

2017 Annual Groundwater Monitoring and Corrective Action Report

Zimmer D Basin – CCR Unit ID 121
Zimmer Power Station
1781 Route 52
Moscow, Ohio 45153

Dynegy Zimmer, LLC

January 31, 2018

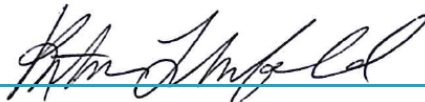


JANUARY 31, 2018 | PROJECT #67720

2017 Annual Groundwater Monitoring and Corrective Action Report

Zimmer D Basin – CCR Unit ID 121
Zimmer Power Station
Moscow, Ohio

Prepared for:
Dynegy Zimmer, LLC



KRISTEN L. THEESFELD
Hydrogeologist



RICHARD H. WEBER, PE
Vice President

TABLE OF CONTENTS

LIST OF TABLES	i
LIST OF FIGURES	i
ACRONYMS AND ABBREVIATIONS	ii
1 INTRODUCTION	1
1.1 Overview.....	1
1.2 Monitoring and Corrective Action Program Status.....	1
2 KEY ACTIONS COMPLETED IN 2017	2
2.1 Summary.....	2
2.2 Problems Encountered and Actions to Resolve the Problems.....	2
3 KEY ACTIVITIES PLANNED FOR 2018	3
3.1 Summary.....	3
REFERENCES	4

LIST OF TABLES

Table 1	Zimmer D Basin: Appendix III Analytical Results
Table 2	Zimmer D Basin: Appendix IV Analytical Results

LIST OF FIGURES

Figure 1	Groundwater Sampling Well Location Map
----------	--



ACRONYMS AND ABBREVIATIONS

CCR	Coal Combustion Residuals
CFR	Code of Federal Regulations
mg/L	milligrams per liter
NRT/OBG	Natural Resource Technology, an OBG Company
OBG	O'Brien & Gere Engineers, Inc.
SSI	statistically significant increase
STD	standard units

1 INTRODUCTION

1.1 OVERVIEW

This report has been prepared on behalf of Dynegy Zimmer, LLC by O'Brien & Gere Engineers, Inc. (OBG), to provide the information required by 40 CFR 257.90(e) for the Zimmer D Basin located at Zimmer Power Station near Moscow, Ohio.

In accordance with 40 CFR 257.90(e), the owner or operator of an existing CCR unit must prepare an annual groundwater monitoring and corrective action report, for the preceding calendar year, that documents the status of the groundwater monitoring and corrective action program for the CCR unit, summarizes key actions completed, describes any problems encountered, discusses actions to resolve the problems, and projects key activities for the upcoming year. At a minimum, the annual report must contain the following information, to the extent available:

1. A map, aerial image, or diagram showing the CCR unit and all background (or upgradient) and downgradient monitoring wells, to include the well identification numbers, that are part of the groundwater monitoring program for the CCR unit.
2. Identification of any monitoring wells that were installed or decommissioned during the preceding year, along with a narrative description of why those actions were taken.
3. In addition to all the monitoring data obtained under §§ 257.90 through 257.98, a summary including the number of groundwater samples that were collected for analysis for each background and downgradient well, the dates the samples were collected, and whether the sample was required by the detection monitoring or assessment monitoring programs.
4. A narrative discussion of any transition between monitoring programs (*e.g.*, the date and circumstances for transitioning from detection monitoring to assessment monitoring in addition to identifying the constituent(s) detected at a statistically significant increase over background levels).
5. Other information required to be included in the annual report as specified in §§ 257.90 through 257.98.¹

This report provides the required information for the Zimmer D Basin for calendar year 2017.

1.2 MONITORING AND CORRECTIVE ACTION PROGRAM STATUS

The final three independent samples of the minimum eight required by 40 CFR 257.94(b) were collected and analyzed from each background and downgradient well in 2017 before October 17. The other independent samples were collected and analyzed in 2015 and 2016.

The first semi-annual monitoring sample for the Detection Monitoring Program was collected in November 2017 from each well.

Using the last of the minimum eight samples required to be collected by October 17, 2017 to determine whether a statistically significant increase (SSI) of Appendix III parameters over background concentrations has occurred, evaluation of analytical data from the downgradient wells was initiated beginning no later than October 17, 2017 for the initial eight samples. SSI determinations will be completed within 90 days (January 15, 2018). In addition, SSI determinations will be completed within 90 days of completion of analysis for the first semi-annual detection monitoring sample collected on November 13, 2017, for which analytical data was received on November 30, 2017.

¹ For calendar year 2017, corrective action and other information required to be included in the annual report as specified in §§ 257.90 through 257.98 is inapplicable.

2 KEY ACTIONS COMPLETED IN 2017

2.1 SUMMARY

Three groundwater sampling events were completed in 2017 as part of an effort initiated in 2015 to collect a minimum eight independent samples from background and downgradient monitoring wells in accordance with 40 CFR 257.94(b).

