

Fourth Quarter 2017 Groundwater Monitoring Summary Report

County Road 20 and Highway 85 Release Fort Lupton, Colorado

Prepared for:



370 17th St., Suite 2500
Denver, CO 80202

Prepared by:



6899 Pecos Street, Unit C
Denver, Colorado 80221

February 2, 2018

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1. Introduction

This report summarizes the groundwater monitoring and remediation activities conducted during the fourth quarter 2017 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. Current Site conditions were evaluated from field data and analytical laboratory results collected during the reporting period on November 1, 2017.

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. Quarterly groundwater monitoring activities were initiated during May 2015 at the Site.

3. Groundwater Monitoring

This section describes the field and laboratory activities performed during the fourth quarter 2017 groundwater monitoring event. Quarterly monitoring activities were conducted on November 1, 2017, and included Site-wide groundwater gauging and sampling. Figure 2 illustrates the groundwater monitoring network locations utilized to monitor the Site.

3.1 Groundwater Elevation Monitoring

Groundwater levels were measured to evaluate hydraulic characteristics and provide information regarding seasonal fluctuations in groundwater elevations at the Site. During the fourth quarter 2017, 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 2017 groundwater elevation map, included as Figure 3, indicates that the groundwater gradient in proximity to the Site is generally flat. The relatively small scale between the differences in groundwater elevation and spatial distances between monitoring locations at the Site do not allow for accurate gradient contouring. Observed variations in groundwater elevations are likely attributed to several factors including seasonal fluctuations, increased use of the irrigation ditch to the west of the Site, flooding or increased irrigation of the farm to the north of the Site, and/or shallow groundwater use for irrigation to the east of the Site. Groundwater elevations will continue to be monitored during subsequent events. The range of groundwater elevations, average elevation change from the previous monitoring

event, and the calculated average hydraulic gradient (using elevations from BH05 and BH06) at the Site are summarized in the table below.

Summary of Measured Hydraulic Parameters

	Fourth Quarter 2017 (11/1/17)
Maximum Elevation (Well ID)	4,863.20 (BH06)
Minimum Elevation (Well ID)	4,862.58 (BH05)
Average Change from Previous Monitoring Event – All Wells	-1.79 feet
Average Hydraulic Gradient (ft/ft) / (Well IDs)	0.015 (BH05 to BH06)

3.2 Groundwater Quality Monitoring

Subsequent to recording groundwater level measurements at each monitoring well, groundwater samples were collected from the six Site monitoring wells using disposable 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 fourth quarter 2017 monitoring event. Historic analytical results up to and including the fourth quarter 2017 event are included in Appendix A and the laboratory analytical report for the fourth quarter 2017 is included in Appendix B. Analytical results are also displayed on Figure 4.

Analytical results/observations are summarized below:

- The benzene concentration at monitoring well BH07 (31 micrograms per liter [µg/L]) was in exceedance of the COGCC Table 910-1 standard of 5 µg/L. Toluene, ethylbenzene, and total xylenes concentrations at BH07 were reported below the COGCC Table 910-1 standards and/or laboratory detection limits during the fourth quarter 2017 monitoring event.
- BTEX concentrations at the five (5) other monitoring wells (BH01, BH02, BH03, BH05, and BH06) were reported below the COGCC Table 910-1 standards and/or laboratory detection limits during the fourth quarter 2017 monitoring event.

4. Remediation Activities

This Section includes a description of the active remediation activities at the Site along with observations during remediation efforts.

4.1 Groundwater Remediation Activities

As reported in previous quarterly monitoring reports, mobile, vacuum enhanced fluid recovery (EFR) groundwater remediation events were initiated at the Site during the third quarter 2015 and discontinued during the fourth quarter 2016 due to the absence of light non-aqueous phase liquid (LNAPL) as well as decreased dissolved phase BTEX concentrations. Supplemental groundwater remediation activities have not been conducted at the Site since November 2016.

