

# Fourth Quarter 2015 Groundwater Monitoring Summary Report

## County Road 20 and Highway 85 Release Weld County, Colorado

Prepared for:



370 17<sup>th</sup> St., Suite 2500  
Denver, CO 80202

*Prepared by:*



6899 Pecos Street, Unit C  
Denver, Colorado 80221

**December 16, 2015**

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B	Laboratory Analytical Report - 1511145

## 1. Introduction

This report summarizes the groundwater monitoring and remediation activities conducted during the fourth quarter 2015 at the County Road (CR) 20 and Highway (Hwy) 85 pipeline release (Site) in Fort Lupton, Colorado (Figure 1). Tasman Geosciences (Tasman) performed these activities on behalf of DCP Midstream, LP (DCP). The field activities were conducted with the purpose of monitoring groundwater flow and quality conditions and to address residual contamination in the Site subsurface using enhanced fluid recovery (EFR) methods. Current Site conditions were evaluated from field data and analytical laboratory results collected during the reporting period on November 17, 2015.

## 2. Site Location and Background

The Site is located in the southwestern quarter of the southwestern quarter of Section 17, Township 2 North, Range 66 West (approximate coordinates 40.130908 degrees north and -104.806673 degrees west). It is approximately 0.20 miles east on CR 20 from the intersection with Hwy 85, Ft. Lupton, Colorado.

On May 28, 2014, a petroleum hydrocarbon release was discovered following pipeline repair activities. An initial Form 19 was submitted to the Colorado Oil and Gas Conservation Commission (COGCC) on June 5, 2014.

## 3. Groundwater Monitoring

This section describes the field and laboratory activities performed during the fourth quarter 2015 groundwater monitoring event. Quarterly monitoring activities were conducted on November 17, 2015, and included Site-wide groundwater gauging and sampling. Figure 2 illustrates the groundwater monitoring network utilized to perform these activities at the Site.

### 3.1 Groundwater Elevation Monitoring

Groundwater levels were measured in order to evaluate hydraulic characteristics and provide information regarding seasonal fluctuations in groundwater elevations at the Site. During the fourth quarter 2015, groundwater levels were measured at six (6) monitoring well locations (BH01-BH03 and BH05-BH07).

Groundwater levels were measured on the north side of the well casing to the nearest 0.01-foot using an oil-water interface probe (IP). Groundwater level data were later converted to elevation (feet above mean sea level [AMSL]). Measured groundwater levels and the calculated groundwater elevations are presented in Table 1.

A fourth quarter 2015 groundwater elevation contour map, included as Figure 3, indicates that groundwater flow at the Site generally trends to the northwest. The range of groundwater elevations, average elevation change from the previous monitoring event, and the calculated average hydraulic gradient (using elevations from BH01 and BH02) at the Site are summarized in the table below.

### Summary of Measured Hydraulic Parameters

	Fourth Quarter 2015 (11/17/15)
Maximum Elevation (Well ID)	4,860.99 (BH01)
Minimum Elevation (Well ID)	4,860.85 (BH02)
Average Change from Previous Monitoring Event – All Wells	-2.35 feet
Average Hydraulic Gradient (ft/ft) / (Well IDs)	0.0021 (BH01 to BH02)

## 3.2 Groundwater Quality Monitoring

Subsequent to recording groundwater level measurements at each monitoring well, groundwater samples were collected from each of the 6 monitor wells using dedicated polyethylene bailers.

A minimum of three well casing volumes of groundwater were purged from each monitor well prior to collecting groundwater samples. Groundwater samples were placed in clean laboratory supplied containers for the selected analytical methods, packed in an ice-filled cooler and maintained at approximately four degrees Celsius (°C) for transportation to the laboratory. Groundwater samples were then delivered under chain-of-custody procedures to Summit Scientific Laboratories (Summit) in Golden, Colorado for analysis.

Water quality samples were submitted for analysis of benzene, toluene, ethylbenzene, and xylene (BTEX) by United States Environmental Protection Agency (USEPA) Method 8260B.

Table 2 summarizes BTEX concentrations in groundwater samples collected during the reporting period. Historic analytical results up to and including the fourth quarter 2015 event are included in Appendix A and the laboratory analytical report for the fourth quarter 2015 is included in Appendix B. Analytical results are also displayed on Figure 4.

Analytical results/observations are summarized below:

- Benzene concentrations in groundwater samples from wells BH02 (14 micrograms per liter (µg/L) and BH07 (85 µg/L) were in exceedance of the COGCC Table 910-1 standard of 5 µg/L.
- Total Xylenes in groundwater samples from BH07 (3,100 µg/L) was in exceedance of the COGCC Table 910-1 standard of 1,400 µg/L.
- BTEX concentrations from the remaining sample locations were below COGCC standards and/or below laboratory detection limits.

