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Environmental Specialist

**Health, Environment &
Safety**

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February 4, 2010

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 – Fourth Quarter 2009 Groundwater Monitoring Report**" are true and correct to the best of my knowledge at the present time.

Sincerely,

J.W. Johnson

R E P O R T

**FOURTH QUARTER 2009
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

February 2010

URS

URS Corporation
1333 Broadway, Suite 800
Oakland, CA 94612



This letter report (“**Fourth Quarter 2009 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 Release site in Sunol, California.

The fourth quarter 2009 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.

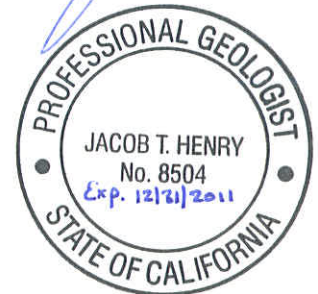
URS Corporation
Approved by:



Joe Morgan III



Jacob Henry, P.G.





February 4, 2009

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, Fourth Quarter 2009 Groundwater Monitoring Report

Dear Mr. Wickham:

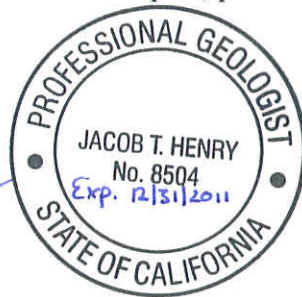
A December 30, 2005 letter provided by the Alameda County Environmental Health staff (ACEH) requested the initiation of a Quarterly Groundwater Monitoring Program. In response to this request, URS, on behalf of Chevron Pipe Line Company (CPL), has prepared this groundwater monitoring report for the CPL Sunol site (Site) for the fourth quarter of 2009.

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

Sincerely yours,

URS Corporation


Jacob Henry, P.G.
Senior Geologist





Joe Morgan III
Senior Project Manager

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

On December 9 and 10, 2009, URS conducted field activities to assess the groundwater conditions at the Site. A Site vicinity map is included as Figure 1. URS measured the fluid levels at groundwater monitoring wells MW-1 through MW-4 and MW-8 through MW-11 and collected samples to be analyzed from groundwater monitoring wells MW-8 through MW-11. URS did not collect a surface water sample from the very small stream, located northwest of the release location, as the sample location was dry. Monitoring well and surface water sampling locations are provided on Figure 2. 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 water measurements were taken in monitoring wells MW-1 through MW-4 and MW-8 through MW-11 from the top of casing using an electronic oil/water interface probe. Product was measured in MW-8 (0.01 feet) using an oil/water interface probe. Depth to groundwater measurements are presented in Table 1 and calculated groundwater elevations are presented in Table 2.

Unconfined Water Bearing Zone

The groundwater surface elevation decreased in monitoring wells MW-3, MW-4, MW-10, and MW-11 and increased in monitoring wells MW-1, MW-2, MW-8, and MW-9 since the last sampling event in September 2009. The groundwater surface elevation change resulted in hydraulic disconnection of monitoring wells MW-1 through MW-4. The groundwater elevations for monitoring wells MW-1 through MW-4 and MW-9 through MW-11 were 290.48, 290.54, 290.82, 290.58, 290.08, 289.87 and 290.16 feet above average mean sea level (msl), respectively. The groundwater elevation for MW-8, which screens an apparent hillside groundwater recharge source for the Valley Crest Tree Company's (nursery) unconfined water-bearing zone, was 313.27 feet above msl.

Based on data from MW-1 and MW-9 through MW-11, the local groundwater flow direction within the nursery's unconfined water-bearing zone is in an east-northeast direction with a calculated hydraulic gradient of 0.006 feet/feet. The seasonal groundwater recharge from the hillside appears to flow into the unconfined nursery water-bearing zone on a limited basis. Figure 3 provides groundwater contours for the unconfined water-bearing zone as well as bedrock surface elevations for the gravel-siltstone contact for comparison.

Confined Water Bearing Zone

As previously stated, MW-5 through MW-7, are no longer a part of the groundwater monitoring program. After four quarters of non-detect analytical results, Alameda County Environmental Health (ACEH) agreed, in a letter dated February 1, 2008, that further groundwater monitoring of the confined sandstone water-bearing zone was unnecessary. The monitoring wells were abandoned according to Alameda County Zone 7 Water Agency (Zone 7) standards on June 23, 2008 and are no longer part of the groundwater monitoring program.

2.1 QUARTERLY MONITORING ACTIVITIES

After measuring the fluid levels at each monitoring well, URS conducted groundwater sampling on December 9 and 10, 2009. Fourth quarter sampling efforts were influenced by the known seasonally low groundwater levels which typically occur from July through December. The rationale for the method used at each monitoring well is described below:

- MW-8, MW-9, and MW-10 were sampled using low-flow methods.
- A sample from MW-11 was collected using low-flow methods, however, when the samples arrived at the laboratory, the temperature was too warm, so URS went back out on December 14, 2009 to collect an additional sample from the well for chemical analysis using a bailer.
- A surface water sample was not collected from the very small stream northwest of the release location (Figure 2), as it was dry.
- MW-1 through MW-4 were not sampled because measured groundwater elevations were slightly above, at, or below the bedrock elevations and therefore stagnant.

2.1.1 MW-1 and MW-9 Sorbent Booms

Up until May 2009, URS placed sorbent booms (booms) in MW-1 and MW-9 as an interim remedial measure. The booms were effective in passively collecting and facilitating degradation of petroleum hydrocarbons within the monitoring wells and allowed for quarterly groundwater sample collection. URS only samples wells with measurable product during the fourth quarter. Since May 2009, MW-1 and MW-9 have been gauged monthly, including during the fourth quarter 2009 groundwater monitoring event, with no measurable product observed. URS will continue to monitor MW-1 and MW-9 during the monthly groundwater gauging events. A boom was re-installed in MW-9 during the third quarter 2009 sampling event after product was observed while purging and remained in the well after fourth quarter groundwater monitoring activities were completed. Product has not been measured since the boom was re-installed in MW-9.

2.1.2 MW-8, MW-9, MW-10

Low-flow purging rates of between 350-500 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, parameters such as temperature, pH, conductivity, oxidation reduction potential (ORP), and dissolved oxygen (DO) of the purged groundwater were measured using an in-line flow-through cell and multi-parameter Horiba U-22XD. The multi-parameter device was calibrated prior sampling. 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 from the pump and tubing assembly. Groundwater samples were collected directly from the pump tubing.

During the purging process, MW-10 and MW-11 were purged dry and left to recharge overnight. Samples were collected the next day using the pump and new disposable tubing.

On December 14, 2009, Lancaster Analytical Laboratory (Lancaster) informed URS that some of the samples collected from MW-11 were not received at the correct temperature. Therefore, URS went back into the field on the same day and collected an additional groundwater sample from MW-11 using a disposable bailer and forwarded to Lancaster.

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 not collected during fourth quarter 2009 groundwater monitoring event because the stream was dry.

3.1 ANALYTICAL PROGRAM

The groundwater samples from monitoring wells MW-8 through MW-11 were collected in clean laboratory provided containers, the containers were labeled with unique 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 by USEPA Method 310.1
- Total dissolved solids (TDS) by USEPA Method 160.1

3.2 GROUNDWATER ANALYTICAL RESULTS DISCUSSION

A tabulated summary of the analytical results for the gasoline compounds and associated environmental screening levels (ESLs), for groundwater as a current or potential source of drinking water, developed by Regional Water Quality Control Board (RWQCB 2008) 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 fourth quarter sampling event included MW-8 through MW-11. The fourth quarter groundwater sample results are as follows:

- The MW-8 sample contained TPH-GRO at 19,000 micrograms per liter ($\mu\text{g/L}$), benzene at 930 $\mu\text{g/L}$, toluene at 1,600 $\mu\text{g/L}$, ethylbenzene at 1,200 $\mu\text{g/L}$, and total xylenes at 3,800 $\mu\text{g/L}$.
- The MW-9 sample contained TPH-GRO at 20,000 $\mu\text{g/L}$, benzene at 3 $\mu\text{g/L}$, toluene at 85 $\mu\text{g/L}$, ethylbenzene at 460 $\mu\text{g/L}$, and total xylenes at 2,800 $\mu\text{g/L}$.
- The MW-10 sample contained TPH-GRO at 540 $\mu\text{g/L}$, benzene at 0.6 $\mu\text{g/L}$, toluene at 2 $\mu\text{g/L}$, ethylbenzene at 5 $\mu\text{g/L}$, and total xylenes at 23 $\mu\text{g/L}$.
- The MW-11 sample contained TPH-GRO at 66 $\mu\text{g/L}$ and total xylenes at 3 $\mu\text{g/L}$. Benzene, toluene and ethylbenzene were below laboratory reporting limits.

Groundwater analytical results are presented in Table 3.

3.2.2 Confined Water-Bearing Zone Monitoring Wells

Monitoring wells MW-5 through MW-7 were abandoned June 23, 2008 as approved by ACEH in the November 29, 2007 ACEH letter.

3.2.3 Surface Water Sample

The surface water sampling location is shown on Figure 2. The surface water sample could not be collected during the fourth quarter 2009 because the stream was dry at the sample location.

3.2.4 Analytical Result Comparison to ESLs

The TPH-GRO analytical results in monitoring wells MW-8, MW-9, and MW-10 exceeded the TPH-GRO ESLs of 100 µg/L at concentrations of 19,000 µg/L, 20,000 µg/L, and 540 µg/L, respectively.

Benzene analytical results in samples collected from monitoring wells MW-8 and MW-9 exceeded the benzene ESL of 1 µg/L at concentrations of 930 µg/L and 3 µg/L, respectively.

Toluene analytical results in samples collected from monitoring wells MW-8 and MW-9 exceeded the toluene ESL of 40 µg/L at concentrations of 1,600 µg/L and 85 µg/L, respectively.

Ethylbenzene analytical results in samples collected from monitoring wells MW-8 and MW-9 exceeded the ethylbenzene ESL of 30 µg/L at concentrations of 1,200 µg/L and 460 µg/L, respectively.

Total xylenes analytical results in samples collected from monitoring wells MW-8, MW-9 and MW-10 exceeded the total xylenes ESL of 20 µg/L at concentrations of 3,800 µg/L, 2,800 µg/L and 23 µg/L, respectively.

3.2.5 Geochemical Analytical Results

The groundwater samples collected from MW-8 through MW-11 were also analyzed for geochemical parameters. Overall, the geochemical parameters indicate a low oxygen (anaerobic) environment. A preliminary assessment of the lower sulfate levels in monitoring wells MW-1, MW-8, and MW-9, all currently impacted wells, indicate a potential for anaerobic biodegradation of the hydrocarbon plume. Furthermore, the lack of significant groundwater flow through the Site limits the possibility of the development of beneficial organisms. URS will continue to collect geochemical parameters when possible from all monitoring wells. The geochemical results are presented in Table 4.

3.3 SUMMARY OF QA/QC REVIEW PARAMETERS

The quality assurance/quality control (QA/QC) program includes using standard sample collection procedures in the field and established analytical methodologies in the laboratory. Laboratory and field QC sample results were evaluated to assess the quality of the individual sample results and overall method performance. Analytical performance was evaluated on a

“batch QC” basis by evaluating the QC sample results for groups of samples that were prepared and analyzed together. The data evaluation performed included a review of:

- Blanks (laboratory method blanks and trip blanks)
- Spikes (laboratory control sample spikes, matrix control spikes, blank spikes and surrogate spikes)
- Duplicates (laboratory control sample duplicates and field duplicates)
- Sample Integrity (chain-of-custody documentation, sample preservation, and holding time compliance)

Method Holding Times

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

Method Blanks

Method blanks are prepared in the laboratory using deionized, distilled (Reagent Grade Type II) water. Method blanks are extracted and/or analyzed following the same procedures as an environmental sample. Analysis of the method blank indicates potential sources of contamination from laboratory procedures (e.g. contaminated reagents, improperly cleaned laboratory equipment) or persistent contamination due to the presence of certain compounds in the ambient laboratory environment. The QA/QC review identifies method blanks with detections of target analytes and evaluates the effect of the detections on associated sample results. None of the method blanks had detections of target analytes.

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), laboratory control sample duplicates (LCSD), blank spikes (BS) and blank spike duplicates (BSD) 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:

$$\text{Recovery (\%)} = \frac{\text{spike analysis result} - \text{original sample concentration}}{\text{concentration of spike addition}} \times 100\%$$

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, LCSD, BS and BSD 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, LCSD, BS and BSD 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.

Laboratory Duplicate Analyses

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

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

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

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.

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.

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.

EXPLANATION OF ANALYTICAL DATA QUALIFIERS

The analytical data were reviewed and qualified following USEPA guidelines for organic data review (USEPA, 1999). A “J” qualifier indicates that the analyte was positively identified, but that the associated numerical value is an approximate concentration of the analyte in the sample. A “UJ” qualifier indicates that the analyte was not detected above the reported sample quantitation limit (i.e., the laboratory reporting limit). However, the reported quantitation limit is approximate and may or may not represent the actual limit of quantitation necessary to accurately and precisely measure the analyte in the sample. An “R” qualifier indicates that the sample results were rejected due to serious deficiencies in the ability to analyze the sample and meet quality control criteria, and therefore, the presence or absence of the analyte could not be verified.

SUMMARY OF QA/QC REVIEW FINDINGS

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

High manganese MS/MSD recovery was noted in batch 093511848004. The manganese detections in batch 093511848004 (samples MW-8 Grab Water, MW-9 Grab Water, MW-10 Grab Water, and MW-11 Grab Water) were qualified with a “J”. There were no nondetections for manganese in the batch, and thus no “UJ” qualifiers were needed.

