SEVEN · SISTERS
ENVIRONMENTAL

4609 Chokecherry Trail, no.4
Fort Collins Colorado 80526
970 631.8685
970 631.8082, fax

August 6, 2009

Mr. Robert Chesson, Environmental Specialist
Colorado Oil and Gas Conservation Commission
1120 Lincoln Street, Suite 801
Denver, Colorado 80203

RE: **Chevron USA, Inc. - Rangely Weber Sand Unit (RWSU)**
$CO_2$ Plant Groundwater Monitoring Event, April 2009

Dear Mr. Chesson:

On behalf of Chevron USA, Inc., Seven Sisters Environmental, Inc. is pleased to submit this interim report summarizing the results and conclusions of our $CO_2$ Plant Groundwater Monitoring activities in 2009.

As indicated in the Background section, this report documents interim monitoring of shallow groundwater contamination from a leaking valve discovered in June 2000. As documented in the report, the 2009 data show the contaminant concentrations are still declining. The significant findings are:

- No contaminants were found in detectable quantities in MW-6 (upgradient well), MW-12 (downgradient well), or MW-4 (source area well).
- The contaminant levels in MW-7 and MW-11 are lower than at any time since the monitoring began, except for the ethylbenzene concentration in MW-7, which is only marginally higher than its historic low.

In light of these results and because of the isolated nature of the contamination, the low quality of the perched groundwater, and the low permeability of the clay soils, we recommend continued annual monitoring of the wells until appropriate closure levels are reached by natural attenuation.

Please contact me or Mr. Bill Savage at 970-675-3839 if you have any questions or concerns.

Regards,

Jack Matthews
Seven Sisters Environmental, Inc.

**cc:** **Bill Savage – Chevron, Rangely**
**Ross Alire – Chevron, Rangely**
**Rodney Bailey – Chevron, Midland**
**Adam Berig – Olsson Associates, Golden**

# Report of August 2009

# $CO_2$ PLANT GROUNDWATER MONITORING EVENT

## RANGELY WEBER SAND UNIT

## RIO BLANCO COUNTY, COLORADO

**Prepared For:**

**CHEVRON USA, Inc.**
**and**
**Olsson Associates**

**Prepared By:**

**SEVEN SISTERS ENVIRONMENTAL, INC.**
**4609 Chokecherry Trail, Unit 4**
**Fort Collins, Colorado 80526**
**970.631.8685**

**August 6, 2009**

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# 1.0 INTRODUCTION

Chevron USA, Inc. (Chevron) retained Olsson Associates / Seven Sisters Environmental to collect the annual groundwater samples from the five designated monitoring wells at the Natural Gas Liquids / Carbon Dioxide Plant (NGL/$CO_2$ Plant) at the Weber Sand Unit in Rio Blanco County Colorado.

The NGL/$CO_2$ Plant site is located approximately 4 miles west of the town of Rangely in Section 31; Township 2 North; Range 102 West of the 6$^{th}$ Principle Meridian in Rio Blanco County, Colorado. The site location is shown in Figure 1 and plant layout with sample well locations is attached as Figure 2.

# 2.0 BACKGROUND

The results of a limited subsurface assessment that was completed at the site in June 2000 found petroleum hydrocarbons in the shallow groundwater near the Train 1 Sump. The hydrocarbons detected in the shallow groundwater were traced to a leaking valve and the valve was repaired in June 2000. The shallow water lies on top of the Mancos Shale and is of limited extent. Because the total dissolved solids (TDS) in the shallow water are greater than 10,000 milligrams per Liter (mg/L) the water is not potable for domestic or agricultural use or suitable for any other beneficial use.

Based on the 2000 assessment results, in 2001 the Colorado Oil and Gas Conservation Commission (COGCC) directed Chevron to sample the five designated wells near the Train 1 sump annually to monitor the natural attenuation of petroleum hydrocarbons in the shallow groundwater. The designated wells include one up-gradient well (MW-6), three source area wells (MW-4, MW-7 and MW-11), and one down-gradient well (MW-12). The required analysis included benzene, toluene, ethylbenzene and xylenes (BTEX) by EPA Method 8021B.

In general, the laboratory results for the samples collected in July 2001 showed that the concentrations of BTEX constituents reported in the samples had decreased significantly since the June 2000 sampling event. In July 2001, no BTEX constituents were detected in the point of compliance (POC) well (MW-12) above the quantitation limits. The COGCC directed Chevron to collect annual groundwater samples to confirm continued degradation of petroleum hydrocarbons in shallow groundwater. The laboratory results from the April 2009 samples continued to show declining levels of BTEX constituents as described below.

# 3.0 GROUNDWATER SAMPLING ACTIVITIES

Olsson / Seven Sisters personnel mobilized to the site to complete the groundwater sampling activities on Monday, April 27, 2009. Prior to purging the wells, an electronic water level meter was used to measure the depth to water in each of the sampled groundwater monitoring wells. No free product was observed in any of the wells. Table 1 summarizes the casing elevations, depth to water measurements, and water elevations for 2001 through 2009. Figure 3 shows the water elevation history from 2000-2009. Between 2000 and 2004, the water elevations generally

receded as a result of an extended drought in the area. Since 2004 the water levels have trended higher and during the 2008 sampling event the levels were at or above the original levels measured in 2001. The 2009 levels are similar to the 2008 levels, although MW-6 (upgradient well) continues to show greater fluctuation than the other wells. The water elevation in MW-6 appears to be hydraulically separated from the other monitoring wells and doesn't trend with the other wells.

After measuring the water levels, we purged the five designated wells by bailing the wells to remove a minimum of three casing volumes from each well or until the well was empty. Purging was completed on Monday afternoon, April 27, 2009 with dedicated disposable bailers.

On the morning of Tuesday, April 28 we collected the groundwater samples using the same dedicated disposable bailers. The samples were sealed in 40-milliliter Volatile Organic Analysis (VOA) vials with no headspace, labeled and placed in a cooler with ice. Olsson personnel delivered the samples to Evergreen Analytical Laboratory in Wheat Ridge, Colorado on Thursday, April 30, 2009 for the required analyses.

Figures 4 a, b, c, and d illustrate contaminant level trends from 2000 – 2009. After steep declines in contaminant concentrations between 2000 and 2005, only MW-7 and MW-11 exhibited detectable concentrations of aromatic compounds. MW-7 showed a modest uplift in concentrations in 2005 – 2006, however the 2007 - 2009 data show a resumption of the expected declines. In summary, the 2009 data show:

- No contaminants were found in detectable quantities in MW-6 (upgradient well), MW-12 (downgradient well), or MW-4 (source area well).
- The contaminant levels in MW-7 and MW-11 are lower than at any time since the monitoring began, except for the ethylbenzene concentration in MW-7, which is only marginally higher than its historic low.

Based on these results we recommend continued annual monitoring of the wells until appropriate closure levels are reached by natural attenuation. Because of the isolated nature of the contamination, the low quality of the perched groundwater, and the low permeability of the clay soils, the risk of contaminating other water resources or other environmental receptors is remote.

**Table 1**
**Summary of Well and Water Elevations, 2001 - 2009**
**Groundwater Monitoring Wells, CO2 Plant**
**Chevron USA, Inc., Rangely Weber Sand Unit**

**Depth from TOC to Water Level, feet**

| Well ID | Top of Casing, Elevation | Bottom of Hole (Feet below TOC) | Depth to Water, 2001 | Depth to Water, 2003 | Depth to Water, 2004 | Depth to Water, 2005 | Depth to Water, 2006 | Depth to Water, 2007 | Depth to Water, 2008 | Depth to Water, 2009 |
|---|---|---|---|---|---|---|---|---|---|---|
| MW-4 | 5,280.04 | 12.39 | 3.82 | 5.74 | 6.30 | 4.30 | 5.22 | 4.90 | 3.60 | 4.20 |
| MW-6 | 5,288.40 | 28.25 | 13.40 | 11.45 | 17.49 | 17.10 | 15.93 | 9.50 | 9.49 | 15.60 |
| MW-7 | 5,281.48 | 14.33 | 4.48 | 6.41 | 6.92 | 5.10 | 5.85 | 6.28 | 4.50 | 5.39 |
| MW-11 | 5,280.47 | 15.05 | 3.75 | NM | 6.88 | 4.95 | 4.98 | 3.60 | 3.01 | 2.93 |
| MW-12 | 5,275.92 | 6.35 | 4.42 | NM | 3.50 | 1.82 | 2.89 | 2.25 | 2.32 | 0.48 |

**Water Elevation, Above Mean Sea Level, feet**

| Well ID | Top of Casing, Elevation | Bottom of Hole (Feet below TOC) | Water Elevation 2001 | Water Elevation 2003 | Water Elevation 2004 | Water Elevation 2005 | Water Elevation 2006 | Water Elevation 2007 | Water Elevation 2008 | Water Elevation 2009 |
|---|---|---|---|---|---|---|---|---|---|---|
| MW-4 | 5,280.04 | 12.39 | 5,276.22 | 5,274.30 | 5,273.74 | 5,275.74 | 5,274.82 | 5,275.14 | 5,276.44 | 5,275.84 |
| MW-6 | 5,288.40 | 28.25 | 5,275.00 | 5,276.95 | 5,270.91 | 5,271.30 | 5,272.47 | 5,278.90 | 5,278.91 | 5,272.80 |
| MW-7 | 5,281.48 | 14.33 | 5,277.00 | 5,275.07 | 5,274.56 | 5,276.38 | 5,275.63 | 5,275.20 | 5,276.98 | 5,276.09 |
| MW-11 | 5,280.47 | 15.05 | 5,276.72 | NM | 5,273.59 | 5,275.52 | 5,275.49 | 5,276.87 | 5,277.46 | 5,277.54 |
| MW-12 | 5,275.92 | 6.35 | 5,271.50 | NM | 5,272.42 | 5,274.10 | 5,273.03 | 5,273.67 | 5,273.60 | 5,275.44 |

**Notes:**
Elevations referenced to mean sea level
Water levels were measured in the nine wells near the Train 1 Sump.
TOC = Top of Casing
NM = Not Measured

## Table 2

## Summary of Laboratory Results for Groundwater Samples, 2000 – 2009

# CHEVRON – WEBER SAND UNIT NGL/CO2 PLANT

**Contaminant concentrations in µg/l**

| | MW-4 | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | 2000 | 2001 | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 | 2009 |
| **Benzene** | ND | 0.9 | ND | ND | ND | ND | ND | ND | ND |
| **Toluene** | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| **Ethylbenzene** | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| **Xylenes** | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| | MW-6 | | | | | | | | |
| | 2000 | 2001 | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 | 2009 |
| **Benzene** | NS | 0.6 | ND | ND | ND | ND | ND | ND | ND |
| **Toluene** | NS | ND | ND | ND | ND | ND | ND | ND | ND |
| **Ethylbenzene** | NS | ND | ND | ND | ND | ND | ND | ND | ND |
| **Xylenes** | NS | 0.3J | ND | ND | ND | ND | ND | ND | ND |
| | MW-7 | | | | | | | | |
| | 2000 | 2001 | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 | 2009 |
| **Benzene** | 16,000 | 7,450 | 6,900 | 7,200 | 4,800 | 5,700 | 4,600 | 4,000 | 3,700 |
| **Toluene** | 220 | ND | ND | ND | ND | ND | ND | ND | ND |
| **Ethylbenzene** | 240 | 80J | ND | ND | 120 | 94 | 75 | 63 | 74 |
| **Xylenes** | 224 | 40J | ND | ND | ND | ND | ND | 36.5 | 5.7 |
| | MW-11 | | | | | | | | |
| | 2000 | 2001 | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 | 2009 |
| **Benzene** | 9,600 | 6,010 | 220 | 470 | 440 | 36 | 220 | 600 | 82 |
| **Toluene** | 59 | ND | ND | ND | ND | ND | ND | ND | ND |
| **Ethylbenzene** | 63 | 30J | 110 | 110 | ND | ND | ND | ND | ND |
| **Xylenes** | 87 | 40J | ND | ND | ND | ND | ND | ND | ND |
| | MW-12 | | | | | | | | |
| | 2000 | 2001 | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 | 2009 |
| **Benzene** | 1.0 | ND | ND | ND | ND | ND | ND | ND | ND |
| **Toluene** | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| **Ethylbenzene** | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| **Xylenes** | ND | ND | ND | ND | ND | ND | ND | ND | ND |

