

# 2020 ANNUAL GROUNDWATER MONITORING AND CORRECTIVE ACTION REPORT

## SLAG SETTLING IMPOUNDMENT SIBLEY GENERATING STATION SIBLEY, MISSOURI

Presented To:  
Evergy Missouri West, Inc.

**SCS ENGINEERS**

27213169.20 | January 2021

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## CERTIFICATIONS

I, John R. Rockhold, being a qualified groundwater scientist and Registered Geologist in the State of Missouri, do hereby certify that the 2020 Annual Groundwater Monitoring and Corrective Action Report for the Slag Settling Impoundment at the Sibley Generating Station was prepared by me or under my direct supervision and fulfills the requirements of 40 CFR 257.90(e).

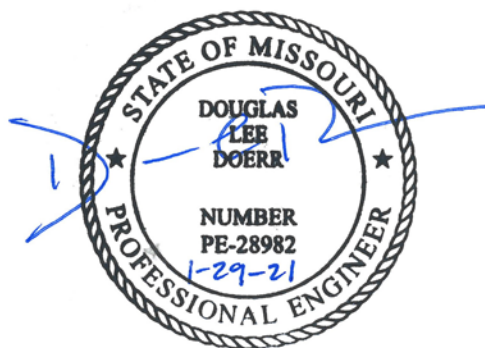


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John R. Rockhold, R.G.

SCS Engineers

I, Douglas L. Doerr, being a qualified licensed Professional Engineer in the State of Missouri, do hereby certify that the 2020 Annual Groundwater Monitoring and Corrective Action Report for the Slag Settling Impoundment at the Sibley Generating Station was prepared by me or under my direct supervision and fulfills the requirements of 40 CFR 257.90(e).



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Douglas L. Doerr, P.E.

SCS Engineers

# 2020 Groundwater Monitoring and Corrective Action Report

Revision Number	Revision Date	Revision Section	Summary of Revisions

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## 1 INTRODUCTION

This 2020 Annual Groundwater Monitoring and Corrective Action Report was prepared to support compliance with the groundwater monitoring requirements of the “Coal Combustion Residuals (CCR) Final Rule” (Rule) published by the United States Environmental Protection Agency (USEPA) in the *Hazardous and Solid Waste Management System; Disposal of Coal Combustion Residuals from Electric Utilities; Final Rule*, dated April 17, 2015 (USEPA, 2015), and subsequent revisions. Specifically, this report was prepared for Evergy Missouri West, Inc. (Evergy) to fulfill the requirements of 40 CFR 257.90 (e). The applicable sections of the Rule are provided below in *italics*, followed by applicable information relative to the 2020 Annual Groundwater Monitoring and Corrective Action Report for the Slag Settling Impoundment at the Sibley Generating Station.

### 1.1 § 257.90(e)(6) SUMMARY

*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:*

#### 1.1.1 § 257.90(e)(6)(i) Initial Monitoring Program

*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;*

At the start of the current annual reporting period, (January 1, 2020), the CCR Impoundment was operating under a detection monitoring program in compliance with § 257.94.

#### 1.1.2 § 257.90(e)(6)(ii) Final Monitoring Program

*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;*

At the end of the current annual reporting period, (December 31, 2020), the CCR Impoundment was not operating under a detection monitoring program or an assessment monitoring program. Following the CCR removal, post-CCR removal groundwater sampling events took place on May 12, 2020 and July 28, 2020. The CCR Impoundment was certified closed August 28, 2020, in accordance with 40 CFR 257.102 (c) Closure by Removal of CCR.

#### 1.1.3 § 257.90(e)(6)(iii) Statistically Significant Increases

*If it was determined that there was a statistically significant increase over background for one or more constituents listed in Appendix III to this part pursuant to § 257.94(e):*

*(A) Identify those constituents listed in Appendix III to this part and the names of the monitoring wells associated with such an increase; and*

Not applicable because statistically significant increases over background were not identified.

(B) Provide the date when the assessment monitoring program was initiated for the CCR unit.

Not applicable because an assessment monitoring program was not initiated.

