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**Zimmer Power Company, LLC**

Date  
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Project No.  
**1940103649-016**

**2023 ANNUAL GROUNDWATER  
MONITORING AND CORRECTIVE  
ACTION REPORT**  
**GYPSUM RECYCLE POND**  
**ZIMMER POWER PLANT**  
**MOSCOW, OHIO**  
**CCR UNIT 124**

**2023 ANNUAL GROUNDWATER MONITORING AND  
CORRECTIVE ACTION REPORT  
ZIMMER POWER PLANT GYPSUM RECYCLE POND**

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Project no. **1940103649-016**  
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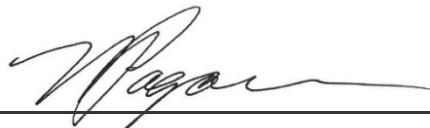
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## ACRONYMS AND ABBREVIATIONS

40 C.F.R.	Title 40 of the Code of Federal Regulations
A6	Quarter 1, 2023 Assessment Monitoring sampling event
A6D	Quarter 3, 2023 Assessment Monitoring sampling event
ASD	Alternative Source Demonstration
CCR	coal combustion residuals
CMA	Corrective Measures Assessment
GRP	Gypsum Recycle Pond
GWPS	groundwater protection standard
NA	not applicable
Ramboll	Ramboll Americas Engineering Solutions, Inc.
SAP	Sampling and Analysis Plan
SSI	statistically significant increase
SSL	statistically significant level
ZPP	Zimmer Power Plant

## EXECUTIVE SUMMARY

This report has been prepared to provide the information required by Title 40 of the Code of Federal Regulations (40 C.F.R.) § 257.90(e) for the Gypsum Recycle Pond (GRP) located at the Zimmer Power Plant (ZPP) near Moscow, Ohio.

Groundwater is being monitored at the GRP in accordance with the Assessment Monitoring Program requirements specified in 40 C.F.R. § 257.95. Assessment Monitoring was initiated at the GRP on April 9, 2018.

No changes were made to the monitoring system in 2023.

No Statistically Significant Levels (SSLs) of 40 C.F.R. § 257 Appendix IV parameters over groundwater protection standards (GWPSs) were determined in 2023. Since no SSLs of 40 C.F.R. § 257 Appendix IV parameters over GWPSs were determined in 2023, a Corrective Measures Assessment (CMA) is not required. Statistically significant increases (SSIs) of Appendix III parameters above background values were determined as discussed in **Section 3**.

Closure by removal construction was completed at the GRP on November 9, 2022 and closure certification was completed on October 13, 2023. Post-closure groundwater concentrations do not exceed the GWPSs established pursuant to § 257.95(h) for constituents listed in Appendix IV. Accordingly, the groundwater component of the closure performance standard specified in 40 C.F.R. § 257.102(c) has been met and the GRP is effectively removed from the Assessment Monitoring Program.

## 1. INTRODUCTION

This report has been prepared by Ramboll Americas Engineering Solutions, Inc. (Ramboll) on behalf of Zimmer Power Company, LLC, to provide the information required by 40 C.F.R. § 257.90(e) for the GRP located at the ZPP near Moscow, Ohio.

In accordance with 40 C.F.R. § 257.90(e), the owner or operator of a coal combustion residuals (CCR) unit must prepare an Annual Groundwater Monitoring and Corrective Action Report for the preceding calendar year that documents the status of the Groundwater Monitoring and Corrective Action Program for the CCR unit (**Section 2**), summarizes key actions completed (**Section 3**), describes any problems encountered and actions to resolve the problems (**Section 4**), and projects key activities for the upcoming year (**Section 5**). At a minimum, the annual report must contain the following information, to the extent available:

1. A map, aerial image, or diagram showing the CCR unit and all background (or upgradient) and downgradient monitoring wells, to include the well identification numbers, that are part of the groundwater monitoring program for the CCR unit (**Figure 1**).
2. Identification of any monitoring wells that were installed or decommissioned during the preceding year, along with a narrative description of why those actions were taken (**Section 3**, paragraph 1).
3. In addition to all the monitoring data obtained under §§ 257.90 through 257.98, a summary including the number of groundwater samples that were collected for analysis for each background and downgradient well, the dates the samples were collected, and whether the sample was required by the Detection Monitoring or Assessment Monitoring Programs (**Section 3, Table A**).
4. A narrative discussion of any transition between monitoring programs (*e.g.*, the date and circumstances for transitioning from Detection Monitoring to Assessment Monitoring in addition to identifying the constituent(s) detected at a statistically significant increase relative to background levels) (**Section 3**).
5. Other information required to be included in the annual report as specified in §§ 257.90 through 257.98.
6. A section at the beginning of the annual report that provides an overview of the current status of groundwater monitoring and corrective action programs for the CCR unit (see **Executive Summary**). At a minimum, the summary must specify all of the following:
  - i. At the start of the current annual reporting period, whether the CCR unit was operating under the Detection Monitoring Program in §257.94 or the Assessment Monitoring Program in §257.95.
  - ii. At the end of the current annual reporting period, whether the CCR unit was operating under the Detection Monitoring Program in §257.94 or the Assessment Monitoring Program in §257.95.
  - iii. If it was determined that there was a statistically significant increase over background for one or more constituents listed in Appendix III of §257 pursuant to §257.94(e):
    - A. Identify those constituents listed in Appendix III of §257 and the names of the monitoring wells associated with such an increase.

- B. Provide the date when the Assessment Monitoring Program was initiated for the CCR unit.
- iv. If it was determined that there was a statistically significant level above the groundwater protection standard [GWPS] for one or more constituents listed in Appendix IV of §257 pursuant to §257.95(g) include all of the following:
  - A. Identify those constituents listed in Appendix IV of §257 and the names of the monitoring wells associated with such an increase.
  - B. Provide the date when the assessment of corrective measures was 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.
  - D. Provide the date when the assessment of corrective measures was completed for the CCR unit.
- v. Whether a remedy was selected pursuant to §257.97 during the current annual reporting period, and if so, the date of remedy selection.
- vi. Whether remedial activities were initiated or are ongoing pursuant to § 257.98 during the current annual reporting period.

This report provides the required information for the GRP for calendar year 2023.

## **2. MONITORING AND CORRECTIVE ACTION PROGRAM STATUS**

Closure certification was completed on October 13, 2023 and the GRP has been removed from the Assessment Monitoring Program.



### 3. KEY ACTIONS COMPLETED IN 2023

A summary of the samples collected from background and compliance monitoring wells in 2023 under the Assessment Monitoring Program is included in **Table A** on the following page. The groundwater monitoring system, including the CCR unit and all background and compliance monitoring wells, is presented in **Figure 1**. No changes were made to the monitoring system in 2022.

One groundwater sample was collected from each background and compliance well during each monitoring event. All samples were collected and analyzed in accordance with the Sampling and Analysis Plan (SAP) (AECOM, 2017).

Potentiometric surfaces are included in **Figures 2 and 3**. All monitoring data and analytical results obtained under 40 C.F.R. § 257.90 through 257.98 in 2023 are presented in **Tables 1 through 3**. All associated laboratory reports and field data sheets are included in **Appendix A**.

Analytical data were evaluated in accordance with the Multi-Site Statistical Analysis Plan (Ramboll, 2022a), the Multi-Site Quality Assurance Project Plan (Ramboll, 2022b), and the Multi-Site Data Management Plan (Ramboll, 2022c) to determine any SSLs of Appendix IV parameters over GWPSs and SSIs of Appendix III parameters above background values. SSL notifications were completed in accordance with 40 C.F.R. § 257.95(g). SSIs are highlighted in **Table 2**. Statistical background values are provided in **Table 4** and GWPSs in **Table 5**. A flow chart showing the statistical methodology for determination of background values is included as **Appendix B**. A summary of the determination of SSLs is included in **Table 6**. A flow chart showing the statistical methodology for determination of SSLs is included as **Appendix C**.