## 4. Remediation Activities – Vacuum Enhanced Fluid Recovery (EFR)

To date there have been nine EFR events conducted at the Site. Each EFR event was conducted over a six hour period. Five of the events occurred during the third quarter 2015 and a total of 4,886 gallons

(116 bbl) of fluid was recovered. There have been four events during the fourth quarter 2015 and a total of 1,638 gallons (39 bbl) of fluid was recovered. To date a total of 6,524 gallons (155 bbl) have been recovered from the Site.

## 5. Conclusions

Comparison of the fourth quarter 2015 monitoring data and historic information provides the following general observations:

- The groundwater flow direction is to the northwest, which is opposite from the previous quarter. The flow direction appears to be influenced by seasonal use of nearby irrigation ditches.
- After observing LNAPL in BH07 during the third quarter 2015, a measurable amount of LNAPL was not observed in any of the Site monitoring wells during the fourth quarter 2015.
- Benzene concentration in exceedance of the COGCC applicable groundwater standard was found in wells BH02 (14 µg/L) and BH07 (85 µg/L), which is now the third consecutive quarter with either LNAPL or elevated benzene concentrations in those wells.

## 6. Recommendations

Based on evaluation of data from the fourth quarter 2015 and historic Site observations and monitoring results, recommendations for future activities include:

- Continue quarterly groundwater monitoring and sampling at the monitoring well locations illustrated on Figure 2.
- Continue the vacuum EFR remediation program to address elevated benzene concentrations in BH02 and BH07.

## Tables

**TABLE 1**  
**NOVEMBER 2015 MONITORING EVENT**  
**SUMMARY OF GROUNDWATER ELEVATION DATA**  
**DCP CR 20 AND HWY 85 RELEASE**  
**WELD COUNTY, COLORADO**

Location	Date	Depth to Groundwater (feet)	Depth to Product (feet)	Free Phase Hydrocarbon Thickness (feet)	Total Depth (feet)	TOC Elevation (feet amsl)	Groundwater Elevation (feet amsl)	Change in Groundwater Elevation Since Previous Event (1) (feet)
BH01	9/24/2015	12.37			17.92	4,875.68	4,863.31	NA
BH01	11/17/2015	14.69			18.10	4,875.68	4,860.99	-2.32
BH02	9/24/2015	11.72			18.49	4,874.94	4,863.22	NA
BH02	11/17/2015	14.09			18.74	4,874.94	4,860.85	-2.37
BH03	9/24/2015	11.25			18.52	4,874.51	4,863.26	NA
BH03	11/17/2015	13.58			18.76	4,874.51	4,860.93	-2.33
BH05	9/24/2015	11.40			19.00	4,874.67	4,863.27	NA
BH05	11/17/2015	13.74			19.11	4,874.67	4,860.93	-2.34
BH06	9/24/2015	11.60			18.52	4,874.95	4,863.35	NA
BH06	11/17/2015	13.97			18.76	4,874.95	4,860.98	-2.37
BH07	9/24/2015	10.83			18.56	4,874.04	4,863.21	NA
BH07	11/17/2015	13.19			18.80	4,874.04	4,860.85	-2.36
Average change in groundwater elevation between 9/24/15 and 11/17/15								-2.35

Notes:

1- Changes in groundwater elevation calculated by subtracting the measurement collected during the previous monitoring event from the measurement amsl = feet above mean sea level

TOC = top of casing

Groundwater elevation = (TOC Elevation - Measured Depth to Water)

NM = Not Measured

NA = Not Applicable

**TABLE 2**  
**NOVEMBER 2015 MONITORING EVENT**  
**SUMMARY OF BTEX CONCENTRATIONS IN GROUNDWATER**  
**DCP CR 20 AND HWY 85 RELEASE**  
**WELD COUNTY, COLORADO**

Location Identification	Sample Date	Benzene (µg/l)	Toluene (µg/l)	Ethylbenzene (µg/l)	Total Xylenes (µg/l)	Comments
<b>COGCC Standards (µg/L)</b>		<b>5</b>	<b>560</b>	<b>700</b>	<b>1,400</b>	
BH01	11/17/2015	<1.0	<1.0	<1.0	<1.0	
BH02	11/17/2015	<b>14</b>	<1.0	72	490	
BH03	11/17/2015	<1.0	<1.0	43	400	
BH05	11/17/2015	<1.0	<1.0	<1.0	<1.0	
BH06	11/17/2015	<1.0	<1.0	<1.0	<1.0	
BH07	11/17/2015	<b>85</b>	1.1	210	<b>3,100</b>	

