2017 ANNUAL GROUNDWATER MONITORING AND CORRECTIVE ACTION REPORT
COAL COMBUSTION RESIDUALS (CCR) RULE
MARION POWER PLANT
WILLIAMSON COUNTY, ILLINOIS

Prepared for:

Southern Illinois Power Cooperative
11543 Lake of Egypt Road
Marion, Illinois

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CONTENTS

Section Page
1.0 INTRODUCTION ........................................................................................................................ 1
1.1 Site Background ......................................................................................................................... 1
2.0 2016 – 2017 ACTIVITIES SUMMARY ......................................................................................... 1
2.1 Certified Monitoring Well System .......................................................................................... 1
2.2 Baseline Sampling .................................................................................................................... 1
2.3 Detection Monitoring .............................................................................................................. 2
2.4 Statistical Method Certification .............................................................................................. 2
3.0 DATA EVALUATION ................................................................................................................... 2
3.1 Monitoring Well System ......................................................................................................... 2
3.2 Groundwater Flow .................................................................................................................. 2
3.3 Sampling Results ..................................................................................................................... 3
3.3.1 Baseline Sampling .............................................................................................................. 3
3.3.2 Detection Monitoring ...................................................................................................... 3
3.4 Statistical Evaluation .............................................................................................................. 3
3.5 Discussion and Conclusions .................................................................................................. 3
4.0 GENERAL INFORMATION ......................................................................................................... 3
4.1 Problems Encountered and Resolutions ............................................................................. 3
4.2 Actions Planned for 2018 ....................................................................................................... 4
5.0 REFERENCES ........................................................................................................................... 5

Table List
Table 1 Summary of Monitoring Well Construction
Table 2 Analytical Summary Table
Table 3 Groundwater Elevations
Table 4 Groundwater Flow Rates

List of Figures
Figure 1 General Location Map
Figure 2 Well Location Map

List of Appendices
Appendix A Monitoring Well Construction Logs
Appendix B Groundwater Flow Maps
1.0 INTRODUCTION

At the request of Southern Illinois Power Cooperative (SIPC), AECOM Technical Services, Inc. (AECOM) prepared this 2017 Annual Groundwater Monitoring and Corrective Action Report for the SIPC Marion Power Plant (Marion Plant), located near Marion, Illinois in accordance with the United States Environmental Protection Agency (USEPA) Final Rule 40 Code of Federal Regulations (CFR), Part 257.90. Sub-Part (e) (Rule). The Rule was established to regulate the disposal of Coal Combustion Residuals (CCR) produced by electricity generating facilities (USEPA, 2015).

This report summarizes all activities related to the CCR Rule groundwater monitoring program at the Marion Plant through 2017. The following sections present a site background summary, a discussion of field activities performed, a summary of laboratory results, statistical evaluation findings, and conclusions regarding groundwater conditions in the aquifer system subject to monitoring under the CCR Rule.

1.1 Site Background

The Marion Plant is situated on the northwestern shoreline of the Lake of Egypt, south of the town of Marion, Illinois. SIPC developed the 2300 acre lake for cooling water by damming the south fork of the Saline River. The Marion Plant is a coal-fired power plant and has been in operation since 1963. A general location map of the site is provided as Figure 1.

There is one settling pond on-site that has been identified as a potential surface impoundment subject to the CCR Rule. CCRs managed in the pond are generated from the, precipitator, boiler, scrubber and air heater washes during plant outages.

The impoundment is approximately 1.1 acres in size and approximately 8-feet deep.

2.0 2016 – 2017 ACTIVITIES SUMMARY

The following subsections describe the activities that were performed in 2017 for the Marion Plant related to the CCR Groundwater Monitoring Network.

2.1 Certified Monitoring Well System

Five monitoring wells were installed between February 7, 2017 and February 8, 2017 by Holcomb Engineering. AECOM was present onsite during well installation activities. A complete report of the well installation and details about the monitoring network are available in the Draft Monitoring Well Installation Report, Coal Combustion Residuals Rule, Marion Power Station, Williamson County, Illinois dated September 28, 2017.

