

March 1, 2016

Mr. Bob Chesson
Environmental Protection Specialist, Northeast Region
Colorado Oil and Gas Conservation Commission
1120 Lincoln Street, Suite 801
Denver, CO 80203

**Re: 2015 Annual Groundwater Monitoring Report
Becker 5-1, 2, 14, 15 Tank Battery
SWSE Section 5 T3N R64W
Weld County, Colorado
Facility #: 322943
Spill Tracking #: 2231641
Remediation #: 7693**

Dear Mr. Chesson,

On behalf of PDC Energy, Inc. (PDC), Tasman Geosciences, Inc. (Tasman) is submitting this 2015 Annual Groundwater Monitoring Report for quarterly groundwater monitoring activities conducted at the Becker 5-1, 2, 14, 15 tank battery (Site). This report documents the results of groundwater gauging, groundwater sampling, and remediation activities conducted at the Site during 2015. As per discussions with COGCC staff, PDC is providing this summary annual report to assist in updating the COGCC on the progress and status of this open remediation Site.

A historic release was discovered at the Site on October 27, 2012, during replacement of the produced water vault. Following excavation and well installation activities, groundwater monitoring was initiated during the fourth quarter 2012. The monitoring well network at the Site consists of 8 temporary monitoring and remediation wells (BH01 - BH08), as shown in Figure 1. Historic groundwater monitoring results are presented in Table 1. Groundwater monitoring results for 2015 are summarized below.

| Sampling Event | Wells Exceeding COGCC Standards | Maximum Benzene Concentration (µg/L) |
|----------------|---------------------------------|--------------------------------------|
| 1Q 2015 | None | 1.4 |
| 2Q 2015 | None | <1.0 |
| 3Q 2015 | None | 4.5 |
| 4Q 2015 | BH04 | 5.4 |

Tasman initiated enhanced fluid recovery (EFR) and air sparge (AS) events at the site during the first quarter 2013. EFR/AS will remain the selected remediation strategy for this site through the first quarter 2016. Following the completion of remediation activities, four additional quarters of compliance groundwater monitoring will be conducted to confirm that BTEX concentrations remain below applicable COGCC Table 910-1 groundwater standards.

Please contact me at (720) 409-8791 if you have any questions regarding this report.

Sincerely,



Christine Wasko
Project Manager
Tasman Geosciences, Inc.



Note: Surface drainage direction is estimated based on site topography and is not related to regional topography.

DRAWN BY: ESS

DATE: 2/4/2016

Facility Diagram
PDC Energy – DJ Basin
Becker 5-1, 2, 14, 15 Tank Battery
SWSE S5 T3N R64W
Weld County, CO



6899 Pecos Street
Unit C
Denver, CO 80221

LEGEND

- Excavation Area
- Monitoring Well Location
- Excavation Groundwater Sample Location
- Point of Release

