	Q4 2007[3)]	NS	NS	NS	NS	NS
	3/19/2008	<50	<0.5	<0.5	<0.5	<0.5
	6/6/2008	<50	<0.5	<0.5	<0.5	<0.5
	Q3 2008[3)]	NS	NS	NS	NS	NS
	Q4 2008[3)]	NS	NS	NS	NS	NS
	3/31/2009	<50	<0.5	<0.5	<0.5	<0.5
	Q2 2009 [3)]	NS	NS	NS	NS	NS
	Q3 2009 [3)]	NS	NS	NS	NS	NS
	Q4 2009 [3)]	NS	NS	NS	NS	NS
	3/9/2010	<50	<0.5	<0.5	<0.5	<0.5
	6/23/2010	<50	<0.5	<0.5	<0.5	<0.5
	Q3 2010 [3)]	NS	NS	NS	NS	NS
	12/14/2010	<50	<0.5	<0.5	<0.5	**0.8**
	3/29/2011	<50	<0.5	<0.5	<0.5	<0.5
	Q3 2011 [3)]	NS	NS	NS	NS	NS
MW-8/MW-X	8/24/2006	**18,000**	**190**	**2,600**	**590**	**2,800**
	11/16/2006	**990**	**76**	**80**	**69**	**190**
	2/20/2007	**2,000**	**180**	**57**	**170**	**74**
	6/6/2007	**3,600**	**340**	**92**	**370**	**210**
	9/12/2007	**4,200**	**470**	**230**	**630**	**320**
	12/11/2007	**4,900**	**350**	**300**	**490**	**650**
	Q1 2008[4)]	NS	NS	NS	NS	NS
	Q2 2008[4)]	NS	NS	NS	NS	NS
	9/18/2008[1)]	**11,000 / 9,200**	**740 / 690**	**320 / 290**	**790 / 720**	**2,600 / 2,100**
	12/15/2008	**12,000**	**810**	**920**	**880**	**3,300**
	3/27/2009	**29,000/29,000J**	**1,500/1,200**	**7,200/4,500**	**1,200/1,100**	**4,700/4,100**
	Q2 2009 [3)]	NS	NS	NS	NS	NS
	Q3 2009 [3)]	NS	NS	NS	NS	NS
	12/10/2009	**19,000**	**930**	**1,600**	**1,200**	**3,800**

TABLE 3
Summary of Groundwater Analytical Results Gasoline Compounds
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Well ID	Date	Gasoline Compounds				
		TPH-GRO	Benzene	Toluene	Ethylbenzene	Xylenes
		(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)
MW-8/MW-X Cont.	3/10/2010	**10,000 / 10,000**	**570 / 580**	**500 / 500**	**730 / 730**	**1,800 / 1,800**
	6/24/2010	**14,000**	**630**	**680**	**870**	**2,500**
	9/29/2010	**74,000 / 170,000 J**	**1,400 / 1,500 J**	**16,000 / 23,000 J**	**3,200 / 4,300 J**	**16,000 / 25,000 J**
	12/15/2010	**78,000**	**2,000**	**15,000**	**2,800**	**15,000**
	3/29/2011	**49,000**	**1,600**	**7,500**	**2,000**	**11,000**
	8/23/2011	**72,000**	**1,200**	**15,000**	**3,200**	**15,000**
MW-9/MW-X[7)]	Q3 2006[2)]	NS	NS	NS	NS	NS
	11/15/2006	**74,000**	**480**	**12,000**	**2,200**	**17,000**
	Q1 2007[2)]	NS	NS	NS	NS	NS
	Q2 2007[2)]	NS	NS	NS	NS	NS
	Q3 2007[2)]	NS	NS	NS	NS	NS
	12/11/2007	**48,000**	**62**	**5,400**	**1,700**	**12,000**
	Q1 2008[2)]	NS	NS	NS	NS	NS
	6/6/2008	**31,000**	**5**	**1,000**	**1,300**	**9,000**
	9/18/2008	**25,000**	**6**	**610**	**800**	**4,800**
	12/16/2008	**34,000**	**6**	**750**	**930**	**6,000**
	3/31/2009	**20,000**	**3**	**100**	**460**	**3,200**
	6/10/2009	**27,000**	<3	**66**	**610**	**4,100**
	Q3 2009[2)]	NS	NS	NS	NS	NS
	12/10/2009	**20,000**	**3**	**85**	**460**	**2,800**
	3/10/2010	**18,000**	<3	**17**	**250**	**1,700**
	6/24/2010	**16,000**	**0.9**	**7**	**210**	**1,300**
	9/29/2010	**24,000**	<10	<10	**440**	**2,100**
	12/14/2010	**9,100**	**6**	**2**	**80**	**340**
	3/29/2011	**7,100**	**0.8**	**0.9**	**44**	**190**
	8/23/2011	**7900/ 8,300**	<0.5/<1.0	**2/ 2**	**46/ 47**	**200 /220**
MW-10/MW-X [6)]	Q3 2007[3)]	NS	NS	NS	NS	NS
	12/14/2007	<50	<0.5	<0.5	<0.5	<0.5
	3/20/2008	<50	**0.9**	<0.5	<0.5	<0.5
	6/6/2008	<50	<0.5	<0.5	<0.5	<0.5
	9/18/2008	<50	<0.5	<0.5	<0.5	<0.5
	12/15/2008	<50	<0.5	<0.5	<0.5	<0.5
	3/27/2009	**52**	<0.5	**0.7**	<0.5	<0.5
	6/10/2009	<50	<0.5	**1**	<0.5	<0.5
	9/28/2009	<50/<50	<0.5/<0.5	<0.5/<0.5	<0.5/<0.5	<0.5/<0.5
	12/10/2009	**540**	**1**	**2**	**5**	**23**
	3/9/2010	<50	<0.5	<0.5	<0.5	<0.5
	6/23/2010	<50	<0.5	<0.5	<0.5	<0.5
	9/29/2010	<50	<0.5	<0.5	<0.5	<0.5
	12/15/2010	<50	<0.5	**1**	<0.5	<0.5
	3/28/2011	<50	<0.5	<0.5	<0.5	<0.5
	8/23/2011	<50	<0.5	<0.5	<0.5	**0.6**
MW-11	Q3 2007[3)]	NS	NS	NS	NS	NS
	12/14/2007	<50	<0.5	<0.5	<0.5	<0.5
	3/20/2008[1)]	<50 / <50	<0.5 / <0.5	<0.5 / <0.5	<0.5 / <0.5	<0.5 / <0.5
	6/6/2008	<50	<0.5	<0.5	<0.5	<0.5
	9/18/2008	<50	<0.5	<0.5	<0.5	<0.5
	12/15/2008	<50	<0.5	<0.5	<0.5	<0.5
	3/27/2009	<50	<0.5	<0.5	<0.5	<0.5
	6/10/2009	**59**	<0.5	**2**	<0.5	**3**
	9/29/2009	<50	<0.5	<0.5	<0.5	<0.5
	12/10/2009	**66**	<0.5	<0.5	<0.5	**3**
	3/9/2010	<50	<0.5	<0.5	<0.5	<0.5

TABLE 3
Summary of Groundwater Analytical Results Gasoline Compounds
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Well ID	Date	Gasoline Compounds				
		TPH-GRO	Benzene	Toluene	Ethylbenzene	Xylenes
		(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)
MW-11 cont.	6/23/2010	<50	<0.5	<0.5	<0.5	<0.5
	9/29/2010	<50	<0.5	<0.5	<0.5	<0.5
	12/15/2010	<50	<0.5	<0.5	<0.5	<0.5
	3/28/2011	<50	<0.5	<0.5	<0.5	<0.5
	8/23/2011	<50	<0.5	<0.5	<0.5	<0.5
SW-Creek	6/7/2006	<50	<0.5	<0.5	<0.5	<0.5
	8/22/2006	<50	<0.5	<0.5	<0.5	<0.5
	11/15/2006	<50	<0.5	<0.5	<0.5	<0.5
	11/15/2006	<50	<0.5	<0.5	<0.5	<0.5
Stream	2/21/2007	<50	<0.5	<0.5	<0.5	<0.5
	6/5/2007	<50	<0.5	<0.5	<0.5	<0.5
	9/12/2007	<50	<0.5	<0.5	<0.5	<0.5
	1/25/2008	<50	<0.5	<0.5	<0.5	<0.5
	3/20/2008	<50	<0.5	<0.5	<0.5	<0.5
	6/5/2008	<50	<0.5	<0.5	<0.5	<0.5
	9/18/2008	<50	<0.5	<0.5	<0.5	<0.5
	12/15/2008	<50	<0.5	<0.5	<0.5	<0.5
	3/31/2009	<50	<0.5	<0.5	<0.5	<0.5
	6/9/2009	<50	<0.5	<0.5	<0.5	<0.5
	Q3 2009[5)]	NS	NS	NS	NS	NS
	Q4 2009[5)]	NS	NS	NS	NS	NS
	3/9/2010	<50	<0.5	<0.5	<0.5	<0.5
	6/24/2010	<50	<0.5	<0.5	<0.5	<0.5
	9/28/2010	<50	<0.5	<0.5	<0.5	<0.5
	12/15/2010	<50	<0.5	<0.5	<0.5	<0.5
	3/29/2011	<50	<0.5	<0.5	<0.5	<0.5
	8/23/2011	<50	<0.5	<0.5	<0.5	<0.5

Notes:

Bold values exceed laboratory reporting limits.

