

2020-2021 ANNUAL GROUNDWATER MONITORING AND CORRECTIVE ACTION REPORT

ASH IMPOUNDMENT IATAN GENERATING STATION PLATTE COUNTY, MISSOURI

Presented To:
Evergy Metro, Inc.

SCS ENGINEERS

27213167.21 | July 2021
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913-681-0030

CERTIFICATIONS

I, John R. Rockhold, being a qualified groundwater scientist and Registered Geologist in the State of Missouri, do hereby certify that the 2020-2021 Annual Groundwater Monitoring and Corrective Action Report for the Ash Impoundment at the Iatan Generating Station was prepared by me or under my direct supervision and fulfills the requirements of 40 CFR 257.90(e).



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 2020-2021 Annual Groundwater Monitoring and Corrective Action Report for the Ash Impoundment at the Iatan Generating Station was prepared by me or under my direct supervision and fulfills the requirements of 40 CFR 257.90(e).



Douglas L. Doerr, P.E.

SCS Engineers

2020-2021 Groundwater Monitoring and Corrective Action Report

Revision Number	Revision Date	Revision Section	Summary of Revisions

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(December 28, 2020).

1 INTRODUCTION

This 2020-2021 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 Metro, 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 2020-2021 Annual Groundwater Monitoring and Corrective Action Report for the Ash Impoundment at the Iatan 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 (August 1, 2020), the Ash 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 (June 30, 2021), the Ash Impoundment was operating under an assessment monitoring program in compliance with § 257.95.

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

Monitoring Event	Monitoring Well	Constituent	ASD
Spring 2020	MW-109	Boron	Successful
Spring 2020	MW-110	Boron	*Unsuccessful
Spring 2020	MW-104	Calcium	Successful

ASD - Alternative Source Demonstration

*Unsuccessful as of the time of this report.

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

The assessment monitoring program was initiated on March 26, 2021 and the initial assessment monitoring sampling event was performed on February 2, 2021.

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;

A statistically significant level above the groundwater protection standard was not identified.

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

Not applicable because a statistically significant level above the groundwater protection standard was not identified.

(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 [inactive] CCR surface impoundments, no later than [July 31, 2019], and annually thereafter, the owner or operator must prepare an annual groundwater monitoring and corrective action report. For [inactive] CCR surface impoundments, the owner or operator must prepare the initial annual groundwater monitoring and corrective action report no later than [July 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 CCR Unit and all background (or upgradient) and downgradient monitoring wells with identification numbers for the CCR Unit 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 Ash Impoundment within the 2020-2021 monitoring period.

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 and assessment monitoring was required to be conducted during the reporting period (2020-2021). Detection monitoring groundwater samples collected in November 2020 were collected and analyzed for Appendix III detection monitoring constituents. Assessment monitoring groundwater samples collected in February 2021 were collected and analyzed for Appendix IV assessment monitoring constituents. Samples collected in May 2021 were collected and analyzed for Appendix III detection monitoring constituents and detected Appendix IV assessment monitoring constituents. Results of the sampling events are provided in **Appendix B, Table 1** (Appendix III Detection Monitoring and Required Appendix IV Assessment Monitoring Results), and **Table 2** (Detection and Assessment Monitoring Field

Measurements). These tables include the Spring 2020 first and second verification sample data, the Fall 2020 semi-annual detection monitoring data, verification sample data, the initial Appendix IV assessment monitoring data, and the first semi-annual assessment monitoring 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

The detection monitoring program transitioned to an assessment monitoring program following an unsuccessful alternative source demonstration (ASD) for an SSI for boron in monitoring well MW-110 dated December 28, 2020. The initial annual groundwater assessment monitoring event for the assessment monitoring program was conducted on February 2, 2021 and the first semi-annual assessment monitoring sampling event was conducted on May 20, 2021.

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 is in assessment monitoring.

Summary of Key Actions Completed.

- a. completion of the Spring 2020 verification sampling and analyses per the certified statistical method,
- b. completion of the statistical evaluation of the Spring 2020 semi-annual detection monitoring sampling and analysis event per the certified statistical method,
- c. completion of the Fall 2020 semi-annual detection monitoring sampling and analysis event, and subsequent verification sampling per the certified statistical method,
- d. completion of a successful ASD for boron in monitoring well MW-109 and for calcium in monitoring well MW-104 for the Spring 2020 semi-annual detection monitoring event.
- e. completion of the initial assessment monitoring groundwater sampling and analysis event,
- f. initiation of the first Spring 2021 semi-annual assessment monitoring sampling and analysis event, and

2020-2021 Groundwater Monitoring and Corrective Action Report

g. completion of the 2020-2021 Annual Groundwater Monitoring and Corrective Action Report.

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 (2021-2022).

Completion of verification sampling and data analysis, and the statistical evaluation of the Spring 2021 semi-annual groundwater assessment monitoring sampling and analysis events. Fall 2021 semi-annual groundwater assessment monitoring sampling and analysis, statistical evaluation, and if, required, ASD(s). Annual groundwater assessment monitoring sampling event in February 2022. Initiation of the Spring 2022 semi-annual assessment monitoring sampling and analysis event. Completion of the 2021-2022 Groundwater Monitoring and Corrective Action Report.

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.

The demonstration report below is included as Appendix C. Note that a successful alternative source demonstration was not completed for boron for MW-110 as of the completion of this annual report. However, the boron results for the last three sampling events have not been shown a statistically significant increase above background.

- C.1 CCR Groundwater Monitoring Alternate Source Demonstration Report May 2020 Groundwater Monitoring Event, Ash Impoundment, Iatan Generating Station (December 28, 2020).

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 no alternative monitoring frequency for assessment monitoring and certification was pursued.

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

Include the recorded concentrations required by paragraph (d)(1) of this section, identify the background concentrations established under § 257.94(b), and identify the groundwater protection standards established under paragraph (d)(2) of this section in the annual groundwater monitoring and corrective action report required by § 257.90(e).

The concentrations of Appendix III and detected Appendix IV constituents from the assessment monitoring are provide in **Appendix B, Table 1** and **Table 2**. The established groundwater protection standards (GWPSs) as applicable are provided in **Appendix B, Table 3**.

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 an assessment monitoring alternative source demonstration was not required.

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 an assessment of corrective measures was not required.

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 Iatan 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 Metro, Inc. for specific application to the Iatan Generating Station Ash Impoundment. No warranties, express or implied, are intended or made.

APPENDIX A

FIGURES

Figure 1: Site Map

Figure 2: Potentiometric Surface Map (November 2020)

Figure 3: Potentiometric Surface Map (February 2021)

Figure 4: Potentiometric Surface Map (May 2021)

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LEGEND:

▲ MW-109 MONITORING WELL

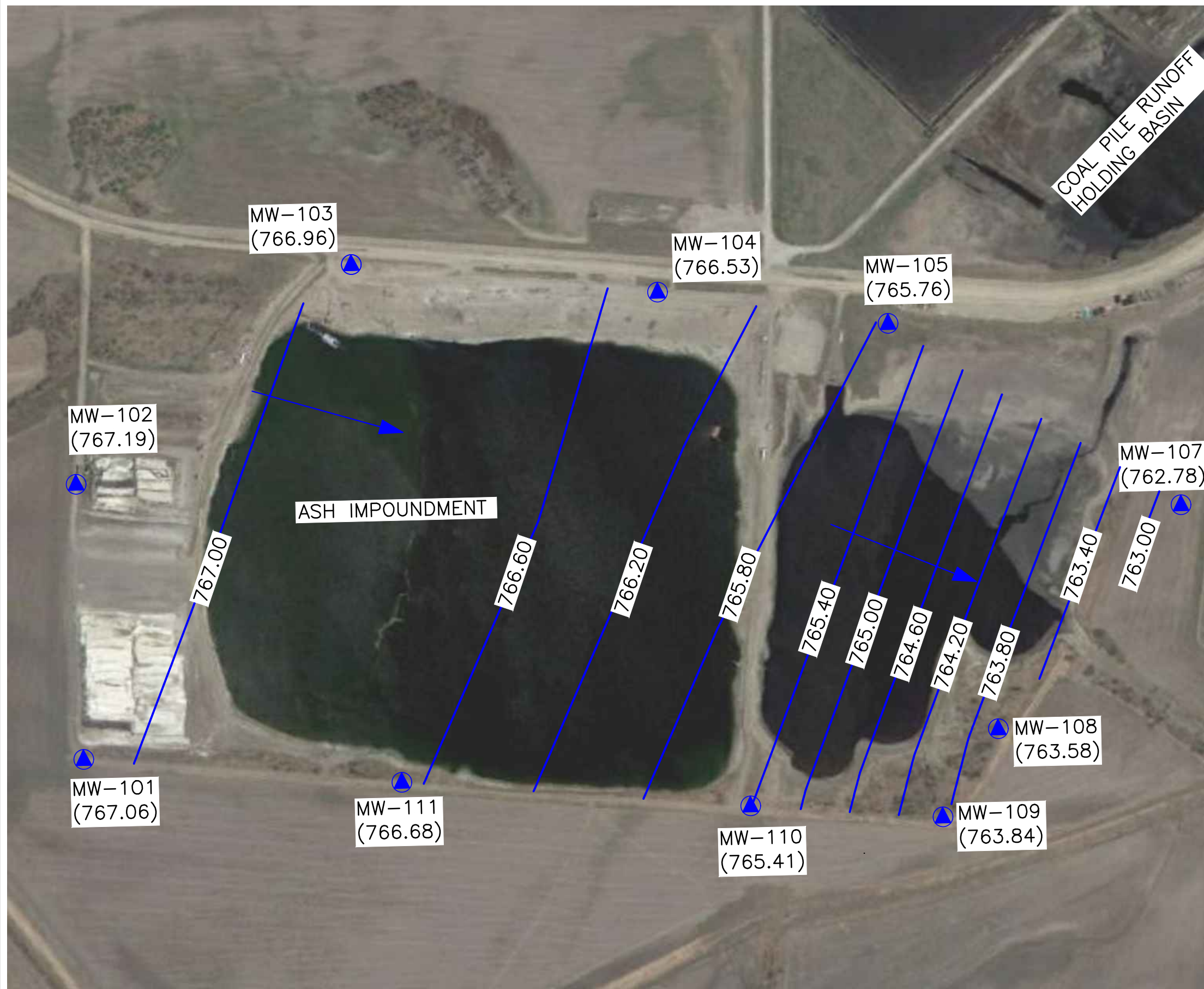
NOTES:

1. HORIZONTAL DATUM: MISSOURI STATE PLANE COORDINATE SYSTEM, WEST ZONE (NAD 83)
2. VERTICAL DATUM: NAVD 88
3. GOOGLE EARTH IMAGE DATED APRIL 27, 2018.



