

Rule Engineering, LLC

Solutions to Regulations for Industry

May 10, 2013

Mr. Charlie Jensen
Encana Oil & Gas (USA) Inc.
143 Diamond Loop
Parachute, CO 81635

Re: West Divide Creek April 2013 Seep Status – Remediation #1815

Dear Mr. Jensen:

Rule Engineering (Rule) prepared this report to present the results of the quarterly monitoring and modification sampling associated with the West Divide Creek Seep for Encana Oil and Gas (USA) Inc. Rule was contracted by Encana to continue monitoring, 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 April 2013 sampling results, COGCC approved modification to the remediation system and sampling plan 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.

April 2013 and Monthly Modification Monitoring

Groundwater

From February 14, 2013 to March 12, 2013 Rule sampled MW-1, MW-2, MW-4, MW-8 and MW-17 on a monthly basis for an accelerated sampling schedule for sampling modifications to COGCC remediation #1815. On April 16, 2013 seven monitoring stations (MW-2, MW-4, MW-8, MW-12, MW-17, MW-20 and MW-22) were sampled in a combined effort with the monthly monitoring and quarterly monitoring. Prior to sample collection, static water levels were measured at the wells to within 0.01 feet (ft) from the top of the north side of the PVC casing using an electronic water level meter. 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, total dissolved solids (TDS), salinity and oxygen reduction potential (ORP) with an YSI® water quality meter. Groundwater field measurement results are provided in Table 1.

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. Monthly samples were analyzed for benzene, toluene, ethylbenzene, total xylene's (BTEX), method-8260. Quarterly samples were analyzed for BTEX and methane, method-RSK175.

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

Remediation System

On December 20, 2012 the air sparge system was shut down to evaluate source area concentrations and remediation through natural attenuation.

Results

Site Hydrology

During the April 2013 monitoring period, groundwater elevation varied from 5967 feet above mean seal level (AMSL) at MW-12 to 5949 feet at MW-22. Figure 2 illustrates the potentiometric surface for the site during this quarter. An average groundwater gradient was determined to be 0.025 with a groundwater flow to the northeast/north consistent with the drainage system of West Divide Creek within the seep area.

April 2013 Analytical Results

Groundwater analytical results indicate that monitoring stations MW-2, MW-4 and MW-17 had dissolved benzene concentrations of 0.018 mg/L, 0.042 mg/L and 0.0035 mg/L, respectively. Dissolved toluene and ethylbenzene concentrations were below detection levels in all wells. Total dissolved xylenes were detected at MW-2 and MW-4 at concentrations of 0.0032 mg/L and 0.005 mg/L, respectively. The detections of total xylenes are below COGCC Table 910-1 groundwater standards. Figure 3 illustrates dissolved BTEX and dissolved methane results for the April 2013.

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 and MW-4.

The highest concentrations of dissolved methane were observed in MW-4 (2.8 mg/L) and MW-2 (2.6 mg/L). Analytical results indicate methane was below 1.0 mg/L in all other sampled monitoring wells during the April 2013.

Monthly Modification and Monitoring

Following remediation system shut down, groundwater samples were collected from MW-1, MW-2, MW-4, MW-8 and MW-17 weekly followed by monthly to evaluate changes while the system was inactive. No anomalies were observed during the weekly monitoring from December 20, 2012 through January 10, 2013 or the monthly monitoring from February 14, 2013 through March 12, 2013. Field DO readings indicate no drop in DO levels after system shut down. Weekly and monthly field inspections of West Divide Creek surface-water monitoring stations indicated no adverse observations from DCS-1-8.

Below is a summary of monitoring stations impacted by the seep:

- MW-1: Dissolved benzene concentrations declined to non-detect levels before the system was installed (Figure 5) and have remained below the groundwater standard since March 2005. Monthly sampling indicates benzene did not migrate from the source area to MW-1 during system shutdown.
- MW-2: Dissolved benzene concentrations remain above the groundwater standard (Figure 6). MW-2 is upgradient of the treatment area, but dissolved benzene concentrations have declined over time. The highest observed concentration during the monthly sampling events was 0.062 mg/L which is consistent with previous data.
- MW-4: Dissolved benzene concentrations remain above the groundwater standard (Figure 7). MW-4 is upgradient of the treatment area, but dissolved benzene concentrations have declined over time. The highest observed concentration during the monthly sampling events was 0.047 mg/L which is consistent with previous data.

- MW-8: Dissolved benzene concentrations declined to non-detect levels before the system was installed (Figure 8) and have remained below the groundwater standard since July 2005. Monthly sampling indicates benzene did not migrate from the source area to MW-8 during system shutdown.
- MW-12: 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-12 is upgradient of the treatment area.
- MW-17: Dissolved benzene concentrations declined before the system start up, and continue to decline (Figure 10). The highest observed concentration during the monthly sampling events was 0.026 mg/L however; sample collected April 16, 2013 had value below the groundwater standard.

A summary of the historical BTEX and Methane concentrations is provided in the electronic attachment (Appendix B).

Divide Creek Remediation Analysis

As described in previous West Divide Creek Seep Status Reports, 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. Quarterly monitoring will take place July, October, and December of 2013 for BTEX and methane in MW-2, MW-4, MW-8, MW-12, MW-17, MW-20 and MW-22 to evaluate any changes in the benzene and methane source area concentrations.

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

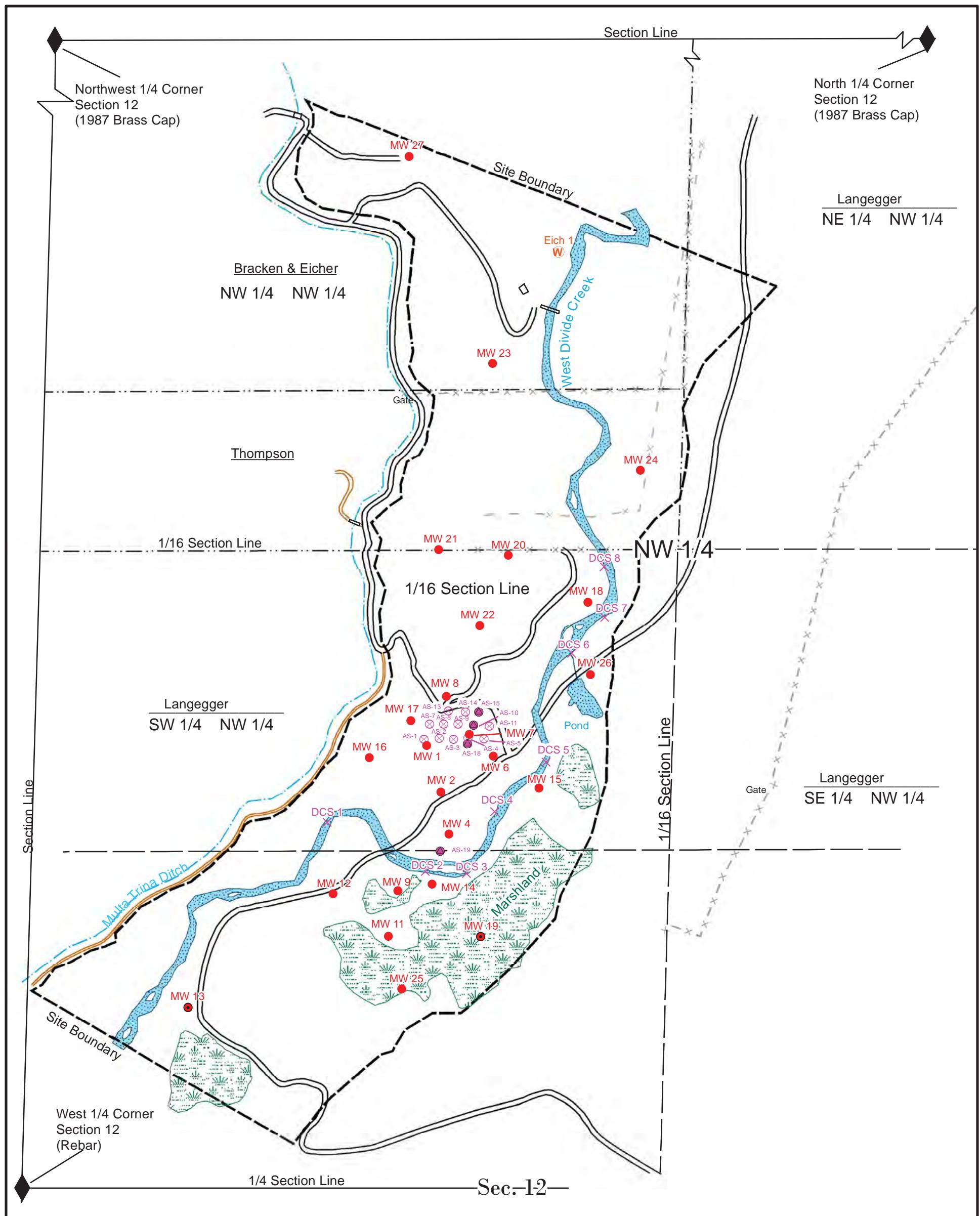
Sincerely,
Rule Engineering, LLC

Shad Johnson
Scientist/Project Manager

cc: Alex Fischer-COGCC
 Brett Middleton-Encana
 Russ Knight-Rule
 Pepi Langegger

Mr. Charlie Jensen
WDC April 2013 Status Report
May 10, 2013
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Figures