#### 1.1.4 § 257.90(e)(6)(iv) Statistically Significant Levels

*If it was determined that there was a statistically significant level above the groundwater protection standard for one or more constituents listed in Appendix IV to this part pursuant to § 257.95(g) include all of the following:*

(A) Identify those constituents listed in Appendix IV to this part and the names of the monitoring wells associated with such an increase;

Not applicable because there was no assessment monitoring conducted.

(B) Provide the date when the assessment of corrective measures was initiated for the CCR unit;

Not applicable because there was no assessment of corrective measures initiated for the CCR Unit.

(C) Provide the date when the public meeting was held for the assessment of corrective measures for the CCR unit; and

Not applicable because there was no assessment of corrective measures initiated for the CCR Unit.

(D) Provide the date when the assessment of corrective measures was completed for the CCR unit.

Not applicable because there was no assessment of corrective measures initiated for the CCR Unit.

#### 1.1.5 § 257.90(e)(6)(v) Selection of Remedy

*Whether a remedy was selected pursuant to § 257.97 during the current annual reporting period, and if so, the date of remedy selection; and*

Not applicable because corrective measures are not required.

#### 1.1.6 § 257.90(e)(6)(vi) Remedial Activities

*Whether remedial activities were initiated or are ongoing pursuant to § 257.98 during the current annual reporting period.*

Not applicable because corrective measures are not required.

## 2 § 257.90(E) ANNUAL REPORT REQUIREMENTS

***Annual groundwater monitoring and corrective action report.*** For existing CCR landfills and existing CCR surface impoundments, no later than January 31, 2018, and annually thereafter, the owner or operator must prepare an annual groundwater monitoring and corrective action

report. For new CCR landfills, new CCR surface impoundments, and all lateral expansions of CCR units, the owner or operator must prepare the initial annual groundwater monitoring and corrective action report no later than January 31 of the year following the calendar year a groundwater monitoring system has been established for such CCR unit as required by this subpart, and annually thereafter. For the preceding calendar year, the annual report must document the status of the groundwater monitoring and corrective action program for the CCR unit, summarize key actions completed, describe any problems encountered, discuss actions to resolve the problems, and project key activities for the upcoming year. For purposes of this section, the owner or operator has prepared the annual report when the report is placed in the facility's operating record as required by § 257.105(h)(1). At a minimum, the annual groundwater monitoring and corrective action report must contain the following information, to the extent available:

### 2.1 § 257.90(E)(1) SITE MAP

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;

A site map with an aerial image showing the Slag Settling Impoundment and all background (or upgradient) and downgradient monitoring wells with identification numbers for the Slag Settling Impoundment groundwater monitoring program is provided as **Figure 1** in **Appendix A**.

### 2.2 § 257.90(E)(2) MONITORING SYSTEM CHANGES

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;

No new monitoring wells were installed and no wells were decommissioned as part of the CCR groundwater monitoring program for the Slag Settling Impoundment in 2020.

### 2.3 § 257.90(E)(3) SUMMARY OF SAMPLING EVENTS

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;

Detection monitoring was conducted during the reporting period (2020) for the Spring 2020 semiannual event only. Samples collected during the Spring 2020 event were collected and analyzed for Appendix III detection monitoring constituents as indicated in **Appendix B, Table 1** (Appendix III Detection with Post-CCR Removal Appendix IV Monitoring Results), and **Table 2** (Detection Monitoring Field Measurements). Additionally, in preparation for Slag Settling Impoundment certification of closure by removal, post-CCR removal monitoring was conducted with the Spring 2020 event. This event required the sampling of Appendix IV constituents as indicated in **Appendix B, Table 1**. An additional post-CCR removal event was completed on July 28, 2020 for select Appendix IV constituents. These tables include Fall 2019 semiannual detection monitoring event verification sample data collected and analyzed in 2020; Spring 2020 semiannual detection monitoring data, verification sample data, and post-CCR removal Appendix IV data; and, additional July 2020 post-CCR removal data. The dates of sample collection and the monitoring program requiring the sample are also provided in these tables.

## 2.4 § 257.90(E)(4) MONITORING TRANSITION NARRATIVE

*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); and*

There was no transition between monitoring programs in 2020. Only detection monitoring was conducted in 2020. However, post-CCR removal monitoring events were conducted in May and July 2020 following CCR removal in preparation for certification of closure by removal.

