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# FIRST 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

June 2011

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June 16, 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 – First Semi-Annual 2011 Groundwater Monitoring Report**" are true and correct to the best of my knowledge at the present time.

Sincerely,

Jeff Cosgray

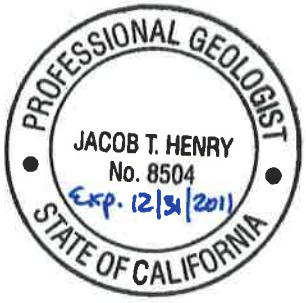
JC/rf

This letter report ("**First 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 First 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.

**URS Corporation**
Approved by:

Jacob Henry, P.G.



URS

June 17, 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, First 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 response to this request and on behalf of CPL, URS Corporation (URS) has prepared the 1st Semi-Annual 2011 Site groundwater monitoring report.

If you have any questions on this report, please call Mr. Jacob Henry of URS at 510-874-3252, respectively.

Sincerely yours,

URS Corporation

Jacob Henry, P.G.
Project Manager

PROFESSIONAL GEOLOGIST
JACOB T. HENRY
No. 8504
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STATE OF CALIFORNIA

cc: Mr. Jeff Cosgray, Chevron Pipeline Company
Ms. Rachel Naccarati, URS Oakland

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On March 28 and 29, 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 (well) 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 through MW-4, and MW-8 through MW-11. 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. Light non-aqueous phase liquid (LNAPL) was not detected in any of the monitoring wells during the first 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 December 2010. The groundwater surface elevation change at MW-2 and MW-3 resulted in hydraulic disconnection. The groundwater elevations for wells MW-1 through MW-4 and MW-9 through MW-11 were 295.85, 296.05, 296.87, 296.04, 295.37, 295.48, and 295.64 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 315.53 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 0.0059 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 groundwater contouring 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 March 28 and 29, 2011. The rationale for the method used at each monitoring well is described below:

- MW-1 through MW-4 and MW-9 through MW-11 were sampled using low-flow methods.
- MW-8 was sampled using a disposable bailer.
- 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-9 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, 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 W-22. The multi-parameter device 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 MW-8

A disposable bailer was used to purge MW-8. Before three well volumes were removed from MW-8, the well was dewatered and was allowed to re-charge overnight before a grab sample was collected.

### 2.1.3 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 March 29, 2011 using a clean disposable container.

## 3.1 ANALYTICAL PROGRAM

The groundwater samples from wells MW-1 through MW-4 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

***Geochemical Indicator Parameters***

- Nitrate and sulfate by USEPA Method 300.0
- Total manganese and dissolved iron by USEPA Method 6010B
- Ferrous iron by SM20 Method 3500-FE B Modified
- Methane by USEPA Method 8015B Modified
- Alkalinity including breakdown products by USEPA Method 310.1
- Total dissolved solids (TDS) by SM2540C

Geochemical parameters were not collected from the sample collected from MW-8 due to the lack of sufficient groundwater in the well.

## 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 first semi-annual 2011 event included

MW-1 through MW-4, and MW-8 through MW-11. The first semi-annual 2011 groundwater sample results are as follows:

- The MW-1 sample contained TPH-GRO at 1,200 µg/L. Benzene, toluene, ethylbenzene and total xylene analytical results were below the respective laboratory method detection limits. TPH-GRO sample results decreased since the sampling event in December 2010. 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.
- All analytical results from MW-2 through MW-4 were below laboratory reporting limits for TPH-GRO and BTEX.
- The MW-8 sample contained TPH-GRO at 49,000 µg/L, benzene at 1,600 µg/L, toluene at 7,500 µg/L, ethylbenzene at 2,000 µg/L, and total xylenes at 11,000 µg/L. TPH-GRO and BTEX concentrations decreased since the sampling event in December 2010.

- The MW-9 sample contained TPH-GRO at 7,100 µg/L, benzene at 0.8 µg/L, toluene at 0.9 µg/L, ethylbenzene at 44 µg/L, and total xylenes at 190 µg/L. TPH-GRO and BTEX concentrations have decreased since the December 2010 sampling event.
- All analytical results from MW-10 and MW-11 were below laboratory reporting limits for TPH-GRO and BTEX.

Groundwater analytical results are presented in Table 3.

### 3.2.2 Surface Water Sample

A surface water sample was collected on March 29, 2010. TPH-GRO and BTEX were below 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 through MW-4 and MW-9 through MW-11 were also analyzed for geochemical parameters. Geochemical parameters were not collected from the sample collected from MW-8 due to the lack of groundwater present in the well. Overall, the geochemical parameters indicate a low oxygen (anaerobic) environment. URS will continue to collect geochemical parameters when possible from all monitoring wells. Current and historical geochemical results are presented in Table 4.

#### *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 -193 mV to 88.15 mV. ORP levels in MW-2 ranged from -86 mV to 220.84 mV. ORP levels in MW-3 ranged from -17.57 mV to 185 mV. ORP levels in MW-4 ranged from -22.49 mV to 220 mV. ORP levels in MW-8 ranged from -165 mV to -74 mV. ORP levels in MW-9 ranged from -231 mV to 4 mV. ORP levels in MW-10 ranged from -74 mV to 109 mV. ORP levels in MW-11 ranged from -50 mV to 133 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. DO concentrations in MW-1 ranged from 0.0 milligrams per liter (mg/L) to 2.48 mg/L. DO concentrations in MW-2 ranged from 0.2 mg/L to 4.87 mg/L. DO concentrations in MW-3 ranged from 0.0 mg/L to 5.32 mg/L. DO concentrations in MW-4 ranged from 0.03 mg/L to 3.96 mg/L. DO concentrations in MW-8 ranged from 0.0 mg/L to 0.05 mg/L. DO concentrations in MW-9 ranged from 0.0 mg/L to 3.37 mg/L. DO concentrations in MW-10 ranged from 0.0 mg/L to 5.56 mg/L. DO concentrations in MW-11 ranged from 0.37 mg/L to 5.85 mg/L. Recent DO concentrations in all monitoring wells have reached 0.0 mg/L indicating anaerobic conditions at the Site.

#### *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).

Nitrate concentrations in MW-1 ranged from <0.25 mg/L to 10.3 mg/L; however, overall nitrate concentrations are much lower. Nitrate concentrations in MW-2 ranged from 4 mg/L to 16.6 mg/L. Nitrate concentrations in MW-3 ranged from <0.25 mg/L to 22.2 mg/L. Nitrate concentrations in MW-4 ranged from <0.25 mg/L to 19.5 mg/L. Nitrate concentrations in MW-8 ranged from <0.25 mg/L to 0.27 mg/L. Nitrate concentrations in MW-9 ranged from <0.25 mg/L to 6.40 mg/L. Nitrate concentrations in MW-10 ranged from <0.25 mg/L to 18 mg/L. Nitrate concentrations in MW-11 ranged from <0.25 mg/L to 17.5 mg/L. The lack of nitrate may indicate that it has either been consumed by the denitrification process or is not naturally present at the Site.

#### *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.

Ferrous iron concentrations in MW-1 ranged from <0.008 mg/L to 0.22 mg/L. Ferrous iron concentrations in MW-2 ranged from <0.008 mg/L to 4 mg/L. Ferrous iron concentrations in MW-3 ranged from <0.008 mg/L to 0.24 mg/L. Ferrous iron concentrations in MW-4 ranged from 0.21 mg/L to 0.7 mg/L. Ferrous iron concentrations in MW-8 ranged from 0.14 mg/L to 7.8 mg/L. Ferrous iron concentrations in MW-9 ranged from 0.099 mg/L to 3.3 mg/L. Ferrous iron concentrations in MW-10 ranged from 0.54 mg/L to 10.9 mg/L. Ferrous iron concentrations in MW-11 ranged from 0.03 mg/L to 0.84 mg/L. In general, elevated levels of ferrous iron are present at MW-8 indicating that anaerobic biodegradation is occurring at that location.

#### *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.

Sulfate concentrations in MW-1 ranged from 26.4 mg/L to 108 mg/L. Sulfate concentrations in MW-2 ranged from 47.5 mg/L to 126 mg/L. Sulfate concentrations in MW-3 ranged from 26.3 mg/L to 57.7 mg/L. Sulfate concentrations in MW-4 ranged from 59.5 mg/L to 213 mg/L. Sulfate concentrations in MW-8 ranged from 1.7 mg/L to 90.2 mg/L. Sulfate concentrations in MW-9 ranged from 4.5 mg/L to 63 mg/L. Sulfate concentrations in MW-10 ranged from 57 mg/L to 640 mg/L. Sulfate concentrations in MW-11 ranged from 76 mg/L to 457 mg/L. The elevated levels of sulfate in the nursery groundwater (MW-1 and MW-9) indicate that sulfate reduction is not occurring in this area. However, lower levels of sulfate in the groundwater at MW-8 (eastern side of Calaveras Road) indicate sulfate reduction may be ongoing.

It is worth noting the background levels of sulfate at MW-2 are slightly higher than those observed at MW-1 and MW-9 further indicating that sulfate reduction is not occurring in the nursery at this time.

#### *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.

It was observed that the methane levels in nursery monitoring wells MW-1 (0.012 mg/L) and MW-9 (0.018 mg/L) were low with sulfate levels being high, indicating methanogenesis is not occurring. However, the methane level observed at MW-8 (0.39 mg/L) was slightly higher with lower sulfate levels indicating methanogenesis is occurring.

In conclusion, biodegradation parameters indicate that anaerobic conditions exist within the plume and anaerobic biodegradation is occurring within the plume. However, the soluble electron acceptors within the plume are depleted and may be limiting the rate of biodegradation activity.

#### *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 to 78,000 µg/L) were in groundwater at well MW-8. The highest concentrations of benzene (76 µg/L to 2,000 µg/L) were in groundwater at well MW-8 located on the eastern side of Calaveras Road. The highest concentrations of toluene (57 µg/L to 16,000 µg/L) were in groundwater at well MW-8. The highest concentrations of ethylbenzene (69 µg/L to 3,200 µg/L) were in groundwater at well MW-9. The highest concentrations of total xylenes (340 µg/L to 17,000 µg/L) 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, with the exception of ferrous iron. The ferrous iron hold time of 24 hours for Method SM20 3500 Fe B was exceeded in all samples submitted for analysis (extracted 2.5 days after collection). The ferrous iron detections in samples MW-1, MW-2, MW-3, MW-4, MW-8, MW-10 and MW-11 were qualified as estimated, biased low, and flagged with a "J." The ferrous iron nondetection in sample MW-9 was qualified as rejected, and flagged with an "R".

### 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. Two trip blanks were analyzed during this sampling event. The trip blanks 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, or were outside laboratory QC limits but did not require qualification, with the exception of the following:

- Low MS recovery was observed for nitrate nitrogen in Batch 11089196603B in Report 1239556 in the MS sample from MW-8. The nitrate nitrogen detections in samples MW-1, MW-4 and MW-9 were qualified as estimated, and flagged with a "J." The nitrate nitrogen nondetection in sample MW-8 was qualified as estimated, and flagged with a "UJ."

## 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 within laboratory QC limits, or were outside laboratory QC limits but did not require qualification.

## Field Duplicate Analyses

Field duplicate samples are collected in the field and analyzed to evaluate the heterogeneity of the matrices. No field duplicate samples were collected during this sampling event. One field duplicate sample, MW-X (duplicate of MW-9), was collected during this sampling event. The QA/QC review identifies relative percent (%) difference (RPD) greater than 20% for compounds detected in the field sample and corresponding field duplicate sample. All field sample/duplicate sample pair RPDs were less than 20%, indicating 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:

- Low propene surrogate recovery was observed for volatile headspace hydrocarbon analysis in sample MW-8. The methane detection in sample MW-8 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.

The ferrous iron detections in samples MW-1, MW-2, MW-3, MW-4, MW-8, MW-10 and MW-11 were qualified as estimated, biased low, and flagged with a "J." The ferrous iron nondetection in sample MW-9 was qualified as rejected, and flagged with an "R".

Low MS recovery was observed for nitrate nitrogen in Batch 11089196603B in Report 1239556 in the MS sample from MW-8. The nitrate nitrogen detections in samples MW-1, MW-4 and MW-9 were qualified as estimated, and flagged with a "J." The nitrate nitrogen nondetection in sample MW-8 was qualified as estimated, and flagged with a "UJ."

Low propene surrogate recovery was observed for volatile headspace hydrocarbon analysis in sample MW-8. The methane detection in sample MW-8 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 March 28 and 29, 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 through MW-4, and MW-8 through MW-11, and the stream. The findings are as follows:

- LNAPL was not observed in any of the wells during the first semi-annual 2011 groundwater monitoring activities.
- The groundwater elevations increased in all wells since the last sampling event in December 2010.
- The MW-1 sample contained TPH-GRO at a concentration 1,200 µg/L. Well MW-1 has not been consistently sampled due to being hydraulically disconnected from the aquifer. TPH-GRO and BTEX concentrations have decreased since sampling activities were started in 2006.
- All analytical results for MW-2 through MW-4 were below laboratory reporting limits for TPH-GRO and BTEX.
- The MW-8 sample contained TPH-GRO at 49,000 µg/L, benzene at 1,600 µg/L, toluene at 7,500 µg/L, ethylbenzene at 2,000 µg/L, and total xylenes at 11,000 µg/L. Concentrations of the constituents have decreased since the sampling event in December 2010.
- The MW-9 sample contained TPH-GRO at 7,100 µg/L, benzene at 0.8 µg/L, toluene at 0.9 µg/L, ethylbenzene at 44 µg/L, and total xylenes at 190 µg/L. Sample results decreased since the December 2010 sampling event.
- 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.
- 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.
- CPL and URS are currently discussing tasks to fill identified data gaps that will allow for the development of appropriate soil and groundwater remediation goals for the Site. Possible tasks include a pumping test, a soil investigation on the eastern side of Calaveras Road, and possible additional monitoring well installation on the eastern side of Calaveras Road.
- The data collected to date indicates an anaerobic environment exists at the Site, however, due to minimal groundwater and groundwater movement within the geologic framework, the addition of a reagent to enhance biodegradation is not recommended at this time. Furthermore, impacted groundwater appears to be confined to MW-1 and MW-9 in the nursery and MW-8 on the eastern side of Calaveras Road with all other wells with non-detect concentrations.

