



PDC Energy, Inc.
Third Quarter 2016 Groundwater Monitoring Summary

October 25, 2016

Dechant 1-31A Tank Battery
SWSW Section 31 T3N R64W
Weld County, API # 05-123-11685
Facility ID # 444062
Remediation # 9365

This groundwater monitoring summary has been prepared by Tasman Geosciences, Inc. for the Dechant 1-31A tank battery. On September 14, 2016, groundwater sampling was conducted at fourteen monitoring well locations (MW02R, MW03R, MW05R, MW07, MW10R, MW13, MW17R, MW18 - MW24). Monitoring well MW17 was replaced by MW17R in July 2016, subsequent to the second quarter 2016 groundwater sampling event. Twelve previously installed monitoring well locations (MW01 - MW06, MW08 - MW12, and MW14 - MW16) were destroyed in 2010 and 2011 and are no longer incorporated in the monitoring well network. Fourteen groundwater samples were submitted to Summit Scientific Laboratories for analysis of benzene, toluene, ethylbenzene, and total xylenes (BTEX) by USEPA Method 8260B. Analytical results are summarized in Table 1 and the laboratory report is included as Attachment A. Sample locations and corresponding analytical results are illustrated on Figure 1. Analytical results from the third quarter 2016 sampling event indicated that benzene and total xylenes concentrations were at or above the COGCC regulatory standard in monitoring wells MW05-R, MW21 and MW23. BTEX concentrations were below COGCC regulatory standards at the remaining eleven well locations.

Tasman initiated mobile enhanced fluid recovery (EFR) and air sparge (AS) events at the site during the third quarter 2015. A summary of EFR/AS operational data is provided in Table 2. Mobile EFR/AS events were discontinued following the fourth quarter 2015. During the first quarter 2016, a soil vapor extraction (SVE) and air sparge (AS) system was installed on site in order to address remaining dissolved phase BTEX concentrations. The SVE/AS remediation well network is illustrated on Figure 2. Operation of the SVE/AS system commenced in February 2016. Volatile organic compound (VOC) samples are collected from the system effluent on a quarterly basis, in order to monitor performance and calculate the total contaminant mass removed. During the third quarter 2016, a total of 5.70 pounds of hydrocarbon mass was removed. Operation of the SVE/AS remediation system will continue through the fourth quarter 2016.

Fourth quarter 2016 groundwater sampling will be conducted during December 2016.

TABLE 1
DECHANT 1-31A 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	
MW01	12/16/2009	<1.0	1.5	47	540	N/A
MW01	6/22/2010	Destroyed				
MW02	12/16/2009	62	1,300	610	5,600	N/A
MW02	6/22/2010	Destroyed				
MW02-R	1/25/2016	<1.0	<1.0	<1.0	<1.0	10.80
MW02-R	3/31/2016	<1.0	<1.0	<1.0	<1.0	9.98
MW02-R	6/30/2016	<1.0	<1.0	<1.0	<1.0	8.72
MW02-R	9/14/2016	<1.0	<1.0	<1.0	<1.0	9.96
MW03	12/16/2009	440	6,000	960	12,000	N/A
MW03	6/22/2010	Destroyed				
MW03-R	1/25/2016	<1.0	<1.0	5.7	160	11.32
MW03-R	3/31/2016	<1.0	<1.0	<1.0	<1.0	10.12
MW03-R	6/30/2016	<1.0	<1.0	<1.0	<1.0	8.86
MW03-R	9/14/2016	<1.0	<1.0	1.1	1.3	10.13
MW04	12/16/2009	<1.0	13	240	3,000	N/A
MW04	6/22/2010	<1.0	<1.0	23	260	18.05
MW04	9/17/2010	<1.0	<1.0	9.5	81	17.41
MW04	12/9/2010	<1.0	<1.0	1.4	6.7	16.88
MW04	3/10/2011	Destroyed				
MW05	12/16/2009	140	1,400	960	12,000	N/A
MW05	6/22/2010	Destroyed				
MW05-R	1/25/2016	<1.0	<1.0	300	14,000	10.77
MW05-R	3/31/2016	<1.0	<1.0	560	530	9.86
MW05-R	6/30/2016	<1.0	<1.0	250	12,000	8.60
MW05-R	9/14/2016	<1.0	<1.0	530	12,000	9.85
MW07	12/16/2009	<1.0	<1.0	<1.0	<1.0	N/A
MW07	6/22/2010	<1.0	<1.0	<1.0	<1.0	21.45
MW07	9/17/2010	<1.0	<1.0	<1.0	<1.0	20.83
MW07	12/9/2010	<1.0	<1.0	<1.0	<1.0	20.32
MW07	3/10/2011	<1.0	<1.0	<1.0	<1.0	20.10

