

**Rule** Engineering, LLCSolutions to Regulations for Industry

---

May 18, 2012

Mr. Charlie Jensen  
Encana Oil & Gas (USA) Inc.  
2717 County Road 215, Suite 100  
Parachute, CO 81635

**Re: West Divide Creek 2012 First Quarter Seep Status – Remediation #1815**

Dear Mr. Jensen:

Rule Engineering (Rule) prepared this report to present the results of the quarterly monitoring and review of historical data of all groundwater monitoring stations associated with the West Divide Creek Seep for Encana Oil and Gas (USA) Inc. Rule was contracted by Encana to continue monitoring and Operation and Maintenance (O&M) of the existing remediation system at West Divide Creek in July of 2011. This letter report provides a summary of 1<sup>st</sup> quarter 2012 sampling results and recommendations for the gas seep associated with Colorado Oil and Gas Conservation Commission (COGCC) Remediation #1815 pursuant to the Schwartz 2-15B well Order No. 1V-276. Figure 1 provides a map of monitoring stations and remediation system locations for this site.

**2012 First Quarter Monitoring  
Groundwater**

During March 28 & 29, 2012 Rule sampled 21 groundwater monitoring wells as part of the quarterly monitoring program. Monitoring well MW-13 is plugged and abandoned. Monitoring well MW-15 and MW-25 were frozen resulting in no measurements or sampling. Monitoring well MW-19 is known to be plugged and will be abandoned if possible in the future (as its location is within a marshy area). Prior to sample collection, static water levels were measured at the wells and piezometers to within 0.01 feet (ft) from the top of the north side of the PVC casing using an electronic water level meter. Piezometer 5 was plugged by sediment therefore DTW was not measured. Prior to collection of the groundwater sample, each well was purged of three casing volumes of water using disposable bailers. Field parameters were obtained during sample collection which included pH, temperature, specific conductance, dissolved oxygen and oxygen reduction potential (ORP) with an YSI<sup>®</sup> water quality meter. Groundwater field measurement results are provided in Table 1.

A total of three (3) duplicate samples were collected for field and laboratory quality assurance/quality control (QA/QC). Duplicate samples DUP-1-032912, DUP-2-032912 and DUP-3-032912 were collected at monitoring stations MW-17, MW-2, and MW-4, respectively.

All groundwater samples were immediately placed on ice after sample collection and shipped under Chain-of-Custody procedures to Environmental Science Corporation (ESC) for laboratory analysis. Samples were received in good condition within appropriate temperatures by ESC and analyzed for the following parameters:

- Benzene, Toluene, Ethylbenzene, Total Xylene's (BTEX), Method-8260
- Methane, Ethane, Ethene, Method-RSK175

Mr. Charlie Jensen  
WDC 1st Quarter 2012 Status Report  
May 18, 2012  
Page 2 of 5

- Chloride, Method-9056
- Sodium, Method-6010B

A summary of the groundwater analytical results is presented in Tables 2 and 3.

In addition to the groundwater chemistry analysis provided by ESC, samples for isotopic analysis of methane were shipped to Isotech Laboratories (Isotech). Based on historical groundwater analytical results of dissolved methane >1.0 mg/L, samples from monitoring wells MW-2, 4, 9, 14, 17, and 26 were analyzed for isotopes of carbon and hydrogen in methane and stable isotopes of carbon in ethane and propane. Samples were received at the laboratory in good condition within appropriate temperatures. A summary of the isotope analytical results is presented in Table 4.

### ***Surface-Water***

Rule collected eight (8) surface-water samples on March 28, 2012 at the established monitoring stations. Field parameters were obtained during sample collection which included pH, temperature, specific conductance, dissolved oxygen and ORP with an YSI® water quality meter. The surface-water field measurements are provided in Table 5. All surface-water samples were immediately placed on ice after sample collection. Samples were received in good condition within appropriate temperatures by ESC and analyzed for the following parameters:

- BTEX, Method-8260
- Methane, Ethane, Ethene, Method-RSK175
- Chloride, Method-9056
- Sodium, Method-6010B

A summary of surface-water analytical results are presented in Tables 6 and 7.

### **Remediation System**

From December 7, 2011 to March 28, 2012, the air sparging system was operational from 1200 hrs to 1600 hrs daily. The following flow rates were recorded for remediation air sparge wells: AS-2, 9 and 11 each operated at 6.0 standard cubic feet per minute (SCFM), AS-3 operated at 6.5 SCFM, AS-8 operated at 5.25 SCFM, AS-10 operated at 5.0, and AS-13 operated at 4.5. Blower 1 was operating at 53 SCFM.

### **Results**

#### ***Site Hydrology***

During the 1<sup>st</sup> quarter 2012 monitoring period, groundwater elevation varied from surface at MW-11, with an elevation 5965.63 feet above mean sea level (AMSL), to 5937.10 feet at MW-23. Figure 2 illustrates the potentiometric surface for the site during this quarter. An average groundwater gradient was determined to be 0.023 with a groundwater flow to the northeast/north consistent with the drainage system of West Divide Creek within the seep area.

#### ***Analytical Results***

Groundwater analytical results indicate that monitoring stations MW-2, MW-4, and MW-17 had dissolved benzene concentrations of 0.096 mg/L, 0.040 mg/L and 0.035 mg/L, respectively. Dissolved toluene concentrations were below detection levels in all wells. Dissolved ethylbenzene concentrations were below detection levels in all wells except MW-2, which was

Mr. Charlie Jensen  
WDC 1st Quarter 2012 Status Report  
May 18, 2012  
Page 3 of 5

reported at 0.0019 mg/L. Total dissolved xylenes were detected at MW-2 and MW-4 at concentrations of 0.027 mg/L and 0.0046 mg/L, respectively. The detections of ethylbenzene and total xylenes are below COGCC Table 910-1 groundwater standards. Figure 3 illustrates dissolved BTEX and dissolved methane results for the first quarter 2012.

Figure 4 illustrates the dissolved benzene impacts greater than 0.005 mg/L. Dissolved benzene concentrations above Table 910-1 allowable limits were detected in wells MW-2, MW-4, and MW-17. MW-1, 7, and 16 have been "non-detect" for dissolved benzene since 2005, indicating two separate source areas for these wells. Additionally, MW-2 and MW-4 are outside the radius of influence of the remediation system. This separation of the dissolved benzene impacted area illustrates stabilization of the source area with minimal impact from the remediation system.

The highest concentrations of dissolved methane were observed in MW-2 (12.0 mg/L), MW-4 (5.4 mg/L), MW-9 (6.1 mg/L), MW-14 (6.5 mg/L) and MW-26 (2.9 mg/L). Figure 5 illustrates the dissolved methane concentrations above 1 mg/L, with the highest concentrations of dissolved methane observed within the seep area, consistent with historical data. The separation of the dissolved methane plume within the seep area is consistent with the dissolved benzene plume separation. Isotopic analysis indicate dissolved methane samples from MW-2, 4, 9, 14 and 17 plot as thermogenic (Figure 6). The presence of butane and propane in MW-2, 4, 9 and 17 and the presence of pentane, in all samples but MW-17, are indicators of thermogenic gas. Isotopic analysis of MW-26 indicates dissolved methane plots as microbial gas (Figure 6). The absence of butane, propane and pentane, is an indicator that the gas is not thermogenic.

Figure 7 illustrates dissolved sodium (Na) and chloride (Cl) concentrations in groundwater and surface-water. The highest Na concentration in groundwater was 460 mg/L at MW-23 and the lowest was 32 mg/L at MW-11. The Na concentrations in surface-water ranged from 30 mg/L to 33 mg/L. The highest Cl concentration in groundwater was 180 mg/L at MW-27 and the lowest was 5.3 mg/L at MW-24. The Cl concentrations in surface-water ranged from 5.8 mg/L to 14 mg/L. Currently there are no primary drinking water standards for chloride or sodium with respect to COGCC or Colorado Department of Public Health and Environment (CDPHE) Water Quality Control Commission Regulation No. 41. CDPHE does have a secondary drinking water standard for chloride of 250 mg/L.

Figure 7 illustrates the seep area has little to no correlation to higher concentrations of sodium or chloride concentrations. The highest concentrations were observed far downgradient of the seep area and can be attributed to natural groundwater geochemistry conditions.

Analytical results for surface water samples indicate no detections of BTEX, methane, ethane, or ethene (Tables 6 and 7).

### **Discussion of Historical Groundwater Monitoring Results**

Since the start of the seep in 2004, Encana has collected 1,320 groundwater samples within the seep area (through daily, weekly, or quarterly sampling). A summary of the historical BTEX and Methane concentrations is provided in the electronic attachment (Appendix B).

Monitoring stations 11, 13, 15, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, Eich1/Eich2, and Lang have not had a detection of BTEX in 93 months. Encana continues to monitor these stations far past a point of compliance. Industry standard for petroleum contaminated sites for clean monitoring stations is 5 quarters. When the analytical results from continued groundwater

Mr. Charlie Jensen  
WDC 1st Quarter 2012 Status Report  
May 18, 2012  
Page 4 of 5

monitoring show concentrations that are below the COGCC Groundwater Standards in Table 910-1 for 5 or more consecutive quarters, and given the understanding that the plume is not expanding further, monitoring at these locations should be reviewed. Monitoring using a smaller set of sampling locations downgradient of the source area should be sufficient.

Groundwater monitoring point Eich2 is a lateral extension of well Eich1. Eich1 is the main well and Eich2 has a lateral pipe extending to the east from Eich1 where a spigot is mounted for water usage. So, when Eich1/Eich2 is referenced, it is referring to the same well.

Below is a summary of monitoring stations impacted by the seep, from upgradient to downgradient along the site:

- MW-12: Dissolved benzene concentrations declined dramatically before the system was installed in 2005 (Figure 8) and have remained below the groundwater standard since March 2007. MW-12 is upgradient of the treatment area.
- MW-9: Dissolved benzene concentrations declined dramatically before the system was installed in 2005 (Figure 9) and have remained below the groundwater standard since March 2007. MW-9 is upgradient of the treatment area.
- MW-14: Dissolved benzene concentrations declined dramatically before the system was installed in 2005 (Figure 10) and have remained below the groundwater standard since March 2007. MW-14 was considered to be within the original source area, but is upgradient of the actual treatment area.
- MW-4: Dissolved benzene concentrations remain above the groundwater standard (Figure 11). MW-4 is upgradient of the treatment area, but dissolved benzene concentrations have declined over time.
- MW-2: Dissolved benzene concentrations remain above the groundwater standard (Figure 12). MW-2 is upgradient of the treatment area, but dissolved benzene concentrations have declined over time.
- MW-16: Dissolved benzene concentrations declined dramatically before the system was installed in 2005 (Figure 13) and have remained below the groundwater standard since October 2005. MW-16 is upgradient of the treatment area.
- MW-6: Dissolved benzene concentrations declined dramatically before the system was installed in 2005 (Figure 14) and have remained below the groundwater standard since May 2005.
- MW-1: Dissolved benzene concentrations declined to non-detect levels before the system was installed (Figure 15) and have remained below the groundwater standard since March 2005.
- MW-7: Dissolved benzene concentrations declined to non-detect levels before the system was installed (Figure 16) and have remained below the groundwater standard since April 2005.

Mr. Charlie Jensen  
WDC 1st Quarter 2012 Status Report  
May 18, 2012  
Page 5 of 5

- MW-17: Dissolved benzene concentrations declined before the system start up, and continue to decline (Figure 17), but remain above the groundwater standard.
- MW-8: Dissolved benzene concentrations declined to non-detect levels before the system was installed (Figure 18) and have remained below the groundwater standard since July 2005.

### **Divide Creek Remediation Analysis**

As described in the 2011 Fourth Quarter Seep Status Report, the overall decline in dissolved benzene concentrations are attributed to a reduction in the mass flux of hydrocarbons from the seep. The natural processes of dilution, degradation, dispersion, and volatilization under the current site conditions provide remediation through natural attenuation (RNA), resulting in the observed decline in concentrations. Based on the extensive monitoring conducted to date, the groundwater plume is stable and/or diminishing, and demonstrates no potential for migration towards downgradient groundwater receptors (ie. water wells), without immediate detection within the existing monitoring well network.

Historical and current data, including dissolved oxygen monitoring, indicate the treatment system has minimal or no effect on the current source area. The 1<sup>st</sup> quarter results reveal the relative percentage difference in the treatment area compared to background (MW-11, Background vs. MW-8, Treatment Area) is 43% decrease. MW-11 dissolved oxygen values were used for the 1<sup>st</sup> quarter analysis because MW-25 was frozen.

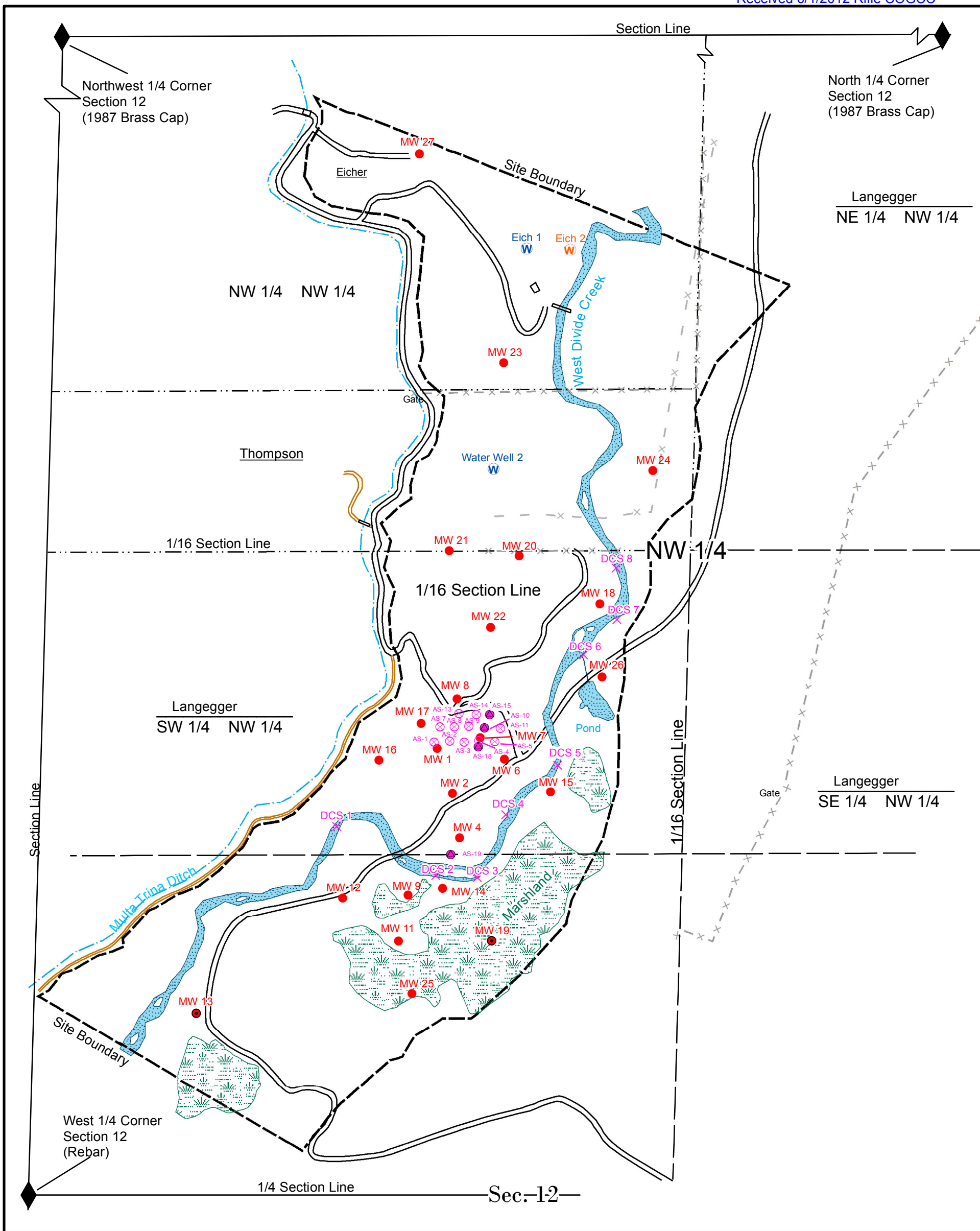
Rule Engineering appreciates the opportunity to provide services to Encana. If you have any questions please contact me at 970-244-8500.

Sincerely,  
**Rule Engineering, LLC**

Scotty Mann  
Hydrogeologist/Project Manager

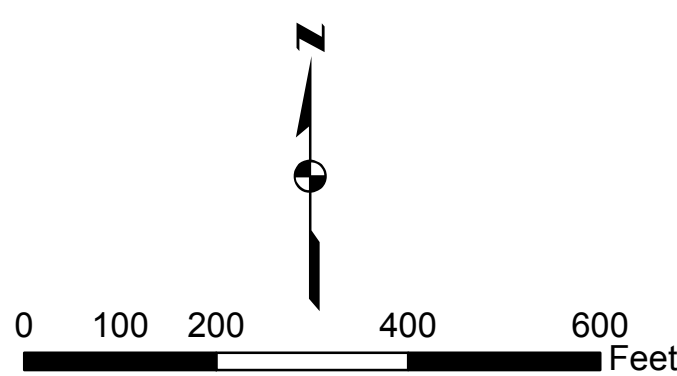
cc: Linda Spry O'Rourke - COGCC  
Kathy Friesen-Encana  
Pepi Langegger  
Steve Thompson  
Lisa Bracken

# FIGURES



**Legend**

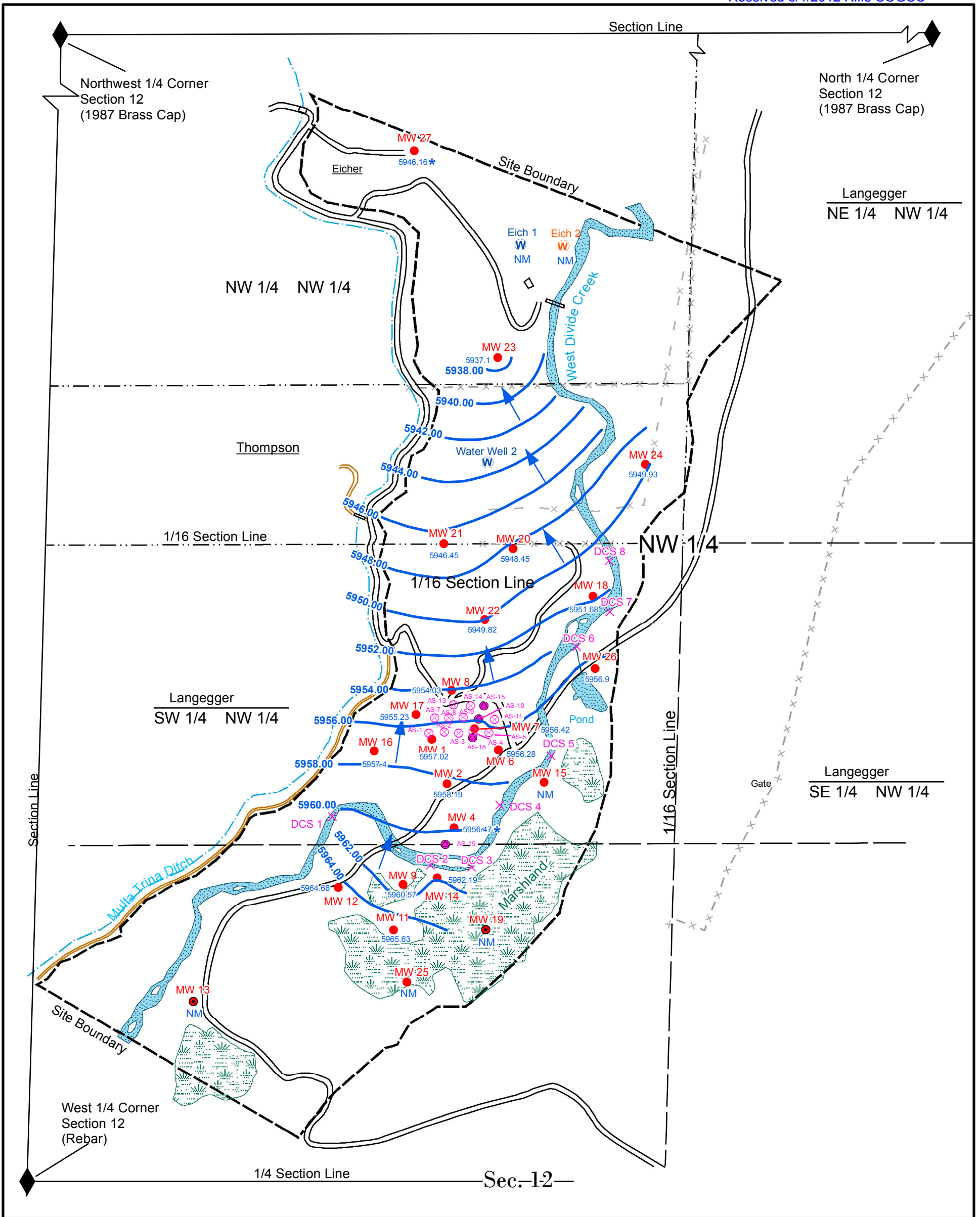
- Site Boundary
- Road
- - - Drainage
- x - x - Fence
- x - - Old Fence
- - - Property Line
- Trail
- Air Sparge
- × Divide Creek Sample Location
- Monitoring Well Location
- Abandoned or Plugged Monitoring Well Location
- Nested Air Sparge Well Location
- Piezometer Location
- ◆ Section Corners



**Rule** Engineering, LLC  
Solutions to Regulations for Industry



Site Location Map

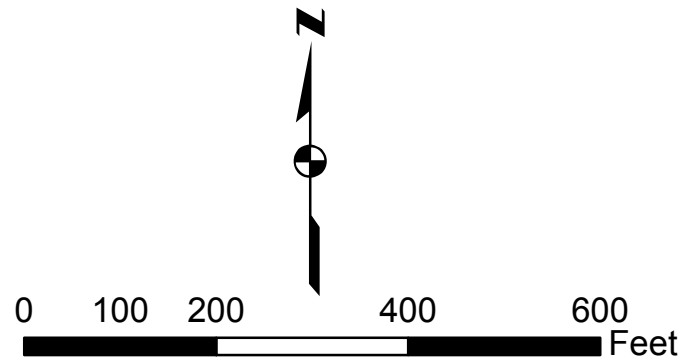


**Legend**

- Site Boundary
- Road
- - - Drainage
- × Fence
- × Old Fence
- · - · Property Line
- Trail
- Air\_Sparge\_unconverted
- × Divide Creek Sample Location
- Monitoring Well Location
- Abandoned or Plugged Monitoring Well Location
- Nested Air Sparge Well Location
- Piezometer Location
- ◆ Section Corners

**Groundwater Legend**

- 5940.00 - = Groundwater Elevation Contour (Feet)
- 5940.17 = Groundwater Elevation (Feet)
- NM = Not Measured
- \* = Data not used in contouring
- ↑ = Flow Vector

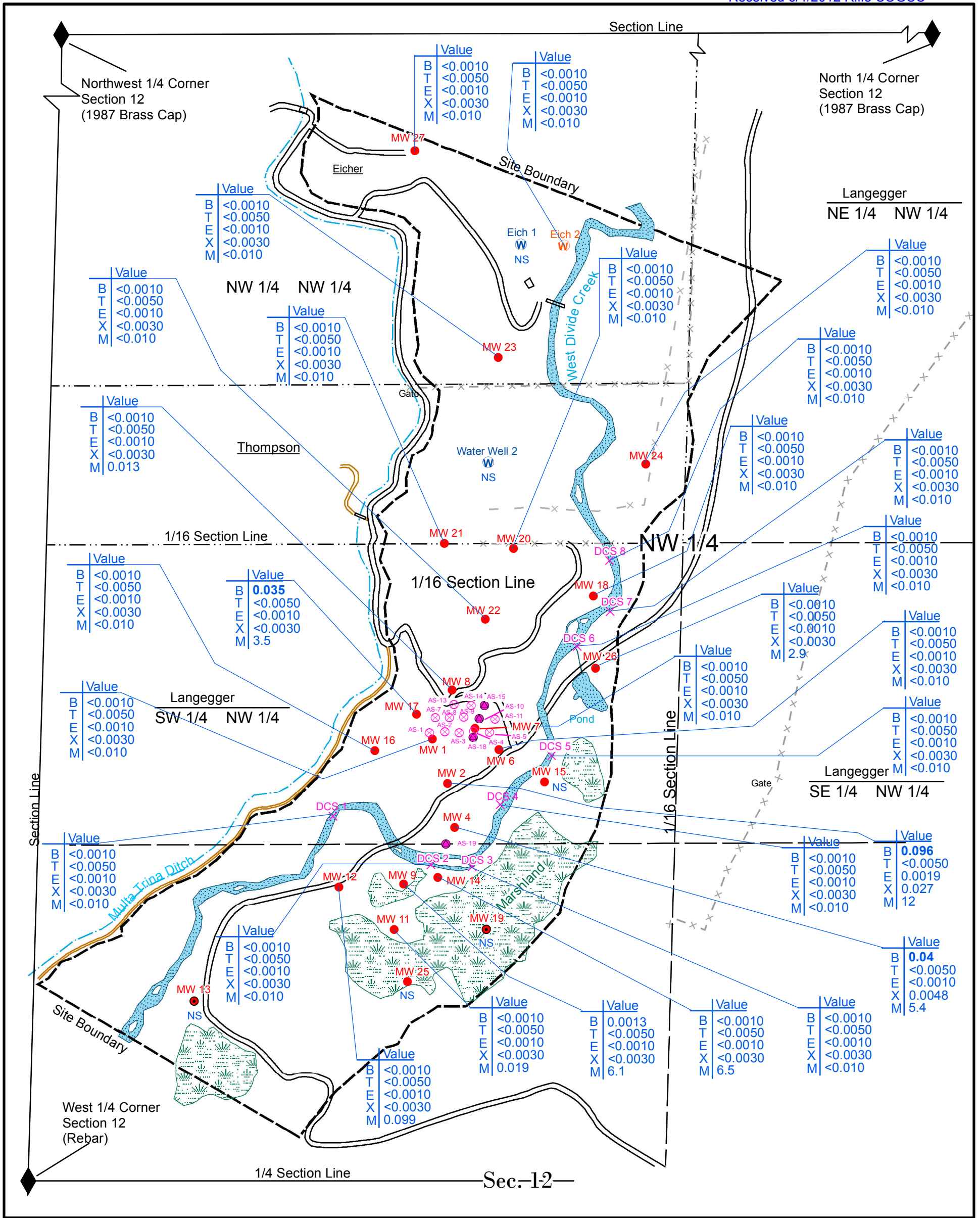


**Rule** Engineering, LLC  
Solutions to Regulations for Industry



**Groundwater Elevation Map**  
March 2012

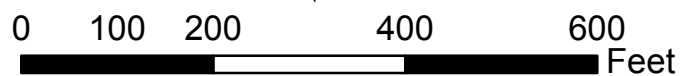




**Legend**

- Site Boundary
- Road
- Drainage
- × Fence
- × Old Fence
- - - Property Line
- Trail
- Air Sparge
- × Divide Creek Sample Location
- Monitoring Well Location
- Abandoned or Plugged Monitoring Well Location
- Nested Air Sparge Well Location
- Piezometer Location
- ◆ Section Corners

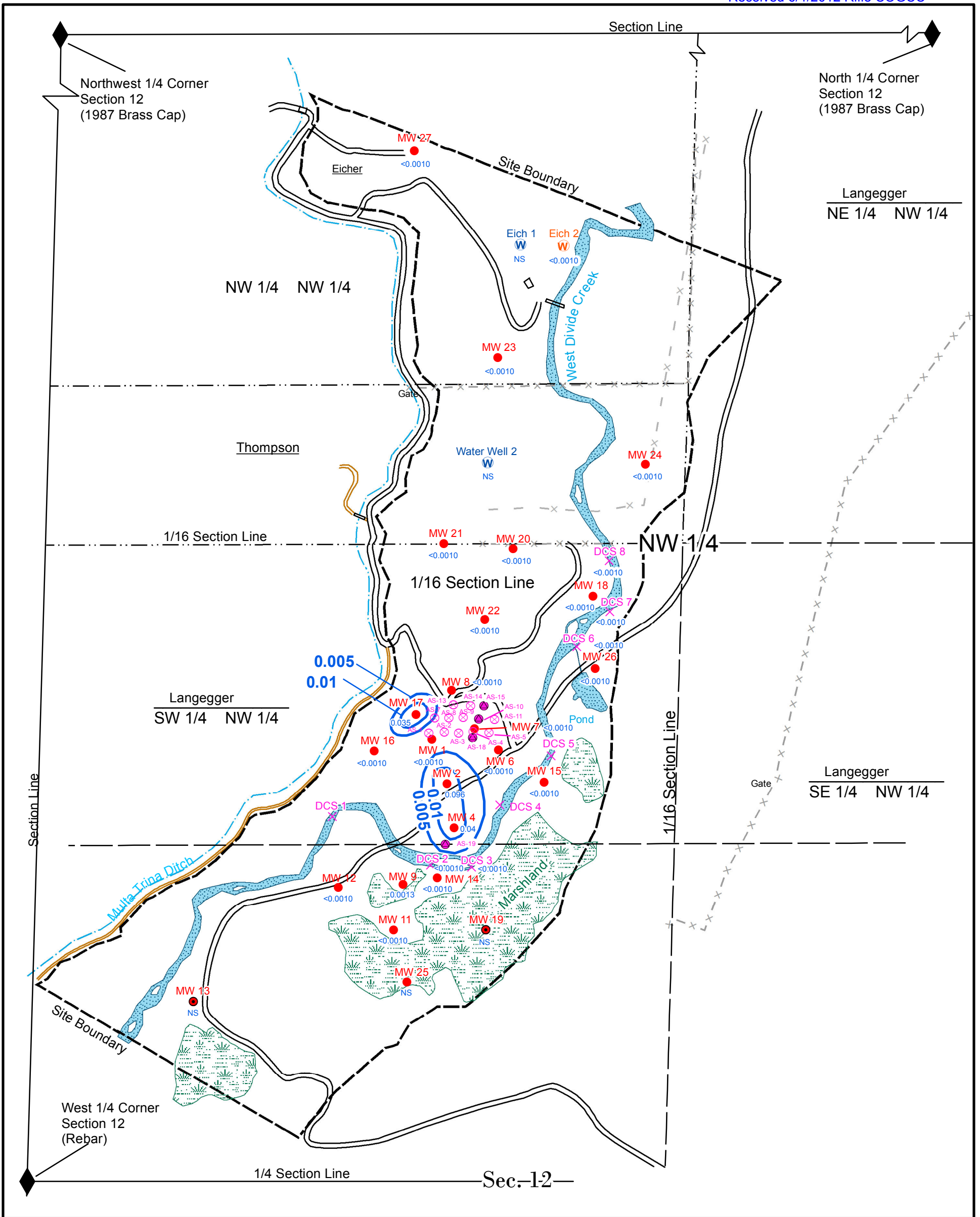
**Chemical Data**  
 B = Benzene (mg/L)  
 T = Toluene (mg/L)  
 E = Ethylbenzene (mg/L)  
 X = Xylenes (mg/L)  
 M = Total Methane (mg/L)  
 NS = Not Sampled