µg/L = micrograms per Liter; ND = Not detected; NS = Not sampled

J – estimated value below reporting limits

# FIGURES

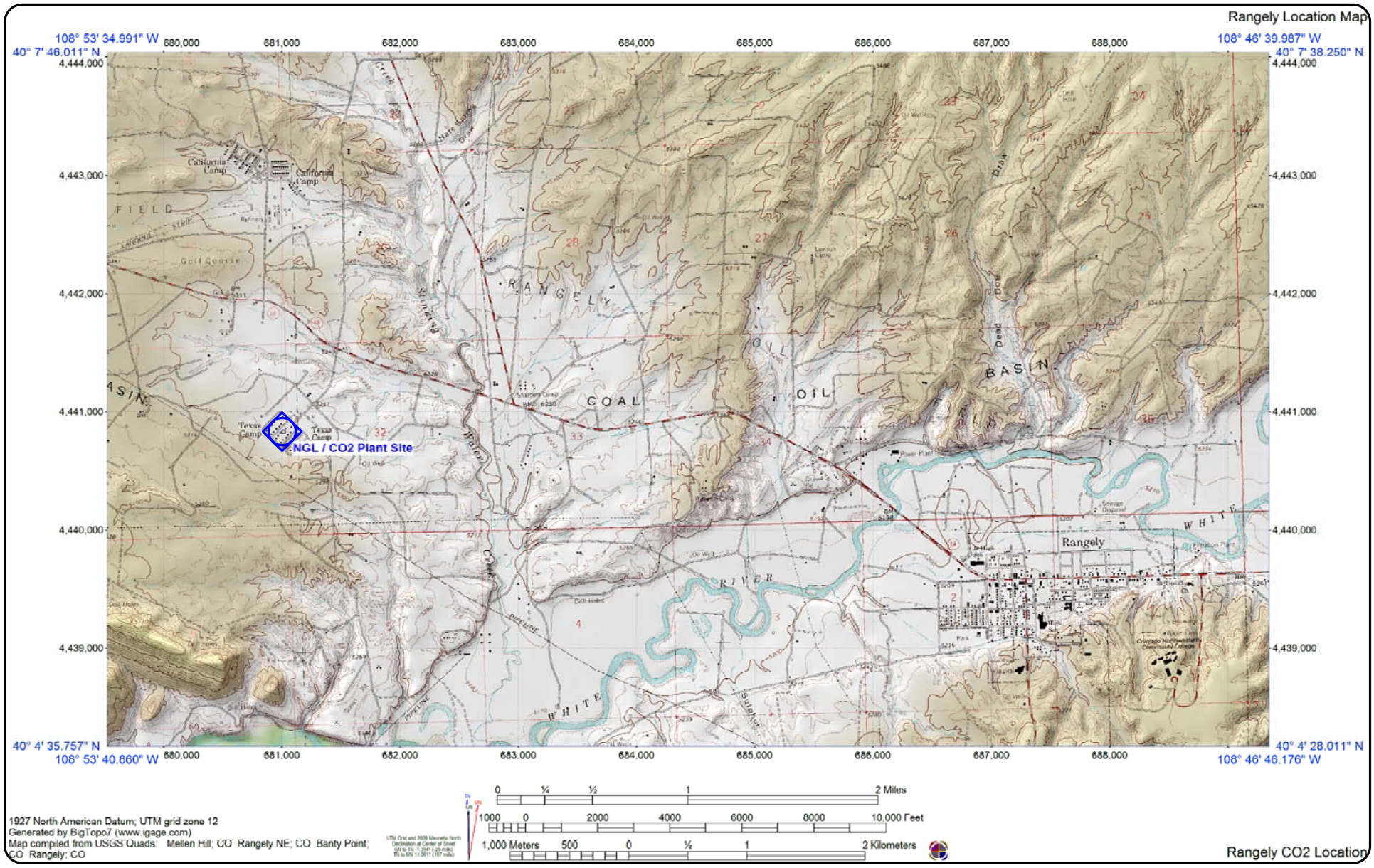


**Figure 1**

| General Site Location Map<br>NGL / CO2 Plant<br>Chevron USA, Inc.<br>Rangely Weber Sand Unit<br>Rio Blanco County, Colorado | |
|---|---|
| Revision Date: | 5/15/2009 |
| Revision No.: | 0 |
| Revised By: | JYM |
| Approved By | JYM |
| Project No.: | E03054 |
| Scale: | On map |

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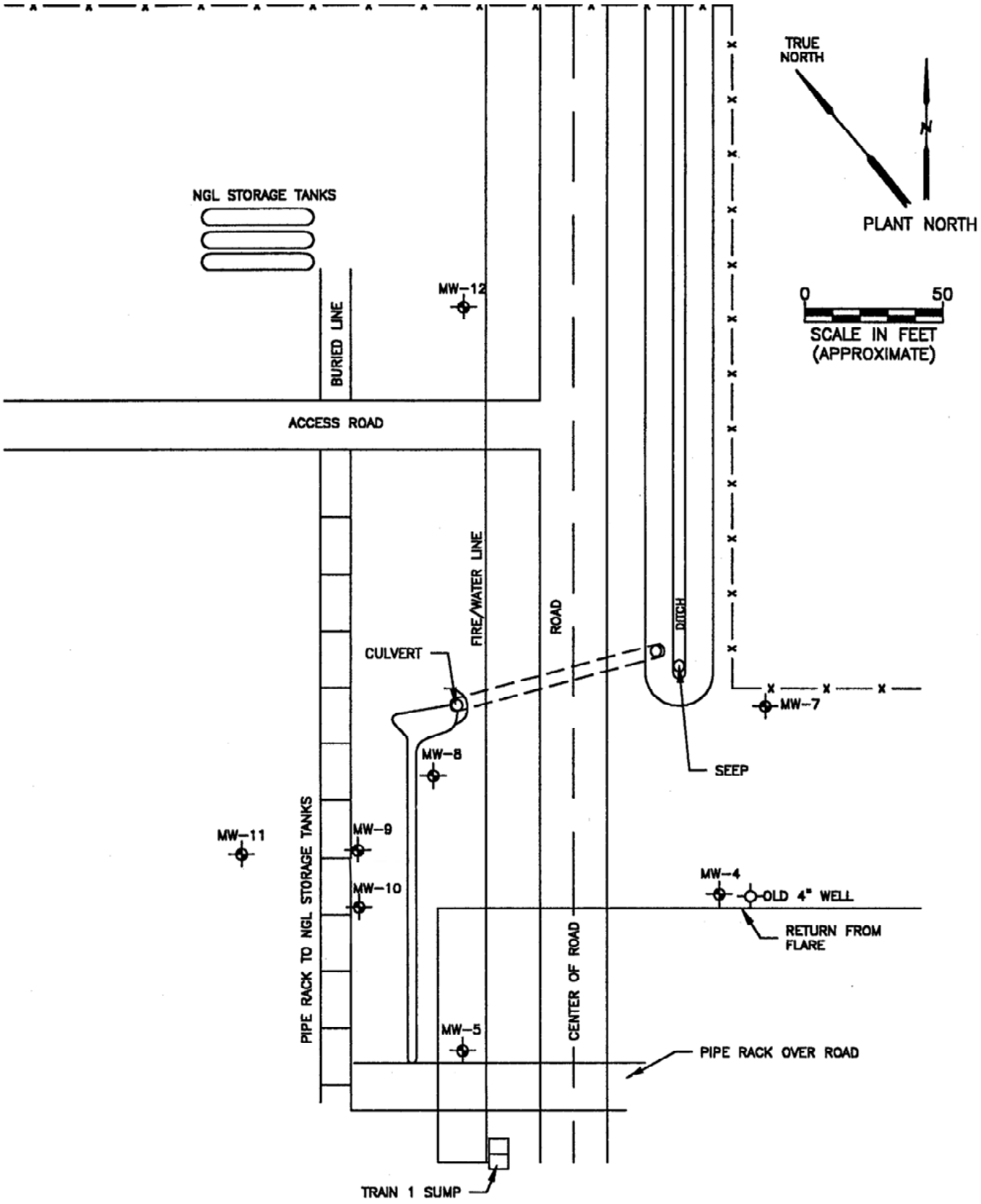


## LEGEND

MW-4 ⊕ MONITORING WELL

MW-6 ↓

Figure 2

Monitoring Well Locations
NGL / CO2 Plant
Chevron U.S.A. Production Company
Rangely Weber Sand Unit
Rio Blanco County, Colorado

| | |
|---|---|
| Revision Date: | 5/15/2009 |
| Revision Number | 0 |
| Revised by: | JYM |
| Approved by: | ALB |
| Project Number: | E03054 |
| Scale: | None |

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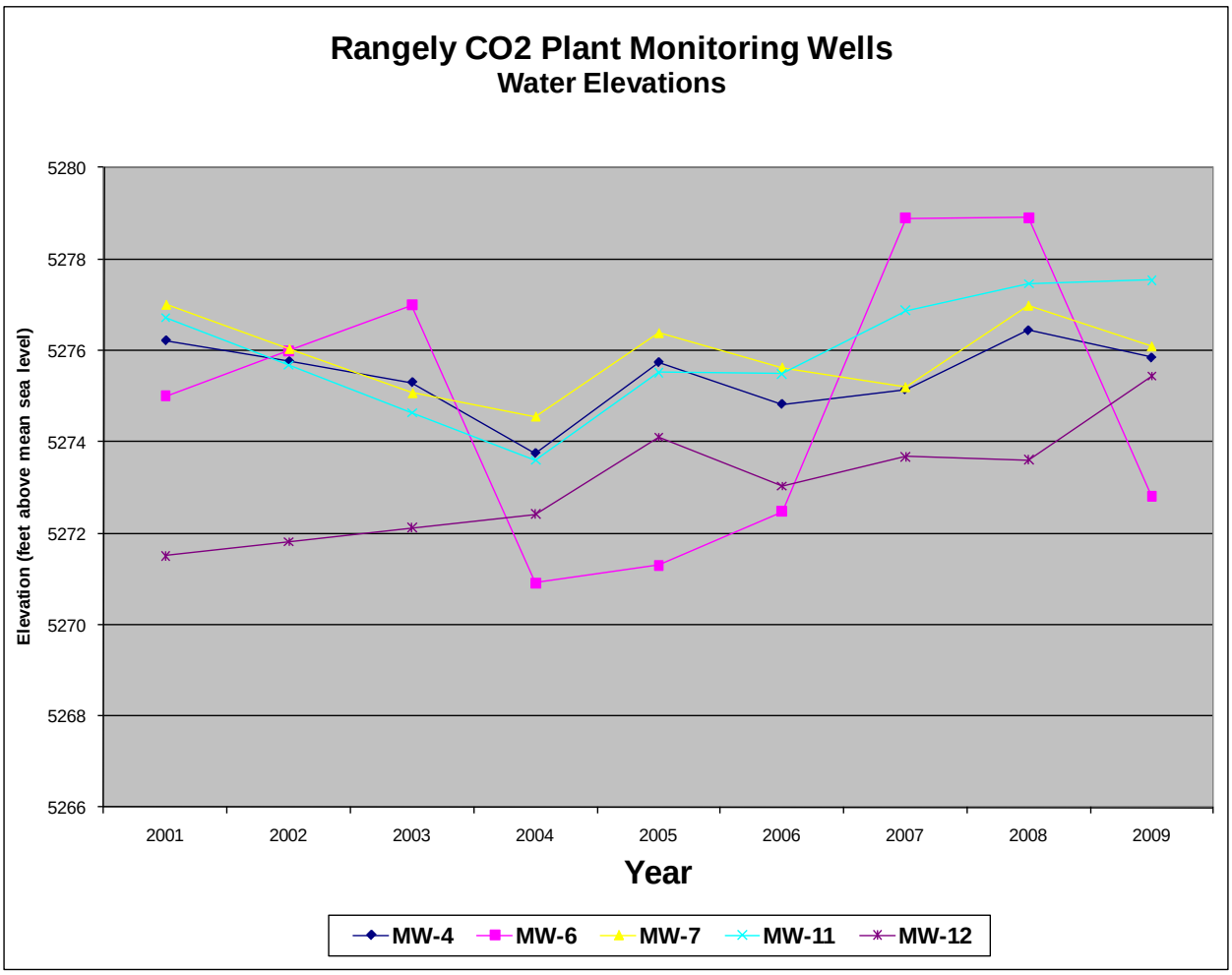
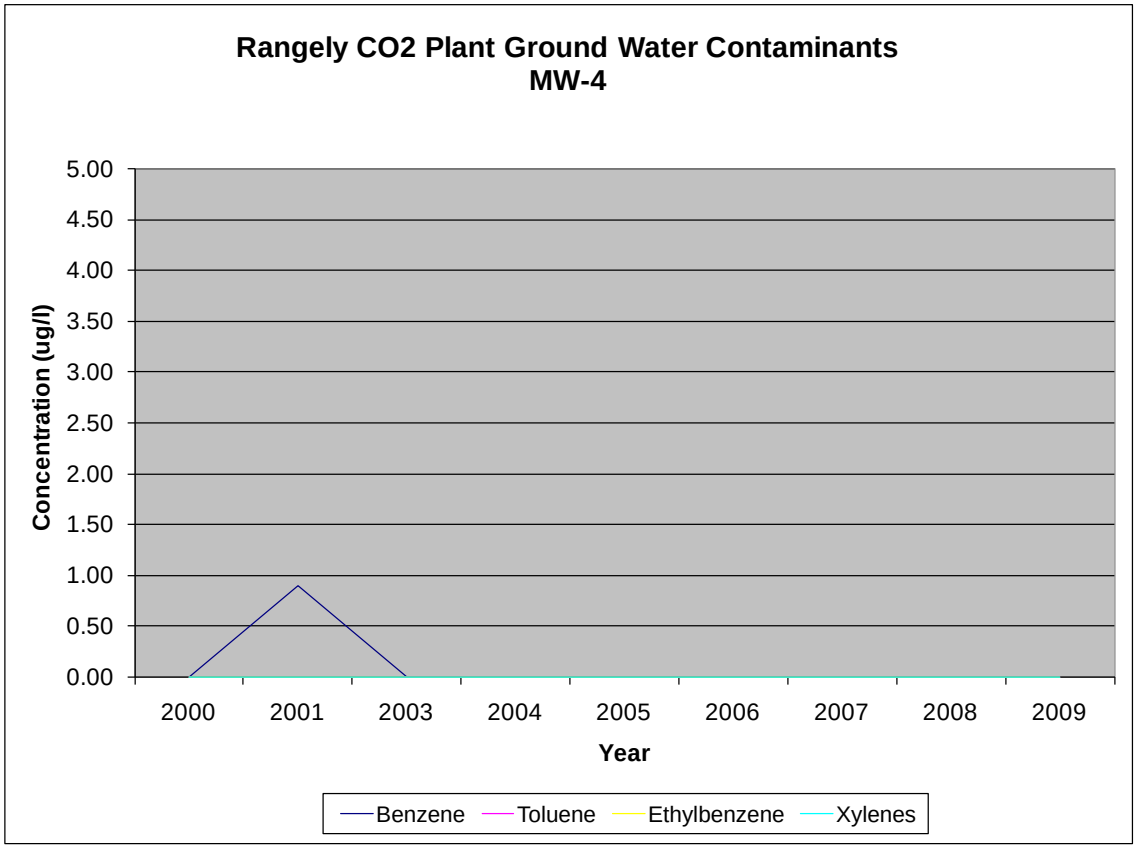
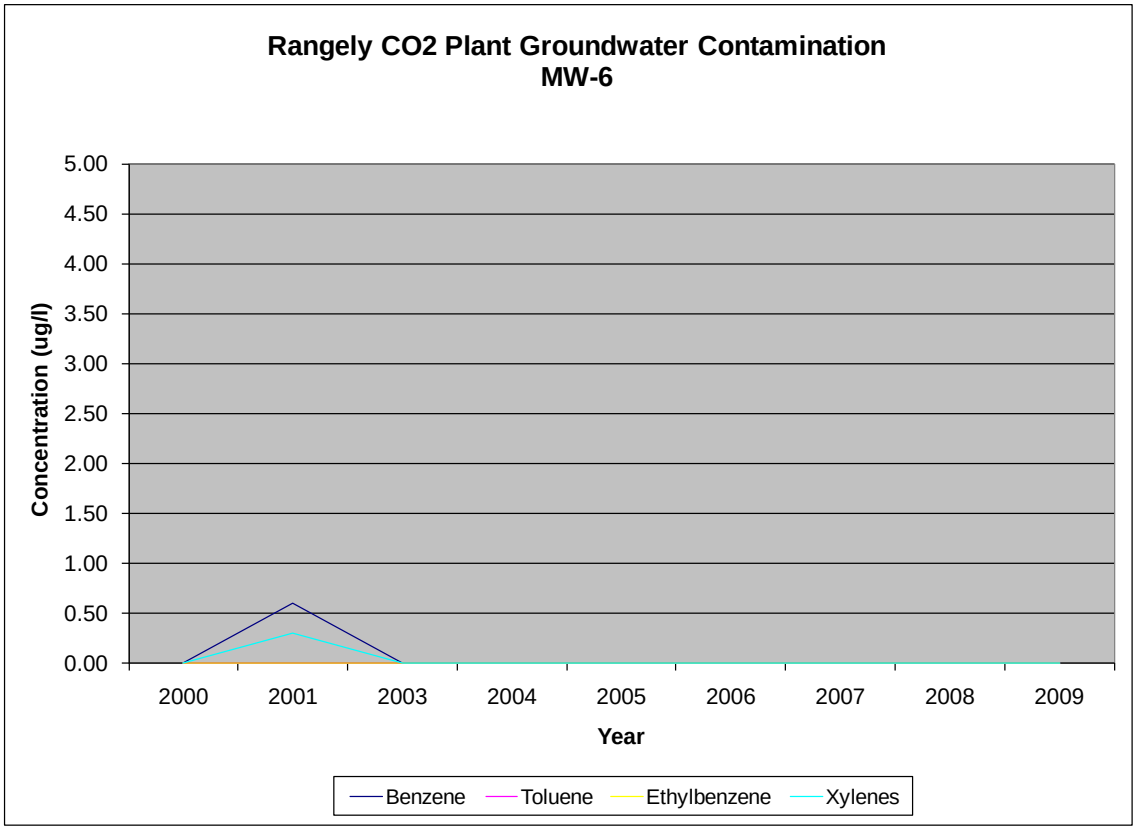
## Figure 3 – Monitoring Well Water Elevations