Subsequent to collection of the minimum eight independent samples, an additional sampling event was completed in November 2017 for parameters listed in Appendix III, 40 CFR Part 257, to supplement the background data set and as the first semi-annual monitoring sampling event for the Detection Monitoring Program.

A map showing the groundwater monitoring system, including the CCR unit and all background and downgradient monitoring wells with well identification numbers, for the Zimmer D Basin is presented in Figure 1. No monitoring wells were installed or decommissioned from the monitoring system in 2017.

Samples were collected and analyzed in accordance with the Sampling and Analysis Plan (AECOM, 2017) prepared for the Zimmer D Basin.

All monitoring data obtained under 40 CFR §§ 257.90 through 257.98 (as applicable) in 2017, as well as monitoring data for the previously collected independent samples are presented in Tables 1 and 2. Sample collection dates in 2017 were March 9, June 8, July 13, and November 13. Sample collection dates for previously collected independent samples are identified in Tables 1 and 2. Monitoring well MW-1 has a higher sampling frequency compared to other monitoring wells in the monitoring system for this CCR unit due to its status as a shared upgradient well with another unit. One ground water sample was collected from each background and downgradient well during each sampling event.

Statistical evaluation of analytical data from the minimum eight independent samples required to be collected by October 17, 2017 and the first semi-annual detection monitoring event on November 13, 2017 was initiated and will be completed within 90 days of October 17, 2017 (January 15, 2018) or 90 days from receipt of the data from the first semi-annual detection monitoring event (February 28, 2018), respectively. Statistical evaluation of analytical data is being performed in accordance with the Statistical Analysis Plan, Zimmer Power Station, Dynegy Zimmer, LLC (NRT/OBG, 2017).

2.2 PROBLEMS ENCOUNTERED AND ACTIONS TO RESOLVE THE PROBLEMS

No problems were encountered with the groundwater monitoring program during 2017. Groundwater samples were collected and analyzed in accordance with the Sampling and Analysis Plan, and all data was accepted.

3 KEY ACTIVITIES PLANNED FOR 2018

3.1 SUMMARY

The following key activities are planned for 2018:

- Continuation of the Detection Monitoring Program with semi-annual sampling scheduled for the 2nd and 4th quarters of 2018.
- Complete evaluation of analytical data from the downgradient wells, using both the minimum eight samples required to be collected by October 17, 2017 and the first semi-annual detection monitoring sample taken in November 2017 to determine whether a SSI of Appendix III parameters over background concentrations has occurred.
- If an SSI is identified, potential alternate sources (*i.e.*, a source other than the CCR unit caused the SSI or that that SSI resulted from error in sampling, analysis, statistical evaluation, or natural variation in groundwater quality) will be evaluated. If an alternate source is demonstrated to be the cause of the SSI, a written demonstration will be completed within 90 days of SSI detection and included in the annual groundwater monitoring and corrective action report for 2018.
 - » If an alternate source(s) is not identified to be the cause of the SSI, the applicable requirements of 40 CFR §§ 257.94 through 257.98 (*e.g.*, assessment monitoring) as may apply in 2018 will be met, including associated recordkeeping/notifications required by 40 CFR §§ 257.105 through 257.108.

REFERENCES

AECOM, 2017, Sampling and Analysis Plan, CCR Rule Groundwater Monitoring, Basin D, Unit 121, Zimmer Power Station, Moscow, Ohio, Job Number: 60442412, Revision 0, October 17, 2017.

Natural Resource Technology, an OBG Company, 2017, Statistical Analysis Plan, Zimmer Power Station, Dynege Zimmer, LLC, October 17, 2017.





Tables

Table 1. Zimmer D Basin: Appendix III Analytical Results

Location ID	Sample Date	B, tot, mg/L	Ca, tot, mg/L	Cl, tot, mg/L	F, tot, mg/L	pH (field), STD	SO4, tot, mg/L
MW-1	12/30/2015	0.07200	155.0	48.50	0.2000	7.200	90.10
	3/16/2016	0.02330	206.0	59.10	0.1460	7.140	85.20
	6/16/2016	0.03890	154.0	59.60	<1.000	7.030	95.30
	8/31/2016	0.04310	168.0	73.40	<1.000		113.0
	9/26/2016	0.03490	160.0	64.90	<1.000	7.060	93.10
	10/12/2016	0.06340	156.0	79.20	<1.000	7.210	112.0
	11/16/2016	0.03040	162.0	57.70	<1.000	6.350	90.60
	12/13/2016	0.03220	165.0	52.40	<1.000	6.980	93.30
	3/9/2017	<0.08000	150.0	58.20	<1.000	8.330	85.90
	6/8/2017	<0.08000	171.0	65.50	<1.000	7.140	87.00
	7/13/2017	<0.08000	144.0	61.30	<1.000	7.000	79.00
11/13/2017	<0.08000	150.0	53.10	<1.000	6.890	89.10	
MW-12	12/30/2015	0.3000	179.0	27.30	0.1450	7.080	127.0
	3/18/2016	0.2200	200.0	66.00	0.1720	6.840	99.80
	6/15/2016	0.2730	159.0	42.40	<1.000	6.980	137.0
	9/27/2016	0.2760	160.0	29.50	<1.000	7.050	110.0
	12/13/2016	0.2410	151.0	31.00	<1.000	6.940	88.80
	3/9/2017	0.2460	160.0	42.90	<1.000	8.370	113.0

