

F/S ID 27223439



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Mr. Mark Dunbar
Washington State Department of Ecology
Central Region
15 West Yakima Avenue, Suite 200
Yakima, Washington 98902-3452

ENVIRONMENT

Subject:
Annual Groundwater Monitoring Report 2011
Chevron Service Station No. 9-8944
1323 Lee Boulevard
Richland, Washington
VCP Project No. CE0238

Date:
November 17, 2011

Contact:
Mr. Allen C. Just

Dear Mr. Dunbar:

Phone:
714.508.2677

On behalf of Chevron Environmental Management Company (Chevron EMC), ARCADIS U.S., Inc. (ARCADIS) has prepared this Annual Groundwater Monitoring Report to document groundwater monitoring activities performed at Chevron Service Station No. 9-8944 (the Site) located at 1323 Lee Boulevard in Richland, Benton County, Washington (Figure 1). The monitoring activities were conducted on September 9, 2011. Monitoring activities included collecting depth to water data and groundwater samples from five monitoring wells located at the Site.

Email:
allen.just@arcadis-us.com

Our ref:
B0047580.0000.00001

Site Background

The Site is a former Standard Oil/Chevron branded service station. The Site is located on the southeast corner of Lee Boulevard and Gillespie Street. The Site is currently occupied by a Subway Restaurant building and parking lot. The areas to the south and southeast of the Site are primarily residential and the areas to the east, north and west are primarily commercial.

The former gasoline service station was originally constructed in 1960 and operated as a Chevron station until 1976, at which time the station was decommissioned.

There are five onsite wells, MW-4 through MW-8.

Imagine the result



Annual Groundwater Monitoring Event – September 2011

The scope of work for the annual monitoring event included the following:

- Collected water level measurements (relative to the top of casing) in five monitoring wells, MW-4, MW-5, MW-6, MW-7, and MW-8.
- Purged and sampled monitoring wells MW-4, MW-5, MW-6, MW-7, and MW-8.
- Analyzed all wells for:
 - Total lead by United States Environmental Protection Agency (USEPA) Method 6020.
- Analyzed wells MW-4, MW-6, and MW-8 for:
 - Total petroleum hydrocarbons – heavy range organics (TPH-HRO) by Northwest Method NWTPH-Dx 97-602 with silica clean-up gel;
 - Total petroleum hydrocarbons – diesel range organics (TPH-DRO) by Northwest Method NWTPH-Dx 97-602 with silica clean-up gel; and
 - Total petroleum hydrocarbons – gasoline range organics (TPH-GRO) by Northwest Method NWTPH-Gx 97-602.
- Analyzed well MW-8 for:
 - Benzene, Toluene, Ethylbenzene and Xylene (BTEX) by United States Environmental Protection Agency (USEPA) Method 8260B; and
 - Naphthalene by USEPA Method 8260B.
- Included a duplicate sample of well MW-8 for Quality Assurance/Quality Control purposes.

- Prepared this letter report documenting the field activities and analytical results.

Groundwater Monitoring Activities

On September 9, 2011, Blaine Tech Services, Inc. (Blaine Tech), an ARCADIS subcontractor, visited the Site to collect groundwater samples from monitoring wells MW-4, MW-5, MW-6, MW-7, and MW-8. Prior to purging or sampling, depth to groundwater was measured in each well using a static water level indicator. Depth to groundwater ranged from 13.18 to 13.85 feet below the top of the well casings. These values were used to develop groundwater contours and calculate a hydraulic gradient of 0.002 feet per foot (ft/ft) to the southwest. Groundwater elevation data are presented in Table 1 and on Figure 2.

Wells MW-4, MW-5, MW-6, MW-7, and MW-8 were then purged and sampled using a peristaltic pump and dedicated tubing per standard operating procedures (Attachment A). During the purging process, the pH, electrical conductivity, turbidity, dissolved oxygen, oxidation reduction potential and temperature were monitored and recorded on the sampling data sheets included as Attachment B. Purging continued until these parameters were stabilized.

The samples were shipped under chain-of-custody documentation to Lancaster Laboratories of Lancaster, Pennsylvania. Strict chain-of-custody procedures were followed from the time the samples were collected until the time they were shipped to the laboratory. Copies of the chain-of-custody documentation and laboratory report are included as Attachment C.

Summary of Results

Groundwater elevation data are summarized in Table 1 and Figure 2. Historical groundwater analytical results are summarized in Table 1. Analytical results from the samples collected on September 9, 2011 are also presented on Figure 2.

Groundwater samples collected during the monitoring event indicated the following:

- TPH-GRO concentrations reported for the groundwater samples collected from wells MW-4, MW-6, and MW-8 ranged from 180 micrograms per liter ($\mu\text{g/L}$) to 2,100 $\mu\text{g/L}$ (well MW-8). The TPH-GRO concentration in well MW-8

is above the Model Toxics Control Act (MTCA) Method A Cleanup Level of 1,000 µg/L.

- TPH-DRO concentrations reported for the groundwater samples collected from wells MW-4, MW-6, and MW-8 ranged from not detected above the laboratory reporting limit of 29 µg/L to 130 µg/L (well MW-8). The TPH-DRO concentrations are below the MTCA Method A Cleanup Level of 500 µg/L.
- TPH-HRO concentrations were analyzed for in wells MW-4, MW-6, and MW-8. TPH-HRO concentrations were not detected above laboratory reporting limits in any of the groundwater samples collected during this monitoring event.
- Benzene was not detected above laboratory reporting limit of 0.05 µg/L in the groundwater sample collected from well MW-8.
- Toluene concentration reported for the groundwater sample collected from well MW-8 was 0.5 µg/L. The toluene concentration is below the MTCA Method A Cleanup Level of 1,000 µg/L.
- Ethylbenzene concentration reported for the groundwater sample collected from well MW-8 was 45 µg/L. The ethylbenzene concentration is below the MTCA Method A Cleanup Level of 700 µg/L.
- Total xylenes concentration reported for the groundwater sample collected from well MW-8 was 4 µg/L. The total xylenes concentration is below the MTCA Method A Cleanup Level of 1,000 µg/L.
- Naphthalene concentration reported for the groundwater sample collected from well MW-8 was 24 µg/L. The naphthalene concentration is below the MTCA Method A Cleanup Level of 160 µg/L.
- Total lead concentrations reported for the groundwater samples collected from wells MW-4, MW-5, MW-6, MW-7, and MW-8 ranged from 0.15 µg/L to 0.77 µg/L (well MW-6). The total lead concentrations are below the MTCA Method A Cleanup Level of 15 µg/L.

Quality Assurance / Quality Control

Three QA/QC samples were submitted for chemical analysis during the September 2011 monitoring event. The first QA/QC sample consisted of one trip blank. The trip blank sample was analyzed for TPH-GRO and BTEX. The trip blank sample did not contain any of the analyzed constituents above the laboratory reporting limits.

The second QA/QC sample consisted of a duplicate sample. Duplicate samples help assess the precision of the analyses. A duplicate sample was collected from well MW-8 and submitted to Lancaster Laboratories for chemical analysis. Both the original sample (MW-8) and duplicate sample (DUP) were analyzed for TPH-GRO, TPH-DRO, TPH-HRO, naphthalene, total lead and BTEX. A low relative percent difference (less than 30%) indicates good precision.

Analytical results for MW-8 and the duplicate sample indicated relative percent differences (RPDs) for total xylenes and naphthalene of 0.0% each. Analytical results for toluene and ethylbenzene indicated RPDs of 18.2% and 2.2%, respectively. Analytical results for TPH-GRO and TPH-DRO indicated RPDs of 4.7% and 8.0%, respectively. Analytical results for total lead indicated an RPD of 6.7%. Analytical results for concentrations of benzene and TPH-HRO were not detected in either MW-8 or DUP above the laboratory reporting limits during this monitoring event.

The third QA/QC sample consisted of an equipment blank. The equipment blank was analyzed for TPH-GRO, TPH-DRO, TPH-HRO, BTEX, naphthalene and total lead. The equipment blank sample did not contain any of the analyzed constituents above the laboratory reporting limits.

Project Schedule

The next annual monitoring event is tentatively scheduled for September 2012. ARCADIS will provide Ecology Headquarters with a minimum 72-hour advance notice prior to conducting the monitoring event. The field activities will be performed in accordance with the standard procedures utilized during previous monitoring events

Please contact Allen Just at 714.508.2677, if you have any questions or comments regarding this report.

Sincerely,

ARCADIS U.S., Inc.

Allen C. Just, P.E.
Principal Engineer

Rebecca Andresen, L.G.
Technical Expert



Rebecca K. Andresen

Attachments:

| | |
|--------------|--|
| Table 1 | Groundwater Monitoring Data and Analytical Results |
| Figure 1 | Topographic Map of Site Location and Vicinity |
| Figure 2 | Groundwater Contour Map – September 9, 2011 |
| Figure 3 | Groundwater Concentration Map – September 9, 2011 |
| Attachment A | Standard Operating Procedures – Groundwater Sampling |
| Attachment B | Groundwater Monitoring and Sampling Data Package |
| Attachment C | Chain-of-Custody Form and Laboratory Analytical Data |

Copies:

Jean Wong, Chevron Environmental Management Company
Russell Cazier – Cazier Properties, LLC, Property Owner