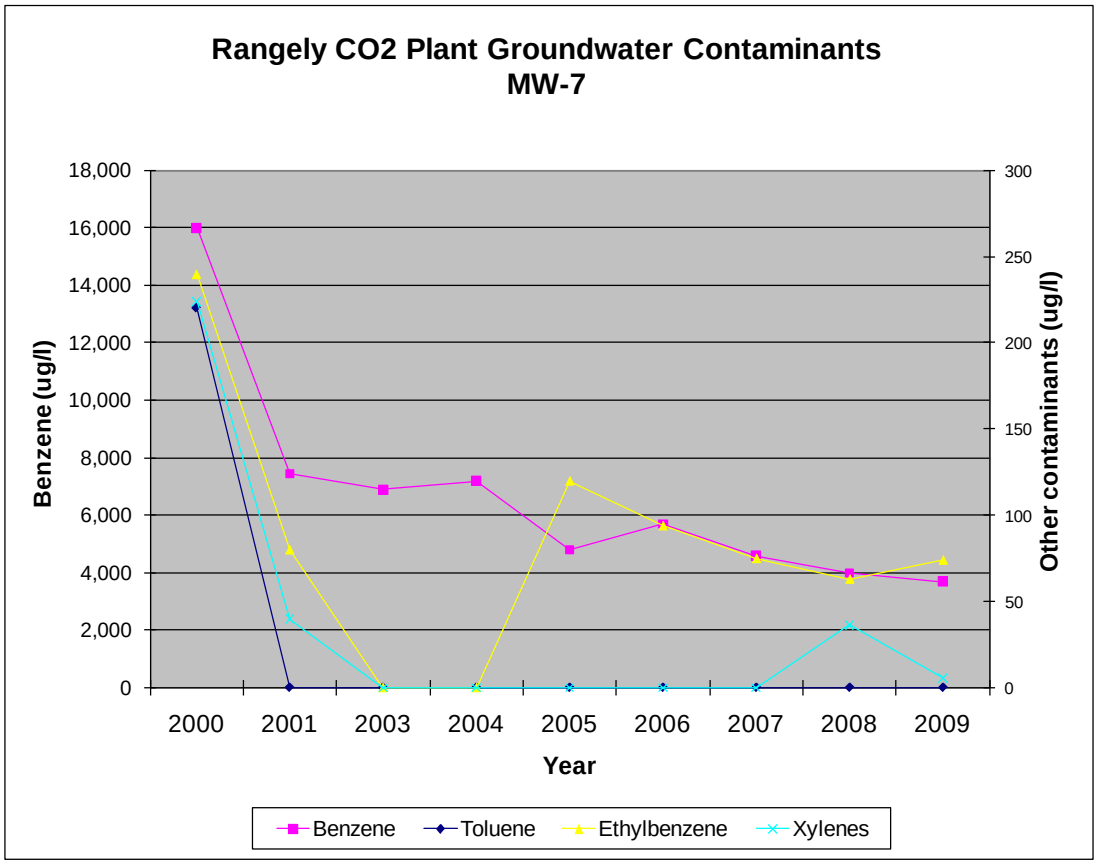


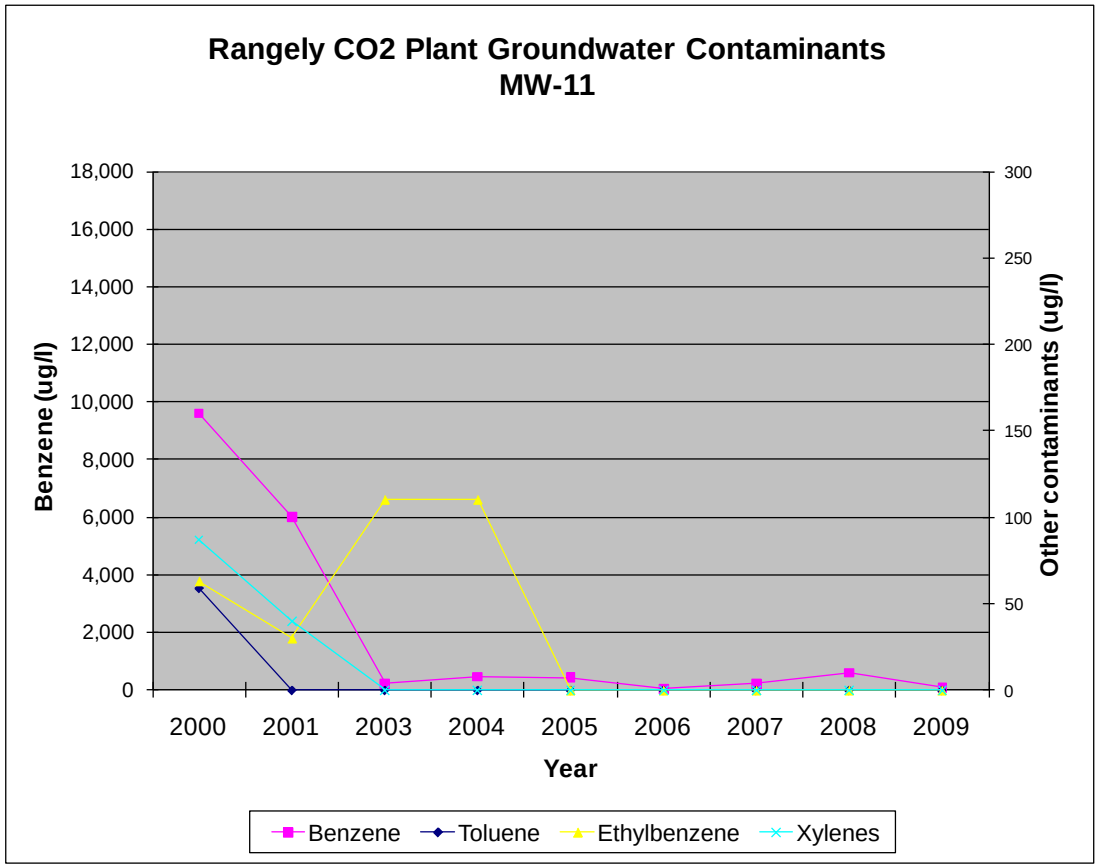
## Figure 4 (a and b) – Monitoring Well Contaminant Concentrations



## Figure 4 (c and d) – Monitoring Well Contaminant Concentrations



# Attachment 1

# Laboratory Report

Evergreen Analytical Laboratory - *An Accutest Company*

May 05, 2009

Adam Berig
Cordilleran, a division of Olsson Associates
4690 Table Mountain Dr, Ste 200
Golden, CO 80403

Lab Work Order: 09-2980
Client Project ID: 008-2060

Dear Adam Berig:

Enclosed are the analytical results for the samples shown in the Laboratory Work Order Summary.
The invoice will be mailed from our New Jersey office under separate cover.

The enclosed data for testing performed at Accutest Laboratory (formerly Evergreen Analytical) have been reviewed for quality assurance. A case narrative is included to describe any anomalies associated with the samples or data.

Accutest will dispose of all samples 44 days from the sample receipt date. If you want samples returned, please advise us by mail or fax as soon as possible.

A copy of this project report and supporting data will be retained for a period of five years unless we are otherwise advised by you. A document retrieval charge will apply.

Thank you for using the services of Accutest Laboratories. If you have any questions concerning the analytical data, please contact me. Please direct other questions to Client Services.

Sincerely,

Joseph J Egry IV/ Carl Smits
Quality Assurance

001

# WORK ORDER Summary Evergreen Analytical, Inc. 09-2980

**Rpt To:** Adam Berig
Cordilleran, a division of Olsson Associates
4690 Table Mountain Dr, Ste 200
Golden, CO 80403
(303) 237-2072

**Email To:** aberig@oaconsulting.com

4/30/2009 4:39:00 PM

**Client Project ID:** 008-2060

**QC Level:** LEVEL I

**Comments:**

| Sample ID | Client Sample ID | Matrix | Collection Date | Date Received | Test Code | Test Name | Hold | MS | Date Due | Hold Time |
|---|---|---|---|---|---|---|---|---|---|---|
| 09-2980-01A | MW-4 | Water | 4/28/09 0800 | 4/30/09 | 8021_W * | 8021: BTEX | ☐ | ☐ | 5/05/09 | 5/05/09 |
| 09-2980-01A | MW-4 | Water | 4/28/09 0800 | 4/30/09 | TVH_W * | 8015: TVH-Gasoline | ☐ | ☐ | 5/05/09 | 5/12/09 |
| 09-2980-02A | MW-7 | Water | 4/28/09 0815 | 4/30/09 | 8021_W * | 8021: BTEX | ☐ | ☐ | 5/05/09 | 5/05/09 |
| 09-2980-02A | MW-7 | Water | 4/28/09 0815 | 4/30/09 | TVH_W * | 8015: TVH-Gasoline | ☐ | ☐ | 5/05/09 | 5/12/09 |
| 09-2980-03A | MW-12 | Water | 4/28/09 0830 | 4/30/09 | 8021_W * | 8021: BTEX | ☐ | ☐ | 5/05/09 | 5/05/09 |
| 09-2980-03A | MW-12 | Water | 4/28/09 0830 | 4/30/09 | TVH_W * | 8015: TVH-Gasoline | ☐ | ☐ | 5/05/09 | 5/12/09 |
| 09-2980-04A | MW-11 | Water | 4/28/09 0845 | 4/30/09 | 8021_W * | 8021: BTEX | ☐ | ☐ | 5/05/09 | 5/05/09 |
| 09-2980-04A | MW-11 | Water | 4/28/09 0845 | 4/30/09 | TVH_W * | 8015: TVH-Gasoline | ☐ | ☐ | 5/05/09 | 5/12/09 |
| 09-2980-05A | MW-6 | Water | 4/28/09 0900 | 4/30/09 | 8021_W * | 8021: BTEX | ☐ | ☐ | 5/05/09 | 5/05/09 |
| 09-2980-05A | MW-6 | Water | 4/28/09 0900 | 4/30/09 | TVH_W * | 8015: TVH-Gasoline | ☐ | ☐ | 5/05/09 | 5/12/09 |

**Definitions:** * - Test Code has a Select List

# CHAIN OF CUSTODY RECORD / ANALYTICAL SERVICES AGREEMENT **

Page 1 of 1

002 CLIENT INFORMATION

Evergreen Analytical Laboratory Inc.

4036 Youngfield St.
Wheat Ridge, Colorado 80033
(303) 425-6021
FAX (303) 425-6854
(877) 737-4521
evergreenanalytical@comcast.com

Mail **Original** Report to: ADAM BERIG
Attn OLSSON ASSOCIATES/CORDILLERAN
Address 4690 TABLE MOUNTAIN DRIVE, SUITE 200
City GOLDEN State CO Zip 80403
Tel # 303-237-2022 Fax # _____ E-mail ABERIG@OACONSULTING.COM

REPORT ALSO BY ☐ FAX ☒ PDF ☐ EDD
REPORT CHROMATOGRAMS ☐ NO

Mail Invoice to: OLSSON
Attn ADAM BERIG
Address SAME AS ABOVE
City _____ State _____ Zip _____
Tel # _____ Fax # _____

Project ID# 008-2060
P.O. _____ Quote 11439
Sampler JYM

**CONFIRMATION OF SAMPLE RECEIPT REQUIRED?** ☐ YES

Report Results by: _____ (Date)*
Standard 2 working weeks ☒
UST Analyses per Fee Schedule ☐
* Rush: ☐ less than 24 hrs, 150% ☐ 1 - 2 work days, 100%
☐ 3 - 5 work days, 50% ☐ 6 - 9 work days, 25%
*Subject to surcharge & exceptions noted in fee schedule.