**Rule Engineering, LLC**  
 Solutions to Regulations for Industry



**Groundwater Analytical Results**  
 March 2012

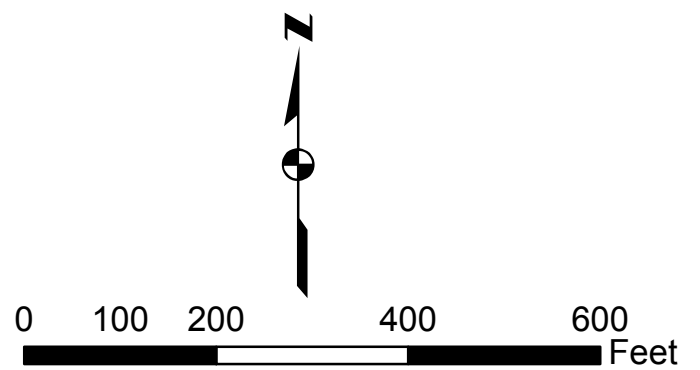


**Legend**

- Site Boundary
- Road
- Drainage
- × — × Fence
- × — Old Fence
- - - Property Line
- Trail
- Air Sparge
- × Divide Creek Sample Location
- Monitoring Well Location
- Abandoned or Plugged Monitoring Well Location
- Nested Air Sparge Well Location
- Piezometer Location
- ◆ Section Corners

**Chemical Data**

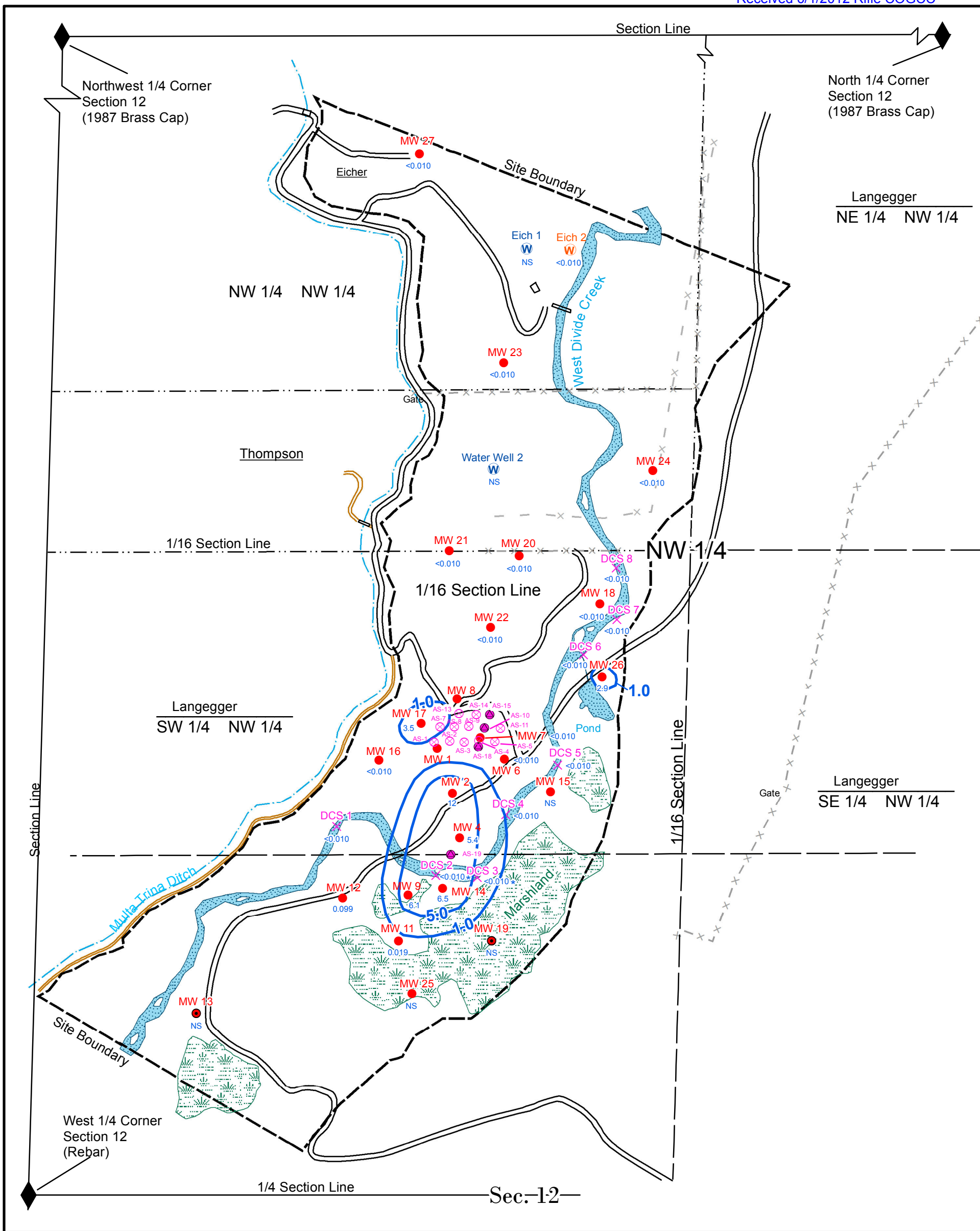
- .005 — = Benzene Concentration Contour (mg/L)
- .096 = Benzene Concentration (mg/L)
- NS = Not Sampled



**Rule Engineering, LLC**  
Solutions to Regulations for Industry



**Dissolved Benzene Concentrations  
March 2012**

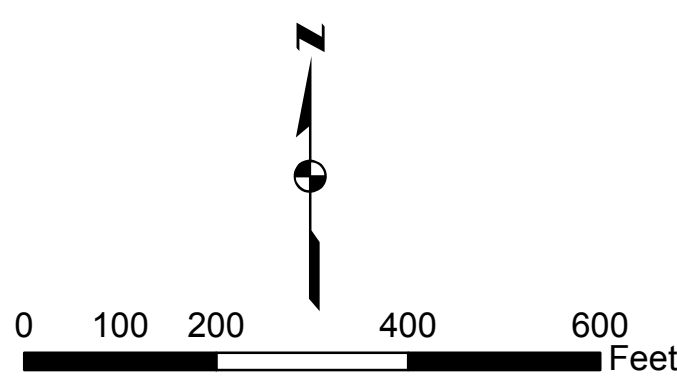


**Legend**

- Site Boundary
- Road
- Drainage
- × Fence
- × Old Fence
- - - Property Line
- Trail
- Air Sparge
- × Divide Creek Sample Location
- Monitoring Well Location
- Abandoned or Plugged Monitoring Well Location
- Nested Air Sparge Well Location
- Piezometer Location
- ◆ Section Corners

**Chemical Data**

- 5.0 = Thermogenic & Biogenic Methane Contour In Groundwater (mg/L)
- 3.5 = Thermogenic & Biogenic Methane Concentration In Groundwater (mg/L)
- NS = Not Sampled
- \* = Data Not Used In Contour

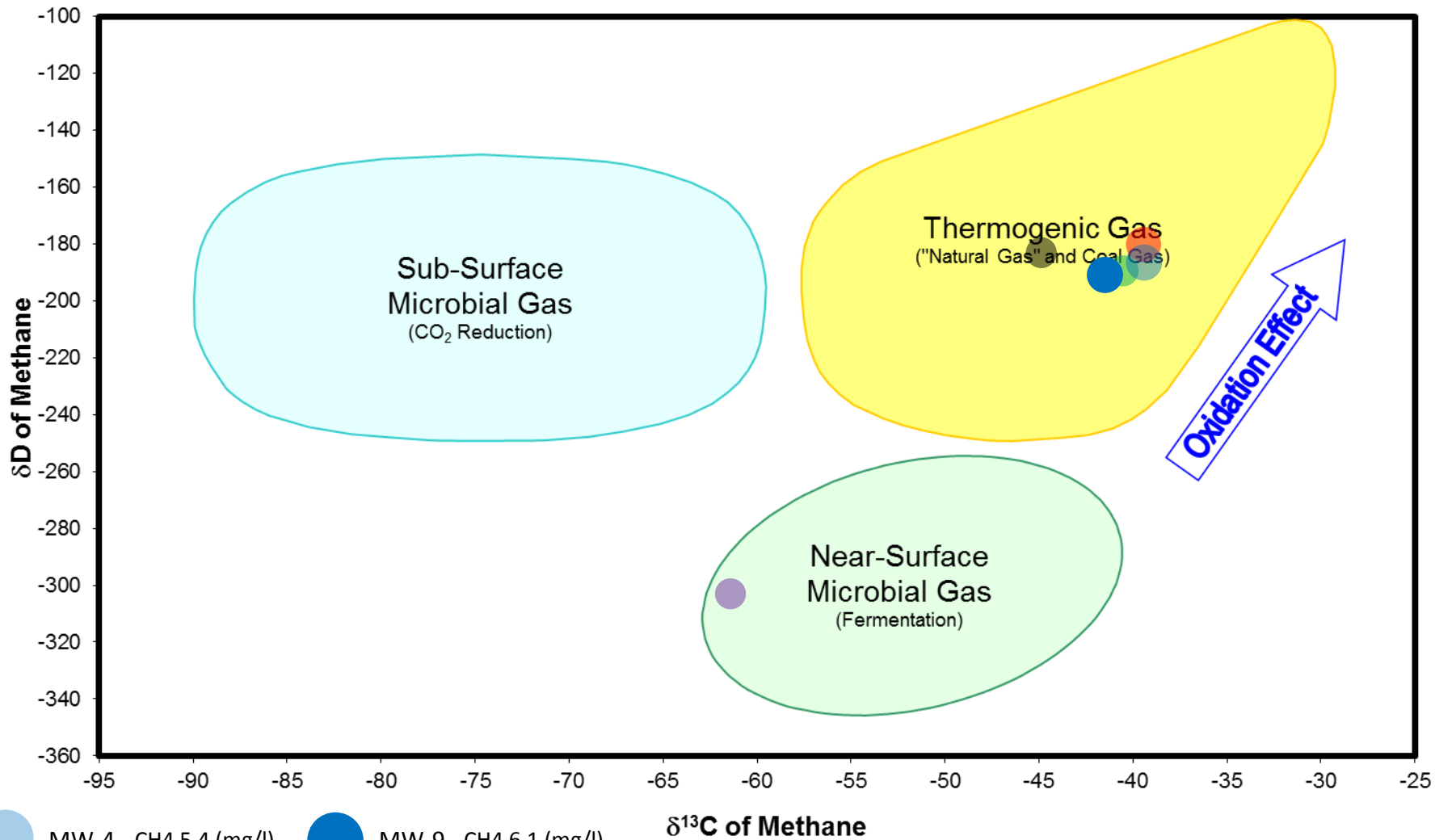


**Rule** Engineering, LLC  
Solutions to Regulations for Industry



**Total Dissolved Methane Concentrations  
March 2012**

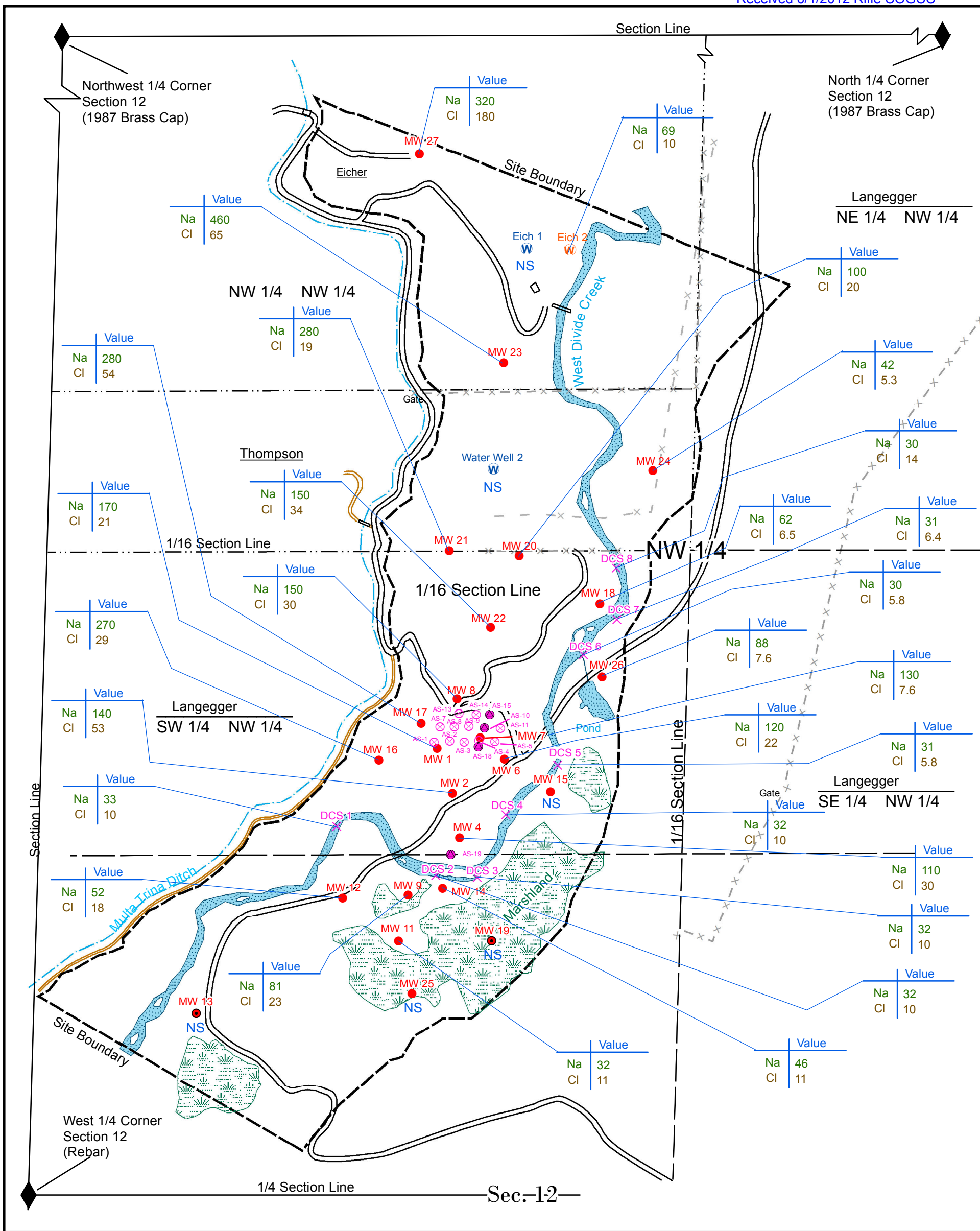
### Typical Compositional Ranges of Methanes from Different Sources



- MW-4 CH<sub>4</sub> 5.4 (mg/l)
- MW-9 CH<sub>4</sub> 6.1 (mg/l)
- MW-2 CH<sub>4</sub> 12 (mg/l)
- MW-14 CH<sub>4</sub> 6.5 (mg/l)
- MW-17 CH<sub>4</sub> 3.5 (mg/l)
- MW-26 CH<sub>4</sub> 2.9 (mg/l)

## Figure 6

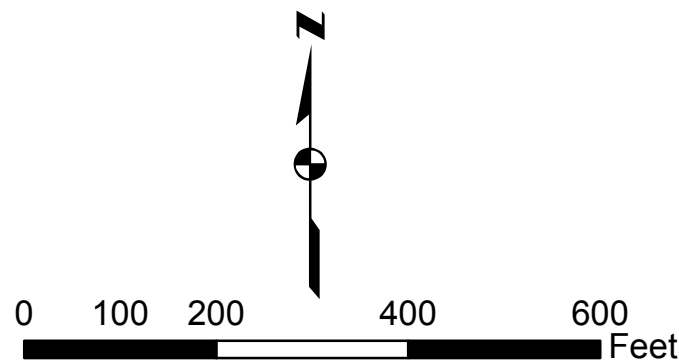
Courtesy of Isotech



**Legend**

- Site Boundary
- Road
- - - Drainage
- × Fence
- × Old Fence
- - - Property Line
- Trail
- Air Sparge
- × Divide Creek Sample Location
- Monitoring Well Location
- Abandoned or Plugged Monitoring Well Location
- Nested Air Sparge Well Location
- Piezometer Location
- ◆ Section Corners

**Chemical Data**  
 Na = Sodium (mg/L)  
 Cl = Chloride (mg/L)  
 NS = Not Sampled



**Rule Engineering, LLC**  
 Solutions to Regulations for Industry



**Sodium and Chloride Analytical Concentrations**  
 March 2012

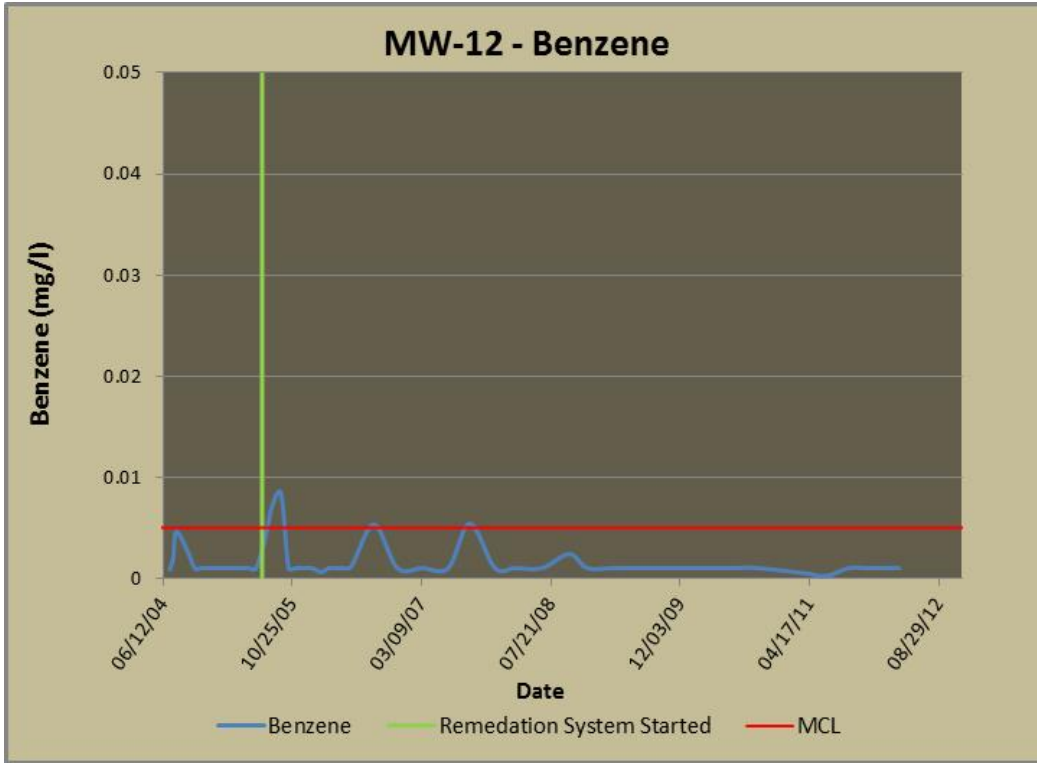


Figure 8 (MW-12 Historical Benzene Concentrations)

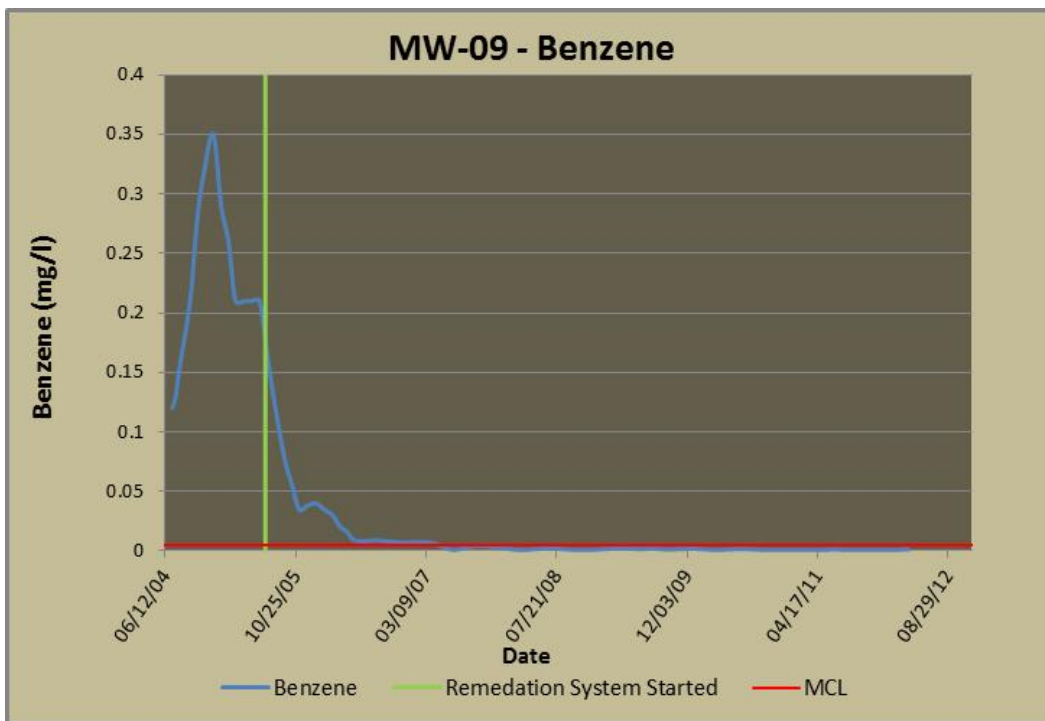


Figure 9 (MW-9 Historical Benzene Concentrations)

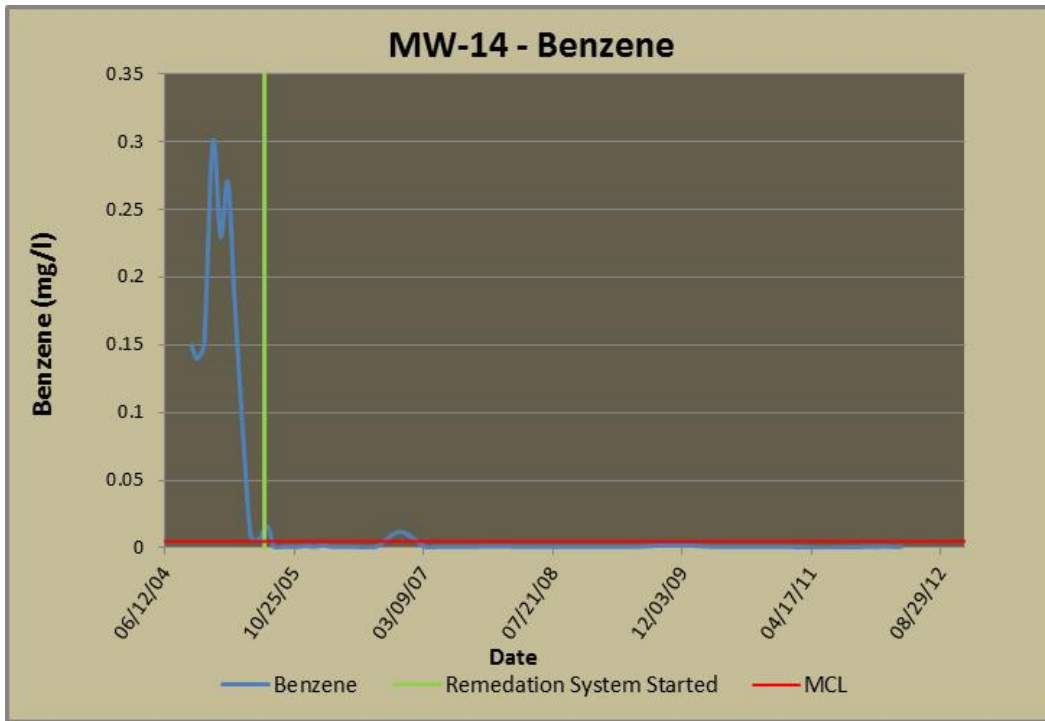


Figure 10 (MW-14 Historical Benzene Concentrations)

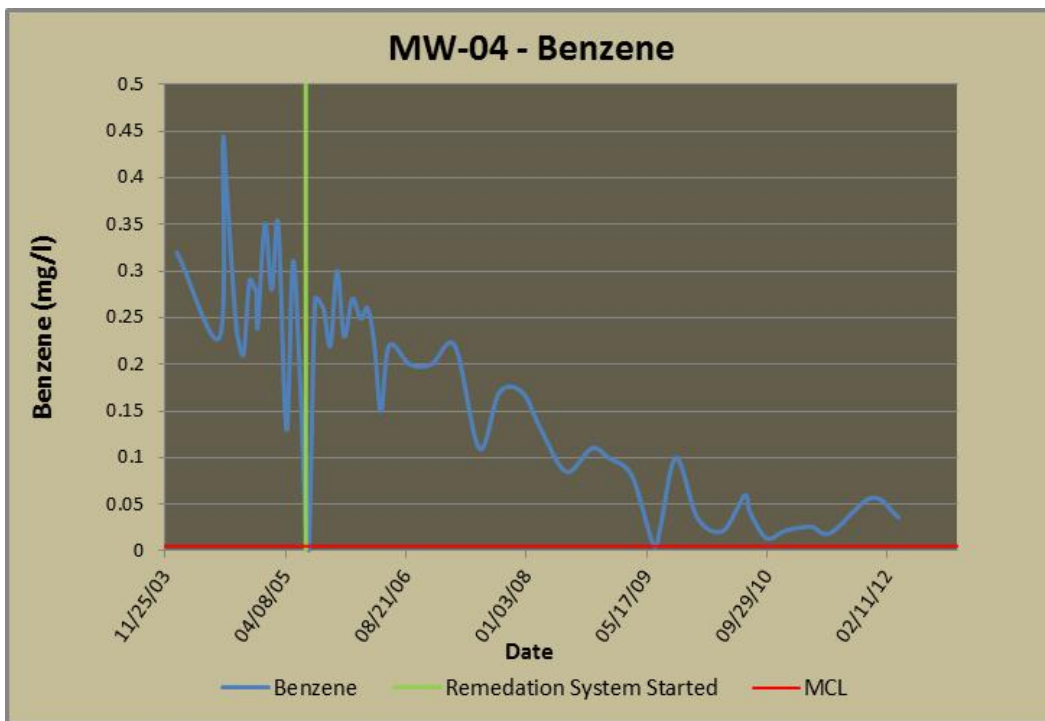


Figure 11 (MW-4 Historical Benzene Concentrations)

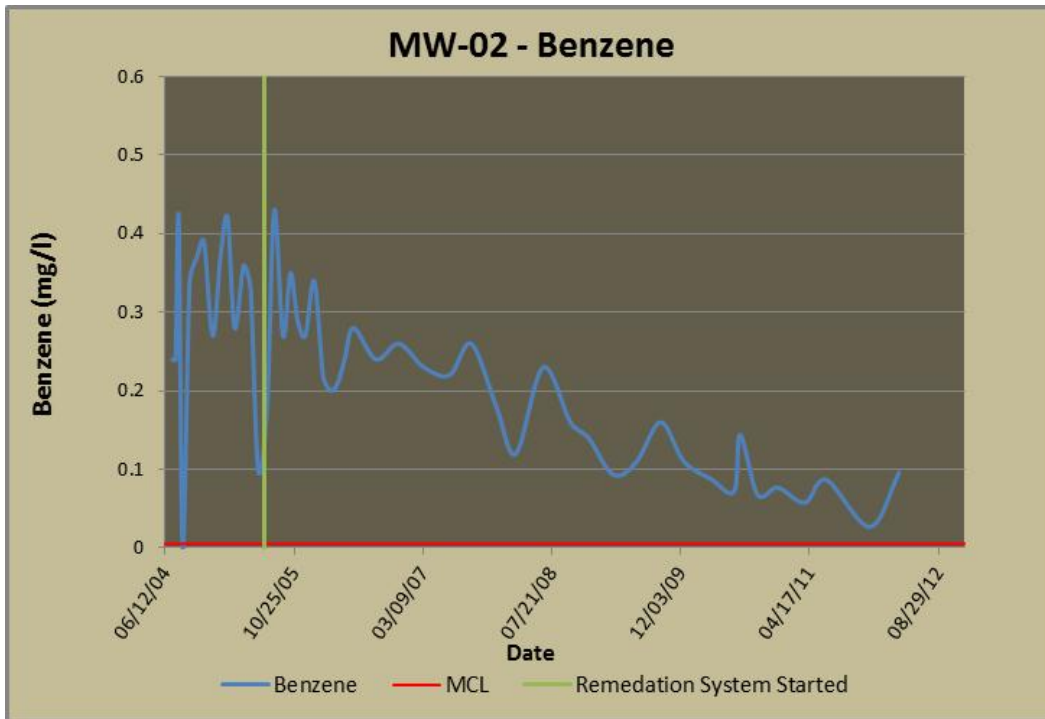


Figure 12 (MW-2 Historical Benzene Concentrations)

