

Prepared for
Dynegy Zimmer, LLC

Date
January 31, 2021

Project No.
1940074924

**2020 ANNUAL GROUNDWATER
MONITORING AND CORRECTIVE
ACTION REPORT**
**ZIMMER GYPSUM RECYCLE POND, ZIMMER
POWER STATION**



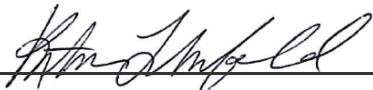
Bright ideas. Sustainable change.

**2020 ANNUAL GROUNDWATER MONITORING AND
CORRECTIVE ACTION REPORT
ZIMMER GYPSUM RECYCLE POND, ZIMMER POWER
STATION**


Project name **Zimmer Power Station**
Project no. **1940074924**
Recipient **Dynegy Zimmer, LLC**
Document type **Annual Groundwater Monitoring and Corrective Action Report**
Version **FINAL**
Date **January 31, 2021**
Prepared by **Kristen L. Theesfeld**
Checked by **Nikki M. Pagano, PE**
Approved by **Lauren D. Cook**
Description **Annual Report in Support of the CCR Rule Groundwater Monitoring Program**

Ramboll
234 W. Florida Street
Fifth Floor
Milwaukee, WI 53204
USA

T 414-837-3607
F 414-837-3608
<https://ramboll.com>



Kristen L. Theesfeld
Hydrogeologist



Nikki M. Pagano, PG
Senior Managing Engineer

CONTENTS

EXECUTIVE SUMMARY	3
1. Introduction	4
2. Monitoring and Corrective Action Program Status	6
3. Key Actions Completed in 2020	7
4. Problems Encountered and Actions to Resolve the Problems	9
5. Key Activities Planned for 2021	10
6. References	11

TABLES (IN TEXT)

Table A	2019-2020 Assessment Monitoring Program Summary
---------	---

TABLES (ATTACHED)

Table 1	Analytical Results – Groundwater Elevation and Appendix III Parameters
Table 2	Analytical Results – Appendix IV Parameters
Table 3	Statistical Background Values
Table 4	Groundwater Protection Standards

FIGURES

Figure 1	Monitoring Well Location Map
----------	------------------------------

ACRONYMS AND ABBREVIATIONS

40 C.F.R.	Title 40 of the Code of Federal Regulations
ASD	Alternate Source Demonstration
CCR	Coal Combustion Residuals
CMA	Corrective Measures Assessment
GRP	Gypsum Recycle Pond
GWPS	Groundwater Protection Standard
SSI	Statistically Significant Increase
SSL	Statistically Significant Level

Zimmer

EXECUTIVE SUMMARY

This report has been prepared to provide the information required by Title 40 of the Code of Federal Regulations (40 C.F.R.) § 257.90(e) for Zimmer Gypsum Recycle Pond (GRP) located at Zimmer Power Station near Moscow, Ohio.

Groundwater is being monitored at Zimmer GRP in accordance with the Assessment Monitoring Program requirements specified in 40 C.F.R. § 257.95. Assessment Monitoring was initiated at Zimmer GRP on April 9, 2018.

No changes were made to the monitoring system in 2020 (no wells were installed or decommissioned).

No Statistically Significant Levels (SSLs) of 40 C.F.R. Part 257 Appendix IV parameters were determined. Consequently, a Corrective Measures Assessment (CMA) is not required and Zimmer GRP remains in the Assessment Monitoring Program.

Zimmer

1. INTRODUCTION

This report has been prepared by Ramboll Americas Engineering Solutions Inc. (Ramboll) on behalf of Dynegy Zimmer, LLC, to provide the information required by 40 C.F.R. § 257.90(e) for Zimmer GRP located at Zimmer Power Station near Moscow, Ohio.

In accordance with 40 C.F.R. § 257.90(e), the owner or operator of a Coal Combustion Residuals (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 [SSI] relative to background levels).
5. Other information required to be included in the annual report as specified in §§ 257.90 through 257.98.
6. A section at the beginning of the annual report that provides an overview of the current status of groundwater monitoring and corrective action programs for the CCR unit. At a minimum, the summary must specify all of the following:
 - i. At the start of the current annual reporting period, whether the CCR unit was operating under the detection monitoring program in §257.94 or the assessment monitoring program in §257.95.
 - ii. At the end of the current annual reporting period, whether the CCR unit was operating under the detection monitoring program in §257.94 or the assessment monitoring program in §257.95.
 - iii. If it was determined that there was a SSI over background for one or more constituents listed in Appendix III of §257 pursuant to §257.94(e):
 - A. Identify those constituents listed in Appendix III of §257 and the names of the monitoring wells associated with the SSI(s).