**NOTE:** *Identify Known Hazards Below*

| SAMPLE IDENTIFICATION | DATE SAMPLED | TIME | No. of Containers | MATRIX: 1)Drinking Water or 2)Discharge Water or 3)Ground Water (circle one) | MATRIX: Soil / Solid / Air / Gas | MATRIX: Oil / Sludge / Wipe | ANALYSES: TCLP VOA/BNA/Pest/Herb/Metals (circle) | Volatile Organics 8260/624 (circle) | Semi-volatile Organics BNA, PAH, PNA 8270/625 (circle) | Chlorinated Pesticides 8081/608 (circle) | Organophosphorous Pesticides 8270 | PCBs/8082/608/screen (circle) | Herbicides 8151 | BTEX 8021/602/8260/MTBE (circle) | TVPH (8015mod.) 8260 (circle) | TEPH 8015mod. (Diesel) | Total Metals-DW / NPDES / SW846 (circle & list metals below) | Dissolved Metals - DW / SW846 (circle & list metals below) | Oil & Grease 1664 / 9071 (circle) | TRPH 418.1 | Anions 300.0 (circle below) | For Laboratory Use Only |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MW-4 | 4-28-09 | 0800 | 2 | | | | | | | | | | | X | X | | | | | | | 01 |
| MW-7 | 4-28-09 | 0815 | 2 | | | | | | | | | | | X | X | | | | | | | 02 |
| MW-12 | 4-28-09 | 0830 | 2 | | | | | | | | | | | X | X | | | | | | | 03 |
| MW-11 | 4-28-09 | 0845 | 2 | | | | | | | | | | | X | X | | | | | | | 04 |
| MW-6 | 4-28-09 | 0900 | 2 | | | | | | | | | | | X | X | | | | | | | 05 |
| | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | | | |
| Sample Fraction | | | | | | | | | | | | | | A | | | | | | | | |

W.O.# 09-2980
B.O.F.# _____
C/S (O) NA /
C/S (I) NA / HD
Temp. °C 2.0 / Ice ✓
Seals Present Y / N / NA
Samples Pres. Y / N / NA
Headspace Y / N / NA
By _____ / _____

Instructions:

** **Important Note:** See reverse side for Terms and Conditions.

Anions: Bromide, Chloride, Nitrate, Nitrite, O-Phosphate, Sulfate (Circle)

| Relinquished by: (Signature) | Date/Time | Received by: (Signature) | Date/Time | Relinquished by: (Signature) | Date/Time | Received by: (Signature) | Date/Time |
|---|---|---|---|---|---|---|---|
| | 4-30-09 12:55 PM | | 4-30-09 1155 | | | | |

**Evergreen Analytical, Inc.** **Date:** *05-May-09*

**Lab Order:** 09-2980
**Client Project ID** 008-2060

# CASE NARRATIVE

SAMPLE RECEIVING

Sample(s) were hand delivered to the laboratory by the client.
Custody seals were not present.
The temperature of the sample(s) upon arrival was 2.0°C.
Sample(s) were received in good condition, in the proper container, and within holding times.
VOC sample(s) were marked as unpreserved on the bottle labels.
VOC sample(s) were received with no headspace present. JD

QUALITY ASSURANCE (QA)

Analyses performed on samples in this work order by EAL meet the requirements of the EAL Quality Assurance Program unless otherwise explained. Analyses of RCRA samples meet the requirements of NELAC and Utah Rule R444-14 unless otherwise explained. JE

CLIENT SERVICES

There are no anomalies to report. EKH

GAS CHROMATOGRAPHY

Method 8021/TVH_W: The TVH surrogate recovery for the LCS is above the QC limit due to coeluting interference. The same surrogate measured by PID (BTEX portion) is within QC limits. All other quality control samples associated with this project are within QC limits. There are no other anomalies to report. JCC

# Evergreen Analytical, Inc.

**4036 Youngfield Street, Wheat Ridge, Colorado 80033-3862**

**(303) 425-6021**


**Client Sample ID:** MW-4
**Client Project ID:** 008-2060
**Date Collected:** 4/28/2009
**Date Received:** 4/30/2009

**Lab Work Order:** 09-2980
**Lab Sample ID:** 09-2980-01A
**Sample Matrix:** Water

## AROMATIC VOLATILE ORGANICS

**Method: SW8021B** **Prep Method: SW5030B**

**Date Prepared:** 4/30/2009 **Lab File ID:** TVB40430\018R **Dilution Factor:** 1
**Date Analyzed:** 4/30/2009 **Method Blank:** MB4043009

| Analytes | CAS Number | Result | | LQL | Units |
|---|---|---|---|---|---|
| Benzene | 71-43-2 | U | | 1.0 | µg/L |
| Toluene | 108-88-3 | U | | 2.0 | µg/L |
| Ethylbenzene | 100-41-4 | U | | 2.0 | µg/L |
| m,p-Xylene | 1330-20-7 | U | | 2.0 | µg/L |
| o-Xylene | 95-47-6 | U | | 2.0 | µg/L |
| Surr: 1,2,4-Trichlorobenzene (S) | 120-82-1 | 77 | **QC Limits:** | 60-140 | %REC |

## TOTAL VOLATILE HYDROCARBONS

**Method: SW8015B MOD** **Prep Method: SW5030B**

**Date Prepared:** 4/30/2009 **Lab File ID:** TVB40430\018F **Dilution Factor:** 1
**Date Analyzed:** 4/30/2009 **Method Blank:** MB4043009

| Analytes | CAS Number | Result | | LQL | Units |
|---|---|---|---|---|---|
| TVH-Gasoline | 86290-81-5 | U | | 0.20 | mg/L |
| Surr: 1,2,4-Trichlorobenzene (S) | 120-82-1 | 91 | **QC Limits:** | 60-140 | %REC |

JCC
**Analyst**

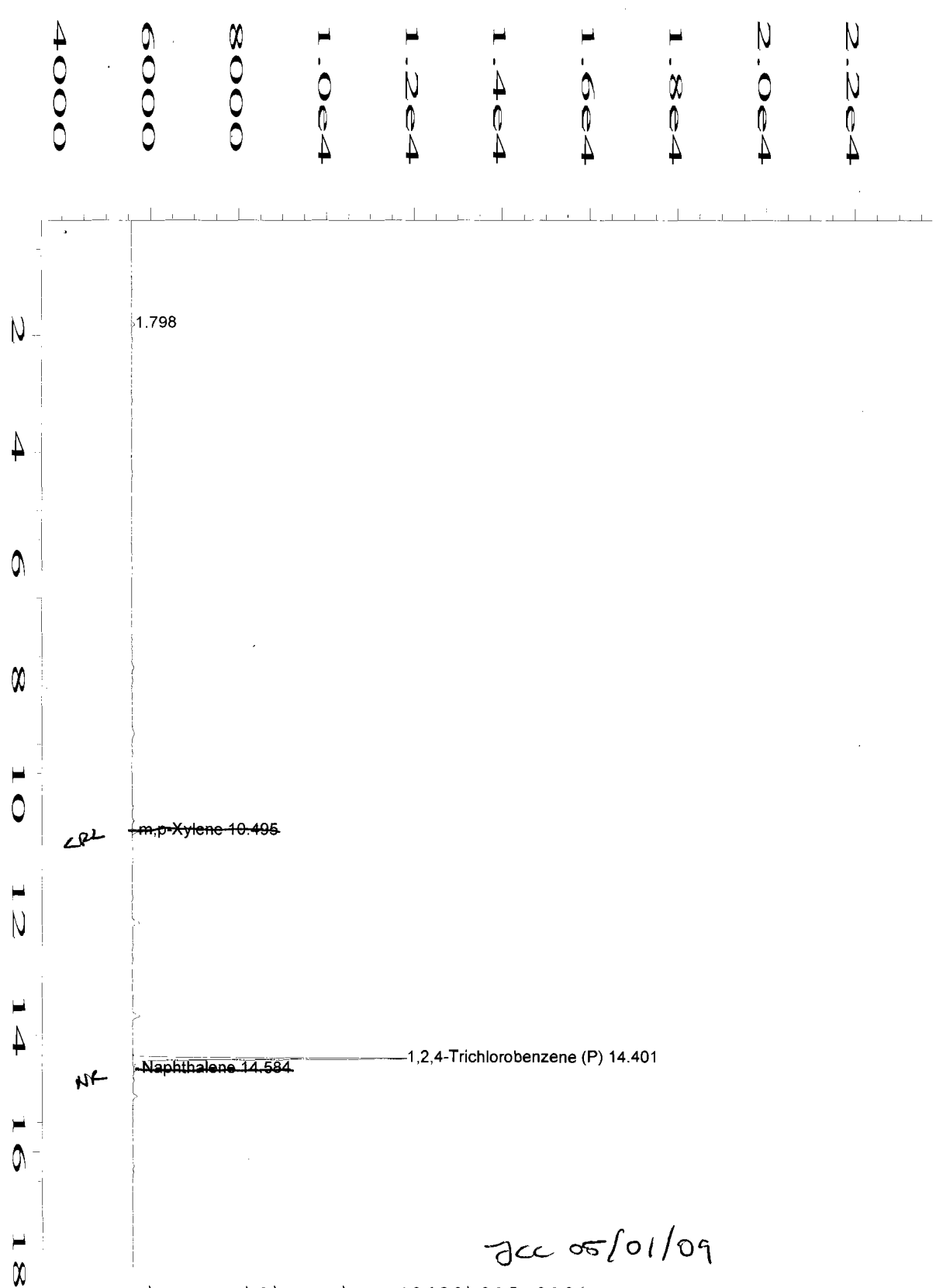
**Approved**

**Notes:** Total Xylenes consist of three isomers, two of which co-elute. The Xylene RL is for a single peak. Confirmation analysis was not performed.

**Qualifiers:**
B - Analyte detected in the associated Method Blank, value not subtracted from result
E - Extrapolated value.Value exceeds calibration range
H - Sample analysis exceeded analytical holding time
J - Indicates an estimated value when the compound is detected, but is below the LQL
S - Spike Recovery outside accepted limits
U - Compound analyzed for but not detected
X - See case narrative
* -Value exceeded the Maximum Contamination Level (MCL), TCLP limit, or if compound is undetected, LQL exceeds MCL.

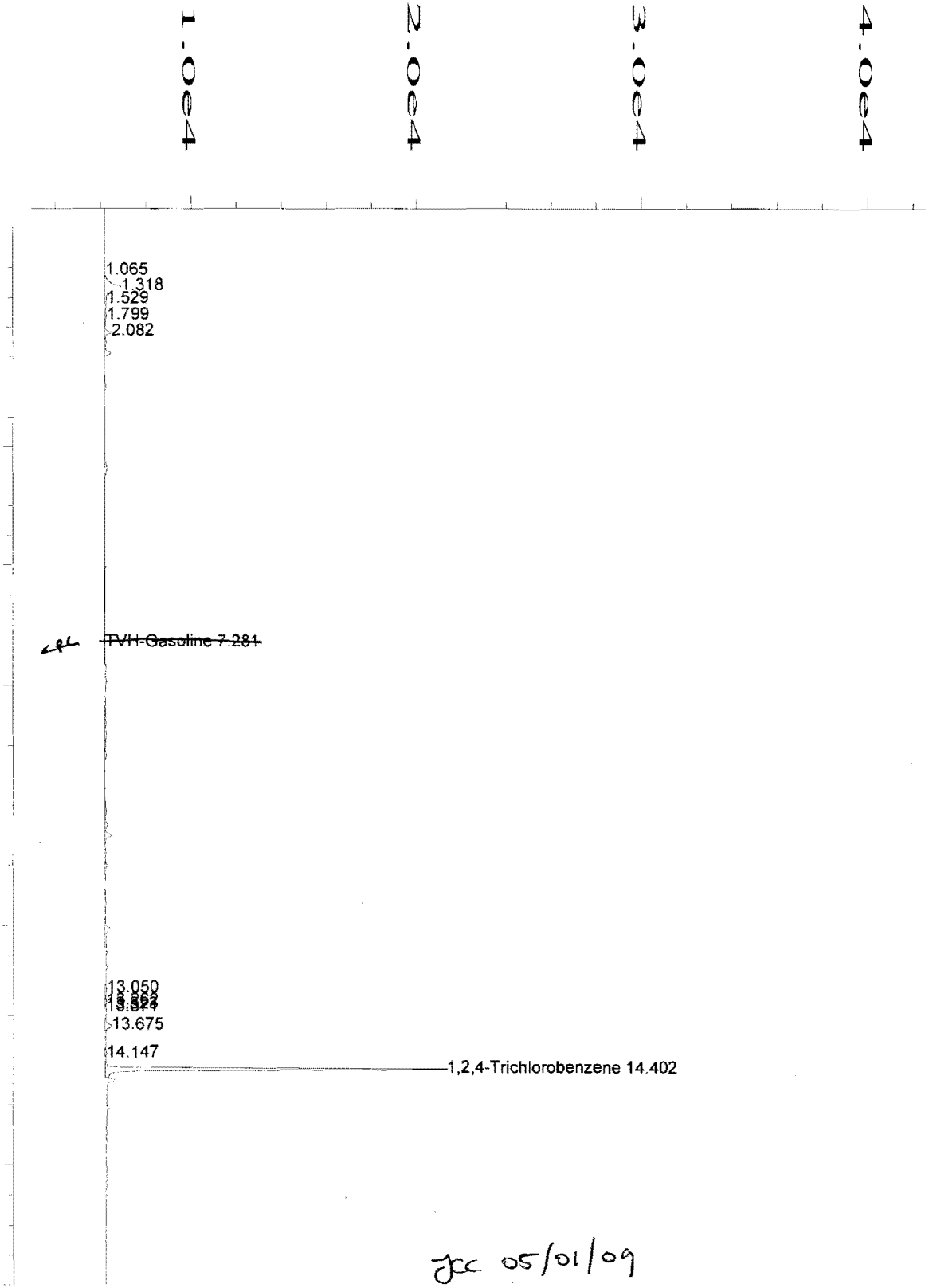
**Definitions:** LQL - Lower Quantitation Limit
Surr - Surrogate

Print Date: 5/1/2009




JCC 05/01/09

| | | | |
|---|---|---|---|
| Data File Name | : C:\HPCHEM\1\DATA\TVB40430\018R0101.D | | |
| Operator | : Jennifer Chapin | Page Number | : 1 |
| Instrument | : TVHBTEX4 | Vial Number | : 18 |
| Sample Name | : 09-2980-01A | Injection Number | : 1 |
| Run Time Bar Code: | | Sequence Line | : 1 |
| Acquired on | : 30 Apr 09 08:44 PM | Instrument Method | : TS40331B.MTH |
| Report Created on | : 30 Apr 09 09:02 PM | Analysis Method | : BS40424.MTH |
| Last Recalib on | : 27 APR 09 10:31 AM | Sample Amount | : 0 |
| Multiplier | : 1 | ISTD Amount | : |
| Sample Info | : SAMP DF=1 | | |