Based on the March 28 and 29, 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.

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.

TABLE 1
Monitoring Well Groundwater Levels
First 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 | -- | -- |
| **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 | -- | -- |
| **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
First 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 | -- | -- |
| **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 | -- | -- |
| **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 | -- | -- |
| **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
First 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-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 | -- | -- |
| **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 | -- | -- |
| **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 | -- | -- |

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
First 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 | -- | -- |
| **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 | -- | -- |
| **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
First 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 | -- | -- |
| **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 | -- | -- |
| **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 | -- | -- |
| **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
First 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 | -- | -- |
| **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 | -- | -- |
| **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 | -- | -- |

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
First Semi-Annual 2011
Groundwater Monitoring Report
Chevron Sunol Pipeline

| Well ID | Date | Gasoline Compounds | | | | |
|---|---|---|---|---|---|---|
| | | TPH-GRO (µg/L) | Benzene (µg/L) | Toluene (µg/L) | Ethylbenzene (µg/L) | Xylenes (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 |
| **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 |
| **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 (µg/L) | Benzene (µg/L) | Toluene (µg/L) | Ethylbenzene (µg/L) | Xylenes (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 |
| **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 |
| **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 (µg/L) | Benzene (µg/L) | Toluene (µg/L) | Ethylbenzene (µg/L) | Xylenes (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** |
| **MW-9** | 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** |
| **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 |
| **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 |
| | 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 |

TABLE 3
Summary of Groundwater Analytical Results Gasoline Compounds
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| Well ID | Date | Gasoline Compounds | | | | |
|---|---|---|---|---|---|---|
| | | TPH-GRO (µg/L) | Benzene (µg/L) | Toluene (µg/L) | Ethylbenzene (µg/L) | Xylenes (µg/L) |
| **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 |

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.

TABLE 4
Summary of Groundwater Analytical Results Geochemical Indicators and Other Parameters
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Chevron Sunol Pipeline

| | | Geochemical Indicators and Other Parameters | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Well ID | Date | 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 | | 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 |
| 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 |
| 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 |
| 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] |
| | 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 |
| 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 |
| 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 |
| 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 |
| 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 |
| | 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 |

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

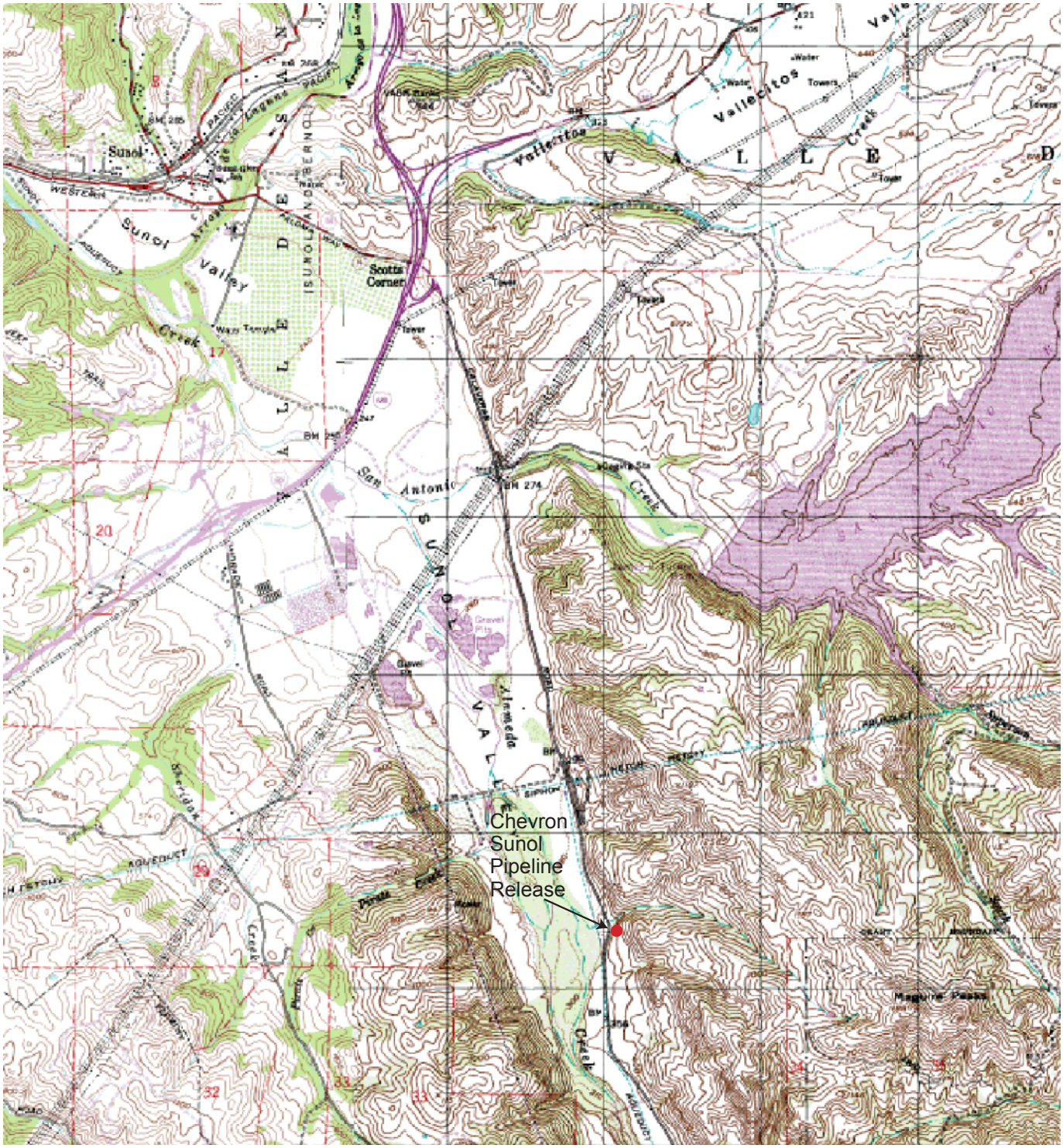



Image obtained from topozone.com

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<br>Project No. 26815217 | SITE VICINITY MAP<br>CHEVRON SUNOL PIPELINE<br>SUNOL, CALIFORNIA | Figure<br>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

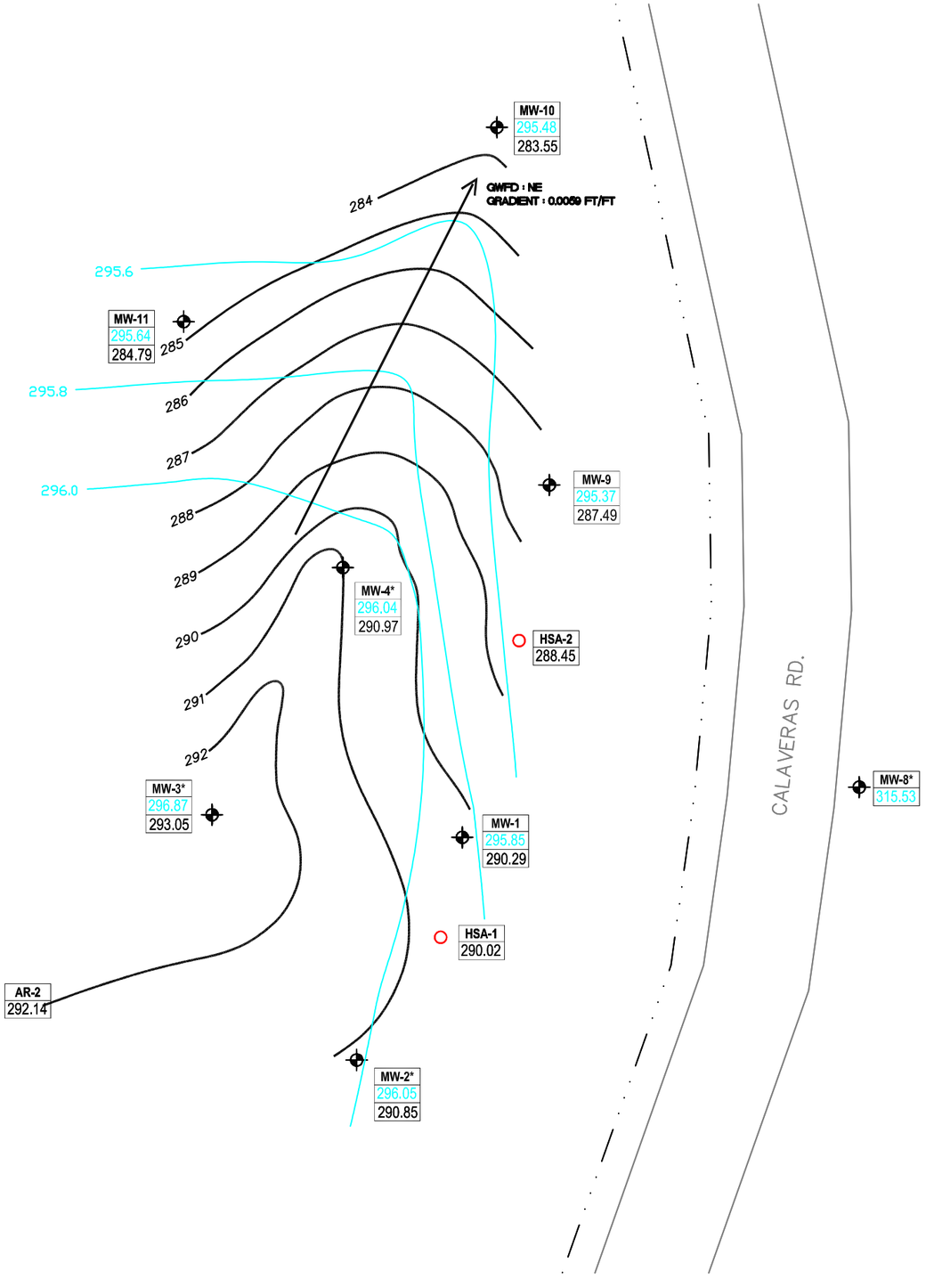
HILL SLOPE
AND DENSE
VEGETATION

**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<br>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 / 295.85 / 290.29 — MONITORING WELL LABEL; GROUNDWATER ELEVATION; BEDROCK CONTACT ELEVATION
- SOIL BORING
- HSA-2 / 288.45 — SOIL BORING LABEL; 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 MARCH 28, 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 = 0.0059 ft

NORTH

0 30' 60'

SCALE 1"= 30'

| | | | |
|---|---|---|---|
| URS | CHEVRON PIPELINE COMPANY<br>Project No. 26815217 | UNCONFINED WATER–BEARING ZONE GROUNDWATER AND BEDROCK ELEVATIONS MAP CHEVRON SUNOL PIPLINE | Figure 3 |

Apr 22, 2011 – 2:24pm
X:\x_env_waste\Chevron Pipeline Company\Sunol Spill\Quarterly Groundwater Report\1Q2011\Report\Figures\FIGURE 3__042211.dwg

# Appendix A
# Groundwater Sampling Forms

URS

03/29/11

Horiba W-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 | 480 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 | 32.19[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 | 11:13 | 15.0 | 6.99 | 1.06 | 4.0 | 3.73 | 18 |
| | 11:16 | 15.0 | 7.01 | 1.02 | max | 2.98 | -9 |
| | 11:19 | 15.2 | 7.01 | 0.98 | max | 2.90 | -8 |
| | 11:22 | 15.2 | 7.01 | 0.97 | max | 2.84 | -5 |
| | Sample collected from MW-1 at 11:23 | | | | | | |
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| | | | | | | | |
| | | | | | | | |
| Variance in last 4 readings | | 0.0 | -0.02 | 0.04 | | 0.75 | 27.0 |
| | | -0.2 | 0.00 | 0.04 | | 0.08 | -1.0 |
| | | 0.0 | 0.00 | 0.01 | | 0.06 | -3.0 |

**Notes:**
Starting Pumping at 11:11 (3/29/11)
Initial Depth to Water = 32.19 (3/28/11) ft
Total Volume Purged = 2.5 gallons
Sample collected at 11:23

URS

Horiba W-22

03/28/11 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 | 37 [ft] |

| **Well Information:** | | **Pumping information:** | |
|---|---|---|---|
| Well Id | MW-2 | Final pumping rate | NM |
| Well diameter | 4 [in] | Flowcell volume | 100 mL |
| Well total depth | 38.3 [ft] | Calculated Sample Rate | NM |
| Depth to top of screen | 23.5 [ft] | Sample rate | NM |
| Screen length | 15 [ft] | Stabilized drawdown | NM |
| Depth to Water | 28.10 [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 | 13:31 | 14.20 | 6.99 | 0.99 | 200.0 | 6.49 | 173 |
| | 13:36 | 14.21 | 7.01 | 0.98 | 86.9 | 6.30 | 170 |
| | 13:39 | 14.21 | 7.01 | 0.98 | 93.7 | 6.26 | 168 |
| | 13:42 | 14.22 | 7.01 | 0.98 | 106.0 | 6.21 | 167 |
| | 13:48 | 14.14 | 6.99 | 0.98 | 101.0 | 6.17 | 167 |
| | 13:57 | 14.19 | 7.03 | 0.98 | 111.0 | 6.14 | 167 |
| | 14:00 | 14.23 | 7.04 | 0.98 | 128.0 | 6.11 | 168 |
| | Sample collected from MW-4 at 14:05 | | | | | | |
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| | | | | | | | |
| Variance in last 4 readings | | -0.08 | -0.02 | 0.00 | -5.0 | -0.04 | 0 |
| | | 0.05 | 0.04 | 0.00 | 10.0 | -0.03 | 0 |
| | | 0.04 | 0.01 | 0.00 | 17.0 | -0.03 | 1 |