High nitrate nitrogen MS/MSD recovery was noted in batch 09345196601B. The nitrate nitrogen detections in batch 09345196601B (samples MW-10 Grab Water and MW-11 Grab Water) were qualified with a “J”. The nondetections for nitrate nitrogen in batch 09345196601B (samples MW-8 Grab Water and MW-9 Grab Water) were qualified with a “UJ”.

High sulfate MS/MSD recovery was noted in batch 09345196601B. The sulfate detections in batch 09345196601B (samples MW-8 Grab Water, MW-9 Grab Water, MW-10 Grab Water, and MW-11 Grab Water) were qualified with a “J”. There were no nondetections for sulfate in the batch, and thus no “UJ” qualifiers.

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. 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.

4.1 PASSIVE SOIL GAS SURVEY (GORE™ SURVEY)

URS conducted a passive soil gas survey using W.L. Gore & Associates (GORE™) modules as proposed in the *Soil Vapor Extraction System Evaluation and Work Plan for Additional Site Characterization* dated September 9, 2009. The purpose of the GORE™ survey was to evaluate the location of the source area, to evaluate the performance of the soil vapor extraction (SVE) system, the migration paths from the source area, and migration paths within the nursery.

4.1.1 Permits and Pre-drilling Procedures

Before initiating field activities, URS obtained a soil boring permit from the Zone 7 Alameda County Flood Control and Water Conservation District. URS notified Underground Service Alert 48 hours before initiating field activities. A private utility locator was not used to clear the boring locations due to the shallow depth of the planned boreholes.

URS developed a site Health and Safety Plan (HASP) that described the potential hazards associated with the proposed field activities (advancing soil borings, equipment used, and GORE™ module removal). The HASP also provided safe work procedures to mitigate the potential work hazards. A copy of the HASP was available on site at all times. The URS site supervisor conducted tailgate safety meetings prior to work startup to discuss the relevant aspects of the HASP for the day's scheduled work. Job safety analyses were developed for specific work tasks and were discussed during the daily tailgate safety meetings. URS personnel have had the CPL Person-In-Charge training and the appropriate Safe Work Permit was completed for the Site activities.

4.1.2 Borehole Advancement and GORE™ Module Installation

On November 13, 16, and 17, 2009, URS installed 39 GORE™ modules (modules) at a depth of approximately 3 feet below ground surface (ft bgs). The modules were installed in a grid pattern approximately 25-40 feet apart in the hillside where the original release occurred and in the nursery across Calaveras Road. The coverage included the entire SVE well system area. URS used an electric powered hammer drill to advance a 0.5 inch diameter steel tipped push rod to approximately 3 ft bgs at each module location. The module was secured to a cork stopper with string, manually inserted into the borehole using a specially designed push rod provided by GORE™ until it reached the bottom, and marked with a flag to show the location. The modules were then allowed to remain in the ground for 22 days.

4.1.3 Analytical Program and Results

On December 9, 2009, URS removed all but one module, which was caught in the borehole and could not be retrieved. After collection, the modules were placed in their original glass vial containers, packaged in the GORE™ provided box, and sent to the GORE™ facility in Elkton, Maryland for analysis. The modules were analyzed for the following:

- Total Petroleum Hydrocarbons (TPH) and BTEX by USEPA Method 8260B

The module analytical results represent a qualitative view of the subsurface soil gas at the Site. A general comparison of the module analytical results and the most recent SVE well recovery rates

(April through July 2009) can be made, providing confirmation of the performance of specific SVE wells. In addition to this important comparison, the module analytical results do not indicate significant petroleum hydrocarbon migration pathways from the original hillside release location. Lastly, the GORE™ survey has reaffirmed that monitoring wells MW-10 and MW-11 are located appropriately along the northern perimeter of the Site and that no significant petroleum hydrocarbon migration pathways past these wells are present. The following sections discuss the meaning of these findings and suggest further action to define a path forward towards Site closure.

4.1.3.1 GORE™ Survey Results vs. SVE Well Performance

SVE wells SVE-1D, SVE-2S, SVE-3S, SVE-4D, and SVE-5 consistently had low recovery rates at or below one pound per day (lbs/day) during the SVE system operational period from April to July 2009. Specifically, SVE wells SVE-1D and SVE-2S which had little to no recovery and were generally shutdown during SVE system operations. The module analytical results for TPH (Appendix C) indicate minimal TPH concentrations in and around the area of SVE-1D, SVE-2S, SVE-4D, and SVE-5. Elevated TPH concentrations at SVE-3S are still present and may explain why this SVE well continued to have fluctuating recovery rates of below one lbs/day to three lbs/day. The module analytical results for the more reactive BTEX compounds (Appendix C) indicate a satisfactory removal of BTEX concentrations in and around the area of SVE-1D, SVE-2S, SVE-3S, SVE-4D, and SVE-5.

The SVE recovery rates at SVE-6, SVE-7, and SVE-9 were lower than expected since these SVE wells are located within the source area. The module analytical results for TPH suggest that additional mass removal is possible. However, the more reactive BTEX compounds appear to have been sufficiently removed at SVE-6 and SVE-9 based on the source area concentrations identified by the GORE™ survey. The rough terrain and depth at which these SVE wells were constructed (7 to 14 ft bgs) and the geologic complexity present at the Site may be likely to contribute to the declining recovery rates observed (2 to 7 lbs/day).

SVE well SVE-8 was constructed in a perched groundwater zone and has produced very low recovery rates (less than one lbs/day). Module analytical results indicate that SVE-8 is ideally placed, however, the complex geology and the shallow depth at which this well was constructed (7 ft bgs) limit efficient mass removal.

Overall, the SVE system performance since November 2005 has significantly reduced the original mass of petroleum hydrocarbons from the subsurface based on the volumes removed and the decline of BTEX compounds at the original spill location.

4.1.3.2 Migration of Petroleum Hydrocarbons

URS has conducted groundwater monitoring activities at the Site since the original release in 2005. That collection of data has led URS to conclude that sporadic groundwater typically enters and moves through the geologic system from the hillside to the nursery. Factors contributing to this theory are consistently low groundwater levels during the fall, spring, and summer months, an inability to collect groundwater samples from certain wells due to groundwater elevations below bedrock elevations, and drought like conditions from 2006 through 2009.

The GORE™ module analytical results support this conclusion. The current source area on the hillside remains in the vicinity of the original release in August 2005. A clear distinction can be made between the higher concentrations seen in the hillside source area and the lower concentrations in the nursery. The much lower GORE™ module concentrations of TPH and BTEX compounds in the nursery indicate the source area has had minimal contact with groundwater which is the most prominent petroleum hydrocarbon transportation mechanism to the nursery.

Finally, the first GORE™ survey conducted in March 2007 showed a hot spot in the nursery to the north of MW-4 and west of MW-9 (Appendix C). This area was once again surveyed during the November 2009 GORE™ survey. GORE™ survey results show the hot spot has dissipated by 75% with no indication of migration off-site. Furthermore, TPH and BTEX concentrations detected by the GORE™ survey in the nursery are in decline and do not correspond with a continuous mass flux of petroleum hydrocarbons from the source area to groundwater.

4.1.4 Path Forward to Site Closure

The GORE™ survey reconfirmed that the hillside source area should be the main target for continued investigation and remediation activities. URS is evaluating new drilling technologies that will allow the advancement of additional soil borings in the hillside source area. Once completed, the appropriate soil borings can be converted in to SVE wells for further remedial activities. URS is still in the process of determining the best option for soil boring advancement and locations. The two technologies being considered are angled drilling and horizontal directional drilling. Both technologies will allow for the advancement of soil borings on the steep hillside. With a focus on mass removal in the source area, a decrease in petroleum hydrocarbon concentrations in the groundwater monitoring wells will follow. URS is also exploring other remediation options and will present findings and recommendations to ACEH in a work plan for all proposed work at a later date.

The GORE™ survey conducted in November 13, 16, and 17, 2009 and the groundwater field activities conducted on December 9 and 10, 2009, included assessing the groundwater conditions at the Site, measuring the fluid levels in all monitoring wells, collecting analytical samples from groundwater monitoring wells MW-8 through MW-11, assessing the location of the source area on the hillside, determining the effectiveness of the SVE system operations, and evaluating the migration of petroleum hydrocarbons. The findings are as follows:

- Free product was not observed in monitoring wells MW-1 through MW-4, and MW-9 through MW-11 during the fourth quarter 2009 groundwater monitoring activities. However, 0.01 feet of product was measured in MW-8 during gauging activities.
- The groundwater surface elevation decreased in monitoring wells MW-3, MW-4, MW-10, and MW-11 and increased in monitoring wells MW-1, MW-2, MW-8, and MW-9 since the last sampling event in September 2009. The rain received in early December is the cause for the increased groundwater levels measured. The groundwater surface elevation change resulted in hydraulic disconnection of monitoring wells MW-1 through MW-4.
- The MW-8 sample contained TPH-GRO at 19,000 µg/L, benzene at 930 µg/L, toluene at 1,600 µg/L, ethylbenzene at 1,200 µg/L, and total xylenes at 3,800 µg/L. The sample results for all petroleum constituents analyzed exceeded their respective ESL. The fourth quarter analytical results are comparable to the first quarter analytical result which was the last time MW-8 had sufficient groundwater for sampling.
- The MW-9 sample contained TPH-GRO at 20,000 µg/L, benzene at 3 µg/L, toluene at 85 µg/L, ethylbenzene at 460 µg/L, and total xylenes at 2,800 µg/L. The sample results for all petroleum constituents analyzed exceeded their respective ESL. The fourth quarter analytical results are comparable to the second quarter analytical result which was the last time MW-9 had sufficient groundwater for sampling.
- The MW-10 sample contained TPH-GRO at 540 µg/L, benzene at 0.6 µg/L, toluene at 2 µg/L, ethylbenzene at 5 µg/L, and total xylenes at 23 µg/L. The ESLs for TPH-GRO and total xylenes were exceeded. This is the first quarter in which all of the constituents of concern were detected above the laboratory reporting limits.
- The MW-11 sample contained TPH-GRO at 66 µg/L and total xylenes at 3 µg/L. Benzene, toluene and ethylbenzene concentrations were below laboratory reporting limits. No ESLs were exceeded. These results are an increase from last quarters non-detect result and similar to the second quarter results.
- The surface water sample could not be collected because the stream was dry
- The GORE™ survey confirmed the effectiveness of the SVE system operations in the vicinity of the hillside source area and where additional mass removal can be conducted by comparing the GORE™ survey results to the individual SVE well removal rates.
- The GORE™ survey confirmed no significant petroleum hydrocarbon migration pathways from the hillside source area to the nursery.
- The previous GORE™ survey (March 2007) hotspot in the nursery has dissipated by 85% with no evidence of migration.

- The original release (August 2005) on the hillside has not been in continuous contact with groundwater which is the main transportation mechanism for petroleum hydrocarbons to the nursery.

Based on the December 9 and 10, 2009 field observations and analytical results URS makes the following recommendation:

- Continue quarterly groundwater monitoring to further assess the effect of seasonal groundwater fluctuations on groundwater behavior and contaminant transport within the unconfined water-bearing zone.
- Development of a work plan for additional soil borings to further delineate the source area depth identified in the GORETM survey along the hillside.
- Once confirmation borings are completed and the source area depth is known, convert borings into SVE wells and reinstall and SVE system to remove additional petroleum hydrocarbons from the source area.
- Evaluate additional remediation technologies to assist in the continued remedial effort at the Site.
- Hold a meeting at the Site with the CPL project manager, ACEH case manager, and URS team to discuss a path forward approach.

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. Because 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 CPL's use, and reliance on this report by third parties will be at such party's sole risk.

TABLE 1
Monitoring Well Groundwater Levels
Fourth Quarter 2009 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	--	--		
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	--	--		
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	--	--
		6/9/2009	34.48	--	--
		9/28/2009	34.82	--	--
12/9/2009	34.83	--	--		

TABLE 1
Monitoring Well Groundwater Levels
Fourth Quarter 2009 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-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	--	--
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		
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	--	--
		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	--	--		

TABLE 1
Monitoring Well Groundwater Levels
Fourth Quarter 2009 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-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	--	--
		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	--	--		

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
Fourth Quarter 2009 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	--	--				
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	--	--				
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	--	--				
3/27/2009	294.78	--	--				

TABLE 2
Monitoring Well Groundwater Elevations
Fourth Quarter 2009 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)
				6/9/2009	291.17	--	--
				9/28/2009	290.83	--	--
				12/9/2009	290.82	--	--
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	--	--				
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				
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	--	--
				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	--	--				

TABLE 2
Monitoring Well Groundwater Elevations
Fourth Quarter 2009 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)
				9/28/2009	290.05	--	--
				12/9/2009	290.08	--	--
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	--	--
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	--	--