SHEET TITLE IATAN ASH IMPOUNDMENT SITE MAP	REV.	DATE	CHK.	BY
	▲	-	-	-
PROJECT TITLE ANNUAL GROUNDWATER REPORT	▲	-	-	-
CLIENT EVERGY IATAN GENERATING STATION WESTON, MISSOURI	▲	-	-	-
SCS ENGINEERS 8675 West 110th St., Ste. 100 Overland Park, MO 66210 PH. (813) 681-0630 FAX. (813) 681-0012 PROJ. NO. 27213167.20 DSK: BT DAW	DWN. BY:	MRB	D/A R/W BY:	JRR
	CHK. BY:	JRF	PROJ. MGR. BY:	JRF
CADD FILE: 27213167.20_ASH IMPOUNDMENT_MAY 21 - FIGURE 1.dwg	DATE:	7/8/2021		
FIGURE	1			

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LEGEND:

- MW-109 MONITORING WELL (763.84) (GROUNDWATER ELEVATION)
- 766.40— GROUNDWATER POTENTIOMETRIC SURFACE ELEVATIONS (REPRESENTATIVE OF THIS UNIT)
- DIRECTION OF GROUNDWATER FLOW

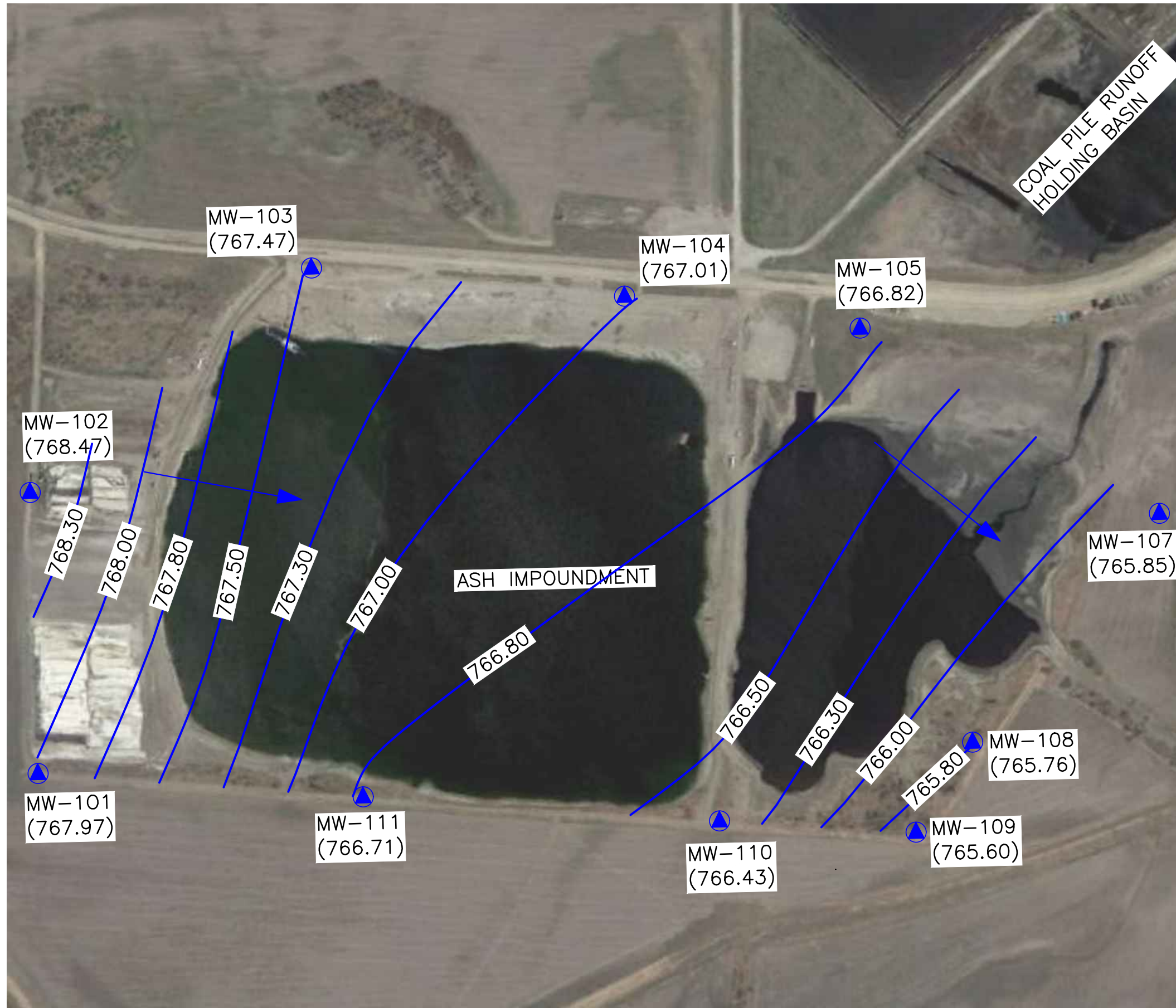
NOTES:

1. HORIZONTAL DATUM: MISSOURI STATE PLANE COORDINATE SYSTEM, WEST ZONE (NAD 83)
2. VERTICAL DATUM: NAVD 88
3. GOOGLE EARTH IMAGE DATED APRIL 27, 2018.
4. GROUNDWATER ELEVATIONS MEASURED ON NOVEMBER 9, 2020.



SHEET TITLE POTENTIOMETRIC SURFACE MAP (NOVEMBER 2020)		REV. DATE	CK. BY
PROJECT TITLE ANNUAL GROUNDWATER REPORT		▲	-
CLIENT EVERGY IATAN GENERATING STATION WESTON, MISSOURI		▲	-
SCS ENGINEERS 8875 West 110th St., Ste. 100 Overland Park, MO 66210 PH: (813) 681-0630 FAX: (813) 681-0012 PROJ. NO. 27213167.20 DSK: BT DAW		DWN. BY: ALR	D/A RW BY: JRR
CADD FILE: 27213167.20_ASH IMPOUNDMENT_NOVEMBER 20_10.2020		CHK. BY: JRF	PROJ. MGR: JRF
DATE: 7/16/21			
FIGURE 2			

N:\KCP\Projects\Groundwater\DWG\Iatan\2021\Ash Impoundment\27213167_20_Ash Impoundment_MAY 21 - Figure 4 Annual Report.dwg Jul 15, 2021 - 8:12am Layout Name: 6K By: 5036mrb



LEGEND:

- MW-109 MONITORING WELL (764.67) (GROUNDWATER ELEVATION)
- 766.50 GROUNDWATER POTENTIOMETRIC SURFACE ELEVATIONS (REPRESENTATIVE OF THIS UNIT)
- DIRECTION OF GROUNDWATER FLOW

NOTES:

1. HORIZONTAL DATUM: MISSOURI STATE PLANE COORDINATE SYSTEM, WEST ZONE (NAD 83)
2. VERTICAL DATUM: NAVD 88
3. GOOGLE EARTH IMAGE DATED APRIL 27, 2018.
4. GROUNDWATER ELEVATIONS MEASURED ON MAY 20, 2021.



SHEET TITLE POTENTIOMETRIC SURFACE MAP (MAY 2021)	REV.	DATE	BY
PROJECT TITLE ANNUAL GROUNDWATER REPORT			
CLIENT EVERGY IATAN GENERATING STATION WESTON, MISSOURI			
SCS ENGINEERS 8875 West 110th St., Ste. 100 Overland Park, MO 66210 PH: (813) 681-0630 FAX: (813) 681-0012 PROJ. NO. 27213167.21 DSK: BT DAW	DWN. BY: MRB	D/A RW BY: JRR	PROJ. MGR: JRF
	CHK. BY: JRF		
CADD FILE: 27213167_20_ASH IMPOUNDMENT_MAY 21 - FIGURE 4 ANNUAL REPORT.dwg			
DATE: 7/9/2021			
FIGURE 4			

APPENDIX B

TABLES

Table 1: Appendix III and Appendix IV Detection and Assessment Monitoring Results

Table 2: Detection and Assessment Monitoring Field Measurements

Table 3: Groundwater Protection Standards

Table 1
Ash Impoundment
Appendix III and Appendix IV Detection Monitoring Results
Evergy Iatan 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)	Total 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-101	11/09/20	<0.200	129	6.04	0.330	7.03	<5.00	518	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
MW-101	02/02/21	---	---	---	---	7.48	---	---	<0.00400	<0.00200	0.652	<0.00200	<0.00100	<0.0100	<0.00200	0.290	<0.00200	0.0319	<0.000200	<0.00500	<0.00200	<0.00200	0.287
MW-101	05/20/21	<0.200	129	6.36	0.317	7.46	<5.00	515	---	<0.00200	0.652	---	---	---	---	0.317	---	0.0306	---	<0.00500	---	---	1.30
MW-102	11/09/20	<0.200	127	5.73	0.238	7.03	<5.00	475	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
MW-102	02/02/21	---	---	---	---	7.53	---	---	<0.00400	0.0111	0.615	<0.00200	<0.00100	<0.0100	<0.00200	0.260	<0.00200	0.0319	<0.000200	<0.00500	<0.00200	<0.00200	1.51
MW-102	05/20/21	<0.200	121	5.76	0.239	7.43	<5.00	459	---	0.00713	0.659	---	---	---	---	0.239	---	0.0333	---	<0.00500	---	---	1.60
MW-103	11/09/20	<0.200	131	4.37	0.218	7.06	<5.00	463	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
MW-103	02/02/21	---	---	---	---	7.02	---	---	<0.00400	<0.00200	0.658	<0.00200	<0.00100	<0.0100	<0.00200	0.259	<0.00200	0.0452	<0.000200	<0.00500	<0.00200	<0.00200	3.27
MW-103	05/20/21	<0.200	135	4.22	0.228	7.38	<5.00	483	---	<0.00200	0.660	---	---	---	---	0.228	---	0.0467	---	<0.00500	---	---	1.83
MW-104	07/13/20	---	*59.7	---	---	**7.38	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
MW-104	08/25/20	---	*61.9	---	---	**7.50	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
MW-104	11/09/20	1.22	62.9	22.3	0.518	7.41	122	454	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
MW-104	02/02/21	---	---	---	---	7.88	---	---	<0.00400	<0.00200	0.197	<0.00200	<0.00100	<0.0100	<0.00200	0.445	<0.00200	0.0163	<0.000200	0.0283	<0.00200	<0.00200	0.637
MW-104	05/20/21	1.50	74.6	13.7	0.491	7.64	103	119	---	<0.00200	0.240	---	---	---	---	0.491	---	0.0219	---	0.0280	---	---	0.988
MW-105	07/13/20	---	---	---	---	**7.25	---	*711	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
MW-105	11/09/20	1.83	68.7	20.2	0.842	7.35	271	686	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
MW-105	02/02/21	---	---	---	---	7.72	---	---	<0.00400	<0.00200	0.210	<0.00200	<0.00100	<0.0100	<0.00200	0.790	<0.00200	0.0211	<0.000200	0.0299	<0.00200	<0.00200	0.976
MW-105	05/20/21	1.63	75.5	19.5	0.652	6.74	246	664	---	<0.00200	0.236	---	---	---	---	0.652	---	0.0215	---	0.0263	---	---	1.89
MW-106	11/09/20	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
MW-106	02/02/21	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
MW-106	05/20/21	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
MW-107	11/09/20	0.410	71.1	24.9	0.279	7.92	192	473	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
MW-107	02/02/21	---	---	---	---	7.39	---	---	<0.00400	<0.00200	0.102	<0.00200	<0.00100	<0.0100	<0.00200	0.371	<0.00200	0.0176	<0.000200	0.0379	<0.00200	<0.00200	0.0385
MW-107	05/20/21	1.090	66.4	26.1	0.459	7.70	187	509	---	<0.00200	0.106	---	---	---	---	0.459	---	0.0177	---	0.0489	---	---	0.653
MW-108	11/09/20	2.08	89.8	17.3	0.532	7.78	219	706	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
MW-108	02/02/21	---	---	---	---	7.10	---	---	<0.00400	<0.00200	0.0887	<0.00200	<0.00100	<0.0100	<0.00200	0.571	<0.00200	0.0250	<0.000200	0.0336	<0.00200	<0.00200	0.216
MW-108	05/20/21	2.26	92.6	23.2	0.473	7.71	155	756	---	<0.00200	0.0989	---	---	---	---	0.473	---	0.0239	---	0.0185	---	---	0.629
MW-109	07/13/20	*1.34	---	---	---	**7.15	*281	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
MW-109	08/25/20	*1.51	---	---	---	**7.33	*183	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
MW-109	11/09/20	1.78	72.0	21.9	0.598	7.52	213	630	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
MW-109	02/02/21	---	---	---	---	7.01	---	---	<0.00400	<0.00200	0.139	<0.00200	<0.00100	<0.0100	<0.00200	0.603	<0.00200	0.0194	<0.000200	0.0371	<0.00200	<0.00200	0.137
MW-109	05/20/21	1.64	60.4	23.5	0.592	7.74	203	573	---	<0.00200	0.132	---	---	---	---	0.592	---	0.0182	---	0.0407	---	---	0.739
MW-110	07/13/20	*3.71	---	*23.2	---	**7.27	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
MW-110	08/25/20	*4.13	---	*20.0	---	**7.60	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
MW-110	11/09/20	3.06	40.3	19.8	0.704	7.19	223	656	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
MW-110	02/02/21	---	---	---	---	7.27	---	---	<0.00400	0.00319	0.0776	<0.00200	<0.00100	<0.0100	<0.00200	0.708	<0.00200	<0.0150	<0.000200	0.0968	<0.00200	<0.00200	0.209
MW-110	05/20/21	2.98	32.5	16.7	0.573	7.96	260	574	---	<0.00200	0.0759	---	---	---	---	0.573	---	<0.0150	---	0.113	---	---	0.713
MW-111	11/09/20	0.697	104	7.94	0.448	7.30	9.38	571	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
MW-111	02/02/21	---	---	---	---	7.10	---	---	<0.00400	<0.00200	0.451	<0.00200	<0.00100	<0.0100	<0.00200	0.530	<0.00200	0.0257	<0.000200	0.00944	<0.00200	<0.00200	2.11
MW-111	05/20/21	0.720	114	7.45	0.423	7.52	32.9	546	---	<0.00200	0.474	---	---	---	---	0.423	---	0.0257	---	0.00916	---	---	1.55

mg/L - milligrams per liter
pCi/L - picocuries per liter
S.U. - Standard Units
--- Not Sampled