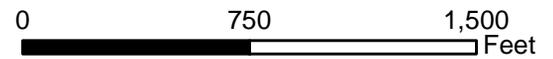
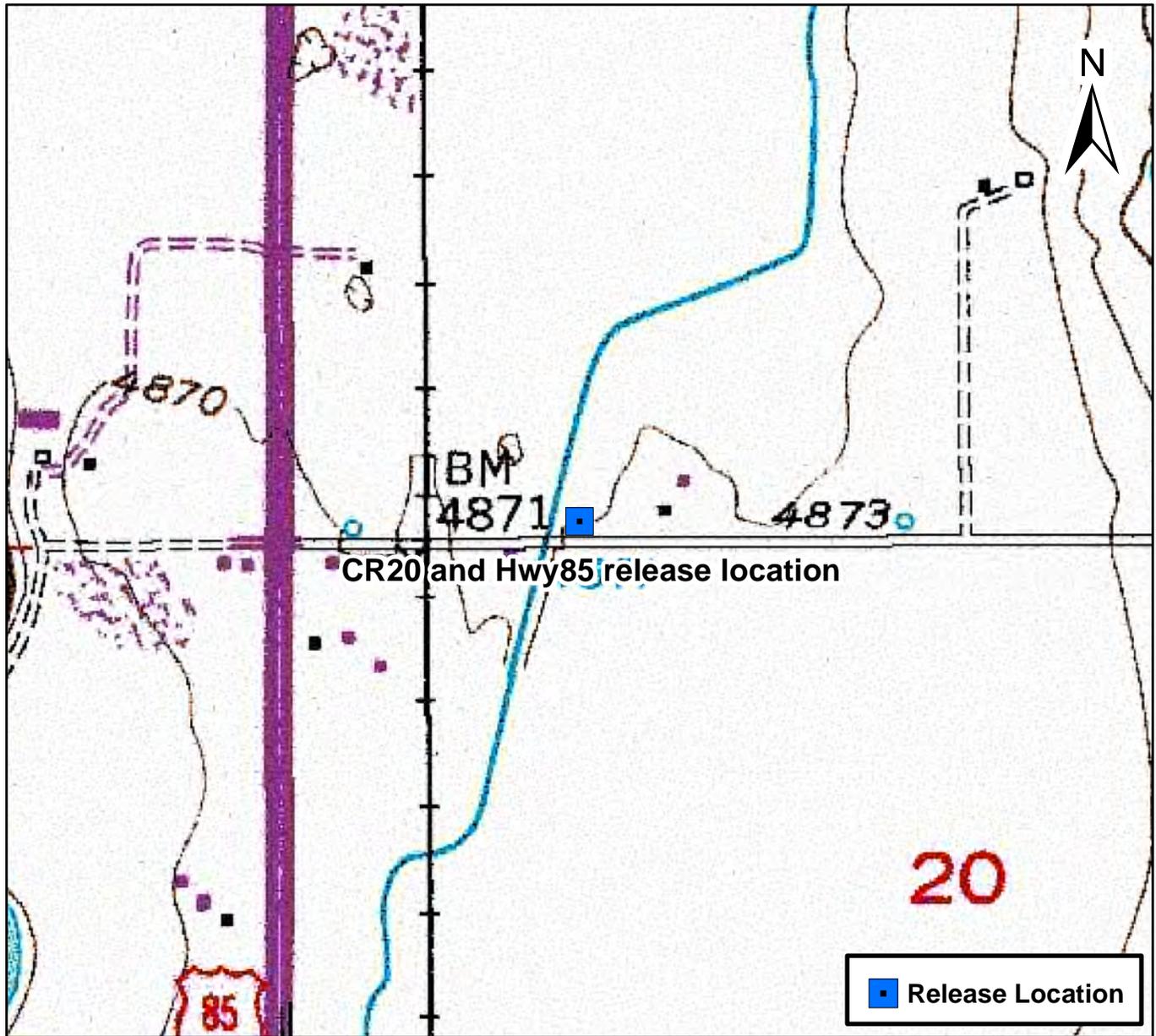
Notes:

**Bold** red values indicate an exceedance of the COGCC groundwater standards for the Site.

NS = Not sampled.

µg/L = micrograms per liter.