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
 Fourth Quarter 2009 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)
ESL¹⁾		100	1	40	30	20
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 ³⁾	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 ³⁾	NS	NS	NS	NS	NS
	Q4 2007 ³⁾	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 ⁴⁾	NS	NS	NS	NS	NS
	Q4 2008 ⁴⁾	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 ⁴⁾	NS	NS	NS	NS	NS	
Q4 2009 ⁴⁾	NS	NS	NS	NS	NS	
MW-2	2/21/2006 ²⁾	<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 ⁴⁾	NS	NS	NS	NS	NS
	Q4 2007 ⁴⁾	NS	NS	NS	NS	NS
	3/19/2008	<50	<0.5	<0.5	<0.5	<0.5
	6/5/2008 ²⁾	<50 / <50	<0.5 / <0.5	<0.5 / <0.5	<0.5 / <0.5	<0.5 / <0.5
	Q3 2008 ⁴⁾	NS	NS	NS	NS	NS
	Q4 2008 ⁴⁾	NS	NS	NS	NS	NS
	3/27/2009	<50	<0.5	<0.5	<0.5	<0.5
	Q2 2009 ⁴⁾	NS	NS	NS	NS	NS
Q3 2009 ⁴⁾	NS	NS	NS	NS	NS	
Q4 2009 ⁴⁾	NS	NS	NS	NS	NS	
MW-3	2/21/2006	<50	<0.5	<0.5	<0.5	<0.5
	6/7/2006	<50	<0.5	<0.5	<0.5	<0.5
	8/23/2006	170	<0.5	<0.5	<0.5	<0.5
	11/14/2006	86	<0.5	1	<0.5	<0.5
	2/21/2007	<50	<0.5	<0.5	<0.5	<0.5
	Q2 2007 ⁴⁾	NS	NS	NS	NS	NS
	Q3 2007 ⁴⁾	NS	NS	NS	NS	NS
	Q4 2007 ⁴⁾	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 ⁴⁾	NS	NS	NS	NS	NS
	Q4 2008 ⁴⁾	NS	NS	NS	NS	NS
	3/31/2009	<50	<0.5	<0.5	<0.5	<0.5
	Q2 2009 ⁴⁾	NS	NS	NS	NS	NS
Q3 2009 ⁴⁾	NS	NS	NS	NS	NS	
Q4 2009 ⁴⁾	NS	NS	NS	NS	NS	
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 ⁴⁾	NS	NS	NS	NS	NS
	Q3 2007 ⁴⁾	NS	NS	NS	NS	NS
	Q4 2007 ⁴⁾	NS	NS	NS	NS	NS
	3/19/2008	<50	<0.5	<0.5	<0.5	<0.5

TABLE 3
Summary of Groundwater Analytical Results
Gasoline Compounds
Fourth Quarter 2009 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)
ESL¹⁾		100	1	40	30	20
	6/6/2008	<50	<0.5	<0.5	<0.5	<0.5
	Q3 2008 ⁴⁾	NS	NS	NS	NS	NS
	Q4 2008 ⁴⁾	NS	NS	NS	NS	NS
	3/31/2009	<50	<0.5	<0.5	<0.5	<0.5
	Q2 2009 ⁴⁾	NS	NS	NS	NS	NS
	Q3 2009 ⁴⁾	NS	NS	NS	NS	NS
	Q4 2009 ⁴⁾	NS	NS	NS	NS	NS
MW-8/MW-X	8/24/2006	18,000	190	2,600	590	2,800
	11/16/2006	990	76	80	69	190
	2/20/2007	2,000	180	57	170	74
	6/6/2007	3,600	340	92	370	210
	9/12/2007	4,200	470	230	630	320
	12/11/2007	4,900	350	300	490	650
	Q1 2008 ⁵⁾	NS	NS	NS	NS	NS
	Q2 2008 ⁵⁾	NS	NS	NS	NS	NS
	9/18/2008 ²⁾	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 ⁴⁾	NS	NS	NS	NS	NS
	Q3 2009 ⁴⁾	NS	NS	NS	NS	NS
	12/10/2009	19,000	930	1,600	1,200	3,800
MW-9	Q3 2006 ³⁾	NS	NS	NS	NS	NS
	11/15/2006	74,000	480	12,000	2,200	17,000
	Q1 2007 ³⁾	NS	NS	NS	NS	NS
	Q2 2007 ³⁾	NS	NS	NS	NS	NS
	Q3 2007 ³⁾	NS	NS	NS	NS	NS
	12/11/2007	48,000	62	5,400	1,700	12,000
	Q1 2008 ³⁾	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 ³⁾	NS	NS	NS	NS	NS
	12/10/2009	20,000	3	85	460	2,800
MW-10/MW-X⁷⁾	Q3 2007 ⁴⁾	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	0.6	2	5	23
MW-11	Q3 2007 ⁴⁾	NS	NS	NS	NS	NS
	12/14/2007	<50	<0.5	<0.5	<0.5	<0.5
	3/20/2008 ²⁾	<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	

TABLE 3
 Summary of Groundwater Analytical Results
 Gasoline Compounds
 Fourth Quarter 2009 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)
ESL¹⁾		100	1	40	30	20
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 ⁶⁾	NS	NS	NS	NS	NS
	Q4 2009 ⁶⁾	NS	NS	NS	NS	NS

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 Organics

1) Environmental Screening Levels (ESLs) for groundwater as a current or potential source of drinking water were obtained from the San Francisco Regional Water Quality Control Board (RWQCB) Interim Final: Table A, May 2008.

2) Both sample and duplicate concentrations from well location are displayed.

3) Sample not collected during quarterly monitoring due to the presence of measurable free product.

4) Sample not collected during quarterly monitoring because well is not hydraulically connected to unconfined water-bearing zone.

5) Sample not collected due to extreme overhead hazards posed by dead trees on the 80-90% grade directly uphill from the sampling location.

6) Sample not collected during quarterly monitoring due to the stream sample location being dry.

7) 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
Fourth Quarter 2009 Groundwater Monitoring Report
Chevron Sunol Pipeline

Well ID	Date	Geochemical Indicators and Other Parameters											
		DO ¹⁾ (mg/L)	ORP ¹⁾ (mV)	Nitrate (mg/L)	Manganese (mg/L)	Ferrous Iron (mg/L)	Dissolved Iron (mg/L)	Sulfate (mg/L)	Methane (mg/L)	pH ¹⁾	TDS (mg/L)	Alkalinity to pH 4.5 (mg/L) as CaCO ₃	Alkalinity to pH 8.3 (mg/L) as CaCO ₃
MW-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	0.420	0.576	0.20	<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⁾
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⁾
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	6.60	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⁾
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⁾
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	0.0564	2 J	<0.2	6.94	576	445	<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	1.70	<0.052	46.4	<0.005	6.98	622	468	<0.46
	12/10/2009	1.43	-188	<0.25 UJ	4.39 J	3.30	2.54	4.5 J	<0.2	6.60	734	620	<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	0.80	<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
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	0.120	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	1,720	556	<0.46

Notes:

DO = Dissolved oxygen
 ORP = Oxygen reduction potential
 TDS = Total dissolved solids
 CaCO₃ = Calcium Carbonate

NM = Not measured
 NR = Not Reported
 J = Estimated result
 UJ = Estimated result

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.

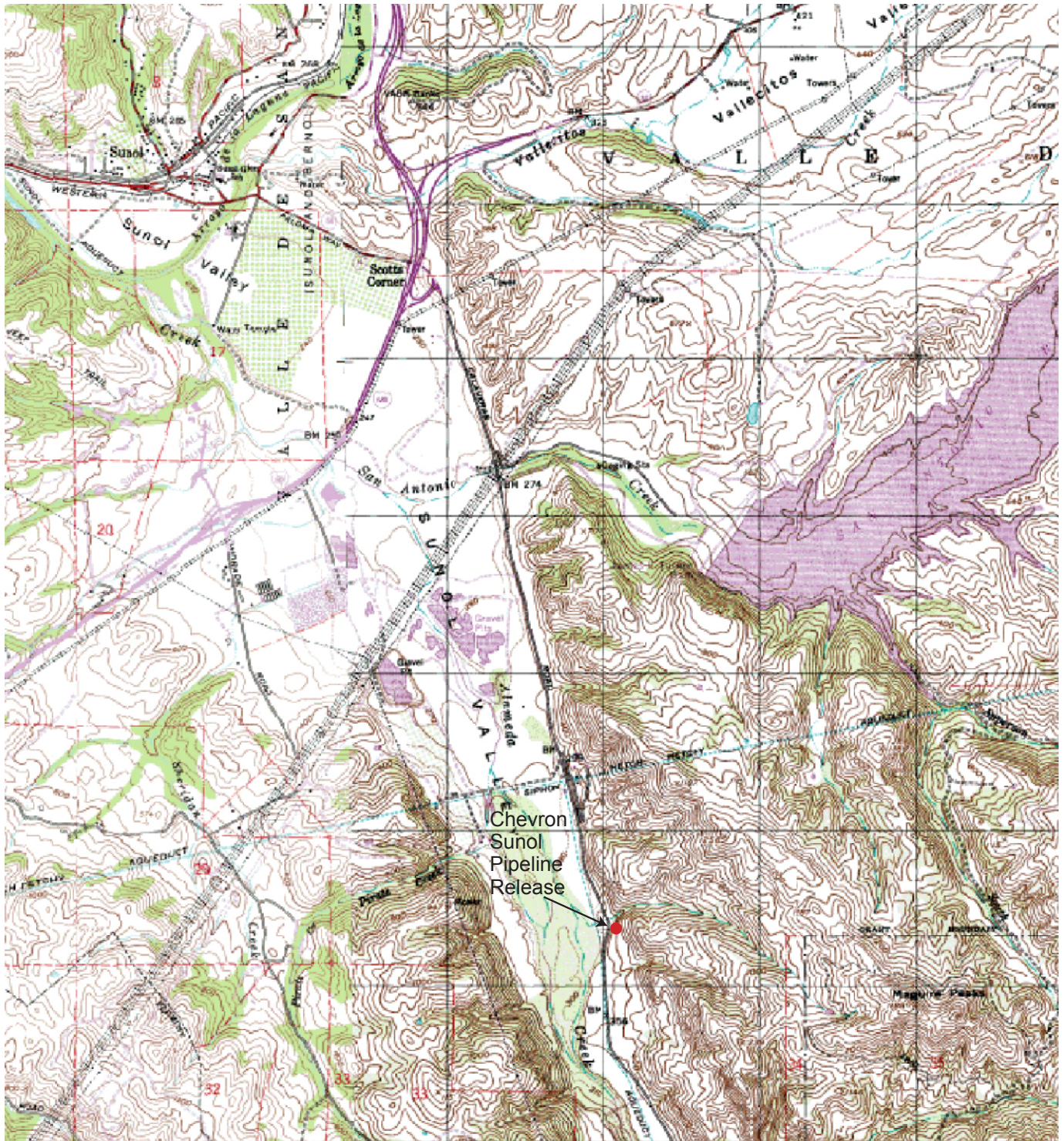
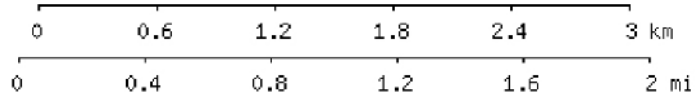


Image obtained from topozone.com



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



Chevron Pipeline Company
 Project No. 26815217

SITE VICINITY MAP
 CHEVRON SUNOL PIPELINE
 SUNOL, CALIFORNIA

Figure
 1



NORTH



SCALE IN FEET

CURRENT STREAM SAMPLE LOCATION

VERY SMALL STREAM

SW-CREEK
(Former Surface Water Sampling Location)

UPPER DIRT ROAD

LOWER DIRT ROAD

PIPELINE

CALAVERAS ROAD

MW-10

PROPERTY LINE/FENCE

MW-11

MW-9

MW-4

SVE-1D

SVE-2S

RELEASE LOCATION

MW-7

SVE-8

SVE-3S

SVE-4D

SVE-5

MW-3

MW-1

MW-5

MW-8

SVE-7

SVE-6

SVE-9

HILL SLOPE AND DENSE VEGETATION

MW-2

MW-6

HILL SLOPE

HILL SLOPE

LEGEND:



SURFACE WATER SAMPLE LOCATIONS



MONITORING WELL



ABANDONED MONITORING WELLS



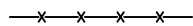
SVE WELL



SHELF



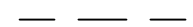
STAIRS



FENCE



PIPELINE



SMALL STREAM



PROPERTY LINE/FENCE



HILL SLOPE 80-90% GRADE



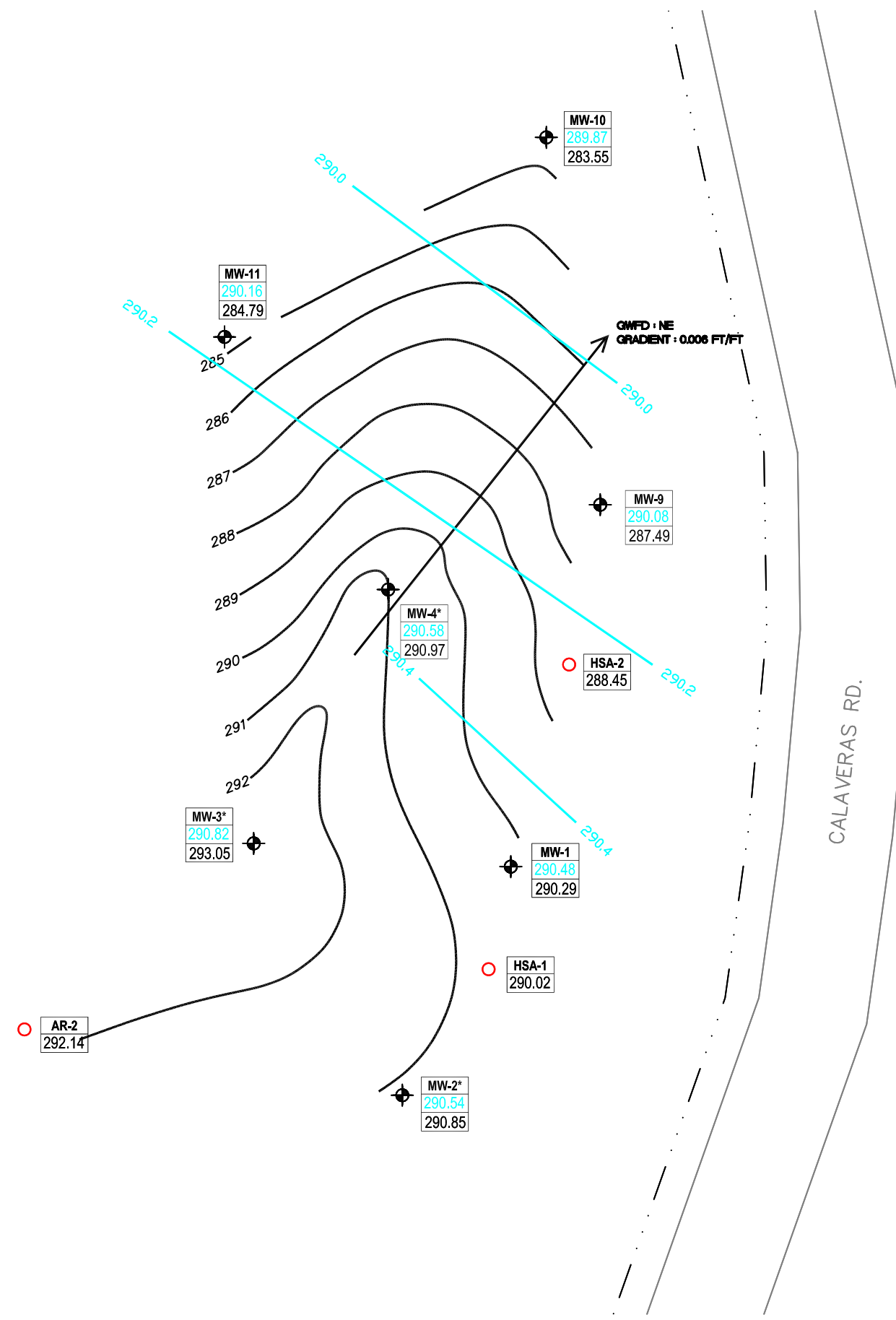
CHEVRON PIPELINE COMPANY

Project No. 26815217

SVE AND GROUNDWATER
MONITORING WELL LOCATIONS
CHEVRON SUNOL PIPELINE

Figure
2

Feb 02, 2010 - 10:00am
X:\env_waste\Chevron Pipeline Company\Sunol Spill\Quarterly Groundwater Report\402009\Report\Figures\FIGURE 3_012710.dwg

