

2018 Annual Groundwater Monitoring and Corrective Action Report

Miami Fort Basin A – CCR Unit ID 111
Miami Fort Power Station
11021 Brower Road
North Bend, Ohio 45052

Dynegy Miami Fort, LLC

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2018 Annual Groundwater Monitoring and Corrective Action Report

Miami Fort Basin A – CCR Unit ID 111
Miami Fort Power Station
North Bend, Ohio

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TABLE OF CONTENTS

List of Figures.....	i
List of Tables.....	i
Acronyms and Abbreviations.....	ii
Section 1: Introduction.....	1
Section 2: Monitoring and Corrective Action Program Status.....	2
Section 3: Key Actions Completed in 2018.....	3
Section 4: Problems Encountered and Actions to Resolve the Problems.....	4
Section 5: Key Activities Planned for 2019.....	5
References.....	6

LIST OF FIGURES

Figure 1 Groundwater Sampling Well Location Map

LIST OF TABLES

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

ACRONYMS AND ABBREVIATIONS

CCR	Coal Combustion Residuals
CFR	Code of Federal Regulations
GWPS	Groundwater Protection Standard
mg/L	milligrams per liter
NRT/OBG	Natural Resource Technology, an OBG Company
OBG	O'Brien & Gere Engineers, part of Ramboll
pCi/L	picoCuries per liter
SSI	Statistically Significant Increase
SSL	Statistically Significant Level
S.U.	Standard Units
TDS	Total Dissolved Solids

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SECTION 1: INTRODUCTION

This report has been prepared on behalf of Dynegey Miami Fort, LLC by O'Brien & Gere Engineers, part of Ramboll (OBG), to provide the information required by the Code of Federal Regulations (CFR) found in 40 CFR 257.90(e) for the Miami Fort Basin A located near the Miami Fort Power Station and approximately one mile west of North Bend, Ohio.

In accordance with 40 CFR § 257.90(e), the owner or operator of an existing 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 over background levels).
5. Other information required to be included in the annual report as specified in §§ 257.90 through 257.98¹.

This report provides the required information for the Miami Fort Basin A for calendar year 2018.

¹ For calendar year 2018, corrective action and other information required to be included in the annual report as specified in §§ 257.96 through 257.98 is not applicable.

SECTION 2: MONITORING AND CORRECTIVE ACTION PROGRAM STATUS

Detection Monitoring Program sampling event dates and parameters collected are provided in the detection monitoring program summary table below. One sample was collected from each background and downgradient well in the monitoring system during each sampling event. Analytical data was evaluated after each event in accordance with the Statistical Analysis Plan, Miami Fort Power Station, Dynegy Miami Fort, LLC (NRT/OBG, 2017) to identify any statistically significant increases (SSIs) of Appendix III parameters over background concentrations. The dates the SSIs were evaluated are provided in the detection monitoring program summary table below.

Detection Monitoring Program Summary

Sampling Dates	Parameters Collected	SSIs	Assessment Monitoring Program Established
November 13 and 14, 2017	Appendix III	Yes	April 9, 2018

Alternate source evaluations were inconclusive for one or more of the SSIs. Consequently, and in accordance with 40 CFR § 257.94(e)(2), an Assessment Monitoring Program was established for the Miami Fort Basin A on April 9, 2018 and the required notifications completed.

The first Assessment Monitoring sampling event was completed on May 8 thru May 9, 2018. One sample was collected from each background and downgradient well in the monitoring system and analyzed for Appendix III and Appendix IV parameters. In accordance with 40 CFR § 257.95(d)(1), all wells were resampled on September 18 thru September 20 of 2018 for all Appendix III parameters and Appendix IV parameters detected during the first Assessment Monitoring sampling event. One sample was collected from each background and downgradient well in the monitoring system. Analytical data from the resampling event was evaluated in accordance with the statistical analysis plan (NRT/OBG, 2017) to determine any SSIs of Appendix III parameters over background concentrations or statistically significant levels (SSLs) of Appendix IV parameters over Groundwater Protection Standards (GWPSs). The assessment monitoring program summary table below provides a summary of the Assessment Monitoring Program and results of SSL determinations.

Assessment Monitoring Program Summary

Sampling Dates	Parameters Collected	SSLs
May 8 and 9, 2018	Appendix III Appendix IV	Not Applicable
September 18, 19, and 20, 2018	Appendix III Appendix IV Detected	To Be Determined

Statistical background values are provided in Table 1 and GWPSs in Table 2. Analytical results from the events summarized in the detection and assessment monitoring summary tables above are included in Tables 3 and 4.

The Miami Fort Basin A remains in the Assessment Monitoring Program in accordance with 40 CFR § 257.95.

SECTION 3: KEY ACTIONS COMPLETED IN 2018

Two groundwater monitoring events were completed in 2018 under the Assessment Monitoring Program. These events occurred in May and September, and are detailed in Section 2. One groundwater sample was collected from each background and downgradient well in the monitoring system during each event. All samples were collected and analyzed in accordance with the Sampling and Analysis Plan (AECOM, 2017). All monitoring data obtained under 40 CFR §§ 257.90 through 257.98 (as applicable) in 2018 are presented in Tables 3 and 4.