## Figures



## Figure 1

Site Location Map  
 CR20 and Hwy85 release location  
 SWSW S17 T2N R66W  
 Weld County, Colorado

Drawn By: DBA  
 Date: 06/04/2014





DATE:	October 2015
DESIGNED BY:	B. Humphrey
DRAWN BY:	D. Arnold


**TASMAN**  
 GEOSCIENCES

Tasman Geosciences, Inc  
 6899 Pecos Street - Unit C  
 Denver, CO 80221

**DCP Midstream**  
**County Road 20 and Highway 85 Release**  
 SWSW Section 17, Township 2 North, Range 66 West  
 Weld County, Colorado

Site Overview  
 Map

Figure  
 2



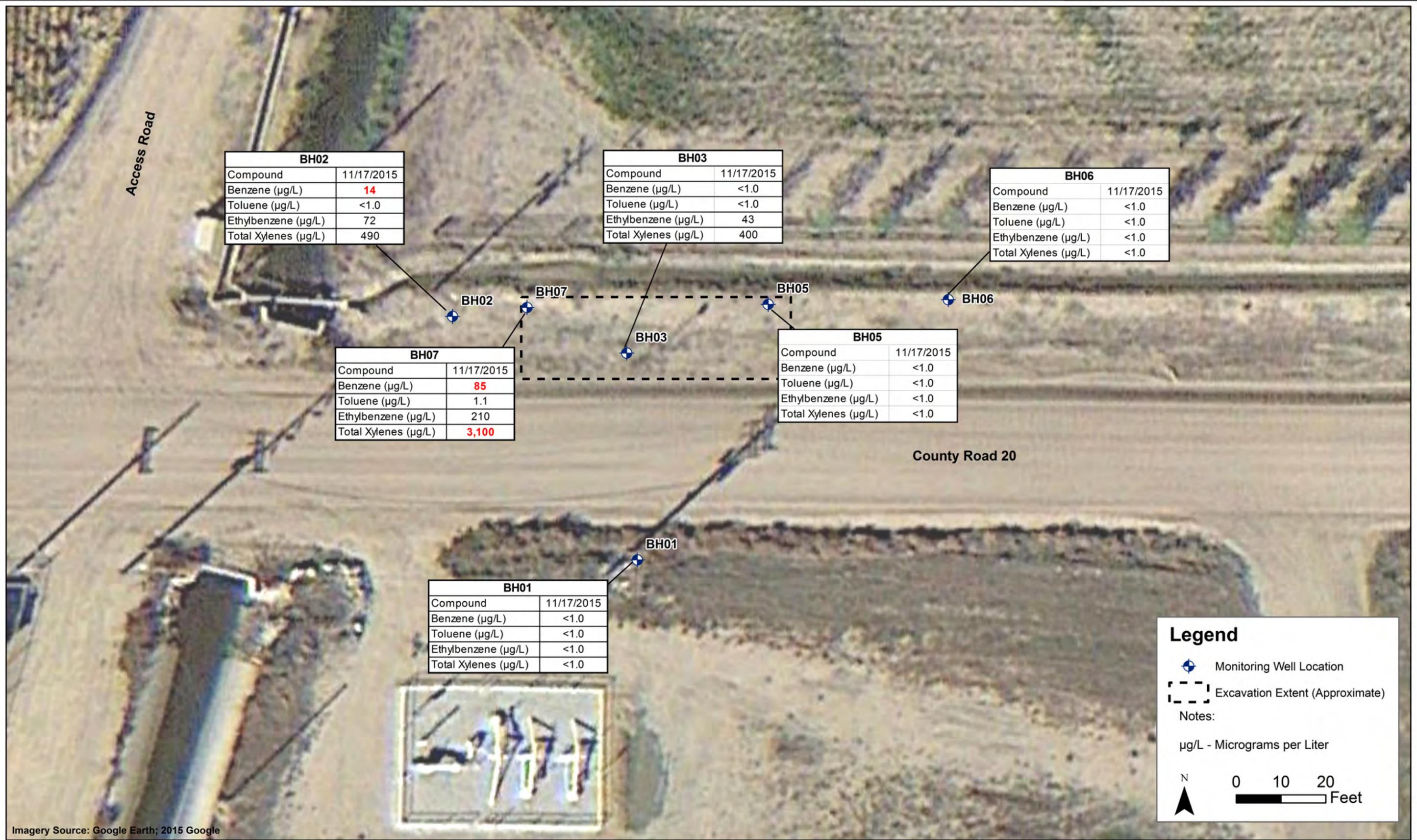
DATE: December 2015  
 DESIGNED BY: B. Humphrey  
 DRAWN BY: D. Arnold



**DCP Midstream**  
**County Road 20 and Highway 85 Release**  
 SWSW Section 17, Township 2 North, Range 66 West  
 Weld County, Colorado

Groundwater Elevation  
 Contour Map  
 (November 17, 2015)