Table 1. Zimmer D Basin: Appendix III Analytical Results

Location ID	Sample Date	TDS, mg/L
MW-1	12/30/2015	544.0
	3/16/2016	583.0
	6/16/2016	648.0
	8/31/2016	612.0
	9/26/2016	621.0
	10/12/2016	571.0
	11/16/2016	596.0
	12/13/2016	561.0
	3/9/2017	589.0
	6/8/2017	582.0
	7/13/2017	608.0
11/13/2017	571.0	
MW-12	12/30/2015	608.0
	3/18/2016	666.0
	6/15/2016	649.0
	9/27/2016	600.0
	12/13/2016	555.0
	3/9/2017	610.0

Table 1. Zimmer D Basin: Appendix III Analytical Results

4:31:50 PM

Location ID	Sample Date	B, tot, mg/L	Ca, tot, mg/L	Cl, tot, mg/L	F, tot, mg/L	pH (field), STD	SO4, tot, mg/L
MW-12	6/8/2017	0.2150	168.0	39.60	<1.000	7.040	110.0
	7/13/2017	0.1990	154.0	35.60	<1.000	6.940	105.0
	11/13/2017	0.1990	146.0	30.00	<1.000	6.820	95.50
MW-13	12/29/2015	0.09680	220.0	13.90	0.2800	7.220	328.0
	3/17/2016	0.04820	165.0	20.70	0.2940	7.220	276.0
	6/15/2016	0.07390	134.0	39.90	<1.000	7.060	256.0
	9/27/2016	0.05940	163.0	21.90	<1.000	7.170	215.0
	12/13/2016	0.06120	162.0	19.60	<1.000	7.120	239.0
	3/9/2017	<0.08000	140.0	17.30	<1.000	8.490	267.0
	6/8/2017	<0.08000	154.0	17.20	<1.000	7.050	256.0
	7/13/2017	<0.08000	149.0	15.90	<1.000	7.210	302.0
	11/13/2017	<0.08000	151.0	19.00	<1.000	6.920	<250.0
MW-14	12/29/2015	0.1100	262.0	<0.7000	<0.06000	7.280	467.0
	3/17/2016	0.04530	245.0	33.70	0.2250	7.150	470.0
	6/15/2016	0.05950	172.0	<30.00	<1.000	7.050	348.0
	9/27/2016	0.06610	183.0	29.60	<1.000	7.110	303.0
	12/13/2016	0.07020	196.0	33.40	<1.000	6.980	365.0
	3/9/2017	<0.08000	192.0	29.90	<1.000	8.440	408.0

Table 1. Zimmer D Basin: Appendix III Analytical Results

Location ID	Sample Date	TDS, mg/L
MW-12	6/8/2017	606.0
	7/13/2017	579.0
	11/13/2017	550.0
MW-13	12/29/2015	710.0
	3/17/2016	667.0
	6/15/2016	685.0
	9/27/2016	672.0
	12/13/2016	678.0
	3/9/2017	705.0
	6/8/2017	683.0
	7/13/2017	722.0
11/13/2017	667.0	
MW-14	12/29/2015	1010.
	3/17/2016	992.0
	6/15/2016	837.0
	9/27/2016	814.0
	12/13/2016	905.0
	3/9/2017	916.0

Table 1. Zimmer D Basin: Appendix III Analytical Results

4:31:50 PM

Location ID	Sample Date	B, tot, mg/L	Ca, tot, mg/L	Cl, tot, mg/L	F, tot, mg/L	pH (field), STD	SO4, tot, mg/L
MW-14	6/8/2017	<0.08000	181.0	<30.00	<1.000	6.970	354.0
	7/13/2017	<0.08000	198.0	30.80	<1.000	7.170	477.0
	11/13/2017	<0.08000	194.0	30.60	<1.000	7.010	340.0
MW-15	12/30/2015	0.1100	296.0	31.10	0.2980	7.140	505.0
	3/18/2016	0.05570	233.0	34.00	0.2900	6.910	447.0
	6/15/2016	0.07370	213.0	34.90	<1.000	6.910	606.0
	9/27/2016	0.08330	237.0	38.00	<1.000	7.050	493.0
	12/13/2016	0.08160	247.0	38.20	<1.000	6.990	522.0
	3/9/2017	<0.08000	212.0	32.80	<1.000	8.360	505.0
	6/8/2017	<0.08000	226.0	32.40	<1.000	6.950	524.0
	7/13/2017	<0.08000	217.0	36.60	<1.000	7.080	549.0
11/13/2017	<0.08000	224.0	36.50	<1.000	6.830	498.0	
MW-8	12/30/2015	0.07830	108.0	10.30	0.07660	7.290	52.00
	3/16/2016	0.03590	165.0	32.40	0.1060	7.090	59.10
	6/15/2016	0.04550	114.0	13.80	<1.000	7.090	64.40
	9/27/2016	0.04130	119.0	13.10	<1.000	6.990	66.00
	12/13/2016	0.04050	128.0	19.20	<1.000	6.950	65.20
	3/9/2017	<0.08000	114.0	21.10	<1.000	8.590	57.30