Table 2
Ash Impoundment
Detection Monitoring Field Measurements
Evergy Iatan 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-101	11/09/20	7.03	940	15.75	6.7	-139	0.25	10.13	767.06
MW-101	02/02/21	7.48	906	11.54	7.4	-121	0.00	10.45	766.74
MW-101	05/20/21	7.46	886	14.76	0.6	-157	0.00	9.22	767.97
MW-102	11/09/20	7.03	867	15.50	0.0	-134	0.31	8.60	767.19
MW-102	02/02/21	7.53	863	7.68	3.6	-125	0.00	8.72	767.07
MW-102	05/20/21	7.43	813	14.44	4.3	-157	0.00	7.32	768.47
MW-103	11/09/20	7.06	778	16.20	0.0	-88	0.53	16.23	766.96
MW-103	02/02/21	7.02	891	9.74	0.3	-120	0.00	16.86	766.33
MW-103	05/20/21	7.38	832	15.59	4.7	-138	0.00	15.72	767.47
MW-104	07/13/20	**7.38	702	16.06	8.0	-181	0.00	10.29	768.83
MW-104	08/25/20	**7.50	734	17.46	0.0	-181	8.32	10.16	768.96
MW-104	11/09/20	7.41	688	16.40	0.0	-122	1.20	12.59	766.53
MW-104	02/02/21	7.88	775	9.60	25.4	-135	3.99	13.85	765.27
MW-104	05/20/21	7.64	924	15.23	7.0	-162	0.00	12.11	767.01
MW-105	07/13/20	**7.25	1130	15.72	0.5	-173	0.00	11.31	768.84
MW-105	11/09/20	7.35	1010	15.65	0.0	-109	1.19	14.39	765.76
MW-105	02/02/21	7.72	1030	10.35	8.6	-126	0.00	16.27	763.88
MW-105	05/20/21	6.74	1070	15.88	0.0	-169	0.00	13.33	766.82
MW-106	11/09/20	NA	NA	NA	NA	NA	NA	NA	NA
MW-106	02/02/21	NA	NA	NA	NA	NA	NA	NA	NA
MW-106	05/20/21	NA	NA	NA	NA	NA	NA	NA	NA
MW-107	11/09/20	7.92	727	15.20	0.0	-153	1.98	15.33	762.78
MW-107	02/02/21	7.39	855	11.09	23.5	-90	1.06	18.03	760.08
MW-107	05/20/21	7.70	750	17.06	4.3	-151	0.00	12.26	765.85
MW-108	11/09/20	7.78	1070	13.29	0.0	-160	2.21	14.00	763.58
MW-108	02/02/21	7.10	1190	9.51	3.3	-159	0.55	16.36	761.22
MW-108	05/20/21	7.71	1110	12.03	2.8	-175	0.00	11.82	765.76
MW-109	07/13/20	**7.15	977	14.45	0.0	-163	0.00	10.08	767.75
MW-109	08/25/20	**7.33	821	22.54	0.0	-156	0.00	11.48	766.35
MW-109	11/09/20	7.52	952	15.42	0.0	-168	1.64	13.99	763.84
MW-109	02/02/21	7.01	1040	12.16	0.0	-162	0.43	16.22	761.61
MW-109	05/20/21	7.74	881	13.87	3.4	-166	0.00	12.23	765.60
MW-110	07/13/20	**7.27	891	12.77	0.0	-172	0.00	9.63	768.59
MW-110	08/25/20	**7.60	933	17.41	0.0	-161	1.18	10.10	768.12
MW-110	11/09/20	7.19	968	13.59	0.0	-143	0.50	12.81	765.41
MW-110	02/02/21	7.27	1110	11.22	0.0	-158	0.40	14.69	763.53
MW-110	05/20/21	7.96	857	13.18	13.5	-156	0.00	11.79	766.43
MW-111	11/09/20	7.30	923	15.90	1.2	-145	0.36	12.08	766.68
MW-111	02/02/21	7.10	1040	13.49	0.0	-158	0.42	13.03	765.73
MW-111	05/20/21	7.52	917	15.10	3.9	-161	0.00	12.05	766.71

* Verification Sample
** Extra Sample Collected 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

Table 3
Groundwater Protection Standards
Ash Impoundment
Evergy Iatan 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)	Total 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)	Radium Combined (pCi/L)
MCL GWPS		NA	NA	NA	NA	NA	NA	NA	0.006	0.010	2	0.004	0.005	0.1	NA	4.0	0.015*	NA	0.002	NA	5
40 CFR 257.95(h) GWPS		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.006	NA	NA	0.040	NA	0.100	NA
MW-101 PL/BG		0.200	137.3	6.675	0.4156	7.814/6.628	5	554.4	0.002	0.007753	0.7322	0.002	0.001	0.01	0.01	0.4303	0.002	0.04177	0.0002	0.005	3.569
MW-101 GWPS		NA	NA	NA	NA	NA	NA	NA	0.006	0.010	2	0.004	0.005	0.1	0.006	4.0	0.015	0.04177**	0.002	0.100	5
MW-101	11/09/20	<0.200	129	6.04	0.330	7.03	<5.00	518	---	---	---	---	---	---	---	0.33	---	---	---	---	---
MW-101	2/2/2021	---	---	---	---	---	---	---	<0.00400	<0.00200	0.652	<0.00200	<0.00100	<0.0100	<0.00200	0.29	<0.00200	0.0319	<0.000200	<0.00500	0.287
MW-101	5/20/2021	<0.200	129	6.36	0.317	7.46	<5.00	515	---	<0.00200	0.652	---	---	---	---	0.317	---	0.0306	---	<0.00500	1.30
MW-102 PL/BG		0.200	143.5	5.657	0.362	7.661/6.772	5	539.1	0.002	0.04415	0.8502	0.002	0.001	0.01	0.01	0.3783	0.002	0.04603	0.0002	0.005	4.338
MW-102 GWPS		NA	NA	NA	NA	NA	NA	NA	0.006	0.04415**	2	0.004	0.005	0.1	0.006	4	0.015	0.04603**	0.002	0.100	5
MW-102	11/9/2020	<0.200	127	5.73	0.238	7.03	<5.00	475	---	---	---	---	---	---	---	0.238	---	---	---	---	---
MW-102	2/2/2021	---	---	---	---	---	---	---	<0.00400	0.0111	0.615	<0.00200	<0.00100	<0.0100	<0.00200	0.260	<0.00200	0.0319	<0.000200	<0.00500	1.51
MW-102	5/20/2021	<0.200	121	5.76	0.239	7.43	<5.00	459	---	0.00713	0.659	---	---	---	---	0.239	<0.00200	0.0333	---	<0.00500	1.60
MW-103 PL/BG		0.200	182.1	4.679	0.328	7.49/6.84	5	629.7	0.002	0.002	0.7999	0.002	0.001	0.01	0.01	0.3425	0.002	0.06572	0.0002	0.005	4.142
MW-3 GWPS		NA	NA	NA	NA	NA	NA	NA	0.006	0.010	2	0.004	0.005	0.1	0.006	4.0	0.015	0.06572**	0.002	0.100	5
MW-103	11/9/2020	<0.200	131	4.37	0.218	7.06	<5.00	463	---	---	---	---	---	---	---	0.218	---	---	---	---	---
MW-103	2/2/2021	---	---	---	---	---	---	---	<0.00400	<0.00200	0.658	<0.00200	<0.00100	<0.0100	<0.00200	0.259	<0.00200	0.0452	<0.000200	<0.00500	3.27
MW-103	5/20/2021	<0.200	135	4.22	0.228	7.38	<5.00	483	---	<0.00200	0.660	---	---	---	---	0.228	---	0.0467	---	<0.00500	1.83
MW-104 PL/BG		1.361	54.12	25.02	0.7603	7.932/7.095	159.1	474.5	0.002	0.002	0.1843	0.002	0.001	0.01	0.01	0.7922	0.002	0.03283	0.0002	0.03131	2.284
MW-104 GWPS		NA	NA	NA	NA	NA	NA	NA	0.006	0.010	2	0.004	0.005	0.1	0.006	4.0000	0.015	0.040	0.002	0.100	5
MW-104	11/9/2020	1.22	62.9	22.3	0.518	7.41	122	454	---	---	---	---	---	---	---	0.518	---	---	---	---	---
MW-104	2/2/2021	---	---	---	---	---	---	---	<0.00400	<0.00200	0.197	<0.00200	<0.00100	<0.0100	<0.00200	0.445	<0.00200	0.0163	<0.000200	0.0283	0.637
MW-104	5/20/2021	1.5	74.6	13.7	0.491	7.64	103	119	---	<0.00200	0.240	---	---	---	---	0.491	---	0.0219	---	0.0280	0.988
MW-105 PL/BG		1.920	104.6	19.3	0.9151	7.853/6.875	305.3	719.9	0.002	0.002	0.4079	0.002	0.001	0.01	0.01	0.9474	0.002	0.04029	0.0002	0.0455	2.824
MW-105 GWPS		NA	NA	NA	NA	NA	NA	NA	0.006	0.010	2	0.004	0.005	0.1	0.006	4.0	0.015	0.040	0.002	0.100	5
MW-105	11/9/2020	1.83	68.7	20.2	0.842	7.35	271	686	---	---	---	---	---	---	---	0.842	---	---	---	---	---
MW-105	2/2/2021	---	---	---	---	---	---	---	<0.00400	<0.00200	0.210	<0.00200	<0.00100	<0.0100	<0.00200	0.790	<0.00200	0.0211	<0.000200	0.0299	0.976
MW-105	5/20/2021	1.63	75.5	19.5	0.652	6.74	246	664	---	<0.00200	0.236	---	---	---	---	0.652	---	0.0215	---	0.0263	1.89

* EPA Action Level
** Groundwater Protection Standard Based on Background Level
CCR - Coal Combustion Residuals
GWPS - Groundwater Protection Standard
MCL - Maximum Contaminant Level
PL/BG - Prediction Limit / Background Level
mg/L - Milligrams per Liter
pCi/L - Picocuries per Liter
"---" - Not Analyzed