## 2.5 § 257.90(e)(5) OTHER REQUIREMENTS

*Other information required to be included in the annual report as specified in §§ 257.90 through 257.98.*

A summary of potentially required information and the corresponding section of the Rule is provided in the following sections. In addition, the information, if applicable, is provided.

### 2.5.1 § 257.90(e) Program Status

*Status of Groundwater Monitoring and Corrective Action Program.*

The groundwater monitoring and corrective action program was in detection monitoring until CCR removal from the Impoundment at which time post CCR removal sampling was performed.

*Summary of Key Actions Completed.*

- a. completion of the statistical evaluation of the Fall 2019 semiannual detection monitoring sampling and analysis event per the certified statistical method,
- b. completion of the 2019 Annual Groundwater Monitoring and Corrective Action Report,
- c. completion of the Spring 2020 semiannual detection monitoring sampling and analysis event, and subsequent verification sampling per the certified statistical method,
- d. completion of the statistical evaluation of the Spring 2020 semiannual detection monitoring sampling and analysis event per the certified statistical method, and
- e. post-CCR removal sampling and analysis events in May and July 2020 in preparation for certification of closure by removal.
- f. CCR Impoundment certification of closure by CCR removal.

*Description of Any Problems Encountered.*

No noteworthy problems were encountered.

*Discussion of Actions to Resolve the Problems.*

Not applicable because no noteworthy problems were encountered.



*Projection of Key Activities for the Upcoming Year (2021).*

Not applicable because the Slag Settling Impoundment has been certified closed, and no further groundwater monitoring is required.

2.5.2 § 257.94(d)(3) Demonstration for Alternative Detection Monitoring Frequency

*The owner or operator must obtain a certification from a qualified professional engineer or approval from the Participating State Director or approval from EPA where EPA is the permitting authority stating that the demonstration for an alternative groundwater sampling and analysis frequency meets the requirements of this section. The owner or operator must include the demonstration providing the basis for the alternative monitoring frequency and the certification by a qualified professional engineer or the approval from the Participating State Director or approval from EPA where EPA is the permitting authority in the annual groundwater monitoring and corrective action report required by § 257.90(e).*

Not applicable because no alternative monitoring frequency for detection monitoring and certification was pursued.

2.5.3 § 257.94(e)(2) Detection Monitoring Alternate Source Demonstration

*Demonstration that a source other than the CCR unit caused the statistically significant increase (SSI) over background levels for a constituent or that the SSI resulted from error in sampling, analysis, statistical evaluation, or natural variation in groundwater quality. In addition, certification of the demonstration is to be included in the annual report.*

Not applicable because no such demonstration was conducted.

2.5.4 § 257.95(c)(3) Demonstration for Alternative Assessment Monitoring Frequency

*The owner or operator must obtain a certification from a qualified professional engineer or approval from the Participating State Director or approval from EPA where EPA is the permitting authority stating that the demonstration for an alternative groundwater sampling and analysis frequency meets the requirements of this section. The owner or operator must include the demonstration providing the basis for the alternative monitoring frequency and the certification by a qualified professional engineer or the approval from the Participating State Director or the approval from EPA where EPA is the permitting authority in the annual groundwater monitoring and corrective action report required by § 257.90(e).*

Not applicable because there was no assessment monitoring conducted.

### 2.5.5 § 257.95(d)(3) Assessment Monitoring Concentrations and Groundwater Protection Standards

*Include the concentrations of Appendix III and detected Appendix IV constituents from the assessment monitoring, the established background concentrations, and the established groundwater protection standards.*

Not applicable because there was no assessment monitoring conducted.

### 2.5.6 § 257.95(g)(3)(ii) Assessment Monitoring Alternate Source Demonstration

*Demonstrate that a source other than the CCR unit caused the contamination, or that the statistically significant increase resulted from error in sampling, analysis, statistical evaluation, or natural variation in groundwater quality. Any such demonstration must be supported by a report that includes the factual or evidentiary basis for any conclusions and must be certified to be accurate by a qualified professional engineer. If a successful demonstration is made, the owner or operator must continue monitoring in accordance with the assessment monitoring program pursuant to this section, and may return to detection monitoring if the constituents in appendices III and IV to this part are at or below background as specified in paragraph (e) of this section. The owner or operator must also include the demonstration in the annual groundwater monitoring and corrective action report required by § 257.90(e), in addition to the certification by a qualified professional engineer or the approval from the Participating State Director or approval from EPA where EPA is the permitting authority.*

Not applicable because there was no assessment monitoring conducted.