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DECHANT 1-31A 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	
MW07	6/8/2011	<1.0	<1.0	<1.0	<1.0	20.00
MW07	9/26/2011	<1.0	<1.0	<1.0	<1.0	19.71
MW07	12/29/2011	NS	NS	NS	NS	N/A
MW07	3/7/2012	<1.0	<1.0	<1.0	<1.0	19.39
MW07	6/26/2012	<1.0	<1.0	<1.0	<1.0	18.55
MW07	9/20/2012	<1.0	<1.0	<1.0	<1.0	18.89
MW07	12/12/2012	<1.0	<1.0	<1.0	<1.0	18.56
MW07	6/21/2013	<1.0	<1.0	<1.0	<1.0	18.50
MW07	9/23/2013	<1.0	<1.0	<1.0	<1.0	18.71
MW07	12/18/2013	<1.0	<1.0	<1.0	<1.0	18.48
MW07	3/31/2014	<1.0	<1.0	<1.0	<1.0	18.28
MW07	6/17/2014	<1.0	<1.0	<1.0	<1.0	17.20
MW07	9/17/2014	<1.0	<1.0	<1.0	<1.0	16.62
MW07	12/2/2014	<1.0	<1.0	<1.0	<1.0	16.02
MW07	3/16/2015	<1.0	<1.0	<1.0	<1.0	15.23
MW07	6/25/2015	<1.0	<1.0	<1.0	<1.0	13.84
MW07	9/25/2015	<1.0	<1.0	<1.0	<1.0	14.51
MW07	12/16/2015	<1.0	<1.0	<1.0	<1.0	14.05
MW07	3/31/2016	<1.0	<1.0	<1.0	6.1	12.87
MW07	6/30/2016	<1.0	<1.0	<1.0	<1.0	11.56
MW07	9/14/2016	<1.0	<1.0	<1.0	<1.0	12.84
MW08	12/16/2009	<1.0	<1.0	<1.0	<1.0	N/A
MW08	6/22/2010	Destroyed				
MW09	12/16/2009	<1.0	<1.0	<1.0	<1.0	N/A
MW09	6/22/2010	<1.0	<1.0	<1.0	<1.0	17.62
MW09	9/17/2010	<1.0	<1.0	<1.0	<1.0	17.03
MW09	12/9/2010	<1.0	<1.0	<1.0	<1.0	16.51
MW09	3/10/2011	<1.0	<1.0	<1.0	<1.0	16.32
MW09	6/8/2011	<1.0	<1.0	<1.0	<1.0	15.15
MW09	9/26/2011	<1.0	<1.0	<1.0	<1.0	15.93
MW09	12/29/2011	<1.0	<1.0	<1.0	<1.0	15.65
MW09	3/7/2012	<1.0	<1.0	<1.0	<1.0	15.59
MW09	6/26/2012	<1.0	<1.0	<1.0	<1.0	14.73

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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	
MW09	9/20/2012	NS	NS	NS	NS	N/A
MW09	12/12/2012	<1.0	<1.0	<1.0	<1.0	14.83
MW09	6/21/2013	Destroyed				
MW10	12/16/2009	310	1,000	690	8,700	N/A
MW10	6/22/2010	8.4	5.1	30	720	17.95
MW10	9/17/2010	55	<1.0	45	280	17.36
MW10	12/9/2010	34	<1.0	780	3,700	16.83
MW10	3/10/2011	12	<1.0	870	2,600	16.60
MW10	6/8/2011	<1.0	<1.0	28	140	16.70
MW10	9/26/2011	4.3	5.2	220	3,100	16.29
MW10	12/29/2011	NS	NS	NS	NS	N/A
MW10	3/7/2012	27	12	700	5,300	15.89
MW10	6/26/2012	Destroyed				
MW10-R	8/17/2012	5.8	2.3	460	10,000	N/A
MW10-R	9/20/2012	5.4	<1.0	440	7.5	17.95
MW10-R	12/12/2012	5.8	<1.0	350	7,000	17.88
MW10-R	6/21/2013	5.5	<1.0	330	7,200	17.25
MW10-R	9/23/2013	4.4	<1.0	350	7,500	17.23
MW10-R	12/18/2013	3.4	<1.0	73	6,600	15.69
MW10-R	3/31/2014	8.8	<1.0	570	640	15.52
MW10-R	6/17/2014	4.2	<1.0	100	7,700	14.41
MW10-R	9/17/2014	<1.0	<1.0	450	6,200	13.90
MW10-R	12/2/2014	1.7	<1.0	1,000	13,000	13.23
MW10-R	3/16/2015	<1.0	<1.0	550	7,900	12.46
MW10-R	6/25/2015	<1.0	<1.0	230	2,700	11.09
MW10-R	9/25/2015	<1.0	<1.0	59	240	11.86
MW10-R	12/16/2015	<1.0	<1.0	130	530	11.41
MW10-R	3/31/2016	<1.0	<1.0	<1.0	3.0	10.22
MW10-R	6/30/2016	<1.0	<1.0	170	1,900	9.11
MW10-R	9/14/2016	<1.0	<1.0	28	140	10.35
MW11	1/18/2010	1.0	<1.0	4.9	<1.0	N/A
MW11	6/22/2010	<1.0	<1.0	<1.0	<1.0	18.70

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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	
MW11	9/17/2010	<1.0	<1.0	<1.0	<1.0	18.16
MW11	12/9/2010	<1.0	<1.0	<1.0	<1.0	17.55
MW11	3/10/2011	Destroyed				
MW12	1/18/2010	<1.0	<1.0	<1.0	<1.0	N/A
MW12	6/22/2010	<1.0	<1.0	<1.0	<1.0	18.85
MW12	9/17/2010	<1.0	<1.0	<1.0	<1.0	18.25
MW12	12/9/2010	<1.0	<1.0	<1.0	<1.0	17.69
MW12	3/10/2011	<1.0	<1.0	<1.0	<1.0	17.42
MW12	6/8/2011	<1.0	<1.0	<1.0	<1.0	17.33
MW12	9/26/2011	<1.0	<1.0	<1.0	<1.0	17.16
MW12	12/29/2011	NS	NS	NS	NS	N/A
MW12	3/7/2012	<1.0	<1.0	<1.0	<1.0	16.74
MW12	6/26/2012	Destroyed				
MW13	1/18/2010	35	<1.0	230	73	N/A
MW13	6/22/2010	5.1	<1.0	290	<1.0	18.56
MW13	9/17/2010	13	<1.0	160	<1.0	17.95
MW13	12/9/2010	4.4	<1.0	160	<1.0	17.42
MW13	3/10/2011	<1.0	<1.0	23	3.4	16.15
MW13	6/8/2011	<1.0	<1.0	110	<1.0	17.04
MW13	9/26/2011	2.1	<1.0	190	2.3	16.84
MW13	12/29/2011	<1.0	<1.0	190	<1.0	16.51
MW13	3/7/2012	<1.0	<1.0	150	<1.0	16.45
MW13	6/26/2012	<1.0	<1.0	150	13	15.64
MW13	9/20/2012	NS	NS	NS	NS	N/A
MW13	12/12/2012	<1.0	<1.0	110	<1.0	15.70
MW13	6/21/2013	2.2	<1.0	110	160	15.61
MW13	9/23/2013	7.2	<1.0	290	1,100	15.75
MW13	12/18/2013	1.6	<1.0	2.7	94	15.56
MW13	3/31/2014	<1.0	<1.0	<1.0	4.8	15.26
MW13	6/17/2014	3.5	<1.0	270	850	14.24
MW13	9/17/2014	<1.0	<1.0	190	120	13.43
MW13	12/2/2014	2.8	<1.0	610	280	13.09
MW13	3/16/2015	2.2	<1.0	530	210	12.31