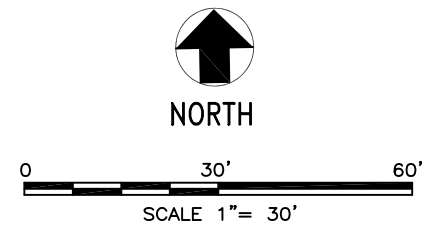


LEGEND:

- MONITORING WELL
- MONITORING WELL LABEL
- GROUNDWATER ELEVATION
- BEDROCK CONTACT ELEVATION
- SOIL BORING
- SOIL BORING LABEL
- BEDROCK CONTACT ELEVATION
- INFERRED GROUNDWATER CONTOUR
- BEDROCK SURFACE ELVATION
- GWF D 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-9 THROUGH MW-11, AS MEASURED ON DECEMBER 9, 2009.
 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 $dh/dl = 0.006$ ft/ft.
- * GROUNDWATER ELEVATION DATA NOT USED TO CALCULATE GROUNDWATER CONTOURS



Appendix A
Groundwater Sampling Forms



12/10/09

Horiba U-22XD
ISI Low-Flow Log

Project Information:

Operator Name Rachel Naccarati/ Andrew Fowler
 Company Name URS
 Project Name Chevron Sunol Pipeline
 Site Name Sunol

Pump Information:

Pump Model/Type Mega Monsoon
 Tubing Type Polyethylene
 Tubing Diameter 1/4 [in]
 Tubing Length 25.5 [ft]
 Pump placement from TOC 24.0 [ft]

Well Information:

Well Id MW-8
 Well diameter 2 [in]
 Well total depth 24.5 [ft]
 Depth to top of screen 14.5 [ft]
 Screen length 10 [ft]
 Depth to Water 20.66 [ft]

Pumping information:

Final pumping rate 350 mL/min
 Flowcell volume NM
 Calculated Sample Rate NM
 Sample rate NM
 Stabilized drawdown NM

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%	+/-1	+/-0.2	+/-20
Multi-parameter Readings	8:35	20.6	6.96	1000	164.0	0.64	-129
	8:38	21.1	7.01	1010	54.7	0.15	-142
	8:41	21.0	6.98	1020	28.5	0.12	-152
	8:44	20.8	6.95	1030	29.0	0.10	-159
	8:47	21.1	6.94	1040	28.6	0.04	-162
	8:50	21.1	6.94	1050	28.6	0.04	-165
	Collect sample from MW-8 at 8:55						
Variance in last 4 readings		0.2	0.03	-10	-0.5	0.02	7
		-0.3	0.01	-10	0.4	0.06	3
		0.0	0.00	-10	0.0	0.00	3

Notes:

Starting Pumping at 8:30
 Initial Depth to Water = 20.66 ft
 Total Volume Purged = 2 gallons
 Final Depth to Water: Dry
 Strong odor observed
 Slight sheen on purge water



12/10/09

Horiba U-22XD
ISI Low-Flow Log

Project Information:

Operator Name Rachel Naccarati/ Andrew Fowler
 Company Name URS
 Project Name Chevron Sunol Pipeline
 Site Name Sunol

Pump Information:

Pump Model/Type Mega Monsoon
 Tubing Type Polyethylene
 Tubing Diameter 1/4 [in]
 Tubing Length 48.0 [ft]
 Pump placement from TOC 45.0 [ft]

Well Information:

Well Id MW-9
 Well diameter 2 [in]
 Well total depth 46.0 [ft]
 Depth to top of screen 36.0 [ft]
 Screen length 10 [ft]
 Depth to Water 42.99 [ft]

Pumping information:

Final pumping rate 350 mL/min
 Flowcell volume NM
 Calculated Sample Rate NM
 Sample rate NM
 Stabilized drawdown NM

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%	+/-1	+/-0.2	+/-20	
Multi-parameter Readings	9:55	18.4	6.64	1400	473.0	1.25	-133	
	9:58	20.7	6.63	1390	201.0	0.99	-141	
	10:01	20.9	6.62	1410	75.6	1.53	-162	
	10:04	21.4	6.61	1510	66.9	1.31	-168	
	10:07	21.7	6.61	1400	57.8	1.46	-175	
	10:10	21.7	6.60	1400	56.4	1.44	-181.0	
	10:13	21.50	6.60	1400	56.4	1.40	-184	
	10:16	20.80	6.60	1410	55.7	1.43	-188	
	Sample MW-9 at 10:20							
Variance in last 4 readings		0.00	0.01	0.00	1.40	0.02	6.00	
		0.20	0.00	0.00	0.00	0.04	3.00	
		0.70	0.00	-10.00	0.70	-0.03	4.00	

Notes:

Starting Pumping at 9:50
 Initial Depth to Water = 42.99 ft
 Total Volume Purged = 4 gallons
 Sample collected at 10:20
 Final Depth to Water = 43.27 ft
 Slight sheen on purged water
 Odor observed



12/10/09

Horiba U-22XD
ISI Low-Flow Log

Project Information:

Operator Name Rachel Naccarati/ Andrew Fowler
 Company Name URS
 Project Name Chevron Sunol Pipeline
 Site Name Sunol

Pump Information:

Pump Model/Type Mega Monsoon
 Tubing Type Polyethylene
 Tubing Diameter 1/4 [in]
 Tubing Length 57.3 [ft]
 Pump placement from TOC 54.3 [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 46.02 [ft]

Pumping information:

Final pumping rate 350 mL/min
 Flowcell volume NM
 Calculated Sample Rate NM
 Sample rate NM
 Stabilized drawdown NM

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%	+/-1	+/-0.2	+/-20
Multi-parameter Readings	11:03	20.0	6.79	1880	-5.0	0.41	-93
	11:06	20.4	6.79	1870	-5.0	0.40	-70
	11:09	20.6	6.77	1870	-5.0	0.34	-55
	11:12	20.4	6.75	1860	-5.0	0.27	-44
	11:15	20.8	6.76	1850	-5.0	0.33	-42
	11:18	20.8	6.75	1850	857.0	0.17	-42
	11:21	21.2	6.81	1850	674.0	0.19	-44.0
	11:24	21.2	6.80	1870	576.0	0.10	-55
	11:27	20.9	6.85	1890	616.0	0.06	-74
	MW-10 purged dry at 11:30, sample collected at 10:55 on 12/10/09						
Variance in last 4 readings		-0.4	-0.06	0	183.0	-0.02	2
		0.0	0.01	-20	98.0	0.09	11
		0.3	-0.05	-20	-40.0	0.04	19

Notes:
 Starting Pumping at 10:50
 Initial Depth to Water = 46.02 ft
 Total Volume Purged = 3 gallons
 Sample collected at 10:55 on 12/19/09
 Final Depth to Water: Dry
 Attempted to collect additional sample at 13:20 on 12/9/09. Well still dry.



12/10/09

Horiba U-22XD
ISI Low-Flow Log

Project Information:

Operator Name Rachel Naccarati/ Andrew Fowler
 Company Name URS
 Project Name Chevron Sunol Pipeline
 Site Name Sunol

Pump Information:

Pump Model/Type Mega Monsoon
 Tubing Type Polyethylene
 Tubing Diameter 1/4 [in]
 Tubing Length 49.5 [ft]
 Pump placement from TOC 46.5 [ft]

Well Information:

Well Id MW-11
 Well diameter 2 [in]
 Well total depth 47.0 [ft]
 Depth to top of screen 37.0 [ft]
 Screen length 10 [ft]
 Depth to Water 39.73 [ft]

Pumping information:

Final pumping rate 500 mL/min
 Flowcell volume NM
 Calculated Sample Rate NM
 Sample rate NM
 Stabilized drawdown NM

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%	+/-1	+/-0.2	+/-20	
Multi-parameter Readings	13:41	19.4	6.87	2470	477	0.73	-70	
	13:44	19.8	6.81	2430	302	0.35	-32	
	13:47	19.8	6.77	2390	106	1.05	-13	
	13:50	19.7	6.81	2430	56.8	1.09	-18	
	13:53	19.9	6.84	2460	54.0	1.01	-50	
	MW-11 purged dry at 13:56, sample collected at 11:30 on 12/10/09							
Variance in last 4 readings		0.0	0.04	40	196.0	-0.70	-19	
		0.1	-0.04	-40	49.2	-0.04	5	
		-0.2	-0.03	-30	2.8	0.08	32	

Notes:

Starting Pumping at 13:38
 Initial Depth to Water = 39.73 ft
 Total Volume Purged = 2.5 gallons
 Final Depth to water = Dry
 Sample collected at 11:30 on 12/9/09
 Water dark color

Appendix B
Laboratory Analytical Results

ANALYTICAL RESULTS

Prepared for:

Chevron Pipeline Co.
4800 Fournace Place - E320 D
Bellaire TX 77401

713-432-3335

Prepared by:

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

December 28, 2009

Project: Sunol, CA

Samples arrived at the laboratory on Tuesday, December 15, 2009. The PO# for this group is 0015036686 and the release number is COSGRAY. The group number for this submittal is 1175329.

Client Sample Description

Trip Blank NA Water

Lancaster Labs (LLI) #

5865036

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

ELECTRONIC URS
COPY TO
ELECTRONIC URS
COPY TO
ELECTRONIC URS
COPY TO

Attn: Joe Morgan

Attn: Rachel Naccarati

Attn: Jacob Henry

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

Respectfully Submitted,



Marla S. Lord
Senior Specialist



Analysis Report

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

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

LLI Sample # WW 5865036
LLI Group # 1175329
CA

Project Name: Sunol, CA

Collected: 12/14/2009 by RN

Account Number: 11875

Submitted: 12/15/2009 09:20

Chevron Pipeline Co.

Reported: 12/28/2009 at 15:25

4800 Fournace Place - E320 D

Discard: 01/28/2010

Bellaire TX 77401

SUNTB

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit	Dilution Factor
GC/MS Volatiles			ug/l	ug/l	
06053	Benzene	71-43-2	N.D.	0.5	1
06053	Ethylbenzene	100-41-4	N.D.	0.5	1
06053	Toluene	108-88-3	N.D.	0.5	1
06053	Xylene (Total)	1330-20-7	N.D.	0.5	1
GC Volatiles			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
06053	BTEX by 8260B	SW-846 8260B	1	F093553AA	12/22/2009 01:35	Kelly E Keller	1
01163	GC/MS VOA Water Prep	SW-846 5030B	1	F093553AA	12/22/2009 01:35	Kelly E Keller	1
01728	TPH-GRO N. CA water C6-C12	SW-846 8015B	1	09352A07A	12/18/2009 12:56	Matthew S Woods	1
01146	GC VOA Water Prep	SW-846 5030B	1	09352A07A	12/18/2009 12:56	Matthew S Woods	1

Quality Control Summary

 Client Name: Chevron Pipeline Co.
 Reported: 12/28/09 at 03:25 PM

Group Number: 1175329

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

<u>Analysis Name</u>	<u>Blank Result</u>	<u>Blank MDL</u>	<u>Report Units</u>	<u>LCS %REC</u>	<u>LCSD %REC</u>	<u>LCS/LCSD Limits</u>	<u>RPD</u>	<u>RPD Max</u>
Batch number: F093553AA	Sample number(s): 5865036							
Benzene	N.D.	0.5	ug/l	95	93	79-120	2	30
Ethylbenzene	N.D.	0.5	ug/l	101	102	79-120	1	30
Toluene	N.D.	0.5	ug/l	97	99	79-120	2	30
Xylene (Total)	N.D.	0.5	ug/l	101	101	80-120	0	30
Batch number: 09352A07A	Sample number(s): 5865036							
TPH-GRO N. CA water C6-C12	N.D.	50.	ug/l	109	109	75-135	0	30

Sample Matrix Quality Control

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

<u>Analysis Name</u>	<u>MS %REC</u>	<u>MSD %REC</u>	<u>MS/MSD Limits</u>	<u>RPD</u>	<u>RPD MAX</u>	<u>BKG Conc</u>	<u>DUP Conc</u>	<u>DUP RPD</u>	<u>Dup RPD Max</u>
Batch number: F093553AA	Sample number(s): 5865036 UNSPK: P864878								
Benzene	95		80-126						
Ethylbenzene	103		71-134						
Toluene	99		80-125						
Xylene (Total)	100		79-125						
Batch number: 09352A07A	Sample number(s): 5865036 UNSPK: P865673								
TPH-GRO N. CA water C6-C12	118		63-154						