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Attachments

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Table

TABLE 1
GROUNDWATER MONITORING DATA AND ANALYTICAL RESULTS
CHEVRON SITE NO. 9-8944
RICHLAND, WASHINGTON

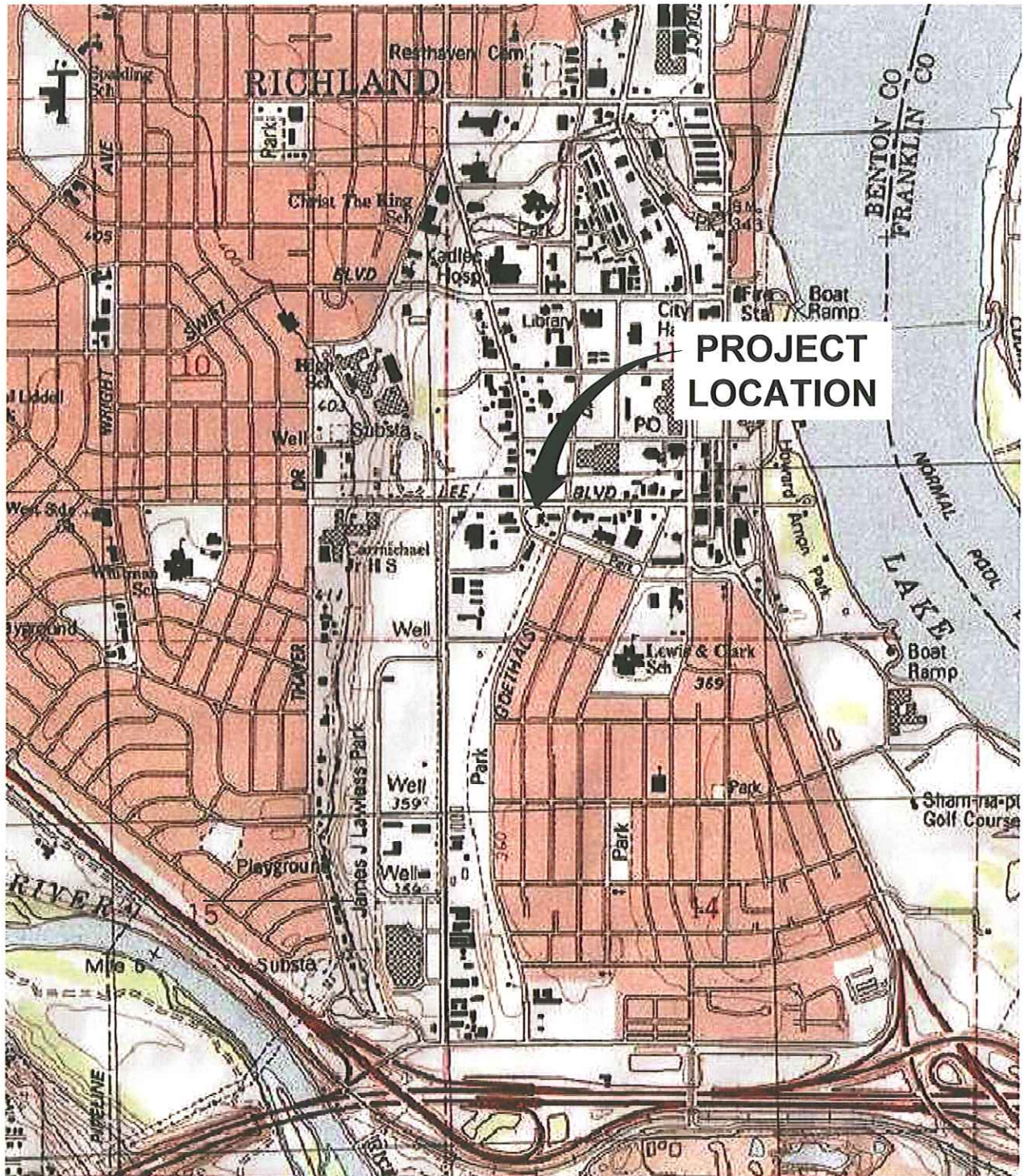
| Location | Date | TOC | DTW | GWE | HYDROCARBONS | | | PRIMARY VOCs | | | LEAD | OXYGENATES | | PAHS | | | | | | | | | | | | | | | | | |
|------------------------------|-------|-----|-----|---------|--------------|---------|---------|--------------|------|-----|------|------------|-----------|-------|----------------|----------------|-------------|-------------------|----------|----------------------|----------------------|---------------|------------------------|-----------------------|----|----|----|----|----|----|--|
| | | | | | TPH-GRO | TPH-DRO | TPH-HRO | B | T | E | | X | Dissolved | Total | MTBE by SW8020 | MTBE by SW8268 | Naphthalene | Benz(a)anthracene | Chrysene | Benzo(h)fluoranthene | Benzo(k)fluoranthene | Benz(a)pyrene | Indeno(1,2,3-cd)pyrene | Dibenz(a,h)anthracene | | | | | | | |
| MTCA Method A Cleanup Levels | Units | ft | ft | ft-amsl | 800/1000 | 500 | 500 | 5 | 1000 | 700 | 1000 | NA | 15 | NA | 20 | 160 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

GWE = Groundwater elevation
(ft-amsl) = Feet Above Mean sea level
ft = Feet
µg/L = Micrograms per Liter
TPH-DRO = Total Petroleum Hydrocarbons - Diesel Range Organics
TPH-GRO = Total Petroleum Hydrocarbons - Gasoline Range Organics
TPH-HRO = Total Petroleum Hydrocarbons - Oil Range Organics
BTEX = Benzene, toluene, ethylbenzene, xylenes
VOCs = Volatile organic compounds
MTBE = Methyl tertiary butyl ether
PAHs = Polycyclic aromatic hydrocarbons
-- = Not available / not applicable
<x = Not detected above laboratory method detection limit
J = Estimated concentration
1 = Not sampled due to insufficient water
2 = Inaccessible
3 = Dry
4 = Destroyed
5 = Inaccessible - Paved over

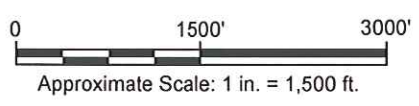
NOTES:
Concentrations in bold exceed MTCA Method A Cleanup Levels

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Figures



REFERENCE: BASE MAP CREATED WITH TOPOI - RICHLAND, US TOPO.

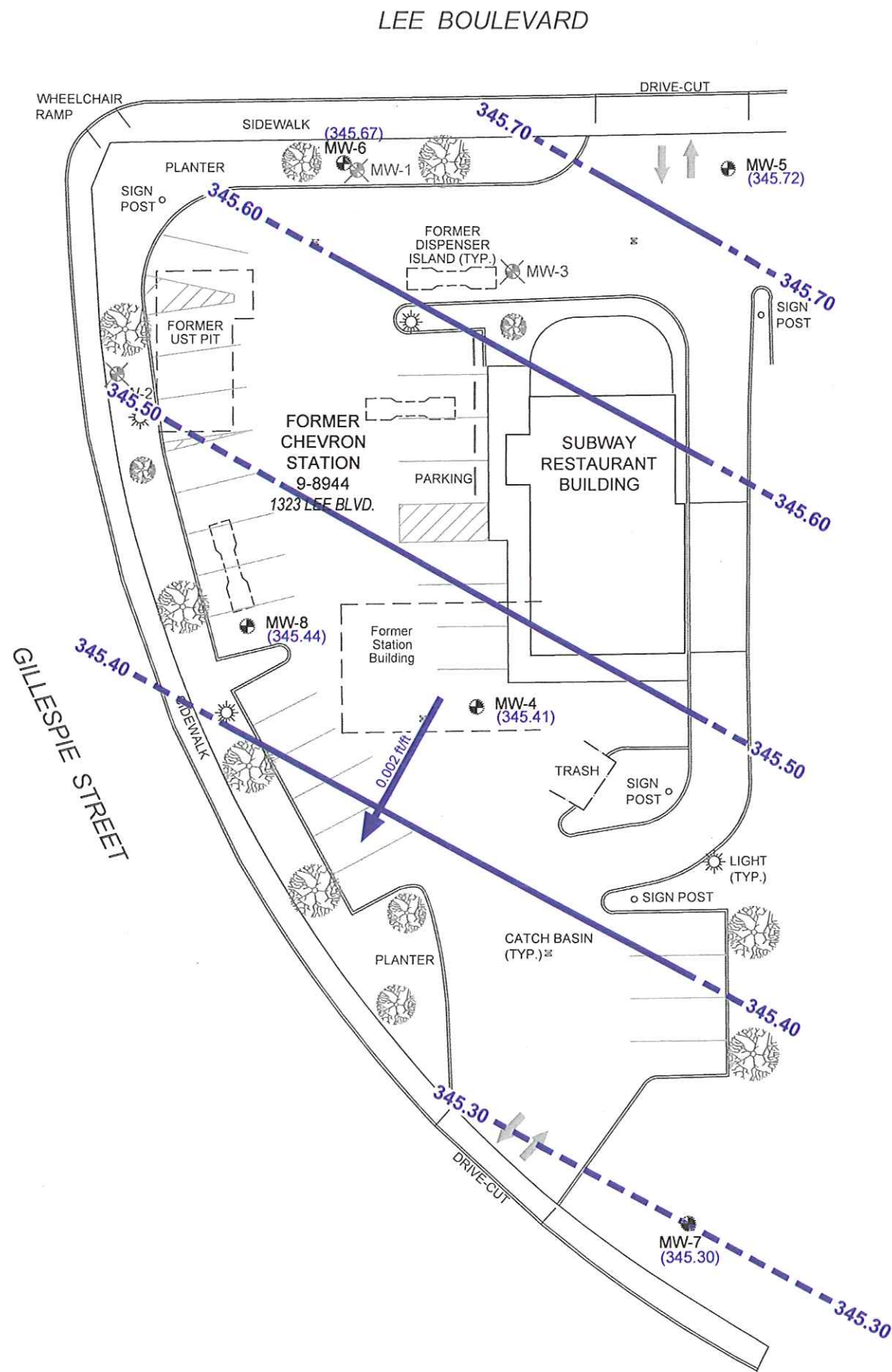


CHEVRON SERVICE STATION NO. 9-8944
RICHLAND, WASHINGTON

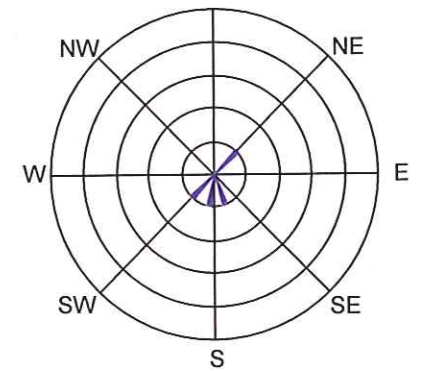
SITE LOCATION MAP



CITY:IRVINE DIV:GROUP:ENV LD:ENVCAD PIC: PM:JANET NEWMAN TM: LYR:(CON)-OFF-REF:
 G:\ENVCAD\CostaMesa\ACT\B040000\B047580\000\00\TM Site 9-8944 Kennewick, WA\B047580\0000 Site 9-8944 Kennewick\WA.dwg
 LAYOUT: 2 SAVED: 11/3/2011 10:51 AM ACADVER: 18.05 (LMS TECH) PAGES: 2 PLOTSETUP: PLOTSTY:LETALE: PLOTTED: 11/3/2011 10:36 AM BY: MURESAN, ELENA



- LEGEND:**
- MW-5 MONITORING WELL LOCATION AND IDENTIFICATION
 - MW-2 DESTROYED MONITORING WELL LOCATION
 - (345.72) GROUNDWATER ELEVATIONS (FT AMSL)
 - 345.00 GROUNDWATER ELEVATION CONTOURS - DASHED WHERE INFERRED (FT AMSL)
 - 0.002 ft/ft GROUNDWATER FLOW DIRECTION AND GRADIENT (ft/ft)
 - ft/ft FEET PER FOOT



- NOTES:**
1. BASE MAP PROVIDED BY CONESTOGA-ROVERS & ASSOCIATES, DATED 11/3/2008, AT A SCALE OF 1"=30'.
 2. ALL SITE FEATURES AND LOCATIONS ARE APPROXIMATE.