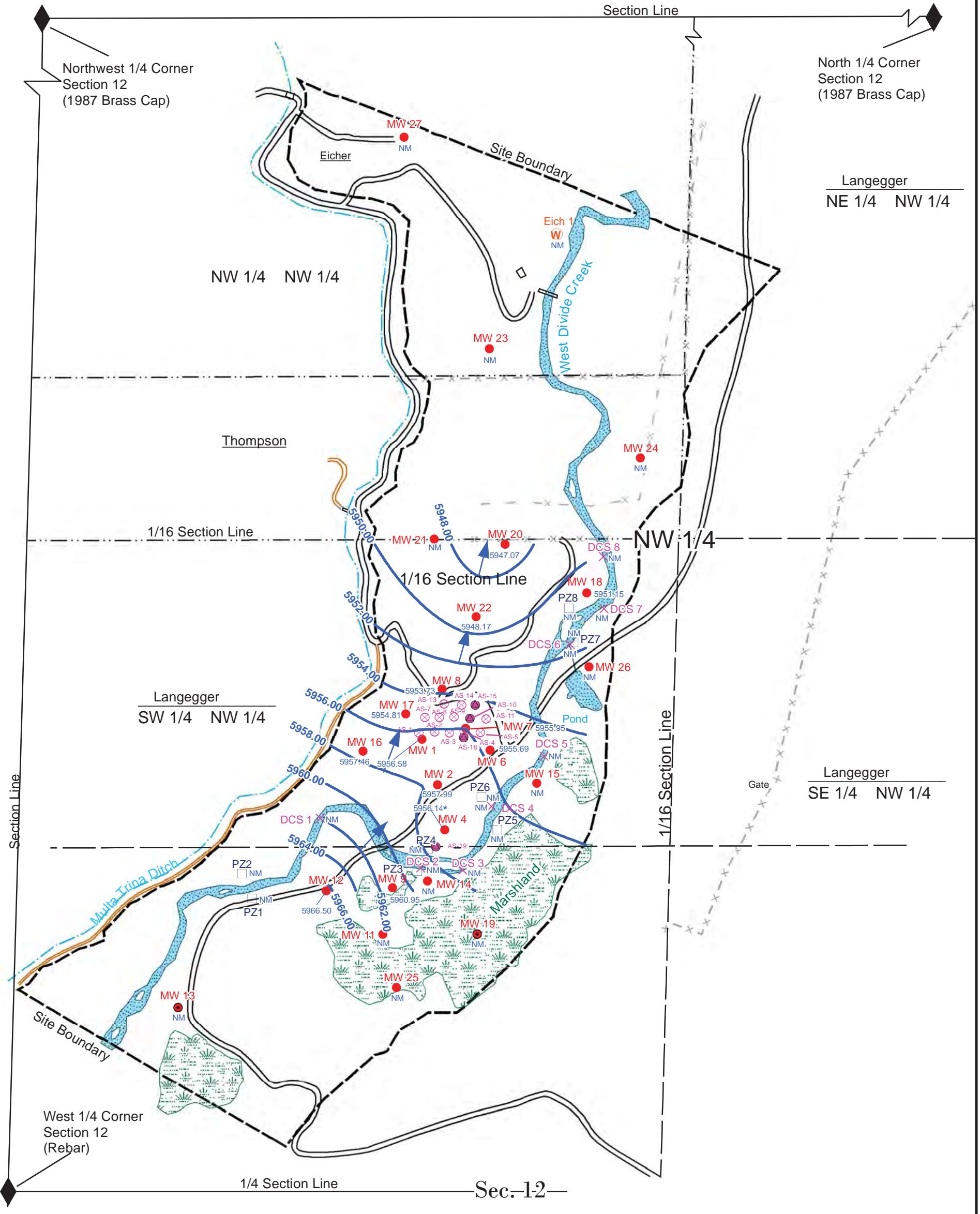


Legend

- 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

0 100 200 400 600 Feet

Site Location Map

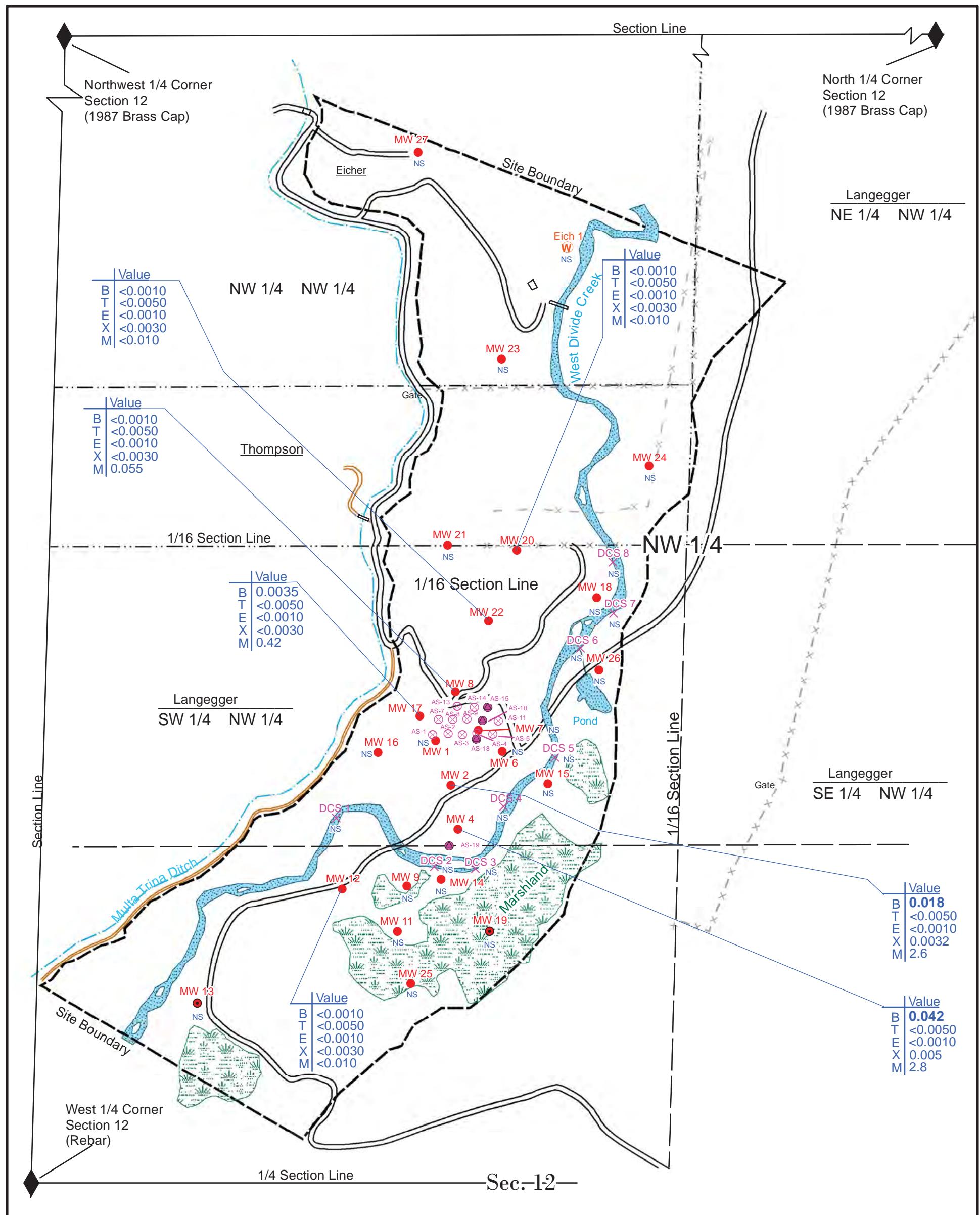


- Legend**
- Site Boundary
 - Road
 - - - Drainage
 - X — Fence
 - X — Old Fence
 - - - Property Line
 - Trail
 - Air_Sparge_unconverted
 - X — Divide Creek Sample Location
 - Monitoring Well Location
 - Abandoned or Plugged Monitoring Well Location
 - Nested Air Sparge Well Location
 - Piezometer Location
 - ◆ 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



Groundwater Elevation Map
April 2013



Legend

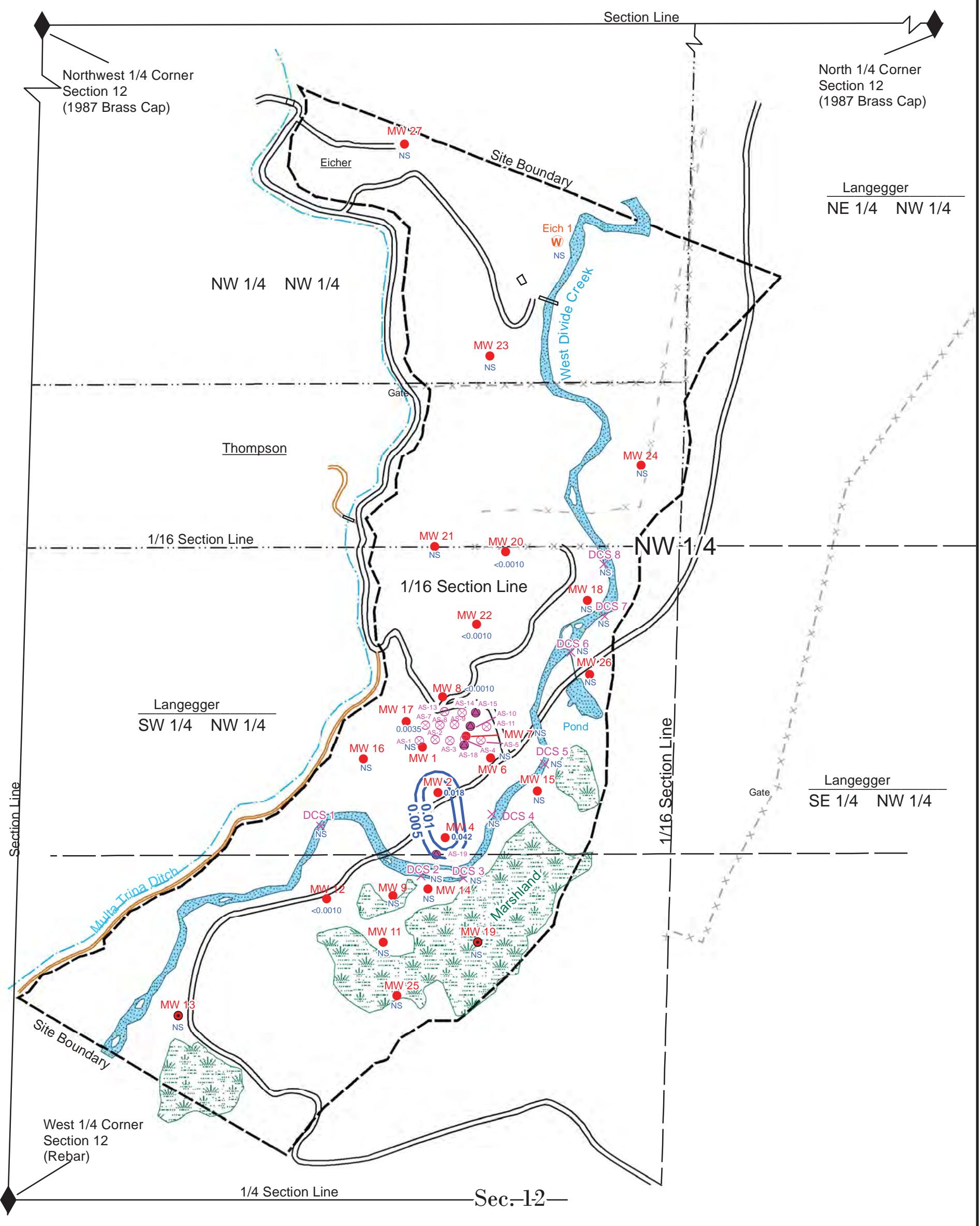
- Site Boundary
- Road
- Drainage
- X Fence
- X Old Fence
- ··· Property Line
- Trail
- Air Sparge
- × Divide Creek Sample Location
- Monitoring Well Location
- Abandoned or Plugged Monitoring Well Location
- Nested Air Sparge Well Location
- Piezometer Location
- ◆ Section Corners

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
 NA = Not Analyzed

0 100 200 400 600 Feet

Groundwater Analytical Results
April 2013

encana
natural gas



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

- 0.005 = Benzene Concentration Contour (mg/L)
- 0.045 = Benzene Concentration (mg/L)
- NS = Not Sampled