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: BTEX by 8260B

Batch number: F093553AA

	Dibromofluoromethane	1,2-Dichloroethane-d4	Toluene-d8	4-Bromofluorobenzene
5865036	103	96	98	109
Blank	103	92	99	110
LCS	103	96	98	110
LCSD	106	97	102	115*
MS	103	95	96	109
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.
Reported: 12/28/09 at 03:25 PM

Group Number: 1175329

Surrogate Quality Control

Analysis Name: TPH-GRO N. CA water C6-C12
Batch number: 09352A07A
Trifluorotoluene-F

5865036	102
Blank	105
LCS	114
LCSD	115
MS	114

Limits: 63-135

*- Outside of specification

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

Chevron California Region Analysis Request/Chain of Custody



5865036
247906

For Lancaster Laboratories use only

Acct. #: 11875 Sample #: 5865036-42 SCR#: 1175329

Grp # 474896

Facility #: _____

Site Address: Sund 1 Spill

Chevron PM: J. Johnson Lead Consultant: _____

Consultant/Office: WR5 - Oakland

Consultant Prj. Mgr.: Joe Morgan

Consultant Phone #: (910) 893-3600 Fax #: (910) 814-3268

Sampler: R. Naccarati

Service Order #: _____ Non SAR: _____

Analyses Requested		Preservation Codes							
#	#								
		BTEX - TYPE 8260	<input checked="" type="checkbox"/>	8021					
		TPH 8015-MED GRO	<input checked="" type="checkbox"/>	8260B					
		TPH 8015 MOD DRO	<input type="checkbox"/>	Silica Gel Cleanup					
		8260 full scan							
		Oxygenates							
		Lead 7420	<input type="checkbox"/>	7421					
		TDS		160.1					
		Alkalinity by Breakdown							
		Sulfate							
		Methanol/Ethanol							
		Iron (see SW 946 1UP)							

Preservative Codes

H = HCl T = Thiosulfate
 N = HNO₃ B = NaOH
 S = H₂SO₄ O = Other

J value reporting needed

Must meet lowest detection limits possible for 8260 compounds

8021 MTBE Confirmation

Confirm highest hit by 8260

Confirm all hits by 8260

Run ___ oxy's on highest hit

Run ___ oxy's on all hits

Field Point Name	Matrix	Repeat Sample	Top Depth	Year Month Day	Time Collected	New Field Pt.	Grab	Composite	Total Number of Containers	BTEX - TYPE 8260	TPH 8015-MED GRO	TPH 8015 MOD DRO	8260 full scan	Oxygenates	Lead 7420	TDS	Alkalinity by Breakdown	Sulfate	Methanol/Ethanol	Iron (see SW 946 1UP)	
MW-11	W	-	-	2009-12-14	1445	-	X			X	X					X	X	X	X		

Comments / Remarks

Please use what you can out of the sample.

Turnaround Time Requested (TAT) (please circle)

STD. TAT 72 hour 48 hour
 24 hour 4 day 5 day

Data Package Options (please circle if required)

QC Summary Type I - Full
 Type VI (Raw Data) Coelt Deliverable not needed
 WIP (RWQCB)
 Disk

Relinquished by: <u>[Signature]</u>	Date: 12/14/09	Time: 1700	Received by: _____	Date: _____	Time: _____
Relinquished by: _____	Date: _____	Time: _____	Received by: _____	Date: _____	Time: _____
Relinquished by: _____	Date: _____	Time: _____	Received by: _____	Date: _____	Time: _____
Relinquished by Commercial Carrier: UPS <u>FedEx</u> Other _____	Temperature Upon Receipt: 1.0 °C		Received by: <u>[Signature]</u>	Date: 12/15/09	Time: 920
Custody Seals Intact? <u>Yes</u> No					

Lancaster Laboratories Explanation of Symbols and Abbreviations

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

N.D.	none detected	BMQL	Below Minimum Quantitation Level
TNTC	Too Numerous To Count	MPN	Most Probable Number
IU	International Units	CP Units	cobalt-chloroplatinate units
umhos/cm	micromhos/cm	NTU	nephelometric turbidity units
C	degrees Celsius	F	degrees Fahrenheit
Cal	(diet) calories	lb.	pound(s)
meq	milliequivalents	kg	kilogram(s)
g	gram(s)	mg	milligram(s)
ug	microgram(s)	l	liter(s)
ml	milliliter(s)	ul	microliter(s)
m3	cubic meter(s)	fib >5 um/ml	fibers greater than 5 microns in length per ml
<	less than – The number following the sign is the <u>limit of quantitation</u> , the smallest amount of analyte which can be reliably determined using this specific test.		
>	greater than		
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.		

U.S. EPA 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
J	Estimated value
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 amount 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 for methods listed on the laboratories' accreditation scope meet all requirements of NELAC unless otherwise noted under the individual analysis.

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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ANALYTICAL RESULTS

Prepared for:

Chevron Pipeline Co.
4800 Fournace Place - E320 D
Bellaire TX 77401

713-432-3335

Prepared by:

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

December 22, 2009

Project: Sunol, CA

Samples arrived at the laboratory on Friday, December 11, 2009. The PO# for this group is 0015036686 and the release number is COSGRAY. The group number for this submittal is 1174896.

<u>Client Sample Description</u>	<u>Lancaster Labs (LLI) #</u>
MW-8 Grab Water	5862384
MW-8_Filtered Grab Water	5862385
MW-9 Grab Water	5862386
MW-9_Filtered Grab Water	5862387
MW-10 Grab Water	5862388
MW-10_Filtered Grab Water	5862389
MW-11 Grab Water	5862390
MW-11_Filtered Grab Water	5862391
Trip Blank NA Water	5862392

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

ELECTRONIC URS
COPY TO
ELECTRONIC URS
COPY TO
ELECTRONIC URS
COPY TO

Attn: Joe Morgan

Attn: Rachel Naccarati

Attn: Jacob Henry

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

Respectfully Submitted,



Robin C. Runkle
Senior Specialist

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

LLI Sample # WW 5862384
 LLI Group # 1174896
 CA

Project Name: Sunol, CA

Collected: 12/10/2009 08:55 by RN

Account Number: 11875

Submitted: 12/11/2009 10:00

Chevron Pipeline Co.

Reported: 12/22/2009 at 15:56

4800 Fournace Place - E320 D

Discard: 01/22/2010

Bellaire TX 77401

SPMW8

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit	Dilution Factor
GC/MS Volatiles					
	SW-846 8260B		ug/l	ug/l	
06053	Benzene	71-43-2	930	3	5
06053	Ethylbenzene	100-41-4	1,200	25	50
06053	Toluene	108-88-3	1,600	25	50
06053	Xylene (Total)	1330-20-7	3,800	25	50
GC Volatiles					
	SW-846 8015B		ug/l	ug/l	
01728	TPH-GRO N. CA water C6-C12	n.a.	19,000	500	10
GC Miscellaneous					
	SW-846 8015B		ug/l	ug/l	
01412	Methanol (by Direct Injection)	67-56-1	N.D.	200	1
Metals					
	SW-846 6010B		ug/l	ug/l	
07058	Manganese	7439-96-5	549	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	2,000	1,500	5
	SM20 2320 B		ug/l as CaCO3	ug/l as CaCO3	
00202	Alkalinity to pH 4.5	n.a.	445,000	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.	576,000	19,400	1
	SM20 3500 Fe B modified		ug/l	ug/l	
08344	Ferrous Iron	n.a.	2,500	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
06053	BTEX by 8260B	SW-846 8260B	1	P093491AA	12/15/2009 10:43	Daniel H Heller	5
06053	BTEX by 8260B	SW-846 8260B	1	P093491AA	12/15/2009 11:05	Daniel H Heller	50
01163	GC/MS VOA Water Prep	SW-846 5030B	1	P093491AA	12/15/2009 10:43	Daniel H Heller	5
01163	GC/MS VOA Water Prep	SW-846 5030B	2	P093491AA	12/15/2009 11:05	Daniel H Heller	50



Analysis Report

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

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

LLI Sample # WW 5862384
LLI Group # 1174896
CA

Project Name: Sunol, CA

Collected: 12/10/2009 08:55 by RN

Account Number: 11875

Submitted: 12/11/2009 10:00

Chevron Pipeline Co.

Reported: 12/22/2009 at 15:56

4800 Fournace Place - E320 D

Discard: 01/22/2010

Bellaire TX 77401

SPMW8

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	09351B07A	12/18/2009 07:32	Tyler O Griffin	10
01146	GC VOA Water Prep	SW-846 5030B	1	09351B07A	12/18/2009 07:32	Tyler O Griffin	10
01412	Methanol and Ethanol	SW-846 8015B	1	093500009A	12/16/2009 22:57	Gordon A Lodde	1
07058	Manganese	SW-846 6010B	1	093511848004	12/19/2009 01:58	John W Yanzuk II	1
01848	WW SW846 ICP Digest (tot rec)	SW-846 3005A	1	093511848004	12/18/2009 10:57	James L Mertz	1
00368	Nitrate Nitrogen	EPA 300.0	1	09345196601B	12/12/2009 09:28	Ashley M Adams	5
00228	Sulfate	EPA 300.0	1	09345196601B	12/14/2009 02:17	Ashley M Adams	5
00202	Alkalinity to pH 4.5	SM20 2320 B	1	09349020201A	12/15/2009 13:43	Geraldine C Smith	1
00201	Alkalinity to pH 8.3	SM20 2320 B	1	09349020201A	12/15/2009 13:43	Geraldine C Smith	1
00212	Total Dissolved Solids	SM20 2540 C	1	09348021201A	12/14/2009 08:32	Susan E Hibner	1
08344	Ferrous Iron	SM20 3500 Fe B modified	1	09347834401A	12/13/2009 05:50	Daniel S Smith	5



Analysis Report

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

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

LLI Sample # WW 5862385
LLI Group # 1174896
CA

Project Name: Sunol, CA

Collected: 12/10/2009 08:55 by RN

Account Number: 11875

Submitted: 12/11/2009 10:00

Chevron Pipeline Co.

Reported: 12/22/2009 at 15:56

4800 Fournace Place - E320 D

Discard: 01/22/2010

Bellaire TX 77401

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit	Dilution Factor
01754	Metals Dissolved Iron	SW-846 6010A 7439-89-6	ug/l 56.4	ug/l 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 6010A	1	093511848004	12/21/2009 08:42	Joanne M Gates	1
01848	WW SW846 ICP Digest (tot rec)	SW-846 3005A	1	093511848004	12/18/2009 10:57	James L Mertz	1



Analysis Report

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

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

LLI Sample # WW 5862386
LLI Group # 1174896
CA

Project Name: Sunol, CA

Collected: 12/10/2009 10:20 by RN

Account Number: 11875

Submitted: 12/11/2009 10:00
Reported: 12/22/2009 at 15:56
Discard: 01/22/2010

Chevron Pipeline Co.
4800 Fournace Place - E320 D
Bellaire TX 77401

SPMW9

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit	Dilution Factor
GC/MS Volatiles SW-846 8260B					
06053	Benzene	71-43-2	3	1	2
06053	Ethylbenzene	100-41-4	460	10	20
06053	Toluene	108-88-3	85	1	2
06053	Xylene (Total)	1330-20-7	2,800	10	20
GC Volatiles SW-846 8015B					
01728	TPH-GRO N. CA water C6-C12	n.a.	20,000	500	10
GC Miscellaneous SW-846 8015B					
01412	Methanol (by Direct Injection)	67-56-1	N.D.	200	1
Metals SW-846 6010B					
07058	Manganese	7439-96-5	4,390	0.84	1
Wet Chemistry EPA 300.0					
00368	Nitrate Nitrogen	14797-55-8	N.D.	250	5
00228	Sulfate	14808-79-8	4,500	1,500	5
SM20 2320 B					
00202	Alkalinity to pH 4.5	n.a.	620,000	460	1
00201	Alkalinity to pH 8.3	n.a.	N.D.	460	1
SM20 2540 C					
00212	Total Dissolved Solids	n.a.	734,000	19,400	1
SM20 3500 Fe B modified					
08344	Ferrous Iron	n.a.	3,300	100	10

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
06053	BTEX by 8260B	SW-846 8260B	1	P093491AA	12/15/2009 11:27	Daniel H Heller	2
06053	BTEX by 8260B	SW-846 8260B	1	P093491AA	12/15/2009 11:48	Daniel H Heller	20
01163	GC/MS VOA Water Prep	SW-846 5030B	1	P093491AA	12/15/2009 11:27	Daniel H Heller	2
01163	GC/MS VOA Water Prep	SW-846 5030B	2	P093491AA	12/15/2009 11:48	Daniel H Heller	20



Analysis Report

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

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

LLI Sample # WW 5862386
LLI Group # 1174896
CA

Project Name: Sunol, CA

Collected: 12/10/2009 10:20 by RN

Account Number: 11875

Submitted: 12/11/2009 10:00

Chevron Pipeline Co.