**Notes:** Starting Pumping at 13:29
Initial Depth to Water = 28.10 ft
Total Volume Purged = 5.5 gallons
Sample collected at 14:05

URS

03/28/11

Horiba W-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 | 1/2 [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 | 450 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 | 28.78 [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 | 14:51 | 13.56 | 7.02 | 0.95 | 42.5 | 6.39 | 202 |
| | 14:54 | 13.54 | 7.04 | 1.00 | 127.0 | 5.31 | 199 |
| | 14:58 | 13.99 | 7.06 | 0.90 | 172.0 | 5.42 | 190 |
| | 15:02 | 13.72 | 7.06 | 0.90 | 127.0 | 6.34 | 190 |
| | 15:05 | 13.65 | 7.07 | 0.90 | 121.0 | 5.44 | 187 |
| | 15:08 | 13.62 | 7.05 | 0.90 | 125.0 | 5.28 | 185 |
| | 15:11 | 13.57 | 7.05 | 0.90 | 109.0 | 5.34 | 183 |
| | 15:16 | 13.55 | 7.06 | 0.90 | 114.0 | 5.32 | 185 |
| | Sample collected from MW-4 at 15:17 | | | | | | |
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| | | | | | | | |
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| | | | | | | | |
| | | | | | | | |
| Variance in last 4 readings | | -0.03 | -0.02 | 0.00 | 4.0 | -0.16 | -2 |
| | | -0.05 | 0.00 | 0.00 | -16.0 | 0.06 | -2 |
| | | -0.02 | 0.01 | 0.00 | 5.0 | -0.02 | 2 |

**Notes:**
Starting Pumping at 14:48
Initial Depth to Water = 28.78 ft
Total Volume Purged = 3 gallons
Sample collected at 15:17
At 14:59 emptied flow cell, rinsed meter

URS

03/29/11

Horiba W-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 | 43 [ft] |
| | | Pump placement from TOC | 39 [ft] |

| **Well Information:** | | **Pumping information:** | |
|---|---|---|---|
| Well Id | MW-4 | Final pumping rate | 480 mL/min |
| Well diameter | 4 [in] | Flowcell volume | 1000 mL |
| Well total depth | 40.7 [ft] | Calculated Sample Rate | NM |
| Depth to top of screen | 30.7 [ft] | Sample rate | NM |
| Screen length | 10 [ft] | Stabilized drawdown | NM |
| Depth to Water | 33.63 [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 | 10:12 | 14.16 | 6.89 | 0.98 | 11.6 | 4.38 | 236 |
| | 10:15 | 14.34 | 6.94 | 0.96 | 13.5 | 3.83 | 232 |
| | 10:20 | 14.39 | 6.97 | 0.93 | 7.1 | 3.82 | 224 |
| | 10:23 | 14.43 | 6.98 | 0.92 | 9.2 | 3.81 | 220 |
| | Sample collected from MW-4 at 10:25 | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| Variance in last 4 readings | | 0.18 | 0.05 | -0.02 | 1.9 | -0.55 | -4.0 |
| | | 0.05 | 0.03 | -0.03 | -6.4 | -0.01 | -8.0 |
| | | 0.04 | 0.01 | -0.01 | 2.1 | -0.01 | -4.0 |

**Notes:**
Starting Pumping at 10:09 (3/29/11)
Initial Depth to Water = 33.63 (3/28/11) ft
Total Volume Purged = 2.5 gallons
Sample collected at 10:25

URS

03/29/11

Horiba U-22XD
ISI Low-Flow Log

| **Project Information:** | | **Pump Information:** | |
|---|---|---|---|
| Operator Name | Jeremy Quick/Ram Kannappan | Pump Model/Type | Disposable Bailer |
| Company Name | URS | Tubing Type | NA |
| Project Name | Chevron Sunol Pipeline | Tubing Diameter | NA |
| Site Name | Sunol | Tubing Length | [ft] |
| | | Pump placement from TOC | [ft] |

| **Well Information:** | | **Pumping information:** | |
|---|---|---|---|
| Well Id | MW-8 | Final pumping rate | NA |
| Well diameter | 2 [in] | Flowcell volume | NA |
| Well total depth | 24.5 [ft] | Calculated Sample Rate | NA |
| Depth to top of screen | 14.5 [ft] | Sample rate | NA |
| Screen length | 10 [ft] | Stabilized drawdown | NA |
| Depth to Water | 18.40 [ft] | | |

## Low-Flow Sampling Stabilization Summary

| | Time | Temp [C] | pH [pH] | Cond. [µS/cm] | Turb [NTU] | DO [mg/L] | ORP [mV] |
|---|---|---|---|---|---|---|---|
| Stabilization Settings | | | +/-0.2 | +/-3% | +/-10 | +/-0.2 | +/-20 |
| Multi-parameter Readings | 1 well volume | | | | | | |
| | | | | | | | |
| | 2 well volumes | | | | | | |
| | | | | | | | |
| | 3 well volumes | | | | | | |
| | | | | | | | |
| | Sample collected from MW-8 at 9:15 on 3/29/11 | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |

**Notes:**

Starting Pumping at: NA
Initial Depth to Water = 18.40 ft
Total Volume Purged = 4 gallons
Sample collected at 9:15 on 3/29/11
Final Depth to Water: Dry

Could not collect parameters because the well was dry before 1 well volume was purged. Well was left to recharge overnight before the sample was collected. 0.01 feet of product was measured in the monitoring well before sampling on 3/29/11.

URS

03/29/11

Horiba W-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 | 450 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 | 37.70 [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 | 12:34 | 17.09 | 6.97 | 1.26 | 534.0 | 3.78 | -147 |
| | 12:38 | 16.54 | 6.99 | 1.11 | max | 2.87 | -147 |
| | 12:41 | 16.43 | 7.00 | 1.08 | max | 2.78 | -142 |
| | 12:44 | 16.40 | 7.09 | 1.07 | max | 2.78 | -140 |
| | Sample collected from MW-9 at 12:47 on 3/29/11 | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| Variance in last 4 readings | | -0.55 | 0.02 | -0.15 | | -0.91 | 0 |
| | | -0.11 | 0.01 | -0.03 | | -0.09 | 5 |
| | | -0.03 | 0.09 | -0.01 | | 0.00 | 2 |

**Notes:** Starting Pumping at 12:30
Initial Depth to Water = 37.70 ft
Total Volume Purged = 2.5 gallons
Sample collected at 12:47

MW-X duplicate also collected at 12:47

URS

03/28/11

Horiba W-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 | 40.41 [ft] |

**Pumping information:**

| | |
|---|---|
| Final pumping rate | 450 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 | 10:59 | 16.60 | 7.04 | 1.95 | over | 3.12 | -12 |
| | 11:04 | 16.65 | 7.04 | 1.94 | over | 3.07 | -6 |
| | 11:07 | 16.70 | 7.02 | 1.92 | over | 3.11 | 21 |
| | 11:10 | 16.51 | 6.98 | 1.71 | over | 4.36 | 48 |
| | 11:13 | 16.52 | 6.98 | 1.39 | 344 | 5.14 | 49 |
| | 11:17 | 16.51 | 6.99 | 1.25 | 173 | 5.39 | 48 |
| | 11:20 | 16.35 | 6.99 | 1.22 | 137 | 5.50 | 47 |
| | 11:23 | 16.31 | 7.00 | 1.22 | 155 | 5.54 | 48 |
| | 11:26 | 16.28 | 7.00 | 1.22 | 113 | 5.56 | 48 |
| | Sample collected from MW-10 at 10:55 | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| Variance in last 4 readings | | -0.16 | 0.00 | -0.03 | -36 | 0.11 | -1 |
| | | -0.04 | 0.01 | 0.00 | 18 | 0.04 | 1 |
| | | -0.03 | 0.00 | 0.00 | -42 | 0.02 | 0 |

**Notes:**

Starting Pumping at10:55
Initial Depth to Water = 40.41 ft
Total Volume Purged = 4.5 gallons
Sample collected at 11:30
Intial purge had significant sediment, after 10 minutes purge water was light cloudy to clear

URS

03/28/11

Horiba W-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 | 400 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 | 34.25 [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 | 12:22 | 16.33 | 7.12 | 2.19 | 72.7 | 3.69 | -31 |
| | 12:25 | 16.23 | 7.05 | 1.83 | 101.0 | 3.11 | -16 |
| | 12:30 | 16.34 | 6.94 | 1.53 | 112.0 | 3.25 | 37 |
| | 12:33 | 16.34 | 6.96 | 1.26 | 102.0 | 4.03 | 64 |
| | 12:36 | 16.34 | 6.96 | 1.17 | 112.0 | 4.85 | 77 |
| | 12:39 | 16.36 | 6.97 | 1.15 | 103.0 | 5.09 | 81 |
| | 12:42 | 16.37 | 6.99 | 1.12 | 101.0 | 5.16 | 85 |
| | 12:45 | 16.35 | 6.99 | 1.10 | 88.7 | 5.22 | 89 |
| | 12:49 | 16.36 | 6.98 | 1.09 | 57.5 | 5.25 | 91 |
| | Sample collected from MW-11 at 12:21 on 3/29/11 | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| Variance in last 4 readings | | 0.01 | 0.02 | -0.03 | -2.0 | 0.07 | 4 |
| | | -0.02 | 0.00 | -0.02 | -12.3 | 0.06 | 4 |
| | | 0.01 | -0.01 | -0.01 | -31.2 | 0.03 | 2 |

**Notes:**
Starting Pumping at 12:21
Initial Depth to Water = 34.25 ft
Total Volume Purged = 4 gallons
Sample collected at 12:50

# Appendix B
# Laboratory Analytical Results

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# 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

April 07, 2011

Project: Sunol, CA

Submittal Date: 03/29/2011
Group Number: 1239337
PO Number: 0015052103
Release Number: TOURLOUKIS
State of Sample Origin: CA

| Client Sample Description | Lancaster Labs (LLI) # |
|---|---|
| MW-10 Grab Water | 6241952 |
| MW-10_Filtered Grab Water | 6241953 |
| MW-11 Grab Water | 6241954 |
| MW-11_Filtered Grab Water | 6241955 |
| MW-2 Grab Water | 6241956 |
| MW-2_Filtered Grab Water | 6241957 |
| MW-3 Grab Water | 6241958 |
| MW-3_Filtered Grab Water | 6241959 |
| Trip Blank NA Water | 6241960 |

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

| | | |
|---|---|---|
| ELECTRONIC COPY TO | URS | Attn: Rachel Naccarati |
| ELECTRONIC COPY TO | URS | Attn: Jacob Henry |

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# Analysis Report

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

Respectfully Submitted,

Susan M. Goshert
Group Leader

Lancaster Laboratories

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# Analysis Report



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

**LLI Sample # WW 6241952**
**LLI Group # 1239337**
**Account # 11875**

**Project Name: Sunol, CA**

Collected: 03/28/2011 11:30 by JQ

Submitted: 03/29/2011 09:45
Reported: 04/07/2011 13:57

Chevron Pipeline Co.
100 Northpark Blvd
Covington LA 70433

URS10

| 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 |
| **GC Miscellaneous** | **SW-846 8015B modified** | | **ug/l** | **ug/l** | |
| 07105 | Methane | 74-82-8 | 30 | 10 | 1 |
| **Metals** | **SW-846 6010B** | | **ug/l** | **ug/l** | |
| 07058 | Manganese | 7439-96-5 | 101 | 0.84 | 1 |
| **Wet Chemistry** | **EPA 300.0** | | **ug/l** | **ug/l** | |
| 00368 | Nitrate Nitrogen | 14797-55-8 | 18,000 | 500 | 10 |
| 00228 | Sulfate | 14808-79-8 | 57,000 | 1,500 | 5 |
| | **SM20 2320 B** | | **ug/l as CaCO3** | **ug/l as CaCO3** | |
| 00202 | Alkalinity to pH 4.5 | n.a. | 392,000 | 460 | 1 |
| 00201 | Alkalinity to pH 8.3 | n.a. | N.D. | 460 | 1 |
| | **SM20 2540 C** | | **ug/l** | **ug/l** | |
| 00212 | Total Dissolved Solids | n.a. | 652,000 | 19,400 | 1 |
| | **SM20 3500 Fe B modified** | | **ug/l** | **ug/l** | |
| 08344 | Ferrous Iron | n.a. | 390 | 10 | 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 | F110892AA | 03/30/2011 13:47 | Anita M Dale | 1 |
| 01163 | GC/MS VOA Water Prep | SW-846 5030B | 1 | F110892AA | 03/30/2011 13:47 | Anita M Dale | 1 |
| 01728 | TPH-GRO N. CA water C6-C12 | SW-846 8015B | 1 | 11090A07A | 03/31/2011 15:56 | Elizabeth J Marin | 1 |
| 01146 | GC VOA Water Prep | SW-846 5030B | 1 | 11090A07A | 03/31/2011 15:56 | Elizabeth J Marin | 1 |

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# Analysis Report



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

**LLI Sample # WW 6241952**
**LLI Group # 1239337**
**Account # 11875**

**Project Name: Sunol, CA**

Collected: 03/28/2011 11:30 by JQ

Submitted: 03/29/2011 09:45
Reported: 04/07/2011 13:57

Chevron Pipeline Co.
100 Northpark Blvd
Covington LA 70433

URS10

## Laboratory Sample Analysis Record

| CAT No. | Analysis Name | Method | Trial# | Batch# | Analysis Date and Time | Analyst | Dilution Factor |
|---|---|---|---|---|---|---|---|
| 07105 | Volatile Headspace Hydrocarbon | SW-846 8015B modified | 1 | 110910018A | 04/04/2011 16:34 | Elizabeth J Marin | 1 |
| 07058 | Manganese | SW-846 6010B | 1 | 110901848004 | 04/05/2011 02:10 | Tara L Snyder | 1 |
| 01848 | WW SW846 ICP Digest (tot rec) | SW-846 3005A | 1 | 110901848004 | 04/01/2011 10:03 | Denise K Conners | 1 |
| 00368 | Nitrate Nitrogen | EPA 300.0 | 1 | 11088196602A | 03/30/2011 10:05 | Ashley M Adams | 10 |
| 00228 | Sulfate | EPA 300.0 | 1 | 11088196602A | 03/29/2011 23:27 | Ashley M Adams | 5 |
| 00202 | Alkalinity to pH 4.5 | SM20 2320 B | 1 | 11090020201A | 03/31/2011 07:45 | Susan A Engle | 1 |
| 00201 | Alkalinity to pH 8.3 | SM20 2320 B | 1 | 11090020201A | 03/31/2011 07:45 | Susan A Engle | 1 |
| 00212 | Total Dissolved Solids | SM20 2540 C | 1 | 11090021201A | 03/31/2011 09:04 | Hannah M Royer | 1 |
| 08344 | Ferrous Iron | SM20 3500 Fe B modified | 1 | 11089834401A | 03/30/2011 19:15 | Daniel S Smith | 1 |

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# Analysis Report



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

**LLI Sample # WW 6241953**
**LLI Group # 1239337**
**Account # 11875**

**Project Name: Sunol, CA**

Collected: 03/28/2011 11:30 by JQ

Submitted: 03/29/2011 09:45
Reported: 04/07/2011 13:57

Chevron Pipeline Co.
100 Northpark Blvd
Covington LA 70433

| CAT No. | Analysis Name | CAS Number | As Received Result | As Received Method Detection Limit | Dilution Factor |
|---|---|---|---|---|---|
| **Metals Dissolved** | **SW-846 6010B** | | ug/l | ug/l | |
| 01754 | Iron | 7439-89-6 | N.D. | 52.2 | 1 |

## General Sample Comments

State of California Lab Certification No. 2501
This sample was filtered in the lab for dissolved metals.