- B. Provide the date when the assessment monitoring program was initiated for the CCR unit.
- iv. If it was determined that there was a SSL above the Groundwater Protection Standard (GWPS) for one or more constituents listed in Appendix IV of §257 pursuant to §257.95(g) include all of the following:
 - A. Identify those constituents listed in Appendix IV of §257 and the names of the monitoring wells associated with the SSL(s).
 - B. Provide the date when the CMA was initiated for the CCR unit.
 - C. Provide the date when the public meeting was held for CMA for the CCR unit.
 - D. Provide the date when the CMA was completed for the CCR unit.
- v. Whether a remedy was selected pursuant to §257.97 during the current annual reporting period, and if so, the date of remedy selection.
- vi. Whether remedial activities were initiated or are ongoing pursuant to §257.98 during the current annual reporting period.

This report provides the required information for Zimmer GRP for calendar year 2020.

2. MONITORING AND CORRECTIVE ACTION PROGRAM STATUS

No changes have occurred to the Monitoring Program status in calendar year 2020, and Zimmer GRP remains in the Assessment Monitoring Program in accordance with 40 C.F.R. § 257.95.

Zimmer

3. KEY ACTIONS COMPLETED IN 2020

The Assessment Monitoring Program is summarized in Table A. The groundwater monitoring system, including the CCR unit and all background and downgradient monitoring wells, is presented in Figure 1. No changes were made to the monitoring system in 2020. In general, one groundwater sample was collected from each background and downgradient well during each monitoring event. All samples were collected and analyzed in accordance with the Sampling and Analysis Plan (AECOM, 2017). All monitoring data obtained under 40 C.F.R. §§ 257.90 through 257.98 (as applicable) in 2020, and analytical results for the September 2019 sampling event, are presented in Tables 1 and 2. Analytical data were evaluated in accordance with the Statistical Analysis Plan (NRT/OBG, 2017) to determine any SSLs of Appendix IV parameters over GWPSs.

Statistical background values are provided in Table 3 and GWPSs in Table 4.

Zimmer

Table A – 2019-2020 Assessment Monitoring Program Summary

Sampling Dates	Analytical Data Receipt Date	Parameters Collected	SSL(s)	SSL(s) Determination Date
September 11 - 12, 2019	October 16, 2019	Appendix III Appendix IV Detected ¹	none	January 14, 2020
April 9 - 10, 2020	April 27, 2020	Appendix III Appendix IV	none	July 27, 2020
September 16-17, 2020	October 31, 2020	Appendix III Appendix IV Detected ¹	TBD	TBD

Notes:

NA: Not Applicable

TBD: To Be Determined

1. Groundwater sample analysis was limited to Appendix IV parameters detected in previous events in accordance with 40 C.F.R. § 257.95(d)(1).

Zimmer

4. PROBLEMS ENCOUNTERED AND ACTIONS TO RESOLVE THE PROBLEMS

No problems were encountered with the Groundwater Monitoring Program during 2020. Groundwater samples were collected and analyzed in accordance with the Sampling and Analysis Plan (AECOM, 2017), and all data were accepted.

Zimmer

5. KEY ACTIVITIES PLANNED FOR 2021

The following key activities are planned for 2021:

- Continuation of the Assessment Monitoring Program with semi-annual sampling scheduled for the first and third quarters of 2021.
- Complete evaluation of analytical data from the downgradient wells, using GWPSs to determine whether an SSL of Appendix IV parameters has occurred.
- If an SSL is identified, potential alternate sources (*i.e.*, a source other than the CCR unit caused the SSL or that that SSL 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 SSL, a written demonstration will be completed within 90 days of SSL determination and included in the 2021 Annual Groundwater Monitoring and Corrective Action Report.
 - If an alternate source(s) is not identified to be the cause of the SSL, the applicable requirements of 40 C.F.R. §§ 257.94 through 257.98 (*e.g.*, assessment of corrective measures) as may apply in 2021 will be met, including associated recordkeeping/notifications required by 40 C.F.R. §§ 257.105 through 257.108.

6. REFERENCES

AECOM, 2017, Sampling and Analysis Plan, CCR Rule Groundwater Monitoring, Gypsum Recycle Pond, Unit 124, Zimmer Power Station, Moscow, Ohio, Job Number: 60442412, Revision 0, October 17, 2017.