5. Conclusions

Comparison of the fourth quarter 2017 monitoring data and historic information provides the following general observations:

- Groundwater elevations and flow direction at the Site continue to fluctuate when compared to previous quarterly sampling events as indicated by the groundwater elevations depicted on Figure 3 and summarized on Table 1. During the fourth quarter 2017 monitoring event, groundwater elevations were generally flat, which is consistent with historic monitoring data. Groundwater elevation and flow directions will continue to be monitored during subsequent quarterly events.
- At BH07, concentrations of benzene and xylene have periodically fluctuated from below to above COGCC Table 910-1 standards since monitoring was initiated at this location in May 2015. Variability in concentrations is likely a result of residual impacts in soils coming into contact with fluctuating groundwater levels as a result of seasonal runoff and local irrigation practices.
- BTEX concentrations at the 5 other monitoring well locations were below COGCC standards and/or laboratory detection limits during the fourth quarter 2017 monitoring event.

6. Recommendations

Based on evaluation of data from the fourth quarter 2017 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.

Tables

TABLE 1
FOURTH QUARTER 2017
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	2/28/2017	16.51			18.13	4,875.68	4,859.17	-2.06
BH01	5/8/2017	15.45			18.13	4,875.68	4,860.23	1.06
BH01	8/1/2017	11.00			18.11	4,875.68	4,864.68	4.45
BH01	11/1/2017	12.70			18.13	4,875.68	4,862.98	-1.70
BH02	2/28/2017	15.82			18.76	4,874.94	4,859.12	-2.01
BH02	5/8/2017	14.72			18.73	4,874.94	4,860.22	1.10
BH02	8/1/2017	10.29			18.73	4,874.94	4,864.65	4.43
BH02	11/1/2017	12.11			18.80	4,874.94	4,862.83	-1.82
BH03	2/28/2017	15.34			18.76	4,874.51	4,859.17	-2.03
BH03	5/8/2017	14.27			18.80	4,874.51	4,860.24	1.07
BH03	8/1/2017	9.80			18.82	4,874.51	4,864.71	4.47
BH03	11/1/2017	11.59			18.84	4,874.51	4,862.92	-1.79
BH05	2/28/2017	15.52			18.99	4,874.67	4,859.15	-2.05
BH05	5/8/2017	14.47			18.97	4,874.67	4,860.20	1.05
BH05	8/1/2017	9.97			19.00	4,874.67	4,864.70	4.50
BH05	11/1/2017	12.09			18.80	4,874.67	4,862.58	-2.12
BH06	2/28/2017	15.88			18.56	4,874.95	4,859.07	-2.08
BH06	5/8/2017	14.87			18.80	4,874.95	4,860.08	1.01
BH06	8/1/2017	10.30			18.81	4,874.95	4,864.65	4.57
BH06	11/1/2017	11.75			19.00	4,874.95	4,863.20	-1.45
BH07	2/28/2017	14.93			18.67	4,874.04	4,859.11	-4.21
BH07	5/8/2017	13.83			18.67	4,874.04	4,860.21	1.10
BH07	8/1/2017	9.37			18.73	4,874.04	4,864.67	4.46
BH07	11/1/2017	11.22			18.75	4,874.04	4,862.82	-1.85
Average change in groundwater elevation (8/1/2017 to 11/1/2017)								-1.79

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
FOURTH QUARTER 2017
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
COGCC Standards (µg/L)		5	560	700	1,400	
BH01	11/1/2017	<1.0	<1.0	<1.0	<2.0	
BH02	11/1/2017	<1.0	<1.0	<1.0	770	
BH03	11/1/2017	<1.0	<1.0	<1.0	110	
BH05	11/1/2017	<1.0	<1.0	<1.0	<2.0	
BH06	11/1/2017	<1.0	<1.0	<1.0	<2.0	
BH07	11/1/2017	31	<1.0	7.2	890	

Notes:

1). The environmental cleanup standards for groundwater that are applicable to this site are the Colorado Oil and Gas Conservation Commission (COGCC) standards for contaminants in groundwater according to Table 910-1 of the COGCC 900 Series Rule for E&P Waste Management.

* Monitoring well BH03 was sampled on May 17, 2016 subsequent to purging apparent LNAPL from the well.

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

NS = Not sampled.

µg/L = micrograms per liter.