Reported: 12/22/2009 at 15:56

4800 Fournace Place - E320 D

Discard: 01/22/2010

Bellaire TX 77401

SPMW9

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	09351B07A	12/18/2009 07:58	Tyler O Griffin	10
01146	GC VOA Water Prep	SW-846 5030B	1	09351B07A	12/18/2009 07:58	Tyler O Griffin	10
01412	Methanol and Ethanol	SW-846 8015B	1	093500009A	12/16/2009 23:14	Gordon A Lodde	1
07058	Manganese	SW-846 6010B	1	093511848004	12/19/2009 02:05	John W Yanzuk II	1
01848	WW SW846 ICP Digest (tot rec)	SW-846 3005A	1	093511848004	12/18/2009 10:57	James L Mertz	1
00368	Nitrate Nitrogen	EPA 300.0	1	09345196601B	12/12/2009 09:44	Ashley M Adams	5
00228	Sulfate	EPA 300.0	1	09345196601B	12/14/2009 02:33	Ashley M Adams	5
00202	Alkalinity to pH 4.5	SM20 2320 B	1	09349020201A	12/15/2009 13:43	Geraldine C Smith	1
00201	Alkalinity to pH 8.3	SM20 2320 B	1	09349020201A	12/15/2009 13:43	Geraldine C Smith	1
00212	Total Dissolved Solids	SM20 2540 C	1	09348021201A	12/14/2009 08:32	Susan E Hibner	1
08344	Ferrous Iron	SM20 3500 Fe B modified	1	09347834401A	12/13/2009 05:50	Daniel S Smith	10



Analysis Report

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

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

LLI Sample # WW 5862387
LLI Group # 1174896
CA

Project Name: Sunol, CA

Collected: 12/10/2009 10:20 by RN

Account Number: 11875

Submitted: 12/11/2009 10:00
Reported: 12/22/2009 at 15:56
Discard: 01/22/2010

Chevron Pipeline Co.
4800 Fournace Place - E320 D
Bellaire TX 77401

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit	Dilution Factor
01754	Metals Dissolved Iron	SW-846 6010A 7439-89-6	ug/l 2,540	ug/l 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 6010A	1	093511848004	12/21/2009 08:45	Joanne M Gates	1
01848	WW SW846 ICP Digest (tot rec)	SW-846 3005A	1	093511848004	12/18/2009 10:57	James L Mertz	1



Analysis Report

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

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

LLI Sample # WW 5862388
LLI Group # 1174896
CA

Project Name: Sunol, CA

Collected: 12/10/2009 10:55 by RN

Account Number: 11875

Submitted: 12/11/2009 10:00
Reported: 12/22/2009 at 15:56
Discard: 01/22/2010

Chevron Pipeline Co.
4800 Fournace Place - E320 D
Bellaire TX 77401

SPM10

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit	Dilution Factor
GC/MS Volatiles SW-846 8260B ug/1					
06053	Benzene	71-43-2	0.6	0.5	1
06053	Ethylbenzene	100-41-4	5	0.5	1
06053	Toluene	108-88-3	2	0.5	1
06053	Xylene (Total)	1330-20-7	23	0.5	1
GC Volatiles SW-846 8015B ug/1					
01728	TPH-GRO N. CA water C6-C12	n.a.	540	50	1
GC Miscellaneous SW-846 8015B ug/1					
01412	Methanol (by Direct Injection)	67-56-1	N.D.	200	1
Metals SW-846 6010B ug/1					
07058	Manganese	7439-96-5	964	0.84	1
Wet Chemistry EPA 300.0 ug/1					
00368	Nitrate Nitrogen	14797-55-8	330	250	5
00228	Sulfate	14808-79-8	640,000	30,000	100
SM20 2320 B ug/1 as CaCO3					
00202	Alkalinity to pH 4.5	n.a.	512,000	460	1
00201	Alkalinity to pH 8.3	n.a.	N.D.	460	1
SM20 2540 C ug/1					
00212	Total Dissolved Solids	n.a.	1,580,000	38,800	1
SM20 3500 Fe B modified ug/1					
08344	Ferrous Iron	n.a.	10,900	200	20

General Sample Comments

State of California Lab Certification No. 2501

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

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
06053	BTEX by 8260B	SW-846 8260B	1	P093491AA	12/15/2009 12:10	Daniel H Heller	1
01163	GC/MS VOA Water Prep	SW-846 5030B	1	P093491AA	12/15/2009 12:10	Daniel H Heller	1
01728	TPH-GRO N. CA water C6-C12	SW-846 8015B	1	09351B07A	12/18/2009 02:25	Tyler O Griffin	1
01146	GC VOA Water Prep	SW-846 5030B	1	09351B07A	12/18/2009 02:25	Tyler O Griffin	1



Analysis Report

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

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

LLI Sample # WW 5862388
LLI Group # 1174896
CA

Project Name: Sunol, CA

Collected: 12/10/2009 10:55 by RN

Account Number: 11875

Submitted: 12/11/2009 10:00

Chevron Pipeline Co.

Reported: 12/22/2009 at 15:56

4800 Fournace Place - E320 D

Discard: 01/22/2010

Bellaire TX 77401

SPM10

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
01412	Methanol and Ethanol	SW-846 8015B	1	093500009A	12/16/2009 20:43	Gordon A Lodde	1
07058	Manganese	SW-846 6010B	1	093511848004	12/19/2009 02:11	John W Yanzuk II	1
01848	WW SW846 ICP Digest (tot rec)	SW-846 3005A	1	093511848004	12/18/2009 10:57	James L Mertz	1
00368	Nitrate Nitrogen	EPA 300.0	1	09345196601B	12/12/2009 09:59	Ashley M Adams	5
00228	Sulfate	EPA 300.0	1	09345196601B	12/14/2009 01:44	Ashley M Adams	100
00202	Alkalinity to pH 4.5	SM20 2320 B	1	09349020201A	12/15/2009 13:43	Geraldine C Smith	1
00201	Alkalinity to pH 8.3	SM20 2320 B	1	09349020201A	12/15/2009 13:43	Geraldine C Smith	1
00212	Total Dissolved Solids	SM20 2540 C	1	09348021201A	12/14/2009 08:32	Susan E Hibner	1
08344	Ferrous Iron	SM20 3500 Fe B modified	1	09347834401A	12/13/2009 05:50	Daniel S Smith	20



Analysis Report

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

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

LLI Sample # WW 5862389
LLI Group # 1174896
CA

Project Name: Sunol, CA

Collected: 12/10/2009 10:55 by RN

Account Number: 11875

Submitted: 12/11/2009 10:00

Chevron Pipeline Co.

Reported: 12/22/2009 at 15:56

4800 Fournace Place - E320 D

Discard: 01/22/2010

Bellaire TX 77401

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit	Dilution Factor
01754	Metals Dissolved Iron	SW-846 6010A 7439-89-6	ug/l N.D.	ug/l 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 6010A	1	093511848004	12/19/2009 02:19	John W Yanzuk II	1
01848	WW SW846 ICP Digest (tot rec)	SW-846 3005A	1	093511848004	12/18/2009 10:57	James L Mertz	1



Analysis Report

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

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

LLI Sample # WW 5862390
 LLI Group # 1174896
 CA

Project Name: Sunol, CA

Collected: 12/10/2009 11:30 by RN
 through 12/14/2009
 Submitted: 12/11/2009 10:00
 Reported: 12/22/2009 at 15:56
 Discard: 01/22/2010

Account Number: 11875
 Chevron Pipeline Co.
 4800 Fournace Place - E320 D
 Bellaire TX 77401

SPM11

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit	Dilution Factor
GC/MS Volatiles SW-846 8260B ug/l ug/l					
06053	Benzene	71-43-2	N.D.	0.5	1
06053	Ethylbenzene	100-41-4	N.D.	0.5	1
06053	Toluene	108-88-3	N.D.	0.5	1
06053	Xylene (Total)	1330-20-7	3	0.5	1
GC Volatiles SW-846 8015B ug/l ug/l					
01728	TPH-GRO N. CA water C6-C12	n.a.	66	50	1
GC Miscellaneous SW-846 8015B ug/l ug/l					
01412	Methanol (by Direct Injection)	67-56-1	N.D.	200	1
Metals SW-846 6010B ug/l ug/l					
07058	Manganese	7439-96-5	804	0.84	1
Wet Chemistry EPA 300.0 ug/l ug/l					
00368	Nitrate Nitrogen	14797-55-8	480	250	5
00228	Sulfate	14808-79-8	151,000	6,000	20
SM20 2320 B ug/l as CaCO3 ug/l as CaCO3					
00202	Alkalinity to pH 4.5	n.a.	556,000	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.	1,720,000	38,800	1
SM20 3500 Fe B modified ug/l ug/l					
08344	Ferrous Iron	n.a.	3,600	50	5

General Sample Comments

State of California Lab Certification No. 2501
 Additional sample volume received on 12/15/09 at 0920 for BTEX/Ethanol, GRO, Methanol, TDS, Alkalinity and Sulfate.

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
06053	BTEX by 8260B	SW-846 8260B	1	P093512AA	12/17/2009 12:24	Daniel H Heller	1
01163	GC/MS VOA Water Prep	SW-846 5030B	1	P093512AA	12/17/2009 12:24	Daniel H Heller	1



Analysis Report

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

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

LLI Sample # WW 5862390
LLI Group # 1174896
CA

Project Name: Sunol, CA

Collected: 12/10/2009 11:30 by RN
through 12/14/2009
Submitted: 12/11/2009 10:00
Reported: 12/22/2009 at 15:56
Discard: 01/22/2010

Account Number: 11875
Chevron Pipeline Co.
4800 Fournace Place - E320 D
Bellaire TX 77401

SPM11

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	09351B07A	12/18/2009 02:50	Tyler O Griffin	1
01146	GC VOA Water Prep	SW-846 5030B	1	09351B07A	12/18/2009 02:50	Tyler O Griffin	1
01412	Methanol and Ethanol	SW-846 8015B	1	093500009A	12/16/2009 21:00	Gordon A Lodde	1
07058	Manganese	SW-846 6010B	1	093511848004	12/19/2009 02:23	John W Yanzuk II	1
01848	WW SW846 ICP Digest (tot rec)	SW-846 3005A	1	093511848004	12/18/2009 10:57	James L Mertz	1
00368	Nitrate Nitrogen	EPA 300.0	1	09345196601B	12/12/2009 10:15	Ashley M Adams	5
00228	Sulfate	EPA 300.0	1	09345196601B	12/14/2009 02:01	Ashley M Adams	20
00202	Alkalinity to pH 4.5	SM20 2320 B	1	09349020201A	12/15/2009 13:43	Geraldine C Smith	1
00201	Alkalinity to pH 8.3	SM20 2320 B	1	09349020201A	12/15/2009 13:43	Geraldine C Smith	1
00212	Total Dissolved Solids	SM20 2540 C	1	09350021201A	12/16/2009 09:04	Susan E Hibner	1
08344	Ferrous Iron	SM20 3500 Fe B modified	1	09347834401A	12/13/2009 05:50	Daniel S Smith	5



Analysis Report

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

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

LLI Sample # WW 5862391
LLI Group # 1174896
CA

Project Name: Sunol, CA

Collected: 12/10/2009 11:30 by RN

Account Number: 11875

Submitted: 12/11/2009 10:00

Chevron Pipeline Co.

Reported: 12/22/2009 at 15:56

4800 Fournace Place - E320 D

Discard: 01/22/2010

Bellaire TX 77401

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit	Dilution Factor
01754	Metals Dissolved Iron	SW-846 6010A 7439-89-6	ug/l N.D.	ug/l 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 6010A	1	093511848004	12/19/2009 02:26	John W Yanzuk II	1
01848	WW SW846 ICP Digest (tot rec)	SW-846 3005A	1	093511848004	12/18/2009 10:57	James L Mertz	1



Analysis Report

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

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

LLI Sample # WW 5862392
LLI Group # 1174896
CA

Project Name: Sunol, CA

Collected: 12/10/2009

Account Number: 11875

Submitted: 12/11/2009 10:00

Chevron Pipeline Co.

Reported: 12/22/2009 at 15:56

4800 Fournace Place - E320 D

Discard: 01/22/2010

Bellaire TX 77401

SP-TB

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit	Dilution Factor
GC/MS Volatiles			ug/l	ug/l	
06053	Benzene	71-43-2	N.D.	0.5	1
06053	Ethylbenzene	100-41-4	N.D.	0.5	1
06053	Toluene	108-88-3	N.D.	0.5	1
06053	Xylene (Total)	1330-20-7	N.D.	0.5	1
GC Volatiles			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
06053	BTEX by 8260B	SW-846 8260B	1	F093492AA	12/15/2009 11:56	Anita M Dale	1
01163	GC/MS VOA Water Prep	SW-846 5030B	1	F093492AA	12/15/2009 11:56	Anita M Dale	1
01728	TPH-GRO N. CA water C6-C12	SW-846 8015B	1	09351B07A	12/18/2009 00:17	Tyler O Griffin	1
01146	GC VOA Water Prep	SW-846 5030B	1	09351B07A	12/18/2009 00:17	Tyler O Griffin	1