JC 05/01/09

Data File Name : C:\HPCHEM\1\DATA\TVB40430\018F0101.D
Operator : Jennifer Chapin
Instrument : TVHBTEX4
Sample Name : 09-2980-01A
Run Time Bar Code:
Acquired on : 30 Apr 09 08:44 PM
Report Created on: 30 Apr 09 09:02 PM
Last Recalib on : 10 APR 09 08:29 AM
Multiplier : 1
Sample Info : SAMP
DF=1

Page Number : 1
Vial Number : 18
Injection Number : 1
Sequence Line : 1
Instrument Method: TS40331B.MTH
Analysis Method : TS40331B.MTH
Sample Amount : 0
ISTD Amount :

# Evergreen Analytical, Inc.

**4036 Youngfield Street, Wheat Ridge, Colorado 80033-3862**
**(303) 425-6021**


**Client Sample ID:** MW-7
**Client Project ID:** 008-2060
**Date Collected:** 4/28/2009
**Date Received:** 4/30/2009

**Lab Work Order:** 09-2980
**Lab Sample ID:** 09-2980-02A
**Sample Matrix:** Water

## AROMATIC VOLATILE ORGANICS

**Method: SW8021B** **Prep Method: SW5030B**

**Date Prepared:** 4/30/2009 **Lab File ID:** TVB40430\019R **Dilution Factor:** 25
**Date Analyzed:** 4/30/2009 **Method Blank:** MB4043009

| Analytes | CAS Number | Result | | LQL | Units |
|---|---|---|---|---|---|
| Benzene | 71-43-2 | 3700 | | 25 | µg/L |
| Toluene | 108-88-3 | U | | 50 | µg/L |
| Ethylbenzene | 100-41-4 | 74 | | 50 | µg/L |
| m,p-Xylene | 1330-20-7 | U | | 50 | µg/L |
| o-Xylene | 95-47-6 | U | | 50 | µg/L |
| Surr: 1,2,4-Trichlorobenzene (S) | 120-82-1 | 80 | QC Limits: | 60-140 | %REC |

## TOTAL VOLATILE HYDROCARBONS

**Method: SW8015B MOD** **Prep Method: SW5030B**

**Date Prepared:** 4/30/2009 **Lab File ID:** TVB40430\019F **Dilution Factor:** 25
**Date Analyzed:** 4/30/2009 **Method Blank:** MB4043009

| Analytes | CAS Number | Result | | LQL | Units |
|---|---|---|---|---|---|
| TVH-Gasoline | 86290-81-5 | 5.7 | | 5.0 | mg/L |
| Surr: 1,2,4-Trichlorobenzene (S) | 120-82-1 | 99 | QC Limits: | 60-140 | %REC |

Analyst

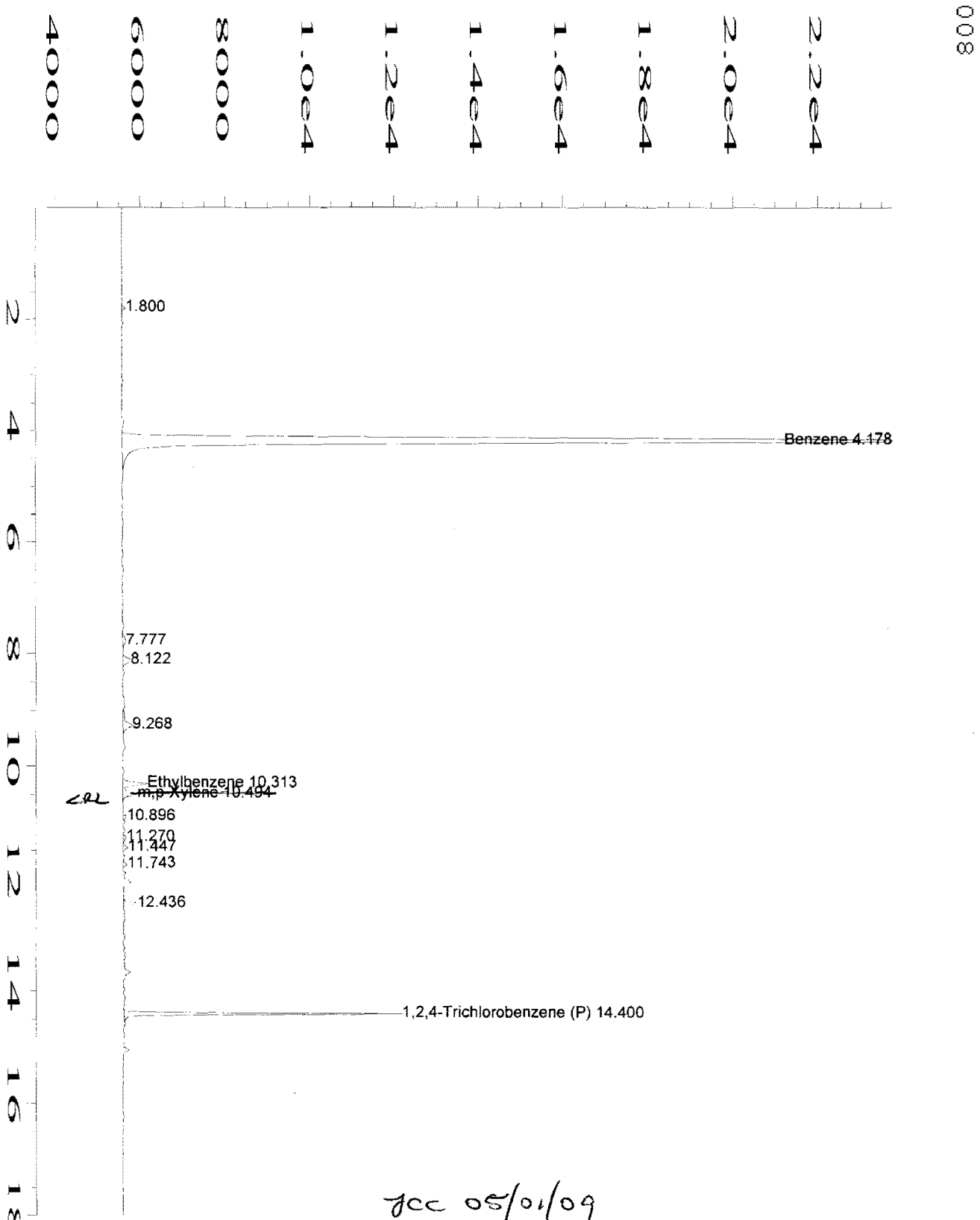
Approved

**Notes:** Total Xylenes consist of three isomers, two of which co-elute. The Xylene RL is for a single peak. Confirmation analysis was not performed.

**Qualifiers:**
B - Analyte detected in the associated Method Blank, value not subtracted from result
E - Extrapolated value.Value exceeds calibration range
H - Sample analysis exceeded analytical holding time
J - Indicates an estimated value when the compound is detected, but is below the LQL
S - Spike Recovery outside accepted limits
U - Compound analyzed for but not detected
X - See case narrative
* -Value exceeded the Maximum Contamination Level (MCL), TCLP limit, or if compound is undetected, LQL exceeds MCL.

**Definitions:** LQL - Lower Quantitation Limit
Surr - Surrogate

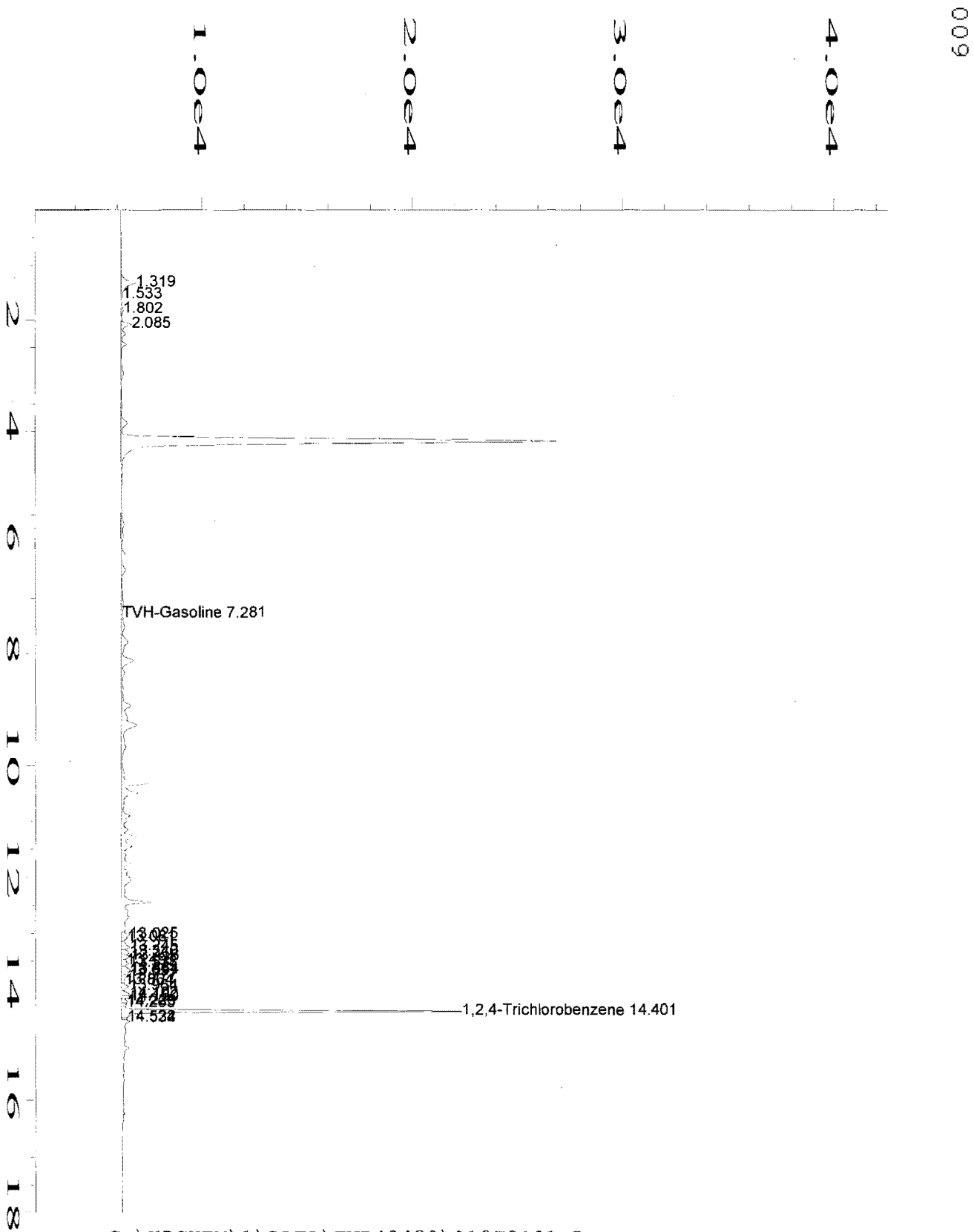
Print Date: 5/1/2009




JCC 05/01/09

Data File Name : C:\HPCHEM\1\DATA\TVB40430\019R0101.D
Operator : Jennifer Chapin
Instrument : TVHBTEX4
Sample Name : 09-2980-02A
Run Time Bar Code:
Acquired on : 30 Apr 09 09:18 PM
Report Created on: 30 Apr 09 09:37 PM
Last Recalib on : 27 APR 09 10:31 AM
Multiplier : 1
Sample Info : SAMP
DF=25

Page Number : 1
Vial Number : 19
Injection Number : 1
Sequence Line : 1
Instrument Method: TS40331B.MTH
Analysis Method : BS40424.MTH
Sample Amount : 0
ISTD Amount :




| | | | |
|---|---|---|---|
| Data File Name | : C:\HPCHEM\1\DATA\TVB40430\019F0101.D | | |
| Operator | : Jennifer Chapin | Page Number | : 1 |
| Instrument | : TVHBTEX4 | Vial Number | : 19 |
| Sample Name | : 09-2980-02A | Injection Number | : 1 |
| Run Time Bar Code: | | Sequence Line | : 1 |
| Acquired on | : 30 Apr 09 09:18 PM | Instrument Method | : TS40331B.MTH |
| Report Created on | : 30 Apr 09 09:37 PM | Analysis Method | : TS40331B.MTH |
| Last Recalib on | : 10 APR 09 08:29 AM | Sample Amount | : 0 |
| Multiplier | : 1 | ISTD Amount | : |
| Sample Info | : SAMP DF=25 | | |

# Evergreen Analytical, Inc.

**4036 Youngfield Street, Wheat Ridge, Colorado 80033-3862**
**(303) 425-6021**


**Client Sample ID:** MW-12
**Client Project ID:** 008-2060
**Date Collected:** 4/28/2009
**Date Received:** 4/30/2009

**Lab Work Order:** 09-2980
**Lab Sample ID:** 09-2980-03A
**Sample Matrix:** Water

## AROMATIC VOLATILE ORGANICS

**Method: SW8021B** **Prep Method: SW5030B**

**Date Prepared:** 4/30/2009 **Lab File ID:** TVB40430\021R **Dilution Factor:** 1
**Date Analyzed:** 4/30/2009 **Method Blank:** MB4043009

| Analytes | CAS Number | Result | | LQL | Units |
|---|---|---|---|---|---|
| Benzene | 71-43-2 | U | | 1.0 | µg/L |
| Toluene | 108-88-3 | U | | 2.0 | µg/L |
| Ethylbenzene | 100-41-4 | U | | 2.0 | µg/L |
| m,p-Xylene | 1330-20-7 | U | | 2.0 | µg/L |
| o-Xylene | 95-47-6 | U | | 2.0 | µg/L |
| Surr: 1,2,4-Trichlorobenzene (S) | 120-82-1 | 88 | QC Limits: | 60-140 | %REC |

## TOTAL VOLATILE HYDROCARBONS

**Method: SW8015B MOD** **Prep Method: SW5030B**

**Date Prepared:** 4/30/2009 **Lab File ID:** TVB40430\021F **Dilution Factor:** 1
**Date Analyzed:** 4/30/2009 **Method Blank:** MB4043009

| Analytes | CAS Number | Result | | LQL | Units |
|---|---|---|---|---|---|
| TVH-Gasoline | 86290-81-5 | U | | 0.20 | mg/L |
| Surr: 1,2,4-Trichlorobenzene (S) | 120-82-1 | 102 | QC Limits: | 60-140 | %REC |