Monitoring well locations are shown on Figure 2. Each well was installed into the upper portion of the uppermost aquifer underlying the site. At the Marion Plant, the uppermost aquifer is a shallow, hydraulically “perched” zone comprised of fill and residuum (sils and clays) from the weathering of bedrock, and is not considered a useable water source. Bedrock in the vicinity of the site consists of interbedded sandstone and shale, with minor amounts of limestone. This uppermost aquifer is marginal at best because of its shallow depth and contact with fill material. It was selected for monitoring because the geologic setting and local well records suggest there is no deeper usable aquifer below the site. Table 1 contains information regarding well locations and construction details. Well lithologic and construction logs are included as Appendix A.

The CCR monitoring network at the Marion Plant was reviewed and certified by a Professional Engineer as required by 40 Code of Federal Regulations (CFR) § 257.91(e)(1). A copy of the Groundwater Monitoring System Certification document will be made available on the public website for CCR Activities maintained by SIPC.
2.2 Baseline Groundwater Sampling

Eight Baseline groundwater sampling events were conducted at the Marion Plant between March 2017 and October 2017. The following table summarizes the dates of each of the sampling events for the baseline period and the wells included in the events.

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<th>Dates</th>
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<td>8</td>
<td>August 31, 2017</td>
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</table>

Monitoring wells were sampled by evacuating the wells and allowing groundwater recharge before sample collection. All wells were sampled for Appendix III and Appendix IV parameters in accordance with 40 CFR § 257.93. Results from the eight baseline events are summarized in Table 2.

2.4 Statistical Method Certification

As required by 40 CFR § 257.93(f)(6) a statistical program for evaluating statistically significant increases (SSI) over baseline levels is currently under development. The Statistical Methods Certification document details the selected method and will be made available on the public website for CCR Activities maintained by SIPC.

3.0 DATA EVALUATION

The following sections present details about the monitoring system, groundwater flow, groundwater sampling results, and statistical evaluation for the Marion Plant well network and datasets.

3.1 Monitoring Well System

The CCR monitoring well system at the Marion Plant contains one background monitoring well and four downgradient monitoring wells. Their locations are shown in Figure 2. Construction details for these monitoring wells are available in Table 1.

3.2 Groundwater Flow

Monitoring wells were gauged prior to collecting a sample at each well. A potentiometric surface map was created to confirm groundwater flow direction. A summary of groundwater measured elevations is included in Table 3 and groundwater flow maps for each event are included in Appendix B.

Generally, groundwater flow in the vicinity of Emery Pond is to the northeast. In the fifth through eighth sampling events groundwater flow shifted to the more easterly flow path.

Groundwater flow rate (i.e., velocity) estimates were calculated using the groundwater flow maps, estimated hydraulic conductivity and porosity values from nearby monitoring wells. Estimated groundwater velocities range from 0.0014 to 0.003 feet per day. These upper and lower range values are based on estimated hydraulic characteristics from a nearby monitoring well, which is located to the
southwest of the Emery Pond Impoundment. Table 4 contains groundwater flow rate calculations for each of the baseline sampling events.

3.3 Sampling Results

During 2017 a total of eight Baseline Monitoring events were completed. Discussion of the results from these sampling activities is presented in the following subsections.

3.3.1 Baseline Sampling

During the Baseline Sampling period, all wells were sampled for Appendix III and Appendix IV parameter lists. Constituents from both parameter lists were detected in all of the monitoring wells in all groundwater sampling events conducted. Analytical results from the Baseline Sampling are displayed in Table 2.