### 2.5.7 § 257.96(a) Demonstration for Additional Time for Assessment of Corrective Measures

*Within 90 days of finding that any constituent listed in appendix IV to this part has been detected at a statistically significant level exceeding the groundwater protection standard defined under § 257.95(h), or immediately upon detection of a release from a CCR unit, the owner or operator must initiate an assessment of corrective measures to prevent further releases, to remediate any releases and to restore affected area to original conditions. The assessment of corrective measures must be completed within 90 days, unless the owner or operator demonstrates the need for additional time to complete the assessment of corrective measures due to site-specific conditions or circumstances. The owner or operator must obtain a certification from a qualified professional engineer attesting that the demonstration is accurate. The 90-day deadline to complete the assessment of corrective measures may be extended for no longer than 60 days. The owner or operator must also include the demonstration in the annual groundwater monitoring and corrective action report required by § 257.90(e), in addition to the certification by a qualified professional engineer or the approval from the Participating State Director or approval from EPA where EPA is the permitting authority.*

Not applicable because there was no assessment monitoring conducted.

## 2.6 § 257.90(e)(6) OVERVIEW SUMMARY

*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.*

§ 257.90(e)(6) is addressed in Section 1.1 of this report.

### 3 GENERAL COMMENTS

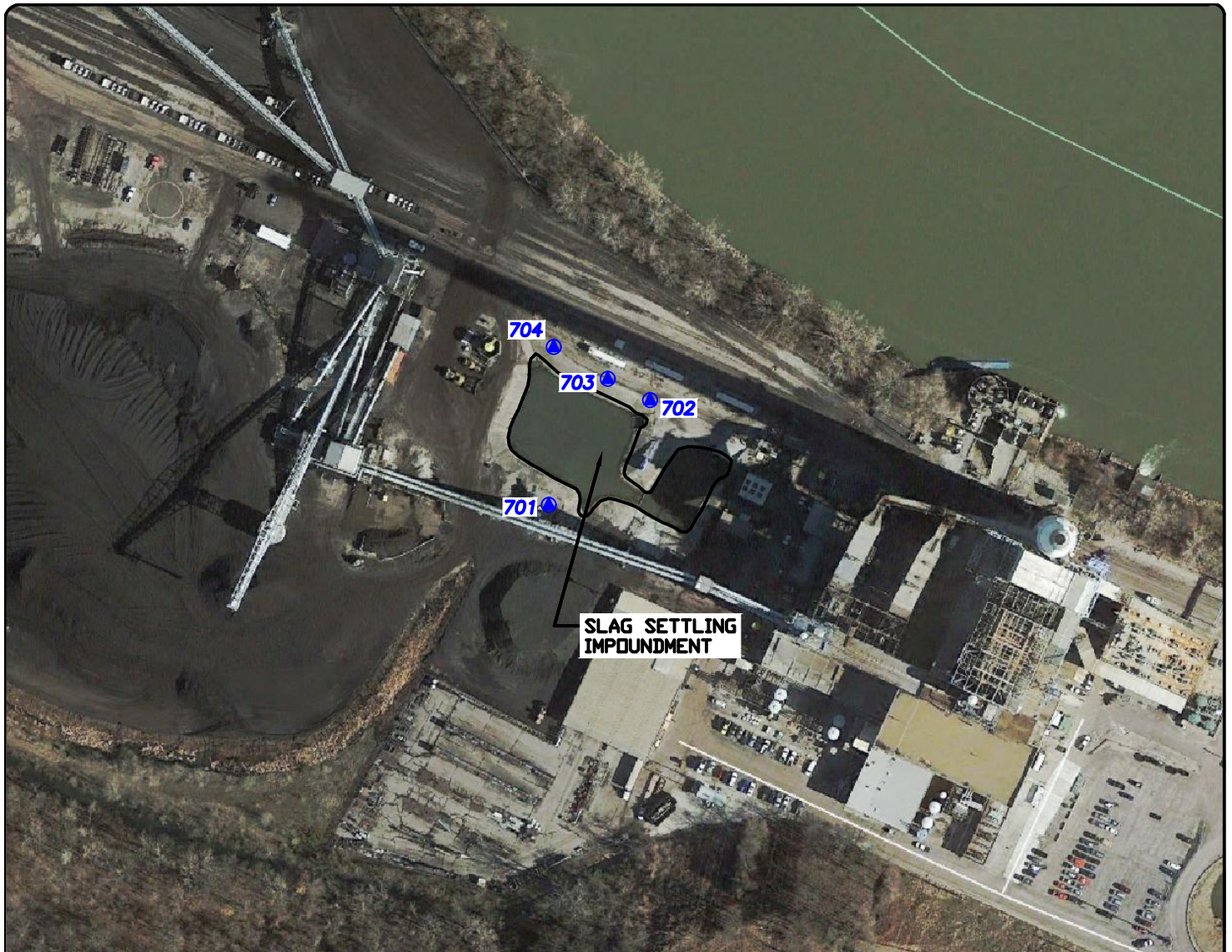
This report has been prepared and reviewed under the direction of a qualified groundwater scientist and qualified professional engineer. The information contained in this report is a reflection of the conditions encountered at the Sibley Generating Station at the time of fieldwork. This report includes a review and compilation of the required information and does not reflect any variations of the subsurface, which may occur between sampling locations. Actual subsurface conditions may vary and the extent of such variations may not become evident without further investigation.

