

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

RECEIVED 03/24/2016
PROJECT 6926
Document #: 2212105

Re: 2015 Annual Groundwater Monitoring Report
Seele 31, 41, 42-31 Tank Battery
NENE Section 31 T4N R67W
Weld County, Colorado
Facility #: 331188
Spill Tracking #: 2223041
Remediation #: 6926

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 Seele 31, 41, 42-31 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 dump line release was discovered at the Site on January 9, 2012, during equipment upgrade activities. Following excavation and well installation activities, groundwater monitoring was initiated during the first quarter 2012. The current monitoring well network at the Site consists of 6 temporary monitoring and remediation wells (BH01, BH02R, and BH07 - BH09), as shown in Figure 1. Historic groundwater sampling 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	BH07	120
2Q 2015	None	<1.0
3Q 2015	None	<1.0
4Q 2015	None	<1.0

Tasman initiated enhanced fluid recovery (EFR) and air sparge (AS) events at the site during the third quarter 2012. EFR/AS events were discontinued during the third quarter 2015, and monitored natural attenuation (MNA) was implemented as the selected remediation strategy for this site beginning in the fourth quarter 2015. Three 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.



County Road 40



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


DRAWN BY: ESS	<p>Facility Diagram PDC Energy – DJ Basin Seele 31, 41, 42-31 Tank Battery NENE S31 T4N R67W Weld County, CO</p>	<p> TASMAN GEOSCIENCES</p> <p>6899 Pecos St., Unit C Denver CO 80221</p>	<p>LEGEND</p> <ul style="list-style-type: none">Excavation ExtentMonitoring Well LocationMonitoring Well Location – Sampling DiscontinuedBore Hole Location – No Well InstalledPoint of ReleaseGroundwater Flow Direction <p><small>All locations are approximate unless otherwise noted</small></p>	<p>FIGURE 1 GROUNDWATER MONITORING SITE MAP</p>
DATE: 2/3/2016				

TABLE 1
SEEE 31, 41, 42-31 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 (feet)
COGCC Table 910-1 Groundwater Standard (µg/L) ⁽¹⁾		5	560	700	1,400	
BH01	1/27/2012	5,300	1,200	180	1,300	13.14
BH01	7/17/2012	900	2.2	10	78	12.60
BH01	10/1/2012	<1.0	<1.0	<1.0	<1.0	13.82
BH01	1/28/2013	DRY	DRY	DRY	DRY	DRY
BH01	5/3/2013	3,000	2.3	17	240	13.90
BH01	7/25/2013	DRY	DRY	DRY	DRY	DRY
BH01	11/1/2013	<1.0	<1.0	4.2	28	13.09
BH01	1/29/2014	DRY	DRY	DRY	DRY	DRY
BH01	4/28/2014	DRY	DRY	DRY	DRY	14.26
BH01	7/25/2014	<1.0	<1.0	1.6	4.3	12.47
BH01	10/27/2014	DRY	DRY	DRY	DRY	13.36
BH01	1/20/2015	DRY	DRY	DRY	DRY	DRY
BH01	4/24/2015	DRY	DRY	DRY	DRY	DRY
BH01	7/31/2015	<1.0	<1.0	49	100	12.87
BH01	10/6/2015	DRY	DRY	DRY	DRY	13.82
BH02	1/27/2012	7,500	680	240	1,400	11.93
BH02	7/17/2012	10,000	2,200	220	2,140	10.92
BH02	10/1/2012	DRY	DRY	DRY	DRY	DRY
BH02	1/28/2013	DRY	DRY	DRY	DRY	DRY
BH02	5/3/2013	DRY	DRY	DRY	DRY	DRY
BH02	7/25/2013	DRY	DRY	DRY	DRY	DRY
BH02	10/31/2013	DRY	DRY	DRY	DRY	DRY
BH02	1/29/2014	DRY	DRY	DRY	DRY	DRY
BH02	4/28/2014	DRY	DRY	DRY	DRY	DRY
BH02R	7/25/2014	93	14	89	230	10.12
BH02R	10/27/2014	1.4	<1.0	1.5	8.7	10.72
BH02R	1/20/2015	<1.0	<1.0	<1.0	<1.0	11.42
BH02R	4/24/2015	<1.0	<1.0	<1.0	<1.0	11.28
BH02R	7/31/2015	<1.0	<1.0	<1.0	<1.0	9.70
BH02R	10/6/2015	<1.0	<1.0	<1.0	<1.0	10.68

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COGCC Table 910-1 Groundwater Standard (µg/L) ⁽¹⁾		5	560	700	1,400	
BH03	1/27/2012	16,000	4,400	420	2,900	15.02
BH03	7/17/2012	18,000	2,700	15	3,590	12.56
BH03	10/1/2012	7,300	1,400	250	2,400	12.69
BH03	1/28/2013	DRY	DRY	DRY	DRY	DRY
BH03	5/3/2013	DRY	DRY	DRY	DRY	DRY
BH03	7/25/2013	DRY	DRY	DRY	DRY	DRY
BH03	10/31/2013	DRY	DRY	DRY	DRY	DRY
BH03	1/29/2014	DRY	DRY	DRY	DRY	DRY
BH03	4/28/2014	DRY	DRY	DRY	DRY	DRY
BH03	7/25/2014	DRY	DRY	DRY	DRY	DRY
BH03	10/27/2014	DRY	DRY	DRY	DRY	DRY
BH03	1/20/2015	DRY	DRY	DRY	DRY	DRY
BH03	4/24/2015	DRY	DRY	DRY	DRY	DRY
BH03	7/31/2015	DRY	DRY	DRY	DRY	DRY
BH03	10/6/2015	DRY	DRY	DRY	DRY	DRY
BH07	7/25/2014	<1.0	<1.0	<1.0	<1.0	9.01
BH07	10/27/2014	160	<1.0	<1.0	<1.0	9.75
BH07	1/20/2015	120	<1.0	<1.0	<1.0	10.63
BH07	4/24/2015	<1.0	<1.0	<1.0	<1.0	10.60
BH07	7/31/2015	<1.0	<1.0	<1.0	<1.0	9.69
BH07	10/6/2015	<1.0	<1.0	<1.0	<1.0	10.49
BH08	7/25/2014	3.8	<1.0	6.2	210	9.95
BH08	10/27/2014	5.5	<1.0	<1.0	36	10.86
BH08	1/20/2015	<1.0	<1.0	<1.0	<1.0	11.57
BH08	4/24/2015	<1.0	<1.0	<1.0	<1.0	11.43
BH08	7/31/2015	<1.0	<1.0	<1.0	<1.0	9.74
BH08	10/6/2015	<1.0	<1.0	<1.0	<1.0	10.87

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COGCC Table 910-1 Groundwater Standard (µg/L) ⁽¹⁾		5	560	700	1,400	
BH09	7/25/2014	810	<1.0	72	510	11.46
BH09	10/27/2014	<1.0	<1.0	<1.0	<1.0	11.73
BH09	1/20/2015	<1.0	<1.0	<1.0	<1.0	12.62
BH09	4/24/2015	<1.0	<1.0	<1.0	<1.0	12.33
BH09	7/31/2015	<1.0	<1.0	<1.0	<1.0	10.78
BH09	10/6/2015	<1.0	<1.0	<1.0	<1.0	11.85

Notes:

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

COGCC = Colorado Oil and Gas Conservation Commission

µg/L = Micrograms per liter

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

DRY = Well contained insufficient volume to collect sample.

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