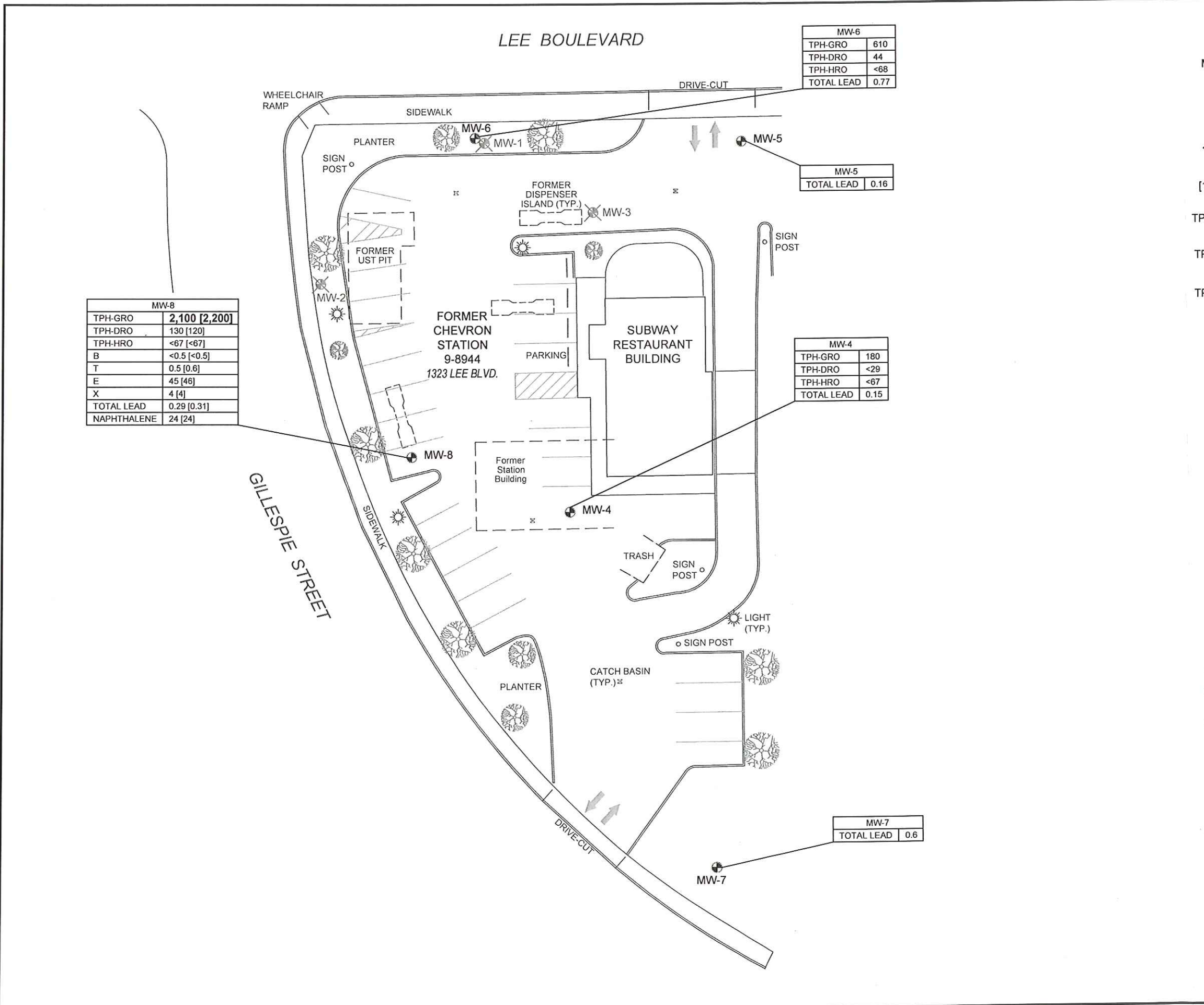


CHEVRON SERVICE STATION NO. 9-8944
 RICHLAND, WASHINGTON

**GROUNDWATER CONTOUR MAP
 SEPTEMBER 9, 2011**

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FIGURE **2**

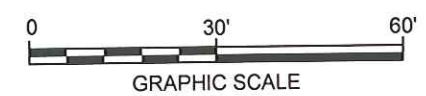


LEGEND:

- MW-5 [Symbol] MONITORING WELL LOCATION AND IDENTIFICATION
 - 180 TPH-GRO/TPH-DRO/TPH-HRO/B/T/E/X/TOTAL LEAD/NAPHTHALENE CONCENTRATIONS IN MICROGRAMS PER LITER (µg/L)
 - <67 CONCENTRATION NOT DETECTED ABOVE LABORATORY REPORTING LIMIT
 - [120] DUPLICATE SAMPLE CONCENTRATION IN (µg/L)
 - TPH-GRO TOTAL PETROLEUM HYDROCARBONS - GASOLINE RANGE ORGANICS
 - TPH-DRO TOTAL PETROLEUM HYDROCARBONS - DIESEL RANGE ORGANICS
 - TPH-HRO TOTAL PETROLEUM HYDROCARBONS - HEAVY RANGE ORGANICS
 - B BENZENE
 - T TOLUENE
 - E ETHYLBENZENE
 - X TOTAL XYLENES
- NOTE: CONCENTRATIONS IN BOLD EXCEED MTCA METHOD A GROUNDWATER CLEANUP LEVELS

NOTES:

1. BASE MAP PROVIDED BY CONESTOGA-ROVERS & ASSOCIATES, DATED 11/3/2008, AT A SCALE OF 1"=30'.
2. ALL SITE FEATURES AND LOCATIONS ARE APPROXIMATE.



CHEVRON SERVICE STATION NO. 9-8944
RICHLAND, WASHINGTON

GROUNDWATER CONCENTRATIONS MAP
SEPTEMBER 9, 2011




FIGURE
3

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Attachment A

Standard Operating Procedures –
Groundwater Sampling

ATTACHMENT A
STANDARD OPERATING PROCEDURES
FOR LOW-FLOW GROUNDWATER SAMPLING
USING PERISTALTIC PUMP
Chevron Facility No. 9-8944
Richland, Washington

Objectives:

- Collect samples representative of groundwater conditions in the geologic formation of interest and reduce the potential for sample bias due to the sampling technique or equipment.
- Minimize the potential for cross-contamination of samples through the combined use of proper decontamination procedures and dedicated equipment / supplies.

Site Specific Issues:

- none

Equipment and Supplies:

- Tools (wrench, sockets, hex key, well lock key, pry bar, scissors)
- Decontamination supplies (buckets, brushes, potable and distilled water, and Liqui-Nox[®] or equivalent non-phosphate detergent)
- Electronic water level meter
- Interface probe
- Multi-meter (pH, specific conductivity, turbidity, DO, and temperature)
- Flow through cell for multi-meter (optional)
- Peristaltic pump
- Power source (generator, extension cord, 12-volt battery, etc.)
- Polyethylene tubing
- Silicon tubing (for pump head roller assembly)
- In-line 0.45 micron disposable filter (field filtering for dissolved metal analyses)
- Plastic sheeting
- Graduated cylinder (metric)
- Laboratory-supplied sample containers / labels
- Resealable plastic bags
- Site Plan
- Field sheets
- Health and Safety Plan / Job Safety Analysis (JSA)
- Safety cones / caution tape
- Cooler and ice
- Clear packing tape
- Electrical tape or zip ties
- Bubble wrap
- Large, heavy-duty plastic bags
- Trip blanks (laboratory prepared)
- Organic-free water provided by laboratory (for preparing equipment and field blanks)
- Chain-of-custody
- Department of Transportation (DOT)-approved 55-gallon, steel drums / labels

Standard Procedures:

1.0 Instrument Calibration

- 1.1 Calibrate multi-meter before going into the field.
- 1.2 Calibration procedure and frequency should follow manufacturer's instructions. Document calibration on field data sheet or in a Calibration Log.

2.0 Pre-purging Activities

- 2.1 Prior to the monitoring event, review the *Groundwater Monitoring Scope of Work* prepared for the Site.
- 2.2 Conduct Health and Safety meeting at the start of each work day. Personnel must read and abide by the requirements presented in the site-specific Health and Safety Plan. Review Job Safety Analysis.

3.0 Groundwater Level Measurements

- 3.1 Wells are monitored and sampled based on the previous analytical results. Start with the well with the lowest concentrations and proceed systematically to the well with the highest concentrations.
- 3.2 Define work area around well with safety cones and/or caution tape, if deemed necessary.
- 3.3 Remove the well lid. Unlock and remove the well plug.
- 3.4 Turn on the electronic water level meter and slowly lower the probe into the well until an audible tone is heard. Measure the depth to water to the nearest 0.01 foot relative to the top of casing. Measure from the reference point located on the north side of the casing (usually a V-cut or distinguishable mark). Several attempts may be needed to determine the exact depth to water. Measure the total depth of the well if the depth is not indicated in the scope of work or can not be obtained from previous field data sheet. See *Standard Operating Procedure for Separate-phase Hydrocarbon Monitoring*, for the gauging of well MW-1.
- 3.5 Record the time, depth to water, and total well depth on field data sheet.
- 3.6 Decontaminate the water level indicator probe and tape using a standard three-bucket wash. Allow to air dry.
- 3.7 Check condition of well box, casing, and lid. Record deficiencies on field data sheet.
- 3.8 Replace the well plug and secure well lid. Move to the well with next highest concentrations.
- 3.9 Repeat steps 3.2 through 3.8 for each well.

4.0 Low-flow Purging and Sampling

- 4.1 Purge and sample in the order established in Step 3.1, if possible.
- 4.2 Define work area around well with safety cones and/or caution tape, if deemed necessary. Remove the well lid. Place clean, dedicated plastic sheeting around the well. The plastic sheeting must be large enough to prevent direct contact between the sampling equipment (pump and tubing) and the ground surface.
- 4.3 Remove the well plug.
- 4.4 Install new length of silicon tubing in pump head per manufacturer's instructions. Attach clean or dedicated polyethylene tubing to the silicon tubing installed in the pump head.
- 4.5 Slowly lower the polyethylene tubing into well to avoid mixing water column and/or dislodging particulates from the inside of the well casing. The use of a stainless steel tubing weight is recommended so the tubing can be lowered to a specific depth without curling.
- 4.6 Position the end of the tubing at the sampling depth indicated in the scope of work. If the sampling depth is not indicated in the scope of work, position the end of the tubing in the middle of the screen interval indicated in the scope of work. If neither the sampling depth or screen interval is indicated in the scope of work, calculate the approximate depth to the middle of the submerged screen interval $((\text{total well depth} - \text{depth to water}) / 2) + (\text{depth to water})$, which will be referred to as the sampling depth.
- 4.7 Connect the in-line monitoring cell and multi-meter probe to the discharge line of the pump (optional).
- 4.8 Turn "on" pump. Begin pumping and adjust flow rate to less than 0.5 liters per minute (0.13 gallons per minute). Use a graduated cylinder and stop watch to determine the actual flow rate.
- 4.9 Record pH, specific conductivity, oxygen/reduction potential (ORP), turbidity, dissolved oxygen, and temperature readings at three to five minute intervals until stabilization is achieved.
- 4.10 Stabilization is achieved when three successive readings vary by no more than ± 0.1 Standard Units for pH; $\pm 3\%$ for specific conductivity; ± 10 mV for ORP; $\pm 10\%$ for turbidity; and $\pm 10\%$ for dissolved oxygen.
- 4.11 Following stabilization, disconnect in-line monitoring cell and multi-meter probe (if applicable). Fill the appropriate, laboratory-supplied sample containers (see scope of work for list of sample containers). Sample containers should be filled by allowing the pump discharge to slowly flow down the inside of the containers until full. Fill the sample containers by group (i.e. fill all containers for VOC analysis before filling containers for other analyses). Analyses that require filtering (i.e. dissolved metals) should be done last. In addition, sample containers larger than 250 ml should be filled in alternating 250 ml aliquots. This

will help insure that the samples are aliquots of same sample and were taken at approximately the same time.

- 4.12 If samples are to be analyzed for dissolved metals, connect disposable, in-line 0.45 micron filter to the discharge hose. Collect sample using same technique as indicated in Step 4.11.
- 4.13 Label sample containers, place sample containers in re-sealable plastic bags, and transfer containers to ice-chilled cooler. Indicate sample ID, sample date and time, and required analyses on chain of custody (COC). See Section 6.0 regarding the handling of samples.
- 4.14 Remove tubing from well. If tubing is not dedicated to the well, decontaminate outside of tubing using standard three-bucket wash. Circulate detergent solution through tubing for approximately five minutes in order to decontaminate the inside of the tubing. Rinse by circulating potable water through the tubing for approximately three minutes, followed by distilled water for approximately two minutes.
- 4.15 If tubing is dedicated to well, suspend tubing within the well casing or place tubing in plastic bag labeled with the well identification.
- 4.16 Secure the well and move to the next sampling location.
- 4.17 Repeat Steps 4.2 through 4.16.

5.0 QA/QC Samples

- 5.1 Quality assurance/quality control (QA/QC) samples consist of field duplicates, trip blanks, equipment blanks, split samples, and field blanks. Split samples are only required if specifically requested by the client, consultant, or regulatory agency. In addition, field blanks are only prepared and submitted for analysis if requested by the consultant or if site conditions warrant submittal of a field blank. Site conditions that may warrant submittal of a field blank include: air-borne dust, organic vapors, unusual odors, specific site activities (e.g. painting, solvent use, etc.), or the dispensing of gasoline at or near the Site.
- 5.2 Field duplicate samples are collected at a frequency of one for every 10 samples. If less than 10 samples are submitted to the laboratory for analysis, one duplicate sample will be submitted. Select wells in the middle of the sampling order for the collection of duplicate samples. Collect duplicate using the same technique as the original sample (refer to Step 4.11). Fill the sample containers by group (i.e. fill all containers for VOC analysis before filling containers for other analyses). Analyses that require field filtering (i.e. dissolved metals) should be done last. In addition, sample containers larger than 250 ml should be filled in alternating 250 ml aliquots. This will help insure that the samples are aliquots of same sample and were taken at approximately the same time. Duplicate samples will be named and identified on COC as "DUPLICATE", "DUPLICATE 2", "DUPLICATE 3", etc.
- 5.3 Trip blanks are supplied by the laboratory and accompany the sample containers and samples to and from the laboratory. Trip blanks are never to be prepared outside the laboratory. In most cases, one set (2 trip blanks) is submitted in each

cooler containing samples requiring analysis for volatile organic compounds (VOCs). Each set of trip blank samples will be named and identified on COC as "TRIP BLANK", "TRIP BLANK 2", "TRIP BLANK 3", etc.