TABLE 1
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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		
MW13	6/25/2015	1.8	<1.0	260	310	10.91	
MW13	9/25/2015	2.0	<1.0	570	710	11.61	
MW13	12/16/2015	1.5	1.3	650	1,400	13.14	
MW13	3/31/2016	1.6	1.8	400	1,200	10.33	
MW13	6/30/2016	1.5	1.3	360	1,400	9.12	
MW13	9/14/2016	1.0	<1.0	460	900	9.55	
MW14	1/18/2010	<1.0	<1.0	<1.0	<1.0	N/A	
MW14	6/22/2010	<1.0	<1.0	<1.0	<1.0	19.06	
MW14	9/17/2010	3.9	<1.0	180	25	18.49	
MW14	12/9/2010	<1.0	<1.0	3.8	<1.0	17.94	
MW14	3/10/2011	1.2	<1.0	8.8	<1.0	17.64	
MW14	6/8/2011	<1.0	<1.0	1.3	<1.0	17.69	
MW14	9/26/2011	2.8	<1.0	150	3.0	17.37	
MW14	12/29/2011	<1.0	<1.0	26	<1.0	17.03	
MW14	3/7/2012	<1.0	<1.0	<1.0	<1.0	16.95	
MW14	6/26/2012	Destroyed					
MW15	2/10/2010	240	<1.0	340	1,600	N/A	
MW15	6/22/2010	<1.0	<1.0	<1.0	<1.0	17.04	
MW15	9/17/2010	Destroyed					
MW16	2/10/2010	44	<1.0	130	450	N/A	
MW16	6/22/2010	<1.0	<1.0	4.4	12	16.72	
MW16	9/17/2010	Destroyed					
MW17	3/31/2014	<1.0	<1.0	<1.0	<1.0	13.68	
MW17	6/17/2014	<1.0	<1.0	<1.0	<1.0	12.58	
MW17	9/17/2014	<1.0	<1.0	<1.0	<1.0	12.04	
MW17	12/2/2014	<1.0	<1.0	<1.0	6.6	11.42	
MW17	3/16/2015	<1.0	<1.0	1.5	2.0	10.61	
MW17	6/25/2015	<1.0	<1.0	<1.0	<1.0	9.23	
MW17	9/25/2015	<1.0	<1.0	<1.0	<1.0	9.92	
MW17	12/16/2015	<1.0	<1.0	<1.0	<1.0	9.48	
MW17 ⁽²⁾	3/31/2016	NS	NS	NS	NS	NM	
MW17	6/30/2016	Destroyed					NM

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DECHANT 1-31A TANK BATTERY
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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	
MW17R	9/14/2016	<1.0	<1.0	<1.0	<1.0	8.58
MW18	3/31/2014	<1.0	<1.0	<1.0	<1.0	14.00
MW18	6/17/2014	<1.0	<1.0	<1.0	<1.0	12.92
MW18	9/17/2014	<1.0	<1.0	<1.0	<1.0	12.40
MW18	12/2/2014	<1.0	<1.0	<1.0	<1.0	11.74
MW18	3/16/2015	<1.0	<1.0	<1.0	<1.0	10.95
MW18	6/25/2015	<1.0	<1.0	<1.0	<1.0	9.55
MW18	9/25/2015	<1.0	<1.0	<1.0	<1.0	10.35
MW18	12/16/2015	<1.0	<1.0	<1.0	<1.0	9.91
MW18	3/31/2016	<1.0	<1.0	<1.0	<1.0	8.66
MW18	6/30/2016	<1.0	<1.0	<1.0	<1.0	7.61
MW18	9/14/2016	<1.0	<1.0	<1.0	<1.0	8.96
MW19	3/31/2014	<1.0	<1.0	<1.0	<1.0	14.37
MW19	6/17/2014	<1.0	<1.0	<1.0	<1.0	13.29
MW19	9/17/2014	<1.0	<1.0	<1.0	<1.0	12.75
MW19	12/2/2014	<1.0	<1.0	<1.0	<1.0	12.10
MW19	3/16/2015	<1.0	<1.0	<1.0	<1.0	11.31
MW19	6/25/2015	<1.0	<1.0	<1.0	<1.0	9.93
MW19	9/25/2015	<1.0	<1.0	<1.0	<1.0	10.63
MW19	12/16/2015	<1.0	<1.0	<1.0	<1.0	10.19
MW19	3/31/2016	<1.0	<1.0	<1.0	<1.0	8.94
MW19	6/30/2016	<1.0	<1.0	<1.0	<1.0	8.28
MW19	9/14/2016	<1.0	<1.0	<1.0	<1.0	9.59
MW20	3/31/2014	<1.0	<1.0	<1.0	46	14.85
MW20	6/17/2014	<1.0	<1.0	<1.0	2.5	13.73
MW20	9/17/2014	<1.0	<1.0	<1.0	<1.0	13.21
MW20	12/2/2014	<1.0	<1.0	<1.0	<1.0	12.55
MW20	3/16/2015	<1.0	<1.0	<1.0	<1.0	11.77
MW20	6/25/2015	<1.0	<1.0	<1.0	<1.0	10.39
MW20	9/25/2015	<1.0	<1.0	<1.0	<1.0	11.16
MW20	12/16/2015	<1.0	<1.0	<1.0	<1.0	10.73
MW20	3/31/2016	<1.0	<1.0	<1.0	<1.0	9.97