3.4 Statistical Evaluation

The first Detection Monitoring event for the Emery Pond was not complete as of the time of this annual report preparation. In the interim, a statistical evaluation using the Baseline dataset was conducted to identify any SSIs for the Appendix III parameters. The eighth baseline event data were compared to the previous seven events, which were considered the “baseline” data. Statistical methods were chosen in accordance with 40 CFR § 257.93(f)(1). Monitoring wells were evaluated using an interwell approach with monitoring well EBG used for background comparison. The well is located roughly upgradient of the Emery Pond surface impoundment. Rationale behind why each method was selected is outlined in Statistical Methods Certification Document. This document is under final development as of the preparation of this annual report. A copy of this document will be made available on the public website for CCR Activities maintained by SIPC.

Constituents with SSIs identified through the eight Baseline Monitoring events include:

- Boron, calcium, pH, sulfate and total dissolved solids (TDS) in EP-1
- Boron, calcium, sulfate and TDS in EP-2
- Calcium, chloride, sulfate, and TDS in EP-3
- Boron, calcium, chloride, sulfate, and TDS in EP-4

All SSIs are highlighted in Table 2.

3.5 Discussion and Conclusions

SIPC is preparing to conduct Detection Monitoring sampling in early 2018 for the Appendix III constituents at the monitoring wells listed in Section 2.2 above. Upon receipt of results from the confirmation sampling, SIPC will repeat the statistical evaluation tasks to determine if Assessment Monitoring is required.

4.0 GENERAL INFORMATION

The following sections summarize any problems encountered in the CCR program through 2017, any resolutions to those problems if needed and upcoming actions planned for 2018.

4.1 Problems Encountered and Resolutions

No problems were encountered during the 2017 reporting period.
4.2 Actions Planned for 2018

SIPC plans on performing semiannual Detection Monitoring sampling for Appendix III parameters at all monitoring wells prior to April 2018. Upon receiving the results of the detection monitoring event, an additional statistical evaluation will be completed. Based on the analytical results and updated statistical evaluation, the need for alternate source demonstration activities or corrective action evaluation will be evaluated. Any notifications required by 40 CRF § 257.94(e)(3) will be transmitted accordingly.
5.0 REFERENCES


Tables
## TABLE 1
SOUTHERN ILLINOIS POWER COOPERATIVE
MARION POWER PLANT
EMERY POND IMPOUNDMENT
MONITORING WELL CONSTRUCTION SUMMARY

| Well ID | Easting ¹ | Northing ¹ | Well Installation Date | TOC Elevation (ft MSL) ² | Ground Surface Elevation (ft MSL) ² | Stickup Height (ft bgs) | Total Depth (ft bgs) | Total Depth (ft BTOC) | Bottom Elevation (ft MSL) | Screen Length (feet) | Top of Screen Elevation (ft bgs) | Top of Screen (ft BTOC) | Bottom of Screen Elevation (ft MSL) | Bottom of Screen (ft BTOC) | Well Casing Material | Well Screen Material and Slot Size | Groundwater Flow Location | Program Use |
|---------|-----------|------------|------------------------|--------------------------|----------------------------------|------------------------|---------------------|----------------------|-------------------------|------------------|--------------------------|----------------------|-----------------------------|---------------------|------------------------|------------------------|-------------|
| EP-1    | 804691.174| 347046.306  | 2/7/2017               | 519.72                   | 517.07                          | 2.65                   | 31.00               | 33.65               | 486.07                  | 10               | 21                       | 23.65                 | 31                         | 53.85               | 496.07                  | 486.07                  | Downgradient  | Detection |
| EP-2    | 804709.408 | 347113.029  | 2/7/2017               | 513.79                   | 511.15                          | 2.64                   | 15.00               | 17.64               | 496.15                  | 10               | 5                        | 7.64                  | 15                         | 17.64               | 506.15                  | 496.15                  | Downgradient  | Detection |
| EP-3    | 804614.534 | 347245.080  | 2/7/2017               | 518.95                   | 516.24                          | 2.71                   | 26.50               | 29.21               | 499.74                  | 10               | 16.5                     | 19.21                 | 26.5                       | 29.21               | 506.15                  | 499.74                  | Downgradient  | Detection |
| EBG     | 804168.155 | 346358.140  | 2/8/2017               | 524.87                   | 521.74                          | 3.13                   | 25.00               | 28.13               | 496.74                  | 10               | 15                       | 18.13                 | 25                         | 28.13               | 506.74                  | 496.74                  | Background/Upgradient | Detection |

1. Easting/Northing and Elevation data provided by SIPC using the SIPC Control Network Horizontal and Vertical Datum as established by Clarida & Zeiger Engineering Co.