- 5.4 Equipment blanks are collected to verify decontamination procedures are effective. Collect one equipment blank at the beginning of each sampling event by pumping organic-free water (provided by laboratory) through the sample tubing and collecting the water in the appropriate sample containers. A sampling event is defined as the sampling activities conducted in a day. Follow the procedures described in Step 4.11. Equipment blank samples will be named and identified on COC as "EQUIPMENT", "EQUIPMENT 2", "EQUIPMENT 3", etc. Equipment blanks are not required if new or dedicated tubing is used at each sampling location.
- 5.5 Split samples are aliquots of the sample that are submitted to two separate laboratories. Transfer the sample to be split to two sets of identical containers following the procedures described in Step 4.11. Fill the sample containers by group (i.e. fill all containers for VOC analysis before filling containers for other analyses). Analyses requiring field filtering (i.e. dissolved metals) should be done last. In addition, sample containers larger than 250 ml should be filled in alternating 250 ml aliquots. This will help insure that the samples are aliquots of same sample and were taken at approximately the same time. Split samples will be named and identified on COC as "SPLIT", "SPLIT 2", "SPLIT 3", etc. Split samples are only required if specifically requested by the client, consultant, or regulatory agency.
- 5.6 Field blanks are prepared in the field in order to evaluate the potential for sample contamination by site contaminants not associated with the sample collected. Field blanks are prepared by pouring organic-free water (provided by laboratory) into the appropriate sample containers, at site location(s) where volatile organics are expected. A laboratory-prepared trip blank, transferred from the original sample container to another appropriate sample container, can also be used as a field blank. Field blank samples will be named and identified on COC as "FIELD BLANK", "FIELD BLANK 2", "FIELD BLANK 3", etc. Field blanks are only prepared and submitted for analysis if requested by the consultant, or if site conditions warrant submittal of a field blank.

6.0 Sample Handling / Shipping

- 6.1 Following collection, groundwater samples must immediately be placed in an ice-chilled cooler. Make sure cooler is in good condition and the drain plug is in place and secure. Wet ice should be placed in the cooler prior to initiating sampling activities and the cooler should contain sufficient ice to completely cover all sample containers. Check the cooler periodically throughout the day to insure there is sufficient ice to cover the samples. Drain excessive water from the cooler and add additional wet ice as needed. Use of "blue ice" is not acceptable.
- 6.2 Sufficient ice must be placed in the cooler prior to transport or shipment to ensure ice is still present in the cooler when the samples are received at the laboratory.

- 6.3 When hand delivering samples to the laboratory, the samples must remain in the cooler at all times. Samples should not be transferred from one cooler to another after leaving the Site. In addition, do not remove any samples from the cooler until the laboratory has measured and recorded the temperature of the cooler/samples on the chain of custody. Properly chilled coolers / samples should be approximately 4° Celsius. Check sample IDs and number of samples against the chain of custody. Sign and date the chain of custody.
- 6.4 When shipping samples to the laboratory via air, the inside of the cooler should be lined with a large, heavy-duty plastic bag.
- 6.5 Check sample IDs and number of samples against the chain of custody. Sign and date the chain of custody. Place chain-of-custody documentation in a resealable plastic bag and tape the plastic bag to the inside of the cooler lid.
- 6.6 Wrap the sample containers with "bubble wrap" and place the samples in resealable plastic bags. Place all samples in the large plastic bag lining the inside of the cooler. Cover the samples with ice and securely fasten the top of the plastic bag lining the cooler with electrical tape or zip ties.
- 6.7 Close and securely tape the top of the cooler shut using packing tape. If warranted, chain-of-custody seals should be affixed to the cooler so the cooler cannot be opened without breaking the seals.
- 6.8 Shipping cooler(s) should be marked "This End Up" and arrows should indicate the upward position of the cooler. A label containing the name and address of the shipper should be affixed to the cooler and secured with clear shipping tape.

7.0 Waste Management

- 7.1 Purge water to be removed from site the same day via sampling truck.

8.0 References

Barcelona, Michael J., and Robert W. Puls, 1996. *U.S. EPA Ground Water Issue: Low-flow (Minimal Drawdown) Ground-water Sampling Procedures*. Washington, DC: April 1996.

United States Environmental Protection Agency, Region 4. 2001. *Groundwater Sampling. Environmental Investigations Standard Operating Procedures and Quality Assurance Manual (EISOPQAM)*. Athens, GA: November 2001.

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Attachment B

Groundwater Monitoring and
Sampling Data Package

WELL GAUGING DATA

Project # 110909-JB1 Date 09/09/11 Client CHEVRON

Site 1323 LEE BLVD / KEMP SWICK

| Well ID | Time | Well Size (in.) | Sheen / Odor | Depth to Immiscible Liquid (ft.) | Thickness of Immiscible Liquid (ft.) | Volume of Immiscibles Removed (ml) | Depth to water (ft.) | Depth to well bottom (ft.) | Survey Point: TOB or <u>TOC</u> | Notes |
|---------|------|-----------------|--------------|----------------------------------|--------------------------------------|------------------------------------|----------------------|----------------------------|---------------------------------|--------|
| NW-4 | 0633 | 2 | | | | | 13.78 | 23.75 | | TUBING |
| NW-5 | 0618 | 2 | | | | | 13.35 | 23.42 | | |
| NW-6 | 0629 | 2 | | | | | 13.18 | 24.30 | | |
| NW-7 | 0623 | 2 | | | | | 13.71 | 23.80 | | |
| NW-8 | 0637 | 2 | | | | | 13.85 | 24.90 | ↓ | ↓ |
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LOW FLOW WELL MONITORING DATA SHEET

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|--------------------------------------|---|
| Project #: <u>110709-531</u> | Client: <u>CHERO</u> |
| Sampler: <u>SB</u> | Gauging Date: <u>09/09/11</u> |
| Well I.D.: <u>MW-4</u> | Well Diameter (in.): <u>(2)</u> 3 4 6 8 |
| Total Well Depth (ft.): <u>23.75</u> | Depth to Water (ft.): <u>13.78</u> |
| Depth to Free Product: <u> </u> | Thickness of Free Product (feet): <u> </u> |
| Referenced to: <u>(PVC)</u> Grade | Flow Cell Type: <u>251556</u> |

Purge Method: 2" Grundfos Pump Peristaltic Pump Bladder Pump
 Sampling Method: Dedicated Tubing New Tubing Other

Start Purge Time: 0806 Flow Rate: 300 mL/min Pump Depth: 19'

| Time | Temp. (°C or °F) | pH | Cond. (mS/cm or µS/cm) | Turbidity (NTUs) | D.O. (mg/L) | ORP (mV) | Water Removed (gals. or mL) | Depth to Water (ft.) |
|------|---------------------|------|------------------------------|---------------------|----------------|-------------|--------------------------------|-------------------------|
| 0809 | 18.60 | 7.19 | 885 | 16 | 0.58 | 34.4 | 900 | 13.81 |
| 0812 | 18.60 | 7.18 | 886 | 12 | 0.53 | 33.8 | 1800 | 13.81 |
| 0815 | 18.61 | 7.17 | 882 | 9 | 0.48 | 31.7 | 2700 | 13.81 |
| 0818 | 18.64 | 7.17 | 882 | 9 | 0.47 | 30.6 | 3600 | 13.81 |
| 0821 | 18.66 | 7.17 | 882 | 8 | 0.47 | 30.1 | 4500 | 13.81 |
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Did well dewater? Yes No Amount actually evacuated: 4.5 L

Sampling Time: 0822 Sampling Date: 09/09/11

Sample I.D.: MW-4 Laboratory: LAXASTER

Analyzed for: (TPH-G) BTEX MTBE (TPH-D) (Other) TPH-H, TOTAL LEAD

Equipment Blank I.D.: EB @ Time 0835 Duplicate I.D.:

LOW FLOW WELL MONITORING DATA SHEET

| | |
|--------------------------------------|---|
| Project #: <u>110909-331</u> | Client: <u>CH2M HILL</u> |
| Sampler: <u>JB</u> | Gauging Date: <u>09/09/11</u> |
| Well I.D.: <u>MW-5</u> | Well Diameter (in.): <u>(2)</u> 3 4 6 8 |
| Total Well Depth (ft.): <u>23.48</u> | Depth to Water (ft.): <u>13.35</u> |
| Depth to Free Product: <u> </u> | Thickness of Free Product (feet): <u> </u> |
| Referenced to: <u>(PVC)</u> Grade | Flow Cell Type: <u>351556</u> |

Purge Method: 2" Grundfos Pump Resistaltic Pump Bladder Pump
 Sampling Method: Dedicated Tubing New Tubing Other _____

Start Purge Time: 0642 Flow Rate: 300 ml/min Pump Depth: 18.5'

| Time | Temp. (°C or °F) | pH | Cond. (mS/cm or µS/cm) | Turbidity (NTUs) | D.O. (mg/L) | ORP (mV) | Water Removed (gals. or mL) | Depth to Water (ft.) |
|------|---------------------|------|------------------------------|---------------------|----------------|-------------|--------------------------------|-------------------------|
| 0645 | 18.89 | 6.79 | 1031 | 17 | 1.20 | 53.9 | 900 | 13.40 |
| 0648 | 18.85 | 6.81 | 1043 | 11 | 1.11 | 54.6 | 1800 | 13.40 |
| 0651 | 18.89 | 6.86 | 1052 | 9 | 1.08 | 53.3 | 2700 | 13.40 |
| 0654 | 18.89 | 6.87 | 1053 | 9 | 1.06 | 52.9 | 3600 | 13.40 |
| 0657 | 18.91 | 6.87 | 1053 | 10 | 1.05 | 51.7 | 4500 | 13.40 |
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| Did well dewater? Yes <u>(No)</u> | Amount actually evacuated: <u>4.5 L</u> |
| Sampling Time: <u>0658</u> | Sampling Date: <u>09/09/11</u> |
| Sample I.D.: <u>MW-5</u> | Laboratory: <u>LAURENCE</u> |
| Analyzed for: TPH-G BTEX MTBE TPH-D | Other: <u>TOTAL LEAD</u> |
| Equipment Blank I.D.: @ _____ | Duplicate I.D.: _____ |

LOW FLOW WELL MONITORING DATA SHEET

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|--------------------------------------|--|
| Project #: <u>110708-331</u> | Client: <u>CH2M</u> |
| Sampler: <u>SS</u> | Gauging Date: <u>09/09/11</u> |
| Well I.D.: <u>MW-6</u> | Well Diameter (in.): <u>(2)</u> 3 4 6 8 |
| Total Well Depth (ft.): <u>24.30</u> | Depth to Water (ft.): <u>13.18</u> |
| Depth to Free Product: <u>—</u> | Thickness of Free Product (feet): <u>—</u> |
| Referenced to: <u>(PVC)</u> Grade | Flow Cell Type: <u>361 536</u> |

Purge Method: 2" Grundfos Pump Peristaltic Pump Bladder Pump
 Sampling Method: Dedicated Tubing New Tubing Other _____