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 |
|---|---|---|---|---|---|---|---|
| 01754 | Iron | SW-846 6010B | 1 | 110901848004 | 04/05/2011 02:13 | Tara L Snyder | 1 |
| 01848 | WW SW846 ICP Digest (tot rec) | SW-846 3005A | 1 | 110901848004 | 04/01/2011 10:03 | Denise K Conners | 1 |

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# Analysis Report



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

**LLI Sample # WW 6241954**
**LLI Group # 1239337**
**Account # 11875**

**Project Name: Sunol, CA**

Collected: 03/28/2011 12:50 by JQ

Submitted: 03/29/2011 09:45
Reported: 04/07/2011 13:57

Chevron Pipeline Co.
100 Northpark Blvd
Covington LA 70433

URS11

| 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 |
| **GC Miscellaneous** | **SW-846 8015B modified** | | **ug/l** | **ug/l** | |
| 07105 | Methane | 74-82-8 | 62 | 10 | 1 |
| **Metals** | **SW-846 6010B** | | **ug/l** | **ug/l** | |
| 07058 | Manganese | 7439-96-5 | 21.5 | 0.84 | 1 |
| **Wet Chemistry** | **EPA 300.0** | | **ug/l** | **ug/l** | |
| 00368 | Nitrate Nitrogen | 14797-55-8 | 17,500 | 500 | 10 |
| 00228 | Sulfate | 14808-79-8 | 75,800 | 3,000 | 10 |
| | **SM20 2320 B** | | **ug/l as CaCO3** | **ug/l as CaCO3** | |
| 00202 | Alkalinity to pH 4.5 | n.a. | 319,000 | 460 | 1 |
| 00201 | Alkalinity to pH 8.3 | n.a. | N.D. | 460 | 1 |
| | **SM20 2540 C** | | **ug/l** | **ug/l** | |
| 00212 | Total Dissolved Solids | n.a. | 602,000 | 9,700 | 1 |
| | **SM20 3500 Fe B modified** | | **ug/l** | **ug/l** | |
| 08344 | Ferrous Iron | n.a. | 33 | 10 | 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 | F110892AA | 03/30/2011 14:09 | Anita M Dale | 1 |
| 01163 | GC/MS VOA Water Prep | SW-846 5030B | 1 | F110892AA | 03/30/2011 14:09 | Anita M Dale | 1 |
| 01728 | TPH-GRO N. CA water C6-C12 | SW-846 8015B | 1 | 11090A07A | 03/31/2011 16:21 | Elizabeth J Marin | 1 |
| 01146 | GC VOA Water Prep | SW-846 5030B | 1 | 11090A07A | 03/31/2011 16:21 | Elizabeth J Marin | 1 |

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# Analysis Report



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

**LLI Sample # WW 6241954**
**LLI Group # 1239337**
**Account # 11875**

**Project Name: Sunol, CA**

Collected: 03/28/2011 12:50 by JQ

Submitted: 03/29/2011 09:45
Reported: 04/07/2011 13:57

Chevron Pipeline Co.
100 Northpark Blvd
Covington LA 70433

URS11

## Laboratory Sample Analysis Record

| CAT No. | Analysis Name | Method | Trial# | Batch# | Analysis Date and Time | Analyst | Dilution Factor |
|---|---|---|---|---|---|---|---|
| 07105 | Volatile Headspace Hydrocarbon | SW-846 8015B modified | 1 | 110910018A | 04/04/2011 17:23 | Elizabeth J Marin | 1 |
| 07058 | Manganese | SW-846 6010B | 1 | 110901848004 | 04/05/2011 02:23 | Tara L Snyder | 1 |
| 01848 | WW SW846 ICP Digest (tot rec) | SW-846 3005A | 1 | 110901848004 | 04/01/2011 10:03 | Denise K Conners | 1 |
| 00368 | Nitrate Nitrogen | EPA 300.0 | 1 | 11088196602A | 03/30/2011 10:19 | Ashley M Adams | 10 |
| 00228 | Sulfate | EPA 300.0 | 1 | 11088196602A | 03/30/2011 10:19 | Ashley M Adams | 10 |
| 00202 | Alkalinity to pH 4.5 | SM20 2320 B | 1 | 11090020201A | 03/31/2011 07:45 | Susan A Engle | 1 |
| 00201 | Alkalinity to pH 8.3 | SM20 2320 B | 1 | 11090020201A | 03/31/2011 07:45 | Susan A Engle | 1 |
| 00212 | Total Dissolved Solids | SM20 2540 C | 1 | 11090021201A | 03/31/2011 09:04 | Hannah M Royer | 1 |
| 08344 | Ferrous Iron | SM20 3500 Fe B modified | 1 | 11089834401A | 03/30/2011 19:15 | Daniel S Smith | 1 |

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# Analysis Report



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

**LLI Sample # WW 6241955**
**LLI Group # 1239337**
**Account # 11875**

**Project Name: Sunol, CA**

Collected: 03/28/2011 12:50 by JQ

Submitted: 03/29/2011 09:45
Reported: 04/07/2011 13:57

Chevron Pipeline Co.
100 Northpark Blvd
Covington LA 70433

| CAT No. | Analysis Name | CAS Number | As Received Result | As Received Method Detection Limit | Dilution Factor |
|---|---|---|---|---|---|
| **Metals Dissolved** | **SW-846 6010B** | | ug/l | ug/l | |
| 01754 | Iron | 7439-89-6 | N.D. | 52.2 | 1 |

## General Sample Comments

State of California Lab Certification No. 2501
This sample was filtered in the lab for dissolved metals.

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 |
|---|---|---|---|---|---|---|---|
| 01754 | Iron | SW-846 6010B | 1 | 110901848004 | 04/05/2011 02:26 | Tara L Snyder | 1 |
| 01848 | WW SW846 ICP Digest (tot rec) | SW-846 3005A | 1 | 110901848004 | 04/01/2011 10:03 | Denise K Conners | 1 |

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# Analysis Report



**Sample Description: MW-2 Grab Water**
**NA URSO**
**Sunol Pipeline SL0600100443 MW-2**

**LLI Sample # WW 6241956**
**LLI Group # 1239337**
**Account # 11875**

**Project Name: Sunol, CA**

Collected: 03/28/2011 14:05 by JQ

Submitted: 03/29/2011 09:45
Reported: 04/07/2011 13:57

Chevron Pipeline Co.
100 Northpark Blvd
Covington LA 70433

URS-2

| 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 |
| **GC Miscellaneous** | **SW-846 8015B modified** | | **ug/l** | **ug/l** | |
| 07105 | Methane | 74-82-8 | N.D. | 10 | 1 |
| | Due to interfering peaks on the chromatogram, the value reported for methane represents the lowest reporting limit attainable. | | | | |
| **Metals** | **SW-846 6010B** | | **ug/l** | **ug/l** | |
| 07058 | Manganese | 7439-96-5 | 0.93 | 0.84 | 1 |
| **Wet Chemistry** | **EPA 300.0** | | **ug/l** | **ug/l** | |
| 00368 | Nitrate Nitrogen | 14797-55-8 | 16,600 | 500 | 10 |
| 00228 | Sulfate | 14808-79-8 | 53,800 | 1,500 | 5 |
| | **SM20 2320 B** | | **ug/l as CaCO3** | **ug/l as CaCO3** | |
| 00202 | Alkalinity to pH 4.5 | n.a. | 304,000 | 460 | 1 |
| 00201 | Alkalinity to pH 8.3 | n.a. | N.D. | 460 | 1 |
| | **SM20 2540 C** | | **ug/l** | **ug/l** | |
| 00212 | Total Dissolved Solids | n.a. | 529,000 | 9,700 | 1 |
| | **SM20 3500 Fe B modified** | | **ug/l** | **ug/l** | |
| 08344 | Ferrous Iron | n.a. | 21 | 10 | 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 | F110892AA | 03/30/2011 14:31 | Anita M Dale | 1 |
| 01163 | GC/MS VOA Water Prep | SW-846 5030B | 1 | F110892AA | 03/30/2011 14:31 | Anita M Dale | 1 |
| 01728 | TPH-GRO N. CA water C6-C12 | SW-846 8015B | 1 | 11090A07A | 03/31/2011 16:46 | Elizabeth J Marin | 1 |

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# Analysis Report



**Sample Description: MW-2 Grab Water**
**NA URSO**
**Sunol Pipeline SL0600100443 MW-2**

**LLI Sample # WW 6241956**
**LLI Group # 1239337**
**Account # 11875**

**Project Name: Sunol, CA**

Collected: 03/28/2011 14:05 by JQ

Submitted: 03/29/2011 09:45
Reported: 04/07/2011 13:57

Chevron Pipeline Co.
100 Northpark Blvd
Covington LA 70433

URS-2

## Laboratory Sample Analysis Record

| CAT No. | Analysis Name | Method | Trial# | Batch# | Analysis Date and Time | Analyst | Dilution Factor |
|---|---|---|---|---|---|---|---|
| 01146 | GC VOA Water Prep | SW-846 5030B | 1 | 11090A07A | 03/31/2011 16:46 | Elizabeth J Marin | 1 |
| 07105 | Volatile Headspace Hydrocarbon | SW-846 8015B modified | 1 | 110910018A | 04/04/2011 17:42 | Elizabeth J Marin | 1 |
| 07058 | Manganese | SW-846 6010B | 1 | 110901848004 | 04/05/2011 02:30 | Tara L Snyder | 1 |
| 01848 | WW SW846 ICP Digest (tot rec) | SW-846 3005A | 1 | 110901848004 | 04/01/2011 10:03 | Denise K Conners | 1 |
| 00368 | Nitrate Nitrogen | EPA 300.0 | 1 | 11088196602A | 03/30/2011 10:33 | Ashley M Adams | 10 |
| 00228 | Sulfate | EPA 300.0 | 1 | 11088196602A | 03/30/2011 00:23 | Ashley M Adams | 5 |
| 00202 | Alkalinity to pH 4.5 | SM20 2320 B | 1 | 11090020201A | 03/31/2011 07:45 | Susan A Engle | 1 |
| 00201 | Alkalinity to pH 8.3 | SM20 2320 B | 1 | 11090020201A | 03/31/2011 07:45 | Susan A Engle | 1 |
| 00212 | Total Dissolved Solids | SM20 2540 C | 1 | 11090021201A | 03/31/2011 09:04 | Hannah M Royer | 1 |
| 08344 | Ferrous Iron | SM20 3500 Fe B modified | 1 | 11089834401A | 03/30/2011 19:15 | Daniel S Smith | 1 |

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# Analysis Report



**Sample Description:** MW-2_Filtered Grab Water
NA URSO
Sunol Pipeline SL0600100443 MW-2

**LLI Sample # WW 6241957**
**LLI Group # 1239337**
**Account # 11875**

**Project Name: Sunol, CA**

Collected: 03/28/2011 14:05 by JQ

Submitted: 03/29/2011 09:45
Reported: 04/07/2011 13:57

Chevron Pipeline Co.
100 Northpark Blvd
Covington LA 70433

| CAT No. | Analysis Name | CAS Number | As Received Result | As Received Method Detection Limit | Dilution Factor |
|---|---|---|---|---|---|
| **Metals Dissolved** | **SW-846 6010B** | | ug/l | ug/l | |
| 01754 | Iron | 7439-89-6 | N.D. | 52.2 | 1 |

## General Sample Comments

State of California Lab Certification No. 2501
This sample was filtered in the lab for dissolved metals.