Quality Control Summary

 Client Name: Chevron Pipeline Co.
 Reported: 12/22/09 at 03:56 PM

Group Number: 1174896

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

<u>Analysis Name</u>	<u>Blank Result</u>	<u>Blank MDL</u>	<u>Report Units</u>	<u>LCS %REC</u>	<u>LCSD %REC</u>	<u>LCS/LCSD Limits</u>	<u>RPD</u>	<u>RPD Max</u>
Batch number: F093492AA	Sample number(s): 5862392							
Benzene	N.D.	0.5	ug/l	93		79-120		
Ethylbenzene	N.D.	0.5	ug/l	93		79-120		
Toluene	N.D.	0.5	ug/l	89		79-120		
Xylene (Total)	N.D.	0.5	ug/l	90		80-120		
Batch number: P093491AA	Sample number(s): 5862384, 5862386, 5862388							
Benzene	N.D.	0.5	ug/l	92		79-120		
Ethylbenzene	N.D.	0.5	ug/l	89		79-120		
Toluene	N.D.	0.5	ug/l	91		79-120		
Xylene (Total)	N.D.	0.5	ug/l	90		80-120		
Batch number: P093512AA	Sample number(s): 5862390							
Benzene	N.D.	0.5	ug/l	103	108	79-120	5	30
Ethylbenzene	N.D.	0.5	ug/l	100	105	79-120	5	30
Toluene	N.D.	0.5	ug/l	101	107	79-120	5	30
Xylene (Total)	N.D.	0.5	ug/l	101	107	80-120	5	30
Batch number: 09351B07A	Sample number(s): 5862384, 5862386, 5862388, 5862390, 5862392							
TPH-GRO N. CA water C6-C12	N.D.	50.	ug/l	113	111	75-135	2	30
Batch number: 093500009A	Sample number(s): 5862384, 5862386, 5862388, 5862390							
Methanol (by Direct Injection)	N.D.	200.	ug/l	104		69-131		
Batch number: 093511848004	Sample number(s): 5862384-5862391							
Iron	N.D.	52.2	ug/l	108		90-112		
Manganese	N.D.	0.84	ug/l	103		90-110		
Batch number: 09345196601B	Sample number(s): 5862384, 5862386, 5862388, 5862390							
Nitrate Nitrogen	N.D.	50.	ug/l	106		90-110		
Sulfate	N.D.	300.	ug/l	97		89-110		
Batch number: 09347834401A	Sample number(s): 5862384, 5862386, 5862388, 5862390							
Ferrous Iron	N.D.	10.	ug/l	101		92-105		
Batch number: 09348021201A	Sample number(s): 5862384, 5862386, 5862388							
Total Dissolved Solids	N.D.	9,700.	ug/l	90		80-120		
Batch number: 09349020201A	Sample number(s): 5862384, 5862386, 5862388, 5862390							
Alkalinity to pH 4.5	N.D.	460.	ug/l as CaCO3	100		98-103		
Batch number: 09350021201A	Sample number(s): 5862390							
Total Dissolved Solids	N.D.	9,700.	ug/l	107		80-120		

*- 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.
 Reported: 12/22/09 at 03:56 PM

Group Number: 1174896

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

<u>Analysis Name</u>	<u>MS %REC</u>	<u>MSD %REC</u>	<u>MS/MSD Limits</u>	<u>RPD</u>	<u>RPD MAX</u>	<u>BKG Conc</u>	<u>DUP Conc</u>	<u>DUP RPD</u>	<u>Dup RPD Max</u>
Batch number: F093492AA	Sample number(s): 5862392 UNSPK: P860331								
Benzene	97	95	80-126	2	30				
Ethylbenzene	99	95	71-134	5	30				
Toluene	93	92	80-125	1	30				
Xylene (Total)	96	92	79-125	4	30				
Batch number: P093491AA	Sample number(s): 5862384, 5862386, 5862388 UNSPK: P862408								
Benzene	99	101	80-126	2	30				
Ethylbenzene	95	96	71-134	1	30				
Toluene	98	99	80-125	2	30				
Xylene (Total)	96	97	79-125	1	30				
Batch number: P093512AA	Sample number(s): 5862390 UNSPK: P865520								
Benzene	82		80-126						
Ethylbenzene	80		71-134						
Toluene	81		80-125						
Xylene (Total)	82		79-125						
Batch number: 09351B07A TPH-GRO N. CA water C6-C12	Sample number(s): 5862384, 5862386, 5862388, 5862390, 5862392 UNSPK: P863251								
	106		63-154						
Batch number: 093500009A Methanol (by Direct Injection)	Sample number(s): 5862384, 5862386, 5862388, 5862390 UNSPK: P864313								
	104	104	61-131	0	20				
Batch number: 093511848004	Sample number(s): 5862384-5862391 UNSPK: P861871 BKG: P861871								
Iron	693 (2)	232 (2)	75-125	5	20	93,600	94,600	1	20
Manganese	125	132*	75-125	2	20	962	904	6	20
Batch number: 09345196601B	Sample number(s): 5862384, 5862386, 5862388, 5862390 UNSPK: P862043 BKG: P862043								
Nitrate Nitrogen	132*		90-110			N.D.	N.D.	0 (1)	20
Sulfate	138*		90-110			19,900	20,000	0 (1)	20
Batch number: 09347834401A	Sample number(s): 5862384, 5862386, 5862388, 5862390 UNSPK: 5862386 BKG: 5862386								
Ferrous Iron	97	95	66-130	1	6	3,300	3,300	0 (1)	10
Batch number: 09348021201A	Sample number(s): 5862384, 5862386, 5862388 UNSPK: P861753 BKG: P861753								
Total Dissolved Solids	101	99	54-143	1	12	846,000	840,000	1	9
Batch number: 09349020201A	Sample number(s): 5862384, 5862386, 5862388, 5862390 UNSPK: P858877 BKG: P858877								
Alkalinity to pH 4.5	99	98	64-130	0	2	241,000	242,000	1	4
Alkalinity to pH 8.3						N.D.	N.D.	0 (1)	4
Batch number: 09350021201A	Sample number(s): 5862390 UNSPK: P865032 BKG: P865032								
Total Dissolved Solids	116	120	54-143	2	12	2,720,000	2,770,000	2	9

Surrogate Quality Control

*- Outside of specification

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

Quality Control Summary

 Client Name: Chevron Pipeline Co.
 Reported: 12/22/09 at 03:56 PM

Group Number: 1174896

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: BTEX by 8260B
 Batch number: F093492AA

	Dibromofluoromethane	1,2-Dichloroethane-d4	Toluene-d8	4-Bromofluorobenzene
5862392	103	97	92	104
Blank	105	100	96	108
LCS	108	102	95	106
MS	114	103	96	109
MSD	109	100	94	106
Limits:	80-116	77-113	80-113	78-113

 Analysis Name: BTEX by 8260B
 Batch number: P093491AA

	Dibromofluoromethane	1,2-Dichloroethane-d4	Toluene-d8	4-Bromofluorobenzene
5862384	86	84	83	87
5862386	85	84	84	98
5862388	85	84	83	81
Blank	85	87	82	81
LCS	86	86	84	83
MS	86	87	82	81
MSD	85	86	82	82
Limits:	80-116	77-113	80-113	78-113

 Analysis Name: BTEX by 8260B
 Batch number: P093512AA

	Dibromofluoromethane	1,2-Dichloroethane-d4	Toluene-d8	4-Bromofluorobenzene
5862390	97	103	98	89
Blank	99	103	98	88
LCS	98	105	97	91
LCSD	98	104	98	92
MS	99	106	98	91
Limits:	80-116	77-113	80-113	78-113

 Analysis Name: TPH-GRO N. CA water C6-C12
 Batch number: 09351B07A

	Trifluorotoluene-F
5862384	110
5862386	116
5862388	107
5862390	101
5862392	101
Blank	101
LCS	116
LCSD	115
MS	115
Limits:	63-135

Analysis Name: Methanol and Ethanol

*- 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.
Reported: 12/22/09 at 03:56 PM

Group Number: 1174896

Surrogate Quality Control

Batch number: 093500009A
Acetone

5862384	105
5862386	108
5862388	101
5862390	100
Blank	103
LCS	105
MS	100
MSD	100

Limits: 71-139

*- Outside of specification

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

Chevron Generic Analysis Request/Chain of Custody



012482

For Lancaster Laboratories use only
 Acct. #: 11875 Sample #: 5862384-92 SCR#: _____

Grp # 1174896

Facility #: _____
 Site Address: MP 2.7 Calaveras Road, Summit, CA
 Chevron PM: J. Johnson Lead Consultant: UPS
 Consultant/Office: UPS Oakland
 Consultant Prj. Mgr.: Joe Morgan
 Consultant Phone #: (510) 893-3600 Fax #: (510) 874-3268
 Sampler: P. Naccarati
 Service Order #: _____ Non SAR: _____

Matrix		Total Number of Containers		Analyses Requested																												
				Preservation Codes																												
Soil	Water	Oil	Air	BTEX	MTBE	8021	8260	Naphth	8021	8260	TPH	TPH GLO	NCA	Luff	TPH D	Extended Ring	Silica Gel Cleanup	Lead Total	Diss.	Method	Asbestos	HCl	HClID	quantification	TDS	by EPA 160.1	Manganese	Ferrous Iron	Nitrate	Nitrogen	Sulfate	
				X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
				X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
				X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
				X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
				X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X

Preservative Codes
 H = HCl T = Thiosulfate
 N = HNO₃ B = NaOH
 S = H₂SO₄ O = Other

J value reporting needed
 Must meet lowest detection limits possible for 8260 compounds
 8021 MTBE Confirmation
 Confirm MTBE + Naphthalene
 Confirm highest hit by 8260
 Confirm all hits by 8260
 Run ___ oxy's on highest hit
 Run ___ oxy's on all hits

Sample Identification	Date Collected	Time Collected	Grab	Composite	Soil	Water	Oil	Air	Total Number of Containers																		Comments / Remarks					
MW-8	12/10/09	855	X			X			17	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
MW-9	↓	1020	X			X			17	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
MW-10	↓	1055	X			X			16	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
MW-11	↓	1130	X			X			16	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
TB-1	12/10/09	-								X				X																		

Turnaround Time Requested (TAT) (please circle) (STD. TAT) 72 hour 48 hour 24 hour 4 day 5 day	Relinquished by: Date: 12/10/09 Time: 1500		Received by: _____ Date: _____ Time: _____	
	Relinquished by: _____ Date: _____ Time: _____		Received by: _____ Date: _____ Time: _____	
Data Package Options (please circle if required) QC Summary Type I - Full Type VI (Raw Data) Disk / EDD WIP (RWQCB) Standard Format Disk _____ Other.	Relinquished by: _____ Date: _____ Time: _____		Received by: _____ Date: _____ Time: _____	
	Relinquished by Commercial Carrier: UPS (FedEx) Other _____		Received by: Date: 12/10/09 Time: 1000	
	Temperature Upon Receipt: <u>12-14</u> °C		Custody Seals Intact? (Yes) No	

Chevron California Region Analysis Request/Chain of Custody



247906

For Lancaster Laboratories use only
 Acct #: 11875 Sample #: 5862384-92 SCR#: _____

Grp # 1174896

Facility #: _____
 Site Address: Sand Spill
 Chevron PM: J. Johnson Lead Consultant: _____
 Consultant/Office: WPS - Oakland
 Consultant Prj. Mgr.: Joe Morgan
 Consultant Phone #: (510) 893-3600 Fax #: (510) 814-3268
 Sampler: R. Naccarati
 Service Order #: _____ Non SAR: _____

Analyses Requested

Preservation Codes

#	#																			
		BTEX - MTBE 8260	<input checked="" type="checkbox"/>	8021																
		TPH 8015 MOD DRO	<input type="checkbox"/>	Silica Gel Cleanup																
		8260 full scan		Oxygenates																
		Lead 7420	<input type="checkbox"/>	7421																
		TDS		160.1																
		Alkalinity by breakdown																		
		Sulfate																		
		Methanol by Ethanol																		
		Iron (see SW 846 IUP)																		

Preservative Codes

- H = HCl T = Thiosulfate
 N = HNO₃ B = NaOH
 S = H₂SO₄ O = Other
- J value reporting needed
 Must meet lowest detection limits possible for 8260 compounds
- 8021 MTBE Confirmation
 Confirm highest hit by 8260
 Confirm all hits by 8260
 Run ___ oxy's on highest hit
 Run ___ oxy's on all hits

Field Point Name	Matrix	Repeat Sample	Top Depth	Year Month Day	Time Collected	New Field Pt.	Grab	Composite	Total Number of Containers
MW-11	W	-	-	2009-12-14	1445	-	X		

Comments / Remarks

Please use what you can out of the sample.

Turnaround Time Requested (TAT) (please circle)

<u>STD. TAT</u>	72 hour	48 hour
24 hour	4 day	5 day

Relinquished by: [Signature] Date: 12/14/09 Time: 1700

Relinquished by: _____ Date: _____ Time: _____

Relinquished by: _____ Date: _____ Time: _____

Received by: _____ Date: _____ Time: _____

Received by: _____ Date: _____ Time: _____

Received by: _____ Date: _____ Time: _____

Data Package Options (please circle if required)

QC Summary Type I - Full
 Type VI (Raw Data) Coelt Deliverable not needed
 WIP (RWQCB)
 Disk

Relinquished by Commercial Carrier: _____ Date: _____ Time: _____

UPS FedEx Other: _____

Temperature Upon Receipt 1.0 °C

Received by: [Signature] Date: 12/15/09 Time: 920

Custody Seals Intact? Yes No

Lancaster Laboratories Explanation of Symbols and Abbreviations

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

N.D.	none detected	BMQL	Below Minimum Quantitation Level
TNTC	Too Numerous To Count	MPN	Most Probable Number
IU	International Units	CP Units	cobalt-chloroplatinate units
umhos/cm	micromhos/cm	NTU	nephelometric turbidity units
C	degrees Celsius	F	degrees Fahrenheit
Cal	(diet) calories	lb.	pound(s)
meq	milliequivalents	kg	kilogram(s)
g	gram(s)	mg	milligram(s)
ug	microgram(s)	l	liter(s)
ml	milliliter(s)	ul	microliter(s)
m3	cubic meter(s)	fib >5 um/ml	fibers greater than 5 microns in length per ml
<	less than – The number following the sign is the <u>limit of quantitation</u> , the smallest amount of analyte which can be reliably determined using this specific test.		
>	greater than		
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.		