J qualifier - The reported value is the approximate concentration of the analyte in the sample due to sample heterogeneity.
µg/L - micrograms per liter
NS - Not Sampled
TPH-GRO - Total Petroleum Hydrocarbons as Gasoline Range

1) Both sample and duplicate concentrations from well location are displayed.
2) Sample not collected during quarterly monitoring due to the presence of measurable free product.
3) Sample not collected during quarterly monitoring because well is not hydraulically connected to unconfined water-bearing zone.
4) Sample not collected due to extreme overhead hazards posed by dead trees on the 80-90% grade directly uphill from the sampling location.
5) Sample not collected during quarterly monitoring due to the stream sample location being dry.
6) Duplicate sampled collected from MW-10 during the third quarter 2009 sampling event because MW-8 was not hydraulically connected to the water bearing zone.
7) Duplicate sample collected from MW-9 during the third quarter 2011 sampling event.

TABLE 4
Summary of Groundwater Analytical Results Geochemical Indicators and Other Parameters
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Well ID	Date	Geochemical Indicators and Other Parameters											
		DO[1] (mg/L)	ORP[1] (mV)	Nitrate (mg/L)	Manganese (mg/L)	Ferrous Iron (mg/L)	Dissolved Iron (mg/L)	Sulfate (mg/L)	Methane (mg/L)	pH[1]	TDS (mg/L)	Alkalinity to pH 4.5 (mg/L) as $CaCO_3$	Alkalinity to pH 8.3 (mg/L) as $CaCO_3$
MW-1	6/8/2006	0.28	88.15	2.6	0.116	<0.008	<0.052	48.3	<0.002	6.62	494	317	<0.46
	Q3 2006	NM[4]	NM[4]	NM[4]	NM[4]	NM[4]	NM[4]	NM[4]	NM[4]	NM[4]	NM[4]	NM[4]	NM[4]
	11/15/2006	4.87[6]	25	0.37 J	1	0.22	0.079	108	<0.002	6.67	882	597	<0.46
	3/31/2009	2.45	-147	10.3J	0.534	0.12	<0.052	62.4	0.051	6.61	650	343	<0.46
	6/10/2009	0.00	-115	0.42	0.576	0.2	<0.052	72.6	<0.005	7.07	614	422	<0.46
	Q4 2009	NM[7]	NM[7]	NM[7]	NM[7]	NM[7]	NM[7]	NM[7]	NM[7]	NM[7]	NM[7]	NM[7]	NM[7]
	3/10/2010	0.00	-118	NM[7]	0.431	<0.01	<0.0522	56.9	0.067	6.79	551	347	<0.46
	Q2 2010	NM[7]	NM[7]	NM[7]	NM[7]	NM[7]	NM[7]	NM[7]	NM[7]	NM[7]	NM[7]	NM[7]	NM[7]
	Q3 2010	NM[7]	NM[7]	NM[7]	NM[7]	NM[7]	NM[7]	NM[7]	NM[7]	NM[7]	NM[7]	NM[7]	NM[7]
	12/14/2010	1.97	-193	<0.25	1.07	1.5 J	0.538	26.4	0.017	6.55	647	495	<0.46
	3/29/2011	2.84	-5	9J	0.21	<0.01J-	<0.052	49.4	0.012	7.01	532	327	<0.46
	8/22/2011	2.34	-276	NM[9]	NM[9]	NM[9]	NM[9]	NM[9]	NM[9]	6.88	NM[9]	NM[9]	NM[9]
MW-2	6/7/2006	NR[3]	36.43	11.9	0.003	<0.008	<0.052	47.5	<0.002	6.56	465	286	<0.46
	8/23/2006	0.32	25.69	7	0.024	0.015	<0.052	121	0.005	6.63	811	470	<0.46
	11/14/2006	0.2	220.84	4	0.021	0.021	<0.052 UJ	126 J	0.004	6.72	867	530	<0.46
	3/27/2009	5.47	-86	18.2	0.017	0.036J	<0.052	65	<0.01	6.62	642	347	<0.46
	Q2 2009	NM[7]	NM[7]	NM[7]	NM[7]	NM[7]	NM[7]	NM[7]	NM[7]	NM[7]	NM[7]	NM[7]	NM[7]
	Q4 2009	NM[7]	NM[7]	NM[7]	NM[7]	NM[7]	NM[7]	NM[7]	NM[7]	NM[7]	NM[7]	NM[7]	NM[7]
	3/10/2010	2.81	38	13 J	0.0182	0.35	<0.0522	54.9	<0.005	6.89	532	322	<0.46
	6/23/2010	2.18	173	13.2	0.103	4	<0.0522	50.9	<0.005	11.51	524	319	<0.46
	Q3 2010	NM[7]	NM[7]	NM[7]	NM[7]	NM[7]	NM[7]	NM[7]	NM[7]	NM[7]	NM[7]	NM[7]	NM[7]
	Q4 2010	NM[7]	NM[7]	NM[7]	NM[7]	NM[7]	NM[7]	NM[7]	NM[7]	NM[7]	NM[7]	NM[7]	NM[7]
	3/28/2011	6.11	168	16.600	0.001	0.021J-	<0.052	53.8	<0.01	7.04	529	304	<0.46
	Q3 2011	NM[7]	NM[7]	NM[9]	NM[9]	NM[9]	NM[9]	NM[9]	NM[9]	NM[7]	NM[9]	NM[9]	NM[9]
MW-3	6/7/2006	0.37	31.23	10.9	0.005	<0.008	<0.052	45.1	<0.002	6.56	446	274	<0.46
	8/23/2006	0.3	-1.8	<0.25	0.368	0.24	<0.052	26.3	1.5	6.6	711	421	<0.46
	11/14/2006	0.12	-17.57	NM[5]	NM[5]	NM[5]	NM[5]	NM[5]	0.42	6.95	NM[5]	NM[5]	NM[5]
	3/31/2009	0.00	48	22.2J	0.0017	0.08	<0.052	57.7	<0.01	6.75	688	320	<0.46
	Q2 2009	NM[7]	NM[7]	NM[7]	NM[7]	NM[7]	NM[7]	NM[7]	NM[7]	NM[7]	NM[7]	NM[7]	NM[7]
	Q4 2009	NM[7]	NM[7]	NM[7]	NM[7]	NM[7]	NM[7]	NM[7]	NM[7]	NM[7]	NM[7]	NM[7]	NM[7]
	3/9/2010	1.75	182	12.6 J	0.0093	0.064	<0.0522	54.4	<0.005	6.78	496	293	<0.46
	Q2 2010	NM[7]	NM[7]	NM[7]	NM[7]	NM[7]	NM[7]	NM[7]	NM[7]	NM[7]	NM[7]	NM[7]	NM[7]
	Q3 2010	NM[7]	NM[7]	NM[7]	NM[7]	NM[7]	NM[7]	NM[7]	NM[7]	NM[7]	NM[7]	NM[7]	NM[7]
	Q4 2010	NM[7]	NM[7]	NM[7]	NM[7]	NM[7]	NM[7]	NM[7]	NM[7]	NM[7]	NM[7]	NM[7]	NM[7]
	3/28/2011	5.32	185	12.800	<0.0084	0.026J-	<0.052	46.3	<0.01	7.06	454	269	<0.46
	8/22/2011	2.15	-183	NM[9]	NM[9]	NM[9]	NM[9]	NM[9]	NM[9]	7.02	NM[9]	NM[9]	NM[9]
MW-4	6/7/2006	0.28	29.57	9.2	0.02	0.059	<0.052	60.2	<0.002	6.65	423	282	<0.46
	8/23/2006	NR[3]	-22.49	<0.25	0.226	0.7	<0.052	78.4	0.003	6.62	590	396	<0.46
	11/15/2006	3.46[6]	106	0.34 J	0.137	0.47	<0.052	90.3	0.003	6.74	672	490	<0.46
	3/31/2009	3.96	5	19.5J	0.0406	0.14	<0.052	83.7	<0.01	6.64	631	323	<0.46
	Q2 2009	NM[7]	NM[7]	NM[7]	NM[7]	NM[7]	NM[7]	NM[7]	NM[7]	NM[7]	NM[7]	NM[7]	NM[7]