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

Zimmer

TABLES

Zimmer

TABLE 1.
ANALYTICAL RESULTS - GROUNDWATER ELEVATION AND APPENDIX III PARAMETERS
2020 ANNUAL GROUNDWATER MONITORING AND CORRECTIVE ACTION REPORT

ZIMMER POWER STATION
 124 - GYPSUM RECYCLE POND
 MOSCOW, OH

Well ID	Latitude (Decimal Degrees)	Longitude (Decimal Degrees)	Date	Depth to Groundwater (ft)	Groundwater Elevation (ft NAVD88)	Boron, total (mg/L)	Calcium, total (mg/L)	Chloride, total (mg/L)	Fluoride, total (mg/L)	pH (field) (STD)	Sulfate, total (mg/L)	Total Dissolved Solids (mg/L)
				6020A	6020A	6020A	6020A	9251	9214	SM4500 H+B	9036	SM 2540C
MW-7A Downgradient	38.869036	-84.227563	9/11/2019	53.72	458.07	3.38	159	62.8	<1	7.3	376	912
			4/10/2020			2.43	156	62.8	<0.15	7.2	366	876
			9/17/2020	54.82	456.97	3.26	148	66.4	<0.15	6.9	397	974
MW-8 Background	38.86994583	-84.22557183	9/10/2019	52.51	459.09							
			9/11/2019			<0.08	129	34	<1	6.8	59.5	508
			4/9/2020	41.15	470.45	<0.03	122	16	<0.15	6.8	65.2	421
MW-10 Downgradient	38.86885	-84.22711983	9/16/2020	53.62	457.98	0.0434	122	13.8	<0.15	7.0	67.2	473
			9/10/2019	52.97	459.21							
			9/12/2019			2.79	140	73.3	1.41	6.8	513	1100
			4/9/2020	42.44	469.74							
			4/10/2020			4.38	108	60.5	1.92	7.3	372	845
MW-11 Downgradient	38.868625	-84.227203	9/16/2020	54.85	457.33							
			9/17/2020			2.03	94.6	55	1.63	7.1	289	735
			9/10/2019	50.06	458.81							
			9/12/2019			0.45	119	45.1	<1	6.9	145	590
			4/9/2020	39.66	469.21							
			4/10/2020			0.719	110	48.9	0.17	7.4	135	510
			9/16/2020	51.61	457.26							
			9/17/2020			0.395	85.4	31.7	0.184	7.2	107	427

Notes:

40 C.F.R. = Title 40 of the Code of Federal Regulations

ft = foot/feet

mg/L = milligrams per liter

NAVD88 = North American Vertical Datum of 1988

S.U. = Standard Units

< = concentration is less than the concentration shown, which corresponds to the reporting limit for the method; estimated concentrations below the reporting limit and associated qualifiers are not provided since not utilized in statistics to determine Statistically Significant Increases (SSIs) over background.

4-digit numbers below parameter represent SW-846 analytical methods and alpha-numeric values that begin with SM represent Standard Methods for the Examination of Water and Wastewater.

TABLE 2.
ANALYTICAL RESULTS - APPENDIX IV PARAMETERS
2020 ANNUAL GROUNDWATER MONITORING AND CORRECTIVE ACTION REPORT
 ZIMMER POWER STATION
 124 - GYPSUM RECYCLE POND
 MOSCOW, OH

Well ID	Date	Antimony, total 6020A	Arsenic, total 6020A	Barium, total 6020A	Beryllium, total 6020A	Cadmium, total 6020A	Chromium, total 6020A	Cobalt, total 6020A	Fluoride, total 6020A	Lead, total 6020A	Lithium, total 6020A	Mercury, total 7470A	Molybdenum, total 6020A	Radium-226 + Radium 228, 6020A	Selenium, total 6020A	Thallium, total 6020A
MW-7A Downgradient	9/11/2019		<0.001	0.0458		<0.001	<0.002	0.00101	<1	<0.001	0.0124		<0.005	0.436	<0.005	
	4/10/2020	<0.004	<0.002	0.0371	<0.002	<0.001	<0.002	<0.002	<0.15	<0.005	<0.002	<0.0002	<0.005	0.785	0.00204	<0.002
	9/17/2020		<0.002	0.04		<0.001	<0.002	<0.002	<0.15	<0.005	0.0031		<0.005	0.43	0.0027	
MW-8 Background	9/11/2019		<0.001	0.0552	<0.001		0.00206	<0.0005	<1	<0.001	0.00754		<0.005	0.261	<0.005	
	4/9/2020	<0.004	<0.002	0.046	<0.002	<0.001	<0.002	<0.002	<0.15	<0.005	0.00464	<0.0002	<0.005	0.292	<0.002	<0.002
	9/16/2020		<0.002	0.0452	<0.002	<0.001	<0.002	<0.002	<0.15	<0.005	0.00612		<0.005	0.0611	<0.002	
MW-10 Downgradient	9/12/2019		0.00501	0.0127		<0.001	<0.002	0.00464	1.41	<0.001	0.0144		0.0105	0.336	<0.005	
	4/10/2020	<0.004	0.00201	<0.02	<0.002	<0.001	<0.002	<0.002	1.92	<0.005	0.00934	<0.0002	0.00628	1.29	<0.002	<0.002
	9/17/2020		0.00241	<0.02		<0.001	<0.002	<0.002	1.63	<0.005	0.00856		<0.005	0.107	<0.002	
MW-11 Downgradient	9/12/2019		0.00109	0.0493		<0.001	<0.002	0.00136	<1	<0.001	0.00609		<0.005	0.105	<0.005	
	4/10/2020	<0.004	<0.002	0.0443	<0.002	<0.001	<0.002	<0.002	0.17	<0.005	<0.002	<0.0002	<0.005	0.955	<0.002	<0.002
	9/17/2020		<0.002	0.0329		<0.001	<0.002	<0.002	0.184	<0.005	<0.002		<0.005	1.26	<0.002	