0 100 200 400 600 Feet

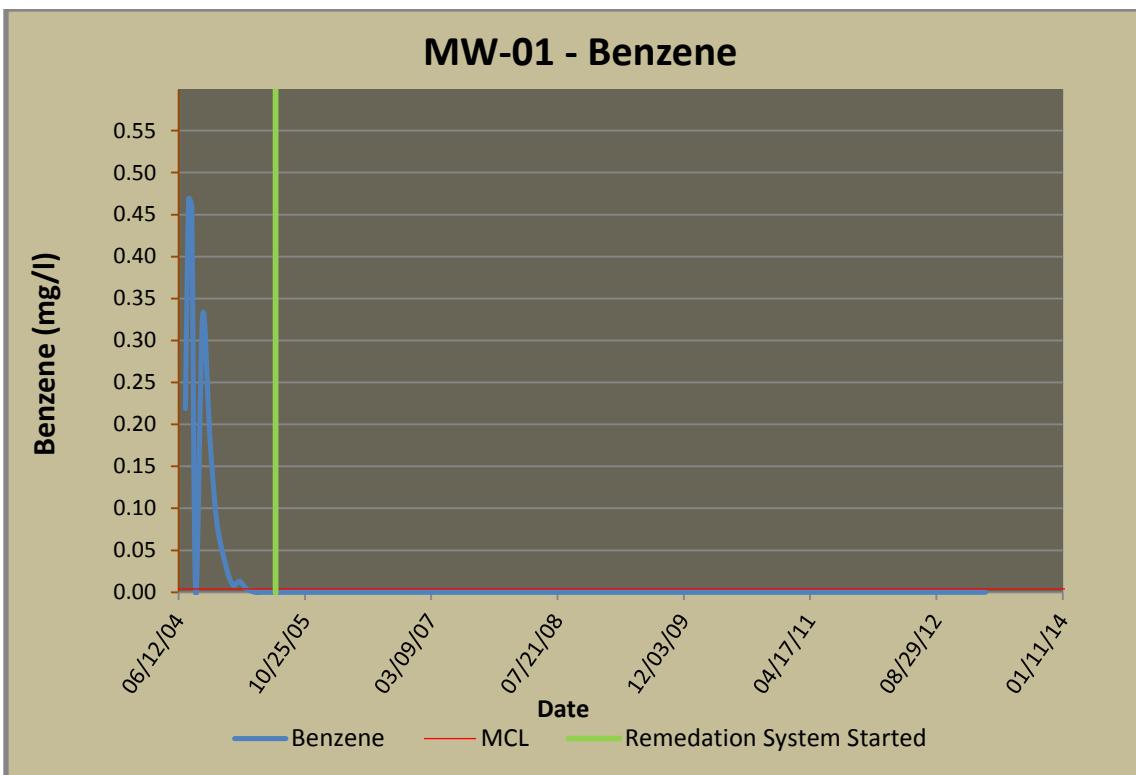


Figure 5 (MW-01 Historical Benzene Concentrations)

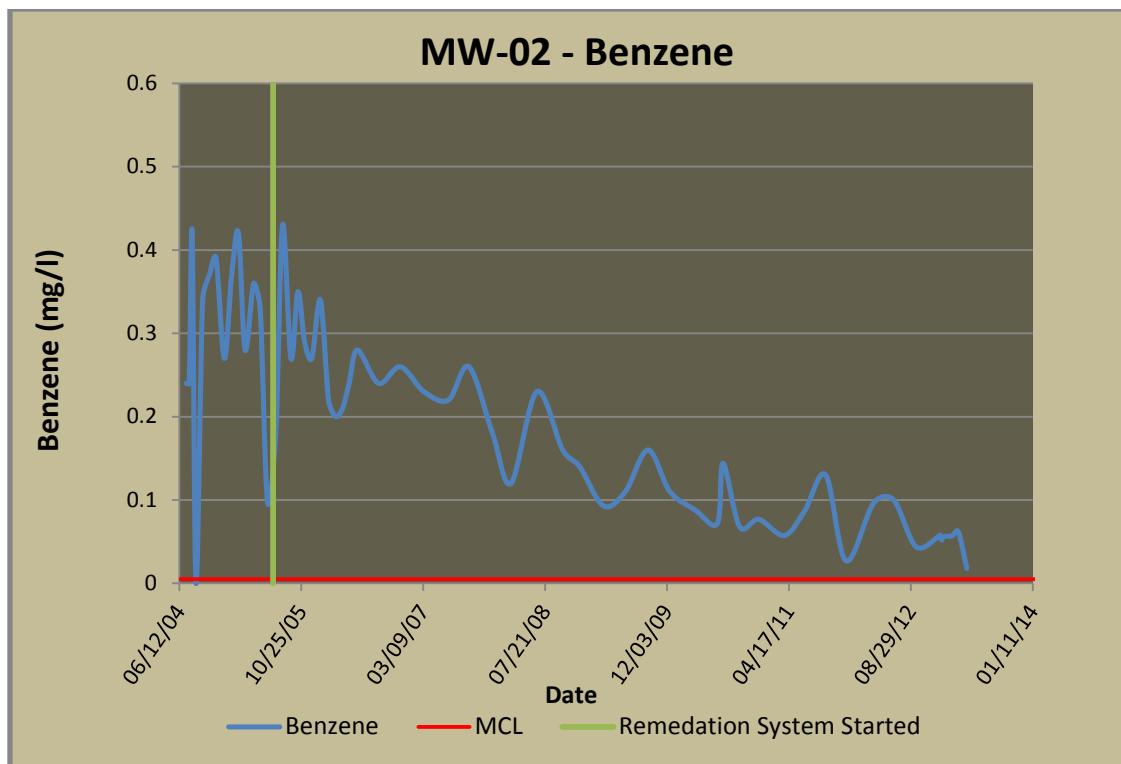


Figure 6 (MW-02 Historical Benzene Concentrations)

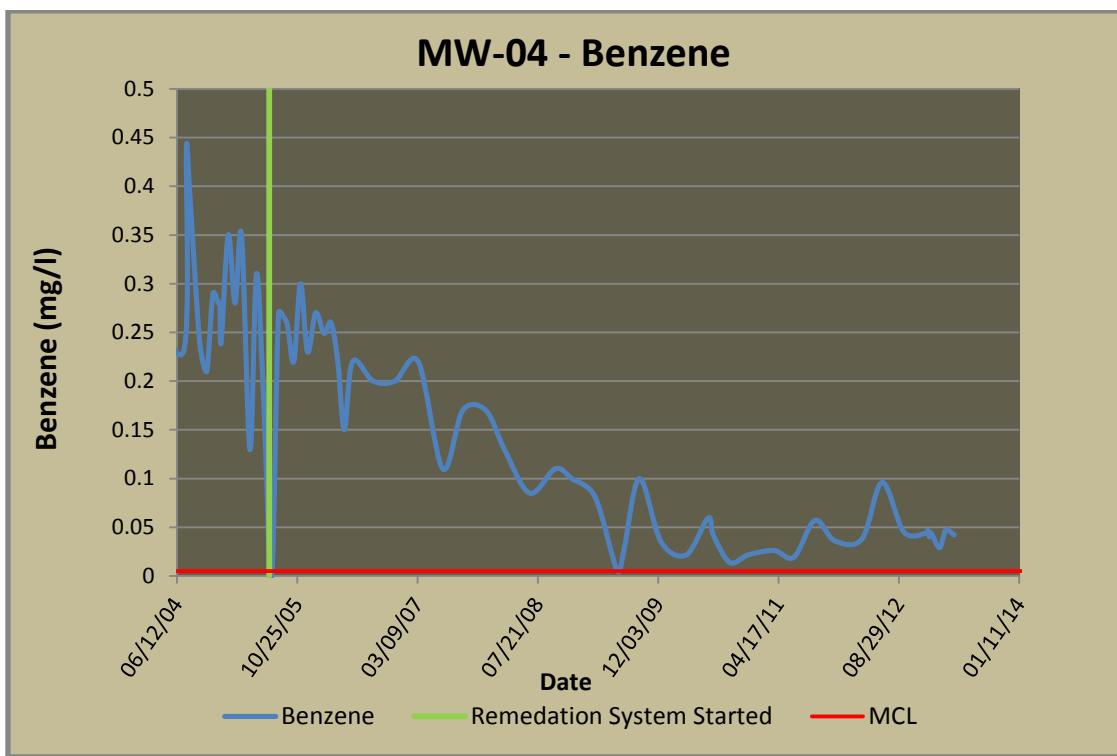


Figure 7 (MW-04 Historical Benzene Concentrations)

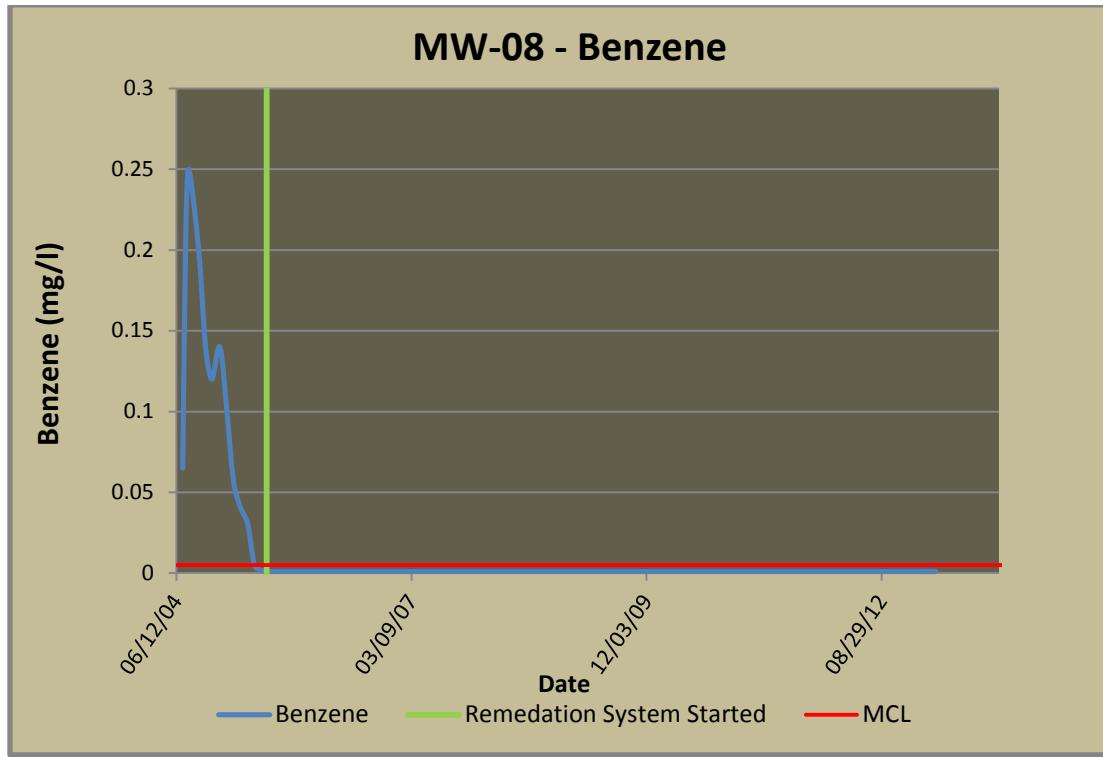


Figure 8 (MW-08 Historical Benzene Concentrations)