TABLE 4
Summary of Groundwater Analytical Results Geochemical Indicators and Other Parameters
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Well ID	Date	Geochemical Indicators and Other Parameters											
		DO[1] (mg/L)	ORP[1] (mV)	Nitrate (mg/L)	Manganese (mg/L)	Ferrous Iron (mg/L)	Dissolved Iron (mg/L)	Sulfate (mg/L)	Methane (mg/L)	pH[1]	TDS (mg/L)	Alkalinity to pH 4.5 (mg/L) as $CaCO_3$	Alkalinity to pH 8.3 (mg/L) as $CaCO_3$
MW-4 cont.	Q4 2009	NM[7]	NM[7]	NM[7]	NM[7]	NM[7]	NM[7]	NM[7]	NM[7]	NM[7]	NM[7]	NM[7]	NM[7]
	3/9/2010	0.05	123	10.5 J	0.0343	0.13	<0.0522	89.8	<0.005	6.74	560	312	<0.46
	6/23/2010	0.03	164	9.4	0.0295	0.034	<0.0522	62.5	<0.005	11.03	491	297	<0.46
	Q3 2010	NM[7]	NM[7]	NM[7]	NM[7]	NM[7]	NM[7]	NM[7]	NM[7]	NM[7]	NM[7]	NM[7]	NM[7]
	12/14/2010	1.24	162	6.6	0.084	0.021 J	<0.052	213	<0.010	6.51	771	354	<0.46
	3/29/2011	3.81	220	12J	0.018	0.032J-	<0.052	59.5	<0.010	6.98	488	290	<0.46
	Q3 2011	NM[7]	NM[7]	NM[9]	NM[9]	NM[9]	NM[9]	NM[9]	NM[9]	NM[7]	NM[9]	NM[9]	NM[9]
MW-8	8/24/2006	NM[2]	NM[2]	<0.25	0.171	0.14	<0.052	90.2	<0.002 UJ	NM[2]	563	362	<0.46
	11/16/2006	0.05	-74	<0.25	0.123	0.8	<0.052	78.6 J	0.002	7.22	564	350	<0.46
	3/27/2009	6.88[6]	-113	0.27	0.553	2.5J	<0.052	15.5	0.13	6.74	639	467	<0.46
	Q2 2009	NM[7]	NM[7]	NM[7]	NM[7]	NM[7]	NM[7]	NM[7]	NM[7]	NM[7]	NM[7]	NM[7]	NM[7]
	12/10/2009	0.04	-165	<0.25 UJ	0.549 J	<2.5	0.06	2 J	<0.2	6.94	576	445	<0.46
	3/10/2010	0.00	-85	<0.25	0.334	3	<0.0522	1.7	0.33	6.89	587	453	<0.46
	6/24/2010	5.83[6]	-84	<0.25	1.08	7.8	0.0949 J+	6.1	0.65	6.72	679	502	<0.46
	Q3 2010	NM[8]	NM[8]	NM[8]	NM[8]	NM[8]	NM[8]	NM[8]	NM[8]	NM[8]	NM[8]	NM[8]	NM[8]
	12/15/2010	NM[8]	NM[8]	<0.25	1.57	1.2 J	0.0693	23	0.59	NM[8]	803.00	536	<0.46
	3/29/2011	NM[8]	NM[8]	<0.25UJ	2.29	1.2J-	0.413	84.1	0.39J	NM[8]	1210.00	680	<0.46
	8/23/2011	1.18	-261	NM[9]	NM[9]	NM[9]	NM[9]	NM[9]	NM[9]	6.94	NM[9]	NM[9]	NM[9]
MW-9	Q3 2006	NM[4]	NM[4]	NM[4]	NM[4]	NM[4]	NM[4]	NM[4]	NM[4]	NM[4]	NM[4]	NM[4]	NM[4]
	11/15/2006	3.01[6]	4	<0.25 UJ	4.41	1.2	0.496	29.5	0.009	6.92	836	657	<0.46
	3/31/2009	3.35	-179	0.39J	3.2	0.099	<0.052	60.5	0.012	6.59	632	419	<0.46
	6/10/2009	0.00	-141	<0.25	3.01	1.7	<0.052	46.4	<0.005	6.98	622	468	<0.46
	12/10/2009	1.43	-188	<0.25 UJ	4.39 J	3.3	2.54	4.5 J	<0.2	6.6	734	620	<0.46
	3/10/2010	0.00	-197	<0.25	2.94	1.7	<0.0522	40.9	0.046	6.84	596	448	<0.46
	6/24/2010	0.00	-108	<0.25	2.46	1.5	0.131 J+	33.5	0.012	6.61	489	380	<0.46
	9/29/2010	0.70	-231	<0.25	3.83	2.2 J	0.082	4.5	0.018	6.68	627	549	<0.46
	12/14/2010	3.37	-181	0.89	2.98	2.8 J	1.48	25	0.025	6.46	666	523	<0.46
	3/29/2011	2.78	-140	6.40J	1.58	0.043	<0.052	63	0.018	7.09	608	396	<0.46
	8/22/2011	2.32	-451	NM[9]	NM[9]	NM[9]	NM[9]	NM[9]	NM[9]	7.08	NM[9]	NM[9]	NM[9]
MW-10	3/27/2009	3.65	48	8.2	0.367	0.21J	<0.052	155	0.28	6.69	1,200	645	<0.46
	6/10/2009	0.37	109	<0.25	0.767	0.8	<0.052	133	2.30	7.20	1,100	623	<0.46
	12/10/2009	0.06	-74	0.33 J	0.964 J	10.90	<0.052	640 J	<0.2	6.85	1,580	512	<0.46
	3/9/2010	1.52	105	13.9 J	0.0357	0.054	<0.052	63.6	0.19	6.89	596	349	<0.46
	6/23/2010	0.00	79	0.68	0.2650	0.200	<0.0522	136.0	0.94	6.76	1000	604	<0.46
	9/29/2010	0.87	22	<0.25	0.384	5.0 J	<0.0522	148	0.550	6.89	998	610	<0.46
	12/15/2010	2.28	61	0.41	0.581	0.29 J	<0.0522	155	0.74	6.78	1,070	606	<0.46
	3/28/2011	5.56	48	18.00	0.101	0.39J-	<0.052	57	0.03	7.00	652	392	<0.46
	8/22/2011	0.00	9	NM[9]	NM[9]	NM[9]	NM[9]	NM[9]	NM[9]	7.09	NM[9]	NM[9]	NM[9]
MW-11	3/27/2009	5.86	53	15.3	0.114	0.058J	<0.052	134	0.06	6.61	742	365	<0.46
	6/10/2009	0.37	44	NM	0.415	NM	NM	NM	0.12	7.16	NM	NM	NM
	12/10/2009	1.01	-50	0.48 J	0.804 J	3.6	<0.052	151 J	<0.2	6.84	1720	556	<0.46
	3/9/2010	3.68	133	11.9 J	0.0176	0.087	<0.0522	91.7	0.039	6.73	615	314	<0.46

TABLE 4
Summary of Groundwater Analytical Results Geochemical Indicators and Other Parameters
Second Semi-Annual 2011
Groundwater Monitoring Report
Chevron Sunol Pipeline

Well ID	Date	Geochemical Indicators and Other Parameters											
		DO[1] (mg/L)	ORP[1] (mV)	Nitrate (mg/L)	Manganese (mg/L)	Ferrous Iron (mg/L)	Dissolved Iron (mg/L)	Sulfate (mg/L)	Methane (mg/L)	pH[1]	TDS (mg/L)	Alkalinity to pH 4.5 (mg/L) as $CaCO_3$	Alkalinity to pH 8.3 (mg/L) as $CaCO_3$
MW-11 cont.	6/23/2010	0.45	-2	0.4	0.2420	0.150	<0.0522	437	0.29	6.70	1,300	479	<0.46
	9/28/2010	1.16	7	<0.25	0.320	0.3 J	<0.0522	457	0.350	6.99	1,310	458	<0.46
	12/15/2010	NM[8]	NM[8]	<0.25	0.245	0.84 J	<0.0522	451	0.23	NM[8]	1,320	494	<0.46
	2/28/2011	5.25	91.00	17.50	0.022	0.03J-	<0.052	76	0.06	6.98	602	319	<0.46
	8/22/2011	2.89	-38.00	NM[9]	NM[9]	NM[9]	NM[9]	NM[9]	NM[9]	6.53	NM[9]	NM[9]	NM[9]

Notes:
DO = Dissolved oxygen
ORP = Oxygen reduction potential
TDS = Total dissolved solids
$CaCO_3$ = Calcium Carbonate
NM = Not measured
NR = Not Reported
J = Estimated result
UJ = Estimated result
J- = Biased low value

Note: MW-5, MW-6, and MW-7 were destroyed on 6/23/08
1) DO, ORP, and pH values were obtained in the field using a flow-through cell and a multi-parameter meter unless otherwise noted.
2) Field data was not collected for DO, ORP, and pH because groundwater was removed from the well without using the in-line flow-through cell due to insufficient recharge.
3) DO meter did not appear to be functioning correctly.
4) The well was not sampled and parameters were not measured due to the presence of free product at this location.
5) The well was purged dry and recharge was insufficient to collect groundwater for geochemical analysis.
6) DO readings were artificially high because purge water was poured into the multi-parameter meter from a bailer.
7) Sample not collected during quarterly monitoring because well is not hydraulically connected to unconfined water-bearing zone.
8) Parameters not collected because well dewatered before 1 well volume was collected
9). MNA parameters were not collected because the sampling crew could not collect enough sample from at least 4 of the monitoring wells for analysis.