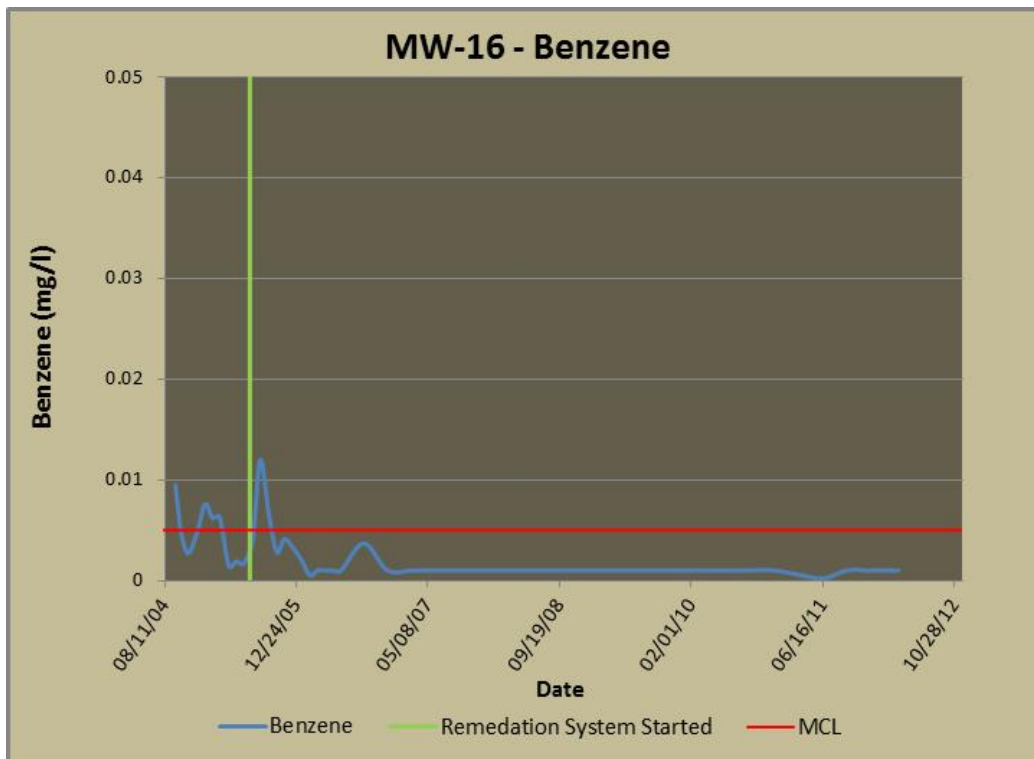


Figure 13 (MW-16 Historical Benzene Concentrations)



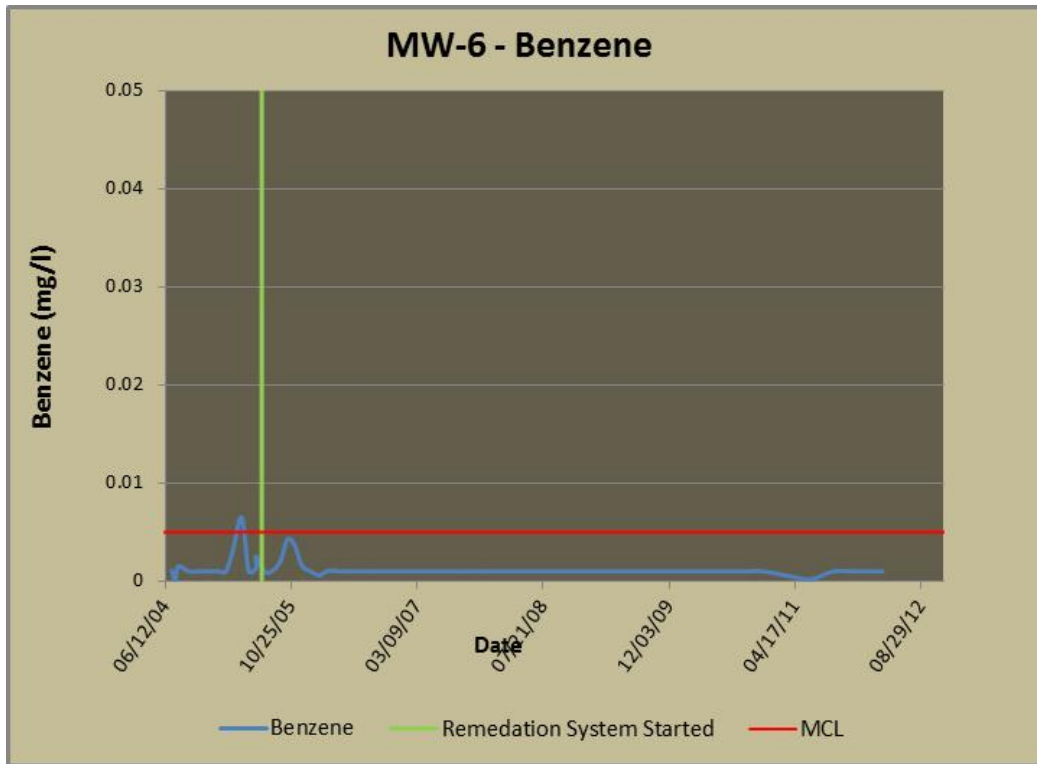


Figure 14 (MW-6 Historical Benzene Concentrations)

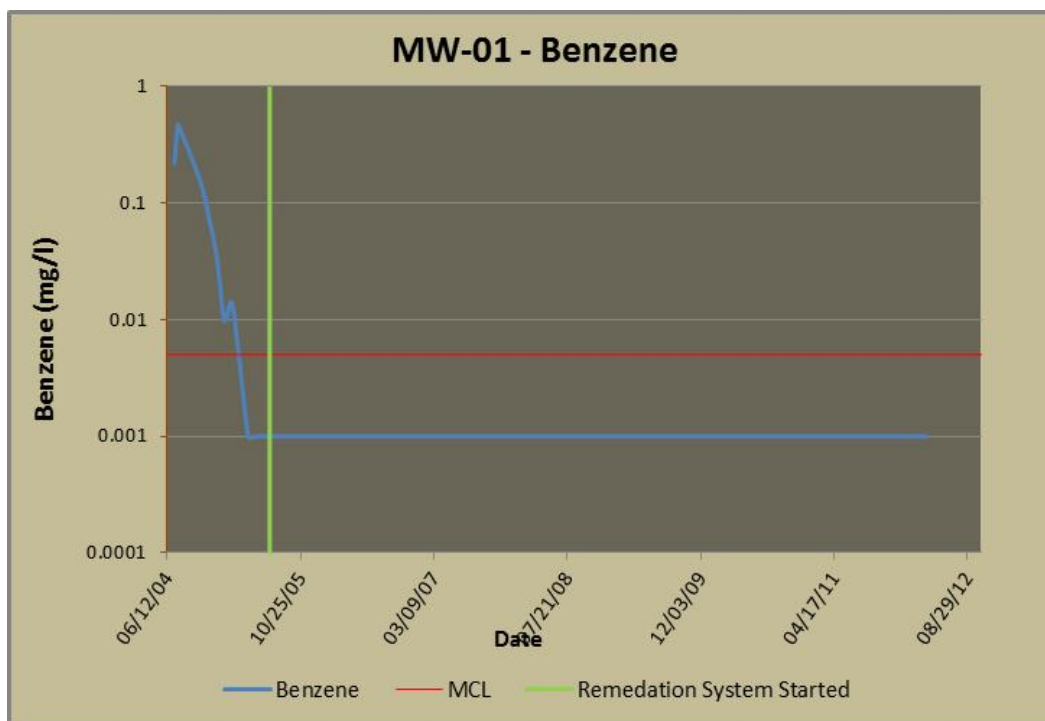


Figure 15 (MW-1 Historical Benzene Concentrations)

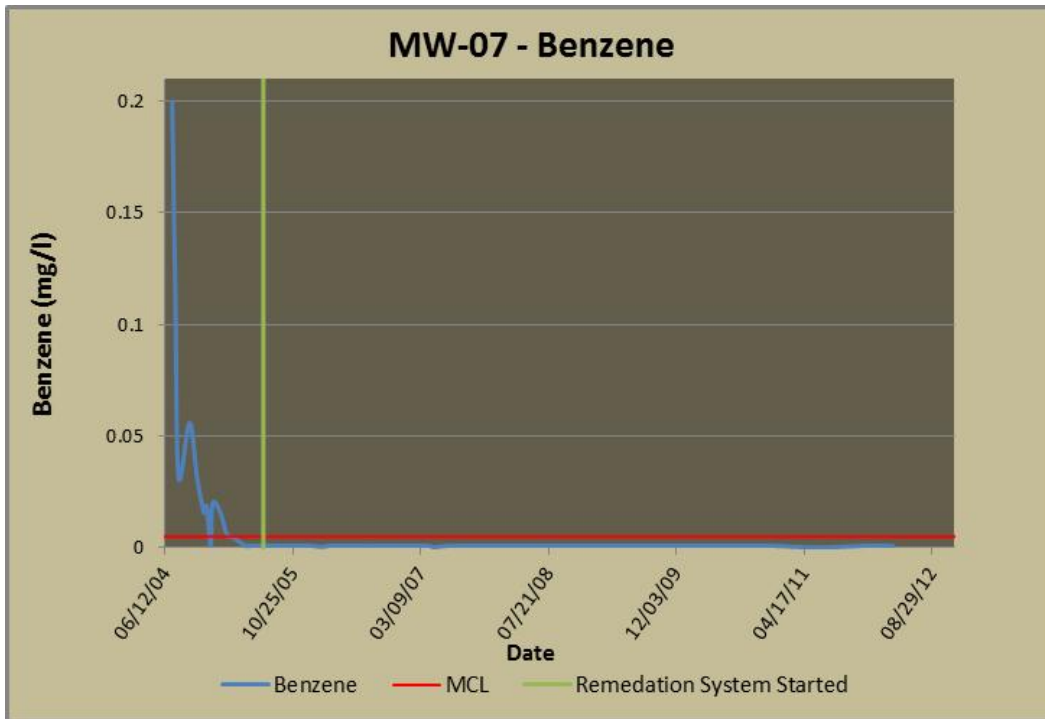


Figure 16 (MW-7 Historical Benzene Concentrations)

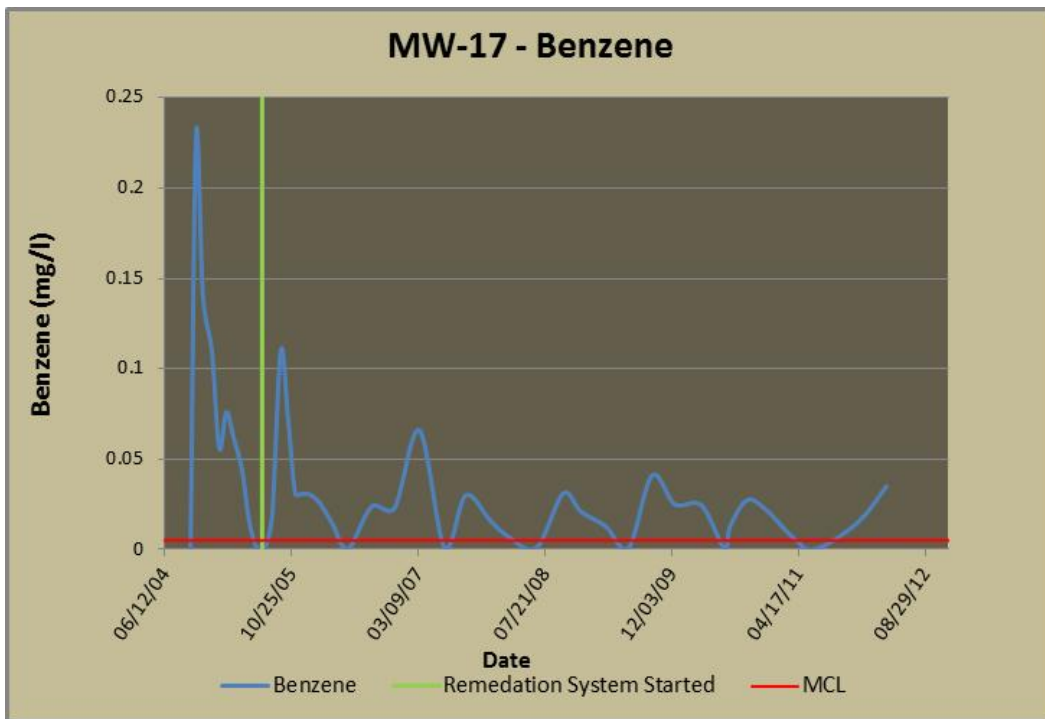


Figure 17 (MW-17 Historical Benzene Concentrations)

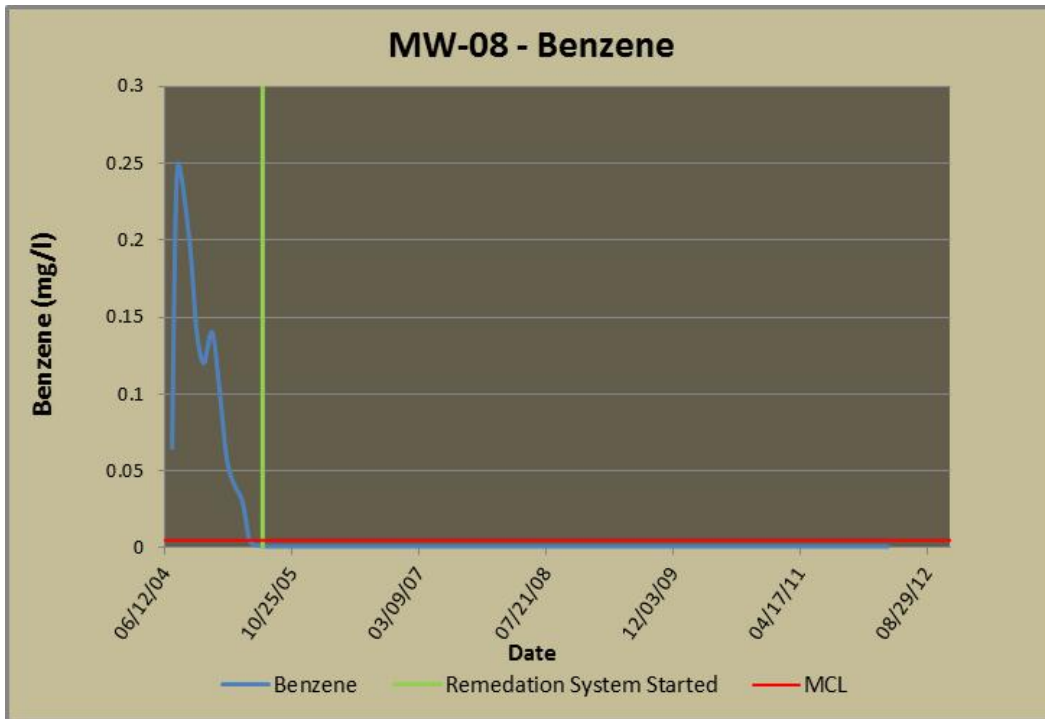


Figure 18 (MW-8 Historical Benzene Concentrations)

# TABLES

Table 1. March 2012 Groundwater Field Parameters

Received 6/1/2012 Rifle COGCC

Monitoring Station	DTW (ft)	Temp (°C)	SPC (mS/cm)	DO (mg/L)	pH	ORP (mV)	Water Quality Observations
MW-1	5.18	8.60	0.96	2.98	8.33	-15.00	WQ: Slightly cloudy, no sheen, no odor, no effer.
MW-2	4.51	9.70	0.8	1.96	8.54	-68.50	WQ: Lt. brown, no odor, no sheen, no effer. <b>*DUP-2-032912 *iso taken</b>
MW-4	6.93	7.60	0.81	3.52	8.41	-75.50	WQ: Lt. Brown, rust present, turbid, no sheen, no effer. <b>*DUP-3-032912 *iso taken</b>
MW-6	6.42	9.60	1.04	3.42	8.04	38.00	WQ: Light brown/clear, no sheen, no odor, no effer.
MW-7	6.08	8.50	0.95	2.19	8.13	73.40	WQ: Slightly cloudy/ turbid, no sheen, no odor, no effer.
MW-8	8.57	9.50	1.03	1.48	8.17	-44.10	WQ: Clear, no sheen, no odor, no effer.
MW-9	4.53	11.35	0.752	1.27	7.87	-60.20	WQ: Clear/mild turbidity, no sheen, no odor, no effer. <b>*iso taken</b>
MW-11	4.07	4.80	0.577	2.29	8.36	-47.30	WQ: Clear, no odor, no sheer, no effer.
MW-12	1.72	6.40	0.721	1.31	8.34	-63.70	WQ: Light brown, mildly turbid, no odor, no sheen, no effer. <b>*iso taken</b>
MW-14	5.11	11.62	0.76	0.74	7.53	-106.30	WQ: Light grey, turbid, no odor, no sheen, no effer.
MW-15							Frozen
MW-16	5.40	8.50	1.1	1.01	8.64	-45.40	WQ: Light tan, no sheen, no odor, no effer.
MW-17	5.97	8.50	1.26	1.33	8.35	115.40	WQ: Light tan/clear, no sheen, putrid odor, no effer.. <b>*DUP-1-032912 *iso taken</b>
MW-18	3.62	10.00	0.7	1.22	8.18	18.60	WQ: Clear, no sheen, no odor, no effer.
MW-20	7.75	6.90	0.91	2.31	8.26	119.10	WQ: Slightly Cloudy, no odor, no sheen, no effer.
MW-21	23.05	10.40	1.25	1.91	8.29	111.00	WQ: Slightly tan, no odor, no sheen, no effer.
MW-22	9.68	8.80	1.16	2.78	8.03	75.60	WQ: Slightly cloudy, no odor, no sheen, no effer.
MW-23	15.60	10.40	4.6	1.59	8.31	150.20	WQ: Clear, no odor, no sheen, no effer.
MW-24	4.97	6.90	0.666	3.53	8.68	184.80	WQ: Clear, no odor, no sheen, no effer.
MW-25							Frozen
MW-26	0.30	8.20	0.82	1.92	8.06	62.20	WQ: Clear, no sheen, no odor, no effer <b>*iso taken</b>
MW-27	10.04	7.70	1.48	2.16	9.03	224.00	WQ: Mildly turbid, no sheen, no effervescence, slight sulfur/organic odor.
Eicher1	7.40	9.90	0.671	2.34	8.22	181.60	WQ: Clear, low turbidity, no odor, no sheen, no effer.

Table 2. March 2012, West Divide Creek BTEX Groundwater Concentrations

Received 6/1/2012 Rifle COGCC

Monitoring Station	Sample ID	Lab ID	Sample Date	Benzene (mg/L)				Toluene (mg/L)				Ethylbenzene (mg/L)				Total Xylenes (mg/L)			
				RDL	MDL	Value	Qual	RDL	MDL	Value	Qual	RDL	MDL	Value	Qual	RDL	MDL	Value	Qual
EICH1	EICH-1 032812	L567652-02	3/28/2012	0.001	0.00018	ND		0.005	0.00017	ND		0.001	0.00027	ND		0.003	0.00086	ND	
MW1	MW-1 032912	L567652-17	3/29/2012	0.001	0.00018	ND		0.005	0.00017	ND		0.001	0.00027	ND		0.003	0.00086	ND	
MW2	MW-2 032912	L567652-18	3/29/2012	0.001	0.00018	0.096		0.005	0.00017	ND		0.001	0.00027	0.0019		0.003	0.00086	0.027	
MW2	DUP-2 032912	L567652-23	3/29/2012	0.001	0.00018	0.093		0.005	0.00017	ND		0.001	0.00027	0.0018		0.003	0.00086	0.027	
MW4	MW-4 032912	L567652-19	3/29/2012	0.001	0.00018	0.038		0.005	0.00017	ND		0.001	0.00027	ND		0.003	0.00086	0.0046	
MW4	DUP-3 032912	L567652-24	3/29/2012	0.001	0.00018	0.040		0.005	0.00017	ND		0.001	0.00027	ND		0.003	0.00086	0.0048	
MW6	MW-6 032912	L567652-12	3/29/2012	0.001	0.00018	ND		0.005	0.00017	ND		0.001	0.00027	ND		0.003	0.00086	ND	
MW7	MW-7 032912	L567652-13	3/29/2012	0.001	0.00018	ND		0.005	0.00017	ND		0.001	0.00027	ND		0.003	0.00086	ND	
MW8	MW-8 032912	L567652-14	3/29/2012	0.001	0.00018	ND		0.005	0.00017	ND		0.001	0.00027	ND		0.003	0.00086	ND	
MW9	MW-9 032912	L567652-04	3/29/2012	0.001	0.00018	0.0013		0.005	0.00017	ND		0.001	0.00027	ND		0.003	0.00086	ND	
MW11	MW-11 032912	L567652-21	3/29/2012	0.001	0.00018	ND		0.005	0.00017	ND		0.001	0.00027	ND		0.003	0.00086	ND	
MW12	MW-12 032912	L567652-20	3/29/2012	0.001	0.00018	ND		0.005	0.00017	ND		0.001	0.00027	ND		0.003	0.00086	ND	
MW14	MW-14 032912	L567652-05	3/29/2012	0.001	0.00018	ND		0.005	0.00017	ND		0.001	0.00027	ND		0.003	0.00086	ND	
MW16	MW-16 032912	L567652-16	3/29/2012	0.001	0.00018	ND		0.005	0.00017	ND		0.001	0.00027	ND		0.003	0.00086	ND	
MW17	MW-17 032912	L567652-15	3/29/2012	0.001	0.00018	0.035		0.005	0.00017	ND		0.001	0.00027	ND		0.003	0.00086	ND	
MW17	DUP-1 032912	L567652-22	3/29/2012	0.001	0.00018	0.027		0.005	0.00017	ND		0.001	0.00027	ND		0.003	0.00086	ND	
MW18	MW-18 032912	L567652-08	3/29/2012	0.001	0.00018	ND		0.005	0.00017	ND		0.001	0.00027	ND		0.003	0.00086	ND	
MW20	MW-20 032912	L567652-10	3/29/2012	0.001	0.00018	ND		0.005	0.00017	ND		0.001	0.00027	ND		0.003	0.00086	ND	
MW21	MW-21 032912	L567652-11	3/29/2012	0.001	0.00018	ND		0.005	0.00017	ND		0.001	0.00027	ND		0.003	0.00086	ND	
MW22	MW-22 032912	L567652-09	3/29/2012	0.001	0.00018	ND		0.005	0.00017	ND		0.001	0.00027	ND		0.003	0.00086	ND	
MW23	MW-23 032812	L567652-03	3/28/2012	0.001	0.00018	ND		0.005	0.00017	ND		0.001	0.00027	ND		0.003	0.00086	ND	
MW24	MW-24 032912	L567652-06	3/29/2012	0.001	0.00018	ND		0.005	0.00017	ND		0.001	0.00027	ND		0.003	0.00086	ND	
MW26	MW-26 032912	L567652-07	3/29/2012	0.001	0.00018	ND		0.005	0.00017	ND		0.001	0.00027	ND		0.003	0.00086	ND	
MW27	MW-27 032812	L567652-01	3/28/2012	0.001	0.00018	ND		0.005	0.00017	ND		0.001	0.00027	ND		0.003	0.00086	ND	

Value exceeds Table 910-1

Table 3. March 2012, Methane, Ethane, Ethene, Chloride Sodium Groundwater Concentrations. Received 6/1/2012 Rifle COGCC

Monitoring Station	Sample ID	Lab ID	Sample Date	Methane (mg/L)				Ethane (mg/L)				Ethene (mg/L)				Chloride (mg/L)				Sodium (mg/L)			
				RDL	MDL	Value	Qual	RDL	MDL	Value	Qual	RDL	MDL	Value	Qual	RDL	MDL	Value	Qual	RDL	MDL	Value	Qual
MW1	MW-1 032912	L567652-17	3/28/2012	0.01	0.0021	ND		0.013	0.004	ND		0.013	0.0057	ND		1	0.053	21		0.5	0.12	170	
MW2	MW-2 032912	L567652-18	3/29/2012	0.2	0.041	11		0.26	0.081	2.3		0.26	0.11	ND		1	0.053	53		0.5	0.12	140	
MW2	DUP-2 032912	L567652-23	3/29/2012	0.2	0.041	12		0.26	0.081	2.8		0.26	0.11	ND		1	0.053	53		0.5	0.12	140	
MW4	MW-4 032912	L567652-19	3/29/2012	0.1	0.021	4.4		0.13	0.04	0.9		0.13	0.057	ND		1	0.053	30		0.5	0.12	110	
MW4	DUP-3 032912	L567652-24	3/29/2012	0.1	0.021	5.4		0.13	0.04	1.1		0.13	0.057	ND		1	0.053	30		0.5	0.12	110	
MW6	MW-6 032912	L567652-12	3/29/2012	0.01	0.0021	ND		0.013	0.004	ND		0.013	0.0057	ND		1	0.053	22		0.5	0.12	120	
MW7	MW-7 032912	L567652-13	3/28/2012	0.01	0.0021	ND		0.013	0.004	ND		0.013	0.0057	ND		1	0.053	29		0.5	0.12	130	
MW8	MW-8 032912	L567652-14	3/29/2012	0.01	0.0021	0.013		0.013	0.004	ND		0.013	0.0057	ND		1	0.053	30		0.5	0.12	150	
MW9	MW-9 032912	L567652-04	3/29/2012	0.1	0.021	6.1		0.13	0.04	1.1		0.13	0.057	ND		1	0.053	23		0.5	0.12	81	
MW11	MW-11 032912	L567652-21	3/28/2012	0.01	0.0021	0.019		0.013	0.004	ND		0.013	0.0057	ND		1	0.053	11		0.5	0.12	32	
MW12	MW-12 032912	L567652-20	3/29/2012	0.01	0.0021	0.099		0.013	0.004	ND		0.013	0.0057	ND		1	0.053	18		0.5	0.12	52	
MW14	MW-14 032912	L567652-05	3/29/2012	0.2	0.041	6.5		0.26	0.081	1.3		0.26	0.11	ND		1	0.053	11		0.5	0.12	46	
MW16	MW-16 032912	L567652-16	3/28/2012	0.01	0.0021	ND		0.013	0.004	ND		0.013	0.0057	ND		1	0.053	29		0.5	0.12	270	
MW17	MW-17 032912	L567652-15	3/29/2012	0.1	0.021	3.5		0.13	0.04	0.76		0.13	0.057	ND		1	0.053	54		0.5	0.12	280	
MW17	DUP-1 032912	L567652-22	3/29/2012	0.1	0.021	3.1		0.13	0.04	0.66		0.13	0.057	ND		1	0.053	49		0.5	0.12	240	
MW18	MW-18 032912	L567652-08	3/28/2012	0.01	0.0021	ND		0.013	0.004	ND		0.013	0.0057	ND		1	0.053	6.5		0.5	0.12	62	
MW20	MW-20 032912	L567652-10	3/28/2012	0.01	0.0021	ND		0.013	0.004	ND		0.013	0.0057	ND		1	0.053	20		0.5	0.12	100	
MW21	MW-21 032912	L567652-11	3/29/2012	0.01	0.0021	ND		0.013	0.004	ND		0.013	0.0057	ND		1	0.053	19		0.5	0.12	280	
MW22	MW-22 032912	L567652-09	3/29/2012	0.01	0.0021	ND		0.013	0.004	ND		0.013	0.0057	ND		1	0.053	34		0.5	0.12	150	
MW23	MW-23 032812	L567652-03	3/28/2012	0.01	0.0021	ND		0.013	0.004	ND		0.013	0.0057	ND		1	0.053	65		0.5	0.12	460	
MW24	MW-24 032912	L567652-06	3/29/2012	0.01	0.0021	ND		0.013	0.004	ND		0.013	0.0057	ND		1	0.053	5.3		0.5	0.12	42	
MW26	MW-26 032912	L567652-07	3/29/2012	0.1	0.021	2.9		0.13	0.04	ND		0.13	0.057	ND		1	0.053	7.6		0.5	0.12	88	
MW27	MW-27-032812	L567652-01	3/28/2012	0.01	0.0021	ND		0.013	0.004	ND		0.013	0.0057	ND		10	0.53	180		0.5	0.12	320	
EICH1	EICH-1 032812	L567652-02	3/28/2012	0.01	0.0021	ND		0.013	0.004	ND		0.013	0.0057	ND		1	0.053	10		0.5	0.12	69	

Table 4. March 2012, Isotech Data.