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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	
MW20	6/30/2016	<1.0	<1.0	<1.0	<1.0	8.72
MW20	9/14/2016	<1.0	<1.0	<1.0	<1.0	9.96
MW21	3/31/2014	<1.0	<1.0	250	1,000	14.56
MW21	6/17/2014	<1.0	<1.0	470	3,200	13.47
MW21	9/17/2014	<1.0	<1.0	380	3,400	12.97
MW21	12/2/2014	2.5	2.2	1,400	18,000	12.31
MW21	3/16/2015	3.3	3.7	1,700	26,000	11.52
MW21	6/25/2015	4.5	4.9	1,300	21,000	10.14
MW21	9/25/2015	2.6	3.6	840	14,000	10.92
MW21	12/16/2015	1.6	2.6	590	8,400	10.49
MW21	3/31/2016	2.7	3.0	860	1,100	9.91
MW21	6/30/2016	1.8	2.7	630	8,900	8.66
MW21	9/14/2016	2.8	2.5	1,000	11,000	9.91
MW22	3/31/2014	<1.0	<1.0	<1.0	<1.0	13.92
MW22	6/17/2014	<1.0	<1.0	<1.0	<1.0	12.82
MW22	9/17/2014	<1.0	<1.0	<1.0	<1.0	12.30
MW22	12/2/2014	<1.0	<1.0	<1.0	<1.0	11.62
MW22	3/16/2015	<1.0	<1.0	<1.0	12	10.83
MW22	6/25/2015	<1.0	<1.0	<1.0	12	9.46
MW22	9/25/2015	<1.0	<1.0	<1.0	<1.0	10.16
MW22	12/16/2015	<1.0	<1.0	<1.0	3.6	9.73
MW22	3/31/2016	<1.0	<1.0	<1.0	4.2	8.45
MW22	6/30/2016	<1.0	<1.0	<1.0	<1.0	7.14
MW22	9/14/2016	<1.0	<1.0	<1.0	<1.0	8.44
MW23	1/25/2016	18	7.9	1,300	13,000	11.03
MW23	3/31/2016	39	15	1,300	650	10.20
MW23	6/30/2016	1.0	1.6	200	3,700	9.00
MW23	9/14/2016	8.9	<1.0	390	4,500	10.22
MW24	1/25/2016	<1.0	<1.0	<1.0	2.5	11.19
MW24	3/31/2016	<1.0	<1.0	<1.0	7.0	10.30
MW24	6/30/2016	<1.0	<1.0	<1.0	<1.0	9.10
MW24	9/14/2016	<1.0	<1.0	<1.0	<1.0	10.30

TABLE 1
DECHANT 1-31A 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	

Notes:

COGCC = Colorado Oil and Gas Conservation Commission

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

2. Depth to water measured from top of well casing.

3. Well inaccessible due to standing water during first quarter 2016 sampling event.

µg/L = Micrograms per liter

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

NS = Not sampled, well inaccessible

NM = Not measured

N/A = LT Environmental, Inc. field data not available

BOLD = Analytical result is not in compliance with COGCC groundwater standards.

TABLE 2
DECHANT 1-31A TANK BATTERY
EFR / AS OPERATIONAL SUMMARY TABLE

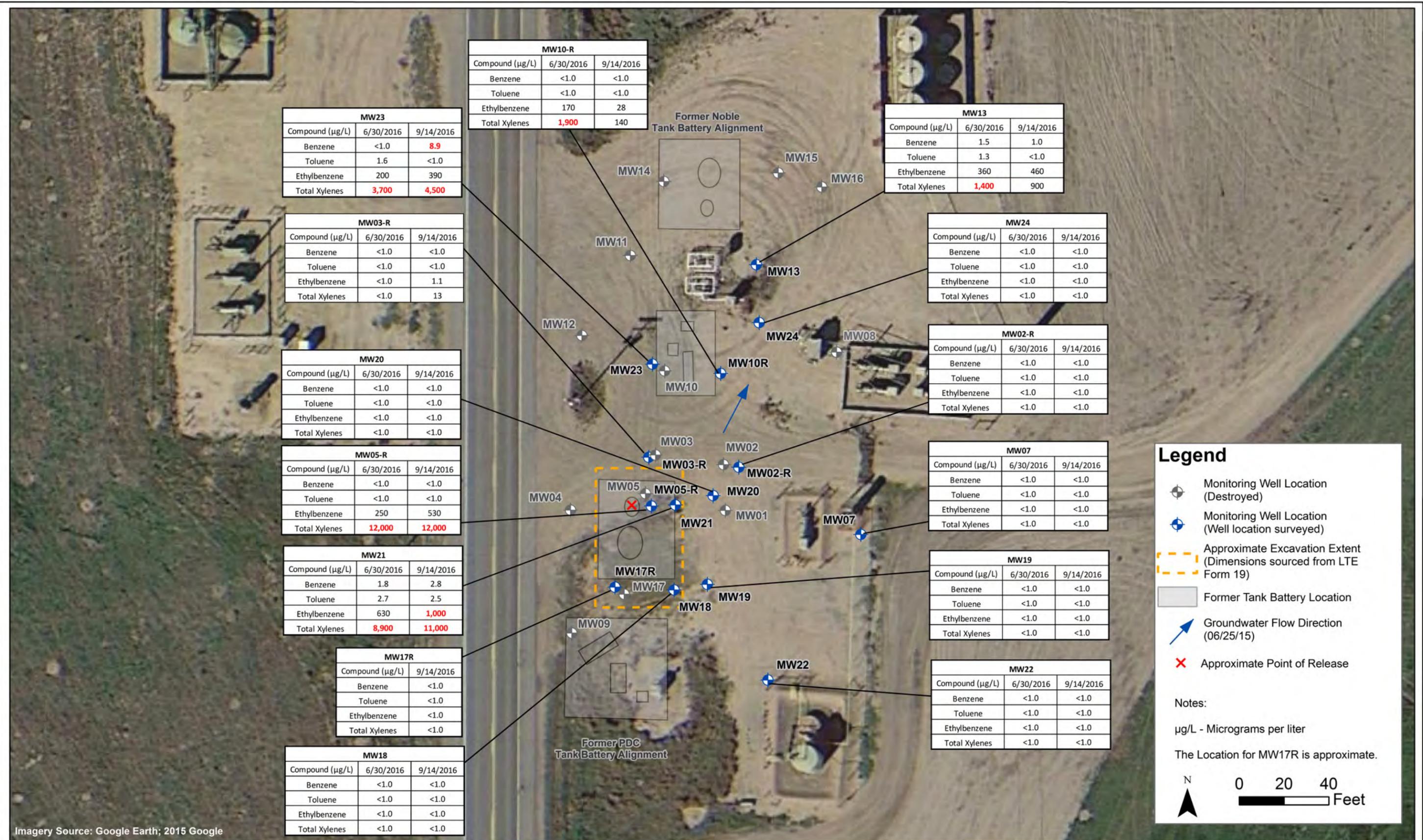
Date	EFR Wells	Total EFR/AS Duration (hours)	Approximate Gallons Extracted	AS Wells	Air Injection Pressure (psi)	
Third Quarter 2015						
7/8/2015	MW10R, MW18, MW20, MW21	6	15	MW10R, MW21	20	
7/22/2015		6	0		20	
8/5/2015		6	0		20	
8/19/2015		6	0		20	
9/2/2015		6	0		20	
9/16/2015		6	60		20	
9/28/2015		6	0		20	
Quarterly Totals		42	75			-
Fourth Quarter 2015						
10/14/2015	MW10R, MW18, MW20, MW21	6	10	MW10R, MW21	20	
10/28/2015		6	0		20	
11/14/2015	MW10R, MW18, MW21	6	4		20	
11/25/2015	MW10R, MW18, MW20, MW21	6	15		20	
12/10/2015		6	60		20	
12/22/2015		6	10		20	
Quarterly Totals		36	99			-