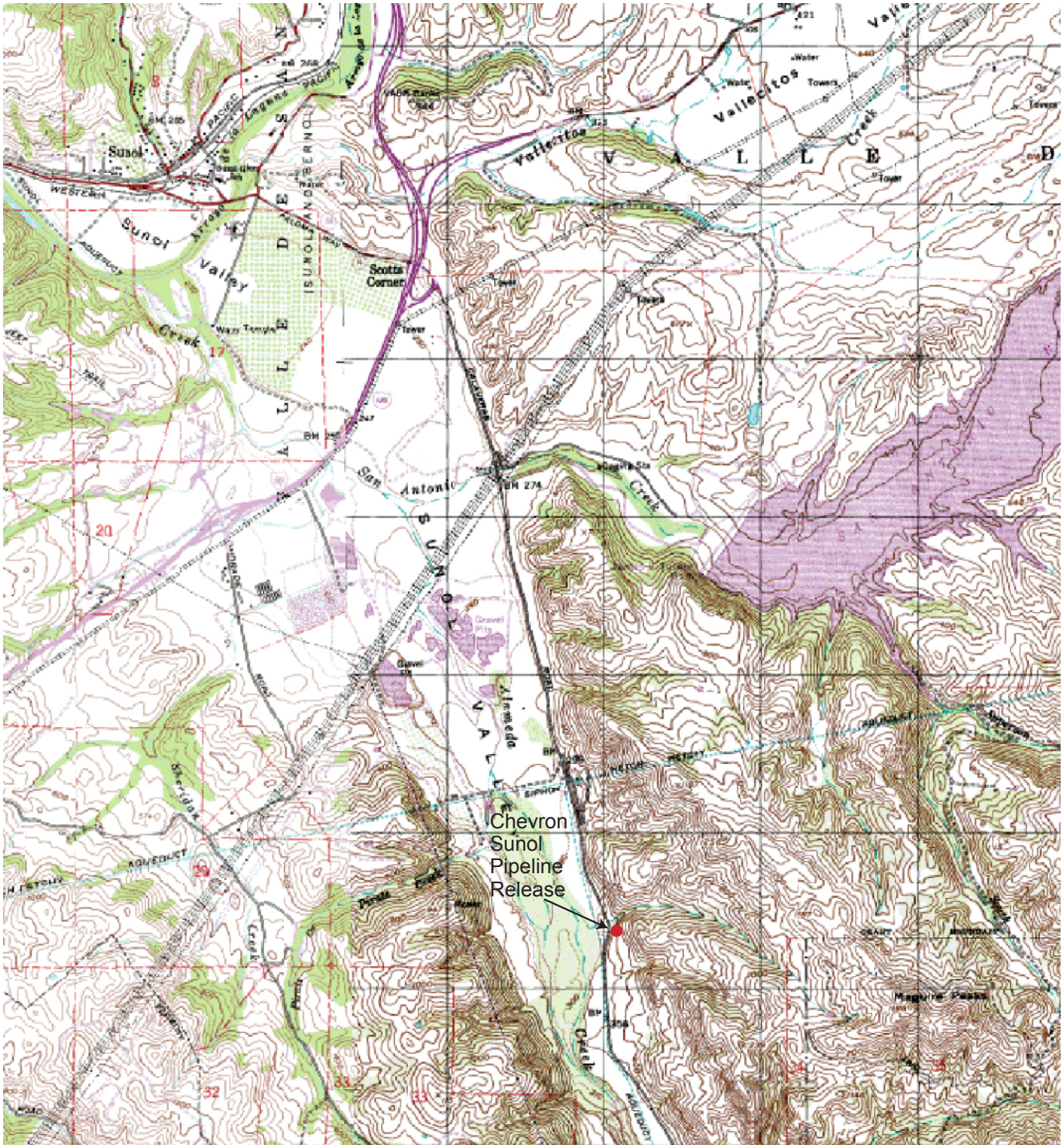


Image obtained from topozone.com

N

MAP REFERENCE:

PORTION OF U.S.G.S. QUANDRANGLE MAP
7 1/2 MINUTE SERIES (TOPOGRAPHIC)
LA COSTA VALLEY QUADRANGLE

URS	Chevron Pipeline Company Project No. 26815217	SITE VICINITY MAP CHEVRON SUNOL PIPELINE SUNOL, CALIFORNIA	Figure 1

NORTH

0 50 100

SCALE IN FEET

SW–CREEK
(Former Surface Water Sampling Location)

UPPER DIRT ROAD

LOWER DIRT ROAD

PIPELINE

CURRENT STREAM
SAMPLE LOCATION

VERY SMALL STREAM

MW–10

PROPERTY
LINE/FENCE

CALAVERAS ROAD

MW–11

MW–9

MW–4

MW–3

MW–1

MW–2

MW–7

MW–8

MW–5

MW–6

SVE–1D

SVE–2S

SVE–8

SVE–3S

SVE–7

SVE–4D

SVE–5

SVE–6

SVE–9

RELEASE LOCATION

HILL SLOPE

HILL SLOPE

HILL SLOPE

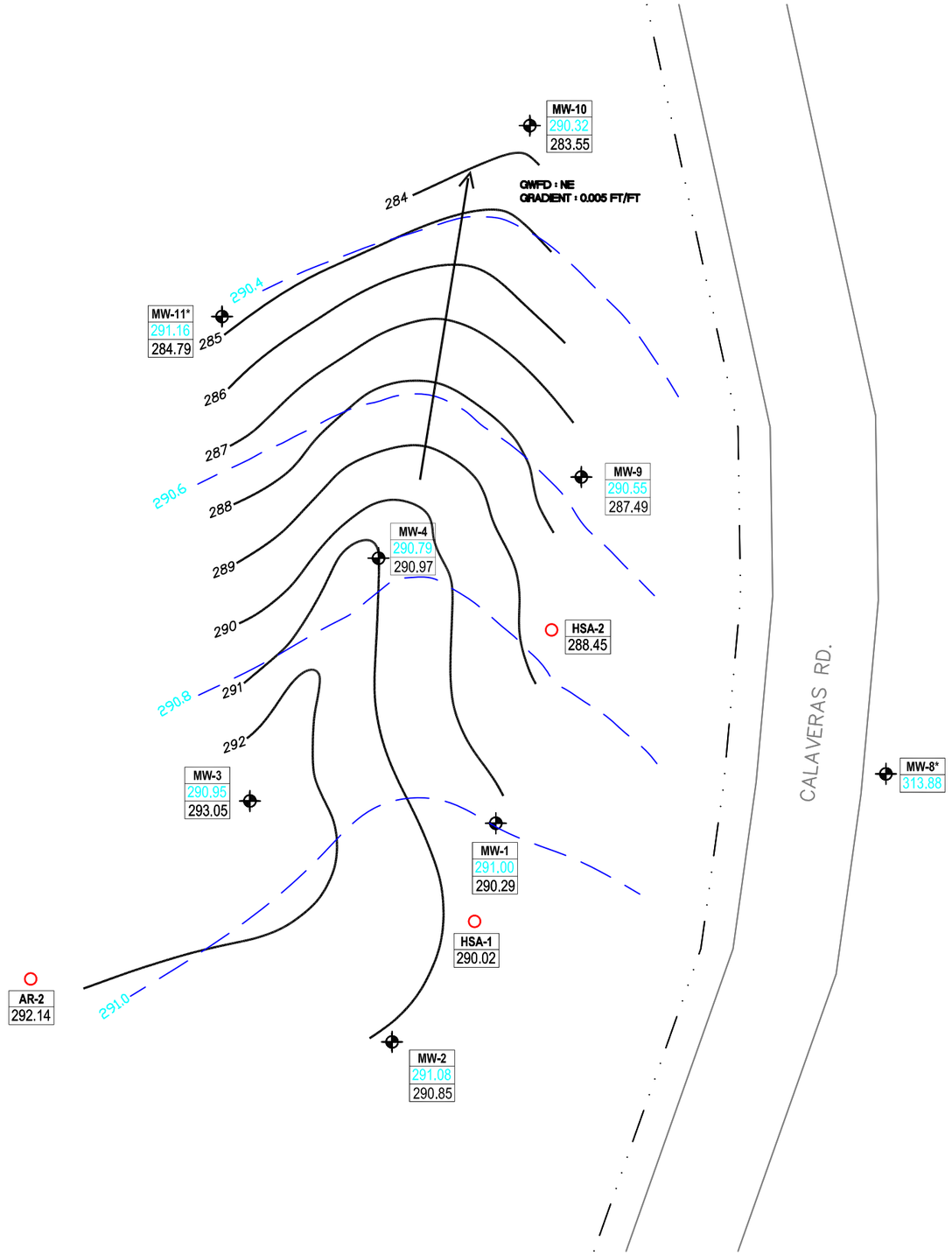
HILL SLOPE
AND DENSE
VEGETATION

LEGEND:

- SURFACE WATER SAMPLE LOCATIONS
- MONITORING WELL
- ABANDONED MONITORING WELLS
- SVE WELL
- SHELF
- STAIRS
- FENCE
- PIPELINE
- VERY SMALL STREAM
- PROPERTY LINE/FENCE
- HILL SLOPE 80–90% GRADE

URS	CHEVRON PIPELINE COMPANY Project No. 26815217	SVE AND GROUNDWATER MONITORING WELL LOCATIONS CHEVRON SUNOL PIPELINE	Figure 2

Aug 05, 2010 – 9:25am
X:\x_env_waste\Chevron Pipeline Company\Sunol Spill\Site Figures\Current CADD\FIGURE 2.dwg



LEGEND:

- MONITORING WELL
- MW-1 — MONITORING WELL LABEL
- 295.85 — GROUNDWATER ELEVATION
- 290.29 — BEDROCK CONTACT ELEVATION
- SOIL BORING
- HSA-2 — SOIL BORING LABEL
- 288.45 — BEDROCK CONTACT ELEVATION
- 285 — BEDROCK SURFACE ELVATION
- GWFD — GROUNDWATER FLOW DIRECTION

NOTES:

1. ELEVATIONS IN FEET ABOVE AVERAGE MEAN SEA LEVEL (msl).
2. GROUNDWATER ELEVATIONS FOR MW-1 THROUGH MW-4 AND MW-8 THROUGH MW-11, AS MEASURED ON AUGUST 22, 2011.
3. BEDROCK ELEVATION DATA OBTAINED FROM THE BORING LOGS OF MW-1 THROUGH MW-4, MW-9 THROUGH MW-11, HSA-1, HSA-2, AND AR-2.
4. THE BEDROCK ELEVATIONS SHOWN REPRESENT THE OVERBURDEN CONTACT WITH THE WEATHERED SILTSTONE/CLAYSTONE BEDROCK UNIT (POSSIBLY CRETACEOUS-AGE CLAY SHALE OF THE PANOCHE FORMATION).
5. CALCULATED GROUNDWATER GRADIENT IN NORTHEASTERLY FLOW DIRECTION dh/dl = 0.005 ft.

* NOT USED IN GROUNDWATER CONTOURS.