²: TOC - Top of Casing
R MSL - feet above Mean Sea Level
R BTOC - feet below top of casing
ft bgs - feet below ground surface
PVC - Polyvinyl Chloride

PVC - Schedule 40
2-inch Schedule 40 PVC and 0.01-inch slot

Marion Station - CDR Program
1 of 1
1/30/2018
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* statistically significant increase (≥50%) over baseline sampling using well specific and parameter specific statistical limits.

** Not detected

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**Appendix III Constituents**

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**Notes:**

- **TOC** = Top of casing
- **DTW** = Depth to water
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<td>7.20</td>
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<td>509.74</td>
<td>9.50</td>
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**TOC** = Top of casing  
**DTW** = Depth to water
<table>
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<th>Event</th>
<th>Groundwater Flow Direction</th>
<th>Hydraulic Conductivity (cm/sec)</th>
<th>Gradient (dh/dl)</th>
<th>DTW (upgradient)</th>
<th>DTW (downgradient)</th>
<th>Difference b/w head (ft)</th>
<th>Effective Porosity</th>
<th>Length (ft)</th>
<th>Max velocity (cm/sec)</th>
<th>Max velocity (ft/day)</th>
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<td>3.03</td>
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<td>7.28E-07</td>
<td>2.06E-03</td>
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<tr>
<td>6</td>
<td></td>
<td>0.020</td>
<td>510.72</td>
<td>507.79</td>
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<td>7.81E-07</td>
<td>2.21E-03</td>
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<td>507.39</td>
<td>2.03</td>
<td></td>
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<td>5.41E-07</td>
<td>1.53E-03</td>
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<td>4.88E-07</td>
<td>1.38E-03</td>
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</table>

cm/sec = Centimeters per second

References:

Porosity (%)

(a) Silt
35 - 50%

(b) Clay
33 - 60%
Figures
SOUTHERN ILLINOIS POWER COOPERATIVE
CARBONDALE
MARION
INTERSTATE 57
INTERSTATE 24
HIGHWAY 13
HIGHWAY 51

SCALE IN FEET
0
5000
10000
15000

60535846
MJC
MJC
SB
09/29/2017
10/2/2017
1" = 5000'

GENERAL LOCATION MAP
FIGURE 1

DATE
ISSUED FOR BIDDING
ISSUED FOR CONSTRUCTION
AECOM PROJECT NO:
DRAWN BY:
DESIGNED BY:

1001 Highlands Plaza
Drive West, Suite 300
St. Louis, Mo. 63110-1337
314 429-0100 (phone)
314 429-0462 (fax)

REVISIONS

CHECKED BY:

PLOT DATE:

SCALE:

ACAD VER:

DATE CREATED:

SOUTHERN ILLINOIS POWER COOPERATIVE

MARION POWER PLANT
MARION, ILLINOIS
GROUNDWATER MONITORING WELLS

PRELIMINARY
NOT FOR CONSTRUCTION

DATE
ISSUED FOR BIDDING
ISSUED FOR CONSTRUCTION
AECOM PROJECT NO:
DRAWN BY:
DESIGNED BY:

11543 Lake of Egypt Road
Marion, Illinois 62959
(618) 964-1867

USGS QUADRANGLE MAPS
CARBONDALE, ILLINOIS
CRAB ORCHARD LAKE, ILLINOIS
GOREVILLE, ILLINOIS
LAKE GENEVA, ILLINOIS
MARION, ILLINOIS
MANNING, ILLINOIS