Analyst

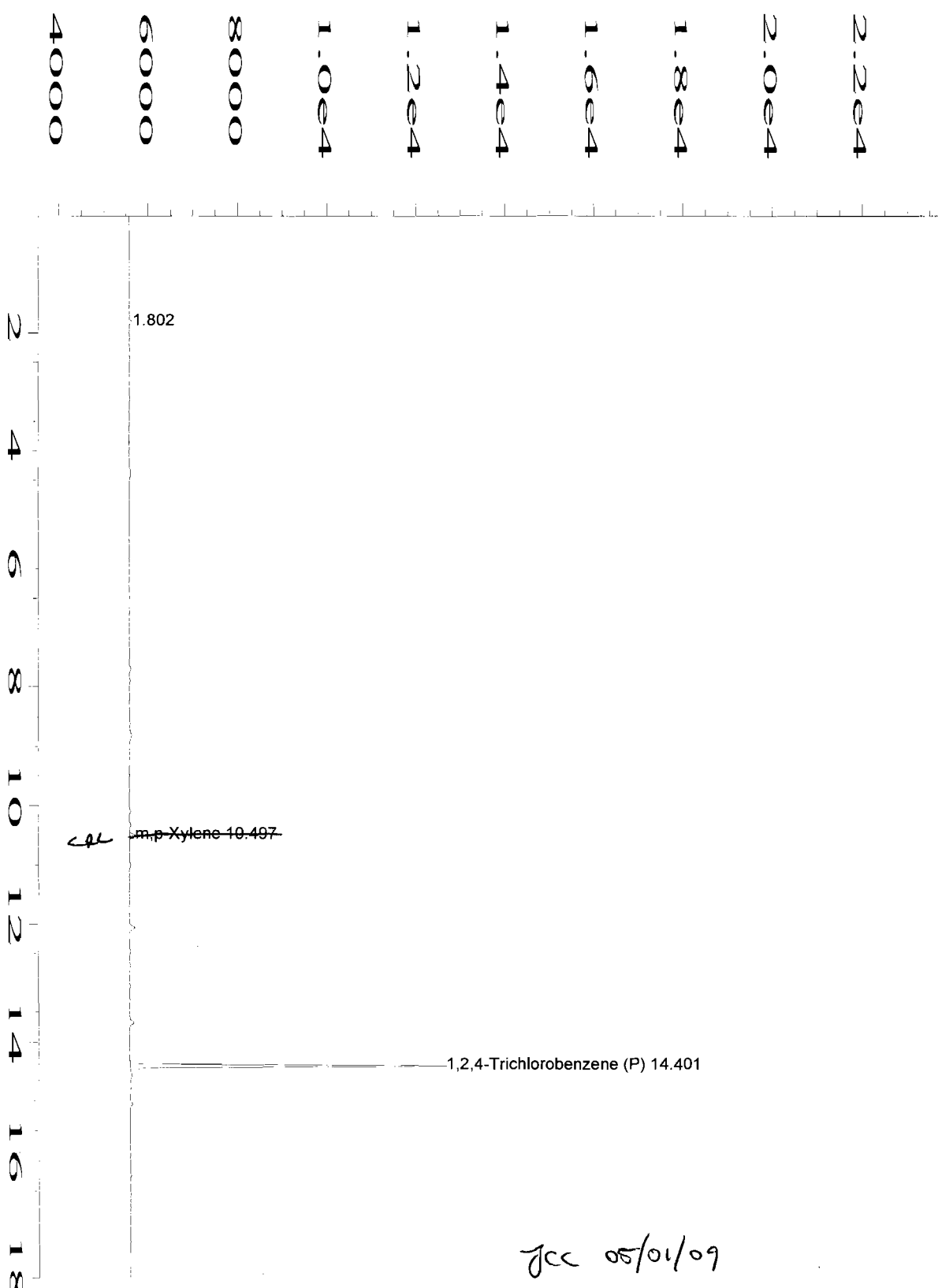
Approved

**Notes:** Total Xylenes consist of three isomers, two of which co-elute. The Xylene RL is for a single peak. Confirmation analysis was not performed.

**Qualifiers:**
B - Analyte detected in the associated Method Blank, value not subtracted from result
E - Extrapolated value.Value exceeds calibration range
H - Sample analysis exceeded analytical holding time
J - Indicates an estimated value when the compound is detected, but is below the LQL
S - Spike Recovery outside accepted limits
U - Compound analyzed for but not detected
X - See case narrative
* -Value exceeded the Maximum Contamination Level (MCL), TCLP limit, or if compound is undetected, LQL exceeds MCL.

**Definitions:** LQL - Lower Quantitation Limit
Surr - Surrogate

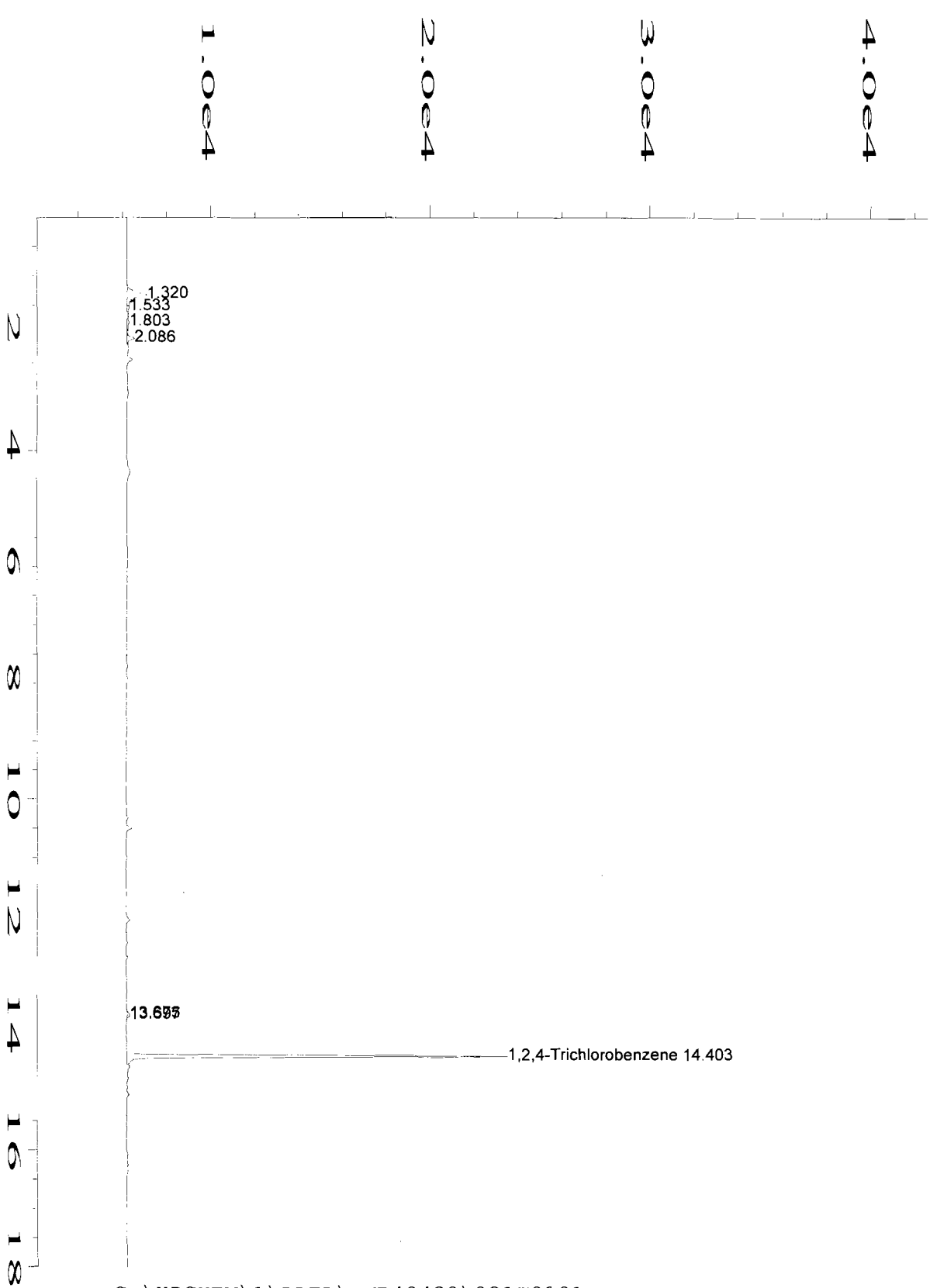
Print Date: 5/1/2009




JCC 05/01/09

Data File Name : C:\HPCHEM\1\DATA\TVB40430\021R0101.D
Operator : Jennifer Chapin
Instrument : TVHBTEX4
Sample Name : 09-2980-03A
Run Time Bar Code:
Acquired on : 30 Apr 09 10:28 PM
Report Created on: 30 Apr 09 10:46 PM
Last Recalib on : 27 APR 09 10:31 AM
Multiplier : 1
Sample Info : SAMP
DF=1

Page Number : 1
Vial Number : 21
Injection Number : 1
Sequence Line : 1
Instrument Method: TS40331B.MTH
Analysis Method : BS40424.MTH
Sample Amount : 0
ISTD Amount :




| | | | |
|---|---|---|---|
| Data File Name | : C:\HPCHEM\1\DATA\TVB40430\021F0101.D | | |
| Operator | : Jennifer Chapin | Page Number | : 1 |
| Instrument | : TVHBTEX4 | Vial Number | : 21 |
| Sample Name | : 09-2980-03A | Injection Number | : 1 |
| Run Time Bar Code: | | Sequence Line | : 1 |
| Acquired on | : 30 Apr 09 10:28 PM | Instrument Method | : TS40331B.MTH |
| Report Created on | : 30 Apr 09 10:46 PM | Analysis Method | : TS40331B.MTH |
| Last Recalib on | : 10 APR 09 08:29 AM | Sample Amount | : 0 |
| Multiplier | : 1 | ISTD Amount | : |
| Sample Info | : SAMP | | |
| | DF=1 | | |

# Evergreen Analytical, Inc.

**4036 Youngfield Street, Wheat Ridge, Colorado 80033-3862**

**(303) 425-6021**


| | | | |
|---|---|---|---|
| **Client Sample ID:** | MW-11 | **Lab Work Order:** | 09-2980 |
| **Client Project ID:** | 008-2060 | **Lab Sample ID:** | 09-2980-04A |
| **Date Collected:** | 4/28/2009 | **Sample Matrix:** | Water |
| **Date Received:** | 4/30/2009 | | |

## AROMATIC VOLATILE ORGANICS

**Method: SW8021B** **Prep Method: SW5030B**

**Date Prepared:** 4/30/2009 **Lab File ID:** TVB40430\022R **Dilution Factor:** 1

**Date Analyzed:** 4/30/2009 **Method Blank:** MB4043009

| Analytes | CAS Number | Result | | LQL | Units |
|---|---|---|---|---|---|
| Benzene | 71-43-2 | 82 | | 1.0 | µg/L |
| Toluene | 108-88-3 | U | | 2.0 | µg/L |
| Ethylbenzene | 100-41-4 | U | | 2.0 | µg/L |
| m,p-Xylene | 1330-20-7 | U | | 2.0 | µg/L |
| o-Xylene | 95-47-6 | U | | 2.0 | µg/L |
| Surr: 1,2,4-Trichlorobenzene (S) | 120-82-1 | 68 | **QC Limits:** | 60-140 | %REC |

## TOTAL VOLATILE HYDROCARBONS

**Method: SW8015B MOD** **Prep Method: SW5030B**

**Date Prepared:** 4/30/2009 **Lab File ID:** TVB40430\022F **Dilution Factor:** 1

**Date Analyzed:** 4/30/2009 **Method Blank:** MB4043009

| Analytes | CAS Number | Result | | LQL | Units |
|---|---|---|---|---|---|
| TVH-Gasoline | 86290-81-5 | U | | 0.20 | mg/L |
| Surr: 1,2,4-Trichlorobenzene (S) | 120-82-1 | 80 | **QC Limits:** | 60-140 | %REC |

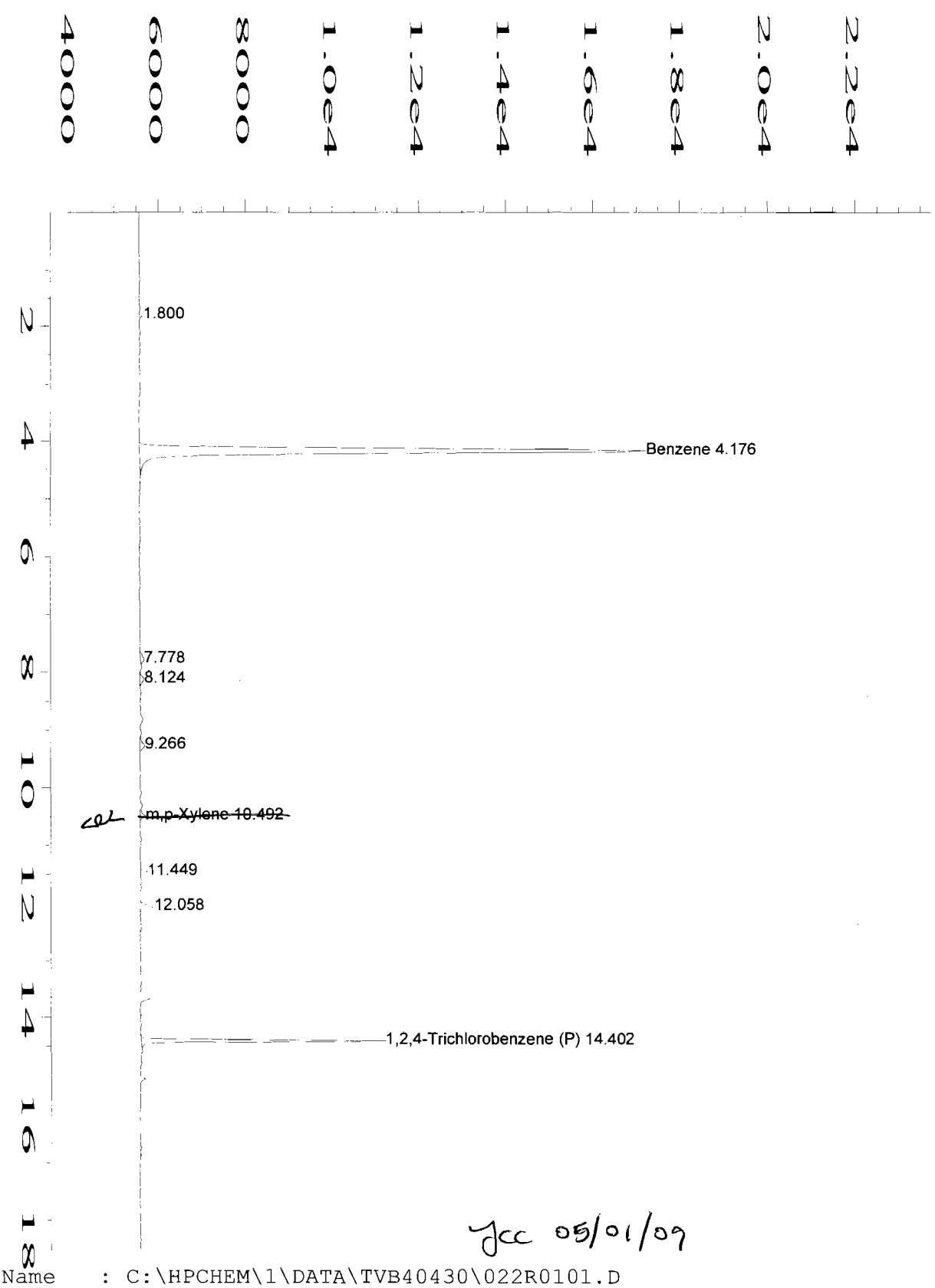
**Analyst** **Approved**

**Notes:** Total Xylenes consist of three isomers, two of which co-elute. The Xylene RL is for a single peak. Confirmation analysis was not performed.