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 |
|---|---|---|---|---|---|---|---|
| 01754 | Iron | SW-846 6010B | 1 | 110901848004 | 04/05/2011 02:33 | Tara L Snyder | 1 |
| 01848 | WW SW846 ICP Digest (tot rec) | SW-846 3005A | 1 | 110901848004 | 04/01/2011 10:03 | Denise K Conners | 1 |

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# Analysis Report



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

**LLI Sample #** WW 6241958
**LLI Group #** 1239337
**Account #** 11875

**Project Name: Sunol, CA**

Collected: 03/28/2011 15:17 by JQ

Submitted: 03/29/2011 09:45
Reported: 04/07/2011 13:57

Chevron Pipeline Co.
100 Northpark Blvd
Covington LA 70433

URS-3

| 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 |
| **GC Miscellaneous** | **SW-846 8015B modified** | | **ug/l** | **ug/l** | |
| 07105 | Methane | 74-82-8 | N.D. | 10 | 1 |
| | Due to interfering peaks on the chromatogram, the value reported for methane represents the lowest reporting limit attainable. | | | | |
| **Metals** | **SW-846 6010B** | | **ug/l** | **ug/l** | |
| 07058 | Manganese | 7439-96-5 | N.D. | 0.84 | 1 |
| **Wet Chemistry** | **EPA 300.0** | | **ug/l** | **ug/l** | |
| 00368 | Nitrate Nitrogen | 14797-55-8 | 12,800 | 250 | 5 |
| 00228 | Sulfate | 14808-79-8 | 46,300 | 1,500 | 5 |
| | **SM20 2320 B** | | **ug/l as CaCO3** | **ug/l as CaCO3** | |
| 00202 | Alkalinity to pH 4.5 | n.a. | 269,000 | 460 | 1 |
| 00201 | Alkalinity to pH 8.3 | n.a. | N.D. | 460 | 1 |
| | **SM20 2540 C** | | **ug/l** | **ug/l** | |
| 00212 | Total Dissolved Solids | n.a. | 454,000 | 9,700 | 1 |
| | **SM20 3500 Fe B modified** | | **ug/l** | **ug/l** | |
| 08344 | Ferrous Iron | n.a. | 26 | 10 | 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 | F110892AA | 03/30/2011 14:53 | Anita M Dale | 1 |
| 01163 | GC/MS VOA Water Prep | SW-846 5030B | 1 | F110892AA | 03/30/2011 14:53 | Anita M Dale | 1 |
| 01728 | TPH-GRO N. CA water C6-C12 | SW-846 8015B | 1 | 11090A07A | 03/31/2011 17:11 | Elizabeth J Marin | 1 |

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

**LLI Sample # WW 6241958**
**LLI Group # 1239337**
**Account # 11875**

**Project Name: Sunol, CA**

Collected: 03/28/2011 15:17 by JQ

Submitted: 03/29/2011 09:45
Reported: 04/07/2011 13:57

Chevron Pipeline Co.
100 Northpark Blvd
Covington LA 70433

URS-3

## Laboratory Sample Analysis Record

| CAT No. | Analysis Name | Method | Trial# | Batch# | Analysis Date and Time | Analyst | Dilution Factor |
|---|---|---|---|---|---|---|---|
| 01146 | GC VOA Water Prep | SW-846 5030B | 1 | 11090A07A | 03/31/2011 17:11 | Elizabeth J Marin | 1 |
| 07105 | Volatile Headspace Hydrocarbon | SW-846 8015B modified | 1 | 110910018A | 04/04/2011 17:57 | Elizabeth J Marin | 1 |
| 07058 | Manganese | SW-846 6010B | 1 | 110901848004 | 04/05/2011 02:36 | Tara L Snyder | 1 |
| 01848 | WW SW846 ICP Digest (tot rec) | SW-846 3005A | 1 | 110901848004 | 04/01/2011 10:03 | Denise K Conners | 1 |
| 00368 | Nitrate Nitrogen | EPA 300.0 | 1 | 11088196602A | 03/30/2011 00:38 | Ashley M Adams | 5 |
| 00228 | Sulfate | EPA 300.0 | 1 | 11088196602A | 03/30/2011 00:38 | Ashley M Adams | 5 |
| 00202 | Alkalinity to pH 4.5 | SM20 2320 B | 1 | 11090020201A | 03/31/2011 07:45 | Susan A Engle | 1 |
| 00201 | Alkalinity to pH 8.3 | SM20 2320 B | 1 | 11090020201A | 03/31/2011 07:45 | Susan A Engle | 1 |
| 00212 | Total Dissolved Solids | SM20 2540 C | 1 | 11090021201A | 03/31/2011 09:04 | Hannah M Royer | 1 |
| 08344 | Ferrous Iron | SM20 3500 Fe B modified | 1 | 11089834401A | 03/30/2011 19:15 | Daniel S Smith | 1 |

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# Analysis Report



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

**LLI Sample # WW 6241959**
**LLI Group # 1239337**
**Account # 11875**

**Project Name: Sunol, CA**

Collected: 03/28/2011 15:17 by JQ

Submitted: 03/29/2011 09:45
Reported: 04/07/2011 13:57

Chevron Pipeline Co.
100 Northpark Blvd
Covington LA 70433

| CAT No. | Analysis Name | CAS Number | As Received Result | As Received Method Detection Limit | Dilution Factor |
|---|---|---|---|---|---|
| **Metals Dissolved** | **SW-846 6010B** | | ug/l | ug/l | |
| 01754 | Iron | 7439-89-6 | N.D. | 52.2 | 1 |

## General Sample Comments

State of California Lab Certification No. 2501
This sample was filtered in the lab for dissolved metals.

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 |
|---|---|---|---|---|---|---|---|
| 01754 | Iron | SW-846 6010B | 1 | 110901848004 | 04/05/2011 02:40 | Tara L Snyder | 1 |
| 01848 | WW SW846 ICP Digest (tot rec) | SW-846 3005A | 1 | 110901848004 | 04/01/2011 10:03 | Denise K Conners | 1 |

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# Analysis Report



**Sample Description:** Trip Blank NA Water
NA URSO
Sunol Pipeline SL0600100443 Trip Blank

**LLI Sample # WW 6241960**
**LLI Group # 1239337**
**Account # 11875**

**Project Name: Sunol, CA**

Collected: 03/28/2011

Submitted: 03/29/2011 09:45
Reported: 04/07/2011 13:57

Chevron Pipeline Co.
100 Northpark Blvd
Covington LA 70433

URSTB

| 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 | F110892AA | 03/30/2011 15:15 | Anita M Dale | 1 |
| 01163 | GC/MS VOA Water Prep | SW-846 5030B | 1 | F110892AA | 03/30/2011 15:15 | Anita M Dale | 1 |
| 01728 | TPH-GRO N. CA water C6-C12 | SW-846 8015B | 1 | 11090A07A | 03/31/2011 12:59 | Elizabeth J Marin | 1 |
| 01146 | GC VOA Water Prep | SW-846 5030B | 1 | 11090A07A | 03/31/2011 12:59 | Elizabeth J Marin | 1 |

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# Analysis Report



## Quality Control Summary

Client Name: Chevron Pipeline Co. Group Number: 1239337
Reported: 04/07/11 at 01:57 PM

Matrix QC may not be reported if 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: F110892AA | Sample number(s): 6241952,6241954,6241956,6241958,6241960 | | | | | | | |
| Benzene | N.D. | 0.5 | ug/l | 95 | | 79-120 | | |
| Ethylbenzene | N.D. | 0.5 | ug/l | 94 | | 79-120 | | |
| Toluene | N.D. | 0.5 | ug/l | 93 | | 79-120 | | |
| Xylene (Total) | N.D. | 0.5 | ug/l | 95 | | 80-120 | | |
| Batch number: 11090A07A | Sample number(s): 6241952,6241954,6241956,6241958,6241960 | | | | | | | |
| TPH-GRO N. CA water C6-C12 | N.D. | 50. | ug/l | 109 | 109 | 75-135 | 0 | 30 |
| Batch number: 110910018A | Sample number(s): 6241952,6241954,6241956,6241958 | | | | | | | |
| Methane | N.D. | 10. | ug/l | 87 | | 80-120 | | |
| Batch number: 110901848004 | Sample number(s): 6241952-6241959 | | | | | | | |
| Iron | N.D. | 52.2 | ug/l | 106 | | 90-112 | | |
| Manganese | N.D. | 0.84 | ug/l | 103 | | 90-110 | | |
| Batch number: 11088196602A | Sample number(s): 6241952,6241954,6241956,6241958 | | | | | | | |
| Nitrate Nitrogen | N.D. | 50. | ug/l | 91 | | 90-110 | | |
| Sulfate | N.D. | 300. | ug/l | 99 | | 89-110 | | |
| Batch number: 11089834401A | Sample number(s): 6241952,6241954,6241956,6241958 | | | | | | | |
| Ferrous Iron | N.D. | 10. | ug/l | 99 | | 92-105 | | |
| Batch number: 11090020201A | Sample number(s): 6241952,6241954,6241956,6241958 | | | | | | | |
| Alkalinity to pH 4.5 | N.D. | 460. | ug/l as CaCO3 | 99 | | 98-103 | | |
| Batch number: 11090021201A | Sample number(s): 6241952,6241954,6241956,6241958 | | | | | | | |
| Total Dissolved Solids | N.D. | 9,700. | ug/l | 109 | | 80-120 | | |

## 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: F110892AA | Sample number(s): 6241952,6241954,6241956,6241958,6241960 UNSPK: P241911 | | | | | | | | |
| Benzene | 100 | 101 | 80-126 | 1 | 30 | | | | |
| Ethylbenzene | 99 | 101 | 71-134 | 2 | 30 | | | | |
| Toluene | 100 | 101 | 80-125 | 1 | 30 | | | | |
| Xylene (Total) | 101 | 102 | 79-125 | 1 | 30 | | | | |

*- 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: 1239337
Reported: 04/07/11 at 01:57 PM

### 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: 11090A07A | Sample number(s): 6241952,6241954,6241956,6241958,6241960 UNSPK: P242037 | | | | | | | | |
| TPH-GRO N. CA water C6-C12 | 118 | 118 | 63-154 | 0 | 30 | | | | |
| Batch number: 110910018A | Sample number(s): 6241952,6241954,6241956,6241958 UNSPK: 6241952 | | | | | | | | |
| Methane | 60 | 58 | 35-157 | 2 | 20 | | | | |
| Batch number: 110901848004 | Sample number(s): 6241952-6241959 UNSPK: P242863 BKG: P242863 | | | | | | | | |
| Iron | 129* | 108 | 75-125 | 4 | 20 | 3,780 | 3,690 | 2 | 20 |
| Manganese | 105 (2) | 75 (2) | 75-125 | 4 | 20 | 3,070 | 3,060 | 0 | 20 |
| Batch number: 11088196602A | Sample number(s): 6241952,6241954,6241956,6241958 UNSPK: P241491 BKG: P241491 | | | | | | | | |
| Nitrate Nitrogen | 109 | | 90-110 | | | N.D. | N.D. | 0 (1) | 20 |
| Sulfate | 109 | | 90-110 | | | 198,000 | 202,000 | 2 | 20 |
| Batch number: 11089834401A | Sample number(s): 6241952,6241954,6241956,6241958 UNSPK: P242609 BKG: P242609 | | | | | | | | |
| Ferrous Iron | 95 | 97 | 73-120 | 1 | 6 | 1,700 | 1,800 | 4 (1) | 5 |
| Batch number: 11090020201A | Sample number(s): 6241952,6241954,6241956,6241958 UNSPK: P242474 BKG: P242474 | | | | | | | | |
| Alkalinity to pH 4.5 | 53* | | 73-121 | | | 135,000 | 134,000 | 1 | 5 |
| Alkalinity to pH 8.3 | | | | | | N.D. | N.D. | 0 (1) | 5 |
| Batch number: 11090021201A | Sample number(s): 6241952,6241954,6241956,6241958 UNSPK: P242191 BKG: P242191 | | | | | | | | |
| Total Dissolved Solids | -130* | | 62-135 | | | 2,410,000 | 492,000 | 132* (1) | 9 |

### 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: F110892AA

| | Dibromofluoromethane | 1,2-Dichloroethane-d4 | Toluene-d8 | 4-Bromofluorobenzene |
|---|---|---|---|---|
| 6241952 | 101 | 100 | 97 | 88 |
| 6241954 | 100 | 103 | 97 | 88 |
| 6241956 | 100 | 101 | 96 | 88 |
| 6241958 | 100 | 103 | 97 | 87 |
| 6241960 | 101 | 102 | 95 | 87 |
| Blank | 97 | 101 | 98 | 89 |
| LCS | 97 | 100 | 98 | 97 |
| MS | 97 | 98 | 96 | 97 |
| MSD | 94 | 98 | 97 | 97 |
| Limits: | 80-116 | 77-113 | 80-113 | 78-113 |

Analysis Name: TPH-GRO N. CA water C6-C12
Batch number: 11090A07A

| | Trifluorotoluene-F |
|---|---|
| 6241952 | 87 |

*- 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: 1239337
Reported: 04/07/11 at 01:57 PM

## Surrogate Quality Control

| | |
|---|---|
| 6241954 | 88 |
| 6241956 | 84 |
| 6241958 | 85 |
| 6241960 | 89 |
| Blank | 88 |
| LCS | 97 |
| LCSD | 96 |
| MS | 97 |
| MSD | 93 |
| Limits: | 63-135 |

Analysis Name: Volatile Headspace Hydrocarbon
Batch number: 110910018A

| | Propene |
|---|---|
| 6241952 | 42 |
| 6241954 | 42 |
| 6241956 | 42 |
| 6241958 | 48 |
| Blank | 56 |
| LCS | 80 |
| MS | 48 |
| MSD | 48 |
| Limits: | 42-131 |

*- 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.

# Analysis Request/ Environmental Services Chain of Custody

Lancaster Laboratories

For Lancaster Laboratories use only

Acct. # 11875 Group# 123937 Sample # 624952-60

**COC #** 260453

Please print. Instructions on reverse side correspond with circled numbers.

(1) Client: Chevron Pipeline Company Acct. #:

Project Name/#: 26817159 00300 PWSID #:

Project Manager: Jacob Henry P.O.#: Same as project #

Sampler: Jeremy Quick / Ryan Kavanaugh Quote #:

Name of state where samples were collected: CA

For Lab Use Only
FSC:
SCR#: 103243

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

| (2) Sample Identification | Date Collected | Time Collected | (3) Grab | Composite | Matrix: Soil | Water | Other | (4) Total # of Containers | (5) Analyses Requested: BTEX (8260) H | TPH-GRO H | $NO_3$/$SO_4$ (300.0) | Methane (8015) H | TDS (160.1) | Alkalinity (310.1) | Ferrous Iron 3500Fe H | Manganese (6010B) N | Dissolved Iron (6010B) | Remarks |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MW-10 | 3/28 | 1130 | X | | | X | | | X | | | | | | | | X | |
| MW-11 | 3/28 | 1250 | X | | | X | | | X | | | | | | | | X | |
| MW-2 | 3/28 | 1405 | X | | | X | | | X | | | | | | | | X | |
| MW-3 | 3/28 | 1517 | X | | | X | | | X | | | | | | | | X | |
| Trip Blank | | | | | | | | | | | | | | | | | | Project Standard Analysis |

(6) Temperature of samples upon receipt (if requested)

(7) **Turnaround Time Requested** (TAT) (please circle): (Normal) Rush

(Rush TAT is subject to Lancaster Laboratories approval and surcharge.)