The groundwater monitoring system, including the CCR unit and all background and downgradient monitoring wells, is presented in Figure 1.

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SECTION 4: PROBLEMS ENCOUNTERED AND ACTIONS TO RESOLVE THE PROBLEMS

No problems were encountered with the groundwater monitoring program during 2018. Groundwater samples were collected and analyzed in accordance with the Sampling and Analysis Plan (AECOM, 2017), and all data was accepted.

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SECTION 5: KEY ACTIVITIES PLANNED FOR 2019

The following key activities are planned for 2019:

- Continuation of the Assessment Monitoring Program with semi-annual sampling scheduled for the first and third quarters of 2019.
- 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 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 annual groundwater monitoring and corrective action report for 2019.
 - » If an alternate source(s) is not identified to be the cause of the SSL, the applicable requirements of 40 CFR §§ 257.94 through 257.98 (e.g., assessment of corrective measures) as may apply in 2019 will be met, including associated recordkeeping/notifications required by 40 CFR §§ 257.105 through 257.108.

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REFERENCES

AECOM, 2017, Sampling and Analysis Plan, CCR Rule Groundwater Monitoring, Basin A, Unit 111, Miami Fort Power Station, Cleves, Ohio, Job Number 60442412, Revision 0, October 17, 2017.

Natural Resource Technology, an OBG Company, 2017, Statistical Analysis Plan, Miami Fort Power Station, Dynegy Miami Fort, LLC, October 17, 2017.

Miami Fort

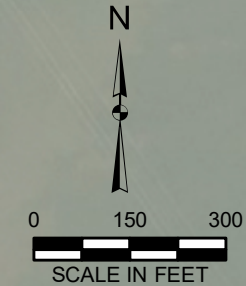
Figures

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



- DOWNGRADIENT MONITORING WELL LOCATION
- UPGRADIENT MONITORING WELL LOCATION
- WATER LEVEL ONLY MONITORING WELL LOCATION
- CCR MONITORED UNIT

DRAWN BY/DATE:
SDS 11/28/18
REVIEWED BY/DATE:
AJB 1/24/19
APPROVED BY/DATE:
NMP 1/28/19

GROUNDWATER SAMPLING WELL LOCATION MAP
MIAMI FORT BASIN A
UNIT ID: 111

2018 ANNUAL GROUNDWATER MONITORING AND CORRECTIVE ACTION REPORT
VISTRA CCR RULE GROUNDWATER MONITORING
MIAMI FORT POWER STATION
NORTH BEND, OHIO

PROJECT NO: 70094

FIGURE NO: 1



Tables

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Table 1. Statistical Background Values

2018 Annual Groundwater Monitoring and Corrective Action Report

Miami Fort Power Station

Unit ID 111 - Miami Fort Basin A

Parameter	Statistical Background Value
Appendix III	
Boron (mg/L)	1.9
Calcium (mg/L)	267
Chloride (mg/L)	71.5
Fluoride (mg/L)	0.373
pH (S.U.)	6.5 / 7.5
Sulfate (mg/L)	550
TDS (mg/L)	1160

[O: KLS 8/15/18, C: RAB 8/28/18]

Notes:

mg/L = milligrams per liter

S.U. = Standard Units

TDS = Total Dissolved Solids

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Table 2. Groundwater Protection Standards

2018 Annual Groundwater Monitoring and Corrective Action Report
Miami Fort Power Station
Unit ID 111 - Miami Fort Basin A

Parameter	Groundwater Protection Standard
Appendix IV	
Antimony (mg/L)	0.006
Arsenic (mg/L)	0.01
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)	0.0707
Mercury (mg/L)	0.002
Molybdenum (mg/L)	0.10
Selenium (mg/L)	0.05
Thallium (mg/L)	0.002
Radium 226+228 (pCi/L)	5

[O: KLS 8/15/18, C: RAB 8/28/18]

Notes:

mg/L = milligrams per liter

pCi/L = picoCuries per liter

Table 3. Appendix III Analytical Results

2018 Annual Groundwater Monitoring and Corrective Action Report
 Miami Fort Power Station
 Unit ID 111 - Miami Fort Basin A