Closure by removal construction was completed at the GRP on November 9, 2022 and closure certification was completed on October 13, 2023. Post-closure groundwater concentrations do not exceed the GWPSs established pursuant to § 257.95(h) for constituents listed in Appendix IV. Accordingly, the groundwater component of the closure performance standard specified in 40 C.F.R. § 257.102(c) has been met and the GRP is effectively removed from the Assessment Monitoring Program.

**Table A. 2023 Assessment Monitoring Program Summary**

Event ID	Sampling Dates <sup>1, 2, 3</sup>	Analytical Data Receipt Date	SSL(s) Determination Date	SSL(s)	ASD Completion Date
A6	March 20, 2023	April 25, 2023	July 24, 2023	None	NA
A6D	September 18, 2023	October 6, 2023	October 13, 2023	None	NA

**Notes:**

ASD: Alternative Source Demonstration

NA: not applicable

SSL: Statistically Significant Level

<sup>1</sup> All samples were analyzed for Appendix III parameters listed in 40 C.F.R. § 257.94(e) and Appendix IV parameters listed in 40 C.F.R. § 257.95(g).

<sup>2</sup> The following background wells were sampled for each event: MW-8

<sup>3</sup> The following compliance wells were sampled for each event: MW-7A, MW-10, and MW-11

## **4. PROBLEMS ENCOUNTERED AND ACTIONS TO RESOLVE THE PROBLEMS**

No problems were encountered with the Groundwater Monitoring Program during 2023. Groundwater samples were collected and analyzed in accordance with the SAP and all data were accepted.

## **5. KEY ACTIVITIES PLANNED FOR 2024**

No activities are planned for 2024. Closure certification was completed on October 13, 2023 and the GRP has been removed from the Assessment Monitoring Program.

## 6. REFERENCES

Code of Federal Regulations, Title 40, Chapter I, Subchapter I, Part 257, Subpart D, Standards for the Disposal of Coal Combustion Residuals in Landfills and Surface Impoundments, effective April 17, 2015. Accessed from URL <https://www.ecfr.gov/current/title-40/chapter-I/subchapter-I/part-257/subpart-D#page-top>

AECOM, 2017. Sampling and Analysis Plan, CCR Rule Groundwater Monitoring, Gypsum Recycle Pond, Unit 124, Zimmer Power Station, Moscow, Ohio, Job Number: 60442412, Revision 0. October 17, 2017.

Ramboll Americas Engineering Solutions, Inc. (Ramboll), 2022a. Multi-Site Statistical Analysis Plan, 40 C.F.R. § 257. December 28, 2022.

Ramboll Americas Engineering Solutions, Inc. (Ramboll), 2022b. Multi-Site Quality Assurance Project Plan. December 28, 2022.

Ramboll Americas Engineering Solutions, Inc. (Ramboll), 2022c. Multi-Site Data Management Plan. December 28, 2022.

## **TABLES**

**TABLE 1  
GROUNDWATER ELEVATION DATA**

2023 40 C.F.R. § 257 ANNUAL GROUNDWATER MONITORING AND CORRECTIVE ACTION REPORT  
ZIMMER POWER PLANT  
GYPSUM RECYCLE POND  
MOSCOW, OH

Well ID	Well Type	Monitored Unit	Date	Depth to Groundwater (feet BMP)	Groundwater Elevation (feet NAVD88)
MW-7A	Compliance	UA	03/20/2023	46.63	465.16
MW-7A	Compliance	UA	09/18/2023	55.67	456.12
MW-8	Background	UA	03/20/2023	46.57	465.03
MW-8	Background	UA	09/18/2023	55.03	456.57
MW-10	Compliance	UA	03/20/2023	47.43	464.75
MW-10	Compliance	UA	09/18/2023	55.70	456.48
MW-11	Compliance	UA	03/20/2023	44.54	464.33
MW-11	Compliance	UA	09/18/2023	52.49	456.38

**Notes:**

Only wells with groundwater elevations measured are included.