Received 6/1/2012 Rifle COGCC

Isotech Lab No.	Sample Name	Sample Date	Sample Time	He %	H <sub>2</sub> %	Ar %	O <sub>2</sub> %	CO <sub>2</sub> %	N <sub>2</sub> %	CO %	C <sub>1</sub> %	C <sub>2</sub> %	C <sub>2</sub> H <sub>4</sub> %	C <sub>3</sub> %	C <sub>3</sub> H <sub>6</sub> %	iC <sub>4</sub> %	nC <sub>4</sub> %	iC <sub>5</sub> %	nC <sub>5</sub> %	C <sub>6</sub> + %	δ <sup>13</sup> C <sub>1</sub> ‰	δDC <sub>1</sub> ‰	δ <sup>13</sup> C <sub>2</sub> ‰	δ <sup>13</sup> C <sub>3</sub> ‰	Specific Gravity	BTU	Helium dilution factor
242980	MW-2-032912	3/29/2012	12:40	na	nd	0.519	7.01	1.64	26.35	nd	55.07	6.48	nd	2.10	nd	0.318	0.350	0.0836	0.0329	0.0423	41033.00	-40.6	-187.90	-28.02	-26.080	1	755.00
242981	MW-4-032912	3/29/2012	13:00	na	nd	0.806	6.07	2.99	39.90	0.052	43.35	4.73	nd	1.54	nd	0.238	0.231	0.0630	0.0103	0.0215	41033.00	-39.7	-185.90	-28.08	-25.880	1	582.00
242982	MW-9-032912	3/29/2012	14:20	na	nd	0.89	1.19	4.66	41.70	nd	46.05	4.02	nd	1.100	nd	0.1410	0.1720	0.0398	0.0189	0.0212	41033.00	-41.4	-189.40	-28.3	-25.530	1	579.00
242983	MW-14-032912	3/29/2012	14:40	na	nd	0.54	0.88	7.52	26.30	nd	56.37	5.63	nd	1.890	nd	0.3070	0.3620	0.0914	0.0637	0.0490	41033.00	-39.7	-185.3	-28.4	-26.060	1	750.00
242984	MW-17-032912	3/29/2012	11:40	na	nd	1.44	2.390	5.52	76.87	0.018	12.49	1.21	nd	0.057	nd	0.0003	0.0013	nd	nd	0.0003	41033.00	-45.0	-181.5	-27.3	-18.000	1	150.00
242985	MW-26-032912	3/29/2012	9:25	na	nd	1.21	11.450	7.26	56.47	0.022	23.59	nd	nd	nd	nd	nd	nd	nd	nd	nd	41033.00	-61.3	-305.4			1	239.00

Analysis is of gas extracted from water by headspace equilibration. Analysis has been corrected for helium added to create headspace.

Addition of helium negates the ability to detect native helium and may negate the ability to detect hydrogen.

nd = not detected, na = not analyzed



**Table 5. March 2012 Surface Water Field Parameters**

Received 6/1/2012 Rifle COGCC

Monitoring Station	Temp (°C)	SPC (mS/cm)	DO (mg/L)	pH	ORP (mV)	Water Quality Observations
DCS-1	8.80	0.396	10.35	9.34	152.30	WQ: Lt. Brown, no sheen, no odor, no effer.
DCS-2	8.80	0.391	10.73	9.30	152.90	WQ: Lt. Brown, no sheen, no odor, no effer.
DCS-3	8.40	0.394	10.91	9.30	148.00	WQ: Lt. Brown, no sheen, no odor, no effer.
DCS-4	8.20	0.390	10.66	9.32	148.80	WQ: Lt. Brown, no sheen, no odor, no effer.
DCS-5	7.50	0.389	10.91	9.21	170.00	WQ: Lt. Brown, no sheen, no odor, no effer.
DCS-6	6.30	0.238	11.11	9.23	147.00	WQ: Lt. Brown, no sheen, no odor, no effer.
DCS-7	6.20	0.380	11.23	9.23	128.50	WQ: Lt. Brown, no sheen, no odor, no effer.
DCS-8	5.90	0.386	11.50	9.21	144.50	WQ: Lt. Brown, no sheen, no odor, no effer.

**Table 6. March 2012 West Divide Creek Surface Water BTEX Results**

Received 6/1/2012 Rifle COGCC

Monitoring Station	Sample ID	Lab ID	Sample Date	Benzene (mg/L)				Toluene (mg/L)				Ethylbenzene (mg/L)				Total Xylenes (mg/L)			
				RDL	MDL	Value	Qual	RDL	MDL	Value	Qual	RDL	MDL	Value	Qual	RDL	MDL	Value	Qual
DCS1	DCS-1-032812	L567431-01	3/28/2012	0.001	0.00018	ND		0.005	0.00017	ND		0.001	0.00027	ND		0.003	0.00086	ND	
DCS2	DCS-2-032812	L567431-02	3/28/2012	0.001	0.00018	ND		0.005	0.00017	ND		0.001	0.00027	ND		0.003	0.00086	ND	
DCS3	DCS-3-032812	L567431-03	3/28/2012	0.001	0.00018	ND		0.005	0.00017	ND		0.001	0.00027	ND		0.003	0.00086	ND	
DCS4	DCS-4-032812	L567431-04	3/28/2012	0.001	0.00018	ND		0.005	0.00017	ND		0.001	0.00027	ND		0.003	0.00086	ND	
DCS5	DCS-5-032812	L567431-05	3/28/2012	0.001	0.00018	ND		0.005	0.00017	ND		0.001	0.00027	ND		0.003	0.00086	ND	
DCS6	DCS-6-032812	L567431-06	3/28/2012	0.001	0.00018	ND		0.005	0.00017	ND		0.001	0.00027	ND		0.003	0.00086	ND	
DCS7	DCS-7-032812	L567431-07	3/28/2012	0.001	0.00018	ND		0.005	0.00017	ND		0.001	0.00027	ND		0.003	0.00086	ND	
DCS8	DCS-8-032812	L567431-08	3/28/2012	0.001	0.00018	ND		0.005	0.00017	ND		0.001	0.00027	ND		0.003	0.00086	ND	

Qualifiers:

**Table 7. March 2012 West Divide Creek Surface Water Methane, Ethane, Ethene, Chloride and Sodium Results.** Received 6/1/2012 Rifle COGCC

Monitoring Station	Sample ID	Lab ID	Sample Date	Methane (mg/L)				Ethane (mg/L)				Ethene (mg/L)				Chloride (mg/L)				Sodium (mg/L)			
				RDL	MDL	Value	Qual	RDL	MDL	Value	Qual	RDL	MDL	Value	Qual	RDL	MDL	Value	Qual	RDL	MDL	Value	Qual
DCS1	DCS-1-032812	L567431-01	3/28/2012	0.01	0.0021	ND		0.013	0.004	ND		0.013	0.0057	ND		1	0.053	10		0.5	0.12	33	
DCS2	DCS-2-032812	L567431-02	3/28/2012	0.01	0.0021	ND		0.013	0.004	ND		0.013	0.0057	ND		1	0.053	10		0.5	0.12	32	
DCS3	DCS-3-032812	L567431-03	3/28/2012	0.01	0.0021	ND		0.013	0.004	ND		0.013	0.0057	ND		1	0.053	10		0.5	0.12	32	
DCS4	DCS-4-032812	L567431-04	3/28/2012	0.01	0.0021	ND		0.013	0.004	ND		0.013	0.0057	ND		1	0.053	10		0.5	0.12	32	
DCS5	DCS-5-032812	L567431-05	3/28/2012	0.01	0.0021	ND		0.013	0.004	ND		0.013	0.0057	ND		1	0.053	5.8		0.5	0.12	31	
DCS6	DCS-6-032812	L567431-06	3/28/2012	0.01	0.0021	ND		0.013	0.004	ND		0.013	0.0057	ND		1	0.053	5.8		0.5	0.12	30	
DCS7	DCS-7-032812	L567431-07	3/28/2012	0.01	0.0021	ND		0.013	0.004	ND		0.013	0.0057	ND		1	0.053	6.4		0.5	0.12	31	
DCS8	DCS-8-032812	L567431-08	3/28/2012	0.01	0.0021	ND		0.013	0.004	ND		0.013	0.0057	ND		1	0.053	14		0.5	0.12	30	

Qualifiers:

**Table 8. March 2012, Summary of Duplicate Results.**

Received 6/1/2012 Rifle COGCC

Monitoring Station	Sample ID	Lab ID	Sample Date	Benzene (mg/L)	Toluene (mg/L)	Ethylbenzene (mg/L)	Total Xylenes (mg/L)	Methane (mg/L)	Chloride (mg/L)	Sodium (mg/L)
MW2	MW-2 032912	L567652-18	3/29/12	0.096	<0.0050	0.0019	0.027	11	53	140
MW2	DUP-2 032912	L567652-23	3/29/12	0.093	<0.0050	0.0018	0.027	12	53	140
MW4	MW-4 032912	L567652-19	3/29/12	0.038	<0.0050	<0.0010	0.0046	4.4	30	110
MW4	DUP-3 032912	L567652-24	3/29/12	0.040	<0.0050	<0.0010	0.0048	5.4	30	110
MW17	MW-17 032912	L567652-15	3/29/12	0.035	<0.0050	<0.0010	<0.0030	3.5	54	280
MW17	DUP-1 032912	L567652-22	3/29/12	0.027	<0.0050	<0.0010	<0.0030	3.1	49	240

# APPENDIX A



12065 Lebanon Rd.  
Mt. Juliet, TN 37122  
(615) 758-5858  
1-800-767-5859  
Fax (615) 758-5859  
  
Tax I.D. 62-0814289  
  
Est. 1970

Charlie Jensen  
Encana  
2717 Co. Rd. 215, Ste 100  
Parachute, CO 81635

**Report Summary**

Friday April 06, 2012

Report Number: L567431


Samples Received: 03/29/12

Client Project:

Description: West Divide Creek - 02E

The analytical results in this report are based upon information supplied by you, the client, and are for your exclusive use. If you have any questions regarding this data package, please do not hesitate to call.

Entire Report Reviewed By:

  
Jared Willis , ESC Representative

*Laboratory Certification Numbers*

A2LA - 1461-01, AIHA - 100789, AL - 40660, CA - 01157CA, CT - PH-0197,  
FL - E87487, GA - 923, IN - C-TN-01, KY - 90010, KYUST - 0016,  
NC - ENV375/DW21704/BIO041, ND - R-140. NJ - TN002, NJ NELAP - TN002,  
SC - 84004, TN - 2006, VA - 460132, WV - 233, AZ - 0612,  
MN - 047-999-395, NY - 11742, WI - 998093910, NV - TN000032011-1,  
TX - T104704245-11-3, OK - 9915, PA - 68-02979

Accreditation is only applicable to the test methods specified on each scope of accreditation held by ESC Lab Sciences.  
Note: The use of the preparatory EPA Method 3511 is not approved or endorsed by the CA ELAP.

This report may not be reproduced, except in full, without written approval from ESC Lab Sciences. Where applicable, sampling conducted by ESC is performed per guidance provided in laboratory standard operating procedures: 060302, 060303, and 060304.



12065 Lebanon Rd.  
 Mt. Juliet, TN 37122  
 (615) 758-5858  
 1-800-767-5859  
 Fax (615) 758-5859  
 Tax I.D. 62-0814289  
 Est. 1970

REPORT OF ANALYSIS

Charlie Jensen  
 Encana  
 2717 Co. Rd. 215, Ste 100  
 Parachute, CO 81635

April 06, 2012

Date Received : March 29, 2012  
 Description : West Divide Creek - 02E  
 Sample ID : DCS-1-032812  
 Collected By : Jeffrey Braden  
 Collection Date : 03/28/12 14:11

ESC Sample # : L567431-01  
 Site ID :  
 Project # :

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Chloride	10.	1.0	mg/l	9056	03/30/12	1
Methane	BDL	0.010	mg/l	RSK175	03/31/12	1
Ethane	BDL	0.013	mg/l	RSK175	03/31/12	1
Ethene	BDL	0.013	mg/l	RSK175	03/31/12	1
Sodium	33.	0.50	mg/l	6010B	04/05/12	1
Benzene	BDL	0.0010	mg/l	8260B	03/30/12	1
Toluene	BDL	0.0050	mg/l	8260B	03/30/12	1
Ethylbenzene	BDL	0.0010	mg/l	8260B	03/30/12	1
Total Xylenes	BDL	0.0030	mg/l	8260B	03/30/12	1
Surrogate Recovery						
Toluene-d8	107.		% Rec.	8260B	03/30/12	1
Dibromofluoromethane	110.		% Rec.	8260B	03/30/12	1
a,a,a-Trifluorotoluene	111.		% Rec.	8260B	03/30/12	1
4-Bromofluorobenzene	114.		% Rec.	8260B	03/30/12	1

BDL - Below Detection Limit  
 Det. Limit - Practical Quantitation Limit(PQL)  
 Note:  
 The reported analytical results relate only to the sample submitted.  
 This report shall not be reproduced, except in full, without the written approval from ESC.  
 Reported: 04/06/12 10:46 Printed: 04/06/12 12:29



12065 Lebanon Rd.  
 Mt. Juliet, TN 37122  
 (615) 758-5858  
 1-800-767-5859  
 Fax (615) 758-5859  
 Tax I.D. 62-0814289  
 Est. 1970

REPORT OF ANALYSIS

Charlie Jensen  
 Encana  
 2717 Co. Rd. 215, Ste 100  
 Parachute, CO 81635

April 06, 2012

Date Received : March 29, 2012  
 Description : West Divide Creek - 02E  
 Sample ID : DCS-2-032812  
 Collected By : Jeffrey Braden  
 Collection Date : 03/28/12 14:00

ESC Sample # : L567431-02  
 Site ID :  
 Project # :

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Chloride	10.	1.0	mg/l	9056	03/30/12	1
Methane	BDL	0.010	mg/l	RSK175	03/31/12	1
Ethane	BDL	0.013	mg/l	RSK175	03/31/12	1
Ethene	BDL	0.013	mg/l	RSK175	03/31/12	1
Sodium	32.	0.50	mg/l	6010B	04/05/12	1
Benzene	BDL	0.0010	mg/l	8260B	03/30/12	1
Toluene	BDL	0.0050	mg/l	8260B	03/30/12	1
Ethylbenzene	BDL	0.0010	mg/l	8260B	03/30/12	1
Total Xylenes	BDL	0.0030	mg/l	8260B	03/30/12	1
Surrogate Recovery						
Toluene-d8	109.		% Rec.	8260B	03/30/12	1
Dibromofluoromethane	109.		% Rec.	8260B	03/30/12	1
a,a,a-Trifluorotoluene	112.		% Rec.	8260B	03/30/12	1
4-Bromofluorobenzene	107.		% Rec.	8260B	03/30/12	1

BDL - Below Detection Limit  
 Det. Limit - Practical Quantitation Limit(PQL)  
 Note:  
 The reported analytical results relate only to the sample submitted.  
 This report shall not be reproduced, except in full, without the written approval from ESC.  
 Reported: 04/06/12 10:46 Printed: 04/06/12 12:29





12065 Lebanon Rd.  
 Mt. Juliet, TN 37122  
 (615) 758-5858  
 1-800-767-5859  
 Fax (615) 758-5859  
 Tax I.D. 62-0814289  
 Est. 1970

REPORT OF ANALYSIS

Charlie Jensen  
 Encana  
 2717 Co. Rd. 215, Ste 100  
 Parachute, CO 81635

April 06, 2012

Date Received : March 29, 2012  
 Description : West Divide Creek - 02E  
 Sample ID : DCS-3-032812  
 Collected By : Jeffrey Braden  
 Collection Date : 03/28/12 13:40

ESC Sample # : L567431-03  
 Site ID :  
 Project # :

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Chloride	10.	1.0	mg/l	9056	03/31/12	1
Methane	BDL	0.010	mg/l	RSK175	03/31/12	1
Ethane	BDL	0.013	mg/l	RSK175	03/31/12	1
Ethene	BDL	0.013	mg/l	RSK175	03/31/12	1
Sodium	32.	0.50	mg/l	6010B	04/05/12	1
Benzene	BDL	0.0010	mg/l	8260B	03/30/12	1
Toluene	BDL	0.0050	mg/l	8260B	03/30/12	1
Ethylbenzene	BDL	0.0010	mg/l	8260B	03/30/12	1
Total Xylenes	BDL	0.0030	mg/l	8260B	03/30/12	1
Surrogate Recovery						
Toluene-d8	108.		% Rec.	8260B	03/30/12	1
Dibromofluoromethane	112.		% Rec.	8260B	03/30/12	1
a,a,a-Trifluorotoluene	112.		% Rec.	8260B	03/30/12	1
4-Bromofluorobenzene	112.		% Rec.	8260B	03/30/12	1

BDL - Below Detection Limit  
 Det. Limit - Practical Quantitation Limit(PQL)  
 Note:  
 The reported analytical results relate only to the sample submitted.  
 This report shall not be reproduced, except in full, without the written approval from ESC.  
 Reported: 04/06/12 10:46 Printed: 04/06/12 12:29



12065 Lebanon Rd.  
 Mt. Juliet, TN 37122  
 (615) 758-5858  
 1-800-767-5859  
 Fax (615) 758-5859  
 Tax I.D. 62-0814289  
 Est. 1970

REPORT OF ANALYSIS

Charlie Jensen  
 Encana  
 2717 Co. Rd. 215, Ste 100  
 Parachute, CO 81635

April 06, 2012

Date Received : March 29, 2012  
 Description : West Divide Creek - 02E  
 Sample ID : DCS-4-032812  
 Collected By : Jeffrey Braden  
 Collection Date : 03/28/12 13:20

ESC Sample # : L567431-04  
 Site ID :  
 Project # :

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Chloride	10.	1.0	mg/l	9056	03/31/12	1
Methane	BDL	0.010	mg/l	RSK175	03/31/12	1
Ethane	BDL	0.013	mg/l	RSK175	03/31/12	1
Ethene	BDL	0.013	mg/l	RSK175	03/31/12	1
Sodium	32.	0.50	mg/l	6010B	04/05/12	1
Benzene	BDL	0.0010	mg/l	8260B	03/30/12	1
Toluene	BDL	0.0050	mg/l	8260B	03/30/12	1
Ethylbenzene	BDL	0.0010	mg/l	8260B	03/30/12	1
Total Xylenes	BDL	0.0030	mg/l	8260B	03/30/12	1
Surrogate Recovery						
Toluene-d8	108.		% Rec.	8260B	03/30/12	1
Dibromofluoromethane	109.		% Rec.	8260B	03/30/12	1
a,a,a-Trifluorotoluene	115.		% Rec.	8260B	03/30/12	1
4-Bromofluorobenzene	106.		% Rec.	8260B	03/30/12	1

BDL - Below Detection Limit  
 Det. Limit - Practical Quantitation Limit(PQL)  
 Note:  
 The reported analytical results relate only to the sample submitted.  
 This report shall not be reproduced, except in full, without the written approval from ESC.  
 Reported: 04/06/12 10:46 Printed: 04/06/12 12:29



12065 Lebanon Rd.  
 Mt. Juliet, TN 37122  
 (615) 758-5858  
 1-800-767-5859  
 Fax (615) 758-5859  
 Tax I.D. 62-0814289  
 Est. 1970

REPORT OF ANALYSIS

Charlie Jensen  
 Encana  
 2717 Co. Rd. 215, Ste 100  
 Parachute, CO 81635

April 06, 2012

Date Received : March 29, 2012  
 Description : West Divide Creek - 02E  
 Sample ID : DCS-5-032812  
 Collected By : Jeffrey Braden  
 Collection Date : 03/28/12 12:55

ESC Sample # : L567431-05  
 Site ID :  
 Project # :

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Chloride	5.8	1.0	mg/l	9056	03/30/12	1
Methane	BDL	0.010	mg/l	RSK175	03/31/12	1
Ethane	BDL	0.013	mg/l	RSK175	03/31/12	1
Ethene	BDL	0.013	mg/l	RSK175	03/31/12	1
Sodium	31.	0.50	mg/l	6010B	04/05/12	1
Benzene	BDL	0.0010	mg/l	8260B	03/30/12	1
Toluene	BDL	0.0050	mg/l	8260B	03/30/12	1
Ethylbenzene	BDL	0.0010	mg/l	8260B	03/30/12	1
Total Xylenes	BDL	0.0030	mg/l	8260B	03/30/12	1
Surrogate Recovery						
Toluene-d8	108.		% Rec.	8260B	03/30/12	1
Dibromofluoromethane	111.		% Rec.	8260B	03/30/12	1
a,a,a-Trifluorotoluene	112.		% Rec.	8260B	03/30/12	1
4-Bromofluorobenzene	111.		% Rec.	8260B	03/30/12	1

BDL - Below Detection Limit  
 Det. Limit - Practical Quantitation Limit(PQL)  
 Note:  
 The reported analytical results relate only to the sample submitted.  
 This report shall not be reproduced, except in full, without the written approval from ESC.  
 Reported: 04/06/12 10:46 Printed: 04/06/12 12:29



12065 Lebanon Rd.  
 Mt. Juliet, TN 37122  
 (615) 758-5858  
 1-800-767-5859  
 Fax (615) 758-5859  
 Tax I.D. 62-0814289  
 Est. 1970

REPORT OF ANALYSIS

Charlie Jensen  
 Encana  
 2717 Co. Rd. 215, Ste 100  
 Parachute, CO 81635

April 06, 2012

Date Received : March 29, 2012  
 Description : West Divide Creek - 02E  
 Sample ID : DCS-6-032812  
 Collected By : Jeffrey Braden  
 Collection Date : 03/28/12 12:35

ESC Sample # : L567431-06  
 Site ID :  
 Project # :

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Chloride	5.8	1.0	mg/l	9056	03/30/12	1
Methane	BDL	0.010	mg/l	RSK175	03/31/12	1
Ethane	BDL	0.013	mg/l	RSK175	03/31/12	1
Ethene	BDL	0.013	mg/l	RSK175	03/31/12	1
Sodium	30.	0.50	mg/l	6010B	04/05/12	1
Benzene	BDL	0.0010	mg/l	8260B	03/30/12	1
Toluene	BDL	0.0050	mg/l	8260B	03/30/12	1
Ethylbenzene	BDL	0.0010	mg/l	8260B	03/30/12	1
Total Xylenes	BDL	0.0030	mg/l	8260B	03/30/12	1
Surrogate Recovery						
Toluene-d8	109.		% Rec.	8260B	03/30/12	1
Dibromofluoromethane	111.		% Rec.	8260B	03/30/12	1
a,a,a-Trifluorotoluene	111.		% Rec.	8260B	03/30/12	1
4-Bromofluorobenzene	109.		% Rec.	8260B	03/30/12	1

BDL - Below Detection Limit  
 Det. Limit - Practical Quantitation Limit(PQL)  
 Note:  
 The reported analytical results relate only to the sample submitted.  
 This report shall not be reproduced, except in full, without the written approval from ESC.  
 Reported: 04/06/12 10:46 Printed: 04/06/12 12:29



12065 Lebanon Rd.  
 Mt. Juliet, TN 37122  
 (615) 758-5858  
 1-800-767-5859  
 Fax (615) 758-5859  
 Tax I.D. 62-0814289  
 Est. 1970

REPORT OF ANALYSIS

Charlie Jensen  
 Encana  
 2717 Co. Rd. 215, Ste 100  
 Parachute, CO 81635

April 06, 2012

Date Received : March 29, 2012  
 Description : West Divide Creek - 02E  
 Sample ID : DCS-7-032812  
 Collected By : Jeffrey Braden  
 Collection Date : 03/28/12 12:15

ESC Sample # : L567431-07  
 Site ID :  
 Project # :

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Chloride	6.4	1.0	mg/l	9056	03/31/12	1
Methane	BDL	0.010	mg/l	RSK175	03/31/12	1
Ethane	BDL	0.013	mg/l	RSK175	03/31/12	1
Ethene	BDL	0.013	mg/l	RSK175	03/31/12	1
Sodium	31.	0.50	mg/l	6010B	04/05/12	1
Benzene	BDL	0.0010	mg/l	8260B	03/30/12	1
Toluene	BDL	0.0050	mg/l	8260B	03/30/12	1
Ethylbenzene	BDL	0.0010	mg/l	8260B	03/30/12	1
Total Xylenes	BDL	0.0030	mg/l	8260B	03/30/12	1
Surrogate Recovery						
Toluene-d8	109.		% Rec.	8260B	03/30/12	1
Dibromofluoromethane	111.		% Rec.	8260B	03/30/12	1
a,a,a-Trifluorotoluene	114.		% Rec.	8260B	03/30/12	1
4-Bromofluorobenzene	108.		% Rec.	8260B	03/30/12	1

BDL - Below Detection Limit  
 Det. Limit - Practical Quantitation Limit(PQL)  
 Note:  
 The reported analytical results relate only to the sample submitted.  
 This report shall not be reproduced, except in full, without the written approval from ESC.  
 Reported: 04/06/12 10:46 Printed: 04/06/12 12:29



12065 Lebanon Rd.  
 Mt. Juliet, TN 37122  
 (615) 758-5858  
 1-800-767-5859  
 Fax (615) 758-5859  
 Tax I.D. 62-0814289  
 Est. 1970

REPORT OF ANALYSIS

Charlie Jensen  
 Encana  
 2717 Co. Rd. 215, Ste 100  
 Parachute, CO 81635

April 06, 2012

Date Received : March 29, 2012  
 Description : West Divide Creek - 02E  
 Sample ID : DCS-8-032812  
 Collected By : Jeffrey Braden  
 Collection Date : 03/28/12 11:15

ESC Sample # : L567431-08  
 Site ID :  
 Project # :

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Chloride	14.	1.0	mg/l	9056	03/31/12	1
Methane	BDL	0.010	mg/l	RSK175	03/31/12	1
Ethane	BDL	0.013	mg/l	RSK175	03/31/12	1
Ethene	BDL	0.013	mg/l	RSK175	03/31/12	1
Sodium	30.	0.50	mg/l	6010B	04/05/12	1
Benzene	BDL	0.0010	mg/l	8260B	03/30/12	1
Toluene	BDL	0.0050	mg/l	8260B	03/30/12	1
Ethylbenzene	BDL	0.0010	mg/l	8260B	03/30/12	1
Total Xylenes	BDL	0.0030	mg/l	8260B	03/30/12	1
Surrogate Recovery						
Toluene-d8	102.		% Rec.	8260B	03/30/12	1
Dibromofluoromethane	101.		% Rec.	8260B	03/30/12	1
a,a,a-Trifluorotoluene	105.		% Rec.	8260B	03/30/12	1
4-Bromofluorobenzene	102.		% Rec.	8260B	03/30/12	1

BDL - Below Detection Limit  
 Det. Limit - Practical Quantitation Limit(PQL)  
 Note:  
 The reported analytical results relate only to the sample submitted.  
 This report shall not be reproduced, except in full, without the written approval from ESC.  
 Reported: 04/06/12 10:46 Printed: 04/06/12 12:29

Attachment A  
List of Analytes with QC Qualifiers

Sample Number	Work Group	Sample Type	Analyte	Run ID	Qualifier
L567431-04	WG585451	SAMP	a,a,a-Trifluorotoluene	R2097894	J1

Attachment B  
Explanation of QC Qualifier Codes

Qualifier	Meaning
J1	Surrogate recovery limits have been exceeded; values are outside upper control limits

Qualifier Report Information

ESC utilizes sample and result qualifiers as set forth by the EPA Contract Laboratory Program and as required by most certifying bodies including NELAC. In addition to the EPA qualifiers adopted by ESC, we have implemented ESC qualifiers to provide more information pertaining to our analytical results. Each qualifier is designated in the qualifier explanation as either EPA or ESC. Data qualifiers are intended to provide the ESC client with more detailed information concerning the potential bias of reported data. Because of the wide range of constituents and variety of matrices incorporated by most EPA methods, it is common for some compounds to fall outside of established ranges. These exceptions are evaluated and all reported data is valid and useable "unless qualified as 'R' (Rejected)."

Definitions

- Accuracy** - The relationship of the observed value of a known sample to the true value of a known sample. Represented by percent recovery and relevant to samples such as: control samples, matrix spike recoveries, surrogate recoveries, etc.
- Precision** - The agreement between a set of samples or between duplicate samples. Relates to how close together the results are and is represented by Relative Percent Difference.
- Surrogate** - Organic compounds that are similar in chemical composition, extraction, and chromatography to analytes of interest. The surrogates are used to determine the probable response of the group of analytes that are chemically related to the surrogate compound. Surrogates are added to the sample and carried through all stages of preparation and analyses.
- TIC** - Tentatively Identified Compound: Compounds detected in samples that are not target compounds, internal standards, system monitoring compounds, or surrogates.





**YOUR LAB OF CHOICE**

Encana  
 Charlie Jensen  
 2717 Co. Rd. 215, Ste 100  
 Parachute, CO 81635

Quality Assurance Report  
 Level II

L567431

12065 Lebanon Rd.  
 Mt. Juliet, TN 37122  
 (615) 758-5858  
 1-800-767-5859  
 Fax (615) 758-5859

Tax I.D. 62-0814289

Est. 1970

April 06, 2012

Analyte	Result	Laboratory Blank		Limit	Batch	Date Analyzed
		Units	% Rec			
Chloride	< 1	mg/l			WG585563	03/30/12 06:48
Ethane	< .013	mg/l			WG585727	03/31/12 13:27
Ethene	< .013	mg/l			WG585727	03/31/12 13:27
Methane	< .01	mg/l			WG585727	03/31/12 13:27
Benzene	< .001	mg/l			WG585451	03/29/12 23:30
Ethylbenzene	< .001	mg/l			WG585451	03/29/12 23:30
Methyl tert-butyl ether	< .001	mg/l			WG585451	03/29/12 23:30
Toluene	< .005	mg/l			WG585451	03/29/12 23:30
Total Xylenes	< .003	mg/l			WG585451	03/29/12 23:30
4-Bromofluorobenzene		% Rec.	108.2	82-120	WG585451	03/29/12 23:30
Dibromofluoromethane		% Rec.	106.0	82-126	WG585451	03/29/12 23:30
Toluene-d8		% Rec.	108.9	92-112	WG585451	03/29/12 23:30
a,a,a-Trifluorotoluene		% Rec.	112.4	90-116	WG585451	03/29/12 23:30
Benzene	< .001	mg/l			WG585477	03/30/12 08:00
Ethylbenzene	< .001	mg/l			WG585477	03/30/12 08:00
Methyl tert-butyl ether	< .001	mg/l			WG585477	03/30/12 08:00
Toluene	< .005	mg/l			WG585477	03/30/12 08:00
Total Xylenes	< .003	mg/l			WG585477	03/30/12 08:00
4-Bromofluorobenzene		% Rec.	98.23	82-120	WG585477	03/30/12 08:00
Dibromofluoromethane		% Rec.	96.37	82-126	WG585477	03/30/12 08:00
Toluene-d8		% Rec.	101.6	92-112	WG585477	03/30/12 08:00
a,a,a-Trifluorotoluene		% Rec.	104.3	90-116	WG585477	03/30/12 08:00
Chloride	< 1	mg/l			WG585608	03/31/12 09:56
Chloride	< 1	mg/l			WG585565	03/30/12 21:01
Sodium	< .5	mg/l			WG585471	04/05/12 15:21
Sodium	< .5	mg/l			WG585470	04/05/12 08:20

Analyte	Units	Duplicate		RPD	Limit	Ref Samp	Batch
		Result	Duplicate				
Chloride	mg/l	710.	710.	0.422	20	L567086-01	WG585563
Chloride	mg/l	5.30	5.40	2.25	20	L567427-01	WG585563
Chloride	mg/l	26.0	27.0	3.01	20	L567513-01	WG585608
Chloride	mg/l	10.0	10.0	0.995	20	L567431-01	WG585565
Chloride	mg/l	10.0	10.0	0.300	20	L567431-04	WG585565
Sodium	mg/l	28.0	28.8	1.75	20	L567377-01	WG585471
Sodium	mg/l	1.40	1.40	2.90	20	L567332-04	WG585470

\* Performance of this Analyte is outside of established criteria.  
 For additional information, please see Attachment A 'List of Analytes with QC Qualifiers.'