LNAPL - Light non-aqueous phase liquid

Figures

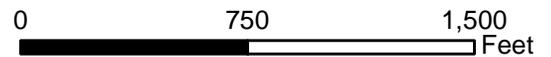
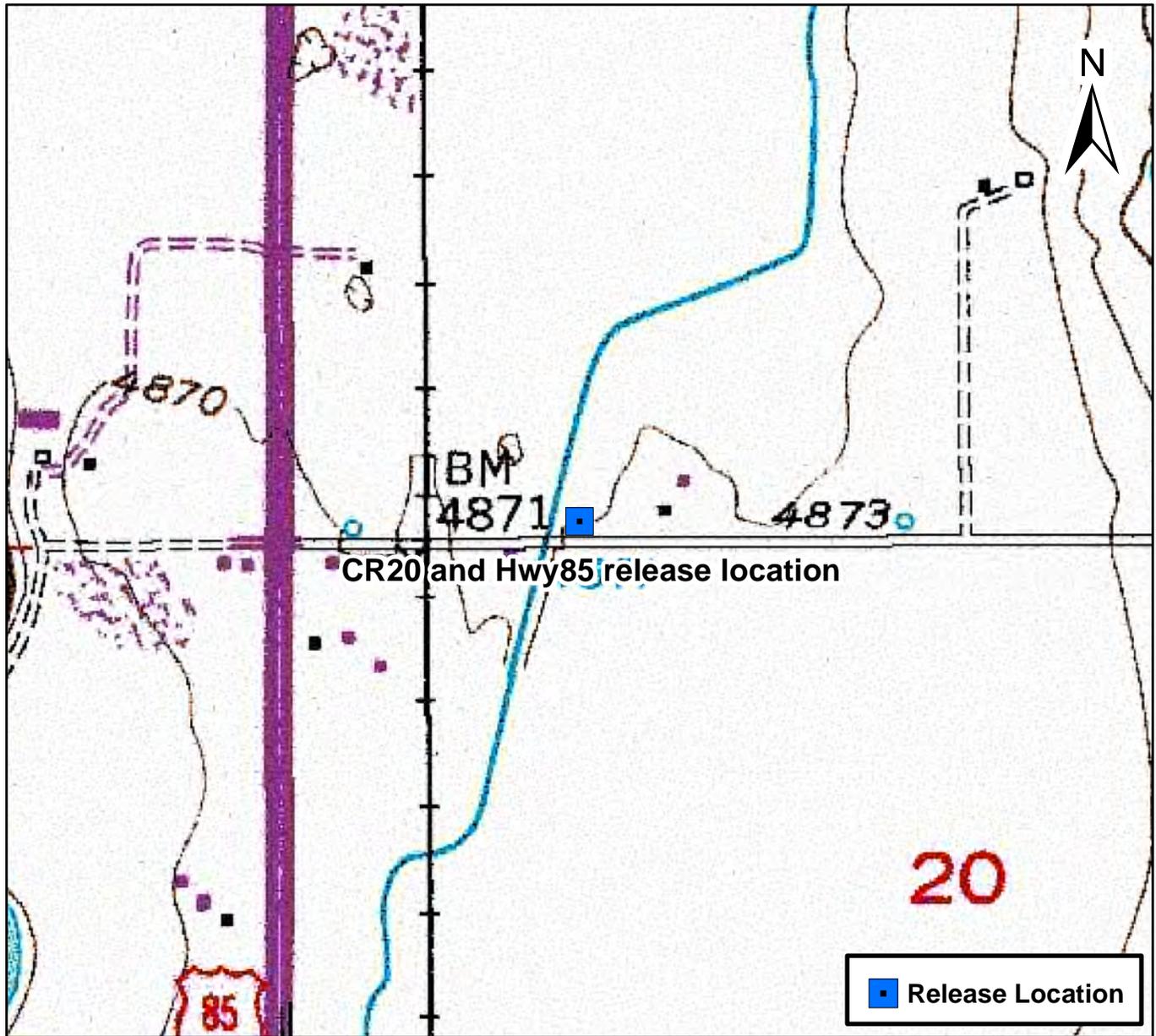


Figure 1

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

Drawn By: DBA
 Date: 06/04/2014





DATE:	January 2018
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:	January 2018
DESIGNED BY:	B. Humphrey
DRAWN BY:	D. Cavinder



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 1, 2017)

Figure
3



DATE: January 2018
 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 Analytical
 Results Map
 (November 1, 2017)