Notes:

EFR = Enhanced fluid recovery

AS = Air sparge

psi = Pounds per square inch



DATE: September 2016
 DESIGNED BY: C. Wasko
 DRAWN BY: D. Arnold

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

PDC Energy - DJ Basin
Dechant 1-31 A Tank Battery
 SWSW Section 31, Township 3 North, Range 64 West
 Weld County, Colorado

Groundwater Analytical Results
 Map

Figure
 1



Imagery Source: Google Earth; 2015 Google

DATE:	January 2016
DESIGNED BY:	C. Wasko
DRAWN BY:	D. Arnold



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

PDC Energy - DJ Basin
Dechant 1-31 A
SWSW Section 31, Township 3 North, Range 64 West
Weld County, Colorado

Remediation System
Layout Map

Figure
2

ATTACHMENT A

Summit Scientific

741 Corporate Circle – Suite I ♦ Golden, Colorado 80401

303.277.9310 - laboratory ♦ 303.277.9531 - fax

September 22, 2016

Mark Longhurst
PDC Energy
1775 Sherman St. STE. 3000
Denver, CO 80203
RE: Dechant 1-31A

Enclosed are the results of analyses for samples received by Summit Scientific on 09/15/16 16:30. If you have any questions concerning this report, please feel free to contact me.

Sincerely,



Paul Shrewsbury
President



PDC Energy
1775 Sherman St. STE. 3000
Denver CO, 80203

Project: Dechant 1-31A

Project Number: [none]
Project Manager: Mark Longhurst

Reported:
09/22/16 09:05

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
MW02-R	1609093-01	Water	09/14/16 13:21	09/15/16 16:30
MW03-R	1609093-02	Water	09/14/16 13:03	09/15/16 16:30
MW05-R	1609093-03	Water	09/14/16 12:46	09/15/16 16:30
MW07	1609093-04	Water	09/14/16 13:49	09/15/16 16:30
MW10-R	1609093-05	Water	09/14/16 13:06	09/15/16 16:30
MW13	1609093-06	Water	09/14/16 12:26	09/15/16 16:30
MW17-R	1609093-07	Water	09/14/16 13:30	09/15/16 16:30
MW18	1609093-08	Water	09/14/16 13:50	09/15/16 16:30
MW19	1609093-09	Water	09/14/16 14:15	09/15/16 16:30
MW20	1609093-10	Water	09/14/16 13:38	09/15/16 16:30
MW21	1609093-11	Water	09/14/16 12:31	09/15/16 16:30
MW22	1609093-12	Water	09/14/16 14:18	09/15/16 16:30
MW23	1609093-13	Water	09/14/16 13:59	09/15/16 16:30
MW24	1609093-14	Water	09/14/16 12:43	09/15/16 16:30

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.



PDC Energy
 1775 Sherman St. STE. 3000
 Denver CO, 80203

Project: Dechant 1-31A

Project Number: [none]
 Project Manager: Mark Longhurst

Reported:
 09/22/16 09:05

Sample Receipt Checklist

S2 Work Order: 1609093
 Client: PDC Energy Client Project ID: Dechant 1-31A
 Shipped Via: PIU Airbill #: _____
 (UPS, FedEx, Hand Delivered, Pick-up, etc.)
 Matrix (check all that apply): Air Soil/Solid Water Other: _____
 (Describe)