**Table 3
Groundwater Protection Standards
Ash Impoundment
Evergy Iatan 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)	Total 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)	Radium Combined (pCi/L)
MCL GWPS		NA	NA	NA	NA	NA	NA	NA	0.006	0.010	2	0.004	0.005	0.1	NA	4.0	0.015*	NA	0.002	NA	5
40 CFR 257.95(h) GWPS		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.006	NA	NA	0.040	NA	0.100	NA
MW-107 PL/BG		2.771	63.34	25.9	0.9095	8.033/7.192	280.2	710.4	0.002	0.002	0.1207	0.002	0.001	0.01	0.01	0.9578	0.002	0.015	0.0002	0.1295	2.325
MW-107 GWPS		NA	NA	NA	NA	NA	NA	NA	0.006	0.010	2	0.004	0.005	0.1	0.006	4.0	0.015	0.040	0.002	0.1295**	5
MW-107	11/9/2020	0.41	71.1	24.9	0.279	7.92	192	473	---	---	---	---	---	---	---	0.279	---	---	---	---	---
MW-107	2/2/2021	---	---	---	---	---	---	---	<0.00400	<0.00200	0.102	<0.00200	<0.00100	<0.0100	<0.00200	0.371	<0.00200	0.0176	<0.000200	0.0379	0.0385
MW-107	5/20/2021	1.09	66.4	26.1	0.459	7.70	187	509	---	<0.00200	0.106	---	---	---	---	0.459	---	0.0177	---	0.0489	0.653
MW-108 PL/BG		2.035	250	28.7	0.7348	8.736/6.576	666	1490	0.002	0.004927	0.3081	0.002	0.001	0.01	0.01	0.7754	0.002	0.04651	0.0002	0.01701	2.149
MW-108 GWPS		NA	NA	NA	NA	NA	NA	NA	0.006	0.010	2	0.004	0.005	0.1	0.006	4.0	0.015	0.040	0.002	0.100	5
MW-108	11/9/2020	2.08	89.8	17.3	0.532	7.78	219	706	---	---	---	---	---	---	---	0.532	---	---	---	---	---
MW-108	2/2/2021	---	---	---	---	---	---	---	<0.00400	<0.00200	0.0887	<0.00200	<0.00100	<0.0100	<0.00200	0.571	<0.00200	0.0250	<0.000200	0.0336	0.216
MW-108	5/20/2021	2.26	92.6	23.2	0.473	7.71	155	756	---	<0.00200	0.0989	---	---	---	---	0.473	---	0.0239	---	0.0185	0.629
MW-109 PL/BG		0.850	141.5	30.45	0.6709	7.651/6.951	259.3	784.3	0.002	0.006871	0.3081	0.002	0.001	0.01	0.01	0.6944	0.002	0.03881	0.0002	0.0295	2.56
MW-109 GWPS		NA	NA	NA	NA	NA	NA	NA	0.006	0.010	2	0.004	0.005	0.1	0.006	4.0	0.015	0.040	0.002	0.100	5
MW-109	11/9/2020	1.78	72	21.9	0.598	7.52	213	630	---	---	---	---	---	---	---	0.598	---	---	---	---	---
MW-109	2/2/2021	---	---	---	---	---	---	---	<0.00400	<0.00200	0.139	<0.00200	<0.00100	<0.0100	<0.00200	0.603	<0.00200	0.0194	<0.000200	0.0371	0.137
MW-109	5/20/2021	1.64	60.4	23.5	0.592	7.74	203	573	---	<0.00200	0.132	---	---	---	---	0.592	---	0.0182	---	0.0407	0.739
MW-110 PL/BG		3.130	86.38	21.0	0.7402	8.044/7.041	690	801.3	0.002	0.007361	0.374	0.002	0.001	0.01	0.01	0.7768	0.002	0.04121	0.0002	0.1316	1.902
MW-110 GWPS		NA	NA	NA	NA	NA	NA	NA	0.006	0.010	2	0.004	0.005	0.1	0.006	4.0	0.015	0.040	0.002	0.1316**	5
MW-110	11/9/2020	3.06	40.3	19.8	0.704	7.19	223	656	---	---	---	---	---	---	---	0.704	---	---	---	---	---
MW-110	2/2/2021	---	---	---	---	---	---	---	<0.00400	0.00319	0.0776	<0.00200	<0.00100	<0.0100	<0.00200	0.708	<0.00200	<0.0150	<0.000200	0.0968	0.209
MW-110	5/20/2021	2.98	32.5	16.7	0.573	7.96	260	540	---	<0.00200	0.0759	---	---	---	---	0.573	---	<0.0150	---	0.113	0.713
MW-111 PL/BG		1.028	108.2	13.08	0.7493	7.611/7.062	96.55	594.5	0.002	0.0037	0.4916	0.002	0.0733	0.01	0.01	0.7805	0.002	0.03697	0.0002	0.01718	3.384
MW-111 GWPS		NA	NA	NA	NA	NA	NA	NA	0.006	0.010	2	0.004	0.005	0.1	0.006	4.0	0.015	0.040	0.002	0.100	5
MW-111	11/9/2020	0.697	104	7.94	0.448	7.30	9.38	571	---	---	---	---	---	---	---	0.448	---	---	---	---	---
MW-111	2/2/2021	---	---	---	---	---	---	---	<0.00400	<0.00200	0.451	<0.00200	<0.00100	<0.0100	<0.00200	0.530	<0.00200	0.0257	<0.000200	0.00944	2.11
MW-111	5/20/2021	0.720	114	7.45	0.423	7.52	32.9	546	---	<0.00200	0.474	---	---	---	---	0.423	---	0.0257	---	0.00916	1.55

* EPA Action Level
 ** Groundwater Protection Standard Based on Background Level
 CCR - Coal Combustion Residuals
 GWPS - Groundwater Protection Standard
 MCL - Maximum Contaminant Level
 PL/BG - Prediction Limit / Background Level
 mg/L - Milligrams per Liter
 pCi/L - Picocuries per Liter
 "----" - Not Analyzed

APPENDIX C

ALTERNATIVE SOURCE DEMONSTRATION

C.1 CCR Groundwater Monitoring Alternative Source Demonstration Report May 2020 Groundwater Monitoring Event, Ash Impoundment, Iatan Generating Station (December 28, 2020)

**CCR GROUNDWATER MONITORING
ALTERNATIVE SOURCE DEMONSTRATION REPORT
MAY 2020 GROUNDWATER MONITORING EVENT**

**ASH IMPOUNDMENT
IATAN GENERATING STATION
PLATTE COUNTY, MISSOURI**

Presented To:

Evergy Metro, Inc.

Presented By:

SCS ENGINEERS

8575 West 110th Street, Suite 100

Overland Park, Kansas 66210

December 2020

File No. 27213167.20

CERTIFICATIONS

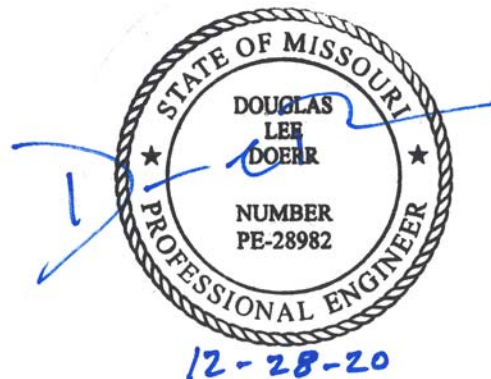
I, John R. Rockhold, being a qualified groundwater scientist and Registered Geologist in the State of Missouri, do hereby certify the accuracy of the information in the CCR Groundwater Monitoring Alternative Source Demonstration Report for the Ash Impoundment at the Iatan Generating Station. The Alternative Source Demonstration was prepared by me or under my direct supervision in accordance with generally accepted hydrogeological practices and the local standard of care.



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 the accuracy of the information in the CCR Groundwater Monitoring Alternative Source Demonstration Report for the Ash Impoundment at the Iatan Generating Station. The Alternative Source Demonstration was prepared by me or under my direct supervision in accordance with generally accepted engineering practices and the local standard of care.



Douglas L. Doerr, P.E.

SCS Engineers

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2 Statistical Results.....	1
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Appendices

- Appendix A Box and Whiskers Plots**
- Appendix B Time Series Plots**
- Appendix C Boron and Stable Isotope Plots and Laboratory Results**

1 REGULATORY FRAMEWORK

Certain owners or operators of Coal Combustion Residuals (CCR) units are required to complete groundwater monitoring activities to evaluate whether a release from the unit has occurred. Included in the activities is the completion of a statistical analysis of the groundwater quality data as prescribed in § 257.93(h) of the CCR Final Rule. If the initial analysis indicates a statistically significant increase (SSI) over background levels, the owner or operator may perform an alternative source demonstration (ASD). In accordance with § 257.94(e)(2), the owner or operator of the CCR unit may demonstrate that a source other than the CCR unit caused the 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. The owner or operator must complete the written demonstration within 90 days of detecting a SSI over background levels to include obtaining a certification from a qualified professional engineer verifying the accuracy of the information in the report. If a successful demonstration is completed within the 90-day period, the owner or operator of the CCR unit may continue with a detection monitoring program under § 257.94. If a successful demonstration is not completed within the 90-day period, the owner or operator of the CCR unit must initiate an assessment monitoring program as required under § 257.95. 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.

2 STATISTICAL RESULTS

Statistical analysis of monitoring data from the groundwater monitoring system for the Ash Impoundment at the Iatan Generating Station has been completed in substantial compliance with the “Statistical Method Certification by A Qualified Professional Engineer” dated April 16, 2019. Groundwater samples were collected on May 20, 2020. Review and validation of the results from the May 2020 Detection Monitoring Event was completed on June 29, 2020, which constitutes completion and finalization of detection monitoring laboratory analyses. A statistical analysis was then conducted to determine whether there was a statistically significant increase (SSI) over background values for each constituent listed in Appendix III to Part 257-Constituents for Detection Monitoring. Two rounds of verification sampling were conducted for certain constituents on July 13, 2020 and August 25, 2020.

The completed statistical evaluation identified three Appendix III constituents above the prediction limits established for monitoring wells MW-104, MW-109, and MW-110.

Constituent/Monitoring Well	*UPL	Observation May 20, 2020	1st Verification July 13, 2020	2nd Verification August 25, 2020
Boron				
MW-109	0.8503	1.35	1.34	1.51
MW-110	3.13	3.96	3.71	4.13
Calcium				
MW-104	54.12	55.5	59.7	61.9

*UPL – Upper Prediction Limit

Determination: A statistical evaluation was completed for all Appendix III detection monitoring constituents in accordance with the certified statistical method. The statistical evaluation identified SSIs above the background prediction limit for boron in monitoring wells MW-109 and MW-110, and calcium in monitoring well MW-104.

3 ALTERNATIVE SOURCE DEMONSTRATION

An Alternative Source Demonstration (ASD) is a means to provide supporting lines of evidence that something other than a release from a regulated CCR unit caused an SSI. For the above-identified SSIs for the Ash Impoundment at the Iatan Generating Station, there are multiple lines of supporting evidence to indicate that some of the above SSIs were not caused by a release from the Ash Impoundment. The data evaluation for the ASD is described below.

3.1 BOX AND WHISKERS PLOTS

A commonly accepted method to demonstrate and visualize the distribution of data in a given data set is to construct box and whiskers plots. The basic box plotted graphically locates the median, 25th and 75th percentiles of the data set; the "whiskers" extend to the minimum and maximum values of the data set. The range between the ends of a box plot represents the Interquartile Range, which can be used as an estimate of spread or variability. The mean is denoted by a "+".

When comparing multiple wells or well groups, box plots for each well can be lined up on the same axis to roughly compare the variability in each well. This may be used as an exploratory screening for the test of homogeneity of variance across multiple wells.

A calcium SSI was identified in monitoring well MW-104. Box and whiskers plots for calcium were prepared for monitoring well MW-104, the other impoundment monitoring wells, the Station's collector well, and an upland storm water sample to allow comparison of the concentrations. The comparison indicates the calcium concentrations in MW-104 are relatively consistent and less than the calcium concentrations in the other monitoring wells, the Station's collector well, and upland storm water. This demonstrates that a source other than the Ash Impoundment could have caused the SSI over background levels, or that the SSI resulted from error in sampling, analysis, statistical evaluation, or natural variation in groundwater quality. Box and whisker plots are provided in **Appendix A**.

3.2 TIME SERIES PLOTS

Time series plots provide a graphical method to view changes in data at a particular well (monitoring point) or wells over time. Time series plots display the variability in concentration levels over time and can be used to indicate possible outliers or data errors (i.e. "spikes"). More than one well can be compared on the same plot to look for differences between wells. Non-detect data is plotted as censored data at one-half of the laboratory reporting limit. Time series plots can also be used to examine the data for trends.

Time series plots for calcium were prepared for monitoring well MW-104, the other impoundment monitoring wells, the Station's collector well, and an upland storm water sample to allow comparison of

the concentrations. The comparison indicates the calcium concentrations in MW-104 are relatively consistent and near the lower range of calcium concentrations in the other monitoring wells, the Station's collector well, and upland storm water. This demonstrates that a source other than the Ash Impoundment could have caused the SSI over background levels, or that the SSI resulted from error in sampling, analysis, statistical evaluation, or natural variation in groundwater quality. Box and whisker plots are provided in **Appendix B**.