Table 1. Zimmer D Basin: Appendix III Analytical Results

Location ID	Sample Date	TDS, mg/L
MW-14	6/8/2017	843.0
	7/13/2017	1020.
	11/13/2017	893.0
MW-15	12/30/2015	1100.
	3/18/2016	1110.
	6/15/2016	1120.
	9/27/2016	1160.
	12/13/2016	1140.
	3/9/2017	1100.
	6/8/2017	1090.
	7/13/2017	1120.
11/13/2017	1110.	
MW-8	12/30/2015	370.0
	3/16/2016	468.0
	6/15/2016	474.0
	9/27/2016	446.0
	12/13/2016	455.0
	3/9/2017	474.0

Table 1. Zimmer D Basin: Appendix III Analytical Results

4:31:50 PM

Location ID	Sample Date	B, tot, mg/L	Ca, tot, mg/L	Cl, tot, mg/L	F, tot, mg/L	pH (field), STD	SO4, tot, mg/L
MW-8	6/8/2017	<0.08000	118.0	31.60	<1.000	7.470	63.40
	7/13/2017	<0.08000	109.0	27.50	<1.000	6.930	61.10
	11/13/2017	<0.08000	113.0	15.00	<1.000	6.790	<50.00
MW-9	12/30/2015	3.310	331.0	106.0	0.1520	7.190	944.0
	3/17/2016	1.980	363.0	111.0	0.1390	6.970	789.0
	6/15/2016	1.120	235.0	55.60	<1.000	7.200	630.0
	9/27/2016	0.6280	213.0	38.30	<1.000	7.200	512.0
	12/12/2016	1.960	280.0	71.80	<1.000	7.000	740.0
	3/9/2017	2.650	300.0	104.0	<1.000	8.270	837.0
	6/8/2017	0.5210	262.0	72.60	<1.000	7.040	658.0
	7/13/2017	1.300	291.0	<150.0	<1.000	7.080	729.0
11/13/2017	0.8690	264.0	50.70	<1.000	7.010	650.0	

Table 1. Zimmer D Basin: Appendix III Analytical Results

Location ID	Sample Date	TDS, mg/L
MW-8	6/8/2017	534.0
	7/13/2017	491.0
	11/13/2017	434.0
MW-9	12/30/2015	1770.
	3/17/2016	1680.
	6/15/2016	1170.
	9/27/2016	989.0
	12/12/2016	1430.
	3/9/2017	1680.
	6/8/2017	1240.
	7/13/2017	1380.
11/13/2017	1190.	

Table 2. Zimmer D Basin: Appendix IV Analytical Results

Location ID	Sample Date	As, tot, mg/L	Ba, tot, mg/L	Be, tot, mg/L	Cd,tot, mg/L	Co, tot, mg/L	Cr, tot, mg/L
MW-1	12/30/2015	0.001420	0.06550	<0.001000	<0.0004000	<0.0005000	0.001910
	3/16/2016	<0.002950	0.08630	<0.0008750	<0.0002500	<0.0005430	<0.002500
	6/16/2016	<0.001000	0.06010	<0.001000	<0.001000	<0.0005000	<0.002000
	8/31/2016	<0.001000	0.06600	<0.001000	<0.001000	<0.0005000	<0.002000
	9/26/2016	<0.001000	0.06270	<0.001000	<0.001000	<0.0005000	<0.002000
	10/12/2016	<0.001000	0.06390	<0.001000	<0.001000	<0.0005000	<0.002000
	11/16/2016	<0.001000	0.06700	<0.001000	<0.001000	<0.0005000	<0.002000
	12/13/2016	<0.001000	0.06290	<0.001000	<0.001000	<0.0005000	<0.002000
	3/9/2017	<0.001000	0.05870	<0.001000	<0.001000	<0.0005000	<0.002000
	6/8/2017	<0.001000	0.06430	<0.001000	<0.001000	<0.0005000	<0.002000
7/13/2017	<0.001000	0.05660	<0.001000	<0.001000	<0.0005000	<0.002000	
MW-12	12/30/2015	0.001690	0.06970	<0.001000	<0.0004000	<0.0005000	0.0005180
	3/18/2016	<0.002950	0.08130	<0.0008750	<0.0002500	<0.0005430	<0.002500
	6/15/2016	<0.001000	0.06050	<0.001000	<0.001000	<0.0005000	<0.002000
	9/27/2016	<0.001000	0.06140	<0.001000	<0.001000	<0.0005000	<0.002000
	12/13/2016	<0.001000	0.05880	<0.001000	<0.001000	<0.0005000	<0.002000
	3/9/2017	<0.001000	0.05630	<0.001000	<0.001000	<0.0005000	<0.002000
	6/8/2017	<0.001000	0.06180	<0.001000	<0.001000	<0.0005000	<0.002000