Figure
 4

Appendix A

Historic Analytical Groundwater Data

**APPENDIX A
HISTORIC ANALYTICAL GROUNDWATER 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
COGCC Standards (µg/L)		5	560	700	1,400	
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	
BH01	2/15/2016	<1.0	<1.0	<1.0	<1.0	
BH01	5/13/2016	<1.0	<1.0	<1.0	<1.0	
BH01	8/10/2016	<1.0	<1.0	<1.0	<1.0	
BH01	11/11/2016	<1.0	<1.0	<1.0	<1.0	
BH01	2/28/2017	<1.0	<1.0	<1.0	<1.0	
BH01	5/8/2017	<1.0	<1.0	<1.0	<2.0	
BH01	8/1/2017	<1.0	<1.0	<1.0	<2.0	
BH01	11/1/2017	<1.0	<1.0	<1.0	<2.0	
<hr/>						
BH02	5/14/2015	120	5	210	2,000	
BH02	9/24/2015	20	<1.0	48	370	
BH02	11/17/2015	14	<1.0	72	490	
BH02	2/15/2016	2.4	1.4	260	730	
BH02	5/13/2016	2.2	<1.0	160	1,100	
BH02	8/10/2016	<1.0	<1.0	13	340	
BH02	11/11/2016	1.5	<1.0	17	910	
BH02	2/28/2017	<1.0	<1.0	<1.0	560	
BH02	5/8/2017	<1.0	<1.0	<1.0	240	
BH02	8/1/2017	<1.0	<1.0	150	700	
BH02	11/1/2017	<1.0	<1.0	<1.0	770	
<hr/>						
BH03	5/14/2015	220	130	400	3,500	
BH03	9/24/2015	1.8	<1.0	7.0	150	
BH03	11/17/2015	<1.0	<1.0	43	400	
BH03	2/15/2016	<1.0	<1.0	42	280	
BH03*	5/17/2016	5.3	<1.0	79	590	
BH03	8/10/2016	3.1	<1.0	230	1,400	
BH03	11/11/2016	<1.0	<1.0	<1.0	1,200	
BH03	2/28/2017	<1.0	<1.0	<1.0	410	
BH03	5/8/2017	<1.0	<1.0	<1.0	130	
BH03	8/1/2017	4.6	<1.0	97	1,300	
BH03	11/1/2017	<1.0	<1.0	<1.0	110	
<hr/>						
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	
BH05	2/15/2016	<1.0	<1.0	<1.0	<1.0	
BH05	5/13/2016	NS	NS	NS	NS	Well was dry
BH05	8/10/2016	<1.0	<1.0	<1.0	<1.0	
BH05	11/11/2016	<1.0	<1.0	<1.0	<1.0	
BH05	2/28/2017	<1.0	<1.0	<1.0	<1.0	
BH05	5/8/2017	<1.0	<1.0	<1.0	<2.0	
BH05	8/1/2017	<1.0	<1.0	<1.0	<2.0	
BH05	11/1/2017	<1.0	<1.0	<1.0	<2.0	

**APPENDIX A
HISTORIC ANALYTICAL GROUNDWATER 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	
COGCC Standards (µg/L)		5	560	700	1,400		
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		
BH06	2/15/2016	<1.0	<1.0	<1.0	<1.0		
BH06	5/13/2016	<1.0	<1.0	<1.0	<1.0		
BH06	8/10/2016	<1.0	<1.0	<1.0	<1.0		
BH06	11/11/2016	<1.0	<1.0	<1.0	<1.0		
BH06	2/28/2017	<1.0	<1.0	<1.0	<1.0		
BH06	5/8/2017	<1.0	<1.0	<1.0	<2.0		
BH06	8/1/2017	<1.0	<1.0	<1.0	<2.0		
BH06	11/1/2017	<1.0	<1.0	<1.0	<2.0		
BH07	5/14/2015	44	310	200	2,600		
BH07	9/24/2015	NS	NS	NS	NS	Trace amount of LNAPL	
BH07	11/17/2015	85	1.1	210	3,100		
BH07	2/15/2016	NS	NS	NS	NS	LNAPL - 0.03 ft	
BH07	5/13/2016	52	<1.0	500	3,300		
BH07	8/10/2016	1.8	<1.0	<1.0	560	Trace amount of LNAPL	
BH07	11/11/2016	DRY					
BH07	2/28/2017	4.1	<1.0	90	1,400		
BH07	5/8/2017	<1.0	<1.0	<1.0	730		
BH07	8/1/2017	1.2	<1.0	17	210		
BH07	11/1/2017	31	<1.0	7.2	890		

Notes:

1). The environmental cleanup standards for groundwater that are applicable to this site are the Colorado Oil and Gas Conservation Commission (COGCC) standards for contaminants in groundwater according to Table 910-1 of the COGCC 900 Series Rule for E&P Waste Management.