3.3 BORON STABLE ISOTOPE RATIO EVALUATION

The boron stable isotope ratio in coal and coal ash generally vary significantly from the boron stable isotope ratio found in naturally occurring groundwater. The National Bureau of Standards standard reference material 951 (NBS SRM-951), which is a boric acid, is used as the isotopic standard for boron. Boron has two stable isotopes, ^{10}B and ^{11}B . Isotopic ratios of samples are reported as per mil (‰) differences from NBS SRM-951. The delta value for $^{11}\text{B}/^{10}\text{B}$ is expressed as $\delta^{11}\text{B}$, ‰. Previous studies have found $\delta^{11}\text{B}$ values for coal ash and coal ash leachate samples between -40 ‰ and +6.6 ‰ and most meteoric groundwaters have $\delta^{11}\text{B}$ values between +10 ‰ and +30 ‰ (Refs. 1, 2, and 3).

Groundwater samples were collected from MW-108, MW-109, and MW-110 for boron and for $\delta^{11}\text{B}$ analysis on October 23, 2020. Additionally, an ash pore water sample (002) was collected from a Geotube[®] filled with ash from the impoundment on the same day and for the same analysis. The laboratory reports for the analysis are provided in **Appendix C**.

Boron concentration plotted against $\delta^{11}\text{B}$, ‰ for each of the samples are provided in **Appendix C**. The boron concentration in the ash pore water was 3.64 mg/ and the boron concentrations in MW-108, MW-109, and MW-110 were 2.04 mg/L, 1.74 mg/L, and 3.12 mg/L, respectively. The $\delta^{11}\text{B}$ for the boron from the ash pore water was -3.33 ‰ and the $\delta^{11}\text{B}$ values for the boron from MW-108, MW-109, and MW-110 were 13.87 ‰, 12.82 ‰, and -2.95 ‰, respectively. The significantly higher $\delta^{11}\text{B}$ for groundwater from MW-108 and MW-109 compared to the ash pore water demonstrates an alternative source of boron at the site other than the Ash Impoundment. However, the negative and similar $\delta^{11}\text{B}$ values for the boron from MW-110 compared to ash pore water do not demonstrate an alternative source for boron in MW-110.

Below the boron vs $\delta^{11}\text{B}$ plot in **Appendix C**, is a figure (Ref. 4) showing $\delta^{11}\text{B}$ ranges for meteoric waters from various natural materials and waters impacted by anthropogenic sources. The figure further demonstrates, based on $\delta^{11}\text{B}$ values for MW-108 and MW-109, that there is an alternative source of boron at the site other than the Fly Ash Impoundment.

4 CONCLUSION

Our opinion is that a sufficient body of evidence is available and presented above to demonstrate that a source other than the Ash Impoundment caused the SSI over background levels for calcium in MW-104 and boron in MW-109, or that the SSIs resulted from error in sampling, analysis, statistical evaluation, or natural variation in groundwater quality. However, the evidence currently available does not support an alternative source for the elevated boron in MW-110.

5 REFERENCES

1. **Buska, Paul M., Fitzpatrick, John and Watson, Lee R. and Kay, Robert T.** *Evaluation of Ground-Water and Boron Sources by Use of Boron Stable-Isotope Ratios, Tritium, and Selected Water Chemistry Constituents near Beverly Shores, Northwestern Indiana*, 2004. U.S. Geological Survey Scientific Investigations Report 2007-5166. (2007).
2. **Ruhl, Laura S. and Vengosh, Avner and Dwyer, Gary S. and Hsu-Kim, Heileen and Deonarine, Amrika.** *A Twenty-Month Geochemical and Isotopic Investigation into Environmental Impacts of the 2008 TVA Coal Ash Spill*, - May. Denver, CO, USA : s.n., 2011. 2011 World of Coal Ash (WOCA) Conference - May 9-12, 2011.
3. **Ruhl, Laura.** *Boron and Strontium Isotopic Characterization of Coal Combustion Residuals: Validation of Novel Environmental Tracers*, Paper No. 30616-208920. Charlotte, NC : s.n., 2012. 2012 Geological Society of America Annual Meeting and Exposition, 4-7 November.
4. **Ruhl, Laura.** *Geochemical and Isotopic Characterization of Coal Combustion Residuals: Implications for Potential Environmental Impacts*. Dissertation submitted in partial fulfillment of the requirements for the degree of Doctor of Philosophy in Earth and Ocean Sciences in the Graduate School of Duke University, 2012.

6 GENERAL COMMENTS

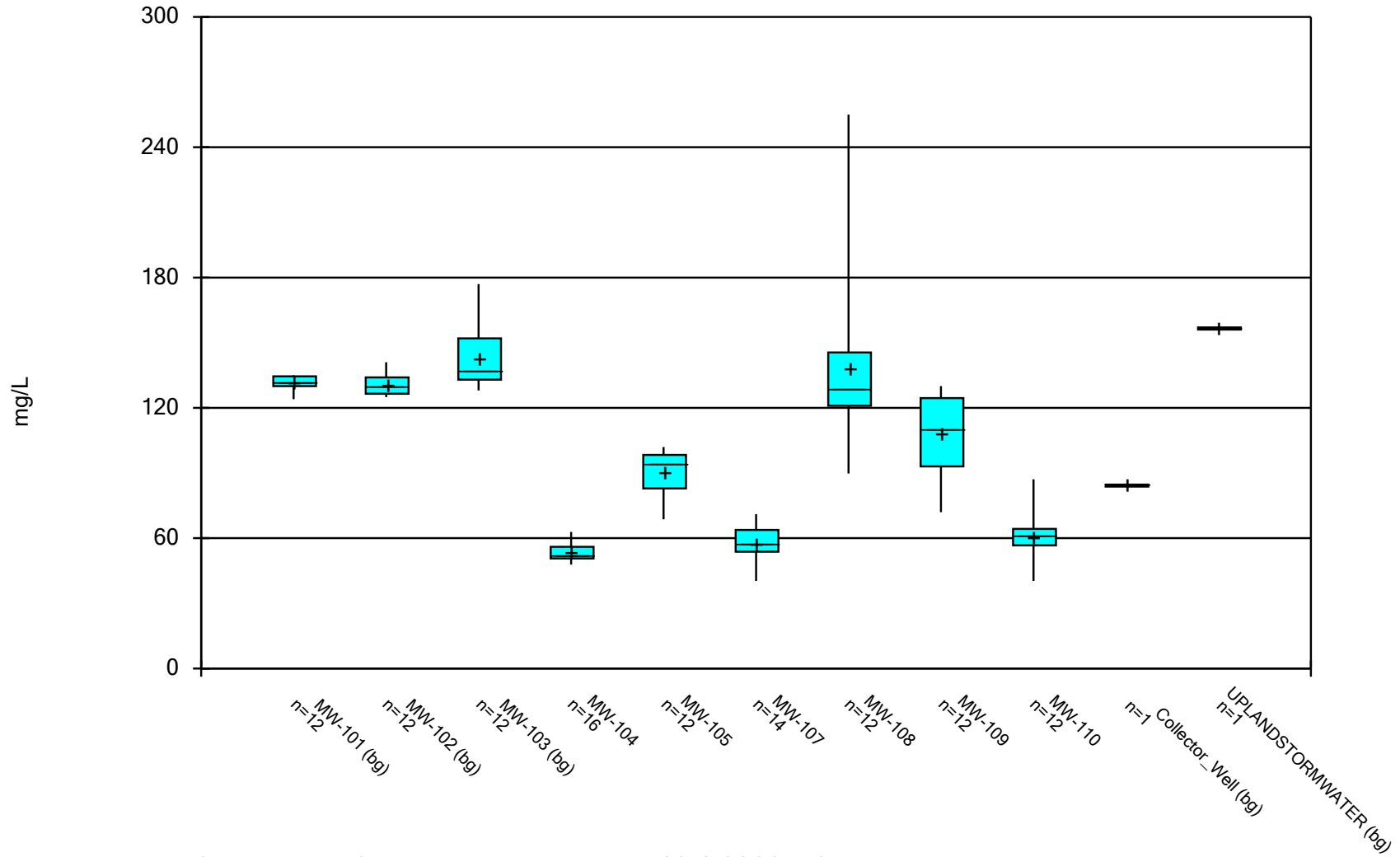
This report has been prepared and reviewed under the direction of a qualified groundwater scientist and qualified professional engineer. Please note that SCS Engineers does not warrant the work of regulatory agencies or other third parties supplying information used in the assimilation of this report. 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 Metro, Inc. for specific application to the Iatan Generating Station. No warranties, express or implied, are intended or made.

The signatures of the certifying registered geologist and professional engineer on this document represents that to the best of their knowledge, information, and belief in the exercise of their professional judgement in accordance with the standard of practice, it is their professional opinions that the aforementioned information is accurate as of the date of such signatures. Any opinion or decisions by them are made on the basis of their experience, qualifications, and professional judgement and are not to be construed as warranties or guaranties. In addition, opinions relating to regulatory, environmental, geologic, geochemical and geotechnical conditions interpretations or other estimates are based on available data, and actual conditions may vary from those encountered at the times and locations where data are obtained, despite the use of due care.

Appendix A

Box and Whiskers Plots

Box & Whiskers Plot



Constituent: Calcium Analysis Run 12/1/2020 5:35 PM View: Ash Impound III
latan Utility Waste LF Client: SCS Engineers Data: latan jrr

Box & Whiskers Plot

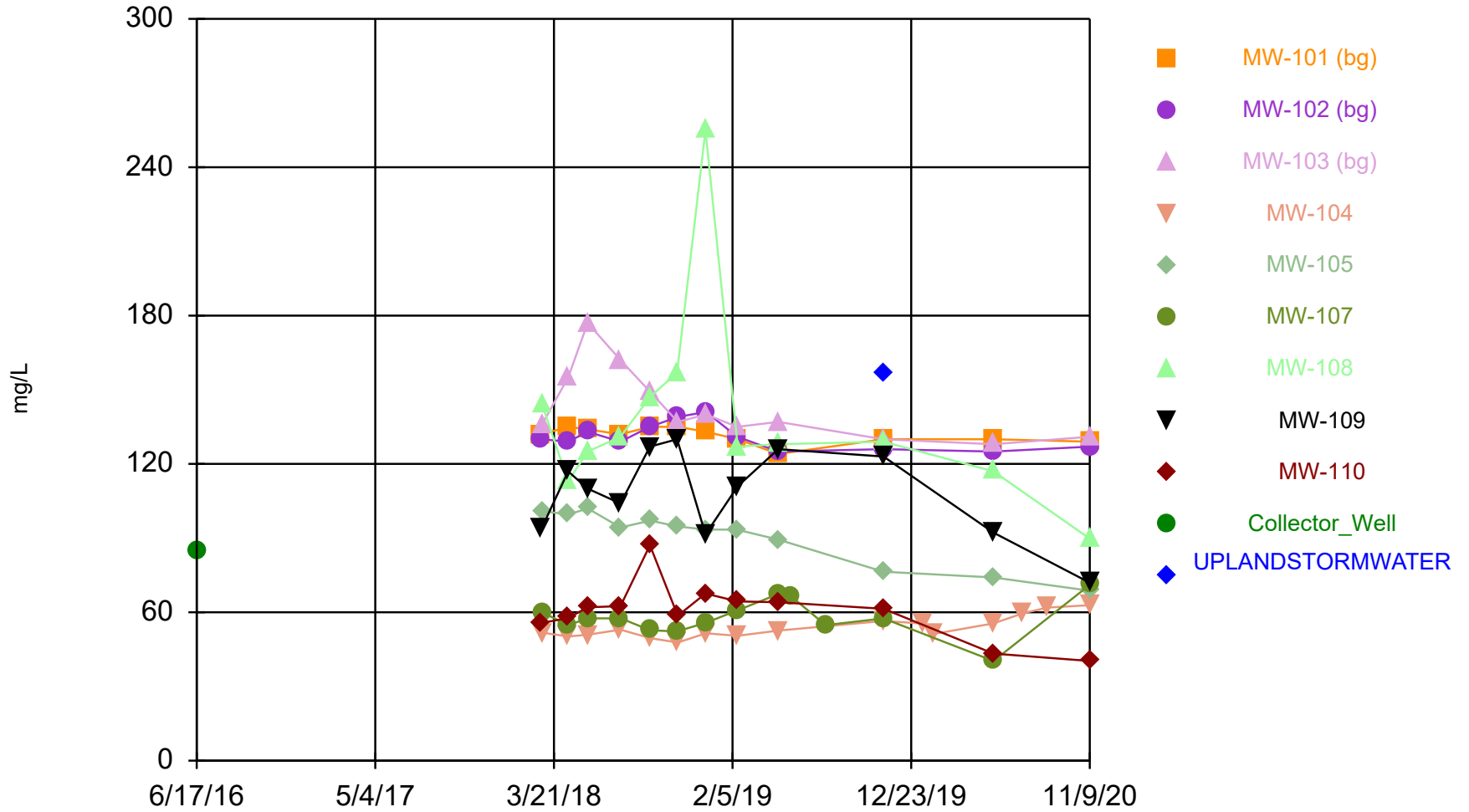
Iatan Utility Waste LF Client: SCS Engineers Data: Iatan jrr Printed 12/1/2020, 5:36 PM