Date results are needed: project standard

Rush results requested by (please circle): Phone Fax E-mail

Phone #: 510-874-3252 Fax #:

E-mail address: jacob.henry@urscorp.com

(8) **Data Package Options** (please circle if required)

Type I (validation/NJ Reg)
Type II (Tier II) project standard
Type III (Reduced NJ)
Type IV (CLP SOW)
Type VI (Raw Data Only)

TX TRRP-13
MA MCP CT RCP

SDG Complete? Yes No

Site-specific QC (MS/MSD/Dup)? Yes No
(If yes, indicate QC sample and submit triplicate volume.)

Internal COC Required? Yes / No

(9)

| Relinquished by: | Date | Time | Received by: | Date | Time |
|---|---|---|---|---|---|
| Suyette Lehman | 3/31/11 | 7:00 | | | |
| Relinquished by: | Date | Time | Received by: | Date | Time |
| Relinquished by: | Date | Time | Received by: | Date | Time |
| Relinquished by: | Date | Time | Received by: | Date | Time |
| Relinquished by: | Date | Time | Received by: | 3/31/11 | 0930 |

# 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.

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# 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

April 11, 2011

Project: Sunol, CA

Submittal Date: 03/30/2011
Group Number: 1239556
PO Number: 0015052103
Release Number: TOURLOUKIS
State of Sample Origin: CA

| Client Sample Description | Lancaster Labs (LLI) # |
|---|---|
| MW-8 Grab Water | 6242888 |
| MW-8_Filtered Grab Water | 6242889 |
| MW-4 Grab Water | 6242890 |
| MW-4_Filtered Grab Water | 6242891 |
| MW-1 Grab Water | 6242892 |
| MW-1_Filtered Grab Water | 6242893 |
| MW-9 Grab Water | 6242894 |
| MW-9_Filtered Grab Water | 6242895 |
| MW-X Grab Water | 6242896 |
| Stream Grab Water | 6242898 |
| TB NA Water | 6242900 |

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

| | | |
|---|---|---|
| ELECTRONIC COPY TO | URS | Attn: Rachel Naccarati |
| ELECTRONIC COPY TO | URS | Attn: Jacob Henry |

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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

Lancaster Laboratories

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# Analysis Report



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

**LLI Sample #** WW 6242888
**LLI Group #** 1239556
**Account #** 11875

**Project Name: Sunol, CA**

Collected: 03/29/2011 09:15 by RK

Submitted: 03/30/2011 09:30
Reported: 04/11/2011 13:49

Chevron Pipeline Co.
100 Northpark Blvd
Covington LA 70433

SUN-8

| 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 | 1,600 | 5 | 10 |
| 10943 | Ethylbenzene | 100-41-4 | 2,000 | 5 | 10 |
| 10943 | Toluene | 108-88-3 | 7,500 | 50 | 100 |
| 10943 | Xylene (Total) | 1330-20-7 | 11,000 | 50 | 100 |
| **GC Volatiles** | **SW-846 8015B** | | ug/l | ug/l | |
| 01728 | TPH-GRO N. CA water C6-C12 | n.a. | 49,000 | 2,500 | 50 |
| **GC Miscellaneous** | **SW-846 8015B modified** | | ug/l | ug/l | |
| 07105 | Methane | 74-82-8 | 390 | 5.0 | 1 |
| **Metals** | **SW-846 6010B** | | ug/l | ug/l | |
| 07058 | Manganese | 7439-96-5 | 2,290 | 0.84 | 1 |
| **Wet Chemistry** | **EPA 300.0** | | ug/l | ug/l | |
| 00368 | Nitrate Nitrogen | 14797-55-8 | N.D. | 250 | 5 |
| 00228 | Sulfate | 14808-79-8 | 84,100 | 3,000 | 10 |
| | **SM20 2320 B** | | ug/l as CaCO3 | ug/l as CaCO3 | |
| 00202 | Alkalinity to pH 4.5 | n.a. | 680,000 | 460 | 1 |
| 00201 | Alkalinity to pH 8.3 | n.a. | N.D. | 460 | 1 |
| | **SM20 2540 C** | | ug/l | ug/l | |
| 00212 | Total Dissolved Solids | n.a. | 1,210,000 | 38,800 | 1 |
| | **SM20 3500 Fe B modified** | | ug/l | ug/l | |
| 08344 | Ferrous Iron | n.a. | 1,200 | 50 | 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 | F110902AA | 03/31/2011 17:05 | Anita M Dale | 10 |
| 10943 | BTEX 8260B Water | SW-846 8260B | 1 | F110902AA | 03/31/2011 17:26 | Anita M Dale | 100 |
| 01163 | GC/MS VOA Water Prep | SW-846 5030B | 1 | F110902AA | 03/31/2011 17:05 | Anita M Dale | 10 |
| 01163 | GC/MS VOA Water Prep | SW-846 5030B | 2 | F110902AA | 03/31/2011 17:26 | Anita M Dale | 100 |

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# Analysis Report



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

**LLI Sample # WW 6242888**
**LLI Group # 1239556**
**Account # 11875**

**Project Name: Sunol, CA**

Collected: 03/29/2011 09:15 by RK

Submitted: 03/30/2011 09:30
Reported: 04/11/2011 13:49

Chevron Pipeline Co.
100 Northpark Blvd
Covington LA 70433

SUN-8

## Laboratory Sample Analysis Record

| CAT No. | Analysis Name | Method | Trial# | Batch# | Analysis Date and Time | Analyst | Dilution Factor |
|---|---|---|---|---|---|---|---|
| 01728 | TPH-GRO N. CA water C6-C12 | SW-846 8015B | 1 | 11094B07A | 04/05/2011 09:23 | Elizabeth J Marin | 50 |
| 01146 | GC VOA Water Prep | SW-846 5030B | 1 | 11094B07A | 04/05/2011 09:23 | Elizabeth J Marin | 50 |
| 07105 | Volatile Headspace Hydrocarbon | SW-846 8015B modified | 1 | 110910018A | 04/05/2011 20:01 | Elizabeth J Marin | 1 |
| 07058 | Manganese | SW-846 6010B | 1 | 110901848006 | 04/04/2011 15:57 | Eric L Eby | 1 |
| 01848 | WW SW846 ICP Digest (tot rec) | SW-846 3005A | 1 | 110901848006 | 04/01/2011 10:26 | Denise K Conners | 1 |
| 00368 | Nitrate Nitrogen | EPA 300.0 | 1 | 11089196603B | 03/31/2011 00:37 | Ashley M Adams | 5 |
| 00228 | Sulfate | EPA 300.0 | 1 | 11089196603B | 03/31/2011 15:05 | Ashley M Adams | 10 |
| 00202 | Alkalinity to pH 4.5 | SM20 2320 B | 1 | 11092020201A | 04/02/2011 06:30 | Susan A Engle | 1 |
| 00201 | Alkalinity to pH 8.3 | SM20 2320 B | 1 | 11092020201A | 04/02/2011 06:30 | Susan A Engle | 1 |
| 00212 | Total Dissolved Solids | SM20 2540 C | 1 | 11090021202A | 03/31/2011 11:11 | Yolunder Y Bunch | 1 |
| 08344 | Ferrous Iron | SM20 3500 Fe B modified | 1 | 11090834401A | 03/31/2011 21:15 | Daniel S Smith | 5 |

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# Analysis Report



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

**LLI Sample # WW 6242889**
**LLI Group # 1239556**
**Account # 11875**

**Project Name: Sunol, CA**

Collected: 03/29/2011 09:15 by RK

Submitted: 03/30/2011 09:30
Reported: 04/11/2011 13:49

Chevron Pipeline Co.
100 Northpark Blvd
Covington LA 70433

| CAT No. | Analysis Name | CAS Number | As Received Result | As Received Method Detection Limit | Dilution Factor |
|---|---|---|---|---|---|
| **Metals Dissolved** | **SW-846 6010B** | | ug/l | ug/l | |
| 01754 | Iron | 7439-89-6 | 413 | 52.2 | 1 |

## General Sample Comments

State of California Lab Certification No. 2501
This sample was filtered in the lab for dissolved metals.

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 |
|---|---|---|---|---|---|---|---|
| 01754 | Iron | SW-846 6010B | 1 | 110901848006 | 04/04/2011 16:01 | Eric L Eby | 1 |
| 01848 | WW SW846 ICP Digest (tot rec) | SW-846 3005A | 1 | 110901848006 | 04/01/2011 10:26 | Denise K Conners | 1 |

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# Analysis Report



**Sample Description: MW-4 Grab Water**
**NA URSO**
**Sunol Pipeline SL0600100443 MW-4**

**LLI Sample # WW 6242890**
**LLI Group # 1239556**
**Account # 11875**

**Project Name: Sunol, CA**

Collected: 03/29/2011 10:25 by RK

Submitted: 03/30/2011 09:30
Reported: 04/11/2011 13:49

Chevron Pipeline Co.
100 Northpark Blvd
Covington LA 70433

SUN-4

| 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 |
| **GC Miscellaneous** | **SW-846 8015B modified** | | **ug/l** | **ug/l** | |
| 07105 | Methane | 74-82-8 | N.D. | 10 | 1 |
| | Due to interfering peaks on the chromatogram, the value reported for methane represents the lowest reporting limit attainable. | | | | |
| **Metals** | **SW-846 6010B** | | **ug/l** | **ug/l** | |
| 07058 | Manganese | 7439-96-5 | 18.2 | 0.84 | 1 |
| **Wet Chemistry** | **EPA 300.0** | | **ug/l** | **ug/l** | |
| 00368 | Nitrate Nitrogen | 14797-55-8 | 12,000 | 250 | 5 |
| 00228 | Sulfate | 14808-79-8 | 59,500 | 1,500 | 5 |
| | **SM20 2320 B** | | **ug/l as CaCO3** | **ug/l as CaCO3** | |
| 00202 | Alkalinity to pH 4.5 | n.a. | 290,000 | 460 | 1 |
| 00201 | Alkalinity to pH 8.3 | n.a. | N.D. | 460 | 1 |
| | **SM20 2540 C** | | **ug/l** | **ug/l** | |
| 00212 | Total Dissolved Solids | n.a. | 488,000 | 9,700 | 1 |
| | **SM20 3500 Fe B modified** | | **ug/l** | **ug/l** | |
| 08344 | Ferrous Iron | n.a. | 32 | 10 | 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 | F110902AA | 03/31/2011 17:48 | Anita M Dale | 1 |
| 01163 | GC/MS VOA Water Prep | SW-846 5030B | 1 | F110902AA | 03/31/2011 17:48 | Anita M Dale | 1 |
| 01728 | TPH-GRO N. CA water C6-C12 | SW-846 8015B | 1 | 11094B07A | 04/05/2011 08:08 | Elizabeth J Marin | 1 |

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# Analysis Report



**Sample Description: MW-4 Grab Water**
**NA URSO**
**Sunol Pipeline SL0600100443 MW-4**

**LLI Sample # WW 6242890**
**LLI Group # 1239556**
**Account # 11875**

**Project Name: Sunol, CA**

Collected: 03/29/2011 10:25 by RK

Submitted: 03/30/2011 09:30
Reported: 04/11/2011 13:49

Chevron Pipeline Co.
100 Northpark Blvd
Covington LA 70433

SUN-4

## Laboratory Sample Analysis Record

| CAT No. | Analysis Name | Method | Trial# | Batch# | Analysis Date and Time | Analyst | Dilution Factor |
|---|---|---|---|---|---|---|---|
| 01146 | GC VOA Water Prep | SW-846 5030B | 1 | 11094B07A | 04/05/2011 08:08 | Elizabeth J Marin | 1 |
| 07105 | Volatile Headspace Hydrocarbon | SW-846 8015B modified | 1 | 110910018A | 04/04/2011 19:30 | Elizabeth J Marin | 1 |
| 07058 | Manganese | SW-846 6010B | 1 | 110901848006 | 04/04/2011 16:04 | Eric L Eby | 1 |
| 01848 | WW SW846 ICP Digest (tot rec) | SW-846 3005A | 1 | 110901848006 | 04/01/2011 10:26 | Denise K Conners | 1 |
| 00368 | Nitrate Nitrogen | EPA 300.0 | 1 | 11089196603B | 03/31/2011 01:20 | Ashley M Adams | 5 |
| 00228 | Sulfate | EPA 300.0 | 1 | 11089196603B | 03/31/2011 01:20 | Ashley M Adams | 5 |
| 00202 | Alkalinity to pH 4.5 | SM20 2320 B | 1 | 11092020201A | 04/02/2011 06:30 | Susan A Engle | 1 |
| 00201 | Alkalinity to pH 8.3 | SM20 2320 B | 1 | 11092020201A | 04/02/2011 06:30 | Susan A Engle | 1 |
| 00212 | Total Dissolved Solids | SM20 2540 C | 1 | 11090021202A | 03/31/2011 11:11 | Yolunder Y Bunch | 1 |
| 08344 | Ferrous Iron | SM20 3500 Fe B modified | 1 | 11090834401A | 03/31/2011 21:15 | Daniel S Smith | 1 |

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# Analysis Report



**Sample Description:** MW-4_Filtered Grab Water
NA URSO
Sunol Pipeline SL0600100443 MW-4

**LLI Sample # WW 6242891**
**LLI Group # 1239556**
**Account # 11875**

**Project Name: Sunol, CA**

Collected: 03/29/2011 10:25 by RK

Submitted: 03/30/2011 09:30
Reported: 04/11/2011 13:49

Chevron Pipeline Co.
100 Northpark Blvd
Covington LA 70433

| CAT No. | Analysis Name | CAS Number | As Received Result | As Received Method Detection Limit | Dilution Factor |
|---|---|---|---|---|---|
| **Metals Dissolved** | **SW-846 6010B** | | ug/l | ug/l | |
| 01754 | Iron | 7439-89-6 | N.D. | 52.2 | 1 |

## General Sample Comments

State of California Lab Certification No. 2501
This sample was filtered in the lab for dissolved metals.