**Qualifiers:**
B - Analyte detected in the associated Method Blank, value not subtracted from result
E - Extrapolated value.Value exceeds calibration range
H - Sample analysis exceeded analytical holding time
J - Indicates an estimated value when the compound is detected, but is below the LQL
S - Spike Recovery outside accepted limits
U - Compound analyzed for but not detected
X - See case narrative
* -Value exceeded the Maximum Contamination Level (MCL), TCLP limit, or if compound is undetected, LQL exceeds MCL.

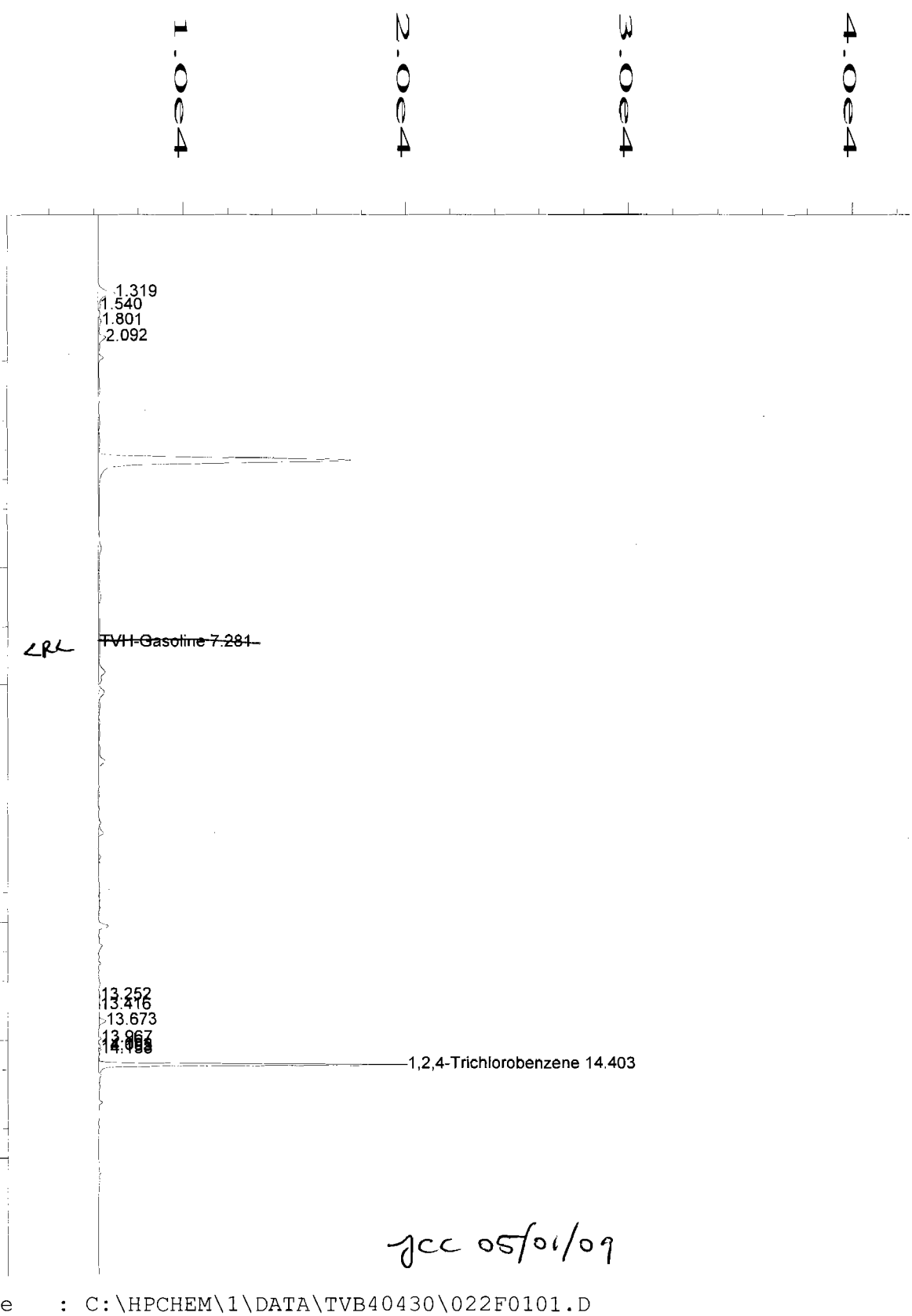
**Definitions:** LQL - Lower Quantitation Limit
Surr - Surrogate

Print Date: 5/1/2009




JCC 05/01/09

| | | | |
|---|---|---|---|
| Data File Name | : C:\HPCHEM\1\DATA\TVB40430\022R0101.D | | |
| Operator | : Jennifer Chapin | Page Number | : 1 |
| Instrument | : TVHBTEX4 | Vial Number | : 22 |
| Sample Name | : 09-2980-04A | Injection Number | : 1 |
| Run Time Bar Code: | | Sequence Line | : 1 |
| Acquired on | : 30 Apr 09 11:03 PM | Instrument Method | : TS40331B.MTH |
| Report Created on | : 30 Apr 09 11:21 PM | Analysis Method | : BS40424.MTH |
| Last Recalib on | : 27 APR 09 10:31 AM | Sample Amount | : 0 |
| Multiplier | : 1 | ISTD Amount | : |
| Sample Info | : SAMP<br>DF=1 | | |




jcc 05/01/09

| | | | |
|---|---|---|---|
| Data File Name | : C:\HPCHEM\1\DATA\TVB40430\022F0101.D | | |
| Operator | : Jennifer Chapin | Page Number | : 1 |
| Instrument | : TVHBTEX4 | Vial Number | : 22 |
| Sample Name | : 09-2980-04A | Injection Number | : 1 |
| Run Time Bar Code: | | Sequence Line | : 1 |
| Acquired on | : 30 Apr 09 11:03 PM | Instrument Method | : TS40331B.MTH |
| Report Created on | : 30 Apr 09 11:21 PM | Analysis Method | : TS40331B.MTH |
| Last Recalib on | : 10 APR 09 08:29 AM | Sample Amount | : 0 |
| Multiplier | : 1 | ISTD Amount | : |
| Sample Info | : SAMP<br>DF=1 | | |

# Evergreen Analytical, Inc.

4036 Youngfield Street, Wheat Ridge, Colorado 80033-3862
(303) 425-6021

**Client Sample ID:** MW-6
**Client Project ID:** 008-2060
**Date Collected:** 4/28/2009
**Date Received:** 4/30/2009

**Lab Work Order:** 09-2980
**Lab Sample ID:** 09-2980-05A
**Sample Matrix:** Water

## AROMATIC VOLATILE ORGANICS

**Method: SW8021B** **Prep Method: SW5030B**

**Date Prepared:** 4/30/2009 **Lab File ID:** TVB40430\023R **Dilution Factor:** 1
**Date Analyzed:** 4/30/2009 **Method Blank:** MB4043009

| Analytes | CAS Number | Result | | LQL | Units |
|---|---|---|---|---|---|
| Benzene | 71-43-2 | U | | 1.0 | µg/L |
| Toluene | 108-88-3 | U | | 2.0 | µg/L |
| Ethylbenzene | 100-41-4 | U | | 2.0 | µg/L |
| m,p-Xylene | 1330-20-7 | U | | 2.0 | µg/L |
| o-Xylene | 95-47-6 | U | | 2.0 | µg/L |
| Surr: 1,2,4-Trichlorobenzene (S) | 120-82-1 | 75 | QC Limits: | 60-140 | %REC |

## TOTAL VOLATILE HYDROCARBONS

**Method: SW8015B MOD** **Prep Method: SW5030B**

**Date Prepared:** 4/30/2009 **Lab File ID:** TVB40430\023F **Dilution Factor:** 1
**Date Analyzed:** 4/30/2009 **Method Blank:** MB4043009

| Analytes | CAS Number | Result | | LQL | Units |
|---|---|---|---|---|---|
| TVH-Gasoline | 86290-81-5 | U | | 0.20 | mg/L |
| Surr: 1,2,4-Trichlorobenzene (S) | 120-82-1 | 87 | QC Limits: | 60-140 | %REC |

Analyst

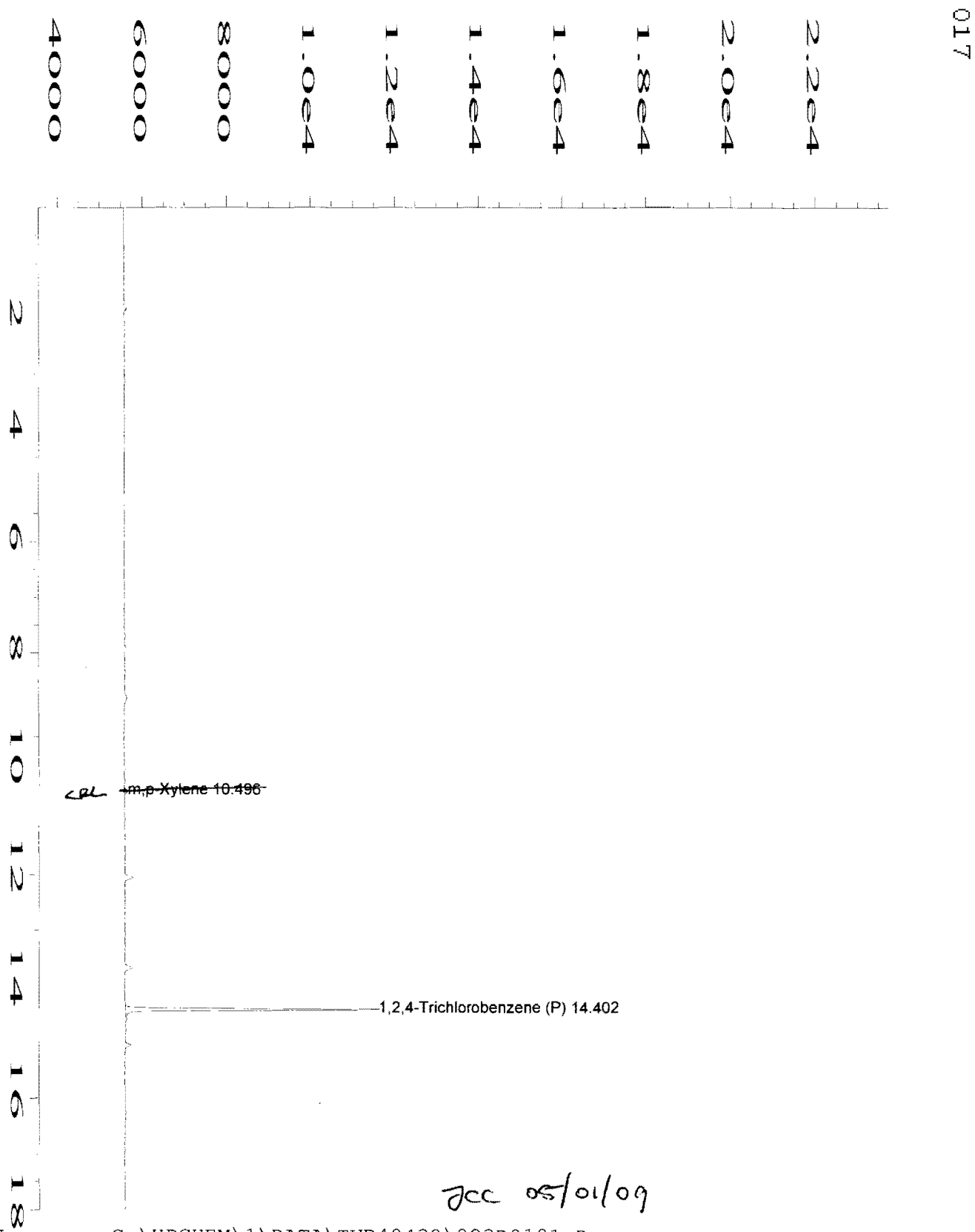
Approved

**Notes:** Total Xylenes consist of three isomers, two of which co-elute. The Xylene RL is for a single peak. Confirmation analysis was not performed.

**Qualifiers:**
B - Analyte detected in the associated Method Blank, value not subtracted from result
E - Extrapolated value.Value exceeds calibration range
H - Sample analysis exceeded analytical holding time
J - Indicates an estimated value when the compound is detected, but is below the LQL
S - Spike Recovery outside accepted limits
U - Compound analyzed for but not detected
X - See case narrative
* -Value exceeded the Maximum Contamination Level (MCL), TCLP limit, or if compound is undetected, LQL exceeds MCL.