<u>Constituent</u>	<u>Well</u>	<u>N</u>	<u>Mean</u>	<u>Std. Dev.</u>	<u>Std. Err.</u>	<u>Median</u>	<u>Min.</u>	<u>Max.</u>	<u>%NDs</u>
Calcium (mg/L)	MW-101 (bg)	12	131.6	3.232	0.933	132	124	135	0
Calcium (mg/L)	MW-102 (bg)	12	130.8	5.271	1.522	129.5	125	141	0
Calcium (mg/L)	MW-103 (bg)	12	143.1	14.86	4.29	137	128	177	0
Calcium (mg/L)	MW-104	16	53.81	4.475	1.119	52.2	47.8	62.9	0
Calcium (mg/L)	MW-105	12	90.34	11.12	3.21	93.9	68.7	102	0
Calcium (mg/L)	MW-107	14	57.81	7.589	2.028	57.5	40.3	71.1	0
Calcium (mg/L)	MW-108	12	138.6	40.53	11.7	128.5	89.8	255	0
Calcium (mg/L)	MW-109	12	108.1	17.89	5.164	110.5	72	130	0
Calcium (mg/L)	MW-110	12	60.39	11.8	3.406	61.7	40.3	87.1	0
Calcium (mg/L)	Collector...	1	84.7	0	0	84.7	84.7	84.7	0
Calcium (mg/L)	UPLANDSTO...	1	157	0	0	157	157	157	0

Appendix B

Time Series Plots

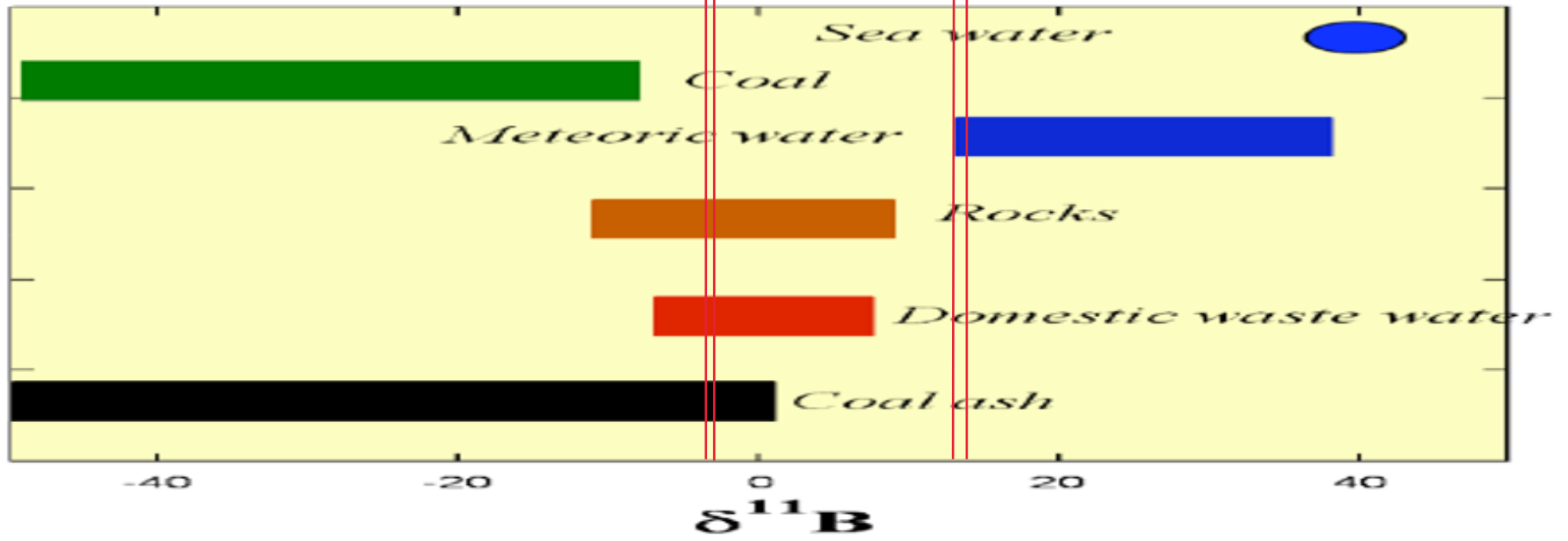
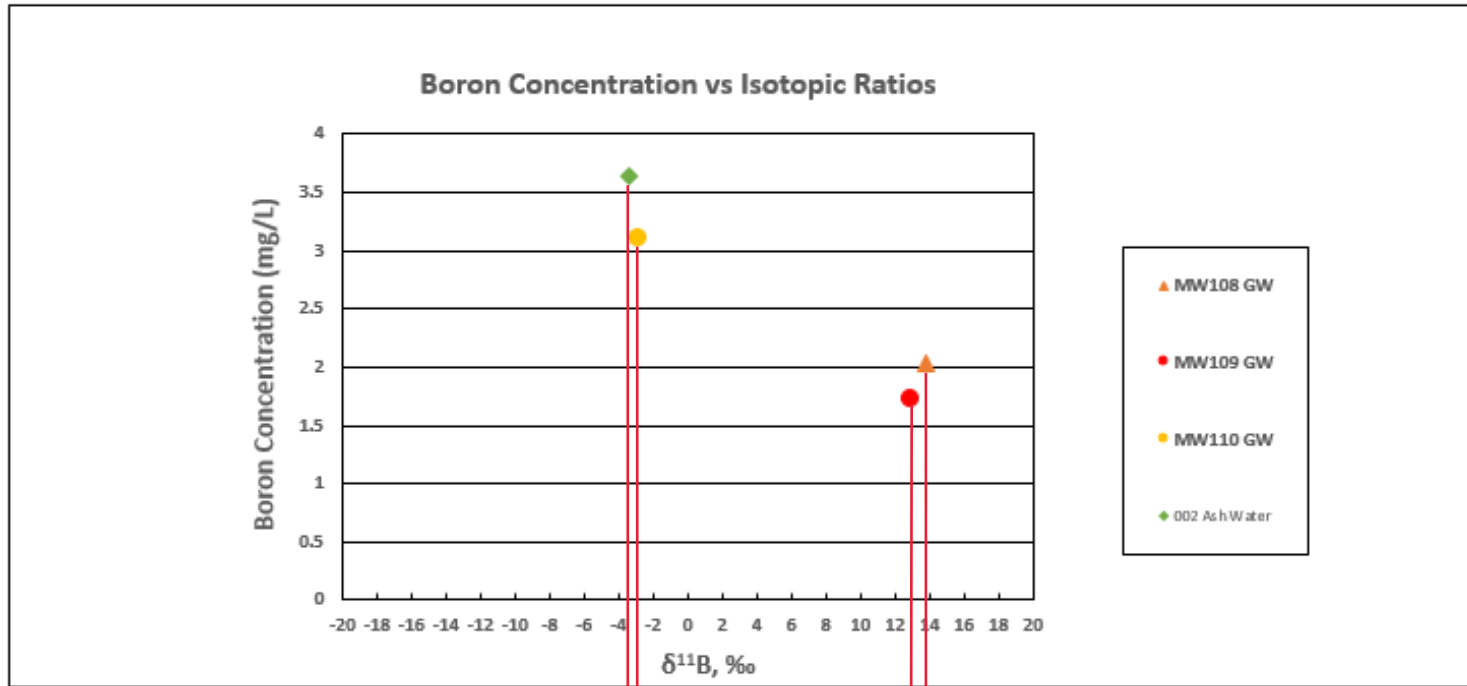
Time Series



Constituent: Calcium Analysis Run 12/1/2020 5:38 PM View: Ash Impound III
latan Utility Waste LF Client: SCS Engineers Data: latan jrr

Appendix C

Boron and Stable Isotope Plots and Laboratory Results





Date received **2020-10-30**
Issued **2020-11-04**

SCS Engineers
Jason R. Franks

8575 West 110 Street Suit 100
Overland Park, Kansas 66210
United States

Project **N/A**

Analysis: IR

Your ID	MW104 102320:1250				
Sampled	2020-10-23				
LabID	U11773463				
Analysis	Results	Unit	Method	Issuer	Sign
Report in Excel *	yes		1	I	IR

Your ID	MW108 102320:1110				
Sampled	2020-10-23				
LabID	U11773464				
Analysis	Results	Unit	Method	Issuer	Sign
Report in Excel *	yes		1	I	IR

Your ID	MW109 102320:1140				
Sampled	2020-10-23				
LabID	U11773465				
Analysis	Results	Unit	Method	Issuer	Sign
Report in Excel *	yes		1	I	IR

Your ID	MW110 102320:1210				
Sampled	2020-10-23				
LabID	U11773466				
Analysis	Results	Unit	Method	Issuer	Sign
Report in Excel *	yes		1	I	IR

Your ID	002 102320:1100				
Sampled	2020-10-23				
LabID	U11773467				
Analysis	Results	Unit	Method	Issuer	Sign
Report in Excel *	yes		1	I	IR



Your ID	004 102320:1200				
Sampled	2020-10-23				
LabID	U11773468				
Analysis	Results	Unit	Method	Issuer	Sign
Report in Excel*	yes		1	I	IR



Method specification	
1	Analysed according to see separate report in excel.

Approver	
IR	Iliia Rodushkin

Issuer ¹	
I	Man.Inm.

* indicates unaccredited analysis.

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The digitally signed PDF file represents the original report. Any printouts are to be considered as copies.

¹ The technical unit within ALS Scandinavia where the analysis was carried out, alternatively the subcontractor for the analysis.

REPORT OF ANALYSIS



Issued by: ALS Scandinavia AB, Aurorum 10, S-977 75 Luleå, Sweden
Client: SCS Engineers
Date of receipt: 2020-10-30
Date of analysis: 2018-11-04
Order number (our): L2022811
Your reference: Jason R. Franks
Our reference: Iliia Rodushkin

Sample ID	Lab ID	$\delta^{11}\text{B}$, ‰	2 SD	
MW104 102320:1250	U11773463	0.45	0.62	
MW104 102320:1250, r.2	U11773463	0.25	0.44	
MW108 102320:1110	U11773464	13.87	0.65	
MW109 102320:1140	U11773465	12.82	0.68	
MW110 102320:1210	U11773466	-2.95	0.71	
002 102320:1100	U11773467	-3.33	0.67	
002 102320:1100, r.2	U11773467	-3.27	0.74	
004 102320:1200	U11773468	7.10	0.81	
004 102320:1200, r.2	U11773468	7.04	0.75	

Comments

The analysis is carried out by MC-ICP-MS (MEPTUNE PLUS, ThermoScientific) and MC-ICP-MS (NEPTUNE PLUS) using internal standardization and external calibration with bracketing isotope SRMs

Analysis is carried out after ion exchange separation

Delta 11B values calculated to NIST SRM 951

SD calculated from two independent consecutive measurements


Signature

Iliia Rodushkin
Associate Professor
LABORATORY MANAGER
ALS Scandinavia AB

October 31, 2020

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

SCS Engineers - KS

Sample Delivery Group: L1277600
Samples Received: 10/24/2020
Project Number: 27213167.20
Description: Evergy Iatan Generating Station

Report To: Jason Franks
8575 W. 110th Street
Overland Park, KS 66210

Entire Report Reviewed By:



Jeff Carr
Project Manager

Results relate only to the items tested or calibrated and are reported as rounded values. This test report shall not be reproduced, except in full, without written approval of the laboratory. Where applicable, sampling conducted by Pace Analytical National is performed per guidance provided in laboratory standard operating procedures ENV-SOP-MTJL-0067 and ENV-SOP-MTJL-0068. Where sampling conducted by the customer, results relate to the accuracy of the information provided, and as the samples are received.