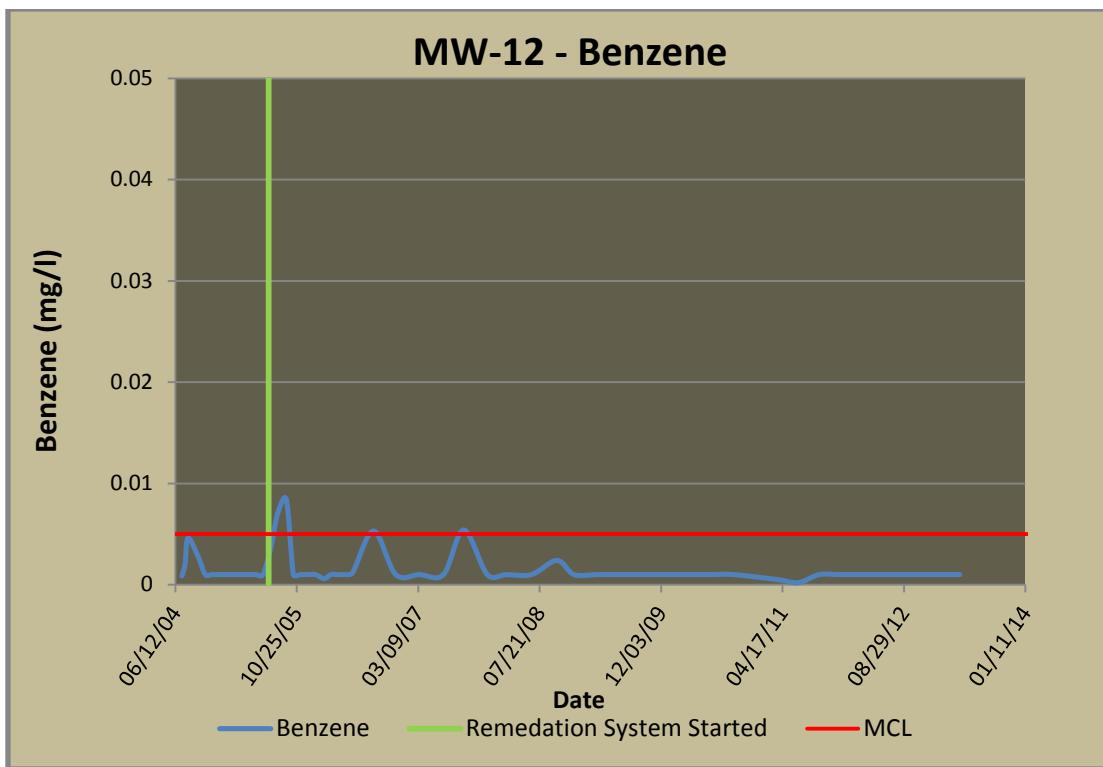


Figure 9 (MW-12 Historical Benzene Concentrations)

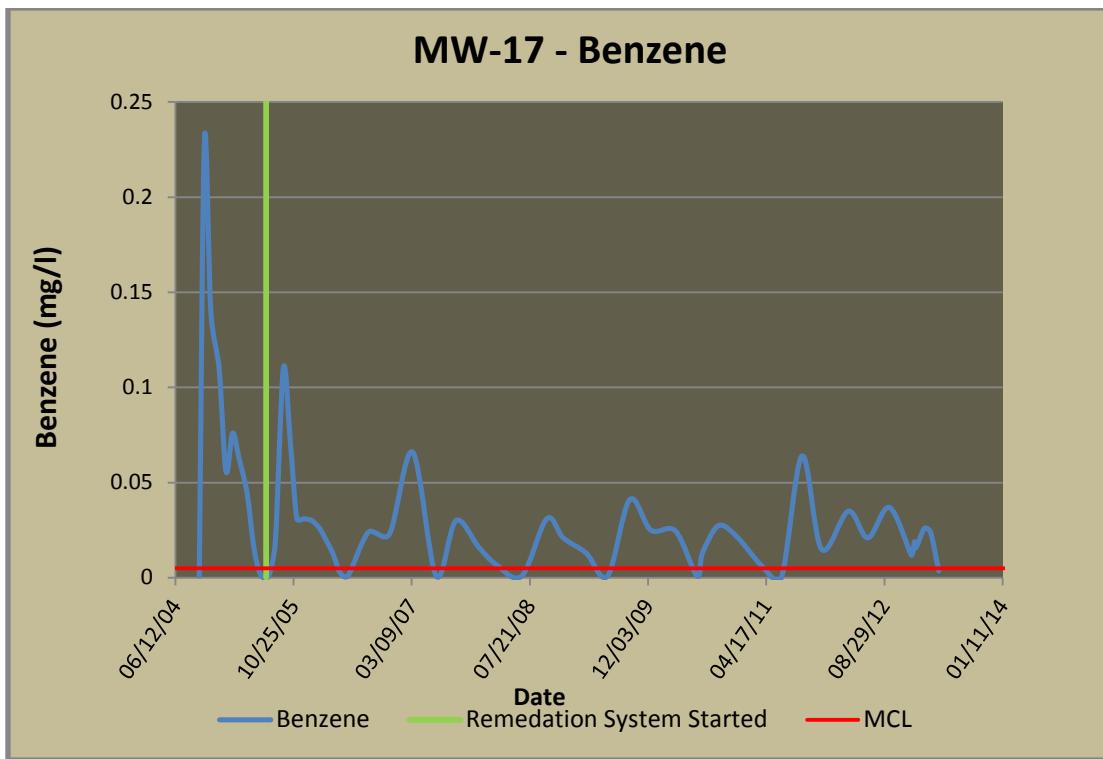


Figure 10 (MW-17 Historical Benzene Concentrations)

Tables

Table 1. 2/14/13 - 4/16/13 Groundwater Field Parameters

Monitoring Station	Date	DTW (ft)	Temp (°C)	SPC (mS/cm)	DO (mg/L)	TDS (mg/L)	SAL (ppt)	pH	ORP (mV)	Water Quality Observations
MW-1	2/14/2013	6.23	8.70	1.1	2.43	622.10	0.49	7.36	-76.20	Light brown in color, no sheen, no effervescence, mild sulfur odor, mildly visually turbid
MW-2	2/14/2013	3.10	8.40	0.76	2.31	515.10	0.26	7.74	-67.20	Light brown in color, minor effervescence, no sheen, no odor
MW-4	2/14/2013	7.55	8.40	0.826	1.51	474.10	0.39	7.67	-133.10	Light gray in color, no effervescence, no sheen, no odor, mild visually turbid
MW-8	2/14/2013	9.32	8.10	0.86	2.42	583.20	0.42	7.61	-91.30	Light brown in color, no effervescence, no sheen, no odor
MW-17	2/14/2013	7.17	8.30	1.26	1.27	734.50	0.49	7.58	-132.10	Dark brown in color, no sheen, no effervescence, sulfur odor, heavily visually turbid
MW-1	3/12/2013	6.18	8.60	1.25	2.31	631.30	0.50	7.35	-81.60	Light brown in color, no sheen, no effervescence, mildly visually turbid
MW-2	3/12/2013	2.96	8.40	0.8	1.73	519.70	0.31	7.61	-93.60	Medium brown in color, minor effervescence, no sheen, no odor
MW-4	3/12/2013	7.50	8.80	0.737	1.91	432.60	0.27	7.71	-85.30	Light gray in color, no effervescence, no sheen, no odor, mild sulfur odor, mild visually turbid
MW-8	3/12/2013	9.27	8.50	0.64	2.17	521.30	0.51	7.31	-82.10	Light grey in color, no effervescence, no sheen, no odor
MW-17	3/12/2013	7.12	8.70	1.49	1.65	753.70	0.71	7.75	-65.30	Dark brown in color, no sheen, no effervescence, sulfur odor, heavily visually turbid
MW-2	4/16/2013	4.71	8.50	0.82	2.95	533.00	0.40	7.37	-60.20	Light brown in color, no sheen, no effervescence, mild sulfur odor, mildly visually turbid
MW-4	4/16/2013	7.26	8.50	0.77	2.99	500.50	0.38	7.50	-78.20	Light brown in color, large particles present, minor effervescence, no sheen, no odor, highly visually turbid
MW-8	4/16/2013	8.87	8.20	0.92	2.53	591.50	0.45	7.39	-56.00	Light gray in color, no effervescence, no sheen, no odor, mild visually turbid
MW-12	4/16/2013	-0.10	5.80	0.82	5.14	533.00	0.40	7.24	-81.80	Light gray in color, no effervescence, no sheen, no odor, mild visually turbid
MW-17	4/16/2013	6.39	7.70	1.12	2.48	728.00	0.56	7.49	-61.40	Light brown in color, no sheen, no effervescence, no odor, mildly visually turbid
MW-20	4/16/2013	9.13	7.00	0.76	5.90	507.00	0.38	7.39	4.30	Light gray in color, no effervescence, no sheen, no odor, mild visually turbid
MW-22	4/16/2013	10.66	7.50	0.85	4.50	552.50	0.42	7.42	-22.40	Light brown in color, no sheen, no effervescence, no odor, mildly visually turbid

Notes: NR= Not recorded

Table 2. 2/14/13 - 4/16/13 West Divide Creek BTEX Groundwater Concentrations

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
MW-1	MW-1-021413	L620549-01	2/14/2013	0.001	0.00033	ND		0.005	0.00078	ND		0.001	0.00038	ND		0.003	0.0011	ND	
MW-2	MW-2-021413	L620549-02	2/14/2013	0.001	0.00033	0.057		0.005	0.00078	ND		0.001	0.00038	ND		0.003	0.0011	0.012	
MW-4	MW-4-021413	L620549-03	2/14/2013	0.001	0.00033	0.029		0.005	0.00078	ND		0.001	0.00038	ND		0.003	0.0011	0.0047	
MW-8	MW-8-021413	L620549-04	2/14/2013	0.001	0.00033	ND		0.005	0.00078	ND		0.001	0.00038	ND		0.003	0.0011	ND	
MW-17	MW-17-021413	L620549-05	2/14/2013	0.001	0.00033	0.026		0.005	0.00078	ND		0.001	0.00038	ND		0.003	0.0011	ND	
MW-1	MW-1-031213	L624915-01	3/12/2013	0.001	0.00033	ND		0.005	0.00078	ND		0.001	0.00038	ND		0.003	0.0011	ND	
MW-2	MW-2-031213	L624915-02	3/12/2013	0.001	0.00033	0.062		0.005	0.00078	ND		0.001	0.00038	ND		0.003	0.0011	0.014	
MW-4	MW-4-031213	L624915-03	3/12/2013	0.001	0.00033	0.047		0.005	0.00078	ND		0.001	0.00038	ND		0.003	0.0011	0.0082	
MW-8	MW-8-031213	L624915-04	3/12/2013	0.001	0.00033	ND		0.005	0.00078	ND		0.001	0.00038	ND		0.003	0.0011	ND	
MW-17	MW-17-031213	L624915-05	3/12/2013	0.001	0.00033	0.024		0.005	0.00078	ND		0.001	0.00038	ND		0.003	0.0011	ND	
MW-2	MW-2-041613	L630994-01	4/16/2013	0.001	0.00033	0.018		0.005	0.00078	ND		0.001	0.00038	ND		0.003	0.0011	0.0032	
MW-4	MW-4-041613	L630994-02	4/16/2013	0.001	0.00033	0.042		0.005	0.00078	ND		0.001	0.00038	ND		0.003	0.0011	0.005	
MW-8	MW-8-041613	L630994-03	4/16/2013	0.001	0.00033	ND		0.005	0.00078	ND		0.001	0.00038	ND		0.003	0.0011	ND	
MW-12	MW-12-041613	L630994-04	4/16/2013	0.001	0.00033	ND		0.005	0.00078	ND		0.001	0.00038	ND		0.003	0.0011	ND	
MW-17	MW-17-041613	L630994-05	4/16/2013	0.001	0.00033	0.0035		0.005	0.00078	ND		0.001	0.00038	ND		0.003	0.0011	ND	
MW-20	MW-20-041613	L630994-06	4/16/2013	0.001	0.00033	ND		0.005	0.00078	ND		0.001	0.00038	ND		0.003	0.0011	ND	
MW-22	MW-22-041613	L630994-07	4/16/2013	0.001	0.00033	ND		0.005	0.00078	ND		0.001	0.00038	ND		0.003	0.0011	ND	

Value exceeds Table 910-1

Table 3. 2/14/13 - 4/16/13 Methane, Chloride Sodium Groundwater Concentrations.