Start Purge Time: 0738 Flow Rate: 300 ml/min Pump Depth: 19'

| Time | Temp. (°C or °F) | pH | Cond. (mS/cm or µS/cm) | Turbidity (NTUs) | D.O. (mg/L) | ORP (mV) | Water Removed (gals. or ml) | Depth to Water (ft.) |
|------|---------------------|------|------------------------------|---------------------|----------------|-------------|--------------------------------|-------------------------|
| 0741 | 17.65 | 7.07 | 911 | 9 | 1.42 | 56.5 | 900 | 13.20 |
| 0744 | 17.67 | 6.90 | 915 | 6 | 0.63 | 53.0 | 1800 | 13.20 |
| 0747 | 17.67 | 6.89 | 914 | 5 | 0.63 | 51.8 | 2700 | 13.20 |
| 0750 | 17.69 | 6.89 | 914 | 5 | 0.62 | 51.6 | 3600 | 13.20 |
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Did well dewater? Yes No Amount actually evacuated: 3.6 L

Sampling Time: 0751 Sampling Date: 09/09/11

Sample I.D.: MW-6 Laboratory: LABMASTER

Analyzed for: (TPH-G) BTEX MTBE (TPH-D) Other: TPH-H, TOTAL KAO

Equipment Blank I.D.: _____ @ _____ Time Duplicate I.D.: _____

LOW FLOW WELL MONITORING DATA SHEET

| | |
|--------------------------------------|---|
| Project #: <u>110909-331</u> | Client: <u>CH2BHILL</u> |
| Sampler: <u>33</u> | Gauging Date: <u>09/09/11</u> |
| Well I.D.: <u>MW-7</u> | Well Diameter (in.): <u>(2)</u> 3 4 6 8 |
| Total Well Depth (ft.): <u>23.80</u> | Depth to Water (ft.): <u>13.73</u> |
| Depth to Free Product: <u> </u> | Thickness of Free Product (feet): <u> </u> |
| Referenced to: <u>(PVC)</u> Grade | Flow Cell Type: <u>TSI 556</u> |

Purge Method: 2" Grundfos Pump (Peristaltic Pump) Bladder Pump
 Sampling Method: (Dedicated Tubing) New Tubing Other

Start Purge Time: 0711 Flow Rate: 300 mL/min Pump Depth: 19'

| Time | Temp. (°C or °F) | pH | Cond. (mS/cm or μS/cm) | Turbidity (NTUs) | D.O. (mg/L) | ORP (mV) | Water Removed (gals. or mL) | Depth to Water (ft.) |
|------|---------------------|------|------------------------------|---------------------|----------------|-------------|--------------------------------|-------------------------|
| 0714 | 16.53 | 7.31 | 937 | 10 | 5.08 | 52.5 | 900 | 13.73 |
| 0717 | 16.59 | 7.31 | 937 | 7 | 4.91 | 51.9 | 1800 | 13.73 |
| 0720 | 16.70 | 7.30 | 940 | 5 | 4.77 | 51.3 | 2700 | 13.73 |
| 0723 | 16.74 | 7.30 | 942 | 4 | 4.74 | 50.8 | 3600 | 13.73 |
| 0726 | 16.79 | 7.30 | 942 | 4 | 4.72 | 50.5 | 4500 | 13.73 |
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| Did well dewater? Yes <u>(No)</u> | Amount actually evacuated: <u>4.5L</u> |
| Sampling Time: <u>0727</u> | Sampling Date: <u>09/09/11</u> |
| Sample I.D.: <u>MW-7</u> | Laboratory: <u>LOWCASTER</u> |
| Analyzed for: TPH-G BTEX MTBE TPH-D | Other: <u>(Total Lead)</u> |
| Equipment Blank I.D.: <u>@</u> | Duplicate I.D.: <u> </u> |

LOW FLOW WELL MONITORING DATA SHEET

| | |
|--------------------------------------|--|
| Project #: <u>110909-331</u> | Client: <u>CH2M</u> |
| Sampler: <u>JS</u> | Gauging Date: <u>09/09/11</u> |
| Well I.D.: <u>MW-8</u> | Well Diameter (in.): <u>(2)</u> 3 4 6 8 |
| Total Well Depth (ft.): <u>24.90</u> | Depth to Water (ft.): <u>13.85</u> |
| Depth to Free Product: <u>—</u> | Thickness of Free Product (feet): <u>—</u> |
| Referenced to: <u>(PVC)</u> Grade | Flow Cell Type: <u>351 556</u> |

Purge Method: 2" Grundfos Pump Resistaltic Pump Bladder Pump
 Sampling Method: Dedicated Tubing New Tubing Other _____

Start Purge Time: 0849 Flow Rate: 300 mL/min Pump Depth: 19.5'

| Time | Temp. (°C or °F) | pH | Cond. (mS/cm or μS/cm) | Turbidity (NTUs) | D.O. (mg/L) | ORP (mV) | Water Removed (gals. or mL) | Depth to Water (ft.) |
|------|---------------------|------|------------------------------|---------------------|----------------|-------------|--------------------------------|-------------------------|
| 0852 | 18.04 | 7.25 | 886 | 18 | 0.54 | -11.6 | 900 | 13.87 |
| 0855 | 18.07 | 7.23 | 886 | 11 | 0.50 | -19.1 | 1800 | 13.87 |
| 0858 | 18.02 | 7.22 | 884 | 9 | 0.42 | -30.6 | 2700 | 13.87 |
| 0901 | 18.02 | 7.22 | 883 | 9 | 0.41 | -35.1 | 3600 | 13.87 |
| 0904 | 17.99 | 7.22 | 880 | 9 | 0.42 | -43.4 | 4500 | 13.87 |
| 0907 | 17.94 | 7.22 | 880 | 8 | 0.41 | -45.9 | 5400 | 13.87 |
| 0910 | 17.77 | 7.22 | 879 | 8 | 0.41 | -48.6 | 6300 | 13.87 |
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Did well dewater? Yes No Amount actually evacuated: 6.3 L

Sampling Time: 0911 Sampling Date: 09/09/11

Sample I.D.: MW-8 Laboratory: LANCASTER

Analyzed for: (TPH-G) (BTEX) MTBE (TPH-D) Other: TPH-H, TOTAL KERO. NAPTH

Equipment Blank I.D.: @ Duplicate I.D.: DUP @

WELLHEAD INSPECTION FORM

Client: CHEVRON Site: 1323 LEE BLVD / KATZEWICK Date: 09/09/11
 Job #: 110909-381 Technician: SB Page 1 of 1

| Well ID | Well Inspected - No Corrective Action Required | Check indicates deficiency | | | | | | | | | | Well Not Inspected (explain in notes) | Notes <small>(list if cap or lock replaced, if there are access issues associated with repairs, if traffic control is required, if stand pipe damaged, or any specific details not covered by checks)</small> | | |
|---------|--|----------------------------|---------------------|--------------|---------------------------|---------------------------|-------------------------|-------------------------|---------------|------------------|-------------|---------------------------------------|--|-------------|--|
| | | Cap non-functional | Lock non-functional | Lock missing | Bolts missing (list qty.) | Tabs stripped (list qty.) | Tabs broken (list qty.) | Annular seal incomplete | Apron damaged | Rim / Lid broken | Trip Hazard | | | Below Grade | Other (explain in notes) |
| MW-4 | X | | | | | | | | | | | | | | |
| MW-5 | X | | | | | | | | | | | | | | |
| MW-6 | X | | | | | | | | | | | | | | |
| MW-7 | X | | | | | | | | | | | X | | | LATER IN WELLBOX, HEAR SPRINKLERS. SCALIS GOOD |
| MW-8 | X | | | | | | | | | | | | | | |
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Notes: _____

CHEVRON TYPE **A** BILL OF LADING

SAMPLE

SOURCE RECORD **BILL OF LADING**

FOR NON-HAZARDOUS PURGEWATER RECOVERED FROM GROUNDWATER WELLS AT CHEVRON FACILITIES IN THE STATE OF WASHINGTON OR OREGON. THE NON-HAZARDOUS PURGE- WATER WHICH HAS BEEN RECOVERED FROM GROUND- WATER WELLS IS COLLECTED BY THE CONTRACTOR, MADE UP INTO LOADS OF APPROPRIATE SIZE AND HAULED BY EMERALD SERVICES

The contractor performing this work is BLAINE TECH SERVICES, INC. 22727 72ND Ave South, Suite D – 102, Kent, WA 98032. BTS Seattle adress. Blaine Tech Services, Inc. is authorized by CHEVRON PRODUCTS COMPANY (CHEVRON) to recover, collect, apportion into loads, and haul the Non-Hazardous Well Purgewater that is drawn from wells at the CHEVRON facility indicated below and to deliver that purgewater to BTS. Transport routing of the Non-Hazardous Well Purgewater may be direct from one Chevron facility to BTS; from one Chevron facility to BTS via another Chevron facility; or any combination thereof. The Non-Hazardous Well Purgewater is and remains the property of CHEVRON.


This Source Record **BILL OF LADING** was initiated to cover the recovery of Non-Hazardous Well Purgewater from wells at the Chevron facility described below:

9-5944

 CHEVRON # Chevron Engineer

1323 Lee Blvd Kaszuck WA

 street number street name city state

| WELL I.D. | GALS. | WELL I.D. | GALS. |
|---|-------|------------------|-------|
| mw-4 | 1.5 | | / |
| mw-5 | 1.5 | | / |
| mw-6 | 1 | | / |
| mw-7 | 1.5 | | / |
| mw-8 | 2 | | / |
| | / | | / |
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| | / | | / |
| | / | | / |
| added equip. | | any other | |
| rinse water | 1 2.5 | adjustments | / |
| TOTAL GALS. | | loaded onto | |
| RECOVERED 10 | | BTS vehicle # 86 | |
| BTS event # | time | date | |
| 110909-331 | 0930 | 09/09/11 | |
| signature  | | | |
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| REC'D AT | time | date | |
| | | / / | |
| unloaded by | | | |
| signature _____ | | | |

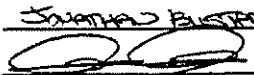



ARCADIS

Attachment C

Chain-of-Custody and Laboratory
Report

CHAIN OF CUSTODY FORM

Chevron Environmental Management Company ■ 6001 Bolinas Canyon Road ■ San Ramon, CA 94583-2324 COC of 1