Cp: Cover Page	1	¹Cp
Tc: Table of Contents	2	
Ss: Sample Summary	3	²Tc
Cn: Case Narrative	5	
Sr: Sample Results	6	³Ss
MW-104 L1277600-01	6	
MW-108 L1277600-02	7	⁴Cn
MW-109 L1277600-03	8	⁵Sr
MW-110 L1277600-04	9	
001 L1277600-05	10	⁶Qc
002 L1277600-06	11	
003 L1277600-07	12	⁷Gl
004 L1277600-08	13	⁸Al
Qc: Quality Control Summary	14	
Metals (ICP) by Method 6010B	14	⁹Sc
Gl: Glossary of Terms	17	
Al: Accreditations & Locations	18	
Sc: Sample Chain of Custody	19	

SAMPLE SUMMARY

MW-104 L1277600-01 GW

Collected by Jason R Franks
Collected date/time 10/23/20 12:50
Received date/time 10/24/20 10:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Metals (ICP) by Method 6010B	WG1565894	1	10/30/20 00:43	10/30/20 09:16	TRB	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1566839	1	10/28/20 21:54	10/29/20 13:03	EL	Mt. Juliet, TN

- 1 Cp
- 2 Tc
- 3 Ss
- 4 Cn
- 5 Sr
- 6 Qc
- 7 Gl
- 8 Al
- 9 Sc

MW-108 L1277600-02 GW

Collected by Jason R Franks
Collected date/time 10/23/20 11:10
Received date/time 10/24/20 10:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Metals (ICP) by Method 6010B	WG1565894	1	10/30/20 00:43	10/30/20 09:19	TRB	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1566839	1	10/28/20 21:54	10/29/20 13:05	EL	Mt. Juliet, TN

MW-109 L1277600-03 GW

Collected by Jason R Franks
Collected date/time 10/23/20 11:40
Received date/time 10/24/20 10:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Metals (ICP) by Method 6010B	WG1565894	1	10/30/20 00:43	10/30/20 09:22	TRB	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1566839	1	10/28/20 21:54	10/29/20 20:05	TRB	Mt. Juliet, TN

MW-110 L1277600-04 GW

Collected by Jason R Franks
Collected date/time 10/23/20 12:10
Received date/time 10/24/20 10:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Metals (ICP) by Method 6010B	WG1565894	1	10/30/20 00:43	10/30/20 09:25	TRB	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1566842	1	10/30/20 16:33	10/31/20 09:42	TRB	Mt. Juliet, TN

001 L1277600-05 GW

Collected by Jason R Franks
Collected date/time 10/23/20 10:30
Received date/time 10/24/20 10:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Metals (ICP) by Method 6010B	WG1565894	1	10/30/20 00:43	10/30/20 09:28	TRB	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1566842	1	10/30/20 16:33	10/31/20 09:52	TRB	Mt. Juliet, TN

002 L1277600-06 GW

Collected by Jason R Franks
Collected date/time 10/23/20 11:00
Received date/time 10/24/20 10:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Metals (ICP) by Method 6010B	WG1565894	1	10/30/20 00:43	10/30/20 09:36	TRB	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1566842	1	10/30/20 16:33	10/31/20 09:55	TRB	Mt. Juliet, TN

003 L1277600-07 GW

Collected by Jason R Franks
Collected date/time 10/23/20 11:30
Received date/time 10/24/20 10:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Metals (ICP) by Method 6010B	WG1565894	1	10/30/20 00:43	10/30/20 09:39	TRB	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1566842	1	10/30/20 16:33	10/31/20 09:58	TRB	Mt. Juliet, TN

SAMPLE SUMMARY



004 L1277600-08 GW

Collected by: Jason R Franks
 Collected date/time: 10/23/20 12:00
 Received date/time: 10/24/20 10:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Metals (ICP) by Method 6010B	WG1565894	1	10/30/20 00:43	10/30/20 09:42	TRB	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1566842	1	10/30/20 16:33	10/31/20 10:00	TRB	Mt. Juliet, TN

¹Cp

²Tc

³Ss

⁴Cn

⁵Sr

⁶Qc

⁷Gl

⁸Al

⁹Sc



All sample aliquots were received at the correct temperature, in the proper containers, with the appropriate preservatives, and within method specified holding times, unless qualified or notated within the report. Where applicable, all MDL (LOD) and RDL (LOQ) values reported for environmental samples have been corrected for the dilution factor used in the analysis. All Method and Batch Quality Control are within established criteria except where addressed in this case narrative, a non-conformance form or properly qualified within the sample results. By my digital signature below, I affirm to the best of my knowledge, all problems/anomalies observed by the laboratory as having the potential to affect the quality of the data have been identified by the laboratory, and no information or data have been knowingly withheld that would affect the quality of the data.

Jeff Carr
Project Manager

- ¹ Cp
- ² Tc
- ³ Ss
- ⁴ Cn
- ⁵ Sr
- ⁶ Qc
- ⁷ Gl
- ⁸ Al
- ⁹ Sc



Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Boron	1210		200	1	10/29/2020 13:03	WG1566839
Boron,Dissolved	1200		200	1	10/30/2020 09:16	WG1565894

¹ Cp

² Tc

³ Ss

⁴ Cn

⁵ Sr

⁶ Qc

⁷ Gl

⁸ Al

⁹ Sc



Metals (ICP) by Method 6010B

Analyte	Result ug/l	Qualifier	RDL ug/l	Dilution	Analysis date / time	Batch
Boron	2040		200	1	10/29/2020 13:05	WG1566839
Boron,Dissolved	2000		200	1	10/30/2020 09:19	WG1565894

¹ Cp

² Tc

³ Ss

⁴ Cn

⁵ Sr

⁶ Qc

⁷ Gl

⁸ Al

⁹ Sc



Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Boron	1740		200	1	10/29/2020 20:05	WG1566839
Boron,Dissolved	1690		200	1	10/30/2020 09:22	WG1565894

¹ Cp

² Tc

³ Ss

⁴ Cn

⁵ Sr

⁶ Qc

⁷ Gl

⁸ Al

⁹ Sc



Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Boron	3120		200	1	10/31/2020 09:42	WG1566842
Boron,Dissolved	3160		200	1	10/30/2020 09:25	WG1565894

¹ Cp

² Tc

³ Ss

⁴ Cn

⁵ Sr

⁶ Qc

⁷ Gl

⁸ Al

⁹ Sc



Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Boron	ND		200	1	10/31/2020 09:52	WG1566842
Boron,Dissolved	ND		200	1	10/30/2020 09:28	WG1565894

¹ Cp

² Tc

³ Ss

⁴ Cn

⁵ Sr

⁶ Qc

⁷ Gl

⁸ Al

⁹ Sc



Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Boron	3640		200	1	10/31/2020 09:55	WG1566842
Boron,Dissolved	3290		200	1	10/30/2020 09:36	WG1565894

¹ Cp

² Tc

³ Ss

⁴ Cn

⁵ Sr

⁶ Qc

⁷ Gl

⁸ Al

⁹ Sc



Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Boron	ND		200	1	10/31/2020 09:58	WG1566842
Boron,Dissolved	ND		200	1	10/30/2020 09:39	WG1565894

¹ Cp

² Tc

³ Ss

⁴ Cn

⁵ Sr

⁶ Qc

⁷ Gl

⁸ Al

⁹ Sc



Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Boron	293		200	1	10/31/2020 10:00	WG1566842
Boron,Dissolved	292		200	1	10/30/2020 09:42	WG1565894

¹ Cp

² Tc

³ Ss

⁴ Cn

⁵ Sr

⁶ Qc

⁷ Gl

⁸ Al

⁹ Sc



Method Blank (MB)

(MB) R3587535-1 10/30/20 08:29

Analyte	MB Result ug/l	MB Qualifier	MB MDL ug/l	MB RDL ug/l
Boron,Dissolved	U		20.0	200

¹ Cp

² Tc

³ Ss

⁴ Cn

⁵ Sr

⁶ Qc

Laboratory Control Sample (LCS)

(LCS) R3587535-2 10/30/20 08:32

Analyte	Spike Amount ug/l	LCS Result ug/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Boron,Dissolved	1000	980	98.0	80.0-120	

⁷ Gl

⁸ Al

L1277522-10 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1277522-10 10/30/20 08:34 • (MS) R3587535-4 10/30/20 08:40 • (MSD) R3587535-5 10/30/20 08:42

Analyte	Spike Amount ug/l	Original Result ug/l	MS Result ug/l	MSD Result ug/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Boron,Dissolved	1000	ND	1010	1000	97.9	96.5	1	75.0-125			1.32	20

⁹ Sc



Method Blank (MB)

(MB) R3587293-1 10/29/20 12:07

Analyte	MB Result ug/l	MB Qualifier	MB MDL ug/l	MB RDL ug/l
Boron	U		20.0	200

1 Cp

2 Tc

3 Ss

Laboratory Control Sample (LCS)

(LCS) R3587293-2 10/29/20 12:09

Analyte	Spike Amount ug/l	LCS Result ug/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Boron	1000	977	97.7	80.0-120	

4 Cn

5 Sr

L1277522-10 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1277522-10 10/29/20 12:12 • (MS) R3587293-4 10/29/20 12:18 • (MSD) R3587293-5 10/29/20 12:20

Analyte	Spike Amount ug/l	Original Result ug/l	MS Result ug/l	MSD Result ug/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Boron	1000	ND	1000	1010	97.9	99.0	1	75.0-125			1.11	20

6 Qc

7 Gl

8 Al

9 Sc



Method Blank (MB)

(MB) R3587896-1 10/31/20 09:37

Analyte	MB Result ug/l	MB Qualifier	MB MDL ug/l	MB RDL ug/l
Boron	U		20.0	200

¹ Cp

² Tc

³ Ss

⁴ Cn

⁵ Sr

Laboratory Control Sample (LCS)

(LCS) R3587896-2 10/31/20 09:39

Analyte	Spike Amount ug/l	LCS Result ug/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Boron	1000	979	97.9	80.0-120	

⁶ Qc

L1277600-04 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1277600-04 10/31/20 09:42 • (MS) R3587896-4 10/31/20 09:47 • (MSD) R3587896-5 10/31/20 09:50

Analyte	Spike Amount ug/l	Original Result ug/l	MS Result ug/l	MSD Result ug/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Boron	1000	3120	4060	4050	93.7	93.1	1	75.0-125			0.153	20

⁷ Gl

⁸ Al

⁹ Sc



Guide to Reading and Understanding Your Laboratory Report

The information below is designed to better explain the various terms used in your report of analytical results from the Laboratory. This is not intended as a comprehensive explanation, and if you have additional questions please contact your project representative.

Results Disclaimer - Information that may be provided by the customer, and contained within this report, include Permit Limits, Project Name, Sample ID, Sample Matrix, Sample Preservation, Field Blanks, Field Spikes, Field Duplicates, On-Site Data, Sampling Collection Dates/Times, and Sampling Location. Results relate to the accuracy of this information provided, and as the samples are received.