MARION, ILLINOIS

PROJECT LOCATION

STATE MAP
NOT TO SCALE

NOT FOR CONSTRUCTION

FIGURE 1
Appendix A

Monitoring Well Construction Logs
Brownish tan, clayey SILT, stiff, non-plastic, moist (ML)

Brownish tan silty CLAY, very soft, medium to high plasticity, moist (CL) becomes low to medium plasticity

becomes brown/orange/gray, trace black fines, low plasticity

trace rust colored oxidation with red mottling

SHALE, gray

Boring terminated at 25.0 ft. bgs on 2/7/2017.

Monitoring well installed to 25.0 ft. bgs on 2/7/2017.

NR = Not Recorded
Date(s) Drilled and Installed: 2/7/2017
Logged By: Suzanne Dale
Reviewed By:

Drilling Method: Hollow Stem Auger
Drilling Contractor: Holcomb Engineering
Total Depth of Borehole: 31.0 feet, bgs

Sampling Method: Split Spoon
Water Level TOIC: Not measured
TOC Elevation Ground Surface: 519.72 ft, msl

Size and Type of Well Casing: 2-Inch Schedule 40 PVC
Screen Perforation: 0.010 - inch
Northing (Plant): 347042.306 ft
Easting (Plant): 804661.174 ft

Seal or Backfill: Bentonite Chips

Elevation, feet msl
Depth, feet bgs
Sample Interval
% Recovery
USCS Code
USCS Graphic Symbol

<table>
<thead>
<tr>
<th>Elevation, feet msl</th>
<th>Depth, feet bgs</th>
<th>Sample Interval</th>
<th>% Recovery</th>
<th>USCS Code</th>
<th>USCS Graphic Symbol</th>
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<tbody>
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<td>0</td>
<td></td>
<td>NR Topsoil</td>
<td></td>
<td></td>
<td></td>
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<tr>
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<td></td>
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<tr>
<td>10</td>
<td></td>
<td>NR CL</td>
<td></td>
<td></td>
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<tr>
<td>15</td>
<td></td>
<td>NR ML</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>20</td>
<td></td>
<td>NR SP</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>25</td>
<td></td>
<td>NR SNOSTN</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>30</td>
<td></td>
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<tr>
<td>50</td>
<td></td>
<td>NR</td>
<td></td>
<td></td>
<td></td>
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</table>

**MATERIAL DESCRIPTION**

- Black TOPSOIL, moist
- Brownish tan silty CLAY, moist, medium plasticity (CL)
- Becomes orangish with trace coarse sand and gravel, with rust colored mottles
- Becomes very stiff
- Becomes medium-stiff, low plasticity
- Brownish tan silty CLAY, moist, medium plasticity (ML)
- Red orange SAND with orange-brown silty clay, moist (SP)
- SANDSTONE, with interbedded limestone and shale

**WELL CONSTRUCTION DETAILS**

- Riser with protective casing and locking cap
- Bentonite Chips
- Filter Sand
- 2.0" diameter SCH 40 PVC Riser
- 2.0" diameter SCH 40 PVC, 0.010" Slotted Screen

Boring terminated at 31.0 ft, bgs on 2/7/2017.
* Monitoring well installed to 31.0 ft, bgs on 2/7/2017.
NR = Not Recorded
Asphalt and GRAVEL (FILL)Brown to tan silty CLAY, medium stiff, moist (CL)brown to tan silty CLAY, soft to medium, medium to high plasticity, moist (CL)medium plasticity, with rust color oxidation, trace sand and gravel

Tan clayey SILT, stiff, low plasticity, moist (ML)

SANDSTONE

Sample Interval 30 ft

Sample Code Fill

USCS Code CL

USCS Symbol Asphalt and GRAVEL (FILL)

MATERIAL DESCRIPTION

Boring terminated at 15.0 ft. bgs on 2/7/2017.
Monitoring well installed to 15.0 ft. bgs on 2/7/2017.
NR = Not Recorded
Date(s) Drilled and Installed: 2/8/2017
Logged By: Suzanne Dale
Reviewed By:

Drilling Method: Hollow Stem Auger
Drilling Contractor: Holcomb Engineering
Total Depth of Borehole: 26.5 feet, bgs

Monitoring well installed to 26.5 ft. bgs on 2/8/2017.