**YOUR LAB OF CHOICE**

Encana  
 Charlie Jensen  
 2717 Co. Rd. 215, Ste 100  
 Parachute, CO 81635

Quality Assurance Report  
 Level II

L567431

12065 Lebanon Rd.  
 Mt. Juliet, TN 37122  
 (615) 758-5858  
 1-800-767-5859  
 Fax (615) 758-5859

Tax I.D. 62-0814289

Est. 1970

April 06, 2012

Analyte	Units	Laboratory Control Sample		% Rec	Limit	Batch
		Known Val	Result			
Chloride	mg/l	40	40.7	102.	90-110	WG585563
Ethane	mg/l	.645	0.742	115.	70-130	WG585727
Ethene	mg/l	.635	0.724	114.	70-130	WG585727
Methane	mg/l	.339	0.369	109.	70-130	WG585727
Benzene	mg/l	.025	0.0248	99.1	72-119	WG585451
Ethylbenzene	mg/l	.025	0.0247	98.7	77-124	WG585451
Methyl tert-butyl ether	mg/l	.025	0.0260	104.	67-127	WG585451
Toluene	mg/l	.025	0.0247	99.0	75-114	WG585451
Total Xylenes	mg/l	.075	0.0758	101.	77-123	WG585451
4-Bromofluorobenzene				102.1	82-120	WG585451
Dibromofluoromethane				109.5	82-126	WG585451
Toluene-d8				102.6	92-112	WG585451
a,a,a-Trifluorotoluene				107.3	90-116	WG585451
Benzene	mg/l	.025	0.0229	91.5	72-119	WG585477
Ethylbenzene	mg/l	.025	0.0234	93.4	77-124	WG585477
Methyl tert-butyl ether	mg/l	.025	0.0239	95.5	67-127	WG585477
Toluene	mg/l	.025	0.0219	87.4	75-114	WG585477
Total Xylenes	mg/l	.075	0.0697	92.9	77-123	WG585477
4-Bromofluorobenzene				100.3	82-120	WG585477
Dibromofluoromethane				101.6	82-126	WG585477
Toluene-d8				99.96	92-112	WG585477
a,a,a-Trifluorotoluene				104.5	90-116	WG585477
Chloride	mg/l	40	40.1	100.	90-110	WG585608
Chloride	mg/l	40	39.8	99.5	90-110	WG585565
Sodium	mg/l	11.3	10.9	96.5	85-115	WG585471
Sodium	mg/l	11.3	11.6	103.	85-115	WG585470

Analyte	Units	Laboratory Control Sample Duplicate		Limit	RPD	Limit	Batch	
		Result	Ref					%Rec
Chloride	mg/l	40.6	40.7	102.	90-110	0.246	20	WG585563
Ethane	mg/l	0.743	0.742	115.	70-130	0.0800	25	WG585727
Ethene	mg/l	0.725	0.724	114.	70-130	0.130	25	WG585727
Methane	mg/l	0.366	0.369	108.	70-130	0.800	25	WG585727
Benzene	mg/l	0.0254	0.0248	102.	72-119	2.59	20	WG585451
Ethylbenzene	mg/l	0.0261	0.0247	104.	77-124	5.65	20	WG585451
Methyl tert-butyl ether	mg/l	0.0270	0.0260	108.	67-127	3.87	20	WG585451
Toluene	mg/l	0.0254	0.0247	102.	75-114	2.61	20	WG585451
Total Xylenes	mg/l	0.0772	0.0758	103.	77-123	1.88	20	WG585451
4-Bromofluorobenzene				105.0	82-120			WG585451
Dibromofluoromethane				111.7	82-126			WG585451

\* Performance of this Analyte is outside of established criteria.  
 For additional information, please see Attachment A 'List of Analytes with QC Qualifiers.'



**YOUR LAB OF CHOICE**

Encana  
 Charlie Jensen  
 2717 Co. Rd. 215, Ste 100  
 Parachute, CO 81635

Quality Assurance Report  
 Level II

L567431

12065 Lebanon Rd.  
 Mt. Juliet, TN 37122  
 (615) 758-5858  
 1-800-767-5859  
 Fax (615) 758-5859

Tax I.D. 62-0814289

Est. 1970

April 06, 2012

Analyte	Units	Laboratory Control		Sample Duplicate		Limit	RPD	Limit	Batch
		Result	Ref	%Rec					
Toluene-d8				104.5		92-112			
a,a,a-Trifluorotoluene				107.8		90-116			
Benzene	mg/l	0.0263	0.0229	105.		72-119	14.0	20	WG585477
Ethylbenzene	mg/l	0.0277	0.0234	111.		77-124	16.9	20	WG585477
Methyl tert-butyl ether	mg/l	0.0283	0.0239	113.		67-127	17.1	20	WG585477
Toluene	mg/l	0.0254	0.0219	101.		75-114	14.9	20	WG585477
Total Xylenes	mg/l	0.0825	0.0697	110.		77-123	16.8	20	WG585477
4-Bromofluorobenzene				101.6		82-120			WG585477
Dibromofluoromethane				100.7		82-126			WG585477
Toluene-d8				99.85		92-112			WG585477
a,a,a-Trifluorotoluene				106.7		90-116			WG585477
Chloride	mg/l	40.0	40.1	100.		90-110	0.250	20	WG585608
Chloride	mg/l	39.7	39.8	99.0		90-110	0.252	20	WG585565

Analyte	Units	MS Res	Matrix Spike		% Rec	Limit	Ref Samp	Batch
			Ref Res	TV				
Benzene	mg/l	0.0342	0.0120	.025	88.9	51-134	L567426-02	WG585451
Ethylbenzene	mg/l	0.0272	0.00420	.025	91.9	64-135	L567426-02	WG585451
Methyl tert-butyl ether	mg/l	0.285	0.280	.025	21.7*	55-136	L567426-02	WG585451
Toluene	mg/l	0.0244	0.000520	.025	95.4	61-126	L567426-02	WG585451
Total Xylenes	mg/l	0.112	0.0460	.075	88.4	64-133	L567426-02	WG585451
4-Bromofluorobenzene					104.4	82-120		WG585451
Dibromofluoromethane					109.2	82-126		WG585451
Toluene-d8					102.5	92-112		WG585451
a,a,a-Trifluorotoluene					105.4	90-116		WG585451
Benzene	mg/l	0.0252	0	.025	101.	51-134	L567431-08	WG585477
Ethylbenzene	mg/l	0.0268	0	.025	107.	64-135	L567431-08	WG585477
Methyl tert-butyl ether	mg/l	0.0254	0	.025	102.	55-136	L567431-08	WG585477
Toluene	mg/l	0.0247	0	.025	98.6	61-126	L567431-08	WG585477
Total Xylenes	mg/l	0.0791	0	.075	106.	64-133	L567431-08	WG585477
4-Bromofluorobenzene					101.3	82-120		WG585477
Dibromofluoromethane					101.2	82-126		WG585477
Toluene-d8					101.0	92-112		WG585477
a,a,a-Trifluorotoluene					104.1	90-116		WG585477
Chloride	mg/l	88.3	41.0	50	94.6	80-120	L567449-05	WG585565
Sodium	mg/l	41.1	28.8	11.3	109.	75-125	L567377-01	WG585471
Sodium	mg/l	12.6	1.40	11.3	99.1	75-125	L567332-04	WG585470

Analyte	Units	MSD	Matrix Spike Duplicate		Limit	RPD	Limit	Ref Samp	Batch
			Ref	%Rec					
Benzene	mg/l	0.0361	0.0342	96.3	51-134	5.25	20	L567426-02	WG585451
Ethylbenzene	mg/l	0.0283	0.0272	96.4	64-135	4.09	20	L567426-02	WG585451
Methyl tert-butyl ether	mg/l	0.293	0.285	52.7*	55-136	2.68	20	L567426-02	WG585451
Toluene	mg/l	0.0254	0.0244	99.5	61-126	4.06	20	L567426-02	WG585451
Total Xylenes	mg/l	0.113	0.112	89.8	64-133	0.950	20	L567426-02	WG585451

\* Performance of this Analyte is outside of established criteria.  
 For additional information, please see Attachment A 'List of Analytes with QC Qualifiers.'



YOUR LAB OF CHOICE

Encana  
Charlie Jensen  
2717 Co. Rd. 215, Ste 100  
Parachute, CO 81635

Quality Assurance Report  
Level II

L567431

12065 Lebanon Rd.  
Mt. Juliet, TN 37122  
(615) 758-5858  
1-800-767-5859  
Fax (615) 758-5859

Tax I.D. 62-0814289

Est. 1970

April 06, 2012

Analyte	Units	MSD	Matrix Spike Duplicate		Limit	RPD	Limit	Ref Samp	Batch
			Ref	%Rec					
4-Bromofluorobenzene				102.9	82-120				
Dibromofluoromethane				109.2	82-126				
Toluene-d8				104.0	92-112				
a,a,a-Trifluorotoluene				107.2	90-116				
Benzene	mg/l	0.0258	0.0252	103.	51-134	2.45	20	L567431-08	WG585477
Ethylbenzene	mg/l	0.0270	0.0268	108.	64-135	0.520	20	L567431-08	WG585477
Methyl tert-butyl ether	mg/l	0.0263	0.0254	105.	55-136	3.37	20	L567431-08	WG585477
Toluene	mg/l	0.0253	0.0247	101.	61-126	2.61	20	L567431-08	WG585477
Total Xylenes	mg/l	0.0795	0.0791	106.	64-133	0.400	20	L567431-08	WG585477
4-Bromofluorobenzene				98.66	82-120				WG585477
Dibromofluoromethane				101.1	82-126				WG585477
Toluene-d8				100.3	92-112				WG585477
a,a,a-Trifluorotoluene				103.6	90-116				WG585477
Chloride	mg/l	89.1	88.3	96.2	80-120	0.902	20	L567449-05	WG585565
Sodium	mg/l	40.8	41.1	106.	75-125	0.733	20	L567377-01	WG585471
Sodium	mg/l	12.9	12.6	102.	75-125	2.35	20	L567332-04	WG585470

## Batch number /Run number / Sample number cross reference

WG585563: R2097313: L567431-05 06  
 WG585727: R2097593: L567431-01 02 03 04 05 06 07 08  
 WG585451: R2097894: L567431-01 02 03 04 05 06 07  
 WG585477: R2099953: L567431-08  
 WG585608: R2100014: L567431-07 08  
 WG585565: R2100273: L567431-01 02 03 04  
 WG585471: R2107473: L567431-08  
 WG585470: R2107638: L567431-01 02 03 04 05 06 07

\* \* Calculations are performed prior to rounding of reported values.

\* Performance of this Analyte is outside of established criteria.

For additional information, please see Attachment A 'List of Analytes with QC Qualifiers.'



**YOUR LAB OF CHOICE**

Encana  
Charlie Jensen  
2717 Co. Rd. 215, Ste 100  
Parachute, CO 81635

Quality Assurance Report  
Level II

L567431

12065 Lebanon Rd.  
Mt. Juliet, TN 37122  
(615) 758-5858  
1-800-767-5859  
Fax (615) 758-5859

Tax I.D. 62-0814289

Est. 1970

April 06, 2012

The data package includes a summary of the analytic results of the quality control samples required by the SW-846 or CWA methods. The quality control samples include a method blank, a laboratory control sample, and the matrix spike/matrix spike duplicate analysis. If a target parameter is outside the method limits, every sample that is effected is flagged with the appropriate qualifier in Appendix B of the analytic report.

Method Blank - an aliquot of reagent water carried through the entire analytic process. The method blank results indicate if any possible contamination exposure during the sample handling, digestion or extraction process, and analysis. Concentrations of target analytes above the reporting limit in the method blank are qualified with the "B" qualifier.

Laboratory Control Sample - is a sample of known concentration that is carried through the digestion/extraction and analysis process. The percent recovery, expressed as a percentage of the theoretical concentration, has statistical control limits indicating that the analytic process is "in control". If a target analyte is outside the control limits for the laboratory control sample or any other control sample, the parameter is flagged with a "J4" qualifier for all effected samples.

Matrix Spike and Matrix Spike Duplicate - is two aliquots of an environmental sample that is spiked with known concentrations of target analytes. The percent recovery of the target analytes also has statistical control limits. If any recoveries that are outside the method control limits, the sample that was selected for matrix spike/matrix spike duplicate analysis is flagged with either a "J5" or a "J6". The relative percent difference (%RPD) between the matrix spike and the matrix spike duplicate recoveries is all calculated. If the RPD is above the method limit, the effected samples are flagged with a "J3" qualifier.



12065 Lebanon Rd.  
Mt. Juliet, TN 37122  
(615) 758-5858  
1-800-767-5859  
Fax (615) 758-5859  
  
Tax I.D. 62-0814289  
  
Est. 1970

Charlie Jensen  
Encana  
2717 Co. Rd. 215, Ste 100  
Parachute, CO 81635

**Report Summary**


Thursday April 05, 2012

Report Number: L567652  
Samples Received: 03/30/12  
Client Project:

Description: West Divide Creek - 02E

The analytical results in this report are based upon information supplied by you, the client, and are for your exclusive use. If you have any questions regarding this data package, please do not hesitate to call.

Entire Report Reviewed By:

  
Jared Willis , ESC Representative

*Laboratory Certification Numbers*

A2LA - 1461-01, AIHA - 100789, AL - 40660, CA - 01157CA, CT - PH-0197,  
FL - E87487, GA - 923, IN - C-TN-01, KY - 90010, KYUST - 0016,  
NC - ENV375/DW21704/BIO041, ND - R-140. NJ - TN002, NJ NELAP - TN002,  
SC - 84004, TN - 2006, VA - 460132, WV - 233, AZ - 0612,  
MN - 047-999-395, NY - 11742, WI - 998093910, NV - TN000032011-1,  
TX - T104704245-11-3, OK - 9915, PA - 68-02979

Accreditation is only applicable to the test methods specified on each scope of accreditation held by ESC Lab Sciences.  
Note: The use of the preparatory EPA Method 3511 is not approved or endorsed by the CA ELAP.

This report may not be reproduced, except in full, without written approval from ESC Lab Sciences. Where applicable, sampling conducted by ESC is performed per guidance provided in laboratory standard operating procedures: 060302, 060303, and 060304.



12065 Lebanon Rd.  
 Mt. Juliet, TN 37122  
 (615) 758-5858  
 1-800-767-5859  
 Fax (615) 758-5859  
 Tax I.D. 62-0814289  
 Est. 1970

REPORT OF ANALYSIS

Charlie Jensen  
 Encana  
 2717 Co. Rd. 215, Ste 100  
 Parachute, CO 81635

April 05, 2012

Date Received : March 30, 2012  
 Description : West Divide Creek - 02E  
 Sample ID : MW-27-032812  
 Collected By : Jeff Braden  
 Collection Date : 03/28/12 09:40

ESC Sample # : L567652-01  
 Site ID :  
 Project # :

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Chloride	180	10.	mg/l	9056	04/02/12	10
Methane	BDL	0.010	mg/l	RSK175	04/03/12	1
Ethane	BDL	0.013	mg/l	RSK175	04/03/12	1
Ethene	BDL	0.013	mg/l	RSK175	04/03/12	1
Sodium	320	0.50	mg/l	6010B	04/04/12	1
Benzene	BDL	0.0010	mg/l	8260B	03/31/12	1
Toluene	BDL	0.0050	mg/l	8260B	03/31/12	1
Ethylbenzene	BDL	0.0010	mg/l	8260B	03/31/12	1
Total Xylenes	BDL	0.0030	mg/l	8260B	03/31/12	1
Surrogate Recovery						
Toluene-d8	102.		% Rec.	8260B	03/31/12	1
Dibromofluoromethane	103.		% Rec.	8260B	03/31/12	1
a,a,a-Trifluorotoluene	104.		% Rec.	8260B	03/31/12	1
4-Bromofluorobenzene	103.		% Rec.	8260B	03/31/12	1

BDL - Below Detection Limit  
 Det. Limit - Practical Quantitation Limit(PQL)  
 Note:  
 The reported analytical results relate only to the sample submitted.  
 This report shall not be reproduced, except in full, without the written approval from ESC.  
 Reported: 04/05/12 10:24 Printed: 04/05/12 10:24



12065 Lebanon Rd.  
 Mt. Juliet, TN 37122  
 (615) 758-5858  
 1-800-767-5859  
 Fax (615) 758-5859  
 Tax I.D. 62-0814289  
 Est. 1970

REPORT OF ANALYSIS

Charlie Jensen  
 Encana  
 2717 Co. Rd. 215, Ste 100  
 Parachute, CO 81635

April 05, 2012

Date Received : March 30, 2012  
 Description : West Divide Creek - 02E  
 Sample ID : EICH-1 032812  
 Collected By : Jeff Braden  
 Collection Date : 03/28/12 10:00

ESC Sample # : L567652-02  
 Site ID :  
 Project # :

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Chloride	10.	1.0	mg/l	9056	04/02/12	1
Methane	BDL	0.010	mg/l	RSK175	04/03/12	1
Ethane	BDL	0.013	mg/l	RSK175	04/03/12	1
Ethene	BDL	0.013	mg/l	RSK175	04/03/12	1
Sodium	69.	0.50	mg/l	6010B	04/04/12	1
Benzene	BDL	0.0010	mg/l	8260B	03/31/12	1
Toluene	BDL	0.0050	mg/l	8260B	03/31/12	1
Ethylbenzene	BDL	0.0010	mg/l	8260B	03/31/12	1
Total Xylenes	BDL	0.0030	mg/l	8260B	03/31/12	1
Surrogate Recovery						
Toluene-d8	101.		% Rec.	8260B	03/31/12	1
Dibromofluoromethane	102.		% Rec.	8260B	03/31/12	1
a,a,a-Trifluorotoluene	102.		% Rec.	8260B	03/31/12	1
4-Bromofluorobenzene	99.4		% Rec.	8260B	03/31/12	1

BDL - Below Detection Limit  
 Det. Limit - Practical Quantitation Limit(PQL)  
 Note:  
 The reported analytical results relate only to the sample submitted.  
 This report shall not be reproduced, except in full, without the written approval from ESC.  
 Reported: 04/05/12 10:24 Printed: 04/05/12 10:24





12065 Lebanon Rd.  
 Mt. Juliet, TN 37122  
 (615) 758-5858  
 1-800-767-5859  
 Fax (615) 758-5859  
 Tax I.D. 62-0814289  
 Est. 1970

REPORT OF ANALYSIS

Charlie Jensen  
 Encana  
 2717 Co. Rd. 215, Ste 100  
 Parachute, CO 81635

April 05, 2012

Date Received : March 30, 2012  
 Description : West Divide Creek - 02E  
 Sample ID : MW-23 032812  
 Collected By : Jeff Braden  
 Collection Date : 03/28/12 10:30

ESC Sample # : L567652-03  
 Site ID :  
 Project # :

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Chloride	65.	1.0	mg/l	9056	04/02/12	1
Methane	BDL	0.010	mg/l	RSK175	04/03/12	1
Ethane	BDL	0.013	mg/l	RSK175	04/03/12	1
Ethene	BDL	0.013	mg/l	RSK175	04/03/12	1
Sodium	460	0.50	mg/l	6010B	04/04/12	1
Benzene	BDL	0.0010	mg/l	8260B	03/31/12	1
Toluene	BDL	0.0050	mg/l	8260B	03/31/12	1
Ethylbenzene	BDL	0.0010	mg/l	8260B	03/31/12	1
Total Xylenes	BDL	0.0030	mg/l	8260B	03/31/12	1
Surrogate Recovery						
Toluene-d8	102.		% Rec.	8260B	03/31/12	1
Dibromofluoromethane	103.		% Rec.	8260B	03/31/12	1
a,a,a-Trifluorotoluene	104.		% Rec.	8260B	03/31/12	1
4-Bromofluorobenzene	101.		% Rec.	8260B	03/31/12	1

BDL - Below Detection Limit  
 Det. Limit - Practical Quantitation Limit(PQL)  
 Note:  
 The reported analytical results relate only to the sample submitted.  
 This report shall not be reproduced, except in full, without the written approval from ESC.  
 Reported: 04/05/12 10:24 Printed: 04/05/12 10:24



12065 Lebanon Rd.  
 Mt. Juliet, TN 37122  
 (615) 758-5858  
 1-800-767-5859  
 Fax (615) 758-5859  
 Tax I.D. 62-0814289  
 Est. 1970

REPORT OF ANALYSIS

Charlie Jensen  
 Encana  
 2717 Co. Rd. 215, Ste 100  
 Parachute, CO 81635

April 05, 2012

Date Received : March 30, 2012  
 Description : West Divide Creek - 02E  
 Sample ID : MW-9 032912  
 Collected By : Jeff Braden  
 Collection Date : 03/29/12 14:20

ESC Sample # : L567652-04  
 Site ID :  
 Project # :

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Chloride	23.	1.0	mg/l	9056	04/03/12	1
Methane	6.1	0.10	mg/l	RSK175	04/03/12	10
Ethane	1.1	0.13	mg/l	RSK175	04/03/12	10
Ethene	BDL	0.13	mg/l	RSK175	04/03/12	10
Sodium	81.	0.50	mg/l	6010B	04/04/12	1
Benzene	0.0013	0.0010	mg/l	8260B	03/31/12	1
Toluene	BDL	0.0050	mg/l	8260B	03/31/12	1
Ethylbenzene	BDL	0.0010	mg/l	8260B	03/31/12	1
Total Xylenes	BDL	0.0030	mg/l	8260B	03/31/12	1
Surrogate Recovery						
Toluene-d8	100.		% Rec.	8260B	03/31/12	1
Dibromofluoromethane	104.		% Rec.	8260B	03/31/12	1
a,a,a-Trifluorotoluene	103.		% Rec.	8260B	03/31/12	1
4-Bromofluorobenzene	103.		% Rec.	8260B	03/31/12	1

BDL - Below Detection Limit  
 Det. Limit - Practical Quantitation Limit(PQL)  
 Note:  
 The reported analytical results relate only to the sample submitted.  
 This report shall not be reproduced, except in full, without the written approval from ESC.  
 Reported: 04/05/12 10:24 Printed: 04/05/12 10:24



12065 Lebanon Rd.  
 Mt. Juliet, TN 37122  
 (615) 758-5858  
 1-800-767-5859  
 Fax (615) 758-5859  
 Tax I.D. 62-0814289  
 Est. 1970

REPORT OF ANALYSIS

Charlie Jensen  
 Encana  
 2717 Co. Rd. 215, Ste 100  
 Parachute, CO 81635

April 05, 2012

Date Received : March 30, 2012  
 Description : West Divide Creek - 02E  
 Sample ID : MW-14 032912  
 Collected By : Jeff Braden  
 Collection Date : 03/29/12 14:40

ESC Sample # : L567652-05  
 Site ID :  
 Project # :

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Chloride	11.	1.0	mg/l	9056	04/03/12	1
Methane	6.5	0.20	mg/l	RSK175	04/03/12	20
Ethane	1.3	0.26	mg/l	RSK175	04/03/12	20
Ethene	BDL	0.26	mg/l	RSK175	04/03/12	20
Sodium	46.	0.50	mg/l	6010B	04/04/12	1
Benzene	BDL	0.0010	mg/l	8260B	03/31/12	1
Toluene	BDL	0.0050	mg/l	8260B	03/31/12	1
Ethylbenzene	BDL	0.0010	mg/l	8260B	03/31/12	1
Total Xylenes	BDL	0.0030	mg/l	8260B	03/31/12	1
Surrogate Recovery						
Toluene-d8	101.		% Rec.	8260B	03/31/12	1
Dibromofluoromethane	107.		% Rec.	8260B	03/31/12	1
a,a,a-Trifluorotoluene	102.		% Rec.	8260B	03/31/12	1
4-Bromofluorobenzene	102.		% Rec.	8260B	03/31/12	1

BDL - Below Detection Limit  
 Det. Limit - Practical Quantitation Limit(PQL)  
 Note:  
 The reported analytical results relate only to the sample submitted.  
 This report shall not be reproduced, except in full, without the written approval from ESC.  
 Reported: 04/05/12 10:24 Printed: 04/05/12 10:24



12065 Lebanon Rd.  
 Mt. Juliet, TN 37122  
 (615) 758-5858  
 1-800-767-5859  
 Fax (615) 758-5859  
 Tax I.D. 62-0814289  
 Est. 1970

REPORT OF ANALYSIS

Charlie Jensen  
 Encana  
 2717 Co. Rd. 215, Ste 100  
 Parachute, CO 81635

April 05, 2012

Date Received : March 30, 2012  
 Description : West Divide Creek - 02E  
 Sample ID : MW-24 032912  
 Collected By : Jeff Braden  
 Collection Date : 03/29/12 08:45

ESC Sample # : L567652-06  
 Site ID :  
 Project # :

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Chloride	5.3	1.0	mg/l	9056	04/03/12	1
Methane	BDL	0.010	mg/l	RSK175	04/03/12	1
Ethane	BDL	0.013	mg/l	RSK175	04/03/12	1
Ethene	BDL	0.013	mg/l	RSK175	04/03/12	1
Sodium	42.	0.50	mg/l	6010B	04/04/12	1
Benzene	BDL	0.0010	mg/l	8260B	03/31/12	1
Toluene	BDL	0.0050	mg/l	8260B	03/31/12	1
Ethylbenzene	BDL	0.0010	mg/l	8260B	03/31/12	1
Total Xylenes	BDL	0.0030	mg/l	8260B	03/31/12	1
Surrogate Recovery						
Toluene-d8	101.		% Rec.	8260B	03/31/12	1
Dibromofluoromethane	104.		% Rec.	8260B	03/31/12	1
a,a,a-Trifluorotoluene	101.		% Rec.	8260B	03/31/12	1
4-Bromofluorobenzene	102.		% Rec.	8260B	03/31/12	1

BDL - Below Detection Limit  
 Det. Limit - Practical Quantitation Limit(PQL)  
 Note:  
 The reported analytical results relate only to the sample submitted.  
 This report shall not be reproduced, except in full, without the written approval from ESC.  
 Reported: 04/05/12 10:24 Printed: 04/05/12 10:24



12065 Lebanon Rd.  
 Mt. Juliet, TN 37122  
 (615) 758-5858  
 1-800-767-5859  
 Fax (615) 758-5859  
 Tax I.D. 62-0814289  
 Est. 1970

REPORT OF ANALYSIS

Charlie Jensen  
 Encana  
 2717 Co. Rd. 215, Ste 100  
 Parachute, CO 81635

April 05, 2012

Date Received : March 30, 2012  
 Description : West Divide Creek - 02E  
 Sample ID : MW-26 032912  
 Collected By : Jeff Braden  
 Collection Date : 03/29/12 09:25

ESC Sample # : L567652-07  
 Site ID :  
 Project # :

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Chloride	7.6	1.0	mg/l	9056	04/03/12	1
Methane	2.9	0.10	mg/l	RSK175	04/04/12	10
Ethane	BDL	0.13	mg/l	RSK175	04/04/12	10
Ethene	BDL	0.13	mg/l	RSK175	04/04/12	10
Sodium	88.	0.50	mg/l	6010B	04/04/12	1
Benzene	BDL	0.0010	mg/l	8260B	03/31/12	1
Toluene	BDL	0.0050	mg/l	8260B	03/31/12	1
Ethylbenzene	BDL	0.0010	mg/l	8260B	03/31/12	1
Total Xylenes	BDL	0.0030	mg/l	8260B	03/31/12	1
Surrogate Recovery						
Toluene-d8	101.		% Rec.	8260B	03/31/12	1
Dibromofluoromethane	102.		% Rec.	8260B	03/31/12	1
a,a,a-Trifluorotoluene	102.		% Rec.	8260B	03/31/12	1
4-Bromofluorobenzene	107.		% Rec.	8260B	03/31/12	1

BDL - Below Detection Limit  
 Det. Limit - Practical Quantitation Limit(PQL)  
 Note:  
 The reported analytical results relate only to the sample submitted.  
 This report shall not be reproduced, except in full, without the written approval from ESC.  
 Reported: 04/05/12 10:24 Printed: 04/05/12 10:24



12065 Lebanon Rd.  
 Mt. Juliet, TN 37122  
 (615) 758-5858  
 1-800-767-5859  
 Fax (615) 758-5859  
 Tax I.D. 62-0814289  
 Est. 1970

REPORT OF ANALYSIS

Charlie Jensen  
 Encana  
 2717 Co. Rd. 215, Ste 100  
 Parachute, CO 81635

April 05, 2012

Date Received : March 30, 2012  
 Description : West Divide Creek - 02E  
 Sample ID : MW-18 032912  
 Collected By : Jeff Braden  
 Collection Date : 03/29/12 09:45