| Chevron Site Number: <u>9-8944</u> Program Designation: <u>CMP</u> Site Address (street, city, state / county): <u>1323 Lee Blvd, Kennewick, WA</u> Chevron PM: Chevron PM Phone No.: <input type="checkbox"/> Retail and Terminal Business Unit (RTBU) Job <input type="checkbox"/> Construction/Retail Job | | | | Chevron Consultant: <u>ARCADIS</u> Address: <u>3240 El Camino Real, Irvine, CA</u> Consultant Contact: <u>Janet Newman</u> Consultant Phone No. <u>(949)293-2445</u> Consultant Project No. <u>110909-381</u> Sampling Company: <u>Blaine Tech Services</u> Sampled By (Print): <u>SWANNA BUSTAMANTE</u> Sampler Signature:  | | | | ANALYSES REQUIRED | | | | | | | | | | | |
|--|--------|-----------|----------------|---|-----------------|---|---------|---|---|---|---|--|---|--------------------------|------------------|--|-------------------------------------|-------------|---|
| Charge Code: <u>NWRTB 00SITE NUMBER-0- OML</u> WBS ELEMENTS: SITE ASSESSMENT: <u>A1L</u> REMEDIATION IMPLEMENTATION: <u>R5L</u> SITE MONITORING: <u>OML</u> OPERATION MAINTENANCE & MONITORING: <u>M1L</u> | | | | Lancaster Laboratories <input checked="" type="checkbox"/> Lancaster, PA Lab Contact: <u>Megan Moeller</u> 2425 New Holland Pike, Lancaster, PA 17601 Phone No: <u>(717)656-2300</u> | | Other Lab _____ _____ _____ _____ | | Temp. Blank Check Time Temp. <u>0200</u> <u>25°</u> <u>0300</u> <u>21°</u> _____ _____ | | TPH-DRO w/ SILICA GEL CLEANUP (97-602M) (NWTPH-Dx w/ sgc) | TPH-ORO w/ SILICA GEL CLEANUP (97-602M) (NWTPH-Dx w/ sgc) | TPH-HRO w/ SILICA GEL CLEANUP (97-602M) (NWTPH-Dx w/ sgc) | 8260B FULL LISTO EDCO TBAD TAMED ETBED ETHANOL BTEX MTBED | PAH's C PAH's D 8270 SIM | TPH-G (NWTPH-Gx) | TOTAL LEAD (6020) | EDB (8011) <input type="checkbox"/> | NAPHTHALENE | Preservation Codes H = HCL T = Thiosulfate N = HNO ₃ B = NaOH S = H ₂ SO ₄ O = Other acct # <u>13036</u> Cap # <u>1265749</u> Sample # <u>6401859-66</u> |
| SAMPLE ID | | | | | | | | | | | | Special Instructions *Use a 10-gram column when silica gel cleanup is requested | | | | | | | |
| Field Point Name | Matrix | Top Depth | Date (yyymmdd) | Sample Time | # of Containers | Container Type | | | | | | | | | | | Notes/Comments | | |
| MW-4 | W | --- | 110909 | 0822 | 9 | VARIOUS | X | | X | | | | X | X | | | | | |
| MW-5 | W | --- | ↓ | 0658 | 1 | POLY | | | | | | | | X | | | | | |
| MW-6 | W | --- | | 0731 | 9 | VARIOUS | X | | X | | | | X | X | | | | | |
| MW-7 | W | --- | | 0727 | 1 | POLY | | | | | | | | X | | | | | |
| MW-8 | W | --- | | 0911 | 9 | VARIOUS | X | | X | X | | | X | X | | X | | | |
| DUP | WD | --- | | | | 9 | VARIOUS | X | | X | X | | X | X | | X | | | |
| EB | R | --- | | | 0835 | 9 | VARIOUS | X | | X | X | | X | X | | X | | | |
| QA | T | --- | | | 0615 | 2 | VOA | | | | X | | X | | | | | | |
| Relinquished By | | | | Company | | Date/Time: | | Relinquished To | | | | Company | | Date/Time | | Turnaround Time: Standard <input checked="" type="checkbox"/> 24 Hours <input type="checkbox"/> 48 hours <input type="checkbox"/> 72 Hours <input type="checkbox"/> Other <input type="checkbox"/> | | | |
|  | | | | BTS | | 09/08/11 1700 | | SHIPPED BY PEREX | | | | Company | | Date/Time | | Sample Integrity: (Check by lab on arrival) Intact: <input checked="" type="checkbox"/> On Ice: <input checked="" type="checkbox"/> Temp: <u>09-13.0</u> COC # | | | |
| Relinquished By | | | | Company | | Date/Time | | Relinquished To | | | | Company | | Date/Time | | | | | |
|  | | | | Company | | Date/Time | |  | | | | Company | | Date/Time | | | | | |

ANALYTICAL RESULTS

Prepared by:

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

Prepared for:

Chevron Environmental Mgmt Co
6101 Bollinger Canyon Road
San Ramon CA 94583

October 03, 2011

Project: 98944

Submittal Date: 09/10/2011
Group Number: 1265749
PO Number: 0015076717
Release Number: MACLEOD
State of Sample Origin: WA

| <u>Client Sample Description</u> | <u>Lancaster Labs (LLI) #</u> |
|----------------------------------|-------------------------------|
| MW-4 Water Sample | 6401859 |
| MW-5 Water Sample | 6401860 |
| MW-6 Water Sample | 6401861 |
| MW-7 Water Sample | 6401862 |
| MW-8 Water Sample | 6401863 |
| DUP Water Sample | 6401864 |
| EB Water Sample | 6401865 |
| QA Water Sample | 6401866 |

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

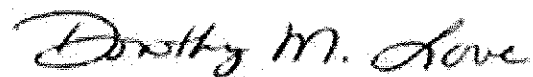
ELECTRONIC ARCADIS
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Attn: Janet Newman

Attn: Robin Simon

Questions? Contact your Client Services Representative
Megan A Moeller at (717) 656-2300 Ext. 1246

Respectfully Submitted,



Dorothy M. Love
Group Leader

Sample Description: MW-4 Water Sample
Facility# 98944
1323 Lee Blvd - Kennewick, WA

LLI Sample # WW 6401859
LLI Group # 1265749
Account # 13036

Project Name: 98944

Collected: 09/09/2011 08:22 by JB

Chevron Environmental Mgmt Co

Submitted: 09/10/2011 10:00

6101 Bollinger Canyon Road

Reported: 10/03/2011 10:11

San Ramon CA 94583

LBK04

| CAT No. | Analysis Name | CAS Number | As Received Result | As Received Method Detection Limit* | As Received Limit of Quantitation | Dilution Factor |
|--|-----------------------|---|--------------------|-------------------------------------|-----------------------------------|-----------------|
| GC Volatiles | | | | | | |
| 08273 | NWTPH-Gx water C7-C12 | ECY 97-602 NWTPH-Gx n.a. | ug/l 180 | ug/l 50 | ug/l 250 | 1 |
| GC Petroleum Hydrocarbons | | | | | | |
| 02211 | DRO C12-C24 w/Si Gel | ECY 97-602 NWTPH-Dx modified n.a. | ug/l N.D. | ug/l 29 | ug/l 96 | 1 |
| 02211 | HRO C24-C40 w/Si Gel | n.a. | N.D. | 67 | 240 | 1 |
| The reverse surrogate, capric acid, was present at 0%. | | | | | | |
| Metals | | | | | | |
| 5 | Lead | SW-846 6020 7439-92-1 | mg/l 0.00015 | mg/l 0.000080 | mg/l 0.0010 | 1 |

General Sample Comments

State of Washington Lab Certification No. C259

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 |
|---------|--------------------------------|------------------------------|--------|---------------|------------------------|---------------------|-----------------|
| 08273 | NWTPH-Gx water C7-C12 | ECY 97-602 NWTPH-Gx | 1 | 11258B20A | 09/17/2011 23:54 | Catherine J Schwarz | 1 |
| 01146 | GC VOA Water Prep | SW-846 5030B | 1 | 11258B20A | 09/17/2011 23:54 | Catherine J Schwarz | 1 |
| 02211 | NWTPH-Dx water w/Si Gel | ECY 97-602 NWTPH-Dx modified | 1 | 112570005A | 09/28/2011 00:21 | Anita M Dale | 1 |
| 02135 | Extraction - DRO Water Special | ECY 97-602 NWTPH-Dx 06/97 | 1 | 112570005A | 09/14/2011 07:50 | Cynthia J Salvatori | 1 |
| 06035 | Lead | SW-846 6020 | 1 | 112556050006A | 09/13/2011 12:47 | Choon Y Tian | 1 |
| 06050 | ICP/MS SW-846 Water Digest | SW-846 3010A modified | 1 | 112556050006 | 09/12/2011 13:24 | James L Mertz | 1 |

*=This limit was used in the evaluation of the final result

Sample Description: MW-5 Water Sample
 Facility# 98944
 1323 Lee Blvd - Kennewick, WA

LLI Sample # WW 6401860
 LLI Group # 1265749
 Account # 13036

Project Name: 98944

Collected: 09/09/2011 06:58 by JB

Chevron Environmental Mgmt Co
 6101 Bollinger Canyon Road
 San Ramon CA 94583

Submitted: 09/10/2011 10:00

Reported: 10/03/2011 10:11

LBK05

| CAT No. | Analysis Name | CAS Number | As Received Result | As Received Method Detection Limit* | As Received Limit of Quantitation | Dilution Factor |
|---------------|---------------|--------------------|--------------------|-------------------------------------|-----------------------------------|-----------------|
| Metals | | SW-846 6020 | mg/l | mg/l | mg/l | |
| 06035 | Lead | 7439-92-1 | 0.00016 | 0.000080 | 0.0010 | 1 |

General Sample Comments

State of Washington Lab Certification No. C259

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 |
|---------|----------------------------|-----------------------|--------|---------------|------------------------|---------------|-----------------|
| 06035 | Lead | SW-846 6020 | 1 | 112556050006A | 09/13/2011 12:48 | Choon Y Tian | 1 |
| 06050 | ICP/MS SW-846 Water Digest | SW-846 3010A modified | 1 | 112556050006 | 09/12/2011 13:24 | James L Mertz | 1 |

*=This limit was used in the evaluation of the final result

Sample Description: MW-6 Water Sample
Facility# 98944
1323 Lee Blvd - Kennewick, WA

LLI Sample # WW 6401861
LLI Group # 1265749
Account # 13036

Project Name: 98944

Collected: 09/09/2011 07:51 by JB

Chevron Environmental Mgmt Co
 6101 Bollinger Canyon Road
 San Ramon CA 94583

Submitted: 09/10/2011 10:00

Reported: 10/03/2011 10:11

LBK06

| CAT No. | Analysis Name | CAS Number | As Received Result | As Received Method Detection Limit* | As Received Limit of Quantitation | Dilution Factor |
|--|-----------------------|---|--------------------|-------------------------------------|-----------------------------------|-----------------|
| GC Volatiles | | | | | | |
| 08273 | NWTPH-Gx water C7-C12 | ECY 97-602 NWTPH-Gx n.a. | ug/l 610 | ug/l 50 | ug/l 250 | 1 |
| GC Petroleum Hydrocarbons | | | | | | |
| 02211 | DRO C12-C24 w/Si Gel | ECY 97-602 NWTPH-Dx modified n.a. | ug/l 44 | ug/l 29 | ug/l 97 | 1 |
| 02211 | HRO C24-C40 w/Si Gel | n.a. | N.D. | 68 | 240 | 1 |
| The reverse surrogate, capric acid, was present at 0%. | | | | | | |
| Metals | | | | | | |
| | Lead | SW-846 6020 7439-92-1 | mg/l 0.00077 | mg/l 0.000080 | mg/l 0.0010 | 1 |

General Sample Comments

State of Washington Lab Certification No. C259

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 |
|---------|--------------------------------|------------------------------|--------|---------------|------------------------|---------------------|-----------------|
| 08273 | NWTPH-Gx water C7-C12 | ECY 97-602 NWTPH-Gx | 1 | 11258B20A | 09/18/2011 00:16 | Catherine J Schwarz | 1 |
| 01146 | GC VOA Water Prep | SW-846 5030B | 1 | 11258B20A | 09/18/2011 00:16 | Catherine J Schwarz | 1 |
| 02211 | NWTPH-Dx water w/Si Gel | ECY 97-602 NWTPH-Dx modified | 1 | 112570005A | 09/28/2011 00:42 | Anita M Dale | 1 |
| 02135 | Extraction - DRO Water Special | ECY 97-602 NWTPH-Dx 06/97 | 1 | 112570005A | 09/14/2011 07:50 | Cynthia J Salvatori | 1 |
| 06035 | Lead | SW-846 6020 | 1 | 112556050006A | 09/13/2011 12:53 | Choon Y Tian | 1 |
| 06050 | ICP/MS SW-846 Water Digest | SW-846 3010A modified | 1 | 112556050006 | 09/12/2011 13:24 | James L Mertz | 1 |

*=This limit was used in the evaluation of the final result

Sample Description: MW-7 Water Sample
 Facility# 98944
 1323 Lee Blvd - Kennewick, WA

LLI Sample # WW 6401862
 LLI Group # 1265749
 Account # 13036

Project Name: 98944

Collected: 09/09/2011 07:27 by JB

Chevron Environmental Mgmt Co
 6101 Bollinger Canyon Road
 San Ramon CA 94583

Submitted: 09/10/2011 10:00

Reported: 10/03/2011 10:11

LBK07

| CAT No. | Analysis Name | CAS Number | As Received Result | As Received Method Detection Limit* | As Received Limit of Quantitation | Dilution Factor |
|---------------|---------------|--------------------|--------------------|-------------------------------------|-----------------------------------|-----------------|
| Metals | | SW-846 6020 | mg/l | mg/l | mg/l | |
| 06035 | Lead | 7439-92-1 | 0.00060 | 0.000080 | 0.0010 | 1 |