Table 2. Zimmer D Basin: Appendix IV Analytical Results

Location ID	Sample Date	F, tot, mg/L	Hg, tot, mg/L	Li, tot, mg/L	Mo, tot, mg/L	Pb, tot, mg/L	Ra-226,228, tot, pCi/L
MW-1	12/30/2015	0.2000	<0.0001000	<0.008000	<0.0005000	<0.0002000	0.3480
	3/16/2016	0.1460	<0.0001000	0.01010	<0.002500	<0.0004330	0.4530
	6/16/2016	<1.000	<0.0002000	<0.05000	<0.005000	<0.001000	0.6030
	8/31/2016	<1.000	<0.0002000	<0.05000	<0.005000	<0.001000	0.08440
	9/26/2016	<1.000	<0.0002000	<0.05000	<0.005000	<0.001000	0.1680
	10/12/2016	<1.000	<0.0002000	<0.05000	<0.005000	0.002680	0.4890
	11/16/2016	<1.000	<0.0002000	<0.05000	<0.005000	<0.001000	0.3390
	12/13/2016	<1.000	<0.0002000	<0.05000	<0.005000	<0.001000	0.4220
	3/9/2017	<1.000	<0.0002000	<0.05000	<0.005000	<0.001000	0.4260
	6/8/2017	<1.000	<0.0002000	<0.05000	<0.005000	<0.001000	0.3490
7/13/2017	<1.000	<0.0002000	<0.05000	<0.005000	<0.001000	0.1440	
MW-12	12/30/2015	0.1450	<0.0001000	<0.008000	<0.0005000	<0.0002000	0.3180
	3/18/2016	0.1720	<0.0001000	0.008750	<0.002500	<0.0004330	0.5100
	6/15/2016	<1.000	<0.0002000	<0.05000	<0.005000	<0.001000	0.1300
	9/27/2016	<1.000	<0.0002000	<0.05000	<0.005000	<0.001000	1.110
	12/13/2016	<1.000	<0.0002000	<0.05000	<0.005000	<0.001000	0.3750
	3/9/2017	<1.000	<0.0002000	<0.05000	<0.005000	<0.001000	0.4290
	6/8/2017	<1.000	<0.0002000	<0.05000	<0.005000	<0.001000	0.1820

Table 2. Zimmer D Basin: Appendix IV Analytical Results

Location ID	Sample Date	Sb, tot, mg/L	Se, tot, mg/L	Tl, tot, mg/L
MW-1	12/30/2015	<0.0005000	<0.0006000	<0.0005000
	3/16/2016	<0.004180	<0.003980	<0.001380
	6/16/2016	<0.002000	<0.005000	<0.001000
	8/31/2016	<0.002000	<0.005000	<0.001000
	9/26/2016	<0.002000	<0.005000	<0.001000
	10/12/2016	<0.002000	<0.005000	<0.001000
	11/16/2016	<0.002000	<0.005000	<0.001000
	12/13/2016	<0.002000	<0.005000	<0.001000
	3/9/2017	<0.002000	<0.005000	<0.001000
	6/8/2017	<0.002000	<0.005000	<0.001000
MW-12	7/13/2017	<0.002000	<0.005000	<0.001000
	12/30/2015	<0.0005000	0.001310	<0.0005000
	3/18/2016	<0.004180	<0.003980	<0.001380
	6/15/2016	<0.002000	<0.005000	<0.001000
	9/27/2016	<0.002000	<0.005000	<0.001000
	12/13/2016	<0.002000	<0.005000	<0.001000
	3/9/2017	<0.002000	<0.005000	<0.001000
6/8/2017	<0.002000	<0.005000	<0.001000	