Monitoring Station	Sample ID	Lab ID	Sample Date	Methane (mg/L)				Chloride (mg/L)				Sodium (mg/L)			
				RDL	MDL	Value	Qual	RDL	MDL	Value	Qual	RDL	MDL	Value	Qual
MW-2	MW-2-041613	L630994-01	4/16/2013	0.05	0.01	2.6									
MW-4	MW-4-041613	L630994-02	4/16/2013	0.05	0.01	2.8									
MW-8	MW-8-041613	L630994-03	4/16/2013	0.01	0.0021	0.055									
MW-12	MW-12-041613	L630994-04	4/16/2013	0.01	0.0021	<0.010									
MW-17	MW-17-041613	L630994-05	4/16/2013	0.01	0.0021	0.42									
MW-20	MW-20-041613	L630994-06	4/16/2013	0.01	0.0021	<0.010									
MW-22	MW-22-041613	L630994-07	4/16/2013	0.01	0.0021	<0.010									

Note: No Methane Standard for Groundwater in COGCC Table 910-1

Appendix A



YOUR LAB OF CHOICE

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

Dan Prokop, Charlie Jensen, Aaron Stacy
Encana
143 Diamond Avenue
Parachute, CO 81635

Report Summary

Monday February 18, 2013

Report Number: L620549

Samples Received: 02/15/13

Client Project: WDC

Description: West Divide Creek Weekly

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, IA Lab #364

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
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Tax I.D. 62-0814289

Est. 1970

REPORT OF ANALYSIS

Dan Prokop, Charlie Jensen, Aaron S
Encana
143 Diamond Avenue
Parachute, CO 81635

February 18, 2013

Date Received : February 15, 2013
Description : West Divide Creek Weekly
Sample ID : MW-1-021413
Collected By : SRM
Collection Date : 02/14/13 12:00

ESC Sample # : L620549-01

Site ID : O2E

Project # : WDC

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Benzene	BDL	0.0010	mg/l	8260B	02/16/13	1
Toluene	BDL	0.0050	mg/l	8260B	02/16/13	1
Ethylbenzene	BDL	0.0010	mg/l	8260B	02/16/13	1
Total Xylenes	BDL	0.0030	mg/l	8260B	02/16/13	1
Surrogate Recovery						
Toluene-d8	101.		% Rec.	8260B	02/16/13	1
Dibromofluoromethane	99.6		% Rec.	8260B	02/16/13	1
a,a,a-Trifluorotoluene	103.		% Rec.	8260B	02/16/13	1
4-Bromofluorobenzene	102.		% Rec.	8260B	02/16/13	1

BDL - Below Detection Limit

Det. Limit - Practical Quantitation Limit(PQL)

Note:

The reported analytical results relate only to the sample submitted.

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Reported: 02/18/13 14:39 Printed: 02/18/13 14:39



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

Dan Prokop, Charlie Jensen, Aaron S
Encana
143 Diamond Avenue
Parachute, CO 81635

February 18, 2013

Date Received : February 15, 2013
Description : West Divide Creek Weekly
Sample ID : MW-2-021413
Collected By : SRM
Collection Date : 02/14/13 12:30

ESC Sample # : L620549-02

Site ID : O2E

Project # : WDC

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Benzene	0.057	0.0010	mg/l	8260B	02/16/13	1
Toluene	BDL	0.0050	mg/l	8260B	02/16/13	1
Ethylbenzene	BDL	0.0010	mg/l	8260B	02/16/13	1
Total Xylenes	0.012	0.0030	mg/l	8260B	02/16/13	1
Surrogate Recovery						
Toluene-d8	100.		% Rec.	8260B	02/16/13	1
Dibromofluoromethane	99.5		% Rec.	8260B	02/16/13	1
a,a,a-Trifluorotoluene	103.		% Rec.	8260B	02/16/13	1
4-Bromofluorobenzene	105.		% Rec.	8260B	02/16/13	1

BDL - Below Detection Limit

Det. Limit - Practical Quantitation Limit(PQL)

Note:

The reported analytical results relate only to the sample submitted.

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Reported: 02/18/13 14:39 Printed: 02/18/13 14:39



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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

Dan Prokop, Charlie Jensen, Aaron S
Encana
143 Diamond Avenue
Parachute, CO 81635

February 18, 2013

Date Received : February 15, 2013
Description : West Divide Creek Weekly
Sample ID : MW-4-021413
Collected By : SRM
Collection Date : 02/14/13 13:00

ESC Sample # : L620549-03

Site ID : O2E

Project # : WDC

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Benzene	0.029	0.0010	mg/l	8260B	02/16/13	1
Toluene	BDL	0.0050	mg/l	8260B	02/16/13	1
Ethylbenzene	BDL	0.0010	mg/l	8260B	02/16/13	1
Total Xylenes	0.0047	0.0030	mg/l	8260B	02/16/13	1
Surrogate Recovery						
Toluene-d8	101.		% Rec.	8260B	02/16/13	1
Dibromofluoromethane	99.0		% Rec.	8260B	02/16/13	1
a,a,a-Trifluorotoluene	103.		% Rec.	8260B	02/16/13	1
4-Bromofluorobenzene	103.		% Rec.	8260B	02/16/13	1

BDL - Below Detection Limit

Det. Limit - Practical Quantitation Limit(PQL)

Note:

The reported analytical results relate only to the sample submitted.

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REPORT OF ANALYSIS

Dan Prokop, Charlie Jensen, Aaron S
Encana
143 Diamond Avenue
Parachute, CO 81635

February 18, 2013

Date Received : February 15, 2013
Description : West Divide Creek Weekly
Sample ID : MW-8-021413
Collected By : SRM
Collection Date : 02/14/13 13:30

ESC Sample # : L620549-04

Site ID : O2E

Project # : WDC

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Benzene	BDL	0.0010	mg/l	8260B	02/16/13	1
Toluene	BDL	0.0050	mg/l	8260B	02/16/13	1
Ethylbenzene	BDL	0.0010	mg/l	8260B	02/16/13	1
Total Xylenes	BDL	0.0030	mg/l	8260B	02/16/13	1
Surrogate Recovery						
Toluene-d8	101.		% Rec.	8260B	02/16/13	1
Dibromofluoromethane	99.3		% Rec.	8260B	02/16/13	1
a,a,a-Trifluorotoluene	104.		% Rec.	8260B	02/16/13	1
4-Bromofluorobenzene	106.		% Rec.	8260B	02/16/13	1

BDL - Below Detection Limit

Det. Limit - Practical Quantitation Limit(PQL)

Note:

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REPORT OF ANALYSIS

Dan Prokop, Charlie Jensen, Aaron S
Encana
143 Diamond Avenue
Parachute, CO 81635

February 18, 2013

Date Received : February 15, 2013
Description : West Divide Creek Weekly
Sample ID : MW-17-021413
Collected By : SRM
Collection Date : 02/14/13 14:00

ESC Sample # : L620549-05

Site ID : O2E

Project # : WDC

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Benzene	0.026	0.0010	mg/l	8260B	02/16/13	1
Toluene	BDL	0.0050	mg/l	8260B	02/16/13	1
Ethylbenzene	BDL	0.0010	mg/l	8260B	02/16/13	1
Total Xylenes	BDL	0.0030	mg/l	8260B	02/16/13	1
Surrogate Recovery						
Toluene-d8	100.		% Rec.	8260B	02/16/13	1
Dibromofluoromethane	99.7		% Rec.	8260B	02/16/13	1
a,a,a-Trifluorotoluene	104.		% Rec.	8260B	02/16/13	1
4-Bromofluorobenzene	104.		% Rec.	8260B	02/16/13	1

BDL - Below Detection Limit

Det. Limit - Practical Quantitation Limit(PQL)

Note:

The reported analytical results relate only to the sample submitted.

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Reported: 02/18/13 14:39 Printed: 02/18/13 14:39

Summary of Remarks For Samples Printed
02/18/13 at 14:39:46

TSR Signing Reports: 358
R5 - Desired TAT

Log ALL samples for EDD (COGCC EDD). Water samples ONLY under this account. Soils under ENCANACO. Log PAHs as PAHSIM. Try not to report benzene BDL above 250x dilution.

Sample: L620549-01 Account: ENCRCO Received: 02/15/13 09:00 Due Date: 02/22/13 00:00 RPT Date: 02/18/13 14:39

Sample: L620549-02 Account: ENCRCO Received: 02/15/13 09:00 Due Date: 02/22/13 00:00 RPT Date: 02/18/13 14:39

Sample: L620549-03 Account: ENCRCO Received: 02/15/13 09:00 Due Date: 02/22/13 00:00 RPT Date: 02/18/13 14:39

Sample: L620549-04 Account: ENCRCO Received: 02/15/13 09:00 Due Date: 02/22/13 00:00 RPT Date: 02/18/13 14:39

Sample: L620549-05 Account: ENCRCO Received: 02/15/13 09:00 Due Date: 02/22/13 00:00 RPT Date: 02/18/13 14:39



L A B S C I E N C E S

Y O U R L A B O F C H O I C E

Encana
Dan Prokop, Charlie Jensen, Aaron Stacy
143 Diamond Avenue
Parachute, CO 81635

Quality Assurance Report
Level II
L620549

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February 18, 2013

Analyte	Result	Laboratory Blank			Batch	Date Analyzed
		Units	% Rec	Limit		
Benzene	< .001	mg/l			WG637144	02/16/13 02:35
Ethylbenzene	< .001	mg/l			WG637144	02/16/13 02:35
Toluene	< .005	mg/l			WG637144	02/16/13 02:35
Total Xylenes	< .003	mg/l			WG637144	02/16/13 02:35
4-Bromofluorobenzene		% Rec.	104.3	82-120	WG637144	02/16/13 02:35
Dibromofluoromethane		% Rec.	96.75	82-126	WG637144	02/16/13 02:35
Toluene-d8		% Rec.	102.5	92-112	WG637144	02/16/13 02:35
a,a,a-Trifluorotoluene		% Rec.	103.2	90-116	WG637144	02/16/13 02:35