General Sample Comments

State of Washington Lab Certification No. C259

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 |
|---------|----------------------------|-----------------------|--------|---------------|------------------------|---------------|-----------------|
| 06035 | Lead | SW-846 6020 | 1 | 112556050006A | 09/13/2011 12:54 | Choon Y Tian | 1 |
| 06050 | ICP/MS SW-846 Water Digest | SW-846 3010A modified | 1 | 112556050006 | 09/12/2011 13:24 | James L Mertz | 1 |

Sample Description: MW-8 Water Sample
Facility# 98944
1323 Lee Blvd - Kennewick, WA

LLI Sample # WW 6401863
LLI Group # 1265749
Account # 13036

Project Name: 98944

Collected: 09/09/2011 09:11 by JB

Chevron Environmental Mgmt Co

Submitted: 09/10/2011 10:00

6101 Bollinger Canyon Road

Reported: 10/03/2011 10:11

San Ramon CA 94583

LBK08

| CAT No. | Analysis Name | CAS Number | As Received Result | As Received Method Detection Limit* | As Received Limit of Quantitation | Dilution Factor |
|--|-------------------------------------|------------|--------------------|-------------------------------------|-----------------------------------|-----------------|
| GC/MS Volatiles | | | | | | |
| | SW-846 8260B | | ug/l | ug/l | ug/l | |
| 10943 | Benzene | 71-43-2 | N.D. | 0.5 | 1 | 1 |
| 10943 | Ethylbenzene | 100-41-4 | 45 | 0.5 | 1 | 1 |
| 10943 | Naphthalene | 91-20-3 | 24 | 1 | 4 | 1 |
| 10943 | Toluene | 108-88-3 | 0.5 | 0.5 | 1 | 1 |
| 10943 | Xylene (Total) | 1330-20-7 | 4 | 0.5 | 1 | 1 |
| GC Volatiles | | | | | | |
| | ECY 97-602 NWTPH-Gx | | ug/l | ug/l | ug/l | |
| 08273 | NWTPH-Gx water C7-C12 | n.a. | 2,100 | 50 | 250 | 1 |
| Petroleum Hydrocarbons | | | | | | |
| | ECY 97-602 NWTPH-Dx modified | | ug/l | ug/l | ug/l | |
| 02211 | DRO C12-C24 w/Si Gel | n.a. | 130 | 29 | 95 | 1 |
| 02211 | HRO C24-C40 w/Si Gel | n.a. | N.D. | 67 | 240 | 1 |
| The reverse surrogate, capric acid, was present at 0%. | | | | | | |
| Metals | | | | | | |
| | SW-846 6020 | | mg/l | mg/l | mg/l | |
| 06035 | Lead | 7439-92-1 | 0.00029 | 0.000080 | 0.0010 | 1 |

General Sample Comments

State of Washington Lab Certification No. C259

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

Laboratory Sample Analysis Record

| CAT No. | Analysis Name | Method | Trial# | Batch# | Analysis Date and Time | Analyst | Dilution Factor |
|---------|--------------------------------|------------------------------|--------|---------------|------------------------|---------------------|-----------------|
| 10943 | BTEX/Naphthalene - Water | SW-846 8260B | 1 | D112581AA | 09/15/2011 13:22 | Daniel H Heller | 1 |
| 01163 | GC/MS VOA Water Prep | SW-846 5030B | 1 | D112581AA | 09/15/2011 13:22 | Daniel H Heller | 1 |
| 08273 | NWTPH-Gx water C7-C12 | ECY 97-602 NWTPH-Gx | 1 | 11258B20A | 09/18/2011 00:38 | Catherine J Schwarz | 1 |
| 01146 | GC VOA Water Prep | SW-846 5030B | 1 | 11258B20A | 09/18/2011 00:38 | Catherine J Schwarz | 1 |
| 02211 | NWTPH-Dx water w/Si Gel | ECY 97-602 NWTPH-Dx modified | 1 | 112570005A | 09/28/2011 01:03 | Anita M Dale | 1 |
| 02135 | Extraction - DRO Water Special | ECY 97-602 NWTPH-Dx 06/97 | 1 | 112570005A | 09/14/2011 07:50 | Cynthia J Salvatori | 1 |
| 06035 | Lead | SW-846 6020 | 1 | 112556050006A | 09/13/2011 12:56 | Choon Y Tian | 1 |
| 06050 | ICP/MS SW-846 Water Digest | SW-846 3010A modified | 1 | 112556050006 | 09/12/2011 13:24 | James L Mertz | 1 |

*=This limit was used in the evaluation of the final result

Sample Description: DUP Water Sample
Facility# 98944
1323 Lee Blvd - Kennewick, WA

LLI Sample # WW 6401864
LLI Group # 1265749
Account # 13036

Project Name: 98944

Collected: 09/09/2011 by JB

Chevron Environmental Mgmt Co
 6101 Bollinger Canyon Road
 San Ramon CA 94583

Submitted: 09/10/2011 10:00

Reported: 10/03/2011 10:11

LBKFD

| CAT No. | Analysis Name | CAS Number | As Received Result | As Received Method Detection Limit* | As Received Limit of Quantitation | Dilution Factor |
|--|-------------------------------------|------------|--------------------|-------------------------------------|-----------------------------------|-----------------|
| GC/MS Volatiles | | | | | | |
| | SW-846 8260B | | ug/l | ug/l | ug/l | |
| 10943 | Benzene | 71-43-2 | N.D. | 0.5 | 1 | 1 |
| 10943 | Ethylbenzene | 100-41-4 | 46 | 0.5 | 1 | 1 |
| 10943 | Naphthalene | 91-20-3 | 24 | 1 | 4 | 1 |
| 10943 | Toluene | 108-88-3 | 0.6 | 0.5 | 1 | 1 |
| 10943 | Xylene (Total) | 1330-20-7 | 4 | 0.5 | 1 | 1 |
| 3C Volatiles | | | | | | |
| | ECY 97-602 NWTPH-Gx | | ug/l | ug/l | ug/l | |
| 08273 | NWTPH-Gx water C7-C12 | n.a. | 2,200 | 50 | 250 | 1 |
| Petroleum Hydrocarbons | | | | | | |
| | ECY 97-602 NWTPH-Dx modified | | ug/l | ug/l | ug/l | |
| 02211 | DRO C12-C24 w/Si Gel | n.a. | 120 | 29 | 96 | 1 |
| 02211 | HRO C24-C40 w/Si Gel | n.a. | N.D. | 67 | 240 | 1 |
| The reverse surrogate, capric acid, was present at 0%. | | | | | | |
| Metals | | | | | | |
| | SW-846 6020 | | mg/l | mg/l | mg/l | |
| 06035 | Lead | 7439-92-1 | 0.00031 | 0.000080 | 0.0010 | 1 |

General Sample Comments

State of Washington Lab Certification No. C259

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

Laboratory Sample Analysis Record

| CAT No. | Analysis Name | Method | Trial# | Batch# | Analysis Date and Time | Analyst | Dilution Factor |
|---------|--------------------------------|------------------------------|--------|---------------|------------------------|---------------------|-----------------|
| 10943 | BTEX/Naphthalene - Water | SW-846 8260B | 1 | D112581AA | 09/15/2011 14:31 | Daniel H Heller | 1 |
| 01163 | GC/MS VOA Water Prep | SW-846 5030B | 1 | D112581AA | 09/15/2011 14:31 | Daniel H Heller | 1 |
| 08273 | NWTPH-Gx water C7-C12 | ECY 97-602 NWTPH-Gx | 1 | 11258B20A | 09/18/2011 01:00 | Catherine J Schwarz | 1 |
| 01146 | GC VOA Water Prep | SW-846 5030B | 1 | 11258B20A | 09/18/2011 01:00 | Catherine J Schwarz | 1 |
| 02211 | NWTPH-Dx water w/Si Gel | ECY 97-602 NWTPH-Dx modified | 1 | 112570005A | 09/28/2011 01:24 | Anita M Dale | 1 |
| 02135 | Extraction - DRO Water Special | ECY 97-602 NWTPH-Dx 06/97 | 1 | 112570005A | 09/14/2011 07:50 | Cynthia J Salvatori | 1 |
| 06035 | Lead | SW-846 6020 | 1 | 112556050006A | 09/13/2011 12:58 | Choon Y Tian | 1 |
| 06050 | ICP/MS SW-846 Water Digest | SW-846 3010A modified | 1 | 112556050006 | 09/12/2011 13:24 | James L Mertz | 1 |

*=This limit was used in the evaluation of the final result

Sample Description: EB Water Sample
Facility# 98944
1323 Lee Blvd - Kennewick, WA

LLI Sample # WW 6401865
LLI Group # 1265749
Account # 13036

Project Name: 98944

Collected: 09/09/2011 08:35 by JB

Chevron Environmental Mgmt Co

Submitted: 09/10/2011 10:00

6101 Bollinger Canyon Road

Reported: 10/03/2011 10:11

San Ramon CA 94583

LBKEB

| CAT No. | Analysis Name | CAS Number | As Received Result | As Received Method Detection Limit* | As Received Limit of Quantitation | Dilution Factor |
|-------------------------------|-------------------------------------|------------|--------------------|-------------------------------------|-----------------------------------|-----------------|
| GC/MS Volatiles | | | | | | |
| | SW-846 8260B | | ug/l | ug/l | ug/l | |
| 10943 | Benzene | 71-43-2 | N.D. | 0.5 | 1 | 1 |
| 10943 | Ethylbenzene | 100-41-4 | N.D. | 0.5 | 1 | 1 |
| 10943 | Naphthalene | 91-20-3 | N.D. | 1 | 4 | 1 |
| 10943 | Toluene | 108-88-3 | N.D. | 0.5 | 1 | 1 |
| 10943 | Xylene (Total) | 1330-20-7 | N.D. | 0.5 | 1 | 1 |
| PC Volatiles | | | | | | |
| | ECY 97-602 NWTPH-Gx | | ug/l | ug/l | ug/l | |
| 08273 | NWTPH-Gx water C7-C12 | n.a. | N.D. | 50 | 250 | 1 |
| Petroleum Hydrocarbons | | | | | | |
| | ECY 97-602 NWTPH-Dx modified | | ug/l | ug/l | ug/l | |
| 02211 | DRO C12-C24 w/Si Gel | n.a. | N.D. | 29 | 98 | 1 |
| 02211 | HRO C24-C40 w/Si Gel | n.a. | N.D. | 68 | 240 | 1 |
| Metals | | | | | | |
| | SW-846 6020 | | mg/l | mg/l | mg/l | |
| 06035 | Lead | 7439-92-1 | N.D. | 0.000080 | 0.0010 | 1 |