ESC Sample # : L567652-08  
 Site ID :  
 Project # :

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Chloride	6.5	1.0	mg/l	9056	04/03/12	1
Methane	BDL	0.010	mg/l	RSK175	04/03/12	1
Ethane	BDL	0.013	mg/l	RSK175	04/03/12	1
Ethene	BDL	0.013	mg/l	RSK175	04/03/12	1
Sodium	62.	0.50	mg/l	6010B	04/04/12	1
Benzene	BDL	0.0010	mg/l	8260B	03/31/12	1
Toluene	BDL	0.0050	mg/l	8260B	03/31/12	1
Ethylbenzene	BDL	0.0010	mg/l	8260B	03/31/12	1
Total Xylenes	BDL	0.0030	mg/l	8260B	03/31/12	1
Surrogate Recovery						
Toluene-d8	102.		% Rec.	8260B	03/31/12	1
Dibromofluoromethane	106.		% Rec.	8260B	03/31/12	1
a,a,a-Trifluorotoluene	109.		% Rec.	8260B	03/31/12	1
4-Bromofluorobenzene	101.		% Rec.	8260B	03/31/12	1

BDL - Below Detection Limit  
 Det. Limit - Practical Quantitation Limit(PQL)  
 Note:  
 The reported analytical results relate only to the sample submitted.  
 This report shall not be reproduced, except in full, without the written approval from ESC.  
 Reported: 04/05/12 10:24 Printed: 04/05/12 10:24



12065 Lebanon Rd.  
 Mt. Juliet, TN 37122  
 (615) 758-5858  
 1-800-767-5859  
 Fax (615) 758-5859  
 Tax I.D. 62-0814289  
 Est. 1970

REPORT OF ANALYSIS

Charlie Jensen  
 Encana  
 2717 Co. Rd. 215, Ste 100  
 Parachute, CO 81635

April 05, 2012

Date Received : March 30, 2012  
 Description : West Divide Creek - 02E  
 Sample ID : MW-22 032912  
 Collected By : Jeff Braden  
 Collection Date : 03/29/12 10:00

ESC Sample # : L567652-09  
 Site ID :  
 Project # :

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Chloride	34.	1.0	mg/l	9056	04/03/12	1
Methane	BDL	0.010	mg/l	RSK175	04/03/12	1
Ethane	BDL	0.013	mg/l	RSK175	04/03/12	1
Ethene	BDL	0.013	mg/l	RSK175	04/03/12	1
Sodium	150	0.50	mg/l	6010B	04/04/12	1
Benzene	BDL	0.0010	mg/l	8260B	03/31/12	1
Toluene	BDL	0.0050	mg/l	8260B	03/31/12	1
Ethylbenzene	BDL	0.0010	mg/l	8260B	03/31/12	1
Total Xylenes	BDL	0.0030	mg/l	8260B	03/31/12	1
Surrogate Recovery						
Toluene-d8	99.6		% Rec.	8260B	03/31/12	1
Dibromofluoromethane	121.		% Rec.	8260B	03/31/12	1
a,a,a-Trifluorotoluene	103.		% Rec.	8260B	03/31/12	1
4-Bromofluorobenzene	90.7		% Rec.	8260B	03/31/12	1

BDL - Below Detection Limit  
 Det. Limit - Practical Quantitation Limit(PQL)  
 Note:  
 The reported analytical results relate only to the sample submitted.  
 This report shall not be reproduced, except in full, without the written approval from ESC.  
 Reported: 04/05/12 10:24 Printed: 04/05/12 10:24



12065 Lebanon Rd.  
 Mt. Juliet, TN 37122  
 (615) 758-5858  
 1-800-767-5859  
 Fax (615) 758-5859  
 Tax I.D. 62-0814289  
 Est. 1970

REPORT OF ANALYSIS

Charlie Jensen  
 Encana  
 2717 Co. Rd. 215, Ste 100  
 Parachute, CO 81635

April 05, 2012

Date Received : March 30, 2012  
 Description : West Divide Creek - 02E  
 Sample ID : MW-20 032912  
 Collected By : Jeff Braden  
 Collection Date : 03/29/12 10:15

ESC Sample # : L567652-10  
 Site ID :  
 Project # :

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Chloride	20.	1.0	mg/l	9056	04/03/12	1
Methane	BDL	0.010	mg/l	RSK175	04/03/12	1
Ethane	BDL	0.013	mg/l	RSK175	04/03/12	1
Ethene	BDL	0.013	mg/l	RSK175	04/03/12	1
Sodium	100	0.50	mg/l	6010B	04/04/12	1
Benzene	BDL	0.0010	mg/l	8260B	03/31/12	1
Toluene	BDL	0.0050	mg/l	8260B	03/31/12	1
Ethylbenzene	BDL	0.0010	mg/l	8260B	03/31/12	1
Total Xylenes	BDL	0.0030	mg/l	8260B	03/31/12	1
Surrogate Recovery						
Toluene-d8	99.2		% Rec.	8260B	03/31/12	1
Dibromofluoromethane	119.		% Rec.	8260B	03/31/12	1
a,a,a-Trifluorotoluene	101.		% Rec.	8260B	03/31/12	1
4-Bromofluorobenzene	89.9		% Rec.	8260B	03/31/12	1

BDL - Below Detection Limit  
 Det. Limit - Practical Quantitation Limit(PQL)  
 Note:  
 The reported analytical results relate only to the sample submitted.  
 This report shall not be reproduced, except in full, without the written approval from ESC.  
 Reported: 04/05/12 10:24 Printed: 04/05/12 10:24





12065 Lebanon Rd.  
 Mt. Juliet, TN 37122  
 (615) 758-5858  
 1-800-767-5859  
 Fax (615) 758-5859  
 Tax I.D. 62-0814289  
 Est. 1970

REPORT OF ANALYSIS

Charlie Jensen  
 Encana  
 2717 Co. Rd. 215, Ste 100  
 Parachute, CO 81635

April 05, 2012

Date Received : March 30, 2012  
 Description : West Divide Creek - 02E  
 Sample ID : MW-21 032912  
 Collected By : Jeff Braden  
 Collection Date : 03/29/12 10:30

ESC Sample # : L567652-11  
 Site ID :  
 Project # :

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Chloride	19.	1.0	mg/l	9056	04/03/12	1
Methane	BDL	0.010	mg/l	RSK175	04/03/12	1
Ethane	BDL	0.013	mg/l	RSK175	04/03/12	1
Ethene	BDL	0.013	mg/l	RSK175	04/03/12	1
Sodium	280	0.50	mg/l	6010B	04/04/12	1
Benzene	BDL	0.0010	mg/l	8260B	03/31/12	1
Toluene	BDL	0.0050	mg/l	8260B	03/31/12	1
Ethylbenzene	BDL	0.0010	mg/l	8260B	03/31/12	1
Total Xylenes	BDL	0.0030	mg/l	8260B	03/31/12	1
Surrogate Recovery						
Toluene-d8	105.		% Rec.	8260B	03/31/12	1
Dibromofluoromethane	104.		% Rec.	8260B	03/31/12	1
a,a,a-Trifluorotoluene	103.		% Rec.	8260B	03/31/12	1
4-Bromofluorobenzene	105.		% Rec.	8260B	03/31/12	1

BDL - Below Detection Limit  
 Det. Limit - Practical Quantitation Limit(PQL)  
 Note:  
 The reported analytical results relate only to the sample submitted.  
 This report shall not be reproduced, except in full, without the written approval from ESC.  
 Reported: 04/05/12 10:24 Printed: 04/05/12 10:24



12065 Lebanon Rd.  
 Mt. Juliet, TN 37122  
 (615) 758-5858  
 1-800-767-5859  
 Fax (615) 758-5859  
 Tax I.D. 62-0814289  
 Est. 1970

REPORT OF ANALYSIS

Charlie Jensen  
 Encana  
 2717 Co. Rd. 215, Ste 100  
 Parachute, CO 81635

April 05, 2012

Date Received : March 30, 2012  
 Description : West Divide Creek - 02E  
 Sample ID : MW-6 032912  
 Collected By : Jeff Braden  
 Collection Date : 03/29/12 10:45

ESC Sample # : L567652-12  
 Site ID :  
 Project # :

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Chloride	22.	1.0	mg/l	9056	04/03/12	1
Methane	BDL	0.010	mg/l	RSK175	04/03/12	1
Ethane	BDL	0.013	mg/l	RSK175	04/03/12	1
Ethene	BDL	0.013	mg/l	RSK175	04/03/12	1
Sodium	120	0.50	mg/l	6010B	04/04/12	1
Benzene	BDL	0.0010	mg/l	8260B	03/31/12	1
Toluene	BDL	0.0050	mg/l	8260B	03/31/12	1
Ethylbenzene	BDL	0.0010	mg/l	8260B	03/31/12	1
Total Xylenes	BDL	0.0030	mg/l	8260B	03/31/12	1
Surrogate Recovery						
Toluene-d8	106.		% Rec.	8260B	03/31/12	1
Dibromofluoromethane	105.		% Rec.	8260B	03/31/12	1
a,a,a-Trifluorotoluene	103.		% Rec.	8260B	03/31/12	1
4-Bromofluorobenzene	107.		% Rec.	8260B	03/31/12	1

BDL - Below Detection Limit  
 Det. Limit - Practical Quantitation Limit(PQL)  
 Note:  
 The reported analytical results relate only to the sample submitted.  
 This report shall not be reproduced, except in full, without the written approval from ESC.  
 Reported: 04/05/12 10:24 Printed: 04/05/12 10:25



12065 Lebanon Rd.  
 Mt. Juliet, TN 37122  
 (615) 758-5858  
 1-800-767-5859  
 Fax (615) 758-5859  
 Tax I.D. 62-0814289  
 Est. 1970

REPORT OF ANALYSIS

Charlie Jensen  
 Encana  
 2717 Co. Rd. 215, Ste 100  
 Parachute, CO 81635

April 05, 2012

Date Received : March 30, 2012  
 Description : West Divide Creek - 02E  
 Sample ID : MW-7 032912  
 Collected By : Jeff Braden  
 Collection Date : 03/29/12 11:00

ESC Sample # : L567652-13  
 Site ID :  
 Project # :

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Chloride	29.	1.0	mg/l	9056	04/03/12	1
Methane	BDL	0.010	mg/l	RSK175	04/03/12	1
Ethane	BDL	0.013	mg/l	RSK175	04/03/12	1
Ethene	BDL	0.013	mg/l	RSK175	04/03/12	1
Sodium	130	0.50	mg/l	6010B	04/04/12	1
Benzene	BDL	0.0010	mg/l	8260B	03/31/12	1
Toluene	BDL	0.0050	mg/l	8260B	03/31/12	1
Ethylbenzene	BDL	0.0010	mg/l	8260B	03/31/12	1
Total Xylenes	BDL	0.0030	mg/l	8260B	03/31/12	1
Surrogate Recovery						
Toluene-d8	105.		% Rec.	8260B	03/31/12	1
Dibromofluoromethane	104.		% Rec.	8260B	03/31/12	1
a,a,a-Trifluorotoluene	102.		% Rec.	8260B	03/31/12	1
4-Bromofluorobenzene	106.		% Rec.	8260B	03/31/12	1

BDL - Below Detection Limit  
 Det. Limit - Practical Quantitation Limit(PQL)  
 Note:  
 The reported analytical results relate only to the sample submitted.  
 This report shall not be reproduced, except in full, without the written approval from ESC.  
 Reported: 04/05/12 10:24 Printed: 04/05/12 10:25



12065 Lebanon Rd.  
 Mt. Juliet, TN 37122  
 (615) 758-5858  
 1-800-767-5859  
 Fax (615) 758-5859  
 Tax I.D. 62-0814289  
 Est. 1970

REPORT OF ANALYSIS

Charlie Jensen  
 Encana  
 2717 Co. Rd. 215, Ste 100  
 Parachute, CO 81635

April 05, 2012

Date Received : March 30, 2012  
 Description : West Divide Creek - 02E  
 Sample ID : MW-8 032912  
 Collected By : Jeff Braden  
 Collection Date : 03/29/12 11:20

ESC Sample # : L567652-14  
 Site ID :  
 Project # :

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Chloride	30.	1.0	mg/l	9056	04/03/12	1
Methane	0.013	0.010	mg/l	RSK175	04/03/12	1
Ethane	BDL	0.013	mg/l	RSK175	04/03/12	1
Ethene	BDL	0.013	mg/l	RSK175	04/03/12	1
Sodium	150	0.50	mg/l	6010B	04/04/12	1
Benzene	BDL	0.0010	mg/l	8260B	03/31/12	1
Toluene	BDL	0.0050	mg/l	8260B	03/31/12	1
Ethylbenzene	BDL	0.0010	mg/l	8260B	03/31/12	1
Total Xylenes	BDL	0.0030	mg/l	8260B	03/31/12	1
Surrogate Recovery						
Toluene-d8	105.		% Rec.	8260B	03/31/12	1
Dibromofluoromethane	105.		% Rec.	8260B	03/31/12	1
a,a,a-Trifluorotoluene	103.		% Rec.	8260B	03/31/12	1
4-Bromofluorobenzene	106.		% Rec.	8260B	03/31/12	1

BDL - Below Detection Limit  
 Det. Limit - Practical Quantitation Limit(PQL)  
 Note:  
 The reported analytical results relate only to the sample submitted.  
 This report shall not be reproduced, except in full, without the written approval from ESC.  
 Reported: 04/05/12 10:24 Printed: 04/05/12 10:25



12065 Lebanon Rd.  
 Mt. Juliet, TN 37122  
 (615) 758-5858  
 1-800-767-5859  
 Fax (615) 758-5859  
 Tax I.D. 62-0814289  
 Est. 1970

REPORT OF ANALYSIS

Charlie Jensen  
 Encana  
 2717 Co. Rd. 215, Ste 100  
 Parachute, CO 81635

April 05, 2012

Date Received : March 30, 2012  
 Description : West Divide Creek - 02E  
 Sample ID : MW-17 032912  
 Collected By : Jeff Braden  
 Collection Date : 03/29/12 11:40

ESC Sample # : L567652-15  
 Site ID :  
 Project # :

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Chloride	54.	1.0	mg/l	9056	04/03/12	1
Methane	3.5	0.10	mg/l	RSK175	04/04/12	10
Ethane	0.76	0.13	mg/l	RSK175	04/04/12	10
Ethene	BDL	0.13	mg/l	RSK175	04/04/12	10
Sodium	280	0.50	mg/l	6010B	04/04/12	1
Benzene	0.035	0.0010	mg/l	8260B	03/31/12	1
Toluene	BDL	0.0050	mg/l	8260B	03/31/12	1
Ethylbenzene	BDL	0.0010	mg/l	8260B	03/31/12	1
Total Xylenes	BDL	0.0030	mg/l	8260B	03/31/12	1
Surrogate Recovery						
Toluene-d8	107.		% Rec.	8260B	03/31/12	1
Dibromofluoromethane	108.		% Rec.	8260B	03/31/12	1
a,a,a-Trifluorotoluene	103.		% Rec.	8260B	03/31/12	1
4-Bromofluorobenzene	104.		% Rec.	8260B	03/31/12	1

BDL - Below Detection Limit  
 Det. Limit - Practical Quantitation Limit(PQL)  
 Note:  
 The reported analytical results relate only to the sample submitted.  
 This report shall not be reproduced, except in full, without the written approval from ESC.  
 Reported: 04/05/12 10:24 Printed: 04/05/12 10:25



12065 Lebanon Rd.  
 Mt. Juliet, TN 37122  
 (615) 758-5858  
 1-800-767-5859  
 Fax (615) 758-5859  
 Tax I.D. 62-0814289  
 Est. 1970

REPORT OF ANALYSIS

Charlie Jensen  
 Encana  
 2717 Co. Rd. 215, Ste 100  
 Parachute, CO 81635

April 05, 2012

Date Received : March 30, 2012  
 Description : West Divide Creek - 02E  
 Sample ID : MW-16 032912  
 Collected By : Jeff Braden  
 Collection Date : 03/29/12 12:00

ESC Sample # : L567652-16  
 Site ID :  
 Project # :

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Chloride	29.	1.0	mg/l	9056	04/03/12	1
Methane	BDL	0.010	mg/l	RSK175	04/04/12	1
Ethane	BDL	0.013	mg/l	RSK175	04/04/12	1
Ethene	BDL	0.013	mg/l	RSK175	04/04/12	1
Sodium	270	0.50	mg/l	6010B	04/04/12	1
Benzene	BDL	0.0010	mg/l	8260B	03/31/12	1
Toluene	BDL	0.0050	mg/l	8260B	03/31/12	1
Ethylbenzene	BDL	0.0010	mg/l	8260B	03/31/12	1
Total Xylenes	BDL	0.0030	mg/l	8260B	03/31/12	1
Surrogate Recovery						
Toluene-d8	106.		% Rec.	8260B	03/31/12	1
Dibromofluoromethane	105.		% Rec.	8260B	03/31/12	1
a,a,a-Trifluorotoluene	104.		% Rec.	8260B	03/31/12	1
4-Bromofluorobenzene	106.		% Rec.	8260B	03/31/12	1

BDL - Below Detection Limit  
 Det. Limit - Practical Quantitation Limit(PQL)  
 Note:  
 The reported analytical results relate only to the sample submitted.  
 This report shall not be reproduced, except in full, without the written approval from ESC.  
 Reported: 04/05/12 10:24 Printed: 04/05/12 10:25



12065 Lebanon Rd.  
 Mt. Juliet, TN 37122  
 (615) 758-5858  
 1-800-767-5859  
 Fax (615) 758-5859  
 Tax I.D. 62-0814289  
 Est. 1970

REPORT OF ANALYSIS

Charlie Jensen  
 Encana  
 2717 Co. Rd. 215, Ste 100  
 Parachute, CO 81635

April 05, 2012

Date Received : March 30, 2012  
 Description : West Divide Creek - 02E  
 Sample ID : MW-1 032912  
 Collected By : Jeff Braden  
 Collection Date : 03/29/12 12:20

ESC Sample # : L567652-17  
 Site ID :  
 Project # :

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Chloride	21.	1.0	mg/l	9056	04/03/12	1
Methane	BDL	0.010	mg/l	RSK175	04/04/12	1
Ethane	BDL	0.013	mg/l	RSK175	04/04/12	1
Ethene	BDL	0.013	mg/l	RSK175	04/04/12	1
Sodium	170	0.50	mg/l	6010B	04/03/12	1
Benzene	BDL	0.0010	mg/l	8260B	03/31/12	1
Toluene	BDL	0.0050	mg/l	8260B	03/31/12	1
Ethylbenzene	BDL	0.0010	mg/l	8260B	03/31/12	1
Total Xylenes	BDL	0.0030	mg/l	8260B	03/31/12	1
Surrogate Recovery						
Toluene-d8	106.		% Rec.	8260B	03/31/12	1
Dibromofluoromethane	106.		% Rec.	8260B	03/31/12	1
a,a,a-Trifluorotoluene	104.		% Rec.	8260B	03/31/12	1
4-Bromofluorobenzene	107.		% Rec.	8260B	03/31/12	1

BDL - Below Detection Limit  
 Det. Limit - Practical Quantitation Limit(PQL)  
 Note:  
 The reported analytical results relate only to the sample submitted.  
 This report shall not be reproduced, except in full, without the written approval from ESC.  
 Reported: 04/05/12 10:24 Printed: 04/05/12 10:25



12065 Lebanon Rd.  
 Mt. Juliet, TN 37122  
 (615) 758-5858  
 1-800-767-5859  
 Fax (615) 758-5859  
 Tax I.D. 62-0814289  
 Est. 1970

REPORT OF ANALYSIS

Charlie Jensen  
 Encana  
 2717 Co. Rd. 215, Ste 100  
 Parachute, CO 81635

April 05, 2012

Date Received : March 30, 2012  
 Description : West Divide Creek - 02E  
 Sample ID : MW-2 032912  
 Collected By : Jeff Braden  
 Collection Date : 03/29/12 12:40

ESC Sample # : L567652-18  
 Site ID :  
 Project # :

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Chloride	53.	1.0	mg/l	9056	04/03/12	1
Methane	11.	0.20	mg/l	RSK175	04/04/12	20
Ethane	2.3	0.26	mg/l	RSK175	04/04/12	20
Ethene	BDL	0.26	mg/l	RSK175	04/04/12	20
Sodium	140	0.50	mg/l	6010B	04/03/12	1
Benzene	0.096	0.0010	mg/l	8260B	03/31/12	1
Toluene	BDL	0.0050	mg/l	8260B	03/31/12	1
Ethylbenzene	0.0019	0.0010	mg/l	8260B	03/31/12	1
Total Xylenes	0.027	0.0030	mg/l	8260B	03/31/12	1
Surrogate Recovery						
Toluene-d8	104.		% Rec.	8260B	03/31/12	1
Dibromofluoromethane	104.		% Rec.	8260B	03/31/12	1
a,a,a-Trifluorotoluene	102.		% Rec.	8260B	03/31/12	1
4-Bromofluorobenzene	106.		% Rec.	8260B	03/31/12	1

BDL - Below Detection Limit  
 Det. Limit - Practical Quantitation Limit(PQL)  
 Note:  
 The reported analytical results relate only to the sample submitted.  
 This report shall not be reproduced, except in full, without the written approval from ESC.  
 Reported: 04/05/12 10:24 Printed: 04/05/12 10:25





12065 Lebanon Rd.  
 Mt. Juliet, TN 37122  
 (615) 758-5858  
 1-800-767-5859  
 Fax (615) 758-5859  
 Tax I.D. 62-0814289  
 Est. 1970

REPORT OF ANALYSIS

Charlie Jensen  
 Encana  
 2717 Co. Rd. 215, Ste 100  
 Parachute, CO 81635

April 05, 2012

Date Received : March 30, 2012  
 Description : West Divide Creek - 02E  
 Sample ID : MW-4 032912  
 Collected By : Jeff Braden  
 Collection Date : 03/29/12 13:00

ESC Sample # : L567652-19  
 Site ID :  
 Project # :

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Chloride	30.	1.0	mg/l	9056	04/03/12	1
Methane	4.4	0.10	mg/l	RSK175	04/04/12	10
Ethane	0.90	0.13	mg/l	RSK175	04/04/12	10
Ethene	BDL	0.13	mg/l	RSK175	04/04/12	10
Sodium	110	0.50	mg/l	6010B	04/03/12	1
Benzene	0.038	0.0010	mg/l	8260B	03/31/12	1
Toluene	BDL	0.0050	mg/l	8260B	03/31/12	1
Ethylbenzene	BDL	0.0010	mg/l	8260B	03/31/12	1
Total Xylenes	0.0046	0.0030	mg/l	8260B	03/31/12	1
Surrogate Recovery						
Toluene-d8	104.		% Rec.	8260B	03/31/12	1
Dibromofluoromethane	103.		% Rec.	8260B	03/31/12	1
a,a,a-Trifluorotoluene	102.		% Rec.	8260B	03/31/12	1
4-Bromofluorobenzene	106.		% Rec.	8260B	03/31/12	1

BDL - Below Detection Limit  
 Det. Limit - Practical Quantitation Limit(PQL)  
 Note:  
 The reported analytical results relate only to the sample submitted.  
 This report shall not be reproduced, except in full, without the written approval from ESC.  
 Reported: 04/05/12 10:24 Printed: 04/05/12 10:25



12065 Lebanon Rd.  
 Mt. Juliet, TN 37122  
 (615) 758-5858  
 1-800-767-5859  
 Fax (615) 758-5859  
 Tax I.D. 62-0814289  
 Est. 1970

REPORT OF ANALYSIS

Charlie Jensen  
 Encana  
 2717 Co. Rd. 215, Ste 100  
 Parachute, CO 81635

April 05, 2012

Date Received : March 30, 2012  
 Description : West Divide Creek - 02E  
 Sample ID : MW-12 032912  
 Collected By : Jeff Braden  
 Collection Date : 03/29/12 13:20

ESC Sample # : L567652-20  
 Site ID :  
 Project # :

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Chloride	18.	1.0	mg/l	9056	04/03/12	1
Methane	0.099	0.010	mg/l	RSK175	04/04/12	1
Ethane	BDL	0.013	mg/l	RSK175	04/04/12	1
Ethene	BDL	0.013	mg/l	RSK175	04/04/12	1
Sodium	52.	0.50	mg/l	6010B	04/03/12	1
Benzene	BDL	0.0010	mg/l	8260B	03/31/12	1
Toluene	BDL	0.0050	mg/l	8260B	03/31/12	1
Ethylbenzene	BDL	0.0010	mg/l	8260B	03/31/12	1
Total Xylenes	BDL	0.0030	mg/l	8260B	03/31/12	1
Surrogate Recovery						
Toluene-d8	104.		% Rec.	8260B	03/31/12	1
Dibromofluoromethane	105.		% Rec.	8260B	03/31/12	1
a,a,a-Trifluorotoluene	103.		% Rec.	8260B	03/31/12	1
4-Bromofluorobenzene	107.		% Rec.	8260B	03/31/12	1

BDL - Below Detection Limit  
 Det. Limit - Practical Quantitation Limit(PQL)  
 Note:  
 The reported analytical results relate only to the sample submitted.  
 This report shall not be reproduced, except in full, without the written approval from ESC.  
 Reported: 04/05/12 10:24 Printed: 04/05/12 10:25



12065 Lebanon Rd.  
 Mt. Juliet, TN 37122  
 (615) 758-5858  
 1-800-767-5859  
 Fax (615) 758-5859  
 Tax I.D. 62-0814289  
 Est. 1970

REPORT OF ANALYSIS

Charlie Jensen  
 Encana  
 2717 Co. Rd. 215, Ste 100  
 Parachute, CO 81635

April 05, 2012

Date Received : March 30, 2012  
 Description : West Divide Creek - 02E  
 Sample ID : MW-11 032912  
 Collected By : Jeff Braden  
 Collection Date : 03/29/12 14:00

ESC Sample # : L567652-21  
 Site ID :  
 Project # :

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Chloride	11.	1.0	mg/l	9056	04/03/12	1
Methane	0.019	0.010	mg/l	RSK175	04/04/12	1
Ethane	BDL	0.013	mg/l	RSK175	04/04/12	1
Ethene	BDL	0.013	mg/l	RSK175	04/04/12	1
Sodium	32.	0.50	mg/l	6010B	04/03/12	1
Benzene	BDL	0.0010	mg/l	8260B	03/31/12	1
Toluene	BDL	0.0050	mg/l	8260B	03/31/12	1
Ethylbenzene	BDL	0.0010	mg/l	8260B	03/31/12	1
Total Xylenes	BDL	0.0030	mg/l	8260B	03/31/12	1
Surrogate Recovery						
Toluene-d8	105.		% Rec.	8260B	03/31/12	1
Dibromofluoromethane	103.		% Rec.	8260B	03/31/12	1
a,a,a-Trifluorotoluene	103.		% Rec.	8260B	03/31/12	1
4-Bromofluorobenzene	105.		% Rec.	8260B	03/31/12	1

BDL - Below Detection Limit  
 Det. Limit - Practical Quantitation Limit(PQL)  
 Note:  
 The reported analytical results relate only to the sample submitted.  
 This report shall not be reproduced, except in full, without the written approval from ESC.  
 Reported: 04/05/12 10:24 Printed: 04/05/12 10:25



12065 Lebanon Rd.  
 Mt. Juliet, TN 37122  
 (615) 758-5858  
 1-800-767-5859  
 Fax (615) 758-5859  
 Tax I.D. 62-0814289  
 Est. 1970

REPORT OF ANALYSIS

Charlie Jensen  
 Encana  
 2717 Co. Rd. 215, Ste 100  
 Parachute, CO 81635

April 05, 2012

Date Received : March 30, 2012  
 Description : West Divide Creek - 02E  
 Sample ID : DUP-1 032912  
 Collected By : Jeff Braden  
 Collection Date : 03/29/12 00:00

ESC Sample # : L567652-22  
 Site ID :  
 Project # :

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Chloride	49.	1.0	mg/l	9056	04/03/12	1
Methane	3.1	0.10	mg/l	RSK175	04/04/12	10
Ethane	0.66	0.13	mg/l	RSK175	04/04/12	10
Ethene	BDL	0.13	mg/l	RSK175	04/04/12	10
Sodium	240	0.50	mg/l	6010B	04/03/12	1
Benzene	0.027	0.0010	mg/l	8260B	03/31/12	1
Toluene	BDL	0.0050	mg/l	8260B	03/31/12	1
Ethylbenzene	BDL	0.0010	mg/l	8260B	03/31/12	1
Total Xylenes	BDL	0.0030	mg/l	8260B	03/31/12	1
Surrogate Recovery						
Toluene-d8	104.		% Rec.	8260B	03/31/12	1
Dibromofluoromethane	103.		% Rec.	8260B	03/31/12	1
a,a,a-Trifluorotoluene	103.		% Rec.	8260B	03/31/12	1
4-Bromofluorobenzene	106.		% Rec.	8260B	03/31/12	1

BDL - Below Detection Limit  
 Det. Limit - Practical Quantitation Limit(PQL)  
 Note:  
 The reported analytical results relate only to the sample submitted.  
 This report shall not be reproduced, except in full, without the written approval from ESC.  
 Reported: 04/05/12 10:24 Printed: 04/05/12 10:25



12065 Lebanon Rd.  
 Mt. Juliet, TN 37122  
 (615) 758-5858  
 1-800-767-5859  
 Fax (615) 758-5859  
 Tax I.D. 62-0814289  
 Est. 1970

REPORT OF ANALYSIS

Charlie Jensen  
 Encana  
 2717 Co. Rd. 215, Ste 100  
 Parachute, CO 81635

April 05, 2012

Date Received : March 30, 2012  
 Description : West Divide Creek - 02E  
 Sample ID : DUP-2 032912  
 Collected By : Jeff Braden  
 Collection Date : 03/29/12 00:00

ESC Sample # : L567652-23  
 Site ID :  
 Project # :

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Chloride	53.	1.0	mg/l	9056	04/03/12	1
Methane	12.	0.20	mg/l	RSK175	04/04/12	20
Ethane	2.8	0.26	mg/l	RSK175	04/04/12	20
Ethene	BDL	0.26	mg/l	RSK175	04/04/12	20
Sodium	140	0.50	mg/l	6010B	04/03/12	1
Benzene	0.093	0.0010	mg/l	8260B	03/31/12	1
Toluene	BDL	0.0050	mg/l	8260B	03/31/12	1
Ethylbenzene	0.0018	0.0010	mg/l	8260B	03/31/12	1
Total Xylenes	0.027	0.0030	mg/l	8260B	03/31/12	1
Surrogate Recovery						
Toluene-d8	104.		% Rec.	8260B	03/31/12	1
Dibromofluoromethane	103.		% Rec.	8260B	03/31/12	1
a,a,a-Trifluorotoluene	102.		% Rec.	8260B	03/31/12	1
4-Bromofluorobenzene	107.		% Rec.	8260B	03/31/12	1

BDL - Below Detection Limit  
 Det. Limit - Practical Quantitation Limit(PQL)  
 Note:  
 The reported analytical results relate only to the sample submitted.  
 This report shall not be reproduced, except in full, without the written approval from ESC.  
 Reported: 04/05/12 10:24 Printed: 04/05/12 10:25



12065 Lebanon Rd.  
 Mt. Juliet, TN 37122  
 (615) 758-5858  
 1-800-767-5859  
 Fax (615) 758-5859  
 Tax I.D. 62-0814289  
 Est. 1970

REPORT OF ANALYSIS

Charlie Jensen  
 Encana  
 2717 Co. Rd. 215, Ste 100  
 Parachute, CO 81635

April 05, 2012

Date Received : March 30, 2012  
 Description : West Divide Creek - 02E  
 Sample ID : DUP-3 032912  
 Collected By : Jeff Braden  
 Collection Date : 03/29/12 00:00

ESC Sample # : L567652-24  
 Site ID :  
 Project # :

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Chloride	30.	1.0	mg/l	9056	04/03/12	1
Methane	5.4	0.10	mg/l	RSK175	04/04/12	10
Ethane	1.1	0.13	mg/l	RSK175	04/04/12	10
Ethene	BDL	0.13	mg/l	RSK175	04/04/12	10
Sodium	110	0.50	mg/l	6010B	04/03/12	1
Benzene	0.040	0.0010	mg/l	8260B	03/31/12	1
Toluene	BDL	0.0050	mg/l	8260B	03/31/12	1
Ethylbenzene	BDL	0.0010	mg/l	8260B	03/31/12	1
Total Xylenes	0.0048	0.0030	mg/l	8260B	03/31/12	1
Surrogate Recovery						
Toluene-d8	105.		% Rec.	8260B	03/31/12	1
Dibromofluoromethane	103.		% Rec.	8260B	03/31/12	1
a,a,a-Trifluorotoluene	102.		% Rec.	8260B	03/31/12	1
4-Bromofluorobenzene	106.		% Rec.	8260B	03/31/12	1

BDL - Below Detection Limit  
 Det. Limit - Practical Quantitation Limit(PQL)  
 Note:  
 The reported analytical results relate only to the sample submitted.  
 This report shall not be reproduced, except in full, without the written approval from ESC.  
 Reported: 04/05/12 10:24 Printed: 04/05/12 10:25

Summary of Remarks For Samples Printed  
04/05/12 at 10:25:06

TSR Signing Reports: 358  
R5 - Desired TAT

Be sure sub lab uses CLIENT SAMPLE ID on thier reports, not ESC sample ID. Try not to report benzene BDL above a 250x dilution. ONLY log water samples under this account. Soils under ENCANACO.