* Monitoring well BH03 was sampled on May 17, 2016 subsequent to purging apparent LNAPL from the well.

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

NS = Not sampled.

µg/L = micrograms per liter.

LNAPL - Light non-aqueous phase liquid

Appendix B

Laboratory Analytical Report

- Summit Scientific 1711013

Summit Scientific

741 Corporate Circle – Suite I ♦ Golden, Colorado 80401

303.277.9310 - laboratory ♦ 303.277.9531 - fax

November 08, 2017

Steve Weathers
DCP Operating Company
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 11/01/17 16:45. If you have any questions concerning this report, please feel free to contact me.

Sincerely,



Paul Shrewsbury For Ben Shrewsbury
Laboratory Manager



DCP Operating Company
370 17th Street #2500
Denver CO, 80202

Project: CR20 + Hwy 85 Release

Project Number: [none]
Project Manager: Steve Weathers

Reported:
11/08/17 13:24

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
BH01	1711013-01	Water	11/01/17 12:20	11/01/17 16:45
BH02	1711013-02	Water	11/01/17 12:20	11/01/17 16:45
BH03	1711013-03	Water	11/01/17 12:45	11/01/17 16:45
BH05	1711013-04	Water	11/01/17 12:30	11/01/17 16:45
BH06	1711013-05	Water	11/01/17 12:40	11/01/17 16:45
BH07	1711013-06	Water	11/01/17 12:30	11/01/17 16:45

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 Operating Company
370 17th Street #2500
Denver CO, 80202

Project: CR20 + Hwy 85 Release

Project Number: [none]
Project Manager: Steve Weathers

Reported:
11/08/17 13:24

Sample Receipt Checklist

S2 Work Order: 1711013

Client: DCP/Tasman

Client Project ID: CR 20 + 85 Release

Shipped Via: P/U

(UPS, FedEx, Hand Delivered, Pick-up, etc.)

Airbill #: _____

Matrix (check all that apply): Air Soil/Solid Water Other: _____
(Describe)

Cooler ID					
Temp (°C)	<u>2.4</u>				

Thermometer ID: 61857155-K

	Yes	No	N/A	Comments (if any)
If samples require cooling, was the temperature at 4°C +/- 2°C ⁽¹⁾ ?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
NOTE: If samples are delivered the same day of sampling, this requirement is met provided that there is evidence that cooling has begun.				
Were all samples received intact ⁽¹⁾ ?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Was adequate sample volume provided ⁽¹⁾ ?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
If custody seals are present, are they intact ⁽¹⁾ ?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Are short holding time analytes or samples with HTs due within 48 hours present?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Is a chain-of-custody (COC) form present and filled out completely ⁽¹⁾ ?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Does the COC agree with the number and type of sample bottles received ⁽¹⁾ ?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Do the sample IDs on the bottle labels match the COC ⁽¹⁾ ?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Is the COC properly relinquished by the client w/ date and time recorded ⁽¹⁾ ?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
For volatiles in water – is there headspace present? If yes, contact client and note in narrative.	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
Are samples preserved that require preservation (excluding cooling) ⁽¹⁾ ?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Note the type of preservative in the Comments column – HCl, H2SO4, NaOH, HNO3, ect				
If samples are acid preserved for metals, is the pH ≤ 2 ⁽¹⁾ ?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Record the pH in Comments.				
If dissolved metals are requested, were samples field filtered?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Additional Comments (if any):				

⁽¹⁾ If NO, then contact the client before proceeding with analysis and note in case narrative.