General Sample Comments

State of Washington Lab Certification No. C259

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

Laboratory Sample Analysis Record

| CAT No. | Analysis Name | Method | Trial# | Batch# | Analysis Date and Time | Analyst | Dilution Factor |
|---------|--------------------------------|------------------------------|--------|---------------|------------------------|---------------------|-----------------|
| 10943 | BTEX/Naphthalene - Water | SW-846 8260B | 1 | D112581AA | 09/15/2011 12:37 | Daniel H Heller | 1 |
| 01163 | GC/MS VOA Water Prep | SW-846 5030B | 1 | D112581AA | 09/15/2011 12:37 | Daniel H Heller | 1 |
| 08273 | NWTPH-Gx water C7-C12 | ECY 97-602 NWTPH-Gx | 1 | 11262B20A | 09/20/2011 18:00 | Catherine J Schwarz | 1 |
| 01146 | GC VOA Water Prep | SW-846 5030B | 1 | 11262B20A | 09/20/2011 18:00 | Catherine J Schwarz | 1 |
| 02211 | NWTPH-Dx water w/Si Gel | ECY 97-602 NWTPH-Dx modified | 1 | 112570005A | 09/28/2011 01:44 | Anita M Dale | 1 |
| 02135 | Extraction - DRO Water Special | ECY 97-602 NWTPH-Dx 06/97 | 1 | 112570005A | 09/14/2011 07:50 | Cynthia J Salvatori | 1 |
| 06035 | Lead | SW-846 6020 | 1 | 112556050006A | 09/13/2011 12:59 | Choon Y Tian | 1 |
| 06050 | ICP/MS SW-846 Water Digest | SW-846 3010A modified | 1 | 112556050006 | 09/12/2011 13:24 | James L Mertz | 1 |

*=This limit was used in the evaluation of the final result

Sample Description: QA Water Sample
Facility# 98944
1323 Lee Blvd - Kennewick, WA

LLI Sample # WW 6401866
LLI Group # 1265749
Account # 13036

Project Name: 98944

Collected: 09/09/2011 06:15

Chevron Environmental Mgmt Co

Submitted: 09/10/2011 10:00

6101 Bollinger Canyon Road

Reported: 10/03/2011 10:11

San Ramon CA 94583

LBKTB

| CAT No. | Analysis Name | CAS Number | As Received Result | As Received Method Detection Limit* | As Received Limit of Quantitation | Dilution Factor |
|------------------------|----------------------------|------------|--------------------|-------------------------------------|-----------------------------------|-----------------|
| GC/MS Volatiles | | | | | | |
| | SW-846 8260B | | ug/l | ug/l | ug/l | |
| 10943 | Benzene | 71-43-2 | N.D. | 0.5 | 1 | 1 |
| 10943 | Ethylbenzene | 100-41-4 | N.D. | 0.5 | 1 | 1 |
| 10943 | Toluene | 108-88-3 | N.D. | 0.5 | 1 | 1 |
| 10943 | Xylene (Total) | 1330-20-7 | N.D. | 0.5 | 1 | 1 |
| IC Volatiles | | | | | | |
| | ECY 97-602 NWTPH-Gx | | ug/l | ug/l | ug/l | |
| 08273 | NWTPH-Gx water C7-C12 | n.a. | N.D. | 50 | 250 | 1 |

General Sample Comments

State of Washington Lab Certification No. C259

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

Laboratory Sample Analysis Record

| CAT No. | Analysis Name | Method | Trial# | Batch# | Analysis Date and Time | Analyst | Dilution Factor |
|---------|-----------------------|---------------------|--------|-----------|------------------------|---------------------|-----------------|
| 10943 | BTEX 8260B Water | SW-846 8260B | 1 | D112581AA | 09/15/2011 12:59 | Daniel H Heller | 1 |
| 01163 | GC/MS VOA Water Prep | SW-846 5030B | 1 | D112581AA | 09/15/2011 12:59 | Daniel H Heller | 1 |
| 08273 | NWTPH-Gx water C7-C12 | ECY 97-602 NWTPH-Gx | 1 | 11262B20A | 09/20/2011 18:22 | Catherine J Schwarz | 1 |
| 01146 | GC VOA Water Prep | SW-846 5030B | 1 | 11262B20A | 09/20/2011 18:22 | Catherine J Schwarz | 1 |

Quality Control Summary

 Client Name: Chevron Environmental Mgmt Co
 Reported: 10/03/11 at 10:11 AM

Group Number: 1265749

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

All Inorganic Initial Calibration and Continuing Calibration Blanks met acceptable method criteria unless otherwise noted on the Analysis Report.

Laboratory Compliance Quality Control

| Analysis Name | Blank Result | Blank MDL** | Blank LOQ | Report Units | LCS %REC | LCSD %REC | LCS/LCSD Limits | RPD | RPD Max |
|-----------------------------|---|-------------|-----------|--------------|----------|-----------|-----------------|-----|---------|
| Batch number: D112581AA | Sample number(s): 6401863-6401866 | | | | | | | | |
| Benzene | N.D. | 0.5 | 1 | ug/l | 110 | | 79-120 | | |
| Ethylbenzene | N.D. | 0.5 | 1 | ug/l | 102 | | 79-120 | | |
| Naphthalene | N.D. | 1. | 4 | ug/l | 89 | | 62-120 | | |
| Toluene | N.D. | 0.5 | 1 | ug/l | 100 | | 79-120 | | |
| Xylene (Total) | N.D. | 0.5 | 1 | ug/l | 100 | | 80-120 | | |
| Batch number: 11258B20A | Sample number(s): 6401859, 6401861, 6401863-6401864 | | | | | | | | |
| NWTPH-Gx water C7-C12 | N.D. | 50. | 250 | ug/l | 100 | 100 | 75-135 | 0 | 30 |
| Batch number: 11262B20A | Sample number(s): 6401865-6401866 | | | | | | | | |
| NWTPH-Gx water C7-C12 | N.D. | 50. | 250 | ug/l | 109 | 109 | 75-135 | 0 | 30 |
| Batch number: 112570005A | Sample number(s): 6401859, 6401861, 6401863-6401865 | | | | | | | | |
| DRO C12-C24 w/Si Gel | N.D. | 30. | 100 | ug/l | 74 | 80 | 56-103 | 8 | 20 |
| HRO C24-C40 w/Si Gel | N.D. | 70. | 250 | ug/l | | | | | |
| Batch number: 112556050006A | Sample number(s): 6401859-6401865 | | | | | | | | |
| Lead | N.D. | 0.00008 | 0.0010 | mg/l | 102 | | 90-115 | | |
| | | 0 | | | | | | | |

Sample Matrix Quality Control

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

| Analysis Name | MS %REC | MSD %REC | MS/MSD Limits | RPD | RPD MAX | BKG Conc | DUP Conc | DUP RPD | Dup RPD Max |
|-----------------------------|---|----------|---------------|-----|---------|----------|----------|---------|-------------|
| Batch number: D112581AA | Sample number(s): 6401863-6401866 UNSPK: 6401863 | | | | | | | | |
| Benzene | 120 | 115 | 80-126 | 4 | 30 | | | | |
| Ethylbenzene | 166* | 101 | 71-134 | 18 | 30 | | | | |
| Naphthalene | 139* | 94 | 52-125 | 19 | 30 | | | | |
| Toluene | 110 | 106 | 80-125 | 3 | 30 | | | | |
| Xylene (Total) | 111 | 105 | 79-125 | 5 | 30 | | | | |
| Batch number: 112556050006A | Sample number(s): 6401859-6401865 UNSPK: P401151 BKG: P401151 | | | | | | | | |
| Lead | 100 | 102 | 83-120 | 2 | 20 | N.D. | N.D. | 0 (1) | 20 |

Surrogate Quality Control

*- Outside of specification

** - This limit was used in the evaluation of the final result for the blank

- 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 Environmental Mgmt Co
 Reported: 10/03/11 at 10:11 AM

Group Number: 1265749

Surrogate Quality Control

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

 Analysis Name: UST VOCs by 8260B - Water
 Batch number: D112581AA

| | Dibromofluoromethane | 1,2-Dichloroethane-d4 | Toluene-d8 | 4-Bromofluorobenzene |
|---------|----------------------|-----------------------|------------|----------------------|
| 6401863 | 103 | 96 | 96 | 110 |
| 6401864 | 100 | 96 | 96 | 111 |
| 6401865 | 102 | 96 | 95 | 103 |
| 6401866 | 101 | 98 | 96 | 103 |
| Blank | 102 | 99 | 97 | 102 |
| LCS | 101 | 102 | 96 | 107 |
| MS | 102 | 101 | 98 | 109 |
| MSD | 102 | 101 | 97 | 108 |

Limits: 80-116 77-113 80-113 78-113

 Analysis Name: NWTPH-Gx water C7-C12
 Batch number: 11258B20A
 Trifluorotoluene-F

| | |
|---------|------|
| 6401859 | 114 |
| 6401861 | 121 |
| 6401863 | 165* |
| 6401864 | 159* |
| Blank | 94 |
| LCS | 117 |
| LCSD | 120 |

Limits: 63-135

 Analysis Name: NWTPH-Gx water C7-C12
 Batch number: 11262B20A
 Trifluorotoluene-F

| | |
|---------|-----|
| 6401865 | 97 |
| 6401866 | 96 |
| Blank | 95 |
| LCS | 123 |
| LCSD | 122 |

Limits: 63-135

 Analysis Name: NWTPH-Dx water w/Si Gel
 Batch number: 112570005A
 Orthoterphenyl

| | |
|---------|-----|
| 6401859 | 92 |
| 6401861 | 89 |
| 6401863 | 97 |
| 6401864 | 85 |
| 6401865 | 82 |
| Blank | 92 |
| LCS | 91 |
| LCSD | 101 |

*- Outside of specification

**- This limit was used in the evaluation of the final result for the blank

- 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 Environmental Mgmt Co
Reported: 10/03/11 at 10:11 AM

Group Number: 1265749

Surrogate Quality Control

Limits: 50-150

*- Outside of specification

** - This limit was used in the evaluation of the final result for the blank

- 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.

Explanation of Symbols and Abbreviations

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

| | | | |
|-------------------------|--|-----------------|----------------------------------|
| RL | Reporting Limit | BMQL | Below Minimum Quantitation Level |
| N.D. | none detected | MPN | Most Probable Number |
| TNTC | Too Numerous To Count | CP Units | cobalt-chloroplatinate units |
| IU | International Units | NTU | nephelometric turbidity units |
| umhos/cm | micromhos/cm | ng | nanogram(s) |
| C | degrees Celsius | F | degrees Fahrenheit |
| meq | milliequivalents | lb. | pound(s) |
| g | gram(s) | kg | kilogram(s) |
| ug | microgram(s) | mg | milligram(s) |
| ml | milliliter(s) | l | liter(s) |
| m3 | cubic meter(s) | ul | microliter(s) |
| < | less than - The number following the sign is the <u>limit of quantitation</u> , the smallest amount of analyte which can be reliably determined using this specific test. | | |
| > | greater than | | |
| J | estimated value – The result is \geq the Method Detection Limit (MDL) and $<$ the Limit of Quantitation (LOQ). | | |
| ppm | parts per million - One ppm is equivalent to one milligram per kilogram (mg/kg), or one gram per million grams. For aqueous liquids, ppm is usually taken to be equivalent to milligrams per liter (mg/l), because one liter of water has a weight very close to a kilogram. For gases or vapors, one ppm is equivalent to one microliter of gas per liter of gas. | | |
| ppb | parts per billion | | |
| Dry weight basis | Results printed under this heading have been adjusted for moisture content. This increases the analyte weight concentration to approximate the value present in a similar sample without moisture. All other results are reported on an as-received basis. | | |

U.S. EPA CLP Data Qualifiers:

| Organic Qualifiers | | Inorganic Qualifiers | |
|--------------------|---|----------------------|---|
| A | TIC is a possible aldol-condensation product | B | Value is $<$ CRDL, but \geq IDL |
| B | Analyte was also detected in the blank | E | Estimated due to interference |
| C | Pesticide result confirmed by GC/MS | M | Duplicate injection precision not met |
| D | Compound quantitated on a diluted sample | N | Spike sample not within control limits |
| E | Concentration exceeds the calibration range of the instrument | S | Method of standard additions (MSA) used for calculation |
| N | Presumptive evidence of a compound (TICs only) | U | Compound was not detected |
| P | Concentration difference between primary and confirmation columns $>$ 25% | W | Post digestion spike out of control limits |
| U | Compound was not detected | * | Duplicate analysis not within control limits |
| X,Y,Z | Defined in case narrative | + | Correlation coefficient for MSA $<$ 0.995 |

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

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

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

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