Sampling Method: Split Spoon
Water Level: Not measured
TOIC Elevation: 518.95 ft, msl

Screen Perforation: 0.010 - inch
Northing (Plant): 347245.08 ft
Easting (Plant): 804814.534 ft

Boring terminated at 26.5 ft. bgs on 2/8/2017.
Monitoring well installed to 26.5 ft. bgs on 2/8/2017.
*NR = Not Recorded

### MATERIAL DESCRIPTION

**USCS Code**

- NR
- Fill
- ML
- CL
- SNDSTN

**Sample Interval**

- 0
- 5
- 10
- 15
- 20
- 25
- 30
- 35
- 40
- 45
- 50
- 55
- 60

**USCS Symbol**

- GRAVEL (FILL)
- Brown clayey SILT, moist (ML)
- Olive green to gray silty CLAY, trace sand, medium, low to medium plasticity, moist (CL)
- 2 inch layer of cinders, clay becomes tan-brown
- becomes loose, moist, brown/gray/tan, with gravel, some sand and cinders
- Light gray to tan clayey SILT, stiff, low plasticity, moist (ML)
- Gray SILT, trace clay, stiff, non-plastic, moist (ML)
- Gray silty CLAY with yellow-gold gypsum, moist to wet (CL)
- SANDSTONE

**SNDSTN**

- 2.0" diameter SCH 40 PVC Riser with protective casing and locking cap
- 0.010" Slotted Screen
- Filter Sand
- 2.0" diameter SCH 40 PVC Riser
- Bentonite Chips
- Concrete

**Screen Perforation**

- 0.010 - inch

**Peat Location**

- 2/8/2017

**Peat Elevation, feet msl**

- 0
- 5
- 10
- 15
- 20
- 25
- 30
- 35
- 40
- 45
- 50
- 55
- 60

**Sample Interval**

- 0
- 5
- 10
- 15
- 20
- 25
- 30
- 35
- 40
- 45
- 50
- 55
- 60

**USCS Symbol**

- GRAVEL (FILL)
- Brown clayey SILT, moist (ML)
- Olive green to gray silty CLAY, trace sand, medium, low to medium plasticity, moist (CL)
- 2 inch layer of cinders, clay becomes tan-brown
- becomes loose, moist, brown/gray/tan, with gravel, some sand and cinders
- Light gray to tan clayey SILT, stiff, low plasticity, moist (ML)
- Gray SILT, trace clay, stiff, non-plastic, moist (ML)
- Gray silty CLAY with yellow-gold gypsum, moist to wet (CL)
- SANDSTONE

**SNDSTN**

- 2.0" diameter SCH 40 PVC Riser with protective casing and locking cap
- 0.010" Slotted Screen
- Filter Sand
- 2.0" diameter SCH 40 PVC Riser
- Bentonite Chips
- Concrete

**Screen Perforation**

- 0.010 - inch

**Peat Location**

- 2/8/2017

**Peat Elevation, feet msl**

- 0
- 5
- 10
- 15
- 20
- 25
- 30
- 35
- 40
- 45
- 50
- 55
- 60
**Log of EP-4**

**Sheet 1 of 1**

**Date(s) Drilled and Installed**: 2/8/2017  
**Logged By**: Suzanne Dale  
**Reviewed By**:  

**Drilling Method**: Hollow Stem Auger  
**Drilling Contractor**: Holcomb Engineering  
**Total Depth of Borehole**: 18.5 feet, bgs  