Figure  
 3



Access Road

BH02	
Compound	11/17/2015
Benzene (µg/L)	14
Toluene (µg/L)	<1.0
Ethylbenzene (µg/L)	72
Total Xylenes (µg/L)	490

BH03	
Compound	11/17/2015
Benzene (µg/L)	<1.0
Toluene (µg/L)	<1.0
Ethylbenzene (µg/L)	43
Total Xylenes (µg/L)	400

BH06	
Compound	11/17/2015
Benzene (µg/L)	<1.0
Toluene (µg/L)	<1.0
Ethylbenzene (µg/L)	<1.0
Total Xylenes (µg/L)	<1.0

BH07	
Compound	11/17/2015
Benzene (µg/L)	85
Toluene (µg/L)	1.1
Ethylbenzene (µg/L)	210
Total Xylenes (µg/L)	3,100

BH05	
Compound	11/17/2015
Benzene (µg/L)	<1.0
Toluene (µg/L)	<1.0
Ethylbenzene (µg/L)	<1.0
Total Xylenes (µg/L)	<1.0

BH01	
Compound	11/17/2015
Benzene (µg/L)	<1.0
Toluene (µg/L)	<1.0
Ethylbenzene (µg/L)	<1.0
Total Xylenes (µg/L)	<1.0

County Road 20

**Legend**

- Monitoring Well Location
- Excavation Extent (Approximate)

Notes:

µg/L - Micrograms per Liter

N

0 10 20 Feet

Imagery Source: Google Earth; 2015 Google

DATE:	December 2015
DESIGNED BY:	B. Humphrey
DRAWN BY:	D. Arnold

Tasman Geosciences, Inc  
6899 Pecos Street - Unit C  
Denver, CO 80221

**DCP Midstream**  
**County Road 20 and Highway 85 Release**  
 SWSW Section 17, Township 2 North, Range 66 West  
 Weld County, Colorado

Groundwater Analytical  
 Results Map  
 (November 17, 2015)

Figure  
 4

Appendix A  
Historic Analytical Results

**APPENDIX B  
HISTORICAL ANALYTICAL DATA  
DCP CR 20 AND HWY 85 RELEASE  
WELD COUNTY, COLORADO**

Location Identification	Sample Date	Benzene (µg/l)	Toluene (µg/l)	Ethylbenzene (µg/l)	Total Xylenes (µg/l)	Comments
<b>COGCC Standards (µg/L)</b>		<b>5</b>	<b>560</b>	<b>700</b>	<b>1,400</b>	
BH01	5/14/2015	<1.0	<1.0	<1.0	<1.0	
BH01	9/24/2015	<1.0	<1.0	<1.0	<1.0	
BH01	11/17/2015	<1.0	<1.0	<1.0	<1.0	
BH02	5/14/2015	<b>120</b>	5	210	<b>2,000</b>	
BH02	9/24/2015	<b>20</b>	<1.0	48	370	
BH02	11/17/2015	<b>14</b>	<1.0	72	490	
BH03	5/14/2015	<b>220</b>	130	400	<b>3,500</b>	
BH03	9/24/2015	1.8	<1.0	7.0	150	
BH03	11/17/2015	<1.0	<1.0	43	400	
BH05	5/14/2015	<1.0	<1.0	3	22	
BH05	9/24/2015	<1.0	<1.0	<1.0	<1.0	
BH05	11/17/2015	<1.0	<1.0	<1.0	<1.0	
BH06	5/14/2015	<1.0	<1.0	<1.0	5	
BH06	9/24/2015	<1.0	<1.0	<1.0	<1.0	
BH06	11/17/2015	<1.0	<1.0	<1.0	<1.0	
BH07	5/14/2015	<b>44</b>	310	200	<b>2,600</b>	
BH07	9/24/2015	NS	NS	NS	NS	Trace of NAPL
BH07	11/17/2015	<b>85</b>	1.1	210	<b>3,100</b>	

Notes:

**Bold** red values indicate an exceedance of the COGCC groundwater standards for the Site.

NS = Not sampled.

µg/L = micrograms per liter.

Appendix B

Laboratory Analytical Report

- Summit Scientific - 1511145

# Summit Scientific

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741 Corporate Circle – Suite I ♦ Golden, Colorado 80401

303.277.9310 - laboratory ♦ 303.277.9531 - fax

November 23, 2015

Brian Humphrey  
DCP Midstream  
370 17th Street #2500  
Denver, CO 80202  
RE: CR20 + Hwy 85 Release

Enclosed are the results of analyses for samples received by Summit Scientific on 11/17/15 17:00. If you have any questions concerning this report, please feel free to contact me.