Cooler ID				
Temp (°C)	0.9			

Thermometer ID: 61857155-K

	Yes	No	N/A	Comments (if any)
If samples require cooling, was the temperature just above 0°C to ≤ 6°C ⁽¹⁾ ?				
NOTE: If samples are delivered the same day of sampling, this requirement is waived provided that there is evidence that cooling has begun.	✓			
Were all samples received intact ⁽¹⁾ ?	✓			
Was adequate sample volume provided ⁽¹⁾ ?	✓			
If custody seals are present, are they intact ⁽¹⁾ ?			✓	
Are short holding time analytes or samples with HTs due within 48 hours present?			✓	
Is a chain-of-custody (COC) form present and filled out completely ⁽¹⁾ ?	✓			
Does the COC agree with the number and type of sample bottles received ⁽¹⁾ ?	✓			
Do the sample IDs on the bottle labels match the COC ⁽¹⁾ ?	✓			
Is the COC properly relinquished by the client w/ date and time recorded ⁽¹⁾ ?	✓			
For volatiles in water – is there headspace present? If yes, contact client and note in narrative.	✗	✓		
Are samples preserved that require preservation (excluding cooling) ⁽¹⁾ ?				
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⁾ ?			✓	
Record the pH in Comments.			✓	
If dissolved metals are requested, were samples field filtered?			✓	
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

9/15/16 1700
 Date/Time

[Signature]



PDC Energy
 1775 Sherman St. STE. 3000
 Denver CO, 80203

Project: Dechant 1-31A

Project Number: [none]
 Project Manager: Mark Longhurst

Reported:
 09/22/16 09:05

MW02-R
1609093-01 (Water)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **09/14/16 13:21**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	ND	1.0	ug/l	1	1609119	09/17/16	09/17/16	EPA 8260B	
Toluene	ND	1.0	"	"	"	"	"	"	
Ethylbenzene	ND	1.0	"	"	"	"	"	"	
Xylenes (total)	ND	1.0	"	"	"	"	"	"	

Date Sampled: **09/14/16 13:21**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<i>Surrogate: 1,2-Dichloroethane-d4</i>		<i>109 %</i>	<i>37-154</i>		"	"	"	"	
<i>Surrogate: Toluene-d8</i>		<i>96.0 %</i>	<i>45-149</i>		"	"	"	"	
<i>Surrogate: 4-Bromofluorobenzene</i>		<i>98.9 %</i>	<i>45-146</i>		"	"	"	"	

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.



PDC Energy
 1775 Sherman St. STE. 3000
 Denver CO, 80203

Project: Dechant 1-31A

Project Number: [none]
 Project Manager: Mark Longhurst

Reported:
 09/22/16 09:05

MW03-R
1609093-02 (Water)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **09/14/16 13:03**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	ND	1.0	ug/l	1	1609119	09/17/16	09/17/16	EPA 8260B	
Toluene	ND	1.0	"	"	"	"	"	"	
Ethylbenzene	1.1	1.0	"	"	"	"	"	"	
Xylenes (total)	13	1.0	"	"	"	"	"	"	

Date Sampled: **09/14/16 13:03**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<i>Surrogate: 1,2-Dichloroethane-d4</i>		106 %	37-154		"	"	"	"	
<i>Surrogate: Toluene-d8</i>		98.0 %	45-149		"	"	"	"	
<i>Surrogate: 4-Bromofluorobenzene</i>		97.9 %	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.



PDC Energy
 1775 Sherman St. STE. 3000
 Denver CO, 80203

Project: Dechant 1-31A
 Project Number: [none]
 Project Manager: Mark Longhurst

Reported:
 09/22/16 09:05

MW05-R
1609093-03 (Water)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **09/14/16 12:46**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	ND	1.0	ug/l	1	1609119	09/17/16	09/17/16	EPA 8260B	
Toluene	ND	1.0	"	"	"	"	"	"	
Ethylbenzene	530	100	"	100	"	"	"	"	
Xylenes (total)	12000	100	"	"	"	"	"	"	

Date Sampled: **09/14/16 12:46**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<i>Surrogate: 1,2-Dichloroethane-d4</i>		100 %	37-154		"	"	"	"	
<i>Surrogate: Toluene-d8</i>		95.4 %	45-149		"	"	"	"	
<i>Surrogate: 4-Bromofluorobenzene</i>		96.5 %	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.



PDC Energy
 1775 Sherman St. STE. 3000
 Denver CO, 80203

Project: Dechant 1-31A
 Project Number: [none]
 Project Manager: Mark Longhurst

Reported:
 09/22/16 09:05

MW07
1609093-04 (Water)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **09/14/16 13:49**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	ND	1.0	ug/l	1	1609119	09/16/16	09/16/16	EPA 8260B	
Toluene	ND	1.0	"	"	"	"	"	"	
Ethylbenzene	ND	1.0	"	"	"	"	"	"	
Xylenes (total)	ND	1.0	"	"	"	"	"	"	

Date Sampled: **09/14/16 13:49**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<i>Surrogate: 1,2-Dichloroethane-d4</i>		108 %	37-154		"	"	"	"	
<i>Surrogate: Toluene-d8</i>		95.8 %	45-149		"	"	"	"	
<i>Surrogate: 4-Bromofluorobenzene</i>		98.9 %	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.



PDC Energy
 1775 Sherman St. STE. 3000
 Denver CO, 80203

Project: Dechant 1-31A
 Project Number: [none]
 Project Manager: Mark Longhurst

Reported:
 09/22/16 09:05

MW10-R
1609093-05 (Water)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **09/14/16 13:06**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	ND	1.0	ug/l	1	1609119	09/17/16	09/17/16	EPA 8260B	
Toluene	ND	1.0	"	"	"	"	"	"	
Ethylbenzene	28	1.0	"	"	"	"	"	"	
Xylenes (total)	140	1.0	"	"	"	"	"	"	

Date Sampled: **09/14/16 13:06**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<i>Surrogate: 1,2-Dichloroethane-d4</i>		101 %	37-154		"	"	"	"	
<i>Surrogate: Toluene-d8</i>		96.8 %	45-149		"	"	"	"	
<i>Surrogate: 4-Bromofluorobenzene</i>		98.0 %	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.