Analyte	Units	Laboratory Control Sample			Limit	Batch
		Known Val	Result	% Rec		
Benzene	mg/l	.025	0.0236	94.4	72-119	WG637144
Ethylbenzene	mg/l	.025	0.0247	98.8	77-124	WG637144
Toluene	mg/l	.025	0.0247	99.0	75-114	WG637144
Total Xylenes	mg/l	.075	0.0736	98.2	77-123	WG637144
4-Bromofluorobenzene				98.12	82-120	WG637144
Dibromofluoromethane				99.04	82-126	WG637144
Toluene-d8				101.2	92-112	WG637144
a,a,a-Trifluorotoluene				103.3	90-116	WG637144

Analyte	Units	Laboratory Control Sample Duplicate			RPD	Limit	Batch	
		Result	Ref	%Rec				
Benzene	mg/l	0.0234	0.0236	93.0	72-119	1.02	20	WG637144
Ethylbenzene	mg/l	0.0244	0.0247	98.0	77-124	1.12	20	WG637144
Toluene	mg/l	0.0241	0.0247	96.0	75-114	2.76	20	WG637144
Total Xylenes	mg/l	0.0733	0.0736	98.0	77-123	0.390	20	WG637144
4-Bromofluorobenzene				98.60	82-120			WG637144
Dibromofluoromethane				98.82	82-126			WG637144
Toluene-d8				100.1	92-112			WG637144
a,a,a-Trifluorotoluene				103.9	90-116			WG637144

Analyte	Units	Matrix Spike			Limit	Ref Samp	Batch
		MS Res	Ref Res	TV			
Benzene	mg/l	0.0229	0	.025	91.5	L620549-01	WG637144
Ethylbenzene	mg/l	0.0249	0	.025	99.5	L620549-01	WG637144
Toluene	mg/l	0.0236	0	.025	94.2	L620549-01	WG637144
Total Xylenes	mg/l	0.0737	0	.075	98.3	L620549-01	WG637144
4-Bromofluorobenzene					101.2		WG637144
Dibromofluoromethane					99.65		WG637144
Toluene-d8					99.99		WG637144
a,a,a-Trifluorotoluene					103.5		WG637144

Analyte	Units	Matrix Spike Duplicate			Limit	RPD	Limit Ref Samp	Batch	
		MSD	Ref	%Rec					
Benzene	mg/l	0.0235	0.0229	94.0	51-134	2.75	20	L620549-01	WG637144
Ethylbenzene	mg/l	0.0260	0.0249	104.	64-135	4.49	20	L620549-01	WG637144
Toluene	mg/l	0.0250	0.0236	100.	61-126	6.02	20	L620549-01	WG637144
Total Xylenes	mg/l	0.0800	0.0737	107.	64-133	8.21	20	L620549-01	WG637144
4-Bromofluorobenzene				108.5	82-120				WG637144
Dibromofluoromethane				98.14	82-126				WG637144
Toluene-d8				101.7	92-112				WG637144
a,a,a-Trifluorotoluene				102.8	90-116				WG637144

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



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Quality Assurance Report
Level II
L620549

February 18, 2013

Batch number /Run number / Sample number cross reference

WG637144: R2546318: L620549-01 02 03 04 05

* * 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.'



L A B S C I E N C E S

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February 18, 2013

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.



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Dan Prokop, Charlie Jensen, Aaron Stacy
Encana
143 Diamond Avenue
Parachute, CO 81635

Report Summary

Tuesday March 19, 2013

Report Number: L624915

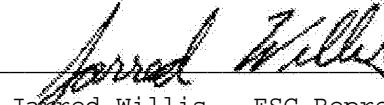
Samples Received: 03/14/13

Client Project: WDC

Description: West Divide Creek Monthly

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, IA Lab #364

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.

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REPORT OF ANALYSIS

March 19, 2013

Dan Prokop, Charlie Jensen, Aaron S
Encana
143 Diamond Avenue
Parachute, CO 81635

Date Received : March 14, 2013
Description : West Divide Creek Monthly
Sample ID : MW-1-031213
Collected By : SRM
Collection Date : 03/12/13 14:45

ESC Sample # : L624915-01

Site ID : 02E

Project # : WDC

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Benzene	BDL	0.0010	mg/l	8260B	03/15/13	1
Toluene	BDL	0.0050	mg/l	8260B	03/15/13	1
Ethylbenzene	BDL	0.0010	mg/l	8260B	03/15/13	1
Total Xylenes	BDL	0.0030	mg/l	8260B	03/15/13	1
Surrogate Recovery						
Toluene-d8	99.5		% Rec.	8260B	03/15/13	1
Dibromofluoromethane	96.8		% Rec.	8260B	03/15/13	1
a,a,a-Trifluorotoluene	99.7		% Rec.	8260B	03/15/13	1
4-Bromofluorobenzene	96.9		% Rec.	8260B	03/15/13	1

BDL - Below Detection Limit

Det. Limit - Practical Quantitation Limit(PQL)

Note:

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REPORT OF ANALYSIS

March 19, 2013

Dan Prokop, Charlie Jensen, Aaron S
Encana
143 Diamond Avenue
Parachute, CO 81635

Date Received : March 14, 2013
Description : West Divide Creek Monthly
Sample ID : MW-2-031213
Collected By : SRM
Collection Date : 03/12/13 14:15

ESC Sample # : L624915-02

Site ID : 02E

Project # : WDC

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Benzene	0.062	0.0010	mg/l	8260B	03/15/13	1
Toluene	BDL	0.0050	mg/l	8260B	03/15/13	1
Ethylbenzene	BDL	0.0010	mg/l	8260B	03/15/13	1
Total Xylenes	0.014	0.0030	mg/l	8260B	03/15/13	1
Surrogate Recovery						
Toluene-d8	99.9		% Rec.	8260B	03/15/13	1
Dibromofluoromethane	94.5		% Rec.	8260B	03/15/13	1
a,a,a-Trifluorotoluene	96.2		% Rec.	8260B	03/15/13	1
4-Bromofluorobenzene	95.7		% Rec.	8260B	03/15/13	1

BDL - Below Detection Limit

Det. Limit - Practical Quantitation Limit(PQL)

Note:

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Reported: 03/19/13 09:30 Printed: 03/19/13 09:31



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REPORT OF ANALYSIS

March 19, 2013

Dan Prokop, Charlie Jensen, Aaron S
Encana
143 Diamond Avenue
Parachute, CO 81635

Date Received : March 14, 2013
Description : West Divide Creek Monthly
Sample ID : MW-4-031213
Collected By : SRM
Collection Date : 03/12/13 13:45

ESC Sample # : L624915-03

Site ID : 02E

Project # : WDC

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Benzene	0.047	0.0010	mg/l	8260B	03/15/13	1
Toluene	BDL	0.0050	mg/l	8260B	03/15/13	1
Ethylbenzene	BDL	0.0010	mg/l	8260B	03/15/13	1
Total Xylenes	0.0082	0.0030	mg/l	8260B	03/15/13	1
Surrogate Recovery						
Toluene-d8	99.5		% Rec.	8260B	03/15/13	1
Dibromofluoromethane	95.2		% Rec.	8260B	03/15/13	1
a,a,a-Trifluorotoluene	96.9		% Rec.	8260B	03/15/13	1
4-Bromofluorobenzene	96.1		% Rec.	8260B	03/15/13	1

BDL - Below Detection Limit

Det. Limit - Practical Quantitation Limit(PQL)

Note:

The reported analytical results relate only to the sample submitted.

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Reported: 03/19/13 09:30 Printed: 03/19/13 09:31



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REPORT OF ANALYSIS

March 19, 2013

Dan Prokop, Charlie Jensen, Aaron S
Encana
143 Diamond Avenue
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Date Received : March 14, 2013 ESC Sample # : L624915-04
Description : West Divide Creek Monthly Site ID : 02E
Sample ID : MW-8-031213 Project # : WDC
Collected By : SRM
Collection Date : 03/12/13 15:15

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Benzene	BDL	0.0010	mg/l	8260B	03/15/13	1
Toluene	BDL	0.0050	mg/l	8260B	03/15/13	1
Ethylbenzene	BDL	0.0010	mg/l	8260B	03/15/13	1
Total Xylenes	BDL	0.0030	mg/l	8260B	03/15/13	1
Surrogate Recovery						
Toluene-d8	99.8		% Rec.	8260B	03/15/13	1
Dibromofluoromethane	97.9		% Rec.	8260B	03/15/13	1
a,a,a-Trifluorotoluene	99.1		% Rec.	8260B	03/15/13	1
4-Bromofluorobenzene	97.3		% Rec.	8260B	03/15/13	1

BDL - Below Detection Limit

Det. Limit - Practical Quantitation Limit(PQL)

Note:

The reported analytical results relate only to the sample submitted.

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REPORT OF ANALYSIS

Dan Prokop, Charlie Jensen, Aaron S
Encana
143 Diamond Avenue
Parachute, CO 81635

March 19, 2013

Date Received : March 14, 2013
Description : West Divide Creek Monthly
Sample ID : MW-17-031213
Collected By : SRM
Collection Date : 03/12/13 15:45

ESC Sample # : L624915-05

Site ID : 02E

Project # : WDC

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Benzene	0.024	0.0010	mg/l	8260B	03/15/13	1
Toluene	BDL	0.0050	mg/l	8260B	03/15/13	1
Ethylbenzene	BDL	0.0010	mg/l	8260B	03/15/13	1
Total Xylenes	BDL	0.0030	mg/l	8260B	03/15/13	1
Surrogate Recovery						
Toluene-d8	98.7		% Rec.	8260B	03/15/13	1
Dibromofluoromethane	95.4		% Rec.	8260B	03/15/13	1
a,a,a-Trifluorotoluene	96.4		% Rec.	8260B	03/15/13	1
4-Bromofluorobenzene	96.2		% Rec.	8260B	03/15/13	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: 03/19/13 09:30 Printed: 03/19/13 09:31

Summary of Remarks For Samples Printed
03/19/13 at 09:31:28

TSR Signing Reports: 358
R5 - Desired TAT

Log ALL samples for EDD (COGCC EDD). Log PAHs as PAHSIM. Try not to report benzene BDL above 250x dilution.