Sincerely,



Paul Shrewsbury  
President



DCP Midstream  
370 17th Street #2500  
Denver CO, 80202

Project: CR20 + Hwy 85 Release

Project Number: [none]  
Project Manager: Brian Humphrey

**Reported:**  
11/23/15 07:31

### ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
BH01	1511145-01	Water	11/17/15 12:40	11/17/15 17:00
BH02	1511145-02	Water	11/17/15 12:50	11/17/15 17:00
BH03	1511145-03	Water	11/17/15 13:00	11/17/15 17:00
BH05	1511145-04	Water	11/17/15 13:10	11/17/15 17:00
BH06	1511145-05	Water	11/17/15 13:20	11/17/15 17:00
BH07	1511145-06	Water	11/17/15 13:30	11/17/15 17:00

Summit Scientific

*The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.*



DCP Midstream  
370 17th Street #2500  
Denver CO, 80202

Project: CR20 + Hwy 85 Release

Project Number: [none]  
Project Manager: Brian Humphrey

Reported:  
11/23/15 07:31

# Summit Scientific 1511145

741 Corporate Circle Suite I • Golden, Colorado 80401  
303-277-9310 • 303-374-5933 Fax

Client: Tasman/DCP Midstream Page 1 of 1  
 Address: \_\_\_\_\_  
 City/State/Zip: \_\_\_\_\_ Project Manager: Brian Humphrey  
 Phone: \_\_\_\_\_ Fax: \_\_\_\_\_ E-Mail: bhumphrey@tasman-geo.com  
 Sampler Name: Z. Mahaffey Elliot HO Project Name: CA 20 X HWY 85  
 Project Number: \_\_\_\_\_

Sample Description	Date Sampled	Time Sampled	Number of Containers	Preservative			Matrix		Analyze For:			Special Instructions
				HCl	HNO <sub>3</sub>	None	Other (Specify)	Groundwater	Soil	Air - Canister Serial #	Other (Specify)	
BH01	11/17/15	12:40	3	X								
BH02		12:50										
BH03		13:00										
BH05		13:10										
BH06		13:20										
BH07	✓	13:30	✓	✓								
Relinquished by: <u>[Signature]</u> Date/Time: <u>11/17/15 1645</u>				Received by: <u>[Signature]</u> Date/Time: <u>11/17/15 1700</u>				Turn Around Time (Check)				Notes: <u>on ice</u>
Relinquished by: <u>[Signature]</u> Date/Time: <u>11/17/15 1745</u>				Received in Lab by: <u>[Signature]</u> Date/Time: <u>11-17 1745</u>				Same Day <input type="checkbox"/> 72 Hours <input type="checkbox"/> 24 Hours <input type="checkbox"/> Standard <input checked="" type="checkbox"/> 48 Hours <input type="checkbox"/>				
								Sample Integrity: Temperature Upon Receipt: <u>5.7 C</u> Intact: Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>				

www.s2scientific.com



DCP Midstream  
370 17th Street #2500  
Denver CO, 80202

Project: CR20 + Hwy 85 Release

Project Number: [none]  
Project Manager: Brian Humphrey

**Reported:**  
11/23/15 07:31

**BH01**  
**1511145-01 (Water)**

**Summit Scientific**

**Volatile Organic Compounds by EPA Method 8260B**

Date Sampled: 11/17/15 12:40

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	ND	1.0	ug/l	1	1511178	11/19/15	11/19/15	EPA 8260B	
Toluene	ND	1.0	"	"	"	"	"	"	
Ethylbenzene	ND	1.0	"	"	"	"	"	"	
Xylenes (total)	ND	1.0	"	"	"	"	"	"	

Date Sampled: 11/17/15 12:40

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		97.4 %	37-154		"	"	"	"	
Surrogate: Toluene-d8		92.8 %	45-149		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		93.2 %	45-146		"	"	"	"	

Summit Scientific

*The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.*



DCP Midstream  
 370 17th Street #2500  
 Denver CO, 80202

Project: CR20 + Hwy 85 Release

Project Number: [none]  
 Project Manager: Brian Humphrey

**Reported:**  
 11/23/15 07:31

**BH02**  
**1511145-02 (Water)**

**Summit Scientific**

**Volatile Organic Compounds by EPA Method 8260B**

Date Sampled: 11/17/15 12:50

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<b>Benzene</b>	<b>14</b>	1.0	ug/l	1	1511178	11/19/15	11/19/15	EPA 8260B	
Toluene	ND	1.0	"	"	"	"	"	"	
<b>Ethylbenzene</b>	<b>72</b>	1.0	"	"	"	"	"	"	
<b>Xylenes (total)</b>	<b>490</b>	1.0	"	"	"	"	"	"	