Table 2. Zimmer D Basin: Appendix IV Analytical Results

4:31:56 PM

Location ID	Sample Date	As, tot, mg/L	Ba, tot, mg/L	Be, tot, mg/L	Cd,tot, mg/L	Co, tot, mg/L	Cr, tot, mg/L
MW-12	7/13/2017	<0.001000	0.05790	<0.001000	<0.001000	<0.0005000	<0.002000
MW-13	12/29/2015	0.002600	0.05640	<0.001000	<0.0004000	0.006530	<0.0005000
	3/17/2016	0.004800	0.06910	<0.0008750	<0.0002500	0.005160	<0.002500
	6/15/2016	0.002640	0.05210	<0.001000	<0.001000	0.006410	<0.002000
	9/27/2016	0.004600	0.05240	<0.001000	<0.001000	0.005140	<0.002000
	12/13/2016	0.003240	0.05360	<0.001000	<0.001000	0.004770	<0.002000
	3/9/2017	0.003480	0.05160	<0.001000	<0.001000	0.003480	<0.002000
	6/8/2017	0.003190	0.05030	<0.001000	<0.001000	0.002370	<0.002000
	7/13/2017	0.002220	0.04460	<0.001000	<0.001000	0.002440	<0.002000
MW-14	12/29/2015	0.002630	0.05090	<0.001000	<0.0004000	0.008570	<0.0005000
	3/17/2016	<0.002950	0.06410	<0.0008750	<0.0002500	0.005140	<0.002500
	6/15/2016	0.001710	0.04800	<0.001000	<0.001000	0.005470	<0.002000
	9/27/2016	0.001630	0.04640	<0.001000	<0.001000	0.004350	<0.002000
	12/13/2016	0.001730	0.05350	<0.001000	<0.001000	0.005630	<0.002000
	3/9/2017	0.001680	0.04650	<0.001000	<0.001000	0.003670	<0.002000
	6/8/2017	0.001580	0.04650	<0.001000	<0.001000	0.002780	<0.002000
	7/13/2017	0.001240	0.04400	<0.001000	<0.001000	0.002310	<0.002000

Table 2. Zimmer D Basin: Appendix IV Analytical Results

Location ID	Sample Date	F, tot, mg/L	Hg, tot, mg/L	Li, tot, mg/L	Mo, tot, mg/L	Pb, tot, mg/L	Ra-226,228, tot, pCi/L
MW-12	7/13/2017	<1.000	<0.0002000	<0.05000	<0.005000	<0.001000	0.2880
MW-13	12/29/2015	0.2800	<0.0001000	<0.008000	0.004950	<0.0002000	0.5740
	3/17/2016	0.2940	<0.0001000	0.004260	0.006740	<0.0004330	0.4250
	6/15/2016	<1.000	<0.0002000	<0.05000	<0.005000	<0.001000	0.4590
	9/27/2016	<1.000	<0.0002000	<0.05000	<0.005000	<0.001000	0.6120
	12/13/2016	<1.000	<0.0002000	<0.05000	0.005000	<0.001000	0.6460
	3/9/2017	<1.000	<0.0002000	<0.05000	<0.005000	<0.001000	0.2350
	6/8/2017	<1.000	<0.0002000	<0.05000	<0.005000	<0.001000	0.2840
	7/13/2017	<1.000	<0.0002000	<0.05000	<0.005000	<0.001000	0.8410
MW-14	12/29/2015	<0.06000	<0.0001000	<0.008000	0.001420	0.0002910	0.5940
	3/17/2016	0.2250	<0.0001000	0.003790	0.002760	<0.0004330	0.9570
	6/15/2016	<1.000	<0.0002000	<0.05000	<0.005000	<0.001000	0.5340
	9/27/2016	<1.000	<0.0002000	<0.05000	<0.005000	<0.001000	0.4960
	12/13/2016	<1.000	<0.0002000	<0.05000	<0.005000	<0.001000	1.360
	3/9/2017	<1.000	<0.0002000	<0.05000	<0.005000	<0.001000	0.4440
	6/8/2017	<1.000	<0.0002000	<0.05000	<0.005000	<0.001000	0.3180
	7/13/2017	<1.000	<0.0002000	<0.05000	<0.005000	<0.001000	0.6890

Table 2. Zimmer D Basin: Appendix IV Analytical Results

Location ID	Sample Date	Sb, tot, mg/L	Se, tot, mg/L	Tl, tot, mg/L
MW-12	7/13/2017	<0.002000	<0.005000	<0.001000
MW-13	12/29/2015	0.0008410	0.0006640	<0.0005000
	3/17/2016	<0.004180	<0.003980	<0.001380
	6/15/2016	<0.002000	<0.005000	<0.001000
	9/27/2016	<0.002000	<0.005000	<0.001000
	12/13/2016	<0.002000	<0.005000	<0.001000
	3/9/2017	<0.002000	<0.005000	<0.001000
	6/8/2017	<0.002000	<0.005000	<0.001000
	7/13/2017	<0.002000	<0.005000	<0.001000
MW-14	12/29/2015	0.0006700	<0.0006000	<0.0005000
	3/17/2016	<0.004180	<0.003980	<0.001380
	6/15/2016	<0.002000	<0.005000	<0.001000
	9/27/2016	<0.002000	<0.005000	<0.001000
	12/13/2016	<0.002000	<0.005000	<0.001000
	3/9/2017	<0.002000	<0.005000	<0.001000
	6/8/2017	<0.002000	<0.005000	<0.001000
	7/13/2017	<0.002000	<0.005000	<0.001000