NORTH

0 30' 60'

SCALE 1"= 30'

URS	CHEVRON PIPELINE COMPANY Project No. 26817159	UNCONFINED WATER-BEARING ZONE GROUNDWATER AND BEDROCK ELEVATIONS MAP CHEVRON SUNOL PIPLINE	Figure 3

Nov 29, 2011 - 1:34pm
X:\x_env_waste\Chevron Pipeline Company\Sunol Spill\Quarterly Groundwater Report\302011\Report\Figures\FIGURE 3_042211.dwg

Appendix A
Groundwater Sampling Forms

URS

08/23/11

Horiba U-22
ISI Low-Flow Log

Project Information:		**Pump Information:**	
Operator Name	Jeremy Quick/Ram Kannappan	Pump Model/Type	Mega Monsoon
Company Name	URS	Tubing Type	Polyethylene
Project Name	Chevron Sunol Pipeline	Tubing Diameter	3/8 [in]
Site Name	Sunol	Tubing Length	45 [ft]
		Pump placement from TOC	38 [ft]

Well Information:		**Pumping information:**	
Well Id	MW-1	Final pumping rate	320 mL/min
Well diameter	4 [in]	Flowcell volume	1000 mL
Well total depth	39.3 [ft]	Calculated Sample Rate	NM
Depth to top of screen	29.3 [ft]	Sample rate	NM
Screen length	10 [ft]	Stabilized drawdown	NM
Depth to Water	37.04[ft]		

Low-Flow Sampling Stabilization Summary

	Time	Temp [C]	pH [pH]	Cond. [mS/cm]	Turb [NTU]	DO [mg/L]	ORP [mV]
Stabilization Settings			+/-0.2	+/-3%	+/-10	+/-0.2	+/-20
Multi-parameter Readings	12:52	16.7	6.65	1.22	3.4	4.60	-99
	12:55	14.7	6.74	1.27	10.7	4.09	-122
	12:58	14.6	6.83	1.28	231.0	3.68	-153
	13:01	14.5	6.83	1.29	297.0	2.81	-188
	13:05	14.97	6.85	1.3	447.0	2.34	-239
	13:08	15.35	6.86	1.3	473.0	2.30	-262
	13:11	15.45	6.88	1.3	475.0	2.34	-276
	Well dewatered at 13:12						
Variance in last 4 readings		0.43	0.02	0.0	150.0	-0.5	-51.0
		0.38	0.01	0.0	26.0	0.0	-23.0
		0.10	0.02	0.0	2.0	0.0	-14.0

Notes:
Starting Pumping at 12:51
Initial Depth to Water = 37.04 ft
Total Volume Purged = 2 gallons
Sample collected at 15:00

URS

08/23/11

Horiba U-22
ISI Low-Flow Log

Project Information:		**Pump Information:**	
Operator Name	Jeremy Quick/Ram Kannappan	Pump Model/Type	Mega Monsoon
Company Name	URS	Tubing Type	Polyethylene
Project Name	Chevron Sunol Pipeline	Tubing Diameter	3/8 [in]
Site Name	Sunol	Tubing Length	40 [ft]
		Pump placement from TOC	35 [ft]

Well Information:		**Pumping information:**	
Well Id	MW-3	Final pumping rate	400 mL/min
Well diameter	4 [in]	Flowcell volume	1000 mL
Well total depth	36.3 [ft]	Calculated Sample Rate	NM
Depth to top of screen	21.3 [ft]	Sample rate	NM
Screen length	15 [ft]	Stabilized drawdown	NM
Depth to Water	34.70 [ft]		

Low-Flow Sampling Stabilization Summary

	Time	Temp [C]	pH [pH]	Cond. [mS/cm]	Turb [NTU]	DO [mg/L]	ORP [mV]
Stabilization Settings			+/-0.2	+/-3%	+/-10	+/-0.2	+/-20
Multi-parameter Readings	10:59	13.66	6.83	1.41	7.2	3.33	-33
	11:03	12.62	6.96	1.45	293.0	2.90	-132
	11:06	12.24	7.01	1.46	304.0	2.66	-162
	11:09	12.21	7.05	1.47	344.0	2.44	-186
	11:12	12.29	7.06	1.47	472.0	2.29	-193
	11:18	12.90	7.04	1.48	887.0	2.25	-182
	11:21	13.09	7.04	1.47	475.0	2.28	-175
	11:24	13.39	7.03	1.48	792.0	2.23	-179
	11:27	13.81	7.02	1.47	792.0	2.15	-183
	Sample collected at 11:30						
Variance in last 4 readings		0.19	0.00	-0.01	-412.00	0.03	7.00
		0.30	-0.01	0.01	317.00	-0.05	-4.00
		0.42	-0.01	-0.01	0.00	-0.08	-4.00

Notes: Starting Pumping at 10:55
Initial Depth to Water = 34.70 ft
Total Volume Purged = 3 gallons
Sample collected at 11:30

URS

08/23/11

Horiba U-22
ISI Low-Flow Log

Project Information:		**Pump Information:**	
Operator Name	Jeremy Quick/Ram Kannappan	Pump Model/Type	SS Mega Monsoon
Company Name	URS	Tubing Type	Polyethylene
Project Name	Chevron Sunol Pipeline	Tubing Diameter	3/8 [in]
Site Name	Sunol	Tubing Length	[ft]
		Pump placement from TOC	[ft]

Well Information:		**Pumping information:**	
Well Id	MW-8	Final pumping rate	220 mL/min
Well diameter	2 [in]	Flowcell volume	1000 mL
Well total depth	24.5 [ft]	Calculated Sample Rate	NM
Depth to top of screen	14.5 [ft]	Sample rate	NM
Screen length	10 [ft]	Stabilized drawdown	NM
Depth to Water	20.05 [ft]		

Low-Flow Sampling Stabilization Summary

	Time	Temp [C]	pH [pH]	Cond. [mS/cm]	Turb [NTU]	DO [mg/L]	ORP [mV]
Stabilization Settings			+/-0.2	+/-3%	+/-10	+/-0.2	+/-20
Multi-parameter Readings	9:04	20.27	6.99	1.09	--	0.00	-184
	Pump stopped to calibrate water quality meter						
	9:18	15.28	6.75	1.29	526.0	4.10	-122
	9:21	15.16	6.82	1.29	623.0	6.19	-146
	9:24	15.12	6.84	1.29	545.0	5.72	-157
	9:27	15.12	6.86	1.30	445.0	5.69	-167
	9:30	15.08	6.87	1.30	404.0	5.46	-172
	9:33	15.07	6.89	1.31	394.0	5.3	-179
	9:36	15.01	6.9	1.33	398.0	5.11	-192
	9:39	14.92	6.92	1.35	388.0	5.01	-203
	9:42	14.85	6.92	1.37	386.0	4.8	-213
	9:45	14.74	6.9	1.4	395.0	2.56	-223
	9:48	14.73	6.92	1.43	387.0	1.22	-232
	9:51	14.70	6.92	1.48	380.0	1.17	-242
	9:54	14.72	6.93	1.49	20.1	1.15	-249
	9:57	14.68	6.93	1.49	20.3	1.17	-255
	10:00	14.70	6.94	1.5	20.3	1.18	-261
	Sampled at 10:00						
Variance in last 4 readings		0.02	0.01	0.01	-359.90	-0.02	-7.00
		-0.04	0.00	0.00	0.20	0.02	-6.00
		0.02	0.01	0.01	0.00	0.01	-6.00

Notes:
Starting Pumping at: 9:00
Initial Depth to Water = 20.05 ft
Total Volume Purged = 3 gallons
Sample collected at 10:00

URS

08/23/11

Horiba U-22
ISI Low-Flow Log

Project Information:		**Pump Information:**	
Operator Name	Jeremy Quick/ Ram Kannappan	Pump Model/Type	Mega Monsoon
Company Name	URS	Tubing Type	Polyethylene
Project Name	Chevron Sunol Pipeline	Tubing Diameter	3/8 [in]
Site Name	Sunol	Tubing Length	50.0 [ft]
		Pump placement from TOC	45.0 [ft]

Well Information:		**Pumping information:**	
Well Id	MW-9	Final pumping rate	1000 mL/min
Well diameter	2 [in]	Flowcell volume	NM
Well total depth	46.0 [ft]	Calculated Sample Rate	NM
Depth to top of screen	36.0 [ft]	Sample rate	NM
Screen length	10 [ft]	Stabilized drawdown	NM
Depth to Water	42.52 [ft]		

Low-Flow Sampling Stabilization Summary

	Time	Temp [C]	pH [pH]	Cond. [mS/cm]	Turb [NTU]	DO [mg/L]	ORP [mV]
Stabilization Settings			+/-0.2	+/-3%	+/-10	+/-0.2	+/-20
Multi-parameter Readings	13:33	17.50	6.87	1.18	0.4	4.56	-207
	13:37	14.48	7.09	1.30	20.1	3.34	-377
	13:40	14.15	7.08	1.32	20.0	3.01	-386
	13:43	14.09	7.03	1.32	20.0	2.66	-396
	13:46	14.1	7.03	1.32	20.0	2.48	-414
	13:49	14.08	7.06	1.32	19.8	2.40	-431
	13:52	14.07	7.07	1.32	19.8	2.36	-442
	13:55	14.09	7.08	1.32	19.7	2.32	-451
	Sample collected at 14:00						
Variance in last 4 readings		-0.02	0.03	0.00	-0.20	-0.08	-17.00
		-0.01	0.01	0.00	0.00	-0.04	-11.00
		0.02	0.01	0.00	-0.10	-0.04	-9.00

Notes:
Starting Pumping at 13:30
Initial Depth to Water = 42.52 ft
Total Volume Purged = 2.5 gallons
Sample collected at 14:00

MW-X duplicate also collected at 14:00

URS

08/23/11

Horiba U-22
ISI Low-Flow Log

Project Information:

Operator Name	Jeremy Quick/ Ram Kannappan
Company Name	URS
Project Name	Chevron Sunol Pipeline
Site Name	Sunol

Pump Information:

Pump Model/Type	Mega Monsoon
Tubing Type	Polyethylene
Tubing Diameter	3/8 [in]
Tubing Length	56 [ft]
Pump placement from TOC	54 [ft]

Well Information:

Well Id	MW-10
Well diameter	2 [in]
Well total depth	55.3 [ft]
Depth to top of screen	40.3 [ft]
Screen length	15 [ft]
Depth to Water	51.69 [ft]

Pumping information:

Final pumping rate	120 mL/min
Flowcell volume	1000 mL
Calculated Sample Rate	NM
Sample rate	NM
Stabilized drawdown	NM