Date Sampled: 11/17/15 12:50

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<i>Surrogate: 1,2-Dichloroethane-d4</i>		89.9 %	37-154		"	"	"	"	
<i>Surrogate: Toluene-d8</i>		94.5 %	45-149		"	"	"	"	
<i>Surrogate: 4-Bromofluorobenzene</i>		90.8 %	45-146		"	"	"	"	

Summit Scientific

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DCP Midstream  
 370 17th Street #2500  
 Denver CO, 80202

Project: CR20 + Hwy 85 Release

Project Number: [none]  
 Project Manager: Brian Humphrey

**Reported:**  
 11/23/15 07:31

**BH03**  
**1511145-03 (Water)**

**Summit Scientific**

**Volatile Organic Compounds by EPA Method 8260B**

Date Sampled: 11/17/15 13:00

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	ND	1.0	ug/l	1	1511178	11/19/15	11/19/15	EPA 8260B	
Toluene	ND	1.0	"	"	"	"	"	"	
<b>Ethylbenzene</b>	<b>43</b>	1.0	"	"	"	"	"	"	
<b>Xylenes (total)</b>	<b>400</b>	1.0	"	"	"	"	"	"	

Date Sampled: 11/17/15 13:00

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<i>Surrogate: 1,2-Dichloroethane-d4</i>		88.9 %	37-154		"	"	"	"	
<i>Surrogate: Toluene-d8</i>		94.4 %	45-149		"	"	"	"	
<i>Surrogate: 4-Bromofluorobenzene</i>		92.3 %	45-146		"	"	"	"	

Summit Scientific

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DCP Midstream  
 370 17th Street #2500  
 Denver CO, 80202

Project: CR20 + Hwy 85 Release

Project Number: [none]  
 Project Manager: Brian Humphrey

**Reported:**  
 11/23/15 07:31

**BH05**  
**1511145-04 (Water)**

**Summit Scientific**

**Volatile Organic Compounds by EPA Method 8260B**

Date Sampled: 11/17/15 13:10

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	ND	1.0	ug/l	1	1511178	11/19/15	11/19/15	EPA 8260B	
Toluene	ND	1.0	"	"	"	"	"	"	
Ethylbenzene	ND	1.0	"	"	"	"	"	"	
Xylenes (total)	ND	1.0	"	"	"	"	"	"	

Date Sampled: 11/17/15 13:10

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		90.8 %	37-154		"	"	"	"	
Surrogate: Toluene-d8		93.0 %	45-149		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		93.5 %	45-146		"	"	"	"	

Summit Scientific

*The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.*



DCP Midstream  
 370 17th Street #2500  
 Denver CO, 80202

Project: CR20 + Hwy 85 Release

Project Number: [none]  
 Project Manager: Brian Humphrey

**Reported:**  
 11/23/15 07:31

**BH06**  
**1511145-05 (Water)**

**Summit Scientific**

**Volatile Organic Compounds by EPA Method 8260B**

Date Sampled: 11/17/15 13:20

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	ND	1.0	ug/l	1	1511178	11/19/15	11/19/15	EPA 8260B	
Toluene	ND	1.0	"	"	"	"	"	"	
Ethylbenzene	ND	1.0	"	"	"	"	"	"	
Xylenes (total)	ND	1.0	"	"	"	"	"	"	

Date Sampled: 11/17/15 13:20

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		87.0 %	37-154		"	"	"	"	
Surrogate: Toluene-d8		92.6 %	45-149		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		92.9 %	45-146		"	"	"	"	

Summit Scientific

*The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.*



DCP Midstream  
370 17th Street #2500  
Denver CO, 80202

Project: CR20 + Hwy 85 Release

Project Number: [none]  
Project Manager: Brian Humphrey

**Reported:**  
11/23/15 07:31

**BH07**  
**1511145-06 (Water)**

**Summit Scientific**

**Volatile Organic Compounds by EPA Method 8260B**

Date Sampled: 11/17/15 13:30

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<b>Benzene</b>	<b>85</b>	1.0	ug/l	1	1511178	11/19/15	11/19/15	EPA 8260B	
<b>Toluene</b>	<b>1.1</b>	1.0	"	"	"	"	"	"	
<b>Ethylbenzene</b>	<b>210</b>	1.0	"	"	"	"	"	"	
<b>Xylenes (total)</b>	<b>3100</b>	10	"	10	"	"	"	"	

Date Sampled: 11/17/15 13:30

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<i>Surrogate: 1,2-Dichloroethane-d4</i>		88.9 %	37-154		"	"	"	"	
<i>Surrogate: Toluene-d8</i>		110 %	45-149		"	"	"	"	
<i>Surrogate: 4-Bromofluorobenzene</i>		93.8 %	45-146		"	"	"	"	