Conclusions drawn by others from the result of this work should recognize the limitation of the methods used. Please note that SCS Engineers does not warrant the work of regulatory agencies or other third parties supplying information used in the assimilation of this report. This report is prepared in accordance with generally accepted environmental engineering and geological practices, within the constraints of the client's directives. It is intended for the exclusive use of Evergy Missouri West, Inc. for specific application to the Sibley Generating Station Slag Settling Impoundment. No warranties, express or implied, are intended or made.

## APPENDIX A

### FIGURES

#### Figure 1: Site Map



**LEGEND:**

- 701 CCR GROUNDWATER MONITORING SYSTEM WELLS
- CCR UNIT BOUNDARY



**NOTES:**

1. HORIZONTAL & VERTICAL DATUM: URS PLANS FOR CONSTRUCTION, KCP&L SIBLEY GENERATING STATION, DESIGN FILE 16530511.00001, DATED JANUARY 2010
2. GOOGLE EARTH AERIAL IMAGE, MARCH 2015. MONITOR WELL LOCATIONS ARE APPROXIMATE.
3. BOUNDARY AND MONITORING WELL WELL LOCATIONS SHOWN ARE APPROXIMATE.

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EVERGY MISSOURI WEST, INC  
 SIBLEY SLAG SETTLING IMPOUNDMENT  
 SIBLEY GENERATING STATION

2020 GROUNDWATER MONITORING AND CORRECTIVE ACTION REPORT

CHK. BY: JRR	DWN. BY: TGW	DSN. BY: TGW	PROJ. NO. 27213169.19
PROJ. MGR: JRR	DATE: 1/07/20	CADD FILE: FIG 1 - SIBLEY SLAG IMP2019.DWG	FIG. NO. 1

## APPENDIX B

### TABLES

Table 1: Appendix III Detection and Post-CCR Removal Appendix IV  
Monitoring Results

Table 2: Detection Monitoring Field Measurements

**Table 1**  
**Slag Settling Impoundment**  
**Appendix III Detection with Post-CCR Removal Appendix IV Monitoring Results**  
**Evergy Sibley Generating Station**