Notes:
 40 C.F.R. = Title 40 of the Code of Federal Regulations
 mg/L = milligrams per liter
 NA = Not Analyzed
 pCi/L = picoCuries per liter
 < = concentration is less than concentration shown, which corresponds to the reporting limit for the method; estimated concentrations below the reporting limit and associated qualifiers are not provided since not utilized in statistics to determine Statistically Significant Levels (SSLs) over Groundwater Protection Standards.
 4-digit numbers below parameter represent SW-846 analytical methods and 3-digit numbers represent Clean Water Act analytical methods.

TABLE 3.
STATISTICAL BACKGROUND VALUES
2020 ANNUAL GROUNDWATER MONITORING AND CORRECTIVE ACTION REPORT
 ZIMMER POWER STATION
 124 - GYPSUM RECYCLE POND
 MOSCOW, OHIO
 ASSESSMENT MONITORING PROGRAM

Parameter	Statistical Background Value (UPL)
40 C.F.R. Part 257 Appendix III	
Boron (mg/L)	0.09
Calcium (mg/L)	169
Chloride (mg/L)	42.17
Fluoride (mg/L)	0.106
pH (S.U.)	6.5 / 7.8
Sulfate (mg/L)	72.7
Total Dissolved Solids (mg/L)	578

[O: RAB 12/26/19, C: KLT 12/26/19]

Notes:

40 C.F.R. = Title 40 of the Code of Federal Regulations
 mg/L = milligrams per liter
 S.U. = Standard Units
 UPL = Upper Prediction Limit

Zimmer

TABLE 4.
GROUNDWATER PROTECTION STANDARDS
2020 ANNUAL GROUNDWATER MONITORING AND CORRECTIVE ACTION REPORT
 ZIMMER POWER STATION
 124 - GYPSUM RECYCLE POND
 MOSCOW, OHIO
 ASSESSMENT MONITORING PROGRAM

Parameter	Groundwater Protection Standard ¹
40 C.F.R. Part 257 Appendix IV	
Antimony (mg/L)	0.006
Arsenic (mg/L)	0.010
Barium (mg/L)	2
Beryllium (mg/L)	0.004
Cadmium (mg/L)	0.005
Chromium (mg/L)	0.10
Cobalt (mg/L)	0.006
Fluoride (mg/L)	4
Lead (mg/L)	0.015
Lithium (mg/L)	0.040
Mercury (mg/L)	0.002
Molybdenum (mg/L)	0.10
Radium 226+228 (pCi/L)	5
Selenium (mg/L)	0.05
Thallium (mg/L)	0.002

[O: RAB 12/26/19, C: KLT 12/26/19]

Notes:

40 C.F.R. = Title 40 of the Code of Federal Regulations

mg/L = milligrams per liter

pCi/L = picoCuries per liter




¹Groundwater Protection Standard is the higher of the Maximum Contaminant Level / Health-Based Level or background.

Zimmer

FIGURES

Zimmer



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



**MONITORING WELL LOCATION MAP
ZIMMER GYPSUM RECYCLING POND
UNIT ID:124**

2020 ANNUAL GROUNDWATER MONITORING AND CORRECTIVE ACTION REPORT
VISTRA CCR RULE GROUNDWATER MONITORING
ZIMMER POWER STATION
MOSCOW, OHIO

FIGURE 1

RAMBOLL AMERICAS
ENGINEERING SOLUTIONS, INC.