Sample: L624915-01 Account: ENCRCO Received: 03/14/13 09:00 Due Date: 03/21/13 00:00 RPT Date: 03/19/13 09:30

Sample: L624915-02 Account: ENCRCO Received: 03/14/13 09:00 Due Date: 03/21/13 00:00 RPT Date: 03/19/13 09:30

Sample: L624915-03 Account: ENCRCO Received: 03/14/13 09:00 Due Date: 03/21/13 00:00 RPT Date: 03/19/13 09:30

Sample: L624915-04 Account: ENCRCO Received: 03/14/13 09:00 Due Date: 03/21/13 00:00 RPT Date: 03/19/13 09:30

Sample: L624915-05 Account: ENCRCO Received: 03/14/13 09:00 Due Date: 03/21/13 00:00 RPT Date: 03/19/13 09:30



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Quality Assurance Report
Level II

L624915

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Est. 1970

March 19, 2013

Analyte	Result	Laboratory Blank			Batch	Date Analyzed
		Units	% Rec	Limit		
Benzene	< .001	mg/l			WG651045	03/15/13 12:00
Ethylbenzene	< .001	mg/l			WG651045	03/15/13 12:00
Toluene	< .005	mg/l			WG651045	03/15/13 12:00
Total Xylenes	< .003	mg/l			WG651045	03/15/13 12:00
4-Bromofluorobenzene		% Rec.	95.18	82-120	WG651045	03/15/13 12:00
Dibromofluoromethane		% Rec.	96.85	82-126	WG651045	03/15/13 12:00
Toluene-d8		% Rec.	98.58	92-112	WG651045	03/15/13 12:00
a,a,a-Trifluorotoluene		% Rec.	99.00	90-116	WG651045	03/15/13 12:00

Analyte	Units	Laboratory Control Sample			Limit	Batch
		Known Val	Result	% Rec		
Benzene	mg/l	.025	0.0247	98.6	72-119	WG651045
Ethylbenzene	mg/l	.025	0.0293	117.	77-124	WG651045
Toluene	mg/l	.025	0.0261	105.	75-114	WG651045
Total Xylenes	mg/l	.075	0.0859	115.	77-123	WG651045
4-Bromofluorobenzene				94.45	82-120	WG651045
Dibromofluoromethane				98.16	82-126	WG651045
Toluene-d8				98.49	92-112	WG651045
a,a,a-Trifluorotoluene				97.25	90-116	WG651045

Analyte	Units	Laboratory Control Sample Duplicate			RPD	Limit	Batch	
		Result	Ref	%Rec				
Benzene	mg/l	0.0246	0.0247	98.0	72-119	0.150	20	WG651045
Ethylbenzene	mg/l	0.0286	0.0293	114.	77-124	2.41	20	WG651045
Toluene	mg/l	0.0267	0.0261	107.	75-114	2.00	20	WG651045
Total Xylenes	mg/l	0.0857	0.0859	114.	77-123	0.240	20	WG651045
4-Bromofluorobenzene				93.58	82-120			WG651045
Dibromofluoromethane				96.71	82-126			WG651045
Toluene-d8				99.55	92-112			WG651045
a,a,a-Trifluorotoluene				97.03	90-116			WG651045

Analyte	Units	Matrix Spike			Limit	Ref Samp	Batch	
		MS Res	Ref Res	TV				
Benzene	mg/l	0.0248	0	.025	99.2	51-134	L625005-02	WG651045
Ethylbenzene	mg/l	0.0292	0	.025	117.	64-135	L625005-02	WG651045
Toluene	mg/l	0.0266	0	.025	106.	61-126	L625005-02	WG651045
Total Xylenes	mg/l	0.0871	0	.075	116.	64-133	L625005-02	WG651045
4-Bromofluorobenzene					96.15	82-120		WG651045
Dibromofluoromethane					96.05	82-126		WG651045
Toluene-d8					99.44	92-112		WG651045
a,a,a-Trifluorotoluene					98.05	90-116		WG651045

Analyte	Units	Matrix Spike Duplicate			Limit	RPD	Limit Ref Samp	Batch	
		MSD	Ref	%Rec					
Benzene	mg/l	0.0224	0.0248	89.5	51-134	10.3	20	L625005-02	WG651045
Ethylbenzene	mg/l	0.0264	0.0293	105.	64-135	10.0	20	L625005-02	WG651045
Toluene	mg/l	0.0242	0.0266	96.7	61-126	9.63	20	L625005-02	WG651045
Total Xylenes	mg/l	0.0784	0.0871	104.	64-133	10.5	20	L625005-02	WG651045
4-Bromofluorobenzene				93.81	82-120				WG651045
Dibromofluoromethane				96.15	82-126				WG651045
Toluene-d8				98.48	92-112				WG651045
a,a,a-Trifluorotoluene				97.05	90-116				WG651045

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



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Encana
Dan Prokop, Charlie Jensen, Aaron Stacy
143 Diamond Avenue
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Quality Assurance Report
Level II
L624915

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Est. 1970

March 19, 2013

Batch number /Run number / Sample number cross reference

WG651045: R2584959: L624915-01 02 03 04 05

* * 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.'



L A B S C I E N C E S

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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.



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Dan Prokop, Charlie Jensen, Aaron Stacy
Encana
143 Diamond Avenue
Parachute, CO 81635

Report Summary

Wednesday April 24, 2013

Report Number: L630994

Samples Received: 04/17/13

Client Project: WDC-01E

Description: West Divide Creek

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, IA Lab #364

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.

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REPORT OF ANALYSIS

April 24, 2013

Dan Prokop, Charlie Jensen, Aaron S
Encana
143 Diamond Avenue
Parachute, CO 81635

Date Received : April 17, 2013
Description : West Divide Creek-Quarterly
Sample ID : MW-2-041613
Collected By : Shad Johnson
Collection Date : 04/16/13 10:00

ESC Sample # : L630994-01

Site ID : WDC

Project # : WDC-01E

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Methane	2.6	0.050	mg/l	RSK175	04/18/13	5
Benzene	0.018	0.0010	mg/l	8260B	04/19/13	1
Toluene	BDL	0.0050	mg/l	8260B	04/19/13	1
Ethylbenzene	BDL	0.0010	mg/l	8260B	04/19/13	1
Total Xylenes	0.0032	0.0030	mg/l	8260B	04/19/13	1
Surrogate Recovery						
Toluene-d8	100.		% Rec.	8260B	04/19/13	1
Dibromofluoromethane	93.7		% Rec.	8260B	04/19/13	1
a,a,a-Trifluorotoluene	105.		% Rec.	8260B	04/19/13	1
4-Bromofluorobenzene	99.3		% Rec.	8260B	04/19/13	1

BDL - Below Detection Limit

Det. Limit - Practical Quantitation Limit(PQL)

Note:

The reported analytical results relate only to the sample submitted.

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Encana
143 Diamond Avenue
Parachute, CO 81635

April 24, 2013

Date Received : April 17, 2013
Description : West Divide Creek-Quarterly
Sample ID : MW-4-041613
Collected By : Shad Johnson
Collection Date : 04/16/13 10:20

ESC Sample # : L630994-02
Site ID : WDC
Project # : WDC-01E

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Methane	2.8	0.050	mg/l	RSK175	04/18/13	5
Benzene	0.042	0.0010	mg/l	8260B	04/19/13	1
Toluene	BDL	0.0050	mg/l	8260B	04/19/13	1
Ethylbenzene	BDL	0.0010	mg/l	8260B	04/19/13	1
Total Xylenes	0.0050	0.0030	mg/l	8260B	04/19/13	1
Surrogate Recovery						
Toluene-d8	101.		% Rec.	8260B	04/19/13	1
Dibromofluoromethane	95.9		% Rec.	8260B	04/19/13	1
a,a,a-Trifluorotoluene	104.		% Rec.	8260B	04/19/13	1
4-Bromofluorobenzene	104.		% Rec.	8260B	04/19/13	1

BDL - Below Detection Limit

Det. Limit - Practical Quantitation Limit(PQL)

Note:

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April 24, 2013

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Encana
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Parachute, CO 81635

Date Received : April 17, 2013
Description : West Divide Creek-Quarterly
Sample ID : MW-8-041613
Collected By : Shad Johnson
Collection Date : 04/16/13 10:40

ESC Sample # : L630994-03

Site ID : WDC

Project # : WDC-01E

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Methane	0.055	0.010	mg/l	RSK175	04/18/13	1
Benzene	BDL	0.0010	mg/l	8260B	04/19/13	1
Toluene	BDL	0.0050	mg/l	8260B	04/19/13	1
Ethylbenzene	BDL	0.0010	mg/l	8260B	04/19/13	1
Total Xylenes	BDL	0.0030	mg/l	8260B	04/19/13	1
Surrogate Recovery						
Toluene-d8	101.		% Rec.	8260B	04/19/13	1
Dibromofluoromethane	94.2		% Rec.	8260B	04/19/13	1
a,a,a-Trifluorotoluene	106.		% Rec.	8260B	04/19/13	1
4-Bromofluorobenzene	105.		% Rec.	8260B	04/19/13	1

BDL - Below Detection Limit

Det. Limit - Practical Quantitation Limit(PQL)

Note:

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REPORT OF ANALYSIS

April 24, 2013

Dan Prokop, Charlie Jensen, Aaron S
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Parachute, CO 81635

Date Received : April 17, 2013 ESC Sample # : L630994-04
Description : West Divide Creek-Quarterly Site ID : WDC
Sample ID : MW-12-041613 Project # : WDC-01E
Collected By : Shad Johnson
Collection Date : 04/16/13 11:00

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Methane	BDL	0.010	mg/l	RSK175	04/18/13	1
Benzene	BDL	0.0010	mg/l	8260B	04/19/13	1
Toluene	BDL	0.0050	mg/l	8260B	04/19/13	1
Ethylbenzene	BDL	0.0010	mg/l	8260B	04/19/13	1
Total Xylenes	BDL	0.0030	mg/l	8260B	04/19/13	1
Surrogate Recovery						
Toluene-d8	101.		% Rec.	8260B	04/19/13	1
Dibromofluoromethane	92.6		% Rec.	8260B	04/19/13	1
a,a,a-Trifluorotoluene	108.		% Rec.	8260B	04/19/13	1
4-Bromofluorobenzene	102.		% Rec.	8260B	04/19/13	1

BDL - Below Detection Limit

Det. Limit - Practical Quantitation Limit(PQL)

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April 24, 2013

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Date Received : April 17, 2013
Description : West Divide Creek-Quarterly
Sample ID : MW-17-041613
Collected By : Shad Johnson
Collection Date : 04/16/13 11:20

ESC Sample # : L630994-05

Site ID : WDC

Project # : WDC-01E

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Methane	0.42	0.010	mg/l	RSK175	04/19/13	1
Benzene	0.0035	0.0010	mg/l	8260B	04/19/13	1
Toluene	BDL	0.0050	mg/l	8260B	04/19/13	1
Ethylbenzene	BDL	0.0010	mg/l	8260B	04/19/13	1
Total Xylenes	BDL	0.0030	mg/l	8260B	04/19/13	1
Surrogate Recovery						
Toluene-d8	101.		% Rec.	8260B	04/19/13	1
Dibromofluoromethane	96.0		% Rec.	8260B	04/19/13	1
a,a,a-Trifluorotoluene	102.		% Rec.	8260B	04/19/13	1
4-Bromofluorobenzene	102.		% Rec.	8260B	04/19/13	1

BDL - Below Detection Limit

Det. Limit - Practical Quantitation Limit(PQL)

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REPORT OF ANALYSIS

April 24, 2013

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Parachute, CO 81635

Date Received : April 17, 2013
Description : West Divide Creek-Quarterly
Sample ID : MW-20-041613
Collected By : Shad Johnson
Collection Date : 04/16/13 11:40