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 |
|---|---|---|---|---|---|---|---|
| 01754 | Iron | SW-846 6010B | 1 | 110901848006 | 04/04/2011 16:08 | Eric L Eby | 1 |
| 01848 | WW SW846 ICP Digest (tot rec) | SW-846 3005A | 1 | 110901848006 | 04/01/2011 10:26 | Denise K Conners | 1 |

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# Analysis Report



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

**LLI Sample # WW 6242892**
**LLI Group # 1239556**
**Account # 11875**

**Project Name: Sunol, CA**

Collected: 03/29/2011 11:23 by RK

Submitted: 03/30/2011 09:30
Reported: 04/11/2011 13:49

Chevron Pipeline Co.
100 Northpark Blvd
Covington LA 70433

SUN-1

| 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. | 1,200 | 50 | 1 |
| **GC Miscellaneous** | **SW-846 8015B modified** | | **ug/l** | **ug/l** | |
| 07105 | Methane | 74-82-8 | 12 | 5.0 | 1 |
| **Metals** | **SW-846 6010B** | | **ug/l** | **ug/l** | |
| 07058 | Manganese | 7439-96-5 | 207 | 0.84 | 1 |
| **Wet Chemistry** | **EPA 300.0** | | **ug/l** | **ug/l** | |
| 00368 | Nitrate Nitrogen | 14797-55-8 | 9,000 | 250 | 5 |
| 00228 | Sulfate | 14808-79-8 | 49,400 | 1,500 | 5 |
| | **SM20 2320 B** | | **ug/l as CaCO3** | **ug/l as CaCO3** | |
| 00202 | Alkalinity to pH 4.5 | n.a. | 327,000 | 460 | 1 |
| 00201 | Alkalinity to pH 8.3 | n.a. | N.D. | 460 | 1 |
| | **SM20 2540 C** | | **ug/l** | **ug/l** | |
| 00212 | Total Dissolved Solids | n.a. | 532,000 | 9,700 | 1 |
| | **SM20 3500 Fe B modified** | | **ug/l** | **ug/l** | |
| 08344 | Ferrous Iron | n.a. | N.D. | 10 | 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 | F110902AA | 03/31/2011 18:09 | Anita M Dale | 1 |
| 01163 | GC/MS VOA Water Prep | SW-846 5030B | 1 | F110902AA | 03/31/2011 18:09 | Anita M Dale | 1 |
| 01728 | TPH-GRO N. CA water C6-C12 | SW-846 8015B | 1 | 11094B07A | 04/05/2011 08:33 | Elizabeth J Marin | 1 |
| 01146 | GC VOA Water Prep | SW-846 5030B | 1 | 11094B07A | 04/05/2011 08:33 | Elizabeth J Marin | 1 |

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# Analysis Report



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

**LLI Sample # WW 6242892**
**LLI Group # 1239556**
**Account # 11875**

**Project Name: Sunol, CA**

Collected: 03/29/2011 11:23 by RK

Submitted: 03/30/2011 09:30
Reported: 04/11/2011 13:49

Chevron Pipeline Co.
100 Northpark Blvd
Covington LA 70433

SUN-1

## Laboratory Sample Analysis Record

| CAT No. | Analysis Name | Method | Trial# | Batch# | Analysis Date and Time | Analyst | Dilution Factor |
|---|---|---|---|---|---|---|---|
| 07105 | Volatile Headspace Hydrocarbon | SW-846 8015B modified | 1 | 110910018A | 04/05/2011 20:18 | Elizabeth J Marin | 1 |
| 07058 | Manganese | SW-846 6010B | 1 | 110901848006 | 04/04/2011 14:42 | Eric L Eby | 1 |
| 01848 | WW SW846 ICP Digest (tot rec) | SW-846 3005A | 1 | 110901848006 | 04/01/2011 10:26 | Denise K Conners | 1 |
| 00368 | Nitrate Nitrogen | EPA 300.0 | 1 | 11089196603B | 03/31/2011 01:34 | Ashley M Adams | 5 |
| 00228 | Sulfate | EPA 300.0 | 1 | 11089196603B | 03/31/2011 01:34 | Ashley M Adams | 5 |
| 00202 | Alkalinity to pH 4.5 | SM20 2320 B | 1 | 11092020201A | 04/02/2011 06:30 | Susan A Engle | 1 |
| 00201 | Alkalinity to pH 8.3 | SM20 2320 B | 1 | 11092020201A | 04/02/2011 06:30 | Susan A Engle | 1 |
| 00212 | Total Dissolved Solids | SM20 2540 C | 1 | 11090021202A | 03/31/2011 11:11 | Yolunder Y Bunch | 1 |
| 08344 | Ferrous Iron | SM20 3500 Fe B modified | 1 | 11090834401A | 03/31/2011 21:15 | Daniel S Smith | 1 |

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# Analysis Report



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

**LLI Sample # WW 6242893**
**LLI Group # 1239556**
**Account # 11875**

**Project Name: Sunol, CA**

Collected: 03/29/2011 11:23 by RK

Submitted: 03/30/2011 09:30
Reported: 04/11/2011 13:49

Chevron Pipeline Co.
100 Northpark Blvd
Covington LA 70433

| CAT No. | Analysis Name | CAS Number | As Received Result | As Received Method Detection Limit | Dilution Factor |
|---|---|---|---|---|---|
| **Metals Dissolved** | **SW-846 6010B** | | ug/l | ug/l | |
| 01754 | Iron | 7439-89-6 | N.D. | 52.2 | 1 |

## General Sample Comments

State of California Lab Certification No. 2501
This sample was filtered in the lab for dissolved metals.

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 |
|---|---|---|---|---|---|---|---|
| 01754 | Iron | SW-846 6010B | 1 | 110901848006 | 04/04/2011 16:11 | Eric L Eby | 1 |
| 01848 | WW SW846 ICP Digest (tot rec) | SW-846 3005A | 1 | 110901848006 | 04/01/2011 10:26 | Denise K Conners | 1 |

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# Analysis Report



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

**LLI Sample #** WW 6242894
**LLI Group #** 1239556
**Account #** 11875

**Project Name: Sunol, CA**

Collected: 03/29/2011 12:47 by RK

Submitted: 03/30/2011 09:30
Reported: 04/11/2011 13:49

Chevron Pipeline Co.
100 Northpark Blvd
Covington LA 70433

SUN-9

| 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 | 0.8 | 0.5 | 1 |
| 10943 | Ethylbenzene | 100-41-4 | 44 | 0.5 | 1 |
| 10943 | Toluene | 108-88-3 | 0.9 | 0.5 | 1 |
| 10943 | Xylene (Total) | 1330-20-7 | 190 | 0.5 | 1 |
| **GC Volatiles** | **SW-846 8015B** | | ug/l | ug/l | |
| 01728 | TPH-GRO N. CA water C6-C12 | n.a. | 7,100 | 250 | 5 |
| **GC Miscellaneous** | **SW-846 8015B modified** | | ug/l | ug/l | |
| 07105 | Methane | 74-82-8 | 18 | 5.0 | 1 |
| **Metals** | **SW-846 6010B** | | ug/l | ug/l | |
| 07058 | Manganese | 7439-96-5 | 1,580 | 0.84 | 1 |
| **Wet Chemistry** | **EPA 300.0** | | ug/l | ug/l | |
| 00368 | Nitrate Nitrogen | 14797-55-8 | 6,400 | 250 | 5 |
| 00228 | Sulfate | 14808-79-8 | 62,500 | 1,500 | 5 |
| | **SM20 2320 B** | | ug/l as CaCO3 | ug/l as CaCO3 | |
| 00202 | Alkalinity to pH 4.5 | n.a. | 396,000 | 460 | 1 |
| 00201 | Alkalinity to pH 8.3 | n.a. | N.D. | 460 | 1 |
| | **SM20 2540 C** | | ug/l | ug/l | |
| 00212 | Total Dissolved Solids | n.a. | 608,000 | 19,400 | 1 |
| | **SM20 3500 Fe B modified** | | ug/l | ug/l | |
| 08344 | Ferrous Iron | n.a. | 43 | 10 | 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 | F110902AA | 03/31/2011 18:31 | Anita M Dale | 1 |
| 01163 | GC/MS VOA Water Prep | SW-846 5030B | 1 | F110902AA | 03/31/2011 18:31 | Anita M Dale | 1 |
| 01728 | TPH-GRO N. CA water C6-C12 | SW-846 8015B | 1 | 11094B07A | 04/05/2011 10:42 | Elizabeth J Marin | 5 |
| 01146 | GC VOA Water Prep | SW-846 5030B | 1 | 11094B07A | 04/05/2011 10:42 | Elizabeth J Marin | 5 |

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# Analysis Report



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

**LLI Sample # WW 6242894**
**LLI Group # 1239556**
**Account # 11875**

**Project Name: Sunol, CA**

Collected: 03/29/2011 12:47 by RK

Submitted: 03/30/2011 09:30
Reported: 04/11/2011 13:49

Chevron Pipeline Co.
100 Northpark Blvd
Covington LA 70433

SUN-9

## Laboratory Sample Analysis Record

| CAT No. | Analysis Name | Method | Trial# | Batch# | Analysis Date and Time | Analyst | Dilution Factor |
|---|---|---|---|---|---|---|---|
| 07105 | Volatile Headspace Hydrocarbon | SW-846 8015B modified | 1 | 110910018A | 04/05/2011 20:34 | Elizabeth J Marin | 1 |
| 07058 | Manganese | SW-846 6010B | 1 | 110901848006 | 04/04/2011 16:15 | Eric L Eby | 1 |
| 01848 | WW SW846 ICP Digest (tot rec) | SW-846 3005A | 1 | 110901848006 | 04/01/2011 10:26 | Denise K Conners | 1 |
| 00368 | Nitrate Nitrogen | EPA 300.0 | 1 | 11089196603B | 03/31/2011 02:16 | Ashley M Adams | 5 |
| 00228 | Sulfate | EPA 300.0 | 1 | 11089196603B | 03/31/2011 02:16 | Ashley M Adams | 5 |
| 00202 | Alkalinity to pH 4.5 | SM20 2320 B | 1 | 11092020201A | 04/02/2011 06:30 | Susan A Engle | 1 |
| 00201 | Alkalinity to pH 8.3 | SM20 2320 B | 1 | 11092020201A | 04/02/2011 06:30 | Susan A Engle | 1 |
| 00212 | Total Dissolved Solids | SM20 2540 C | 1 | 11090021202A | 03/31/2011 11:11 | Yolunder Y Bunch | 1 |
| 08344 | Ferrous Iron | SM20 3500 Fe B modified | 1 | 11090834401A | 03/31/2011 21:15 | Daniel S Smith | 1 |

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# Analysis Report



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

**LLI Sample # WW 6242895**
**LLI Group # 1239556**
**Account # 11875**

**Project Name: Sunol, CA**

Collected: 03/29/2011 12:47 by RK

Submitted: 03/30/2011 09:30
Reported: 04/11/2011 13:49

Chevron Pipeline Co.
100 Northpark Blvd
Covington LA 70433

| CAT No. | Analysis Name | CAS Number | As Received Result | As Received Method Detection Limit | Dilution Factor |
|---|---|---|---|---|---|
| **Metals Dissolved** | **SW-846 6010B** | | ug/l | ug/l | |
| 01754 | Iron | 7439-89-6 | N.D. | 52.2 | 1 |

## General Sample Comments

State of California Lab Certification No. 2501
This sample was filtered in the lab for dissolved metals.

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 |
|---|---|---|---|---|---|---|---|
| 01754 | Iron | SW-846 6010B | 1 | 110901848006 | 04/04/2011 16:18 | Eric L Eby | 1 |
| 01848 | WW SW846 ICP Digest (tot rec) | SW-846 3005A | 1 | 110901848006 | 04/01/2011 10:26 | Denise K Conners | 1 |

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# Analysis Report



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

**LLI Sample # WW 6242896**
**LLI Group # 1239556**
**Account # 11875**

**Project Name: Sunol, CA**

Collected: 03/29/2011 12:47 by RK

Submitted: 03/30/2011 09:30
Reported: 04/11/2011 13:49

Chevron Pipeline Co.
100 Northpark Blvd
Covington LA 70433

SUN-X

| 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 | 0.8 | 0.5 | 1 |
| 10943 | Ethylbenzene | 100-41-4 | 45 | 0.5 | 1 |
| 10943 | Toluene | 108-88-3 | 1 | 0.5 | 1 |
| 10943 | Xylene (Total) | 1330-20-7 | 190 | 0.5 | 1 |
| **GC Volatiles** | **SW-846 8015B** | | ug/l | ug/l | |
| 01728 | TPH-GRO N. CA water C6-C12 | n.a. | 7,100 | 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 | F110902AA | 03/31/2011 18:53 | Anita M Dale | 1 |
| 01163 | GC/MS VOA Water Prep | SW-846 5030B | 1 | F110902AA | 03/31/2011 18:53 | Anita M Dale | 1 |
| 01728 | TPH-GRO N. CA water C6-C12 | SW-846 8015B | 1 | 11095A20A | 04/05/2011 18:18 | Elizabeth J Marin | 5 |
| 01146 | GC VOA Water Prep | SW-846 5030B | 1 | 11095A20A | 04/05/2011 18:18 | Elizabeth J Marin | 5 |