U.S. EPA 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
J	Estimated value
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

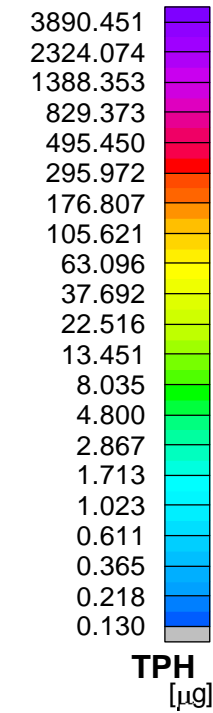
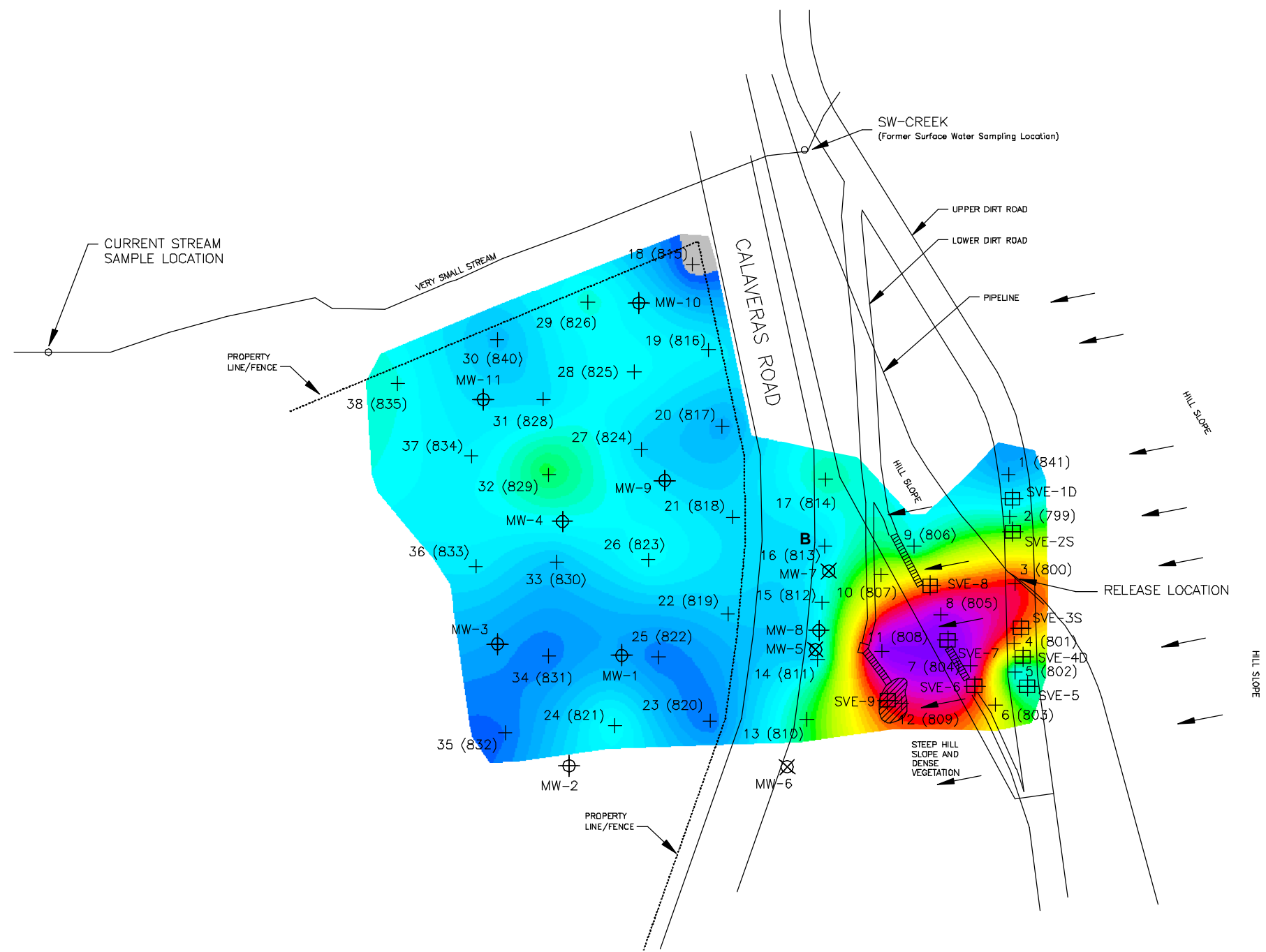
B	Value is <CRDL, but ≥IDL
E	Estimated due to interference
M	Duplicate injection precision not met
N	Spike amount not within control limits
S	Method of standard additions (MSA) used for calculation
U	Compound was not detected
W	Post digestion spike out of control limits
*	Duplicate analysis not within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

Analytical test results for methods listed on the laboratories' accreditation scope meet all requirements of NELAC unless otherwise noted under the individual analysis.

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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Appendix C
GORE™ Survey Site Assessment Maps



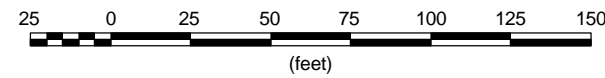
GORE™ Surveys for Environmental Site Assessment



W.L. GORE & ASSOCIATES, INC.
 100 CHESAPEAKE BOULEVARD
 ELKTON, MD, USA 21921
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URS Corp., Oakland, CA
 Sunol Spill, Sunol, CA
 Total Petroleum Hydrocarbons

Scale 1:720



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DATE DRAWN: 15 Jan 2010

DRAWN BY: JW

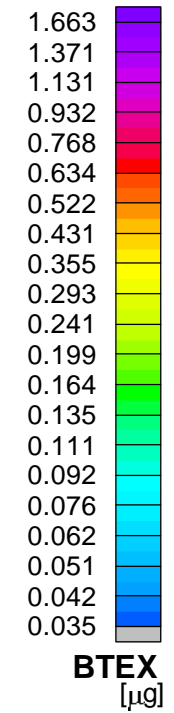
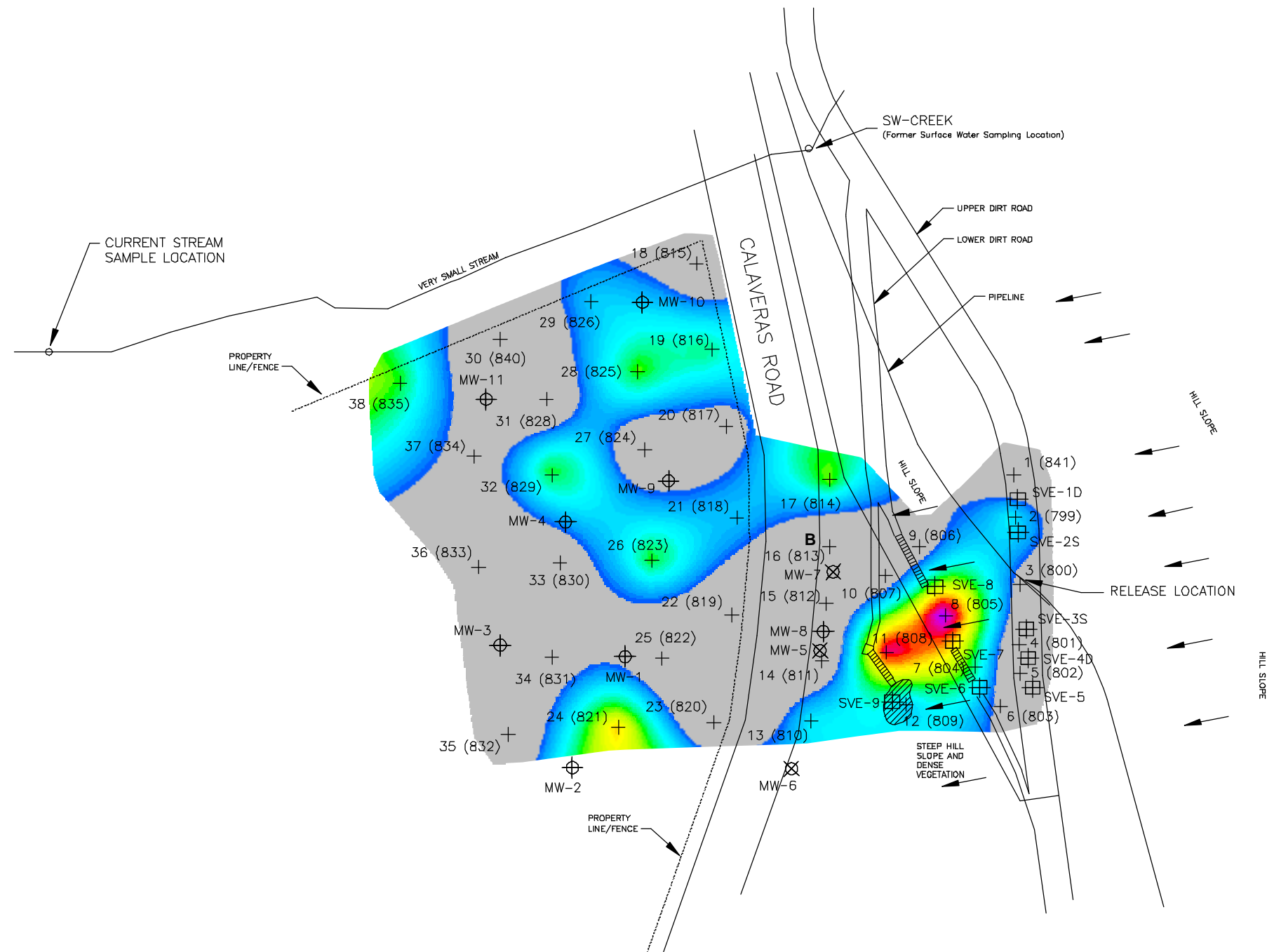
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REV. DATE:

REV. #:

PROJECT NUMBER: 20247086



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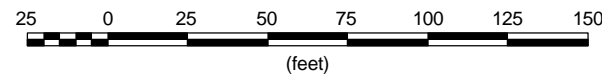


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BTEX

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DATE DRAWN: 15 Jan 2010

DRAWN BY: JW

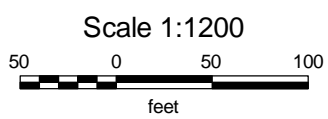
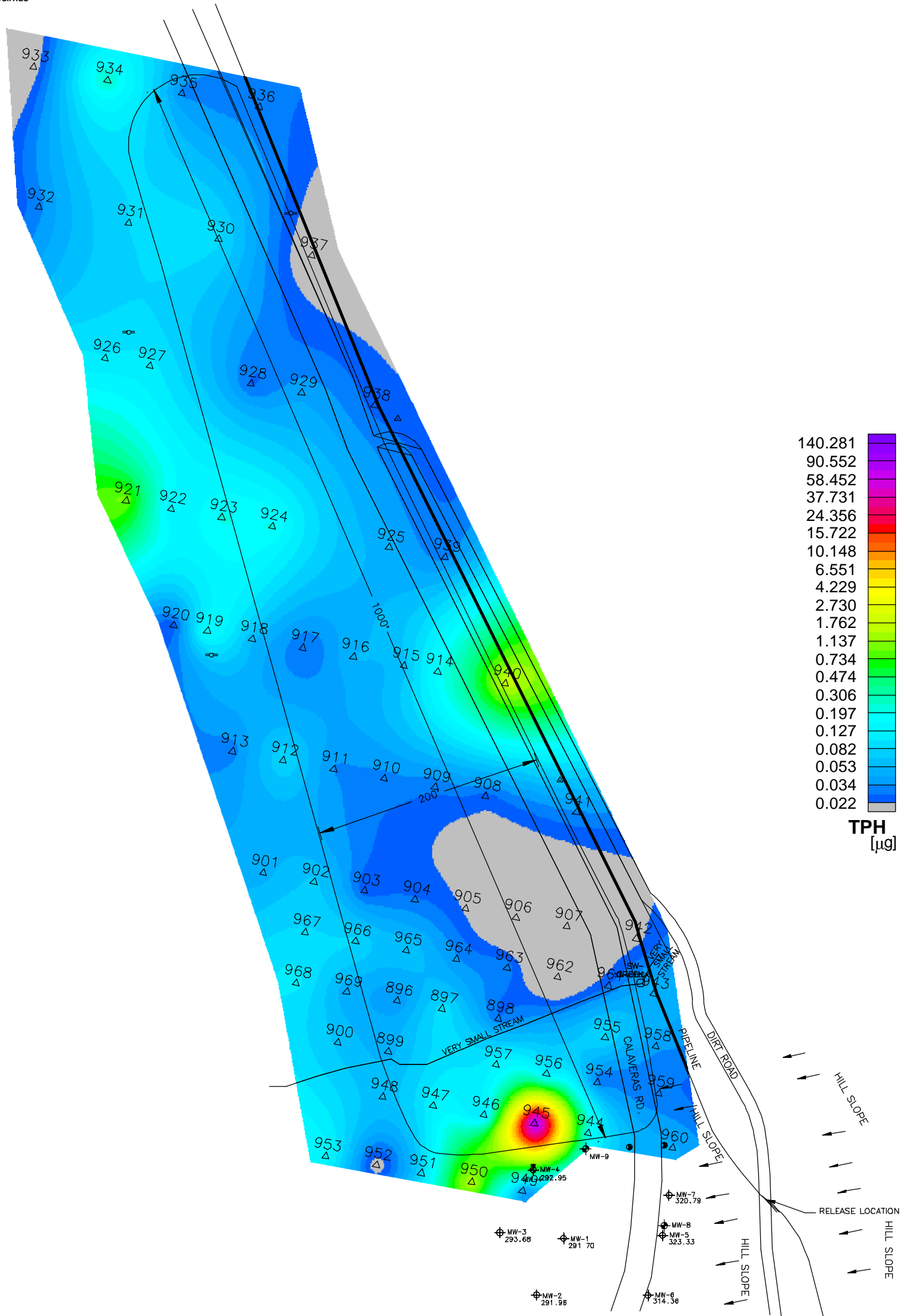
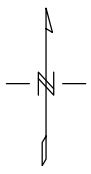
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SITE CODE: FDX

REV. DATE:

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DATE DRAWN: 06 June 2007

DRAWN BY: JW

ORIG. CAD: Sunol Module...DWG

SITE CODE: DRX

REV. DATE: 14 June 2007

REV. #: 1

PROJECT NUMBER: 13147173