Low-Flow Sampling Stabilization Summary

	Time	Temp [C]	pH [pH]	Cond. [mS/cm]	Turb [NTU]	DO [mg/L]	ORP [mV]
Stabilization Settings			+/-0.2	+/-3%	+/-10	+/-0.2	+/-20
Multi-parameter Readings	12:14	18.18	6.83	1.70	--	0.00	62
	12:19	15.35	6.96	1.77	--	0.00	53
	12:22	15.28	6.98	1.80	--	0.00	56
	12:25	15.08	7.00	1.81	--	0.00	54
	12:28	14.89	7.03	1.81	637	0.00	33
	12:31	14.73	7.04	1.83	554	0.00	28
	12:34	14.65	7.05	1.84	514	0.00	26
	12:37	14.65	7.05	1.84	452	0.00	24
	12:40	14.65	7.05	1.84	403	0.00	21
	12:43	14.66	7.06	1.85	383	0.00	19
	12:47	14.71	7.07	1.85	342	0.00	16
	12:51	14.91	7.08	1.84	296	0.00	14
	12:54	15.03	7.08	1.85	343	0.00	13
	12:57	15.05	7.08	1.85	314	0.00	11
	13:00	15.6	7.09	1.85	260	0.00	9
	Purged dry at 13:04						
Variance in last 4 readings		0.12	0.00	0.01	47.00	0.00	-1.00
		0.02	0.00	0.00	-29.00	0.00	-2.00
		0.55	0.01	0.00	-54.00	0.00	-2.00

Notes:
Starting Pumping at 12:09
Initial Depth to Water = 51.69 ft
Total Volume Purged = 3 gallons
Sample collected at 15:30

URS

08/23/11

Horiba U-22
ISI Low-Flow Log

Project Information:		**Pump Information:**	
Operator Name	Jeremy Quick/Ram Kannappan	Pump Model/Type	Mega Monsoon
Company Name	URS	Tubing Type	Polyethylene
Project Name	Chevron Sunol Pipeline	Tubing Diameter	3/8 [in]
Site Name	Sunol	Tubing Length	50 [ft]
		Pump placement from TOC	45 [ft]

Well Information:		**Pumping information:**	
Well Id	MW-11	Final pumping rate	360 mL/min
Well diameter	2 [in]	Flowcell volume	1000 mL
Well total depth	47.0 [ft]	Calculated Sample Rate	NM
Depth to top of screen	37.0 [ft]	Sample rate	NM
Screen length	10 [ft]	Stabilized drawdown	NM
Depth to Water	40.05 [ft]		

Low-Flow Sampling Stabilization Summary

	Time	Temp [C]	pH [pH]	Cond. [mS/cm]	Turb [NTU]	DO [mg/L]	ORP [mV]
Stabilization Settings			+/-0.2	+/-3%	+/-10	+/-0.2	+/-20
Multi-parameter Readings	14:55	14.19	6.32	1.53	313.0	4.09	-5
	14:58	13.48	6.50	1.54	239.0	3.10	-46
	15:00	14.66	6.53	1.54	265.0	2.89	-38
	Well purged dry at 15:00						
Variance in last 4 readings		-0.71	0.18	0.01	-74.00	-0.99	-41.00
		1.18	0.03	0.00	26.00	-0.21	8.00
		0.00	0.00	0.00	0.0	0.00	0

Notes:
Starting Pumping at 14:52
Initial Depth to Water = 40.05 ft
Total Volume Purged = 1 gallons
Sample collected at 15:15

Appendix B
Laboratory Analytical Results

Lancaster Laboratories

2425 New Holland Pike, PO Box 12425, Lancaster, PA 17605-2425 • 717-656-2300 Fax: 717-656-2681 • www.lancasterlabs.com

Analysis Report

ANALYTICAL RESULTS

Prepared by:

Lancaster Laboratories
2425 New Holland Pike
Lancaster, PA 17605-2425

Prepared for:

Chevron Pipeline Co.
100 Northpark Blvd
Covington LA 70433

September 12, 2011

Project: Sunol, CA

Submittal Date: 08/24/2011
Group Number: 1263223
PO Number: 0015052103
Release Number: TOURLOUKIS
State of Sample Origin: CA

Client Sample Description	Lancaster Labs (LLI) #
MW-1 Grab Water	6385581
MW-3 Grab Water	6385582
MW-8 Grab Water	6385583
MW-9 Grab Water	6385584
MW-10 Grab Water	6385585
MW-11 Grab Water	6385586
MW-X Grab Water	6385587
Stream Grab Water	6385588
Trip Blank Water	6385589

The specific methodologies used in obtaining the enclosed analytical results are indicated on the Laboratory Sample Analysis Record.

ELECTRONIC COPY TO	URS	Attn: Joe Morgan
ELECTRONIC COPY TO	URS	Attn: Rachel Naccarati
ELECTRONIC COPY TO	URS	Attn: Ram Kannappan

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Analysis Report

Questions? Contact your Client Services Representative
Elizabeth A Leonhardt at (510) 232-8894

Respectfully Submitted,

Robin C. Runkle
Senior Specialist

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Analysis Report

Sample Description: MW-1 Grab Water
NA URSO
Sunol Pipeline SL0600100443 MW-1

LLI Sample # WW 6385581
LLI Group # 1263223
Account # 11875

Project Name: Sunol, CA

Collected: 08/23/2011 15:00 by JQ

Submitted: 08/24/2011 08:55
Reported: 09/12/2011 17:04

Chevron Pipeline Co.
100 Northpark Blvd
Covington LA 70433

SPMW1

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit	Dilution Factor
GC/MS Volatiles	**SW-846 8260B**		ug/l	ug/l	
10943	Benzene	71-43-2	N.D.	0.5	1
10943	Ethylbenzene	100-41-4	N.D.	0.5	1
10943	Toluene	108-88-3	1	0.5	1
10943	Xylene (Total)	1330-20-7	2	0.5	1
GC Volatiles	**SW-846 8015B**		ug/l	ug/l	
01728	TPH-GRO N. CA water C6-C12	n.a.	960	50	1

General Sample Comments

State of California Lab Certification No. 2501

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10943	BTEX 8260B Water	SW-846 8260B	1	P112381AA	08/27/2011 00:48	Kevin A Sposito	1
01163	GC/MS VOA Water Prep	SW-846 5030B	1	P112381AA	08/27/2011 00:48	Kevin A Sposito	1
01728	TPH-GRO N. CA water C6-C12	SW-846 8015B	1	11238D20A	08/29/2011 21:04	Laura M Krieger	1
01146	GC VOA Water Prep	SW-846 5030B	1	11238D20A	08/29/2011 21:04	Laura M Krieger	1

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Analysis Report

Sample Description: MW-3 Grab Water
NA URSO
Sunol Pipeline SL0600100443 MW-3

LLI Sample # WW 6385582
LLI Group # 1263223
Account # 11875

Project Name: Sunol, CA

Collected: 08/23/2011 11:30 by JQ

Submitted: 08/24/2011 08:55
Reported: 09/12/2011 17:04

Chevron Pipeline Co.
100 Northpark Blvd
Covington LA 70433

SPMW3

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit	Dilution Factor
GC/MS Volatiles	**SW-846 8260B**		ug/l	ug/l	
10943	Benzene	71-43-2	N.D.	0.5	1
10943	Ethylbenzene	100-41-4	1	0.5	1
10943	Toluene	108-88-3	2	0.5	1
10943	Xylene (Total)	1330-20-7	5	0.5	1
GC Volatiles	**SW-846 8015B**		ug/l	ug/l	
01728	TPH-GRO N. CA water C6-C12	n.a.	N.D.	50	1

General Sample Comments

State of California Lab Certification No. 2501

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10943	BTEX 8260B Water	SW-846 8260B	1	P112381AA	08/27/2011 01:16	Kevin A Sposito	1
01163	GC/MS VOA Water Prep	SW-846 5030B	1	P112381AA	08/27/2011 01:16	Kevin A Sposito	1
01728	TPH-GRO N. CA water C6-C12	SW-846 8015B	1	11238D20A	08/29/2011 21:26	Laura M Krieger	1
01146	GC VOA Water Prep	SW-846 5030B	1	11238D20A	08/29/2011 21:26	Laura M Krieger	1

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Analysis Report

Sample Description: MW-8 Grab Water
NA URSO
Sunol Pipeline SL0600100443 MW-8

LLI Sample # WW 6385583
LLI Group # 1263223
Account # 11875

Project Name: Sunol, CA

Collected: 08/23/2011 10:00 by JQ

Submitted: 08/24/2011 08:55
Reported: 09/12/2011 17:04

Chevron Pipeline Co.
100 Northpark Blvd
Covington LA 70433

SPMW8

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit	Dilution Factor
GC/MS Volatiles	**SW-846 8260B**		ug/l	ug/l	
10943	Benzene	71-43-2	1,200	5	10
10943	Ethylbenzene	100-41-4	3,200	50	100
10943	Toluene	108-88-3	15,000	50	100
10943	Xylene (Total)	1330-20-7	15,000	50	100
GC Volatiles	**SW-846 8015B**		ug/l	ug/l	
01728	TPH-GRO N. CA water C6-C12	n.a.	72,000	1,000	20

General Sample Comments

State of California Lab Certification No. 2501

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10943	BTEX 8260B Water	SW-846 8260B	1	P112381AA	08/27/2011 01:44	Kevin A Sposito	10
10943	BTEX 8260B Water	SW-846 8260B	1	P112381AA	08/27/2011 02:12	Kevin A Sposito	100
01163	GC/MS VOA Water Prep	SW-846 5030B	1	P112381AA	08/27/2011 01:44	Kevin A Sposito	10
01163	GC/MS VOA Water Prep	SW-846 5030B	2	P112381AA	08/27/2011 02:12	Kevin A Sposito	100
01728	TPH-GRO N. CA water C6-C12	SW-846 8015B	1	11238D20A	08/30/2011 00:22	Laura M Krieger	20
01146	GC VOA Water Prep	SW-846 5030B	1	11238D20A	08/30/2011 00:22	Laura M Krieger	20

