Prepared for
Dynegy Miami Fort, LLC

Date
January 31, 2022

Project No.
1940100711-011

2021 ANNUAL GROUNDWATER MONITORING AND CORRECTIVE ACTION REPORT

LAWRENCEBURG ROAD LANDFILL

MIAMI FORT POWER PLANT

NORTH BEND, OHIO

CCR UNIT 113

RAMBOLL Bright ideas. Sustainable change.

2021 ANNUAL GROUNDWATER MONITORING AND CORRECTIVE ACTION REPORT
MIAMI FORT POWER PLANT LAWRENCEBURG ROAD LANDFILL

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Approved by	**Eric J. Tlachac**
Description	**Annual Report in Support of the CCR Rule Groundwater Monitoring Program**

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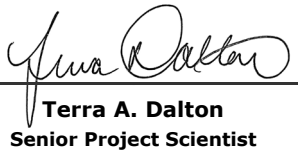

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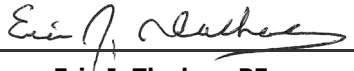

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ACRONYMS AND ABBREVIATIONS

§	Section
40 C.F.R.	Title 40 of the Code of Federal Regulations
ASD	Alternate Source Demonstration
CCR	coal combustion residuals
CMA	Corrective Measures Assessment
GWPS	groundwater protection standard
MFPP	Miami Fort Power Plant
NA	not applicable
Ramboll	Ramboll Americas Engineering Solutions, Inc.
SAP	Sampling and Analysis Plan
SSI	Statistically Significant Increase
SSL	Statistically Significant Level
TBD	to be determined

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.) Section (§) 257.90(e) for the Lawrenceburg Road Landfill located at Miami Fort Power Plant (MFPP) near North Bend, Ohio.

Groundwater is being monitored at Lawrenceburg Road Landill in accordance with the Detection Monitoring Program requirements specified in 40 C.F.R. § 257.94.

No changes were made to the monitoring system in 2021 (no wells were installed or decommissioned).

No Statistically Significant Increases (SSIs) of 40 C.F.R. § 257 Appendix III parameter concentrations greater than background concentrations were determined and Lawrenceburg Road Landill remains in the Detection Monitoring Program.

1. INTRODUCTION

This report has been prepared by Ramboll Americas Engineering Solutions, Inc. (Ramboll) on behalf of Dynegy Miami Fort, LLC, to provide the information required by 40 C.F.R. § 257.90(e) for LF located at the MFPP near North Bend, 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 [Statistically Significant Level] 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 corrective measures assessment [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 Lawrenceburg Road Landfill for calendar year 2021.

2. MONITORING AND CORRECTIVE ACTION PROGRAM STATUS

No changes have occurred to the monitoring program status in calendar year 2021 and Lawrenceburg Road Landfill remains in the Detection Monitoring Program in accordance with 40 C.F.R. § 257.94.

3. KEY ACTIONS COMPLETED IN 2021

The Detection Monitoring Program is summarized in **Table A** on the following page. The groundwater monitoring system, including the CCR unit and all background and compliance monitoring wells, is presented in **Figure 1**. No changes were made to the monitoring system in 2021. In general, one groundwater sample was collected from each background and compliance well during each monitoring event. All samples were collected and analyzed in accordance with the Sampling and Analysis Plan (SAP; AECOM, 2017). All monitoring data obtained under 40 C.F.R. § 257.90 through 257.98 (as applicable) in 2021, and analytical results for the September 2020 sampling event, are presented in **Tables 1** and **2**. Analytical data were evaluated in accordance with the Statistical Analysis Plan (Ramboll, 2020) to determine any SSIs of Appendix III parameters relative to background concentrations.

Statistical background values are provided in **Table 3**. The background values reported in **Table 3** are slightly different from those reported previously because different software was utilized to calculate these values in 2021.