Nakita
Custodian Printed Name

[Signature]
Signature or Initials of Custodian

11/1/17 17:10
Date/Time

[Signature]



DCP Operating Company
 370 17th Street #2500
 Denver CO, 80202

Project: CR20 + Hwy 85 Release

Project Number: [none]
 Project Manager: Steve Weathers

Reported:
 11/08/17 13:24

BH01
1711013-01 (Water)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **11/01/17 12:20**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	ND	1.0	ug/l	1	1711027	11/04/17	11/04/17	EPA 8260B	
Toluene	ND	1.0	"	"	"	"	"	"	
Ethylbenzene	ND	1.0	"	"	"	"	"	"	
Xylenes (total)	ND	2.0	"	"	"	"	"	"	

Date Sampled: **11/01/17 12:20**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		77.9 %	37-154		"	"	"	"	
Surrogate: Toluene-d8		95.6 %	45-149		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		97.6 %	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 Operating Company
 370 17th Street #2500
 Denver CO, 80202

Project: CR20 + Hwy 85 Release

Project Number: [none]
 Project Manager: Steve Weathers

Reported:
 11/08/17 13:24

BH02
1711013-02 (Water)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **11/01/17 12:20**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	ND	1.0	ug/l	1	1711027	11/04/17	11/04/17	EPA 8260B	
Toluene	ND	1.0	"	"	"	"	"	"	
Ethylbenzene	ND	1.0	"	"	"	"	"	"	
Xylenes (total)	770	2.0	"	"	"	"	"	"	

Date Sampled: **11/01/17 12:20**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<i>Surrogate: 1,2-Dichloroethane-d4</i>		80.1 %	37-154		"	"	"	"	
<i>Surrogate: Toluene-d8</i>		98.9 %	45-149		"	"	"	"	
<i>Surrogate: 4-Bromofluorobenzene</i>		97.8 %	45-146		"	"	"	"	

Summit Scientific

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DCP Operating Company
 370 17th Street #2500
 Denver CO, 80202

Project: CR20 + Hwy 85 Release

Project Number: [none]
 Project Manager: Steve Weathers

Reported:
 11/08/17 13:24

BH03
1711013-03 (Water)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **11/01/17 12:45**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	ND	1.0	ug/l	1	1711027	11/04/17	11/04/17	EPA 8260B	
Toluene	ND	1.0	"	"	"	"	"	"	
Ethylbenzene	ND	1.0	"	"	"	"	"	"	
Xylenes (total)	110	2.0	"	"	"	"	"	"	

Date Sampled: **11/01/17 12:45**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<i>Surrogate: 1,2-Dichloroethane-d4</i>		82.0 %	37-154		"	"	"	"	
<i>Surrogate: Toluene-d8</i>		95.0 %	45-149		"	"	"	"	
<i>Surrogate: 4-Bromofluorobenzene</i>		98.2 %	45-146		"	"	"	"	

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DCP Operating Company
 370 17th Street #2500
 Denver CO, 80202

Project: CR20 + Hwy 85 Release

Project Number: [none]
 Project Manager: Steve Weathers

Reported:
 11/08/17 13:24

BH05
1711013-04 (Water)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **11/01/17 12:30**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	ND	1.0	ug/l	1	1711027	11/04/17	11/04/17	EPA 8260B	
Toluene	ND	1.0	"	"	"	"	"	"	
Ethylbenzene	ND	1.0	"	"	"	"	"	"	
Xylenes (total)	ND	2.0	"	"	"	"	"	"	

Date Sampled: **11/01/17 12:30**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		79.4 %	37-154		"	"	"	"	
Surrogate: Toluene-d8		96.5 %	45-149		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		95.2 %	45-146		"	"	"	"	

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DCP Operating Company
 370 17th Street #2500
 Denver CO, 80202

Project: CR20 + Hwy 85 Release

Project Number: [none]
 Project Manager: Steve Weathers

Reported:
 11/08/17 13:24

BH06
1711013-05 (Water)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **11/01/17 12:40**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	ND	1.0	ug/l	1	1711027	11/04/17	11/04/17	EPA 8260B	
Toluene	ND	1.0	"	"	"	"	"	"	
Ethylbenzene	ND	1.0	"	"	"	"	"	"	
Xylenes (total)	ND	2.0	"	"	"	"	"	"	

Date Sampled: **11/01/17 12:40**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		81.2 %	37-154		"	"	"	"	
Surrogate: Toluene-d8		98.2 %	45-149		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		99.9 %	45-146		"	"	"	"	

Summit Scientific

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DCP Operating Company
 370 17th Street #2500
 Denver CO, 80202

Project: CR20 + Hwy 85 Release

Project Number: [none]
 Project Manager: Steve Weathers

Reported:
 11/08/17 13:24

BH07
1711013-06 (Water)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **11/01/17 12:30**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	31	1.0	ug/l	1	1711027	11/04/17	11/04/17	EPA 8260B	
Toluene	ND	1.0	"	"	"	"	"	"	
Ethylbenzene	7.2	1.0	"	"	"	"	"	"	
Xylenes (total)	890	2.0	"	"	"	"	"	"	