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Analysis Report

Sample Description: MW-9 Grab Water
NA URSO
Sunol Pipeline SL0600100443 MW-9

LLI Sample # WW 6385584
LLI Group # 1263223
Account # 11875

Project Name: Sunol, CA

Collected: 08/23/2011 14:00 by JQ

Submitted: 08/24/2011 08:55
Reported: 09/12/2011 17:04

Chevron Pipeline Co.
100 Northpark Blvd
Covington LA 70433

SPMW9

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit	Dilution Factor
GC/MS Volatiles	**SW-846 8260B**		**ug/l**	**ug/l**	
10943	Benzene	71-43-2	N.D.	0.5	1
10943	Ethylbenzene	100-41-4	46	0.5	1
10943	Toluene	108-88-3	2	0.5	1
10943	Xylene (Total)	1330-20-7	200	0.5	1
GC Volatiles	**SW-846 8015B**		**ug/l**	**ug/l**	
01728	TPH-GRO N. CA water C6-C12	n.a.	7,900	250	5

General Sample Comments

State of California Lab Certification No. 2501

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10943	BTEX 8260B Water	SW-846 8260B	1	P112381AA	08/27/2011 02:39	Kevin A Sposito	1
01163	GC/MS VOA Water Prep	SW-846 5030B	1	P112381AA	08/27/2011 02:39	Kevin A Sposito	1
01728	TPH-GRO N. CA water C6-C12	SW-846 8015B	1	11238D20A	08/29/2011 23:38	Laura M Krieger	5
01146	GC VOA Water Prep	SW-846 5030B	1	11238D20A	08/29/2011 23:38	Laura M Krieger	5

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Analysis Report

Sample Description: MW-10 Grab Water
NA URSO
Sunol Pipeline SL0600100443 MW-10

LLI Sample # WW 6385585
LLI Group # 1263223
Account # 11875

Project Name: Sunol, CA

Collected: 08/23/2011 15:30 by JQ

Submitted: 08/24/2011 08:55
Reported: 09/12/2011 17:04

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SPM10

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit	Dilution Factor
GC/MS Volatiles	**SW-846 8260B**		**ug/l**	**ug/l**	
10943	Benzene	71-43-2	N.D.	0.5	1
10943	Ethylbenzene	100-41-4	N.D.	0.5	1
10943	Toluene	108-88-3	N.D.	0.5	1
10943	Xylene (Total)	1330-20-7	0.6	0.5	1
GC Volatiles	**SW-846 8015B**		**ug/l**	**ug/l**	
01728	TPH-GRO N. CA water C6-C12	n.a.	N.D.	50	1

General Sample Comments

State of California Lab Certification No. 2501

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10943	BTEX 8260B Water	SW-846 8260B	1	P112381AA	08/27/2011 03:07	Kevin A Sposito	1
01163	GC/MS VOA Water Prep	SW-846 5030B	1	P112381AA	08/27/2011 03:07	Kevin A Sposito	1
01728	TPH-GRO N. CA water C6-C12	SW-846 8015B	1	11238D20A	08/29/2011 21:48	Laura M Krieger	1
01146	GC VOA Water Prep	SW-846 5030B	1	11238D20A	08/29/2011 21:48	Laura M Krieger	1

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Analysis Report

Sample Description: MW-11 Grab Water
NA URSO
Sunol Pipeline SL0600100443 MW-11

LLI Sample # WW 6385586
LLI Group # 1263223
Account # 11875

Project Name: Sunol, CA

Collected: 08/23/2011 15:15 by JQ

Submitted: 08/24/2011 08:55
Reported: 09/12/2011 17:04

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SPM11

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit	Dilution Factor
GC/MS Volatiles	**SW-846 8260B**		ug/l	ug/l	
10943	Benzene	71-43-2	N.D.	0.5	1
10943	Ethylbenzene	100-41-4	N.D.	0.5	1
10943	Toluene	108-88-3	N.D.	0.5	1
10943	Xylene (Total)	1330-20-7	N.D.	0.5	1
GC Volatiles	**SW-846 8015B**		ug/l	ug/l	
01728	TPH-GRO N. CA water C6-C12	n.a.	N.D.	50	1

General Sample Comments

State of California Lab Certification No. 2501

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10943	BTEX 8260B Water	SW-846 8260B	1	P112381AA	08/27/2011 03:35	Kevin A Sposito	1
01163	GC/MS VOA Water Prep	SW-846 5030B	1	P112381AA	08/27/2011 03:35	Kevin A Sposito	1
01728	TPH-GRO N. CA water C6-C12	SW-846 8015B	1	11238D20A	08/29/2011 22:10	Laura M Krieger	1
01146	GC VOA Water Prep	SW-846 5030B	1	11238D20A	08/29/2011 22:10	Laura M Krieger	1

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Analysis Report

Sample Description: MW-X Grab Water
NA URSO
Sunol Pipeline SL0600100443 MW-X

LLI Sample # WW 6385587
LLI Group # 1263223
Account # 11875

Project Name: Sunol, CA

Collected: 08/23/2011 14:00 by JQ

Submitted: 08/24/2011 08:55
Reported: 09/12/2011 17:04

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SPMWX

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit	Dilution Factor
GC/MS Volatiles	**SW-846 8260B**		**ug/l**	**ug/l**	
10943	Benzene	71-43-2	N.D.	1	2
10943	Ethylbenzene	100-41-4	47	1	2
10943	Toluene	108-88-3	2	1	2
10943	Xylene (Total)	1330-20-7	220	1	2
Reporting limits were raised due to interference from the sample matrix.					
GC Volatiles	**SW-846 8015B**		**ug/l**	**ug/l**	
01728	TPH-GRO N. CA water C6-C12	n.a.	8,300	250	5

General Sample Comments

State of California Lab Certification No. 2501

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10943	BTEX 8260B Water	SW-846 8260B	1	P112381AA	08/27/2011 04:02	Kevin A Sposito	2
01163	GC/MS VOA Water Prep	SW-846 5030B	1	P112381AA	08/27/2011 04:02	Kevin A Sposito	2
01728	TPH-GRO N. CA water C6-C12	SW-846 8015B	1	11238D20A	08/30/2011 00:00	Laura M Krieger	5
01146	GC VOA Water Prep	SW-846 5030B	1	11238D20A	08/30/2011 00:00	Laura M Krieger	5

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Analysis Report

Sample Description: Stream Grab Water
NA URSO
Sunol Pipeline SL0600100443 Stream

LLI Sample # WW 6385588
LLI Group # 1263223
Account # 11875

Project Name: Sunol, CA

Collected: 08/23/2011 11:45 by JQ

Submitted: 08/24/2011 08:55
Reported: 09/12/2011 17:04

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SPSTR

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit	Dilution Factor
GC/MS Volatiles	**SW-846 8260B**		**ug/l**	**ug/l**	
10943	Benzene	71-43-2	N.D.	0.5	1
10943	Ethylbenzene	100-41-4	N.D.	0.5	1
10943	Toluene	108-88-3	N.D.	0.5	1
10943	Xylene (Total)	1330-20-7	N.D.	0.5	1
GC Volatiles	**SW-846 8015B**		**ug/l**	**ug/l**	
01728	TPH-GRO N. CA water C6-C12	n.a.	N.D.	50	1

General Sample Comments

State of California Lab Certification No. 2501

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10943	BTEX 8260B Water	SW-846 8260B	1	D112411AA	08/29/2011 13:06	Daniel H Heller	1
01163	GC/MS VOA Water Prep	SW-846 5030B	1	D112411AA	08/29/2011 13:06	Daniel H Heller	1
01728	TPH-GRO N. CA water C6-C12	SW-846 8015B	1	11241A20A	08/30/2011 18:12	Catherine J Schwarz	1
01146	GC VOA Water Prep	SW-846 5030B	1	11241A20A	08/30/2011 18:12	Catherine J Schwarz	1

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Analysis Report

Sample Description: Trip Blank Water
NA URSO
Sunol Pipeline SL0600100443

LLI Sample # WW 6385589
LLI Group # 1263223
Account # 11875

Project Name: Sunol, CA

Collected: 08/23/2011

Submitted: 08/24/2011 08:55
Reported: 09/12/2011 17:04

Chevron Pipeline Co.
100 Northpark Blvd
Covington LA 70433

SPTB-

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit	Dilution Factor
GC/MS Volatiles	**SW-846 8260B**		**ug/l**	**ug/l**	
10943	Benzene	71-43-2	N.D.	0.5	1
10943	Ethylbenzene	100-41-4	N.D.	0.5	1
10943	Toluene	108-88-3	N.D.	0.5	1
10943	Xylene (Total)	1330-20-7	N.D.	0.5	1
GC Volatiles	**SW-846 8015B**		**ug/l**	**ug/l**	
01728	TPH-GRO N. CA water C6-C12	n.a.	N.D.	50	1

General Sample Comments

State of California Lab Certification No. 2501

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10943	BTEX 8260B Water	SW-846 8260B	1	D112411AA	08/29/2011 13:29	Daniel H Heller	1
01163	GC/MS VOA Water Prep	SW-846 5030B	1	D112411AA	08/29/2011 13:29	Daniel H Heller	1
01728	TPH-GRO N. CA water C6-C12	SW-846 8015B	1	11241A20A	08/30/2011 15:17	Catherine J Schwarz	1
01146	GC VOA Water Prep	SW-846 5030B	1	11241A20A	08/30/2011 15:17	Catherine J Schwarz	1

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Analysis Report

Quality Control Summary

Client Name: Chevron Pipeline Co. Group Number: 1263223
Reported: 09/12/11 at 05:04 PM

Matrix QC may not be reported if insufficient sample or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