Table A. 2020-2021 Detection Monitoring Program Summary

Sampling Date	Analytical Data Receipt Date	Parameters Collected	SSI(s)	SSI(s) Determination Date	ASD Completion Date
September 14, 2020	October 20, 2020	Appendix III	none	January 18, 2021	NA
March 24, 2021	April 19, 2021	Appendix III	none	July 18, 2021	NA
September 15 - 16, 2021	September 27, 2021	Appendix III	none	December 26, 2021	NA

Notes:

ASD: Alternate Source Demonstration

NA: not applicable

TBD: to be determined

4. PROBLEMS ENCOUNTERED AND ACTIONS TO RESOLVE THE PROBLEMS

No problems were encountered with the Groundwater Monitoring Program during 2021. Groundwater samples were collected and analyzed in accordance with the SAP (AECOM, 2017), and all data were accepted.

5. KEY ACTIVITIES PLANNED FOR 2022

The following key activities are planned for 2022:

- Continuation of the Detection Monitoring Program with semi-annual sampling scheduled for the first and third quarters of 2022.
- Complete evaluation of analytical data from the compliance wells, using background data to determine whether an SSI of Appendix III parameters detected at concentrations greater than 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 the 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 determination and included in the 2022 Annual Groundwater Monitoring and Corrective Action Report.
- If an alternate source(s) is not identified to be the cause of the SSI, the applicable requirements of 40 C.F.R. § 257.94 through 257.98 as may apply in 2022 (*e.g.,* Assessment Monitoring) 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, Lawrenceburg Road Landfill, Unit 113, Miami Fort Power Station, Cleveland, Ohio, Job Number 60442412, Revision 0, October 17, 2017.

Ramboll Americas Engineering Solutions, Inc. (Ramboll), 2020, Statistical Analysis Plan, Miami Fort Power Station Pond System, Project No. 74922, Revision 1, May 22, 2020.

TABLES

TABLE 1
GROUNDWATER ELEVATIONS
2021 ANNUAL GROUNDWATER MONITORING AND CORRECTIVE ACTION REPORT
MIAMI FORT POWER PLANT
113 - LAWRENCEBURG ROAD LANDFILL
NORTH BEND, OH

Well ID	Well Type	Latitude (Decimal Degrees)	Longitude (Decimal Degrees)	Date	Depth to Groundwater (ft BMP)	Groundwater Elevation (ft NAVD88)
MW-5	Background	39.14923	-84.79344	09/14/2020	72.35	458.16
				03/24/2021	65.29	465.22
				09/15/2021	72.59	457.92
MW-8	Compliance	39.14467	-84.79601	09/14/2020	55.66	457.84
				03/24/2021	48.78	464.72
				09/15/2021	56.13	457.37
MW-9	Compliance	39.14310	-84.79588	09/14/2020	23.83	457.80
				03/24/2021	17.04	464.59
				09/15/2021	24.37	457.26
MW-11	Compliance	39.14256	-84.79518	09/14/2020	63.68	457.79
				03/24/2021	56.62	464.85
				09/15/2021	64.18	457.29
MW-12	Compliance	39.14248	-84.79426	09/14/2020	69.62	457.76
				03/24/2021	62.31	465.07
				09/15/2021	70.07	457.31
MW-13	Background	39.14838	-84.79083	09/14/2020	79.04	457.68
				03/24/2021	71.38	465.34
				09/15/2021	79.24	457.48
MW-14	Compliance	39.14743	-84.79234	09/14/2020	25.88	496.25
				11/17/2020	25.18	496.95
				12/10/2020	24.77	497.36
				01/14/2021	24.38	497.75
				02/25/2021	22.68	499.45
				03/24/2021	21.98	500.15
				09/15/2021	64.73	457.40
MW-15	Compliance	39.14570	-84.79393	09/14/2020	50.98	457.30
				03/24/2021	43.80	464.48
				09/15/2021	51.41	456.87

Notes:
ft = foot/feet
NAVD88 = North American Vertical Datum of 1988

TABLE 2
ANALYTICAL RESULTS - APPENDIX III PARAMETERS
2021 ANNUAL GROUNDWATER MONITORING AND CORRECTIVE ACTION REPORT
MIAMI FORT POWER PLANT
113 - LAWRENCEBURG ROAD LANDFILL
NORTH BEND, OH