Summit Scientific

*The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.*



DCP Midstream  
370 17th Street #2500  
Denver CO, 80202

Project: CR20 + Hwy 85 Release

Project Number: [none]  
Project Manager: Brian Humphrey

Reported:  
11/23/15 07:31

**Volatile Organic Compounds by EPA Method 8260B - Quality Control**

**Summit Scientific**

Analyte	Reporting			Spike	Source	%REC		RPD		Notes
	Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	

**Batch 1511178 - EPA 5030 Water MS**

**Blank (1511178-BLK1)**

Prepared & Analyzed: 11/19/15

Benzene	ND	1.0	ug/l							
Toluene	ND	1.0	"							
Ethylbenzene	ND	1.0	"							
Xylenes (total)	ND	1.0	"							
Surrogate: 1,2-Dichloroethane-d4	11.9		"	13.2		89.9	37-154			
Surrogate: Toluene-d8	12.6		"	13.3		94.1	45-149			
Surrogate: 4-Bromofluorobenzene	12.2		"	13.3		91.6	45-146			

**LCS (1511178-BS1)**

Prepared & Analyzed: 11/19/15

Benzene	34.9	1.0	ug/l	33.3		105	51-132			
Toluene	33.9	1.0	"	33.3		102	51-138			
Ethylbenzene	37.8	1.0	"	33.1		114	58-146			
m,p-Xylene	72.0	2.0	"	66.5		108	57-144			
o-Xylene	34.7	1.0	"	32.8		106	53-146			
Surrogate: 1,2-Dichloroethane-d4	11.5		"	13.2		87.0	37-154			
Surrogate: Toluene-d8	12.9		"	13.3		96.8	45-149			
Surrogate: 4-Bromofluorobenzene	12.4		"	13.3		93.2	45-146			

**Matrix Spike (1511178-MS1)**

Source: 1511135-01

Prepared & Analyzed: 11/19/15

Benzene	34.8	1.0	ug/l	33.3	ND	104	34-141			
Toluene	33.8	1.0	"	33.3	ND	101	27-151			
Ethylbenzene	39.0	1.0	"	33.1	ND	118	29-160			
m,p-Xylene	74.1	2.0	"	66.5	ND	111	20-166			
o-Xylene	36.1	1.0	"	32.8	ND	110	33-159			
Surrogate: 1,2-Dichloroethane-d4	11.0		"	13.2		83.1	37-154			
Surrogate: Toluene-d8	12.7		"	13.3		95.6	45-149			
Surrogate: 4-Bromofluorobenzene	12.2		"	13.3		91.7	45-146			

Summit Scientific

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DCP Midstream  
370 17th Street #2500  
Denver CO, 80202

Project: CR20 + Hwy 85 Release

Project Number: [none]  
Project Manager: Brian Humphrey

**Reported:**  
11/23/15 07:31

**Volatile Organic Compounds by EPA Method 8260B - Quality Control**  
**Summit Scientific**

Analyte	Reporting			Spike	Source	%REC			RPD	Notes
	Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	

**Batch 1511178 - EPA 5030 Water MS**

<b>Matrix Spike Dup (1511178-MSD1)</b>	<b>Source: 1511135-01</b>			<b>Prepared &amp; Analyzed: 11/19/15</b>						
Benzene	35.5	1.0	ug/l	33.3	ND	106	34-141	1.82	32	
Toluene	34.4	1.0	"	33.3	ND	103	27-151	1.94	25	
Ethylbenzene	39.2	1.0	"	33.1	ND	119	29-160	0.409	50	
m,p-Xylene	74.1	2.0	"	66.5	ND	111	20-166	0.0270	36	
o-Xylene	36.0	1.0	"	32.8	ND	110	33-159	0.389	26	
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>10.8</i>		<i>"</i>	<i>13.2</i>		<i>82.2</i>	<i>37-154</i>			
<i>Surrogate: Toluene-d8</i>	<i>12.7</i>		<i>"</i>	<i>13.3</i>		<i>95.5</i>	<i>45-149</i>			
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>12.1</i>		<i>"</i>	<i>13.3</i>		<i>91.0</i>	<i>45-146</i>			

Summit Scientific

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DCP Midstream  
370 17th Street #2500  
Denver CO, 80202

Project: CR20 + Hwy 85 Release

Project Number: [none]  
Project Manager: Brian Humphrey

**Reported:**  
11/23/15 07:31

### Notes and Definitions

DET Analyte DETECTED  
ND Analyte NOT DETECTED at or above the reporting limit  
NR Not Reported  
dry Sample results reported on a dry weight basis  
RPD Relative Percent Difference