ESC Sample # : L630994-06

Site ID : WDC

Project # : WDC-01E

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Methane	BDL	0.010	mg/l	RSK175	04/19/13	1
Benzene	BDL	0.0010	mg/l	8260B	04/19/13	1
Toluene	BDL	0.0050	mg/l	8260B	04/19/13	1
Ethylbenzene	BDL	0.0010	mg/l	8260B	04/19/13	1
Total Xylenes	BDL	0.0030	mg/l	8260B	04/19/13	1
Surrogate Recovery						
Toluene-d8	100.		% Rec.	8260B	04/19/13	1
Dibromofluoromethane	95.0		% Rec.	8260B	04/19/13	1
a,a,a-Trifluorotoluene	105.		% Rec.	8260B	04/19/13	1
4-Bromofluorobenzene	106.		% Rec.	8260B	04/19/13	1

BDL - Below Detection Limit

Det. Limit - Practical Quantitation Limit(PQL)

Note:

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REPORT OF ANALYSIS

April 24, 2013

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Date Received : April 17, 2013 ESC Sample # : L630994-07
Description : West Divide Creek-Quarterly Site ID : WDC
Sample ID : MW-22-041613 Project # : WDC-01E
Collected By : Shad Johnson
Collection Date : 04/16/13 12:00

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Methane	BDL	0.010	mg/l	RSK175	04/19/13	1
Benzene	BDL	0.0010	mg/l	8260B	04/19/13	1
Toluene	BDL	0.0050	mg/l	8260B	04/19/13	1
Ethylbenzene	BDL	0.0010	mg/l	8260B	04/19/13	1
Total Xylenes	BDL	0.0030	mg/l	8260B	04/19/13	1
Surrogate Recovery						
Toluene-d8	101.		% Rec.	8260B	04/19/13	1
Dibromofluoromethane	96.7		% Rec.	8260B	04/19/13	1
a,a,a-Trifluorotoluene	104.		% Rec.	8260B	04/19/13	1
4-Bromofluorobenzene	102.		% Rec.	8260B	04/19/13	1

BDL - Below Detection Limit

Det. Limit - Practical Quantitation Limit(PQL)

Note:

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Reported: 04/24/13 10:27 Printed: 04/24/13 11:14

Summary of Remarks For Samples Printed
04/24/13 at 11:14:21

TSR Signing Reports: 358
R5 - Desired TAT

Log ALL samples for EDD (COGCC EDD). Log PAHs as PAHSIM. Try not to report benzene BDL above 250x dilution.

Sample: L630994-01 Account: ENCRCO Received: 04/17/13 09:00 Due Date: 04/24/13 00:00 RPT Date: 04/24/13 10:27

Sample: L630994-02 Account: ENCRCO Received: 04/17/13 09:00 Due Date: 04/24/13 00:00 RPT Date: 04/24/13 10:27

Sample: L630994-03 Account: ENCRCO Received: 04/17/13 09:00 Due Date: 04/24/13 00:00 RPT Date: 04/24/13 10:27

Sample: L630994-04 Account: ENCRCO Received: 04/17/13 09:00 Due Date: 04/24/13 00:00 RPT Date: 04/24/13 10:27

Sample: L630994-05 Account: ENCRCO Received: 04/17/13 09:00 Due Date: 04/24/13 00:00 RPT Date: 04/24/13 10:27

Sample: L630994-06 Account: ENCRCO Received: 04/17/13 09:00 Due Date: 04/24/13 00:00 RPT Date: 04/24/13 10:27

Sample: L630994-07 Account: ENCRCO Received: 04/17/13 09:00 Due Date: 04/24/13 00:00 RPT Date: 04/24/13 10:27



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Quality Assurance Report
 Level II

L630994

April 24, 2013

Analyte	Result	Laboratory Blank Units	% Rec	Limit	Batch	Date Analyzed
Methane	< .01	mg/l			WG656964	04/18/13 13:19
Methane	< .01	mg/l			WG657198	04/19/13 13:15
Benzene	< .001	mg/l			WG656874	04/19/13 16:56
Ethylbenzene	< .001	mg/l			WG656874	04/19/13 16:56
Toluene	< .005	mg/l			WG656874	04/19/13 16:56
Total Xylenes	< .003	mg/l			WG656874	04/19/13 16:56
4-Bromofluorobenzene		% Rec.	100.2	82-120	WG656874	04/19/13 16:56
Dibromofluoromethane		% Rec.	94.63	82-126	WG656874	04/19/13 16:56
Toluene-d8		% Rec.	100.3	92-112	WG656874	04/19/13 16:56
a,a,a-Trifluorotoluene		% Rec.	104.0	90-116	WG656874	04/19/13 16:56

Analyte	Units	Laboratory Control Sample Known Val	Result	% Rec	Limit	Batch
Methane	mg/l	.339	0.376	111.	70-130	WG656964
Methane	mg/l	.339	0.359	106.	70-130	WG657198
Benzene	mg/l	.025	0.0259	104.	72-119	WG656874
Ethylbenzene	mg/l	.025	0.0273	109.	77-124	WG656874
Toluene	mg/l	.025	0.0265	106.	75-114	WG656874
Total Xylenes	mg/l	.075	0.0833	111.	77-123	WG656874
4-Bromofluorobenzene				102.1	82-120	WG656874
Dibromofluoromethane				97.82	82-126	WG656874
Toluene-d8				101.4	92-112	WG656874
a,a,a-Trifluorotoluene				104.6	90-116	WG656874

Analyte	Units	Laboratory Control Sample Duplicate Result	Ref	%Rec	Limit	RPD	Limit	Batch
Methane	mg/l	0.364	0.376	107.	70-130	3.05	25	WG656964
Methane	mg/l	0.361	0.359	106.	70-130	0.550	25	WG657198
Benzene	mg/l	0.0247	0.0259	99.0	72-119	5.04	20	WG656874
Ethylbenzene	mg/l	0.0265	0.0273	106.	77-124	2.93	20	WG656874
Toluene	mg/l	0.0253	0.0265	101.	75-114	4.59	20	WG656874
Total Xylenes	mg/l	0.0800	0.0833	107.	77-123	4.08	20	WG656874
4-Bromofluorobenzene				100.1	82-120			WG656874
Dibromofluoromethane				96.72	82-126			WG656874
Toluene-d8				100.3	92-112			WG656874
a,a,a-Trifluorotoluene				104.6	90-116			WG656874

Analyte	Units	Matrix Spike MS Res	Ref Res	TV	% Rec	Limit	Ref Samp	Batch
Benzene	mg/l	0.0271	0.000674	.025	106.	51-134	L631014-02	WG656874
Ethylbenzene	mg/l	0.0292	0	.025	117.	64-135	L631014-02	WG656874
Toluene	mg/l	0.0285	0.000374	.025	113.	61-126	L631014-02	WG656874
Total Xylenes	mg/l	0.0883	0	.075	118.	64-133	L631014-02	WG656874
4-Bromofluorobenzene					102.0	82-120		WG656874

* Performance of this Analyte is outside of established criteria.

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



L A B S C I E N C E S

YOUR LAB OF CHOICE

Encana

Dan Prokop, Charlie Jensen, Aaron Stacy
143 Diamond Avenue

Parachute, CO 81635

12065 Lebanon Rd.
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(615) 758-5858
1-800-767-5859
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Tax I.D. 62-0814289

Est. 1970

Quality Assurance Report
Level II

L630994

April 24, 2013

Analyte	Units	MSD	Matrix Spike Duplicate			Limit	RPD	Limit	Ref	Samp	Batch
			Ref	%Rec							
Dibromofluoromethane				95.76		82-126					
Toluene-d8				102.9		92-112					
a,a,a-Trifluorotoluene				104.8		90-116					

Analyte	Units	MSD	Matrix Spike Duplicate			Limit	RPD	Limit	Ref	Samp	Batch
			Ref	%Rec							
Benzene	mg/l	0.0251	0.0271	97.9		51-134	7.52	20	L631014-02		WG656874
Ethylbenzene	mg/l	0.0267	0.0292	107.		64-135	8.99	20	L631014-02		WG656874
Toluene	mg/l	0.0259	0.0285	102.		61-126	9.64	20	L631014-02		WG656874
Total Xylenes	mg/l	0.0791	0.0883	105.		64-133	11.1	20	L631014-02		WG656874
4-Bromofluorobenzene				100.8		82-120					WG656874
Dibromofluoromethane				96.32		82-126					WG656874
Toluene-d8				102.1		92-112					WG656874
a,a,a-Trifluorotoluene				104.4		90-116					WG656874

Batch number /Run number / Sample number cross reference

WG656964: R2625220: L630994-01 02 03 04

WG657198: R2627580: L630994-05 06 07

WG656874: R2633420: L630994-01 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.'



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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.

Encana
143 Diamond Avenue
Parachute, CO 81635
ENRCO-WESTDIVIDE

		Billing Information:			Analysis/Container/Preservative		
		Charlie Jensen 143 Diamond Avenue Parachute, CO 81635 970-285-2739					
		Report to: Charlie Jensen					
		Email to: Charles.Jensen@encana.com					
Project Description:		West Divide Creek - <i>Quickly</i>		City/State Collected	CO		
Phone: 970-285-2739 FAX:		Client Project #: WDC - <i>c1E</i>		ESC Key:	ENRCO-WESTDIVIDE		
Collected by: Shad Johnson		Site/Facility ID#: WDC		P.O.#:			
Collected by (signature): <i>Shad Johnson</i>		<input checked="" type="checkbox"/> Rush? (Lab MUST Be Notified)		Date Results Needed:	No. of Cntrs	BTEX(8260)	CH4
		<input type="checkbox"/> Same Day..... 200% <input type="checkbox"/> Next Day..... 100% <input type="checkbox"/> Two Day..... 50% <input type="checkbox"/> Three Day..... 25%		Email? No Yes FAX? No Yes			
Immediately Packed on Ice: N <i>(Y)</i>							
Sample ID	Comp/Grab	Matrix*	Depth	Date	Time		
MW-2-041613	Grab	GW	<i>NA</i>	4-16-13	1000	6	X X
MW-4-041613	Grab	GW		4-16-13	1020	6	X X
MW-8-041613	Grab	GW		4-16-13	1040	6	X X
MW-12-041613	Grab	GW		4-16-13	1100	6	X X
MW-17-041613	Grab	GW		4-16-13	1120	6	X X
MW-20-041613	Grab	GW		4-16-13	1140	6	X X
MW-22-041613	Grab	GW	<i>~</i>	4-16-13	1200	6	X X

*Matrix: SS - Soil/Solid GW - Groundwater WW - WasteWater DW - Drinking Water OT - Other _____

pH _____ Temp _____

Remarks:

5040 0626 4060 Flow Other

Relinquished by: (Signature) <i>Shad Johnson</i>	Date: <i>4/16/13</i>	Time: <i>1400</i>	Received by: (Signature)	Samples returned via: <input type="checkbox"/> UPS <input checked="" type="checkbox"/> FedEx <input type="checkbox"/> Courier	Condition: <i>OK</i> (lab use only) <i>BL</i>
Relinquished by: (Signature)	Date:	Time:	Received by: (Signature)	Temp: <i>26°C</i>	Bottles Received: <i>42vp</i>
Relinquished by: (Signature)	Date:	Time:	Received for lab by: (Signature) <i>Kim Wren</i>	Date: <i>4/17/13</i>	Time: <i>0900</i>
			pH Checked: NCF:		
			CoC Seals Intact: <input checked="" type="checkbox"/> Y <input type="checkbox"/> N NA		



Appendix B

(Electronic Attachment)