Well Number	Sample Date	Appendix III Constituents							Appendix IV Constituents														
		Boron (mg/L)	Calcium (mg/L)	Chloride (mg/L)	Fluoride (mg/L)	pH (S.U.)	Sulfate (mg/L)	Dissolved Solids (mg/L)	Antimony (mg/L)	Arsenic (mg/L)	Barium (mg/L)	Beryllium (mg/L)	Cadmium (mg/L)	Chromium (mg/L)	Cobalt (mg/L)	Fluoride (mg/L)	Lead (mg/L)	Lithium (mg/L)	Mercury (mg/L)	Molybdenum (mg/L)	Selenium (mg/L)	Thallium (mg/L)	Radium Combined (pCi/L)
MW-701	5/12/2020	<0.200	85.7	8.53	<0.150	7.11	12.8	294	<0.00400	0.00273	0.184	<0.00200	<0.00100	<0.0100	<0.0100	<0.150	<0.00500	<0.0150	<0.000200	<0.00500	<0.00200	<0.00200	0.164
MW-701	7/28/2020	---	---	---	---	**7.13	---	---	---	---	---	---	---	<0.00200	---	---	---	---	---	---	---	---	---
MW-702	5/12/2020	<0.200	88.1	8.29	<0.150	7.15	17.5	250	<0.00400	0.00604	0.282	<0.00200	<0.00100	<0.0100	<0.0100	<0.150	<0.00500	0.0152	<0.000200	<0.00500	<0.00200	<0.00200	0.202
MW-702	7/28/2020	---	---	---	---	**7.56	---	---	---	---	---	---	---	<0.00200	---	---	---	---	---	---	---	---	---
MW-703	5/12/2020	0.724	135	19.8	0.263	7.07	<5.00	480	<0.00400	0.177	0.269	<0.00200	<0.00100	<0.0100	<0.0100	0.263	<0.00500	0.0172	<0.000200	<0.00500	<0.00200	<0.00200	0.308
MW-703	7/28/2020	---	---	---	---	**7.30	---	---	---	---	---	---	---	<0.00200	---	---	---	---	---	---	---	---	---
MW-704	5/12/2020	<0.200	87.5	11.1	0.191	7.08	15.4	283	<0.00400	0.00203	0.154	<0.00200	<0.00100	<0.0100	<0.0100	0.191	<0.00500	<0.0150	<0.000200	0.00801	<0.00200	<0.00200	1.04
MW-704	6/10/2020	---	---	---	*0.182	**7.06	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
MW-704	7/14/2020	---	---	---	*0.162	**7.26	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
MW-704	7/28/2020	---	---	---	---	**7.18	---	---	---	---	---	---	---	<0.00200	---	---	---	---	---	---	---	---	---

\* Verification Sample obtained per certified statistical method and Statistical Analysis of Groundwater Monitoring Data at RCRA Facilities, Unified Guidance, March 2009.

\*\*Extra Sample for Quality Control Validation or per Standard Sampling Procedure

mg/L - milligrams per liter

pCi/L - picocuries per liter

S.U. - Standard Units

--- Not Sampled

**Table 2**  
**Slag Settling Impoundment**  
**Detection Monitoring Field Measurements**  
**Evergy Sibley Generating Station**

Well Number	Sample Date	pH (S.U.)	Specific Conductivity (µS)	Temperature (°C)	Turbidity (NTU)	ORP (mV)	DO (mg/L)	Water Level (ft btoc)	Groundwater Elevation (ft NGVD)
MW-701	5/12/2020	7.11	528	15.76	0.0	35	1.39	16.81	710.45
MW-701	7/28/2020	**7.13	508	20.31	5.8	120	2.53	17.28	709.98
MW-702	5/12/2020	7.15	553	15.26	0.0	-94	0.00	21.44	705.85
MW-702	7/28/2020	**7.56	530	17.98	9.9	-173	0.00	22.05	705.24
MW-703	5/12/2020	7.07	1110	15.20	0.0	-158	0.00	21.14	706.17
MW-703	7/28/2020	**7.30	1040	18.51	9.3	-227	0.00	21.67	705.64
MW-704	5/12/2020	7.08	547	14.93	3.1	79	0.00	21.13	706.52
MW-704	6/10/2020	**7.06	519	18.61	0.0	182	0.00	21.36	706.29
MW-704	7/14/2020	**7.26	495	18.22	0.0	40	2.09	22.90	704.75
MW-704	7/28/2020	**7.18	556	19.21	0.5	-29	0.00	21.64	706.01

\* Verification Sample obtained per certified statistical method and Statistical Analysis of Groundwater Monitoring Data at RCRA Facilities, Unified Guidance, March 2009.

\*\*Extra Sample for Quality Control Validation or per Standard Sampling Procedure

S.U. - Standard Units

µS - microsiemens

°C - Degrees Celsius

ft btoc - Feet Below Top of Casing

ft NGVD - National Geodetic Vertical Datum (NAVD 88)

NTU - Nephelometric Turbidity Unit