All locations are approximate unless otherwise noted

FIGURE 1
GROUNDWATER MONITORING SITE MAP

TABLE 1
BECKER 5-1, 2, 14, 15 TANK BATTERY
GROUNDWATER ANALYTICAL RESULTS SUMMARY TABLE

| Sample ID | Date Sampled | Benzene (µg/L) | Toluene (µg/L) | Ethylbenzene (µg/L) | Total Xylenes (µg/L) | Depth to Water ⁽²⁾ (feet) |
|---|--------------|-------------------|-------------------|------------------------|----------------------------|--|
| COGCC Table 910-1 Groundwater Standard (µg/L) ⁽¹⁾ | | 5 | 560 | 700 | 1,400 | |
| GW01 | 11/29/2012 | 3,100 | 610 | 320 | 3,700 | ~ 16 |
| BH01 | 12/20/2012 | 97 | <1.0 | 180 | 1,200 | 13.24 |
| BH01 | 3/19/2013 | 1.7 | <1.0 | 4.9 | 48 | 13.27 |
| BH01 | 6/21/2013 | <1.0 | <1.0 | 8.0 | 49 | 13.01 |
| BH01 | 9/23/2013 | <1.0 | <1.0 | <1.0 | <1.0 | 12.52 |
| BH01 | 12/18/2013 | 1.5 | <1.0 | <1.0 | <1.0 | 12.80 |
| BH01 | 3/28/2014 | <1.0 | <1.0 | 1.9 | 2.2 | 12.81 |
| BH01 | 6/25/2014 | <1.0 | <1.0 | 15 | 8.9 | 11.44 |
| BH01 | 9/17/2014 | <1.0 | <1.0 | 11 | 2.1 | 10.93 |
| BH01 | 12/16/2014 | 7.4 | <1.0 | 11 | <1.0 | 11.45 |
| BH01 | 3/27/2015 | 1.4 | 4.2 | 2.2 | 24 | 11.59 |
| BH01 | 6/29/2015 | <1.0 | <1.0 | <1.0 | <1.0 | 8.67 |
| BH01 | 9/25/2015 | <1.0 | <1.0 | <1.0 | <1.0 | 9.88 |
| BH01 | 12/14/2015 | <1.0 | <1.0 | <1.0 | <1.0 | 9.61 |
| BH02 | 12/20/2012 | 170 | 1.6 | 490 | 1,700 | 10.20 |
| BH02 | 3/19/2013 | <1.0 | <1.0 | <1.0 | 2.8 | 10.44 |
| BH02 | 6/21/2013 | 82 | <1.0 | 66 | 410 | 9.85 |
| BH02 | 9/23/2013 | 35 | <1.0 | 39 | 39 | 9.31 |
| BH02 | 12/18/2013 | 550 | <1.0 | 1.4 | 110 | 9.74 |
| BH02 | 3/28/2014 | 660 | 1.0 | 150 | 280 | 9.78 |
| BH02 | 6/25/2014 | <1.0 | <1.0 | <1.0 | <1.0 | 8.12 |
| BH02 | 9/17/2014 | 110 | <1.0 | 120 | 24 | 7.78 |
| BH02 | 12/16/2014 | <1.0 | <1.0 | <1.0 | <1.0 | 8.41 |
| BH02 | 3/27/2015 | <1.0 | 1.8 | <1.0 | 6.5 | 8.76 |
| BH02 | 6/29/2015 | <1.0 | <1.0 | <1.0 | <1.0 | 5.51 |
| BH02 | 9/25/2015 | <1.0 | <1.0 | <1.0 | <1.0 | 6.59 |
| BH02 | 12/14/2015 | <1.0 | <1.0 | <1.0 | <1.0 | 6.49 |
| BH03 | 12/20/2012 | <1.0 | <1.0 | <1.0 | <1.0 | 12.78 |
| BH03 | 3/19/2013 | <1.0 | <1.0 | <1.0 | <1.0 | 12.60 |
| BH03 | 6/21/2013 | <1.0 | <1.0 | <1.0 | <1.0 | 12.39 |
| BH03 | 9/23/2013 | <1.0 | <1.0 | <1.0 | <1.0 | 12.18 |
| BH03 | 12/18/2013 | 1.2 | <1.0 | <1.0 | <1.0 | 12.09 |