**Definitions:** LQL - Lower Quantitation Limit
Surr - Surrogate

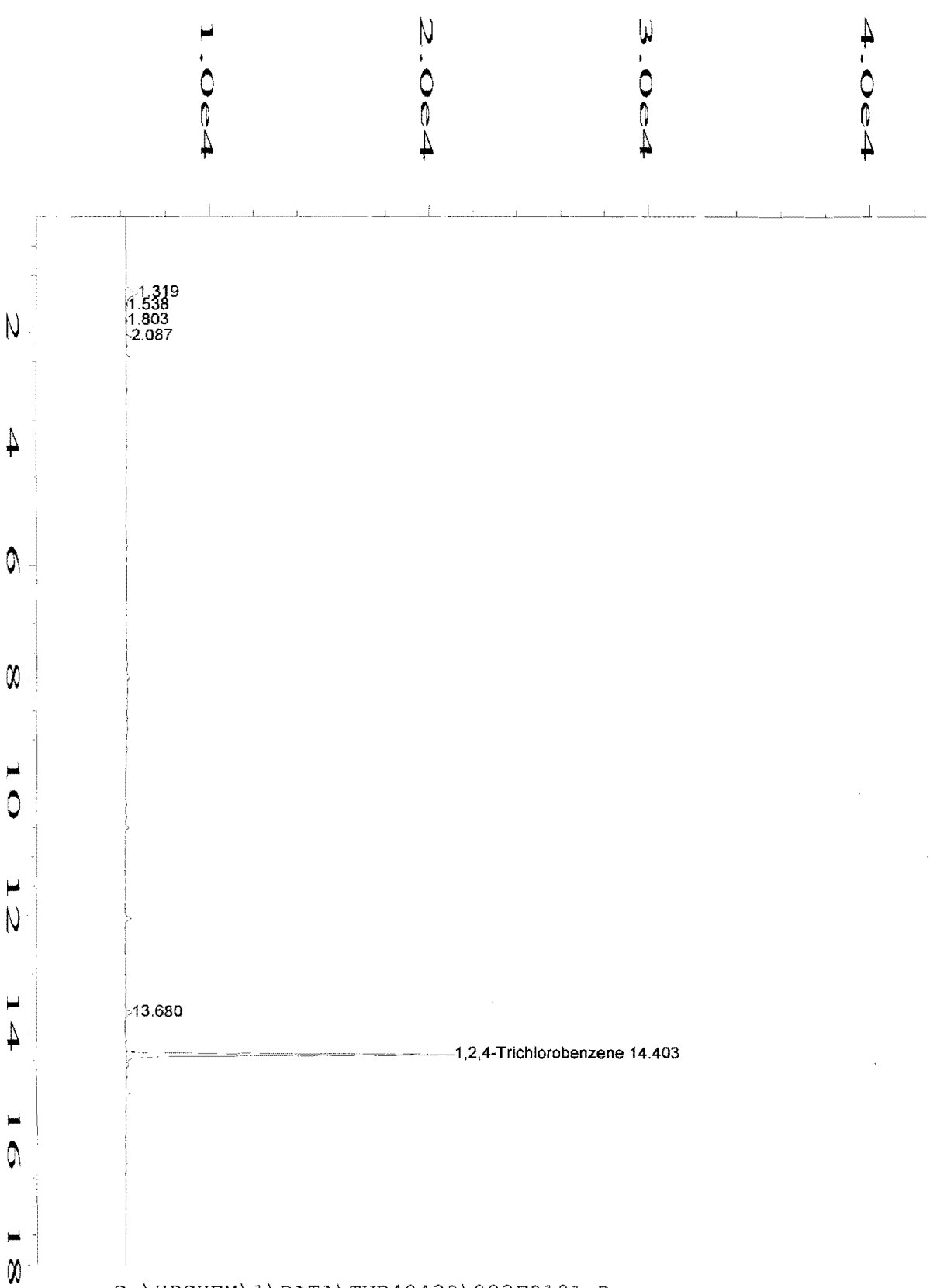
Print Date: 5/1/2009




JCC 05/01/09

Data File Name : C:\HPCHEM\1\DATA\TVB40430\023R0101.D
Operator : Jennifer Chapin
Instrument : TVHBTEX4
Sample Name : 09-2980-05A
Run Time Bar Code:
Acquired on : 30 Apr 09 11:37 PM
Report Created on: 30 Apr 09 11:56 PM
Last Recalib on : 27 APR 09 10:31 AM
Multiplier : 1
Sample Info : SAMP
DF=1

Page Number : 1
Vial Number : 23
Injection Number : 1
Sequence Line : 1
Instrument Method: TS40331B.MTH
Analysis Method : BS40424.MTH
Sample Amount : 0
ISTD Amount :




| | | | |
|---|---|---|---|
| Data File Name | : C:\HPCHEM\1\DATA\TVB40430\023F0101.D | | |
| Operator | : Jennifer Chapin | Page Number | : 1 |
| Instrument | : TVHBTEX4 | Vial Number | : 23 |
| Sample Name | : 09-2980-05A | Injection Number | : 1 |
| Run Time Bar Code: | | Sequence Line | : 1 |
| Acquired on | : 30 Apr 09 11:37 PM | Instrument Method | : TS40331B.MTH |
| Report Created on | : 30 Apr 09 11:56 PM | Analysis Method | : TS40331B.MTH |
| Last Recalib on | : 10 APR 09 08:29 AM | Sample Amount | : 0 |
| Multiplier | : 1 | ISTD Amount | : |
| Sample Info | : SAMP DF=1 | | |

# QUALITY ASSURANCE REPORTS

METHOD BLANKS (MB)

LABORATORY CONTROL SPIKES (LCS)

MATRIX SPIKES (MS/MSD)*

DUPLICATES (DUP)*

* For Metals or Wet Chemistry analyses: only included if requested or if performed on this client's samples.

Evergreen Analytical, Inc.

**Date:** *01-May-09*

**Work Order:** 09-2980
**Client Project ID:** 008-2060

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 8021_W**

| Sample ID: **MB4043009** | SampType: **MBLK** | TestCode: **8021_W** | Run ID: **TVHBTEX4_090430A** | Prep Date: **4/30/2009** | Units: **µg/L** |
|---|---|---|---|---|---|
| | Batch ID: **R46861** | TestNo: **SW8021B** | FileID: **TVB40430\003R** | Analysis Date: **4/30/2009** | SeqNo: **832446** |

| Analyte | Result | LQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Benzene | U | 1.0 | | | | | | | | | |
| Toluene | U | 2.0 | | | | | | | | | |
| Ethylbenzene | U | 2.0 | | | | | | | | | |
| m,p-Xylene | U | 2.0 | | | | | | | | | |
| o-Xylene | U | 2.0 | | | | | | | | | |
| Surr: 1,2,4-Trichlorobenzene (S) | 85.7 | 0 | 100 | 0 | 85.7 | 60 | 140 | 0 | 0 | | |

| Sample ID: **LCS4043009** | SampType: **LCS** | TestCode: **8021_W** | Run ID: **TVHBTEX4_090430A** | Prep Date: **4/30/2009** | Units: **µg/L** |
|---|---|---|---|---|---|
| | Batch ID: **R46861** | TestNo: **SW8021B** | FileID: **TVB40430\004R** | Analysis Date: **4/30/2009** | SeqNo: **832447** |

| Analyte | Result | LQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Benzene | 27.05 | 1.0 | 25.5 | 0 | 106 | 70 | 130 | 0 | 0 | | |
| Toluene | 187.5 | 2.0 | 183.6 | 0 | 102 | 70 | 130 | 0 | 0 | | |
| Ethylbenzene | 40.56 | 2.0 | 36.8 | 0 | 110 | 70 | 130 | 0 | 0 | | |
| m,p-Xylene | 155.2 | 2.0 | 136.3 | 0 | 114 | 70 | 130 | 0 | 0 | | |
| o-Xylene | 62 | 2.0 | 57.2 | 0 | 108 | 70 | 130 | 0 | 0 | | |
| Surr: 1,2,4-Trichlorobenzene (S) | 105.3 | 0 | 100 | 0 | 105 | 60 | 140 | 0 | 0 | | |

| Sample ID: **09-2941-01AMS** | SampType: **MS** | TestCode: **8021_W** | Run ID: **TVHBTEX4_090430A** | Prep Date: **4/30/2009** | Units: **µg/L** |
|---|---|---|---|---|---|
| | Batch ID: **R46861** | TestNo: **SW8021B** | FileID: **TVB40430\006R** | Analysis Date: **4/30/2009** | SeqNo: **832449** |

| Analyte | Result | LQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Benzene | 25.55 | 1.0 | 25.5 | 0 | 100 | 70 | 130 | 0 | 0 | | |
| Toluene | 177.8 | 2.0 | 183.6 | 0 | 96.8 | 70 | 130 | 0 | 0 | | |
| Ethylbenzene | 37.1 | 2.0 | 36.8 | 0 | 101 | 62 | 130 | 0 | 0 | | |
| m,p-Xylene | 142.4 | 2.0 | 136.3 | 0 | 104 | 70 | 134 | 0 | 0 | | |
| o-Xylene | 56.35 | 2.0 | 57.2 | 0 | 98.5 | 63 | 130 | 0 | 0 | | |
| Surr: 1,2,4-Trichlorobenzene (S) | 90.48 | 0 | 100 | 0 | 90.5 | 60 | 140 | 0 | 0 | | |

**Qualifiers:**

U - Not detected at or above the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside acceptance limits
E - Extrapolated value, value exceeds calibration range.
R - RPD outside acceptance limits
B - Analyte detected in the associated Method Blank
H - Prep or analytical holding time exceeded
X - See case narrative

**Work Order:** 09-2980
**Client Project ID:** 008-2060

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 8021_W**

| Sample ID: **09-2941-01AMSD** | SampType: **MSD** | TestCode: **8021_W** | Run ID: **TVHBTEX4_090430A** | Prep Date: **4/30/2009** | Units: **µg/L** |
|---|---|---|---|---|---|
| | Batch ID: **R46861** | TestNo: **SW8021B** | FileID: **TVB40430\007R** | Analysis Date: **4/30/2009** | SeqNo: **832450** |

| Analyte | Result | LQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Benzene | 22.6 | 1.0 | 25.5 | 0 | 88.6 | 70 | 130 | 25.55 | 12.3 | 30 | |
| Toluene | 156.4 | 2.0 | 183.6 | 0 | 85.2 | 70 | 130 | 177.8 | 12.8 | 30 | |
| Ethylbenzene | 32.89 | 2.0 | 36.8 | 0 | 89.4 | 62 | 130 | 37.1 | 12.0 | 30 | |
| m,p-Xylene | 128 | 2.0 | 136.3 | 0 | 93.9 | 70 | 134 | 142.4 | 10.6 | 30 | |
| o-Xylene | 49.58 | 2.0 | 57.2 | 0 | 86.7 | 63 | 130 | 56.35 | 12.8 | 30 | |
| Surr: 1,2,4-Trichlorobenzene (S) | 98.67 | 0 | 100 | 0 | 98.7 | 60 | 140 | 0 | 0 | 0 | |

**Qualifiers:**

U - Not detected at or above the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside acceptance limits
E - Extrapolated value, value exceeds calibration range.
R - RPD outside acceptance limits
B - Analyte detected in the associated Method Blank
H - Prep or analytical holding time exceeded
X - See case narrative

**Work Order:** 09-2980
**Client Project ID:** 008-2060

# ANALYTICAL QC SUMMARY REPORT

**TestCode: TVH_W**

| Sample ID: **MB4043009** | SampType: **MBLK** | TestCode: **TVH_W** | Run ID: **TVHBTEX4_090430B** | Prep Date: **4/30/2009** | Units: **mg/L** |
|---|---|---|---|---|---|
| | Batch ID: **R46863** | TestNo: **SW8015B Mo** | FileID: **TVB40430\003F** | Analysis Date: **4/30/2009** | SeqNo: **832479** |

| Analyte | Result | LQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| TVH-Gasoline | U | 0.20 | | | | | | | | | |
| Surr: 1,2,4-Trichlorobenzene (S) | 98.14 | 0 | 100 | 0 | 98.1 | 60 | 140 | 0 | 0 | | |

| Sample ID: **LCS4043009** | SampType: **LCS** | TestCode: **TVH_W** | Run ID: **TVHBTEX4_090430B** | Prep Date: **4/30/2009** | Units: **mg/L** |
|---|---|---|---|---|---|
| | Batch ID: **R46863** | TestNo: **SW8015B Mo** | FileID: **TVB40430\004F** | Analysis Date: **4/30/2009** | SeqNo: **832481** |

| Analyte | Result | LQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| TVH-Gasoline | 1.989 | 0.20 | 2.2 | 0 | 90.4 | 70 | 130 | 0 | 0 | | |
| Surr: 1,2,4-Trichlorobenzene (S) | 144.5 | 0 | 100 | 0 | 144 | 60 | 140 | 0 | 0 | | S |

| Sample ID: **09-2941-01AMS** | SampType: **MS** | TestCode: **TVH_W** | Run ID: **TVHBTEX4_090430B** | Prep Date: **4/30/2009** | Units: **mg/L** |
|---|---|---|---|---|---|
| | Batch ID: **R46863** | TestNo: **SW8015B Mo** | FileID: **TVB40430\006F** | Analysis Date: **4/30/2009** | SeqNo: **832484** |

| Analyte | Result | LQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| TVH-Gasoline | 1.913 | 0.20 | 2.2 | 0 | 87 | 70 | 130 | 0 | 0 | | |
| Surr: 1,2,4-Trichlorobenzene (S) | 122.3 | 0 | 100 | 0 | 122 | 60 | 140 | 0 | 0 | | |

| Sample ID: **09-2941-01AMSD** | SampType: **MSD** | TestCode: **TVH_W** | Run ID: **TVHBTEX4_090430B** | Prep Date: **4/30/2009** | Units: **mg/L** |
|---|---|---|---|---|---|
| | Batch ID: **R46863** | TestNo: **SW8015B Mo** | FileID: **TVB40430\007F** | Analysis Date: **4/30/2009** | SeqNo: **832486** |

| Analyte | Result | LQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| TVH-Gasoline | 1.703 | 0.20 | 2.2 | 0 | 77.4 | 70 | 130 | 1.913 | 11.6 | 30 | |
| Surr: 1,2,4-Trichlorobenzene (S) | 130.6 | 0 | 100 | 0 | 131 | 60 | 140 | 0 | 0 | 0 | |

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