Laboratory Compliance Quality Control

Analysis Name	Blank Result	Blank MDL	Report Units	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Batch number: D112411AA	Sample number(s): 6385588-6385589							
Benzene	N.D.	0.5	ug/l	100		79-120		
Ethylbenzene	N.D.	0.5	ug/l	101		79-120		
Toluene	N.D.	0.5	ug/l	101		79-120		
Xylene (Total)	N.D.	0.5	ug/l	104		80-120		
Batch number: P112381AA	Sample number(s): 6385581-6385587							
Benzene	N.D.	0.5	ug/l	84		79-120		
Ethylbenzene	N.D.	0.5	ug/l	85		79-120		
Toluene	N.D.	0.5	ug/l	88		79-120		
Xylene (Total)	N.D.	0.5	ug/l	85		80-120		
Batch number: 11238D20A	Sample number(s): 6385581-6385587							
TPH-GRO N. CA water C6-C12	N.D.	50.	ug/l	109	109	75-135	0	30
Batch number: 11241A20A	Sample number(s): 6385588-6385589							
TPH-GRO N. CA water C6-C12	N.D.	50.	ug/l	86	87	75-135	1	30

Sample Matrix Quality Control

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike
Background (BKG) = the sample used in conjunction with the duplicate

Analysis Name	MS %REC	MSD %REC	MS/MSD Limits	RPD	RPD MAX	BKG Conc	DUP Conc	DUP RPD	Dup RPD Max
Batch number: D112411AA	Sample number(s): 6385588-6385589 UNSPK: P385416								
Benzene	103	105	80-126	2	30				
Ethylbenzene	103	104	71-134	1	30				
Toluene	104	103	80-125	1	30				
Xylene (Total)	104	105	79-125	1	30				
Batch number: P112381AA	Sample number(s): 6385581-6385587 UNSPK: P382006								
Benzene	93	101	80-126	8	30				
Ethylbenzene	91	99	71-134	9	30				
Toluene	94	103	80-125	9	30				
Xylene (Total)	90	99	79-125	9	30				

Surrogate Quality Control

*- Outside of specification
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.

Quality Control Summary

Client Name: Chevron Pipeline Co. Group Number: 1263223
Reported: 09/12/11 at 05:04 PM

Surrogate Quality Control

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report.

Analysis Name: UST VOCs by 8260B - Water
Batch number: D112411AA

	Dibromofluoromethane	1,2-Dichloroethane-d4	Toluene-d8	4-Bromofluorobenzene
6385588	100	99	100	95
6385589	98	99	100	96
Blank	100	99	99	95
LCS	97	97	100	101
MS	97	96	98	98
MSD	100	102	98	96
Limits:	80-116	77-113	80-113	78-113

Analysis Name: UST VOCs by 8260B - Water
Batch number: P112381AA

	Dibromofluoromethane	1,2-Dichloroethane-d4	Toluene-d8	4-Bromofluorobenzene
6385581	96	98	100	98
6385582	95	98	99	98
6385583	98	98	100	96
6385584	95	96	100	98
6385585	95	97	100	98
6385586	95	98	99	97
6385587	95	99	99	97
Blank	96	98	100	97
LCS	94	98	100	97
MS	96	99	99	96
MSD	95	100	100	97
Limits:	80-116	77-113	80-113	78-113

Analysis Name: TPH-GRO N. CA water C6-C12
Batch number: 11238D20A

	Trifluorotoluene-F
6385581	139*
6385582	103
6385583	113
6385584	128
6385585	109
6385586	107
6385587	133
Blank	98
LCS	128
LCSD	130
Limits:	63-135

Analysis Name: TPH-GRO N. CA water C6-C12
Batch number: 11241A20A

	Trifluorotoluene-F
6385588	90
6385589	89

*- Outside of specification
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.

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Quality Control Summary

Client Name: Chevron Pipeline Co. Group Number: 1263223
Reported: 09/12/11 at 05:04 PM

Surrogate Quality Control

Blank	90
LCS	110
LCSD	112
Limits:	63-135

*- Outside of specification
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.

Chevron California Region Analysis Request/Chain of Custody

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248039

For Lancaster Laboratories use only
Acct. #: 11875 Sample #: 6385581-89 SCR#:

Grp# 1263223

Facility #: Sunol Spill MP2.7
Site Address: Calaveras Rd, Sunol, CA
Chevron PM: Jeff Cosgray Lead Consultant: Jacob Henry/Joe Morgan
Consultant/Office: URS Oakland
Consultant Prj. Mgr.:
Consultant Phone #: 510-893-3600 Fax #: (510) 874-3268
Sampler: Jeremy Quick, Ram Kannappan
Service Order #: 26917159.00300 ☐ Non SAR:

Field Point Name	Matrix	Repeat Sample	Top Depth	Year Month Day	Time Collected	New Field Pt.	Grab	Composite	Total Number of Containers	BTEX + MTBE 8260 ☐ 8021	TPH 8015 MOD GRO	TPH 8015 MOD DRO ☐ Silica Gel Cleanup	8260 full scan	Oxygenates	Lead 7420 ☐ 7421						
										Analyses Requested / Preservation Codes											
MW-1	Water			2011-8-23	1500	No	X		6	3	3										
MW-3	Water			2011-8-23	1130	No	X		6	3	3										
MW-8	Water			2011-8-23	1000	No	X		6	3	3										
MW-9	Water			2011-8-23	1400	No	X		6	3	3										
MW-10	Water			2011-8-23	1530	No	X		6	3	3										
MW-11	Water			2011-8-23	1515	No	X		6	3	3										
MW-X	Water			2011-8-23	1400	No	X		6	3	3										
Stream	Water			2011-8-23	1145	No	X		6	3	3										

Preservative Codes
H = HCl T = Thiosulfate
N = HNO_3 B = NaOH
S = H_2SO_4 O = Other

☐ J value reporting needed
☐ Must meet lowest detection limits possible for 8260 compounds

8021 MTBE Confirmation
☐ Confirm highest hit by 8260
☐ Confirm all hits by 8260
☐ Run ____ oxy's on highest hit
☐ Run ____ oxy's on all hits

Comments / Remarks
Stream sample - one VOA has a ~5 mm bubble. Do not use unless necessary

Turnaround Time Requested (TAT) (please circle)
(STD. TAT) 72 hour 48 hour
24 hour 4 day 5 day

Data Package Options (please circle if required)
QC Summary Type I – Full
Type VI (Raw Data) ☐ Coelt Deliverable not needed
WIP (RWQCB)
Disk Chevron/URS Standard

	Relinquished by:	Date	Time	Received by:	Date	Time
	(Ram Kannappan)	8/23	5300	Fed Ex	8/23	1730
		Date	Time		Date	Time
		Date	Time		Date	Time
	Relinquished by Commercial Carrier: UPS FedEx Other			Received by:	Date	Time
					8/24/11	0855
	Temperature Upon Receipt 4.3 C°			Custody Seals Intact? (Yes) No		

Explanation of Symbols and Abbreviations

The following defines common symbols and abbreviations used in reporting technical data:

RL	Reporting Limit	**BMQL**	Below Minimum Quantitation Level
N.D.	none detected	**MPN**	Most Probable Number
TNTC	Too Numerous To Count	**CP Units**	cobalt-chloroplatinate units
IU	International Units	**NTU**	nephelometric turbidity units
umhos/cm	micromhos/cm	**ng**	nanogram(s)
C	degrees Celsius	**F**	degrees Fahrenheit
meq	milliequivalents	**lb.**	pound(s)
g	gram(s)	**kg**	kilogram(s)
ug	microgram(s)	**mg**	milligram(s)
ml	milliliter(s)	**l**	liter(s)
m3	cubic meter(s)	**ul**	microliter(s)

< less than - The number following the sign is the limit of quantitation, the smallest amount of analyte which can be reliably determined using this specific test.

> greater than

J estimated value – The result is ≥ the Method Detection Limit (MDL) and < the Limit of Quantitation (LOQ).

ppm parts per million - One ppm is equivalent to one milligram per kilogram (mg/kg), or one gram per million grams. For aqueous liquids, ppm is usually taken to be equivalent to milligrams per liter (mg/l), because one liter of water has a weight very close to a kilogram. For gases or vapors, one ppm is equivalent to one microliter of gas per liter of gas.

ppb parts per billion

Dry weight basis Results printed under this heading have been adjusted for moisture content. This increases the analyte weight concentration to approximate the value present in a similar sample without moisture. All other results are reported on an as-received basis.

U.S. EPA CLP Data Qualifiers:

Organic Qualifiers

A	TIC is a possible aldol-condensation product
B	Analyte was also detected in the blank
C	Pesticide result confirmed by GC/MS
D	Compound quantitated on a diluted sample
E	Concentration exceeds the calibration range of the instrument
N	Presumptive evidence of a compound (TICs only)
P	Concentration difference between primary and confirmation columns >25%
U	Compound was not detected
X,Y,Z	Defined in case narrative

Inorganic Qualifiers

B	Value is <CRDL, but ≥IDL
E	Estimated due to interference
M	Duplicate injection precision not met
N	Spike sample not within control limits
S	Method of standard additions (MSA) used for calculation
U	Compound was not detected
W	Post digestion spike out of control limits
*****	Duplicate analysis not within control limits
+	Correlation coefficient for MSA <0.995

Analytical test results meet all requirements of NELAC unless otherwise noted under the individual analysis.

Measurement uncertainty values, as applicable, are available upon request.

Tests results relate only to the sample tested. Clients should be aware that a critical step in a chemical or microbiological analysis is the collection of the sample. Unless the sample analyzed is truly representative of the bulk of material involved, the test results will be meaningless. If you have questions regarding the proper techniques of collecting samples, please contact us. We cannot be held responsible for sample integrity, however, unless sampling has been performed by a member of our staff. This report shall not be reproduced except in full, without the written approval of the laboratory.