Well ID	Well Type	Latitude (Decimal Degrees)	Longitude (Decimal Degrees)	Date	Boron, total (mg/L)	Calcium, total (mg/L)	Chloride, total (mg/L)	Fluoride, total (mg/L)	pH (field) (SU)	Sulfate, total (mg/L)	Total Dissolved Solids (mg/L)
MW-5	Background	39.14923	-84.79344	09/14/2020	2.09	81.6	9.34	0.225	6.8	99.6	384
				03/24/2021	2.02	99	14.8	0.272	7.3	113	449
				09/15/2021	1.75	81.2	10.7	0.248	7.3	123	415
MW-8	Compliance	39.14467	-84.79601	09/14/2020	0.0688	95	12	<0.15	6.8	26.8	371
				03/24/2021	0.14	116	17.7	<0.15	7.2	24.1	475
				09/15/2021	0.0898	113	14.1	<0.15	7.0	24.3	477
MW-9	Compliance	39.14310	-84.79588	09/14/2020	0.108	132	62.7	<0.15	6.9	67.3	578
				03/24/2021	0.259	139	109	<0.15	7.0	73.3	659
				09/16/2021	0.131	101	23.9	<0.15	7.0	47.1	475
MW-11	Compliance	39.14256	-84.79518	09/14/2020	0.0564	114	12.6	<0.15	6.9	52.9	443
				03/24/2021	0.0982	114	18.8	<0.15	7.1	33.6	444
				09/15/2021	0.0752	116	15.9	<0.15	7.0	51.2	488
MW-12	Compliance	39.14248	-84.79426	09/14/2020	0.0745	146	25.4	<0.15	6.9	71.7	552
				03/24/2021	0.104	146	14	<0.15	7.0	54.4	531
				09/15/2021	0.0891	139	22.8	<0.15	6.8	65.1	573
MW-13	Background	39.14838	-84.79083	09/14/2020	0.0426	127	211	0.172	6.7	47.9	749
				03/24/2021	0.176	109	128	0.196	7.1	37.5	652
				09/15/2021	0.052	127	224	0.192	7.0	43	800
MW-14	Compliance	39.14743	-84.79234	09/14/2020	0.092	137	112	<0.15	6.8	50.7	641
				03/24/2021	0.13	136	80.8	0.18	7.1	45.5	599
				09/15/2021	0.0989	118	66.6	0.176	7.0	41.5	567
MW-15	Compliance	39.14570	-84.79393	09/14/2020	0.0508	101	17.4	<0.15	6.8	34.8	391
				03/24/2021	0.0805	118	16.4	<0.15	7.1	36.7	428
				09/15/2021	0.0639	96.5	26.1	0.165	7.1	44.1	404

Notes:
mg/L = milligrams per liter
SU = 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 they are not utilized in statistics to determine Statistically Significant Increases (SSIs) over background

TABLE 3
STATISTICAL BACKGROUND VALUES
2021 ANNUAL GROUNDWATER MONITORING AND CORRECTIVE ACTION REPORT
MIAMI FORT POWER PLANT
113 - LAWRENCEBURG ROAD LANDFILL
NORTH BEND, OH

Parameter	**Statistical Background Value (LPL/UPL)**
40 C.F.R. Part 257 Appendix III	
Boron (mg/L)	5.67
Calcium (mg/L)	189
Chloride (mg/L)	516
Fluoride (mg/L)	0.275
pH (field) (SU)	6.6/8.0
Sulfate (mg/L)	322
Total Dissolved Solids (mg/L)	1090

Notes:
40 C.F.R. = Title 40 of the Code of Federal Regulations
LPL = Lower Prediction Limit (applicable for pH only)
mg/L = milligrams per liter
SU = Standard Units
UPL = Upper Prediction Limit

FIGURES

BACKGROUND WELL

COMPLIANCE WELL

PART 257 REGULATED UNIT (SUBJECT UNIT)

0 150 300
Feet

MONITORING WELL LOCATION MAP

2021 ANNUAL GROUNDWATER MONITORING AND CORRECTIVE ACTION REPORT
LAWRENCEBURG ROAD LANDFILL
MIAMI FORT POWER PLANT
NORTH BEND, OHIO

FIGURE 1

RAMBOLL AMERICAS
ENGINEERING SOLUTIONS, INC.

RAMBOLL

Y:\Mapping\Projects\22\2285\MXD\2021_AnnualGWM_CAR\Miami_Fort\LRL_113\Figure 1 MF LRL MW Location Map.mxd

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