Table 2. Zimmer D Basin: Appendix IV Analytical Results

Location ID	Sample Date	As, tot, mg/L	Ba, tot, mg/L	Bc, tot, mg/L	Cd,tot, mg/L	Co, tot, mg/L	Cr, tot, mg/L
MW-15	12/30/2015	0.002650	0.08960	<0.001000	<0.0004000	0.01090	<0.0005000
	3/18/2016	<0.002950	0.08350	<0.0008750	<0.0002500	0.007980	<0.002500
	6/15/2016	<0.001000	0.06870	<0.001000	<0.001000	0.007510	<0.002000
	9/27/2016	<0.001000	0.07730	<0.001000	<0.001000	0.007780	<0.002000
	12/13/2016	<0.001000	0.07670	<0.001000	<0.001000	0.007010	<0.002000
	3/9/2017	<0.001000	0.06770	<0.001000	<0.001000	0.005930	<0.002000
	6/8/2017	<0.001000	0.06630	<0.001000	<0.001000	0.003530	<0.002000
	7/13/2017	<0.001000	0.06760	<0.001000	<0.001000	0.004270	<0.002000
MW-8	12/30/2015	0.001150	0.03780	<0.001000	<0.0004000	<0.0005000	<0.0005000
	3/16/2016	<0.002950	0.06810	<0.0008750	<0.0002500	<0.0005430	<0.002500
	6/15/2016	<0.001000	0.04180	<0.001000	<0.001000	<0.0005000	<0.002000
	9/27/2016	<0.001000	0.04300	<0.001000	<0.001000	<0.0005000	<0.002000
	12/13/2016	<0.001000	0.04580	<0.001000	<0.001000	<0.0005000	<0.002000
	3/9/2017	<0.001000	0.04230	<0.001000	<0.001000	<0.0005000	<0.002000
	6/8/2017	<0.001000	0.04910	<0.001000	<0.001000	<0.0005000	<0.002000
	7/13/2017	<0.001000	0.04470	<0.001000	<0.001000	<0.0005000	<0.002000
MW-9	12/30/2015	0.004540	0.04500	<0.001000	0.0007210	0.003270	0.001590
	3/17/2016	<0.002950	0.05670	<0.0008750	<0.0002500	0.004060	<0.002500

Table 2. Zimmer D Basin: Appendix IV Analytical Results

Location ID	Sample Date	F, tot, mg/L	Hg, tot, mg/L	Li, tot, mg/L	Mo, tot, mg/L	Pb, tot, mg/L	Ra-226,228, tot, pCi/L
MW-15	12/30/2015	0.2980	<0.0001000	<0.008000	0.005540	<0.0002000	0.5900
	3/18/2016	0.2900	<0.0001000	0.002980	0.004950	<0.0004330	0.4190
	6/15/2016	<1.000	<0.0002000	<0.05000	<0.005000	<0.001000	0.7350
	9/27/2016	<1.000	<0.0002000	<0.05000	<0.005000	<0.001000	1.260
	12/13/2016	<1.000	<0.0002000	<0.05000	0.005240	<0.001000	0.9360
	3/9/2017	<1.000	<0.0002000	<0.05000	<0.005000	<0.001000	0.5560
	6/8/2017	<1.000	<0.0002000	<0.05000	<0.005000	<0.001000	0.4740
	7/13/2017	<1.000	<0.0002000	<0.05000	<0.005000	<0.001000	0.5540
MW-8	12/30/2015	0.07660	<0.0001000	<0.008000	<0.0005000	<0.0002000	0.1730
	3/16/2016	0.1060	<0.0001000	0.006350	<0.002500	<0.0004330	0.4080
	6/15/2016	<1.000	<0.0002000	<0.05000	<0.005000	<0.001000	0.06940
	9/27/2016	<1.000	<0.0002000	<0.05000	<0.005000	<0.001000	0.2140
	12/13/2016	<1.000	<0.0002000	<0.05000	<0.005000	<0.001000	0.7100
	3/9/2017	<1.000	<0.0002000	<0.05000	<0.005000	<0.001000	0.3610
	6/8/2017	<1.000	<0.0002000	<0.05000	<0.005000	<0.001000	0.02830
	7/13/2017	<1.000	<0.0002000	<0.05000	<0.005000	<0.001000	0.2690
MW-9	12/30/2015	0.1520	<0.0001000	0.008360	0.001450	0.0002100	0.6490
	3/17/2016	0.1390	<0.0001000	0.01100	<0.002500	<0.0004330	0.6370