Abbreviations and Definitions

MDL	Method Detection Limit.
ND	Not detected at the Reporting Limit (or MDL where applicable).
RDL	Reported Detection Limit.
Rec.	Recovery.
RPD	Relative Percent Difference.
SDG	Sample Delivery Group.
U	Not detected at the Reporting Limit (or MDL where applicable).
Analyte	The name of the particular compound or analysis performed. Some Analyses and Methods will have multiple analytes reported.
Dilution	If the sample matrix contains an interfering material, the sample preparation volume or weight values differ from the standard, or if concentrations of analytes in the sample are higher than the highest limit of concentration that the laboratory can accurately report, the sample may be diluted for analysis. If a value different than 1 is used in this field, the result reported has already been corrected for this factor.
Limits	These are the target % recovery ranges or % difference value that the laboratory has historically determined as normal for the method and analyte being reported. Successful QC Sample analysis will target all analytes recovered or duplicated within these ranges.
Original Sample	The non-spiked sample in the prep batch used to determine the Relative Percent Difference (RPD) from a quality control sample. The Original Sample may not be included within the reported SDG.
Qualifier	This column provides a letter and/or number designation that corresponds to additional information concerning the result reported. If a Qualifier is present, a definition per Qualifier is provided within the Glossary and Definitions page and potentially a discussion of possible implications of the Qualifier in the Case Narrative if applicable.
Result	The actual analytical final result (corrected for any sample specific characteristics) reported for your sample. If there was no measurable result returned for a specific analyte, the result in this column may state "ND" (Not Detected) or "BDL" (Below Detectable Levels). The information in the results column should always be accompanied by either an MDL (Method Detection Limit) or RDL (Reporting Detection Limit) that defines the lowest value that the laboratory could detect or report for this analyte.
Uncertainty (Radiochemistry)	Confidence level of 2 sigma.
Case Narrative (Cn)	A brief discussion about the included sample results, including a discussion of any non-conformances to protocol observed either at sample receipt by the laboratory from the field or during the analytical process. If present, there will be a section in the Case Narrative to discuss the meaning of any data qualifiers used in the report.
Quality Control Summary (Qc)	This section of the report includes the results of the laboratory quality control analyses required by procedure or analytical methods to assist in evaluating the validity of the results reported for your samples. These analyses are not being performed on your samples typically, but on laboratory generated material.
Sample Chain of Custody (Sc)	This is the document created in the field when your samples were initially collected. This is used to verify the time and date of collection, the person collecting the samples, and the analyses that the laboratory is requested to perform. This chain of custody also documents all persons (excluding commercial shippers) that have had control or possession of the samples from the time of collection until delivery to the laboratory for analysis.
Sample Results (Sr)	This section of your report will provide the results of all testing performed on your samples. These results are provided by sample ID and are separated by the analyses performed on each sample. The header line of each analysis section for each sample will provide the name and method number for the analysis reported.
Sample Summary (Ss)	This section of the Analytical Report defines the specific analyses performed for each sample ID, including the dates and times of preparation and/or analysis.

- 1 Cp
- 2 Tc
- 3 Ss
- 4 Cn
- 5 Sr
- 6 Qc
- 7 Gl
- 8 Al
- 9 Sc

Qualifier Description

The remainder of this page intentionally left blank, there are no qualifiers applied to this SDG.



Pace National is the only environmental laboratory accredited/certified to support your work nationwide from one location. One phone call, one point of contact, one laboratory. No other lab is as accessible or prepared to handle your needs throughout the country. Our capacity and capability from our single location laboratory is comparable to the collective totals of the network laboratories in our industry. The most significant benefit to our one location design is the design of our laboratory campus. The model is conducive to accelerated productivity, decreasing turn-around time, and preventing cross contamination, thus protecting sample integrity. Our focus on premium quality and prompt service allows us to be YOUR LAB OF CHOICE.

* Not all certifications held by the laboratory are applicable to the results reported in the attached report.
 * Accreditation is only applicable to the test methods specified on each scope of accreditation held by Pace National.

State Accreditations

Alabama	40660	Nebraska	NE-OS-15-05
Alaska	17-026	Nevada	TN-03-2002-34
Arizona	AZ0612	New Hampshire	2975
Arkansas	88-0469	New Jersey-NELAP	TN002
California	2932	New Mexico ¹	n/a
Colorado	TN00003	New York	11742
Connecticut	PH-0197	North Carolina	Env375
Florida	E87487	North Carolina ¹	DW21704
Georgia	NELAP	North Carolina ³	41
Georgia ¹	923	North Dakota	R-140
Idaho	TN00003	Ohio-VAP	CL0069
Illinois	200008	Oklahoma	9915
Indiana	C-TN-01	Oregon	TN200002
Iowa	364	Pennsylvania	68-02979
Kansas	E-10277	Rhode Island	LA000356
Kentucky ^{1,6}	90010	South Carolina	84004
Kentucky ²	16	South Dakota	n/a
Louisiana	AI30792	Tennessee ^{1,4}	2006
Louisiana ¹	LA180010	Texas	T104704245-18-15
Maine	TN0002	Texas ⁵	LAB0152
Maryland	324	Utah	TN00003
Massachusetts	M-TN003	Vermont	VT2006
Michigan	9958	Virginia	460132
Minnesota	047-999-395	Washington	C847
Mississippi	TN00003	West Virginia	233
Missouri	340	Wisconsin	9980939910
Montana	CERT0086	Wyoming	A2LA

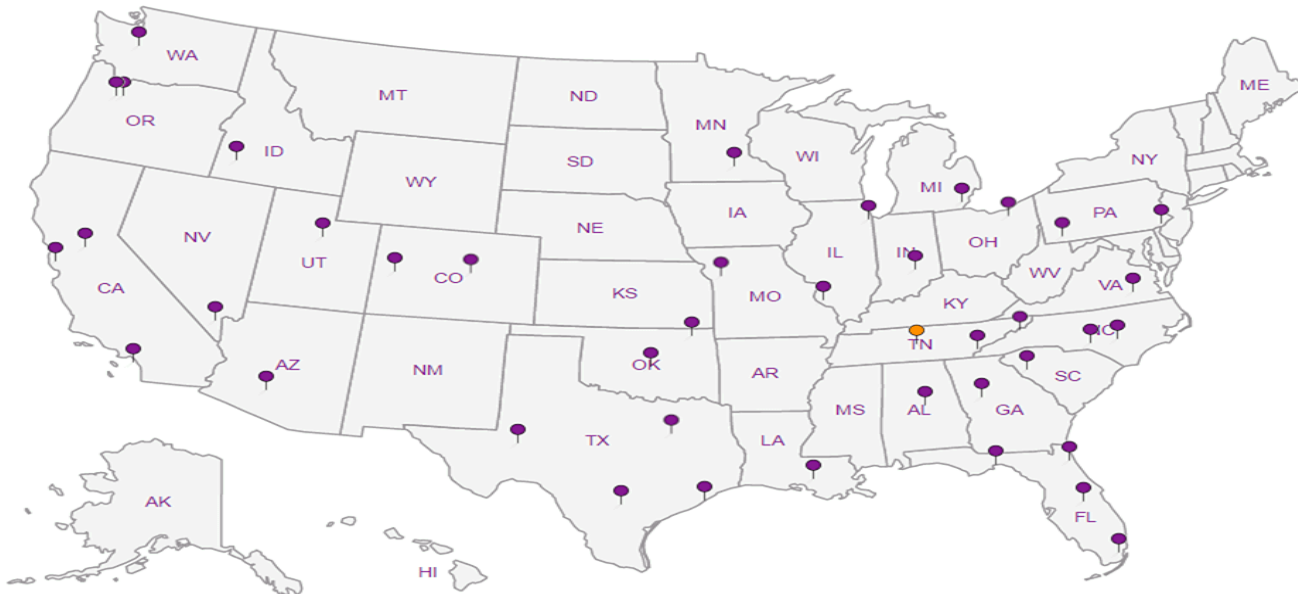
Third Party Federal Accreditations

A2LA – ISO 17025	1461.01	AIHA-LAP,LLC EMLAP	100789
A2LA – ISO 17025 ⁵	1461.02	DOD	1461.01
Canada	1461.01	USDA	P330-15-00234
EPA-Crypto	TN00003		

¹ Drinking Water ² Underground Storage Tanks ³ Aquatic Toxicity ⁴ Chemical/Microbiological ⁵ Mold ⁶ Wastewater n/a Accreditation not applicable

Our Locations

Pace National has sixty-four client support centers that provide sample pickup and/or the delivery of sampling supplies. If you would like assistance from one of our support offices, please contact our main office. Pace National performs all testing at our central laboratory.



1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

SCS Engineers - KS

8575 W. 110th Street
Overland Park, KS 66210

Billing Information:

Accounts Payable
8575 W. 110th Street
Overland Park, KS 66210

Pres
Chk

<2 <2

Analysis / Container / Preservative



12065 Lebanon Rd
Mount Juliet, TN 37122
Phone: 615-758-5858
Phone: 800-767-5859
Fax: 615-758-5859



Report to:

Jason Franks

Email To:

jfranks@scsengineers.com;jay.martin@evergy.c

Project Description:

Evergy Iatan Generating Station

City/State

Collected: Weston, MO

Please Circle:

PT MT CP ET

Phone: 913-681-0030

Client Project #

27213167.18

Lab Project #

AQUAOPKS-IATAN

Collected by (print):

JASON R. FRANKS

Site/Facility ID #

P.O. #

Collected by (signature):

[Signature]

Rush? (Lab MUST Be Notified)

Same Day Five Day
Next Day 5 Day (Rad Only)
Two Day 10 Day (Rad Only)
 Three Day

Quote #

Date Results Needed

Immediately

Packed on Ice N Y

No.
of
Cnts

Sample ID	Comp/Grab	Matrix *	Depth	Date	Time	No. of Cntrs	Diss. Boron - 6010 250mlHDPE-HNO3	Total Boron - 6010 250mlHDPE-HNO3										
MW-104	GRAB	GW	-	10/23/20	1250	2	X	X										-01
MW-108		GW	-		1110	2	X	X										-02
MW-109		GW	-		1140	2	X	X										-03
MW-110		GW	-		1210	2	X	X										-04
001		GW	-		1030	2	X	X										-05
002		GW	-		1100	2	X	X										-06
003		GW	-		1130	2	X	X										-07
004		GW	-		1200	2	X	X										-08
		GW	-			2	X	X										
		GW	-			2	X	X										

* Matrix:
SS - Soil AIR - Air F - Filter
GW - Groundwater B - Bioassay
WW - WasteWater
DW - Drinking Water
OT - Other

Remarks: Dissolved Boron Field Filtered.

pH _____ Temp _____
Flow _____ Other _____

Sample Receipt Checklist	
COC Seal Present/Intact:	<input checked="" type="checkbox"/> Y <input type="checkbox"/> N
COC Signed/Accurate:	<input checked="" type="checkbox"/> Y <input type="checkbox"/> N
Bottles arrive intact:	<input checked="" type="checkbox"/> Y <input type="checkbox"/> N
Correct bottles used:	<input checked="" type="checkbox"/> Y <input type="checkbox"/> N
Sufficient volume sent:	<input checked="" type="checkbox"/> Y <input type="checkbox"/> N
If Applicable	
VOA Zero Headspace:	<input checked="" type="checkbox"/> Y <input type="checkbox"/> N
Preservation Correct/Checked:	<input checked="" type="checkbox"/> Y <input type="checkbox"/> N
RAD Screen <0.5 mR/hr:	<input checked="" type="checkbox"/> Y <input type="checkbox"/> N

Samples returned via: SWA
UPS FedEx Courier

Tracking #

Relinquished by: (Signature) <i>[Signature]</i>	Date: 10/23/20	Time: 1500	Received by: (Signature) <i>[Signature]</i>	Date: 10-23-20	Time: 1505	Trip Blank Received: (Yes/No) HCL / MeOH TBR	Temp: 21.1 °C	Bottles Received: 16	If preservation required by Login: Date/Time
Relinquished by: (Signature) <i>[Signature]</i>	Date:	Time:	Received by: (Signature)	Date:	Time:				
Relinquished by: (Signature) <i>[Signature]</i>	Date:	Time:	Received for lab by: (Signature) <i>[Signature]</i>	Date: 10/24	Time: 1030	Hold:	Condition: NCF / <u>OK</u>		