Date Sampled: **11/01/17 12:30**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		79.4 %	37-154		"	"	"	"	
Surrogate: Toluene-d8		98.6 %	45-149		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		106 %	45-146		"	"	"	"	

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DCP Operating Company
370 17th Street #2500
Denver CO, 80202

Project: CR20 + Hwy 85 Release

Project Number: [none]
Project Manager: Steve Weathers

Reported:
11/08/17 13:24

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 1711027 - EPA 5030 Water MS

Blank (1711027-BLK1)

Prepared & Analyzed: 11/04/17

Benzene	ND	1.0	ug/l							
Toluene	ND	1.0	"							
Ethylbenzene	ND	1.0	"							
Xylenes (total)	ND	2.0	"							
Surrogate: 1,2-Dichloroethane-d4	14.7		"	13.3		110	37-154			
Surrogate: Toluene-d8	12.6		"	13.3		94.4	45-149			
Surrogate: 4-Bromofluorobenzene	13.3		"	13.3		99.6	45-146			

LCS (1711027-BS1)

Prepared & Analyzed: 11/04/17

Benzene	21.7	1.0	ug/l	33.3		65.1	51-132			
Toluene	26.2	1.0	"	33.3		78.5	51-138			
Ethylbenzene	31.8	1.0	"	33.1		96.3	58-146			
m,p-Xylene	64.6	2.0	"	66.5		97.0	57-144			
o-Xylene	31.6	1.0	"	32.7		96.6	53-146			
Surrogate: 1,2-Dichloroethane-d4	13.9		"	13.3		104	37-154			
Surrogate: Toluene-d8	12.8		"	13.3		95.9	45-149			
Surrogate: 4-Bromofluorobenzene	9.57		"	13.3		71.8	45-146			

Matrix Spike (1711027-MS1)

Source: 1711013-01

Prepared & Analyzed: 11/04/17

Benzene	21.3	1.0	ug/l	33.3	ND	63.8	34-141			
Toluene	26.2	1.0	"	33.3	ND	78.7	27-151			
Ethylbenzene	30.6	1.0	"	33.1	ND	92.5	29-160			
m,p-Xylene	62.2	2.0	"	66.5	ND	93.5	20-166			
o-Xylene	31.4	1.0	"	32.7	ND	96.0	33-159			
Surrogate: 1,2-Dichloroethane-d4	11.0		"	13.3		82.9	37-154			
Surrogate: Toluene-d8	12.6		"	13.3		94.5	45-149			
Surrogate: 4-Bromofluorobenzene	12.2		"	13.3		91.4	45-146			

Summit Scientific

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DCP Operating Company
 370 17th Street #2500
 Denver CO, 80202

Project: CR20 + Hwy 85 Release

Project Number: [none]
 Project Manager: Steve Weathers

Reported:
 11/08/17 13:24

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 1711027 - EPA 5030 Water MS

Matrix Spike Dup (1711027-MSD1)	Source: 1711013-01			Prepared & Analyzed: 11/04/17						
Benzene	21.8	1.0	ug/l	33.3	ND	65.3	34-141	2.28	32	
Toluene	26.1	1.0	"	33.3	ND	78.3	27-151	0.573	25	
Ethylbenzene	30.2	1.0	"	33.1	ND	91.2	29-160	1.45	50	
m,p-Xylene	60.9	2.0	"	66.5	ND	91.5	20-166	2.14	36	
o-Xylene	30.8	1.0	"	32.7	ND	94.3	33-159	1.71	26	
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>12.1</i>		<i>"</i>	<i>13.3</i>		<i>90.5</i>	<i>37-154</i>			
<i>Surrogate: Toluene-d8</i>	<i>12.8</i>		<i>"</i>	<i>13.3</i>		<i>96.2</i>	<i>45-149</i>			
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>12.6</i>		<i>"</i>	<i>13.3</i>		<i>94.2</i>	<i>45-146</i>			

Summit Scientific

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DCP Operating Company
370 17th Street #2500
Denver CO, 80202

Project: CR20 + Hwy 85 Release

Project Number: [none]
Project Manager: Steve Weathers

Reported:
11/08/17 13:24

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