PDC Energy
 1775 Sherman St. STE. 3000
 Denver CO, 80203

Project: Dechant 1-31A
 Project Number: [none]
 Project Manager: Mark Longhurst

Reported:
 09/22/16 09:05

MW13
1609093-06 (Water)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **09/14/16 12:26**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	1.0	1.0	ug/l	1	1609119	09/17/16	09/17/16	EPA 8260B	
Toluene	ND	1.0	"	"	"	"	"	"	
Ethylbenzene	460	10	"	10	"	"	"	"	
Xylenes (total)	900	10	"	"	"	"	"	"	

Date Sampled: **09/14/16 12:26**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<i>Surrogate: 1,2-Dichloroethane-d4</i>		103 %	37-154		"	"	"	"	
<i>Surrogate: Toluene-d8</i>		95.9 %	45-149		"	"	"	"	
<i>Surrogate: 4-Bromofluorobenzene</i>		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.



PDC Energy
 1775 Sherman St. STE. 3000
 Denver CO, 80203

Project: Dechant 1-31A
 Project Number: [none]
 Project Manager: Mark Longhurst

Reported:
 09/22/16 09:05

MW17-R
1609093-07 (Water)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **09/14/16 13:30**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	ND	1.0	ug/l	1	1609119	09/17/16	09/17/16	EPA 8260B	
Toluene	ND	1.0	"	"	"	"	"	"	
Ethylbenzene	ND	1.0	"	"	"	"	"	"	
Xylenes (total)	ND	1.0	"	"	"	"	"	"	

Date Sampled: **09/14/16 13:30**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<i>Surrogate: 1,2-Dichloroethane-d4</i>		110 %	37-154		"	"	"	"	
<i>Surrogate: Toluene-d8</i>		97.4 %	45-149		"	"	"	"	
<i>Surrogate: 4-Bromofluorobenzene</i>		98.6 %	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.



PDC Energy
 1775 Sherman St. STE. 3000
 Denver CO, 80203

Project: Dechant 1-31A
 Project Number: [none]
 Project Manager: Mark Longhurst

Reported:
 09/22/16 09:05

MW18
1609093-08 (Water)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **09/14/16 13:50**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	ND	1.0	ug/l	1	1609119	09/17/16	09/17/16	EPA 8260B	
Toluene	ND	1.0	"	"	"	"	"	"	
Ethylbenzene	ND	1.0	"	"	"	"	"	"	
Xylenes (total)	ND	1.0	"	"	"	"	"	"	

Date Sampled: **09/14/16 13:50**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<i>Surrogate: 1,2-Dichloroethane-d4</i>		<i>112 %</i>	<i>37-154</i>		<i>"</i>	<i>"</i>	<i>"</i>	<i>"</i>	
<i>Surrogate: Toluene-d8</i>		<i>98.0 %</i>	<i>45-149</i>		<i>"</i>	<i>"</i>	<i>"</i>	<i>"</i>	
<i>Surrogate: 4-Bromofluorobenzene</i>		<i>101 %</i>	<i>45-146</i>		<i>"</i>	<i>"</i>	<i>"</i>	<i>"</i>	

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.



PDC Energy
 1775 Sherman St. STE. 3000
 Denver CO, 80203

Project: Dechant 1-31A
 Project Number: [none]
 Project Manager: Mark Longhurst

Reported:
 09/22/16 09:05

MW19
1609093-09 (Water)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **09/14/16 14:15**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	ND	1.0	ug/l	1	1609119	09/17/16	09/17/16	EPA 8260B	
Toluene	ND	1.0	"	"	"	"	"	"	
Ethylbenzene	ND	1.0	"	"	"	"	"	"	
Xylenes (total)	ND	1.0	"	"	"	"	"	"	

Date Sampled: **09/14/16 14:15**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<i>Surrogate: 1,2-Dichloroethane-d4</i>		112 %	37-154		"	"	"	"	
<i>Surrogate: Toluene-d8</i>		96.8 %	45-149		"	"	"	"	
<i>Surrogate: 4-Bromofluorobenzene</i>		98.0 %	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.



PDC Energy
 1775 Sherman St. STE. 3000
 Denver CO, 80203

Project: Dechant 1-31A
 Project Number: [none]
 Project Manager: Mark Longhurst

Reported:
 09/22/16 09:05

MW20
1609093-10 (Water)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **09/14/16 13:38**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	ND	1.0	ug/l	1	1609119	09/17/16	09/17/16	EPA 8260B	
Toluene	ND	1.0	"	"	"	"	"	"	
Ethylbenzene	ND	1.0	"	"	"	"	"	"	
Xylenes (total)	ND	1.0	"	"	"	"	"	"	

Date Sampled: **09/14/16 13:38**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<i>Surrogate: 1,2-Dichloroethane-d4</i>		110 %	37-154		"	"	"	"	
<i>Surrogate: Toluene-d8</i>		95.9 %	45-149		"	"	"	"	
<i>Surrogate: 4-Bromofluorobenzene</i>		98.3 %	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.



PDC Energy
 1775 Sherman St. STE. 3000
 Denver CO, 80203

Project: Dechant 1-31A
 Project Number: [none]
 Project Manager: Mark Longhurst

Reported:
 09/22/16 09:05

MW21
1609093-11 (Water)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **09/14/16 12:31**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	2.8	1.0	ug/l	1	1609119	09/17/16	09/17/16	EPA 8260B	
Toluene	2.5	1.0	"	"	"	"	"	"	
Ethylbenzene	1000	100	"	100	"	"	"	"	
Xylenes (total)	11000	100	"	"	"	"	"	"	

Date Sampled: **09/14/16 12:31**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<i>Surrogate: 1,2-Dichloroethane-d4</i>		101 %	37-154		"	"	"	"	
<i>Surrogate: Toluene-d8</i>		95.8 %	45-149		"	"	"	"	
<i>Surrogate: 4-Bromofluorobenzene</i>		94.4 %	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.