Table 2. Zimmer D Basin: Appendix IV Analytical Results

Location ID	Sample Date	Sb, tot, mg/L	Se, tot, mg/L	Tl, tot, mg/L
MW-15	12/30/2015	0.0008230	<0.0006000	<0.0005000
	3/18/2016	<0.004180	<0.003980	<0.001380
	6/15/2016	<0.002000	<0.005000	<0.001000
	9/27/2016	<0.002000	<0.005000	<0.001000
	12/13/2016	<0.002000	<0.005000	<0.001000
	3/9/2017	<0.002000	<0.005000	<0.001000
	6/8/2017	<0.002000	<0.005000	<0.001000
	7/13/2017	<0.002000	<0.005000	<0.001000
MW-8	12/30/2015	<0.0005000	<0.0006000	<0.0005000
	3/16/2016	<0.004180	<0.003980	<0.001380
	6/15/2016	<0.002000	<0.005000	<0.001000
	9/27/2016	<0.002000	<0.005000	<0.001000
	12/13/2016	<0.002000	<0.005000	<0.001000
	3/9/2017	<0.002000	<0.005000	<0.001000
	6/8/2017	<0.002000	<0.005000	<0.001000
	7/13/2017	<0.002000	<0.005000	<0.001000
MW-9	12/30/2015	<0.0005000	<0.0006000	<0.0005000
	3/17/2016	<0.004180	<0.003980	<0.001380

Table 2. Zimmer D Basin: Appendix IV Analytical Results

Location ID	Sample Date	As, tot, mg/L	Ba, tot, mg/L	Bc, tot, mg/L	Cd,tot, mg/L	Co, tot, mg/L	Cr, tot, mg/L
MW-9	6/15/2016	0.001270	0.02530	<0.001000	<0.001000	0.002530	<0.002000
	9/27/2016	0.001400	0.02390	<0.001000	<0.001000	0.002020	<0.002000
	12/12/2016	0.001510	0.02690	<0.001000	<0.001000	0.002990	<0.002000
	3/9/2017	0.001610	0.03300	<0.001000	<0.001000	0.004030	<0.002000
	6/8/2017	0.002570	0.03370	<0.001000	<0.001000	0.002190	<0.002000
	7/13/2017	0.001780	0.03080	<0.001000	<0.001000	0.002920	<0.002000

Table 2. Zimmer D Basin: Appendix IV Analytical Results

Location ID	Sample Date	F, tot, mg/L	Hg, tot, mg/L	Li, tot, mg/L	Mo, tot, mg/L	Pb, tot, mg/L	Ra-226,228, tot, pCi/L
MW-9	6/15/2016	<1.000	<0.0002000	<0.05000	<0.005000	<0.001000	0.5730
	9/27/2016	<1.000	<0.0002000	<0.05000	<0.005000	<0.001000	0.8410
	12/12/2016	<1.000	<0.0002000	<0.05000	<0.005000	<0.001000	1.070
	3/9/2017	<1.000	<0.0002000	<0.05000	<0.005000	<0.001000	0.3580
	6/8/2017	<1.000	<0.0002000	<0.05000	<0.005000	<0.001000	0.3200
	7/13/2017	<1.000	<0.0002000	<0.05000	<0.005000	<0.001000	0.7290

Table 2. Zimmer D Basin: Appendix IV Analytical Results

Location ID	Sample Date	Sb, tot, mg/L	Se, tot, mg/L	Tl, tot, mg/L
MW-9	6/15/2016	<0.002000	<0.005000	<0.001000
	9/27/2016	<0.002000	<0.005000	<0.001000
	12/12/2016	<0.002000	<0.005000	<0.001000
	3/9/2017	<0.002000	<0.005000	<0.001000
	6/8/2017	<0.002000	<0.005000	<0.001000
	7/13/2017	<0.002000	<0.005000	<0.001000



Figures

Y:\Mapping\Projects\222285\MXD\2017_AnnualGWM_CAR\Figure 1_GWS_WellLoc_Zimmer_DBasin.mxd Author: stolzsd Date/Time: 1/29/2018 4:22:54 PM



Service Layer Credits: Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community




DRAWN BY/DATE:
SDS 12/21/17
REVIEWED BY/DATE:
KLT 12/21/17
APPROVED BY/DATE:
SJC 1/25/18

GROUNDWATER SAMPLING WELL LOCATION MAP
 ZIMMER D BASIN
 UNIT ID: 121
 2017 ANNUAL GROUNDWATER MONITORING AND CORRECTIVE ACTION REPORT
 DYNEGY CCR RULE GROUNDWATER MONITORING
 ZIMMER POWER STATION
 MOSCOW, OHIO

PROJECT NO: 67720

FIGURE NO: 1



-  UPGRADIENT MONITORING WELL LOCATION
-  DOWNGRADIENT MONITORING WELL LOCATION
-  CCR MONITORED UNIT

OBG

THERE'S A WAY