**Sampling Method**: Split Spoon  
**Water Level TOIC**: Not measured  
**TOC Elevation**: 519.74 ft, msl  
**Ground Surface**: 517.07 ft, msl  

**Size and Type of Well Casing**: 2-Inch Schedule 40 PVC  
**Screen Perforation**: 0.010 - inch  
**Boring terminated at 19.5 ft. bgs on 2/8/2017.**  
**Monitoring well installed to 18.5 ft. bgs on 2/8/2017.**  
**NR = Not Recorded**

---

### SAMPLES

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<th>Elevation, feet msl</th>
<th>Depth, feet bgs</th>
<th>Sample Interval</th>
<th>% Recovery</th>
<th>USCS Code</th>
<th>USCS Graphic Symbol</th>
<th>WELL CONSTRUCTION DETAILS</th>
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<td>NR</td>
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<td>NR</td>
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<td>NR</td>
<td>Brown silty CLAY with some gravel, high plasticity, moist to wet (CL)</td>
<td>Bentonite Chips</td>
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<td>NR</td>
<td>becomes brown-gray, with some layering of black fine sand, high plasticity</td>
<td>Filter Sand</td>
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<tr>
<td>500</td>
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<td></td>
<td>NR</td>
<td>becomes wet</td>
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<tr>
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<td></td>
<td>NR</td>
<td>becomes tan-gray, moist to wet, high plasticity</td>
<td>Filter Sand</td>
</tr>
<tr>
<td>500</td>
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<td>NR</td>
<td></td>
<td>NR</td>
<td>becomes brown/tan/gray, trace fine sand</td>
<td>Filter Sand</td>
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<td>20</td>
<td></td>
<td>NR</td>
<td></td>
<td>NR</td>
<td>SHALE, gray</td>
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**Elevation, feet msl**  
**Depth, feet bgs**  
**Sample Interval**  
**% Recovery**  
**USCS Code**  
**USCS Graphic Symbol**  
**WELL CONSTRUCTION DETAILS**  

---

**CONSTRUCTION DETAILS**

- **Concrete**
- **Bentonite Chips**
- **Filter Sand**
- **Riser with protective casing and locking cap**

---

**Client: Southern Illinois Power Cooperative**  
**Project Name: SIPC Marion CCR**  
**Project Location: SIPC Marion**  
**Project Number: 60535846**  

---

**SIPC MARION SIPC MARION.GPJ  10/9/17**

**Log of EP-4**

**Sheet 1 of 1**

---

**Client: Southern Illinois Power Cooperative**  
**Project Name: SIPC Marion CCR**  
**Project Location: SIPC Marion**  
**Project Number: 60535846**  

---

**Client: Southern Illinois Power Cooperative**  
**Project Name: SIPC Marion CCR**  
**Project Location: SIPC Marion**  
**Project Number: 60535846**  

---

**SIPC MARION SIPC MARION.GPJ  10/9/17**
Appendix B

Groundwater Flow Maps
Legend

- Groundwater Monitoring Well

- Inferred Direction of Groundwater Flow

Legend

- Groundwater Monitoring Well

- Solid

- Inferred Direction of Groundwater Flow

APPENDIX B

EVENT 1

EMORY POND POTENTIOMETRIC

SURFACE MAP MARCH 24, 2017

DATE: 1/22/2018

1 inch = 200 feet

CREATED BY: TA

CHECKED BY: DPC

JOB NO. 60530546
Inferred Direction of Groundwater Flow

Legend
- Groundwater Monitoring Well
- Groundwater Contour (ft, msl)
- Inferred Groundwater Contour (ft, msl)
- Inferred Direction of Groundwater Flow

MARION POWER PLANT
APPENDIX B
EVENT 4
EMORY POND POTENTIOMETRIC
SURFACE MAP JUNE 22, 2017

JOB NO. 60535846
DATE: 1/22/2018
CREATED BY: TA
CHECKED BY: DPC
1 inch = 200 feet