PDC Energy
 1775 Sherman St. STE. 3000
 Denver CO, 80203

Project: Dechant 1-31A
 Project Number: [none]
 Project Manager: Mark Longhurst

Reported:
 09/22/16 09:05

MW22
1609093-12 (Water)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **09/14/16 14:18**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	ND	1.0	ug/l	1	1609119	09/17/16	09/17/16	EPA 8260B	
Toluene	ND	1.0	"	"	"	"	"	"	
Ethylbenzene	ND	1.0	"	"	"	"	"	"	
Xylenes (total)	ND	1.0	"	"	"	"	"	"	

Date Sampled: **09/14/16 14:18**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<i>Surrogate: 1,2-Dichloroethane-d4</i>		109 %	37-154		"	"	"	"	
<i>Surrogate: Toluene-d8</i>		96.0 %	45-149		"	"	"	"	
<i>Surrogate: 4-Bromofluorobenzene</i>		97.7 %	45-146		"	"	"	"	

Summit Scientific

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PDC Energy
 1775 Sherman St. STE. 3000
 Denver CO, 80203

Project: Dechant 1-31A
 Project Number: [none]
 Project Manager: Mark Longhurst

Reported:
 09/22/16 09:05

MW23
1609093-13 (Water)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **09/14/16 13:59**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	8.9	1.0	ug/l	1	1609119	09/17/16	09/17/16	EPA 8260B	
Toluene	ND	1.0	"	"	"	"	"	"	
Ethylbenzene	390	10	"	10	"	"	"	"	
Xylenes (total)	4500	10	"	"	"	"	"	"	

Date Sampled: **09/14/16 13:59**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<i>Surrogate: 1,2-Dichloroethane-d4</i>		104 %	37-154		"	"	"	"	
<i>Surrogate: Toluene-d8</i>		97.2 %	45-149		"	"	"	"	
<i>Surrogate: 4-Bromofluorobenzene</i>		99.0 %	45-146		"	"	"	"	

Summit Scientific

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 Project Manager: Mark Longhurst

Reported:
 09/22/16 09:05

MW24
1609093-14 (Water)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **09/14/16 12:43**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	ND	1.0	ug/l	1	1609119	09/21/16	09/21/16	EPA 8260B	
Toluene	ND	1.0	"	"	"	"	"	"	
Ethylbenzene	ND	1.0	"	"	"	"	"	"	
Xylenes (total)	ND	1.0	"	"	"	"	"	"	

Date Sampled: **09/14/16 12:43**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<i>Surrogate: 1,2-Dichloroethane-d4</i>		96.6 %	37-154		"	"	"	"	
<i>Surrogate: Toluene-d8</i>		102 %	45-149		"	"	"	"	
<i>Surrogate: 4-Bromofluorobenzene</i>		104 %	45-146		"	"	"	"	

Summit Scientific

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Denver CO, 80203

Project: Dechant 1-31A
Project Number: [none]
Project Manager: Mark Longhurst

Reported:
09/22/16 09:05

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 1609119 - EPA 5030 Water MS

Blank (1609119-BLK1)

Prepared & Analyzed: 09/16/16

Benzene	ND	1.0	ug/l							
Toluene	ND	1.0	"							
Ethylbenzene	ND	1.0	"							
Xylenes (total)	ND	1.0	"							
Surrogate: 1,2-Dichloroethane-d4	13.5		"	13.3	101	37-154				
Surrogate: Toluene-d8	12.8		"	13.3	96.2	45-149				
Surrogate: 4-Bromofluorobenzene	13.6		"	13.3	102	45-146				

LCS (1609119-BS1)

Prepared & Analyzed: 09/16/16

Benzene	40.3	1.0	ug/l			51-132				
Toluene	38.6	1.0	"			51-138				
Ethylbenzene	38.3	1.0	"			58-146				
m,p-Xylene	72.2	2.0	"			57-144				
o-Xylene	37.9	1.0	"			53-146				
Surrogate: 1,2-Dichloroethane-d4	13.7		"	13.3	102	37-154				
Surrogate: Toluene-d8	14.5		"	13.3	109	45-149				
Surrogate: 4-Bromofluorobenzene	13.4		"	13.3	101	45-146				

Matrix Spike (1609119-MS1)

Source: 1609093-04

Prepared & Analyzed: 09/16/16

Benzene	43.1	1.0	ug/l		ND	34-141				
Toluene	41.6	1.0	"		ND	27-151				
Ethylbenzene	43.0	1.0	"		ND	29-160				
m,p-Xylene	81.3	2.0	"		ND	20-166				
o-Xylene	42.5	1.0	"		ND	33-159				
Surrogate: 1,2-Dichloroethane-d4	14.6		"	13.3	110	37-154				
Surrogate: Toluene-d8	13.6		"	13.3	102	45-149				
Surrogate: 4-Bromofluorobenzene	12.9		"	13.3	96.9	45-146				

Summit Scientific

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Project: Dechant 1-31A

Project Number: [none]
 Project Manager: Mark Longhurst

Reported:
 09/22/16 09:05

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

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

Batch 1609119 - EPA 5030 Water MS

Matrix Spike Dup (1609119-MSD1)	Source: 1609093-04			Prepared & Analyzed: 09/16/16					
Benzene	44.5	1.0	ug/l		ND	34-141	3.19	32	
Toluene	43.5	1.0	"		ND	27-151	4.37	25	
Ethylbenzene	45.6	1.0	"		ND	29-160	5.84	50	
m,p-Xylene	86.8	2.0	"		ND	20-166	6.47	36	
o-Xylene	45.0	1.0	"		ND	33-159	5.66	26	
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>15.0</i>		<i>"</i>	<i>13.3</i>		<i>112</i>	<i>37-154</i>		
<i>Surrogate: Toluene-d8</i>	<i>13.6</i>		<i>"</i>	<i>13.3</i>		<i>102</i>	<i>45-149</i>		
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>12.8</i>		<i>"</i>	<i>13.3</i>		<i>96.2</i>	<i>45-146</i>		

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Project Number: [none]
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Reported:
09/22/16 09:05

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