Sample: L567652-01 Account: ENCRCO Received: 03/30/12 09:00 Due Date: 04/06/12 00:00 RPT Date: 04/05/12 10:24  
V8260BTEX is non-preserved and has 7-day holding time. jw  
Sample: L567652-02 Account: ENCRCO Received: 03/30/12 09:00 Due Date: 04/06/12 00:00 RPT Date: 04/05/12 10:24  
V8260BTEX is non-preserved and has 7-day holding time. jw  
Sample: L567652-03 Account: ENCRCO Received: 03/30/12 09:00 Due Date: 04/06/12 00:00 RPT Date: 04/05/12 10:24  
V8260BTEX is non-preserved and has 7-day holding time. jw  
Sample: L567652-04 Account: ENCRCO Received: 03/30/12 09:00 Due Date: 04/06/12 00:00 RPT Date: 04/05/12 10:24  
V8260BTEX is non-preserved and has 7-day holding time. jw  
Sample: L567652-05 Account: ENCRCO Received: 03/30/12 09:00 Due Date: 04/06/12 00:00 RPT Date: 04/05/12 10:24  
V8260BTEX is non-preserved and has 7-day holding time. jw  
Sample: L567652-06 Account: ENCRCO Received: 03/30/12 09:00 Due Date: 04/06/12 00:00 RPT Date: 04/05/12 10:24  
V8260BTEX is non-preserved and has 7-day holding time. jw  
Sample: L567652-07 Account: ENCRCO Received: 03/30/12 09:00 Due Date: 04/06/12 00:00 RPT Date: 04/05/12 10:24  
V8260BTEX is non-preserved and has 7-day holding time. jw  
Sample: L567652-08 Account: ENCRCO Received: 03/30/12 09:00 Due Date: 04/06/12 00:00 RPT Date: 04/05/12 10:24  
V8260BTEX is non-preserved and has 7-day holding time. jw  
Sample: L567652-09 Account: ENCRCO Received: 03/30/12 09:00 Due Date: 04/06/12 00:00 RPT Date: 04/05/12 10:24  
V8260BTEX is non-preserved and has 7-day holding time. jw  
Sample: L567652-10 Account: ENCRCO Received: 03/30/12 09:00 Due Date: 04/06/12 00:00 RPT Date: 04/05/12 10:24  
V8260BTEX is non-preserved and has 7-day holding time. jw  
Sample: L567652-11 Account: ENCRCO Received: 03/30/12 09:00 Due Date: 04/06/12 00:00 RPT Date: 04/05/12 10:24  
V8260BTEX is non-preserved and has 7-day holding time. jw  
Sample: L567652-12 Account: ENCRCO Received: 03/30/12 09:00 Due Date: 04/06/12 00:00 RPT Date: 04/05/12 10:24  
V8260BTEX is non-preserved and has 7-day holding time. jw  
Sample: L567652-13 Account: ENCRCO Received: 03/30/12 09:00 Due Date: 04/06/12 00:00 RPT Date: 04/05/12 10:24  
V8260BTEX is non-preserved and has 7-day holding time. jw  
Sample: L567652-14 Account: ENCRCO Received: 03/30/12 09:00 Due Date: 04/06/12 00:00 RPT Date: 04/05/12 10:24  
V8260BTEX is non-preserved and has 7-day holding time. jw  
Sample: L567652-15 Account: ENCRCO Received: 03/30/12 09:00 Due Date: 04/06/12 00:00 RPT Date: 04/05/12 10:24  
V8260BTEX is non-preserved and has 7-day holding time. jw  
Sample: L567652-16 Account: ENCRCO Received: 03/30/12 09:00 Due Date: 04/06/12 00:00 RPT Date: 04/05/12 10:24  
V8260BTEX is non-preserved and has 7-day holding time. jw  
Sample: L567652-17 Account: ENCRCO Received: 03/30/12 09:00 Due Date: 04/06/12 00:00 RPT Date: 04/05/12 10:24  
V8260BTEX is non-preserved and has 7-day holding time. jw  
Sample: L567652-18 Account: ENCRCO Received: 03/30/12 09:00 Due Date: 04/06/12 00:00 RPT Date: 04/05/12 10:24  
V8260BTEX is non-preserved and has 7-day holding time. jw  
Sample: L567652-19 Account: ENCRCO Received: 03/30/12 09:00 Due Date: 04/06/12 00:00 RPT Date: 04/05/12 10:24  
V8260BTEX is non-preserved and has 7-day holding time. jw  
Sample: L567652-20 Account: ENCRCO Received: 03/30/12 09:00 Due Date: 04/06/12 00:00 RPT Date: 04/05/12 10:24  
V8260BTEX is non-preserved and has 7-day holding time. jw  
Sample: L567652-21 Account: ENCRCO Received: 03/30/12 09:00 Due Date: 04/06/12 00:00 RPT Date: 04/05/12 10:24  
V8260BTEX is non-preserved and has 7-day holding time. jw  
Sample: L567652-22 Account: ENCRCO Received: 03/30/12 09:00 Due Date: 04/06/12 00:00 RPT Date: 04/05/12 10:24  
V8260BTEX is non-preserved and has 7-day holding time. jw  
Sample: L567652-23 Account: ENCRCO Received: 03/30/12 09:00 Due Date: 04/06/12 00:00 RPT Date: 04/05/12 10:24  
V8260BTEX is non-preserved and has 7-day holding time. jw  
Sample: L567652-24 Account: ENCRCO Received: 03/30/12 09:00 Due Date: 04/06/12 00:00 RPT Date: 04/05/12 10:24  
V8260BTEX is non-preserved and has 7-day holding time. jw



**YOUR LAB OF CHOICE**

Encana  
 Charlie Jensen  
 2717 Co. Rd. 215, Ste 100  
 Parachute, CO 81635

Quality Assurance Report  
 Level II

L567652

12065 Lebanon Rd.  
 Mt. Juliet, TN 37122  
 (615) 758-5858  
 1-800-767-5859  
 Fax (615) 758-5859

Tax I.D. 62-0814289

Est. 1970

April 05, 2012

Analyte	Result	Laboratory Blank		Limit	Batch	Date Analyzed
		Units	% Rec			
Benzene	< .001	mg/l			WG585669	03/31/12 07:26
Ethylbenzene	< .001	mg/l			WG585669	03/31/12 07:26
Methyl tert-butyl ether	< .001	mg/l			WG585669	03/31/12 07:26
Toluene	< .005	mg/l			WG585669	03/31/12 07:26
Total Xylenes	< .003	mg/l			WG585669	03/31/12 07:26
4-Bromofluorobenzene		% Rec.	103.2	82-120	WG585669	03/31/12 07:26
Dibromofluoromethane		% Rec.	108.4	82-126	WG585669	03/31/12 07:26
Toluene-d8		% Rec.	103.8	92-112	WG585669	03/31/12 07:26
a,a,a-Trifluorotoluene		% Rec.	109.8	90-116	WG585669	03/31/12 07:26
Benzene	< .001	mg/l			WG585671	03/30/12 12:56
Ethylbenzene	< .001	mg/l			WG585671	03/30/12 12:56
Methyl tert-butyl ether	< .001	mg/l			WG585671	03/30/12 12:56
Toluene	< .005	mg/l			WG585671	03/30/12 12:56
Total Xylenes	< .003	mg/l			WG585671	03/30/12 12:56
4-Bromofluorobenzene		% Rec.	104.6	82-120	WG585671	03/30/12 12:56
Dibromofluoromethane		% Rec.	104.1	82-126	WG585671	03/30/12 12:56
Toluene-d8		% Rec.	102.8	92-112	WG585671	03/30/12 12:56
a,a,a-Trifluorotoluene		% Rec.	102.2	90-116	WG585671	03/30/12 12:56
Chloride	< 1	mg/l			WG585729	04/02/12 13:26
Benzene	< .001	mg/l			WG585679	03/31/12 08:31
Ethylbenzene	< .001	mg/l			WG585679	03/31/12 08:31
Methyl tert-butyl ether	< .001	mg/l			WG585679	03/31/12 08:31
Toluene	< .005	mg/l			WG585679	03/31/12 08:31
Total Xylenes	< .003	mg/l			WG585679	03/31/12 08:31
4-Bromofluorobenzene		% Rec.	86.96	82-120	WG585679	03/31/12 08:31
Dibromofluoromethane		% Rec.	113.2	82-126	WG585679	03/31/12 08:31
Toluene-d8		% Rec.	98.29	92-112	WG585679	03/31/12 08:31
a,a,a-Trifluorotoluene		% Rec.	101.8	90-116	WG585679	03/31/12 08:31
Ethane	< .013	mg/l			WG586066	04/03/12 15:10
Ethene	< .013	mg/l			WG586066	04/03/12 15:10
Methane	< .01	mg/l			WG586066	04/03/12 15:10
Chloride	< 1	mg/l			WG586007	04/03/12 08:18
Chloride	< 1	mg/l			WG586031	04/03/12 08:15
Sodium	< .5	mg/l			WG585882	04/03/12 22:04
Chloride	< 1	mg/l			WG585739	04/02/12 14:22
Ethane	< .013	mg/l			WG586221	04/04/12 14:08
Ethene	< .013	mg/l			WG586221	04/04/12 14:08
Methane	< .01	mg/l			WG586221	04/04/12 14:08
Sodium	< .5	mg/l			WG585636	04/04/12 16:34

\* Performance of this Analyte is outside of established criteria.  
 For additional information, please see Attachment A 'List of Analytes with QC Qualifiers.'





**YOUR LAB OF CHOICE**

Encana  
 Charlie Jensen  
 2717 Co. Rd. 215, Ste 100  
 Parachute, CO 81635

Quality Assurance Report  
 Level II

L567652

12065 Lebanon Rd.  
 Mt. Juliet, TN 37122  
 (615) 758-5858  
 1-800-767-5859  
 Fax (615) 758-5859

Tax I.D. 62-0814289

Est. 1970

April 05, 2012

Analyte	Units	Result	Duplicate		RPD	Limit	Ref Samp	Batch
			Duplicate					
Chloride	mg/l	280.	280.		0.717	20	L567383-05	WG585729
Chloride	mg/l	25.0	25.0		0	20	L567582-11	WG585729
Chloride	mg/l	29.0	29.0		0.692	20	L567652-13	WG586031
Chloride	mg/l	30.0	30.0		1.01	20	L567652-24	WG586031
Sodium	mg/l	38.0	37.8		0.528	20	L567772-04	WG585882
Chloride	mg/l	3.60	3.60		1.12	20	L567760-24	WG585739
Sodium	mg/l	260.	270.		3.39	20	L567652-16	WG585636

Analyte	Units	Laboratory Control Sample		% Rec	Limit	Batch
		Known Val	Result			
Benzene	mg/l	.025	0.0237	94.9	72-119	WG585669
Ethylbenzene	mg/l	.025	0.0246	98.6	77-124	WG585669
Methyl tert-butyl ether	mg/l	.025	0.0293	117.	67-127	WG585669
Toluene	mg/l	.025	0.0226	90.4	75-114	WG585669
Total Xylenes	mg/l	.075	0.0732	97.7	77-123	WG585669
4-Bromofluorobenzene				98.80	82-120	WG585669
Dibromofluoromethane				108.6	82-126	WG585669
Toluene-d8				103.7	92-112	WG585669
a,a,a-Trifluorotoluene				111.4	90-116	WG585669
Benzene	mg/l	.025	0.0235	93.9	72-119	WG585671
Ethylbenzene	mg/l	.025	0.0210	83.9	77-124	WG585671
Methyl tert-butyl ether	mg/l	.025	0.0244	97.5	67-127	WG585671
Toluene	mg/l	.025	0.0231	92.5	75-114	WG585671
Total Xylenes	mg/l	.075	0.0626	83.5	77-123	WG585671
4-Bromofluorobenzene				103.6	82-120	WG585671
Dibromofluoromethane				102.9	82-126	WG585671
Toluene-d8				104.4	92-112	WG585671
a,a,a-Trifluorotoluene				103.5	90-116	WG585671
Chloride	mg/l	40	39.8	99.5	90-110	WG585729
Benzene	mg/l	.025	0.0256	102.	72-119	WG585679
Ethylbenzene	mg/l	.025	0.0256	102.	77-124	WG585679
Methyl tert-butyl ether	mg/l	.025	0.0256	102.	67-127	WG585679
Toluene	mg/l	.025	0.0247	98.6	75-114	WG585679
Total Xylenes	mg/l	.075	0.0760	101.	77-123	WG585679
4-Bromofluorobenzene				93.39	82-120	WG585679
Dibromofluoromethane				111.2	82-126	WG585679
Toluene-d8				101.2	92-112	WG585679
a,a,a-Trifluorotoluene				100.7	90-116	WG585679
Ethane	mg/l	.645	0.723	112.	70-130	WG586066
Ethene	mg/l	.635	0.702	111.	70-130	WG586066
Methane	mg/l	.339	0.351	104.	70-130	WG586066

\* Performance of this Analyte is outside of established criteria.  
 For additional information, please see Attachment A 'List of Analytes with QC Qualifiers.'



**YOUR LAB OF CHOICE**

Encana  
 Charlie Jensen  
 2717 Co. Rd. 215, Ste 100  
 Parachute, CO 81635

Quality Assurance Report  
 Level II

L567652

12065 Lebanon Rd.  
 Mt. Juliet, TN 37122  
 (615) 758-5858  
 1-800-767-5859  
 Fax (615) 758-5859

Tax I.D. 62-0814289

Est. 1970

April 05, 2012

Analyte	Units	Laboratory Control Sample		% Rec	Limit	Batch
		Known Val	Result			
Chloride	mg/l	40	40.0	100.	90-110	WG586007
Chloride	mg/l	40	40.1	100.	90-110	WG586031
Sodium	mg/l	11.3	11.1	98.2	85-115	WG585882
Chloride	mg/l	40	40.2	101.	90-110	WG585739
Ethane	mg/l	.645	0.719	111.	70-130	WG586221
Ethene	mg/l	.635	0.696	110.	70-130	WG586221
Methane	mg/l	.339	0.352	104.	70-130	WG586221
Sodium	mg/l	11.3	12.5	111.	85-115	WG585636

Analyte	Units	Laboratory Control Sample Duplicate		%Rec	Limit	RPD	Limit	Batch
		Result	Ref					
Benzene	mg/l	0.0260	0.0237	104.	72-119	9.05	20	WG585669
Ethylbenzene	mg/l	0.0268	0.0246	107.	77-124	8.21	20	WG585669
Methyl tert-butyl ether	mg/l	0.0305	0.0293	122.	67-127	3.77	20	WG585669
Toluene	mg/l	0.0257	0.0226	103.	75-114	12.7	20	WG585669
Total Xylenes	mg/l	0.0813	0.0732	108.	77-123	10.4	20	WG585669
4-Bromofluorobenzene				99.71	82-120			WG585669
Dibromofluoromethane				106.4	82-126			WG585669
Toluene-d8				102.2	92-112			WG585669
a,a,a-Trifluorotoluene				108.0	90-116			WG585669
Benzene	mg/l	0.0237	0.0235	95.0	72-119	1.00	20	WG585671
Ethylbenzene	mg/l	0.0210	0.0210	84.0	77-124	0.0400	20	WG585671
Methyl tert-butyl ether	mg/l	0.0253	0.0244	101.	67-127	3.70	20	WG585671
Toluene	mg/l	0.0239	0.0231	96.0	75-114	3.25	20	WG585671
Total Xylenes	mg/l	0.0622	0.0626	83.0	77-123	0.710	20	WG585671
4-Bromofluorobenzene				101.8	82-120			WG585671
Dibromofluoromethane				103.7	82-126			WG585671
Toluene-d8				104.1	92-112			WG585671
a,a,a-Trifluorotoluene				102.1	90-116			WG585671
Chloride	mg/l	40.3	39.8	101.	90-110	1.25	20	WG585729
Benzene	mg/l	0.0216	0.0256	86.0	72-119	17.0	20	WG585679
Ethylbenzene	mg/l	0.0231	0.0256	92.0	77-124	10.5	20	WG585679
Methyl tert-butyl ether	mg/l	0.0215	0.0256	86.0	67-127	17.5	20	WG585679
Toluene	mg/l	0.0208	0.0247	83.0	75-114	17.2	20	WG585679
Total Xylenes	mg/l	0.0683	0.0760	91.0	77-123	10.8	20	WG585679
4-Bromofluorobenzene				97.34	82-120			WG585679
Dibromofluoromethane				107.0	82-126			WG585679
Toluene-d8				99.70	92-112			WG585679
a,a,a-Trifluorotoluene				100.1	90-116			WG585679

\* Performance of this Analyte is outside of established criteria.  
 For additional information, please see Attachment A 'List of Analytes with QC Qualifiers.'



**YOUR LAB OF CHOICE**

Encana  
 Charlie Jensen  
 2717 Co. Rd. 215, Ste 100  
 Parachute, CO 81635

Quality Assurance Report  
 Level II

L567652

12065 Lebanon Rd.  
 Mt. Juliet, TN 37122  
 (615) 758-5858  
 1-800-767-5859  
 Fax (615) 758-5859

Tax I.D. 62-0814289

Est. 1970

April 05, 2012

Analyte	Units	Laboratory Control Sample Duplicate			Limit	RPD	Limit	Batch
		Result	Ref	%Rec				
Ethane	mg/l	0.724	0.723	112.	70-130	0.0800	25	WG586066
Ethene	mg/l	0.702	0.702	110.	70-130	0.0500	25	WG586066
Methane	mg/l	0.354	0.351	104.	70-130	0.730	25	WG586066
Chloride	mg/l	40.0	40.0	100.	90-110	0	20	WG586007
Chloride	mg/l	39.8	40.1	100.	90-110	0.751	20	WG586031
Chloride	mg/l	40.1	40.2	100.	90-110	0.249	20	WG585739
Ethane	mg/l	0.723	0.719	112.	70-130	0.660	25	WG586221
Ethene	mg/l	0.700	0.696	110.	70-130	0.700	25	WG586221
Methane	mg/l	0.352	0.352	104.	70-130	0.0500	25	WG586221

Analyte	Units	Matrix Spike				Limit	Ref Samp	Batch
		MS Res	Ref Res	TV	% Rec			
Benzene	mg/l	0.0245	0	.025	98.0	51-134	L567652-08	WG585669
Ethylbenzene	mg/l	0.0249	0	.025	99.4	64-135	L567652-08	WG585669
Methyl tert-butyl ether	mg/l	0.0283	0	.025	113.	55-136	L567652-08	WG585669
Toluene	mg/l	0.0241	0	.025	96.3	61-126	L567652-08	WG585669
Total Xylenes	mg/l	0.0734	0	.075	97.8	64-133	L567652-08	WG585669
4-Bromofluorobenzene					97.95	82-120		WG585669
Dibromofluoromethane					109.7	82-126		WG585669
Toluene-d8					104.6	92-112		WG585669
a,a,a-Trifluorotoluene					108.0	90-116		WG585669
Benzene	mg/l	0.0234	0	.025	93.4	51-134	L567575-09	WG585671
Ethylbenzene	mg/l	0.0209	0	.025	83.7	64-135	L567575-09	WG585671
Methyl tert-butyl ether	mg/l	0.0242	0	.025	96.7	55-136	L567575-09	WG585671
Toluene	mg/l	0.0233	0	.025	93.0	61-126	L567575-09	WG585671
Total Xylenes	mg/l	0.0624	0	.075	83.2	64-133	L567575-09	WG585671
4-Bromofluorobenzene					103.4	82-120		WG585671
Dibromofluoromethane					104.6	82-126		WG585671
Toluene-d8					104.3	92-112		WG585671
a,a,a-Trifluorotoluene					101.4	90-116		WG585671
Chloride	mg/l	57.0	7.00	50	100.	80-120	L567582-06	WG585729
Chloride	mg/l	72.6	23.0	50	99.2	80-120	L567652-04	WG586007
Chloride	mg/l	79.4	30.0	50	98.8	80-120	L567652-14	WG586031
Benzene	mg/l	0.0206	0	.025	82.2	51-134	L567661-01	WG585679
Ethylbenzene	mg/l	0.0231	0	.025	92.4	64-135	L567661-01	WG585679
Methyl tert-butyl ether	mg/l	0.0228	0	.025	91.4	55-136	L567661-01	WG585679
Toluene	mg/l	0.0218	0	.025	87.2	61-126	L567661-01	WG585679
Total Xylenes	mg/l	0.0699	0	.075	93.2	64-133	L567661-01	WG585679

\* Performance of this Analyte is outside of established criteria.  
 For additional information, please see Attachment A 'List of Analytes with QC Qualifiers.'



**YOUR LAB OF CHOICE**

Encana  
 Charlie Jensen  
 2717 Co. Rd. 215, Ste 100  
 Parachute, CO 81635

Quality Assurance Report  
 Level II

L567652

12065 Lebanon Rd.  
 Mt. Juliet, TN 37122  
 (615) 758-5858  
 1-800-767-5859  
 Fax (615) 758-5859

Tax I.D. 62-0814289

Est. 1970

April 05, 2012

Analyte	Units	MS Res	Matrix Spike		% Rec	Limit	Ref Samp	Batch
			Ref Res	TV				
Sodium	mg/l	48.5	37.8	11.3	94.7	75-125	L567772-04	WG585882
Chloride	mg/l	60.3	10.0	50	101.	80-120	L567652-02	WG585739
Sodium	mg/l	279.	270.	11.3	79.6	75-125	L567652-16	WG585636

Analyte	Units	MSD	Matrix Spike Duplicate		Limit	RPD	Limit	Ref Samp	Batch
			Ref	%Rec					
Benzene	mg/l	0.0261	0.0245	104.	51-134	6.38	20	L567652-08	WG585669
Ethylbenzene	mg/l	0.0276	0.0249	110.	64-135	10.4	20	L567652-08	WG585669
Methyl tert-butyl ether	mg/l	0.0312	0.0283	125.	55-136	9.77	20	L567652-08	WG585669
Toluene	mg/l	0.0252	0.0241	101.	61-126	4.49	20	L567652-08	WG585669
Total Xylenes	mg/l	0.0831	0.0734	111.	64-133	12.4	20	L567652-08	WG585669
4-Bromofluorobenzene				103.9	82-120				WG585669
Dibromofluoromethane				108.9	82-126				WG585669
Toluene-d8				102.6	92-112				WG585669
a,a,a-Trifluorotoluene				110.1	90-116				WG585669
Benzene	mg/l	0.0246	0.0234	98.5	51-134	5.34	20	L567575-09	WG585671
Ethylbenzene	mg/l	0.0220	0.0209	88.1	64-135	5.19	20	L567575-09	WG585671
Methyl tert-butyl ether	mg/l	0.0250	0.0242	100.	55-136	3.33	20	L567575-09	WG585671
Toluene	mg/l	0.0241	0.0233	96.5	61-126	3.64	20	L567575-09	WG585671
Total Xylenes	mg/l	0.0646	0.0624	86.2	64-133	3.52	20	L567575-09	WG585671
4-Bromofluorobenzene				104.0	82-120				WG585671
Dibromofluoromethane				105.3	82-126				WG585671
Toluene-d8				103.6	92-112				WG585671
a,a,a-Trifluorotoluene				101.2	90-116				WG585671
Chloride	mg/l	57.4	57.0	101.	80-120	0.699	20	L567582-06	WG585729
Chloride	mg/l	74.2	72.6	102.	80-120	2.18	20	L567652-04	WG586007
Chloride	mg/l	80.6	79.4	101.	80-120	1.50	20	L567652-14	WG586031
Benzene	mg/l	0.0209	0.0206	83.6	51-134	1.68	20	L567661-01	WG585679
Ethylbenzene	mg/l	0.0230	0.0231	91.8	64-135	0.630	20	L567661-01	WG585679
Methyl tert-butyl ether	mg/l	0.0228	0.0228	91.0	55-136	0.420	20	L567661-01	WG585679
Toluene	mg/l	0.0219	0.0218	87.7	61-126	0.580	20	L567661-01	WG585679
Total Xylenes	mg/l	0.0706	0.0699	94.1	64-133	1.05	20	L567661-01	WG585679
Sodium	mg/l	48.9	48.5	98.2	75-125	0.821	20	L567772-04	WG585882
Chloride	mg/l	60.0	60.3	100.	80-120	0.499	20	L567652-02	WG585739
Sodium	mg/l	274.	279.	35.4*	75-125	1.81	20	L567652-16	WG585636

\* Performance of this Analyte is outside of established criteria.  
 For additional information, please see Attachment A 'List of Analytes with QC Qualifiers.'



YOUR LAB OF CHOICE

Encana
Charlie Jensen
2717 Co. Rd. 215, Ste 100
Parachute, CO 81635

Quality Assurance Report
Level II

L567652

12065 Lebanon Rd.
Mt. Juliet, TN 37122
(615) 758-5858
1-800-767-5859
Fax (615) 758-5859

Tax I.D. 62-0814289

Est. 1970

April 05, 2012

Batch number /Run number / Sample number cross reference

WG585669: R2097913: L567652-01 02 03 04 05 06 07 08
WG585671: R2100373: L567652-11 12 13 14 15 16 17 18 19 20 21 22 23 24
WG585729: R2100833: L567652-01
WG585679: R2101875: L567652-09 10
WG586066: R2102533: L567652-01 02 03 04 05 06 08 09 10 11 12 13 14
WG586007: R2103133: L567652-04 05 06 07 08 09 10 11 12
WG586031: R2103353: L567652-13 14 15 16 17 18 19 20 21 22 23 24
WG585882: R2103934: L567652-17 18 19 20 21 22 23 24
WG585739: R2104415: L567652-02 03
WG586221: R2104853: L567652-07 15 16 17 18 19 20 21 22 23 24
WG585636: R2105674: L567652-01 02 03 04 05 06 07 08 09 10 11 12 13 14 15 16

\* \* Calculations are performed prior to rounding of reported values.
\* Performance of this Analyte is outside of established criteria.
For additional information, please see Attachment A 'List of Analytes with QC Qualifiers.'