Sample Location	Date Sampled	B, total (mg/L)	Ca, total (mg/L)	Cl, total (mg/L)	F, total (mg/L)	pH (field) (SU)	SO4, total (mg/L)	TDS (mg/L)
Background / Upgradient Monitoring Wells								
MW-1	11/13/2017	0.537	125	54.3	<1	6.7	290	589
	5/8/2018	<1	135	39.9	<1	7.0	325	828
	9/18/2018	0.926	193	45.6	<1	7.0	384	925
MW-7	11/13/2017	0.100	121	7.48	<1	6.7	<100	483
	5/8/2018	<1	116	6.85	<1	7.0	59.5	517
	9/20/2018	0.0949	111	4.91	<1	6.6	<50	453
Downgradient Monitoring Wells								
MW-4	11/14/2017	0.259	153	27.3	<1	6.1	432	840
	5/9/2018	<1	221	24.0	<1	5.9	992	1300
	9/20/2018	0.750	370	17.4	<1	5.5	1470	2070
MW-5	11/14/2017	5.37	180	175	<1	7.0	302	811
	5/9/2018	4.19	171	115	<1	7.2	327	845
	9/20/2018	2.92	131	42.1	<1	6.6	177	573
MW-6	11/14/2017	23.3	116	503	1.28	6.8	311	1640
	5/9/2018	41.1	129	102	<1	7.1	44.1	2260
	9/20/2018	15.3	69.5	269	1.28	6.9	92.3	1050
MW-12	11/14/2017	8.37	203	214	<1	5.3	617	1240
	5/8/2018	7.3	197	166	<1	6.1	508	1090
	9/20/2018	8.28	193	161	<1	5.6	458	1080
MW-13	11/14/2017	0.124	40.5	26.5	<1	7.2	<250	247
	5/9/2018	<1	41	15.2	<1	7.9	61.2	249
	9/19/2018	0.0814	38.3	27.5	<2	7.6	47.2	234

[O: RAB 12/27/18, C: JQW 12/27/18][U: RAB 1/16/19, U: EJT 1/29/19]

Notes:

mg/L = milligrams per liter

S.U. = Standard Units

TDS = Total Dissolved Solids

< = concentration is less than the reporting limit

Table 4. Appendix IV Analytical Results

2018 Annual Groundwater Monitoring and Corrective Action Report
 Miami Fort Power Station
 Unit ID 111 - Miami Fort Basin A

Sample Location	Date Sampled	Sb, total (mg/L)	As, total (mg/L)	Ba, total (mg/L)	Be, total (mg/L)	Cd, total (mg/L)	Cr, total (mg/L)	Co, total (mg/L)	F, total (mg/L)	Pb, total (mg/L)	Li, total (mg/L)	Hg, total (mg/L)	Mo, total (mg/L)	Ra226/228 Combined (pCi/L)	Se, total (mg/L)	Tl, total (mg/L)
Background / Upgradient Monitoring Wells																
MW-1	5/8/2018	<0.003	<0.005	<0.2	<0.004	<0.005	<0.005	<0.005	<1	<0.005	<0.04	<0.0002	0.0276	0.400	<0.01	<0.002
	9/18/2018 ^a	NA	<0.001	0.0512	NA	NA	<0.002	<0.0005	<1	NA	NA	NA	0.0383	0.344	NA	NA
MW-7	5/8/2018	<0.003	<0.005	<0.2	<0.004	<0.005	<0.005	<0.005	<1	<0.005	<0.04	<0.0002	<0.01	0.386	<0.01	<0.002
	9/20/2018 ^a	NA	<0.001	0.0983	NA	NA	<0.002	<0.0005	<1	NA	NA	NA	<0.005	0.567	NA	NA
Downgradient Monitoring Wells																
MW-4	5/9/2018	<0.003	<0.005	<0.2	<0.004	<0.005	<0.005	0.0127	<1	<0.005	<0.04	<0.0002	<0.01	0.186	<0.01	<0.002
	9/20/2018 ^a	NA	0.0021	0.0370	NA	NA	NA	0.0187	<1	NA	NA	NA	<0.005	0.611	NA	NA
MW-5	5/9/2018	<0.003	<0.005	<0.2	<0.004	<0.005	<0.005	<0.005	<1	<0.005	<0.04	<0.0002	<0.01	0.0498	<0.01	<0.002
	9/20/2018 ^a	NA	<0.001	0.0458	NA	NA	NA	<0.0005	<1	NA	NA	NA	0.009	0.721	NA	NA
MW-6	5/9/2018	<0.003	0.0101	0.25	<0.004	<0.005	<0.005	0.0113	<1	<0.005	<0.04	<0.0002	0.369	0.532	<0.01	<0.002
	9/20/2018 ^a	NA	0.0107	0.632	NA	NA	NA	0.00473	1.28	NA	NA	NA	0.412	0.905	NA	NA
MW-12	5/8/2018	<0.003	<0.005	<0.2	<0.004	<0.005	<0.005	<0.005	<1	<0.005	<0.04	<0.0002	<0.01	0.219	<0.01	<0.002
	9/20/2018 ^a	NA	<0.001	0.0202	NA	NA	NA	0.00193	<1	NA	NA	NA	<0.005	0.352	NA	NA
MW-13	5/9/2018	<0.003	0.0173	<0.2	<0.004	<0.005	<0.005	<0.005	<1	<0.005	<0.04	<0.0002	0.0123	0.746	<0.01	<0.002
	9/19/2018 ^a	NA	0.0129	0.132	NA	NA	NA	<0.0005	<2	NA	NA	NA	0.0122	0.913	NA	NA

[O: RAB 12/27/18, C: JQW 12/27/18][U: RAB 1/16/19, U: AJB 1/28/19]

Notes:

mg/L = milligrams per liter

pCi/L = picoCuries per liter

NA = Not Analyzed

< = concentration is less than the reporting limit

^aOnly the parameters detected during the previous sampling event were analyzed during this sampling event, in accordance with 40CFR § 257.95(d)(1).

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