TABLE 1
BECKER 5-1, 2, 14, 15 TANK BATTERY
GROUNDWATER ANALYTICAL RESULTS SUMMARY TABLE

| Sample ID | Date Sampled | Benzene (µg/L) | Toluene (µg/L) | Ethylbenzene (µg/L) | Total Xylenes (µg/L) | Depth to Water ⁽²⁾ (feet) |
|---|--------------|-------------------|-------------------|------------------------|----------------------------|--|
| COGCC Table 910-1 Groundwater Standard (µg/L) ⁽¹⁾ | | 5 | 560 | 700 | 1,400 | |
| BH03 | 3/28/2014 | <1.0 | <1.0 | <1.0 | <1.0 | 12.06 |
| BH03 | 6/25/2014 | <1.0 | <1.0 | <1.0 | <1.0 | 10.92 |
| BH03 | 9/17/2014 | <1.0 | <1.0 | <1.0 | <1.0 | 10.44 |
| BH03 | 12/16/2014 | <1.0 | <1.0 | <1.0 | <1.0 | 10.79 |
| BH03 | 3/27/2015 | <1.0 | <1.0 | <1.0 | <1.0 | 11.05 |
| BH03 | 6/29/2015 | <1.0 | <1.0 | <1.0 | <1.0 | 8.19 |
| BH03 | 9/25/2015 | <1.0 | <1.0 | <1.0 | <1.0 | 9.54 |
| BH03 | 12/14/2015 | <1.0 | <1.0 | <1.0 | <1.0 | 8.79 |
| | | | | | | |
| BH04 | 6/25/2014 | 18 | <1.0 | 53 | 130 | 8.72 |
| BH04 | 9/17/2014 | 1.1 | <1.0 | <1.0 | <1.0 | 8.13 |
| BH04 | 12/16/2014 | 3.3 | <1.0 | 6.0 | 21 | 8.73 |
| BH04 | 3/27/2015 | <1.0 | <1.0 | <1.0 | 20 | 8.88 |
| BH04 | 6/29/2015 | <1.0 | <1.0 | <1.0 | 2.2 | 5.73 |
| BH04 | 9/25/2015 | 4.5 | <1.0 | 1.2 | 4.6 | 7.15 |
| BH04 | 12/14/2015 | 5.4 | <1.0 | 7.7 | 23 | 6.63 |
| | | | | | | |
| BH05 | 6/25/2014 | <1.0 | <1.0 | <1.0 | <1.0 | 10.55 |
| BH05 | 9/17/2014 | <1.0 | <1.0 | <1.0 | <1.0 | 10.70 |
| BH05 | 12/16/2014 | <1.0 | <1.0 | <1.0 | <1.0 | 10.78 |
| BH05 | 3/27/2015 | <1.0 | <1.0 | <1.0 | <1.0 | 10.92 |
| BH05 | 6/29/2015 | <1.0 | <1.0 | <1.0 | <1.0 | 6.64 |
| BH05 | 9/25/2015 | <1.0 | <1.0 | <1.0 | <1.0 | 8.89 |
| BH05 | 12/14/2015 | <1.0 | <1.0 | <1.0 | <1.0 | 8.86 |
| | | | | | | |
| BH06 | 6/25/2014 | <1.0 | <1.0 | <1.0 | <1.0 | 8.67 |
| BH06 | 9/17/2014 | <1.0 | <1.0 | <1.0 | <1.0 | 8.12 |
| BH06 | 12/16/2014 | <1.0 | <1.0 | <1.0 | <1.0 | 8.77 |
| BH06 | 3/27/2015 | <1.0 | <1.0 | <1.0 | <1.0 | 9.14 |
| BH06 | 6/29/2015 | <1.0 | <1.0 | <1.0 | <1.0 | 5.83 |
| BH06 | 9/25/2015 | <1.0 | <1.0 | <1.0 | <1.0 | 7.10 |
| BH06 | 12/14/2015 | <1.0 | <1.0 | <1.0 | <1.0 | 6.84 |
| | | | | | | |
| BH07 | 6/25/2014 | <1.0 | <1.0 | <1.0 | <1.0 | 8.94 |
| BH07 | 9/17/2014 | <1.0 | <1.0 | <1.0 | <1.0 | 8.40 |
| BH07 | 12/16/2014 | <1.0 | <1.0 | <1.0 | <1.0 | 8.17 |

TABLE 1
BECKER 5-1, 2, 14, 15 TANK BATTERY
GROUNDWATER ANALYTICAL RESULTS SUMMARY TABLE

| Sample ID | Date Sampled | Benzene (µg/L) | Toluene (µg/L) | Ethylbenzene (µg/L) | Total Xylenes (µg/L) | Depth to Water ⁽²⁾ (feet) |
|---|--------------|-------------------|-------------------|------------------------|----------------------------|--|
| COGCC Table 910-1 Groundwater Standard (µg/L) ⁽¹⁾ | | 5 | 560 | 700 | 1,400 | |
| BH07 | 3/27/2015 | <1.0 | <1.0 | <1.0 | <1.0 | 9.42 |
| BH07 | 6/29/2015 | <1.0 | <1.0 | <1.0 | <1.0 | 6.14 |
| BH07 | 9/25/2015 | <1.0 | <1.0 | <1.0 | <1.0 | 6.62 |
| BH07 | 12/14/2015 | <1.0 | <1.0 | <1.0 | <1.0 | 6.84 |
| BH08 | 6/25/2014 | <1.0 | <1.0 | <1.0 | <1.0 | 8.92 |
| BH08 | 9/17/2014 | <1.0 | <1.0 | <1.0 | <1.0 | 8.40 |
| BH08 | 12/16/2014 | <1.0 | <1.0 | <1.0 | <1.0 | 9.02 |
| BH08 | 3/27/2015 | <1.0 | <1.0 | <1.0 | <1.0 | 9.39 |
| BH08 | 6/29/2015 | <1.0 | <1.0 | <1.0 | <1.0 | 6.09 |
| BH08 | 9/25/2015 | <1.0 | <1.0 | <1.0 | <1.0 | 7.41 |
| BH08 | 12/14/2015 | <1.0 | <1.0 | <1.0 | <1.0 | 7.10 |

Notes:

1. Groundwater standards referenced from 2 CCR 404-1, Table 910-1, effective January 30, 2015.

COGCC = Colorado Oil and Gas Conservation Commission

2. Depth to water measured from top of well casing or ground surface for monitoring well samples and excavation samples, respectively.

* Well repairs completed during 3rd Quarter 2015 resulted in a few inches of casing being cut off of each well.

µg/L = Micrograms per liter

(<) = Analytical result is less than the indicated laboratory reporting limit.

BOLD = Analytical result is in exceedance of COGCC groundwater standards.