**YOUR LAB OF CHOICE**

Encana  
Charlie Jensen  
2717 Co. Rd. 215, Ste 100  
Parachute, CO 81635

Quality Assurance Report  
Level II

L567652

12065 Lebanon Rd.  
Mt. Juliet, TN 37122  
(615) 758-5858  
1-800-767-5859  
Fax (615) 758-5859

Tax I.D. 62-0814289

Est. 1970

April 05, 2012

The data package includes a summary of the analytic results of the quality control samples required by the SW-846 or CWA methods. The quality control samples include a method blank, a laboratory control sample, and the matrix spike/matrix spike duplicate analysis. If a target parameter is outside the method limits, every sample that is effected is flagged with the appropriate qualifier in Appendix B of the analytic report.

Method Blank - an aliquot of reagent water carried through the entire analytic process. The method blank results indicate if any possible contamination exposure during the sample handling, digestion or extraction process, and analysis. Concentrations of target analytes above the reporting limit in the method blank are qualified with the "B" qualifier.

Laboratory Control Sample - is a sample of known concentration that is carried through the digestion/extraction and analysis process. The percent recovery, expressed as a percentage of the theoretical concentration, has statistical control limits indicating that the analytic process is "in control". If a target analyte is outside the control limits for the laboratory control sample or any other control sample, the parameter is flagged with a "J4" qualifier for all effected samples.

Matrix Spike and Matrix Spike Duplicate - is two aliquots of an environmental sample that is spiked with known concentrations of target analytes. The percent recovery of the target analytes also has statistical control limits. If any recoveries that are outside the method control limits, the sample that was selected for matrix spike/matrix spike duplicate analysis is flagged with either a "J5" or a "J6". The relative percent difference (%RPD) between the matrix spike and the matrix spike duplicate recoveries is all calculated. If the RPD is above the method limit, the effected samples are flagged with a "J3" qualifier.

<b>Encana</b> 2717 Co. Rd. 215, Ste 100 Parachute, CO 81635		Billing information: Accounts Payable- Brett Middleton 2717 Co. Rd. 215, Ste 100 Parachute, CO 81635		Analysis/Container/Preservative CHLORIDE 12.5mlHDPE-NoPres NAICP 500mlHDPE-HNO3 <2 RSK175 40mlAmb-NoPres V8260BTEX 40mlAmb-NoPres V8260BTEX - preserved 40mlAmb-HCI					Chain of Custody Page 1 of 1 Received 6/1/2012 Rifle COGCC	
Report to: <b>Charlie Jensen</b>		Email: <b>Charles.Jensen@encana.com;</b>		Project Description: <b>West Divide Creek - 02E</b>		City/State Collected		L.A.B S-C-I-E-N-C-E-S 12065 Lebanon Road Mt. Juliet, TN 37122 Phone: (800) 767-5859 Phone: (615) 758-5858 Fax: (615) 758-5859 <b>C145</b>		
Phone: (970) 285-2739 FAX: (970) 625-4636		Client Project #.		Lab Project # <b>ENCRCO-WESTDIVIDE</b>		P.O.#.		Acctnum: ENCRCO (lab use only) Template/Prelogin <b>T77323/P386094</b> Cooler #: <b>37-126</b> Shipped Via: <b>FedEX Ground</b>		
Collected by (print): <b>Jeffrey D. Brandon</b>		Site/Facility ID#:		Date Results Needed		No. of Cntrs		Remarks/Contaminant Sample # (lab only)		
Collected by (signature): <i>[Signature]</i>		<b>Rush? (Lab MUST Be Notified)</b> Same Day ..... 200% Next Day ..... 100% Two Day ..... 50% Three Day ..... 25%		Email? <input type="checkbox"/> No <input checked="" type="checkbox"/> Yes FAX? <input checked="" type="checkbox"/> No <input type="checkbox"/> Yes				LS6743101 02 03 04 05 06 07 08		
Immediately Packed on Ice N <input type="checkbox"/> Y <input checked="" type="checkbox"/>										
Sample ID	Comp/Grab	Matrix*	Depth	Date	Time					
DCS-1-032812	Grab	GW		3-28-12	1411	10	X	X	X	
DCS-2-032812		GW			1400	10	X	X	X	
DCS-3-032812		GW			1340	10	X	X	X	
DCS-4-032812		GW			1320	10	X	X	X	
DCS-5-032812		GW			1255	10	X	X	X	
DCS-6-032812		GW			1235	10	X	X	X	
DCS-7-032812		GW			1215	10	X	X	X	
DCS-8-032812		GW			1115	10	X	X	X	
		GW				10	X	X	X	

\*Matrix: SS - Soil GW - Groundwater WW - WasteWater DW - Drinking Water OT - Other \_\_\_\_\_

pH \_\_\_\_\_ Temp \_\_\_\_\_

Remarks: V8260BTEX is non-preserved and has 7-day holding time on all samples except for one that is marked as "preserved".

Flow \_\_\_\_\_ Other \_\_\_\_\_

5086 5832 7803

Relinquished by (Signature): <i>[Signature]</i>	Date: 3-28-12	Time: 1745	Received by (Signature): <i>[Signature]</i>	Samples returned via: <input checked="" type="checkbox"/> UPS <input checked="" type="checkbox"/> FedEx <input type="checkbox"/> Courier <input type="checkbox"/>	Condition: <b>JF</b> (lab use only) <b>OK</b>
Relinquished by (Signature): <i>[Signature]</i>	Date:	Time:	Received by (Signature): <i>[Signature]</i>	Temp: <b>3.1</b> Bottles Received: <b>90</b>	COC Seal Intact: <input type="checkbox"/> Y <input checked="" type="checkbox"/> N <input type="checkbox"/> NA
Relinquished by (Signature): <i>[Signature]</i>	Date:	Time:	Received for lab by (Signature): <i>[Signature]</i>	Date: 3-29-12 Time: 0900	pH Checked: <b>4.2</b> NCF:

**Encana**  
 2717 Co. Rd. 215. Ste 100  
 Parachute, CO 81635

Billing information:  
 Accounts Payable- Brett Middleton  
 2717 Co. Rd. 215, Ste 100  
 Parachute, CO 81635

Analysis/Container/Preservative

Chain of Custody  
 Received 6/1/2012 Rifle CGC  
 Page 12 of 31  
 1 of 3  
  
 L.A.B S.C.I.E.N.C.E.S  
 12065 Lebanon Road  
 Mt Juliet, TN 37122  
 Phone: (800) 767-5859  
 Phone: (615) 758-5858  
 Fax: (615) 758-5859  
 1118

Report to: **Charlie Jensen**

Email: **Charles.Jensen@encana.com**

Project Description: **West Divide Creek - 02E**

City/State Collected

Phone: (970) 285-2739  
 FAX: (970) 625-4636

Client Project #: \_\_\_\_\_  
 Lab Project #: **ENCRCO-WESTDIVIDE**

Collected by (print): **Jeff Braden**

Site/Facility ID#: \_\_\_\_\_  
 P.O.#: \_\_\_\_\_

Collected by (signature): \_\_\_\_\_  
 Immediately Packed on Ice N \_\_\_ Y **X**

**Rush?** (Lab MUST Be Notified)  
 Same Day ..... 200%  
 Next Day ..... 100%  
 Two Day ..... 50%  
 Three Day ..... 25%

Date Results Needed \_\_\_\_\_  
 Email? No \_\_\_ Yes **X**  
 FAX? **X**No \_\_\_ Yes

No. of Cntrs \_\_\_\_\_

CHLORIDE 125mlHDPE-NoPres	NAICP 500mlHDPE-HNO3 <2	RSKI75 40mlAmb-NoPres	V8260BTEX 40mlAmb-NoPres	V8260BTEX - preserved 40mlAmb-HCl
---------------------------	-------------------------	-----------------------	--------------------------	-----------------------------------

Acctnum: **ENCRCO** (lab use only)  
 Template/Prelogin: **T77323/P386094**  
 Cooler #: **3-7-126**  
 Shipped Via: **FedEX Ground**

Sample ID	Comp/Grab	Matrix*	Depth	Date	Time	No. of Cntrs	CHLORIDE 125mlHDPE-NoPres	NAICP 500mlHDPE-HNO3 <2	RSKI75 40mlAmb-NoPres	V8260BTEX 40mlAmb-NoPres	V8260BTEX - preserved 40mlAmb-HCl	Remarks/Contaminant	Sample # (lab only)
MW-27-032812	Grab	GW		3-28-12	09:40	10	X	X	X	X	X		L567652-01
Eich-1-032812		GW		3-28-12	10:00	10	X	X	X	X	X		02
MW-23-032812		GW		3-28-12	10:30	10	X	X	X	X	X		03
MW-9-032912		GW		3-29-12	14:20	10	X	X	X	X	X		04
MW-14-032912		GW		3-29-12	14:40	10	X	X	X	X	X		05
MW-24-032912		GW		3-29-12	08:45	10	X	X	X	X	X		06
MW-26-032912		GW		3-29-12	09:25	10	X	X	X	X	X		07
MW-18-032912		GW		3-29-12	09:45	10	X	X	X	X	X		08
MW-22-032912		GW		3-29-10	10:00	10	X	X	X	X	X		09

\*Matrix: SS - Soil GW - Groundwater WW - WasteWater DW - Drinking Water OT - Other \_\_\_\_\_ pH \_\_\_\_\_ Temp \_\_\_\_\_

Remarks: V8260BTEX is non-preserved and has 7-day holding time on all samples except for one that is marked as "preserved". Flow \_\_\_\_\_ Other \_\_\_\_\_

5086 5832 7625  
 5086 5832 7614  
 4355 9311 4652  
 5086 5832 7636

Relinquished by: (Signature) _____	Date: 3/29/12	Time: 1700	Received by: (Signature) _____	Samples returned via: <input type="checkbox"/> UPS <input checked="" type="checkbox"/> FedEx <input type="checkbox"/> Courier <input type="checkbox"/> _____	Condition: JF (lab use only) OK
Relinquished by: (Signature) _____	Date: _____	Time: _____	Received by: (Signature) _____	Temp: 3.4 Bottles Received: 24013TB	COC Seal Intact: Y ___ N ___ NA
Relinquished by: (Signature) _____	Date: _____	Time: _____	Received for lab by: (Signature) J. Falk	Date: 03-30-12 Time: 091W	pH Checked: 22 NCF: _____



**Encana**  
 2717 Co. Rd. 215, Ste 100  
 Parachute, CO 81635

Billing information:  
 Accounts Payable- Brett Middleton  
 2717 Co. Rd. 215, Ste 100  
 Parachute, CO 81635

Analysis/Container/Preservative

Chain of Custody  
 Received 6/1/2012 Rifle Co. of 4  
 2 of 3

Report to: **Charlie Jensen**

Email: **Charles.Jensen@encana.com;**

Project Description: **West Divide Creek - 02E**

City/State Collected

Phone: (970) 285-2739  
 FAX: (970) 625-4636

Client Project #:

Lab Project #  
**ENCRCO-WESTDIVIDE**

Collected by (print):

Site/Facility ID#:

P.O.#:

Collected by (signature): *[Signature]*  
 Immediately Packed on Ice N    Y X

**Rush? (Lab MUST Be Notified)**  
 Same Day ..... 200%  
 Next Day ..... 100%  
 Two Day ..... 50%  
 Three Day ..... 25%

Date Results Needed  
 Email? No X Yes  
 FAX? X No Yes

CHLORIDE 125mlHDPE-NoPres	NAICP 500mlHDPE-HNO3	RSK 175 40mlAmb-NoPres	V8260BTEX 40mlAmb-NoPres	V8260BTEX - preserved 40mlAmb-HCl
---------------------------	----------------------	------------------------	--------------------------	-----------------------------------

**ESC**  
 LAB SCIENCES  
 12065 Lebanon Road  
 Mt Juliet, TN 37122  
 Phone: (800) 767-5859  
 Phone: (615) 758-5858  
 Fax: (615) 758-5859

Account: **ENCRCO** (lab use only)  
 Template/Prelogin: **T77323 P386094**  
 Cooler #: **3-7-126**  
 Shipped Via: **FedEX Ground**

Sample ID	Comp/Grab	Matrix*	Depth	Date	Time	No. of Cntrs	CHLORIDE 125mlHDPE-NoPres	NAICP 500mlHDPE-HNO3	RSK 175 40mlAmb-NoPres	V8260BTEX 40mlAmb-NoPres	V8260BTEX - preserved 40mlAmb-HCl
MW-20-032912	Gmb	GW		3-29-12	1015	10	X	X	X	X	X
MW-21-032912		GW		3-29-12	1030	10	X	X	X	X	X
MW-6-032912		GW		3-29-10	1045	10	X	X	X	X	X
MW-7-032912		GW		3-29-10	1100	10	X	X	X	X	X
MW-8-032912		GW		3-29-10	1125	10	X	X	X	X	X
MW-17-032912		GW		3-29-10	1140	10	X	X	X	X	X
MW-16-032912		GW		3-29-10	1200	10	X	X	X	X	X
MW-1-032912		GW		3-29-10	1220	10	X	X	X	X	X
MW-2-032912		GW		3-29-10	1240	10	X	X	X	X	X

Remarks/Contaminant Sample # (lab only)  
**L567652 -10**  
**-11**  
**-12**  
**-13**  
**-14**  
**-15**  
**-16**  
**-17**  
**-18**

\*Matrix: SS - Soil GW - Groundwater WW - WasteWater DW - Drinking Water OT - Other \_\_\_\_\_

pH \_\_\_\_\_ Temp \_\_\_\_\_

Remarks: V8260BTEX is non-preserved and has 7-day holding time on all samples except for one that is marked as "preserved".

Flow \_\_\_\_\_ Other \_\_\_\_\_

Relinquished by (Signature): <i>[Signature]</i>	Date: 3-29-12	Time: 1700	Received by (Signature): <i>[Signature]</i>	Samples returned via: <input type="checkbox"/> UPS <input checked="" type="checkbox"/> FedEx <input type="checkbox"/> Courier	Condition: <i>JF</i> (lab use only)
Relinquished by (Signature): <i>[Signature]</i>	Date:	Time:	Received by (Signature): <i>[Signature]</i>	Temp: 3.4	Bottles Received: 2410-3TB
Relinquished by (Signature): <i>[Signature]</i>	Date:	Time:	Received for lab by (Signature): <i>[Signature]</i>	Date: 03-30-12	Time: 0916
					COC Seal Intact: <u>  </u> Y <u>  </u> N <u>  </u> NA
					pH Checked: <u>  </u> <b>6.2</b>
					NCP: <u>  </u>

<b>Encana</b> 2717 Co. Rd. 215, Ste 100 Parachute, CO 81635			Billing information: Accounts Payable- Brett Middleton 2717 Co. Rd. 215, Ste 100 Parachute, CO 81635			Analysis/Container/Preservative Received 6/1/2012 Rifle CQC Chain of Custody Page 3 of 3 3 of 3								
Report to: <b>Charlie Jensen</b>			Email: <b>Charles.Jensen@encana.com</b>			CHLORIDE 125mlHDPE-NoPres NAICP 500mlHDPE-HNO3 RSK175 40mlAmb-NoPres V8260BTEX 40mlAmb-NoPres V8260BTEX- preserved 40mlAmb-HCl								
Project Description: <b>West Divide Creek - 02E</b>			City/State Collected											
Phone: (970) 285-2739 FAX: (970) 625-4636		Client Project #:		Lab Project # <b>ENCRCO-WESTDIVIDE</b>										
Collected by (print): <b>Jeff Brader</b>		Site/Facility ID#:		P.O.#:										
Collected by (signature): <i>[Signature]</i>		Rush? (Lab MUST Be Notified)		Date Results Needed										
Immediately Packed on Ice N <u>  </u> Y <u>X</u>		<input type="checkbox"/> Same Day ..... 200% <input type="checkbox"/> Next Day ..... 100% <input type="checkbox"/> Two Day ..... 50% <input type="checkbox"/> Three Day ..... 25%		<input type="checkbox"/> Email? No <u>X</u> Yes <input checked="" type="checkbox"/> FAX? No <u>X</u> Yes										
Sample ID		Comp/Grab	Matrix*	Depth	Date	Time	No. of Cntrs							
MW-4-032912		Grab	GW		3-29-12	1300	10	X	X	X	X	X		
MW-10-032912		Grab	GW		3-29-12	1320	10	X	X	X	X	X		
MW-11-032912		Grab	GW		3-29-12	1400	10	X	X	X	X	X		
DUP-1-032912		Grab	GW		3-29-12	1	10	X	X	X	X	X		
DUP-2-032912		Grab	GW		3-29-12	1	10	X	X	X	X	X		
DUP-3-032912		Grab	GW		3-29-12	1	10	X	X	X	X	X		
			GW				7	X	X	X	X			
			GW				7	X	X	X	X			
			GW				7	X	X	X	X			

Acctnum: **ENCRCO** (lab use only)  
 Template/Prelogin **T77323 P386094**  
 Cooler #: **3-7-126**  
 Shipped Via: **FedEX Ground**

Remarks/Contaminant Sample # (lab only)  
**L567652 -19**

\*Matrix: SS - Soil GW - Groundwater WW - WasteWater DW - Drinking Water OT - Other \_\_\_\_\_ pH \_\_\_\_\_ Temp \_\_\_\_\_  
 Remarks: V8260BTEX is non-preserved and has 7-day holding time on all samples except for one that is marked as "preserved". Flow \_\_\_\_\_ Other \_\_\_\_\_

Relinquished by: (Signature) <i>[Signature]</i>	Date: 3-29-12	Time: 1700	Received by: (Signature) <i>[Signature]</i>	Samples returned via: <input type="checkbox"/> UPS <input checked="" type="checkbox"/> FedEx <input type="checkbox"/> Courier <input type="checkbox"/>	Condition: <b>JF</b> (lab use only)
Relinquished by: (Signature) <i>[Signature]</i>	Date:	Time:	Received by: (Signature) <i>[Signature]</i>	Temp: <b>3:4</b> Bottles Received: <b>2-10+3TB</b>	COC Seal Intact: <u>  </u> Y <u>  </u> N <u>  </u> NA <b>OK</b>
Relinquished by: (Signature) <i>[Signature]</i>	Date:	Time:	Received for lab by: (Signature) <i>[Signature]</i>	Date: 03-30-12 Time: 0900	pH Checked: <b>22</b> NCF: <b>22</b>

**ANALYSIS REPORT**

Lab #: 242980 Job #: 17849  
 Sample Name/Number: MW-2-032912  
 Company: Encana Oil & Gas  
 Date Sampled: 3/29/2012  
 Container: Dissolved Gas Bottle  
 Field/Site Name: West Divide Creek  
 Location:  
 Formation/Depth:  
 Sampling Point:  
 Date Received: 4/02/2012 Date Reported: 5/07/2012

Component	Chemical mol. %	$\delta^{13}\text{C}$ ‰	$\delta\text{D}$ ‰	$\delta^{18}\text{O}$ ‰
Carbon Monoxide -----	nd			
Hydrogen Sulfide -----	na			
Helium -----	na			
Hydrogen -----	nd			
Argon -----	0.519			
Oxygen -----	7.01			
Nitrogen -----	26.35			
Carbon Dioxide -----	1.64			
Methane -----	55.07	-40.56	-187.9	
Ethane -----	6.48	-28.02		
Ethylene -----	nd			
Propane -----	2.10	-26.08		
Propylene -----	nd			
Iso-butane -----	0.318			
N-butane -----	0.350			
Iso-pentane -----	0.0836			
N-pentane -----	0.0329			
Hexanes + -----	0.0423			

Total BTU/cu.ft. dry @ 60deg F &amp; 14.73psia, calculated: 755

Specific gravity, calculated: 0.786

## Remarks:

Analysis is of gas extracted from water by headspace equilibration. Analysis has been corrected for helium added to create headspace. Helium dilution factor = 0.60

\*Addition of helium negates the ability to detect native helium and may negate the ability to detect hydrogen.

nd = not detected. na = not analyzed. Isotopic composition of hydrogen is relative to VSMOW. Isotopic composition of carbon is relative to VPDB. Isotopic composition of oxygen is relative to VSMOW, except for carbon dioxide which is relative to VPDB. Calculations for BTU and specific gravity per ASTM D3588. Chemical compositions are normalized to 100%. Mol. % is approximately equal to vol. %.

**ANALYSIS REPORT**

Lab #: 242981 Job #: 17849  
 Sample Name/Number: MW-4-032912  
 Company: Encana Oil & Gas  
 Date Sampled: 3/29/2012  
 Container: Dissolved Gas Bottle  
 Field/Site Name: West Divide Creek  
 Location:  
 Formation/Depth:  
 Sampling Point:  
 Date Received: 4/02/2012 Date Reported: 5/07/2012

Component	Chemical mol. %	$\delta^{13}\text{C}$ ‰	$\delta\text{D}$ ‰	$\delta^{18}\text{O}$ ‰
Carbon Monoxide -----	0.052			
Hydrogen Sulfide -----	na			
Helium -----	na			
Hydrogen -----	nd			
Argon -----	0.806			
Oxygen -----	6.07			
Nitrogen -----	39.90			
Carbon Dioxide -----	2.99			
Methane -----	43.35	-39.69	-185.9	
Ethane -----	4.73	-28.08		
Ethylene -----	nd			
Propane -----	1.54	-25.88		
Propylene -----	nd			
Iso-butane -----	0.238			
N-butane -----	0.231			
Iso-pentane -----	0.0630			
N-pentane -----	0.0103			
Hexanes + -----	0.0215			

Total BTU/cu.ft. dry @ 60deg F &amp; 14.73psia, calculated: 582

Specific gravity, calculated: 0.835

## Remarks:

Analysis is of gas extracted from water by headspace equilibration. Analysis has been corrected for helium added to create headspace. Helium dilution factor = 0.64

\*Addition of helium negates the ability to detect native helium and may negate the ability to detect hydrogen.

nd = not detected. na = not analyzed. Isotopic composition of hydrogen is relative to VSMOW. Isotopic composition of carbon is relative to VPDB. Isotopic composition of oxygen is relative to VSMOW, except for carbon dioxide which is relative to VPDB. Calculations for BTU and specific gravity per ASTM D3588. Chemical compositions are normalized to 100%. Mol. % is approximately equal to vol. %.

**ANALYSIS REPORT**

Lab #: 242982 Job #: 17849  
 Sample Name/Number: MW-9-032912  
 Company: Encana Oil & Gas  
 Date Sampled: 3/29/2012  
 Container: Dissolved Gas Bottle  
 Field/Site Name: West Divide Creek  
 Location:  
 Formation/Depth:  
 Sampling Point:  
 Date Received: 4/02/2012 Date Reported: 5/07/2012

Component	Chemical mol. %	$\delta^{13}\text{C}$ ‰	$\delta\text{D}$ ‰	$\delta^{18}\text{O}$ ‰
Carbon Monoxide -----	nd			
Hydrogen Sulfide -----	na			
Helium -----	na			
Hydrogen -----	nd			
Argon -----	0.892			
Oxygen -----	1.19			
Nitrogen -----	41.70			
Carbon Dioxide -----	4.66			
Methane -----	46.05	-41.38	-189.4	
Ethane -----	4.02	-28.33		
Ethylene -----	nd			
Propane -----	1.10	-25.53		
Propylene -----	nd			
Iso-butane -----	0.141			
N-butane -----	0.172			
Iso-pentane -----	0.0398			
N-pentane -----	0.0189			
Hexanes + -----	0.0212			

Total BTU/cu.ft. dry @ 60deg F &amp; 14.73psia, calculated: 579

Specific gravity, calculated: 0.822

## Remarks:

Analysis is of gas extracted from water by headspace equilibration. Analysis has been corrected for helium added to create headspace. Helium dilution factor = 0.61

\*Addition of helium negates the ability to detect native helium and may negate the ability to detect hydrogen.

nd = not detected. na = not analyzed. Isotopic composition of hydrogen is relative to VSMOW. Isotopic composition of carbon is relative to VPDB. Isotopic composition of oxygen is relative to VSMOW, except for carbon dioxide which is relative to VPDB. Calculations for BTU and specific gravity per ASTM D3588. Chemical compositions are normalized to 100%. Mol. % is approximately equal to vol. %.

**ANALYSIS REPORT**

Lab #: 242983 Job #: 17849  
 Sample Name/Number: MW-14-032912  
 Company: Encana Oil & Gas  
 Date Sampled: 3/29/2012  
 Container: Dissolved Gas Bottle  
 Field/Site Name: West Divide Creek  
 Location:  
 Formation/Depth:  
 Sampling Point:  
 Date Received: 4/02/2012 Date Reported: 5/07/2012

Component	Chemical mol. %	$\delta^{13}\text{C}$ ‰	$\delta\text{D}$ ‰	$\delta^{18}\text{O}$ ‰
Carbon Monoxide -----	nd			
Hydrogen Sulfide -----	na			
Helium -----	na			
Hydrogen -----	nd			
Argon -----	0.537			
Oxygen -----	0.88			
Nitrogen -----	26.30			
Carbon Dioxide -----	7.52			
Methane -----	56.37	-39.67	-185.3	
Ethane -----	5.63	-28.42		
Ethylene -----	nd			
Propane -----	1.89	-26.06		
Propylene -----	nd			
Iso-butane -----	0.307			
N-butane -----	0.362			
Iso-pentane -----	0.0914			
N-pentane -----	0.0637			
Hexanes + -----	0.0490			

Total BTU/cu.ft. dry @ 60deg F &amp; 14.73psia, calculated: 750

Specific gravity, calculated: 0.804

## Remarks:

Analysis is of gas extracted from water by headspace equilibration. Analysis has been corrected for helium added to create headspace. Helium dilution factor = 0.60

\*Addition of helium negates the ability to detect native helium and may negate the ability to detect hydrogen.

nd = not detected. na = not analyzed. Isotopic composition of hydrogen is relative to VSMOW. Isotopic composition of carbon is relative to VPDB. Isotopic composition of oxygen is relative to VSMOW, except for carbon dioxide which is relative to VPDB. Calculations for BTU and specific gravity per ASTM D3588. Chemical compositions are normalized to 100%. Mol. % is approximately equal to vol. %.

**ANALYSIS REPORT**

Lab #: 242984 Job #: 17849  
 Sample Name/Number: MW-17-032912  
 Company: Encana Oil & Gas  
 Date Sampled: 3/29/2012  
 Container: Dissolved Gas Bottle  
 Field/Site Name: West Divide Creek  
 Location:  
 Formation/Depth:  
 Sampling Point:  
 Date Received: 4/02/2012 Date Reported: 5/07/2012

Component	Chemical mol. %	$\delta^{13}\text{C}$ ‰	$\delta\text{D}$ ‰	$\delta^{18}\text{O}$ ‰
Carbon Monoxide -----	0.018			
Hydrogen Sulfide -----	na			
Helium -----	na			
Hydrogen -----	nd			
Argon -----	1.44			
Oxygen -----	2.39			
Nitrogen -----	76.87			
Carbon Dioxide -----	5.52			
Methane -----	12.49	-44.95	-181.5	
Ethane -----	1.21	-27.3		
Ethylene -----	nd			
Propane -----	0.0573	-18.0		
Propylene -----	nd			
Iso-butane -----	0.0003			
N-butane -----	0.0013			
Iso-pentane -----	nd			
N-pentane -----	nd			
Hexanes + -----	0.0003			

Total BTU/cu.ft. dry @ 60deg F &amp; 14.73psia, calculated: 150

Specific gravity, calculated: 0.957

## Remarks:

Analysis is of gas extracted from water by headspace equilibration. Analysis has been corrected for helium added to create headspace. Helium dilution factor = 0.68

\*Addition of helium negates the ability to detect native helium and may negate the ability to detect hydrogen.

\*\* Ethane and propane carbon isotopes obtained online via the GC-C-IRMS

nd = not detected. na = not analyzed. Isotopic composition of hydrogen is relative to VSMOW. Isotopic composition of carbon is relative to VPDB. Isotopic composition of oxygen is relative to VSMOW, except for carbon dioxide which is relative to VPDB. Calculations for BTU and specific gravity per ASTM D3588. Chemical compositions are normalized to 100%. Mol. % is approximately equal to vol. %.

**ANALYSIS REPORT**

Lab #: 242985 Job #: 17849  
 Sample Name/Number: MW-26-032912  
 Company: Encana Oil & Gas  
 Date Sampled: 3/29/2012  
 Container: Dissolved Gas Bottle  
 Field/Site Name: West Divide Creek  
 Location:  
 Formation/Depth:  
 Sampling Point:  
 Date Received: 4/02/2012 Date Reported: 5/07/2012

Component	Chemical mol. %	$\delta^{13}\text{C}$ ‰	$\delta\text{D}$ ‰	$\delta^{18}\text{O}$ ‰
Carbon Monoxide -----	0.022			
Hydrogen Sulfide -----	na			
Helium -----	na			
Hydrogen -----	nd			
Argon -----	1.21			
Oxygen -----	11.45			
Nitrogen -----	56.47			
Carbon Dioxide -----	7.26			
Methane -----	23.59	-61.28	-305.4	
Ethane -----	nd			
Ethylene -----	nd			
Propane -----	nd			
Propylene -----	nd			
Iso-butane -----	nd			
N-butane -----	nd			
Iso-pentane -----	nd			
N-pentane -----	nd			
Hexanes + -----	nd			

Total BTU/cu.ft. dry @ 60deg F &amp; 14.73psia, calculated: 239

Specific gravity, calculated: 0.931

## Remarks:

Analysis is of gas extracted from water by headspace equilibration. Analysis has been corrected for helium added to create headspace. Helium dilution factor = 0.68

\*Addition of helium negates the ability to detect native helium and may negate the ability to detect hydrogen.

nd = not detected. na = not analyzed. Isotopic composition of hydrogen is relative to VSMOW. Isotopic composition of carbon is relative to VPDB. Isotopic composition of oxygen is relative to VSMOW, except for carbon dioxide which is relative to VPDB. Calculations for BTU and specific gravity per ASTM D3588. Chemical compositions are normalized to 100%. Mol. % is approximately equal to vol. %.