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# Analysis Report



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

**LLI Sample # WW 6242898**
**LLI Group # 1239556**
**Account # 11875**

**Project Name: Sunol, CA**

Collected: 03/29/2011 13:45 by RK

Submitted: 03/30/2011 09:30
Reported: 04/11/2011 13:49

Chevron Pipeline Co.
100 Northpark Blvd
Covington LA 70433

STREA

| 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 | F110904AA | 03/31/2011 22:17 | Kelly E Keller | 1 |
| 01163 | GC/MS VOA Water Prep | SW-846 5030B | 1 | F110904AA | 03/31/2011 22:17 | Kelly E Keller | 1 |
| 01728 | TPH-GRO N. CA water C6-C12 | SW-846 8015B | 1 | 11095A20A | 04/05/2011 11:24 | Elizabeth J Marin | 1 |
| 01146 | GC VOA Water Prep | SW-846 5030B | 1 | 11095A20A | 04/05/2011 11:24 | Elizabeth J Marin | 1 |

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# Analysis Report



**Sample Description:** TB NA Water
NA URSO
Sunol Pipeline SL0600100443 TB

**LLI Sample # WW 6242900**
**LLI Group # 1239556**
**Account # 11875**

**Project Name: Sunol, CA**

Collected: 03/29/2011

Submitted: 03/30/2011 09:30
Reported: 04/11/2011 13:49

Chevron Pipeline Co.
100 Northpark Blvd
Covington LA 70433

SUNT-

| 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 | F110904AA | 03/31/2011 23:23 | Kelly E Keller | 1 |
| 01163 | GC/MS VOA Water Prep | SW-846 5030B | 1 | F110904AA | 03/31/2011 23:23 | Kelly E Keller | 1 |
| 01728 | TPH-GRO N. CA water C6-C12 | SW-846 8015B | 1 | 11095A20A | 04/05/2011 10:40 | Elizabeth J Marin | 1 |
| 01146 | GC VOA Water Prep | SW-846 5030B | 1 | 11095A20A | 04/05/2011 10:40 | Elizabeth J Marin | 1 |

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# Analysis Report



## Quality Control Summary

Client Name: Chevron Pipeline Co. Group Number: 1239556
Reported: 04/11/11 at 01:49 PM

Matrix QC may not be reported if 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: F110902AA | Sample number(s): 6242888,6242890,6242892,6242894,6242896 | | | | | | | |
| Benzene | N.D. | 0.5 | ug/l | 97 | | 79-120 | | |
| Ethylbenzene | N.D. | 0.5 | ug/l | 95 | | 79-120 | | |
| Toluene | N.D. | 0.5 | ug/l | 96 | | 79-120 | | |
| Xylene (Total) | N.D. | 0.5 | ug/l | 96 | | 80-120 | | |
| Batch number: F110904AA | Sample number(s): 6242898,6242900 | | | | | | | |
| Benzene | N.D. | 0.5 | ug/l | 95 | | 79-120 | | |
| Ethylbenzene | N.D. | 0.5 | ug/l | 94 | | 79-120 | | |
| Toluene | N.D. | 0.5 | ug/l | 95 | | 79-120 | | |
| Xylene (Total) | N.D. | 0.5 | ug/l | 97 | | 80-120 | | |
| Batch number: 11094B07A | Sample number(s): 6242888,6242890,6242892,6242894 | | | | | | | |
| TPH-GRO N. CA water C6-C12 | N.D. | 50. | ug/l | 100 | 109 | 75-135 | 9 | 30 |
| Batch number: 11095A20A | Sample number(s): 6242896,6242898,6242900 | | | | | | | |
| TPH-GRO N. CA water C6-C12 | N.D. | 50. | ug/l | 109 | 127 | 75-135 | 15 | 30 |
| Batch number: 110910018A | Sample number(s): 6242888,6242890,6242892,6242894 | | | | | | | |
| Methane | N.D. | 10. | ug/l | 87 | | 80-120 | | |
| Batch number: 110901848006 | Sample number(s): 6242888-6242895 | | | | | | | |
| Iron | N.D. | 52.2 | ug/l | 105 | | 90-112 | | |
| Manganese | N.D. | 0.84 | ug/l | 104 | | 90-110 | | |
| Batch number: 11089196603B | Sample number(s): 6242888,6242890,6242892,6242894 | | | | | | | |
| Nitrate Nitrogen | N.D. | 50. | ug/l | 94 | | 90-110 | | |
| Sulfate | N.D. | 300. | ug/l | 104 | | 89-110 | | |
| Batch number: 11090021202A | Sample number(s): 6242888,6242890,6242892,6242894 | | | | | | | |
| Total Dissolved Solids | N.D. | 9,700. | ug/l | 105 | | 80-120 | | |
| Batch number: 11090834401A | Sample number(s): 6242888,6242890,6242892,6242894 | | | | | | | |
| Ferrous Iron | N.D. | 10. | ug/l | 101 | | 92-105 | | |
| Batch number: 11092020201A | Sample number(s): 6242888,6242890,6242892,6242894 | | | | | | | |
| Alkalinity to pH 4.5 | N.D. | 460. | ug/l as CaCO3 | 100 | | 98-103 | | |

## 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

*- 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: 1239556
Reported: 04/11/11 at 01:49 PM

| Analysis Name | MS %REC | MSD %REC | MS/MSD Limits | RPD | RPD MAX | BKG Conc | DUP Conc | DUP RPD | Dup RPD Max |
|---|---|---|---|---|---|---|---|---|---|
| Batch number: F110902AA | Sample number(s): 6242888,6242890,6242892,6242894,6242896 UNSPK: P242752 | | | | | | | | |
| Benzene | 102 | 97 | 80-126 | 4 | 30 | | | | |
| Ethylbenzene | 100 | 96 | 71-134 | 3 | 30 | | | | |
| Toluene | 100 | 96 | 80-125 | 4 | 30 | | | | |
| Xylene (Total) | 101 | 98 | 79-125 | 3 | 30 | | | | |
| Batch number: F110904AA | Sample number(s): 6242898,6242900 UNSPK: 6242898 | | | | | | | | |
| Benzene | 101 | 101 | 80-126 | 1 | 30 | | | | |
| Ethylbenzene | 98 | 101 | 71-134 | 2 | 30 | | | | |
| Toluene | 99 | 101 | 80-125 | 2 | 30 | | | | |
| Xylene (Total) | 100 | 103 | 79-125 | 2 | 30 | | | | |
| Batch number: 110910018A | Sample number(s): 6242888,6242890,6242892,6242894 UNSPK: P241952 | | | | | | | | |
| Methane | 60 | 58 | 35-157 | 2 | 20 | | | | |
| Batch number: 110901848006 | Sample number(s): 6242888-6242895 UNSPK: 6242892 BKG: 6242892 | | | | | | | | |
| Iron | 100 | 99 | 75-125 | 1 | 20 | 431 | 420 | 3 (1) | 20 |
| Manganese | 102 | 101 | 75-125 | 1 | 20 | 207 | 207 | 0 | 20 |
| Batch number: 11089196603B | Sample number(s): 6242888,6242890,6242892,6242894 UNSPK: 6242888 BKG: 6242888 | | | | | | | | |
| Nitrate Nitrogen | 86* | | 90-110 | | | N.D. | N.D. | 0 (1) | 20 |
| Sulfate | 99 | | 90-110 | | | 84,100 | 86,200 | 2 | 20 |
| Batch number: 11090021202A | Sample number(s): 6242888,6242890,6242892,6242894 UNSPK: P243655 BKG: P243655 | | | | | | | | |
| Total Dissolved Solids | 95 | | 62-135 | | | 1,200,000 | 1,160,000 | 4 | 9 |
| Batch number: 11090834401A | Sample number(s): 6242888,6242890,6242892,6242894 UNSPK: P243868 BKG: P243868 | | | | | | | | |
| Ferrous Iron | 95 | 92 | 73-120 | 2 | 6 | 118,000 | 117,000 | 1 (1) | 5 |
| Batch number: 11092020201A | Sample number(s): 6242888,6242890,6242892,6242894 UNSPK: P243868 BKG: 6242890 | | | | | | | | |
| Alkalinity to pH 4.5 | 52* | 47* | 73-121 | 4 | 5 | 290,000 | 291,000 | 0 | 5 |
| Alkalinity to pH 8.3 | | | | | | N.D. | N.D. | 0 (1) | 5 |

## 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: F110902AA

| | Dibromofluoromethane | 1,2-Dichloroethane-d4 | Toluene-d8 | 4-Bromofluorobenzene |
|---|---|---|---|---|
| 6242888 | 94 | 97 | 96 | 101 |
| 6242890 | 99 | 103 | 95 | 89 |
| 6242892 | 96 | 100 | 98 | 92 |
| 6242894 | 94 | 96 | 97 | 99 |
| 6242896 | 93 | 95 | 98 | 99 |
| Blank | 97 | 101 | 97 | 90 |
| LCS | 96 | 99 | 96 | 99 |
| MS | 96 | 100 | 95 | 100 |
| MSD | 94 | 98 | 97 | 100 |
| Limits: | 80-116 | 77-113 | 80-113 | 78-113 |

*- 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: 1239556
Reported: 04/11/11 at 01:49 PM

## Surrogate Quality Control

Analysis Name: UST VOCs by 8260B - Water
Batch number: F110904AA

| | Dibromofluoromethane | 1,2-Dichloroethane-d4 | Toluene-d8 | 4-Bromofluorobenzene |
|---|---|---|---|---|
| 6242898 | 97 | 102 | 96 | 90 |
| 6242900 | 97 | 99 | 97 | 91 |
| Blank | 98 | 100 | 95 | 88 |
| LCS | 96 | 100 | 96 | 100 |
| MS | 94 | 100 | 96 | 98 |
| MSD | 94 | 98 | 95 | 100 |
| Limits: | 80-116 | 77-113 | 80-113 | 78-113 |

Analysis Name: TPH-GRO N. CA water C6-C12
Batch number: 11094B07A

| | Trifluorotoluene-F |
|---|---|
| 6242888 | 89 |
| 6242890 | 85 |
| 6242892 | 97 |
| 6242894 | 92 |
| Blank | 86 |
| LCS | 93 |
| LCSD | 96 |
| Limits: | 63-135 |

Analysis Name: TPH-GRO N. CA water C6-C12
Batch number: 11095A20A

| | Trifluorotoluene-F |
|---|---|
| 6242896 | 87 |
| 6242898 | 73 |
| 6242900 | 76 |
| Blank | 76 |
| LCS | 116 |
| LCSD | 119 |
| Limits: | 63-135 |

Analysis Name: Volatile Headspace Hydrocarbon
Batch number: 110910018A

| | Propene |
|---|---|
| 6242888 | 41* |
| 6242890 | 44 |
| 6242892 | 46 |
| 6242894 | 45 |
| Blank | 56 |
| LCS | 80 |
| MS | 48 |
| MSD | 48 |
| Limits: | 42-131 |

*- 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: 1239556
Reported: 04/11/11 at 01:49 PM

*- 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.

# Analysis Request/ Environmental Services Chain of Custody

Lancaster Laboratories

For Lancaster Laboratories use only

Acct. # 11875 Group# 1239556 Sample # 6242888-900

**COC #** 213550

Please print. Instructions on reverse side correspond with circled numbers.

(1) Client: Chevron Pipeline Company Acct. #:

Project Name/#: PWSID #:

Project Manager: Jacob Henry P.O.#:

Sampler: Ram Kannappan / Jeremy Quick Quote #:

Name of state where samples were collected: CA

For Lab Use Only
FSC:
SCR#:

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

| (2) Sample Identification | Date Collected | Time Collected | (3) Grab | Composite | Matrix: Soil | Matrix: Water | Matrix: Other | (4) Total # of Containers | (5) Analyses Requested: BTEX (8260) H | TPH GRO H | Methane (RSK175) H | Dissolved Fe (6010B) | Ferrous Iron (3500) H | Manganese (6010B) N | $NO_3$ $SO_4$ (300.0) | Alkalinity (310.1) | TDS (160.1) | Remarks | (6) Temperature of sample upon receipt (optional) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MW-8 | 3/29 | 915 | X | | | X | | 15 | X | X | X | X | X | X | X | X | X | | |
| MW-4 | | 1025 | | | | | | 15 | X | X | X | X | X | X | X | X | X | | |
| MW-1 | | 1123 | | | | | | 15 | X | X | X | X | X | X | X | X | X | | |
| MW-9 | | 1247 | | | | | | 15 | X | X | X | X | X | X | X | X | X | | |
| MW-X | | 1247 | | | | | | 6 | X | X | X | X | X | X | X | X | X | BTEX + GR only per JHenry 3/31/11 RKann | |
| Stream | | 1345 | | | | | | 6 | X | X | | | | | | | | | |
| TB | | | | | | | | 4 | X | X | | | | | | | | | |

(7) **Turnaround Time Requested** (TAT) (please circle): Normal Rush
(Rush TAT is subject to Lancaster Laboratories approval and surcharge.)
Date results are needed: 510-874 3252
Rush results requested by (please circle): Phone Fax E-mail
Phone #: Jacob Henry Fax #:
E-mail address: Jacob_Henry@URSCorp.com

(8) **Data Package Options** (please circle if required)
Type I (validation/NJ Reg) TX TRRP-13
Type II (Tier II) MA MCP CT RCP
Type III (Reduced NJ)
Type IV (CLP SOW)
Type VI (Raw Data Only)

SDG Complete? Yes No

Site-specific QC (MS/MSD/Dup)? Yes No
(If yes, indicate QC sample and submit triplicate volume.)
Internal COC Required? Yes / No

| (9) Relinquished by: | Date | Time | Received by: | Date | Time |
|---|---|---|---|---|---|
| Ram Kannappan | 3/29 | 1540 | | | |
| Relinquished by: | Date | Time | Received by: | Date | Time |
| Relinquished by: | Date | Time | Received by: | Date | Time |
| Relinquished by: | Date | Time | Received by: | Date | Time |
| Relinquished by: | Date | Time | Received by: Mary Meckert | 3/30/11 | 930 |

Lancaster Laboratories, Inc., 2425 New Holland Pike, Lancaster, PA 17601 (717) 656-2300 Fax: (717) 656-6766

Copies: White and yellow should accompany samples to Lancaster Laboratories. The pink copy should be retained by the client.

# 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.

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