BMP = below measuring point

NAVD88 = North American Vertical Datum of 1988

Monitored Unit Abbreviations:

UA = uppermost aquifer

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**TABLE 2**  
**ANALYTICAL RESULTS - APPENDIX III PARAMETERS**  
2023 40 C.F.R. § 257 ANNUAL GROUNDWATER MONITORING AND CORRECTIVE ACTION REPORT  
ZIMMER POWER PLANT  
GYPSUM RECYCLE POND  
MOSCOW, OH

Well ID	HSU	Well Type	Date	Event ID	Parameter	Unit	Result	Background	SSI Type
MW-8	UA	Background	03/20/2023	A6	Boron, total	mg/L	0.335	NA	NA
MW-8	UA	Background	09/20/2023	A6D	Boron, total	mg/L	0.0526	NA	NA
MW-8	UA	Background	03/20/2023	A6	Calcium, total	mg/L	76.2	NA	NA
MW-8	UA	Background	09/20/2023	A6D	Calcium, total	mg/L	114	NA	NA
MW-8	UA	Background	03/20/2023	A6	Chloride, total	mg/L	10.2	NA	NA
MW-8	UA	Background	09/20/2023	A6D	Chloride, total	mg/L	14.5	NA	NA
MW-8	UA	Background	03/20/2023	A6	Fluoride, total	mg/L	0.097 J	NA	NA
MW-8	UA	Background	09/20/2023	A6D	Fluoride, total	mg/L	0.113 J	NA	NA
MW-8	UA	Background	03/20/2023	A6	pH (field)	SU	7.0	NA	NA
MW-8	UA	Background	09/20/2023	A6D	pH (field)	SU	7.0	NA	NA
MW-8	UA	Background	03/20/2023	A6	Sulfate, total	mg/L	58.6	NA	NA
MW-8	UA	Background	09/20/2023	A6D	Sulfate, total	mg/L	57.5	NA	NA
MW-8	UA	Background	03/20/2023	A6	Total Dissolved Solids	mg/L	423	NA	NA
MW-8	UA	Background	09/20/2023	A6D	Total Dissolved Solids	mg/L	428	NA	NA
MW-7A	UA	Compliance	03/20/2023	A6	Boron, total	mg/L	1.83	0.0916	Determined
MW-7A	UA	Compliance	09/20/2023	A6D	Boron, total	mg/L	1.38	0.0916	Determined
MW-7A	UA	Compliance	03/20/2023	A6	Calcium, total	mg/L	109	170	No Exceedance
MW-7A	UA	Compliance	09/20/2023	A6D	Calcium, total	mg/L	75.4	170	No Exceedance
MW-7A	UA	Compliance	03/20/2023	A6	Chloride, total	mg/L	41.3	42.6	No Exceedance
MW-7A	UA	Compliance	09/20/2023	A6D	Chloride, total	mg/L	58.5	42.6	Determined
MW-7A	UA	Compliance	03/20/2023	A6	Fluoride, total	mg/L	0.234 J+	0.106	Determined
MW-7A	UA	Compliance	09/20/2023	A6D	Fluoride, total	mg/L	0.229	0.106	Determined
MW-7A	UA	Compliance	03/20/2023	A6	pH (field)	SU	7.0	6.9/8.6	No Exceedance
MW-7A	UA	Compliance	09/20/2023	A6D	pH (field)	SU	6.8	6.9/8.6	Determined
MW-7A	UA	Compliance	03/20/2023	A6	Sulfate, total	mg/L	322	72.9	Determined
MW-7A	UA	Compliance	09/20/2023	A6D	Sulfate, total	mg/L	154	72.9	Determined
MW-7A	UA	Compliance	03/20/2023	A6	Total Dissolved Solids	mg/L	721	580	Determined
MW-7A	UA	Compliance	09/20/2023	A6D	Total Dissolved Solids	mg/L	366 J	580	No Exceedance
MW-10	UA	Compliance	03/20/2023	A6	Boron, total	mg/L	3.49	0.0916	Determined
MW-10	UA	Compliance	09/20/2023	A6D	Boron, total	mg/L	2.88	0.0916	Determined
MW-10	UA	Compliance	03/20/2023	A6	Calcium, total	mg/L	131	170	No Exceedance
MW-10	UA	Compliance	09/20/2023	A6D	Calcium, total	mg/L	109	170	No Exceedance
MW-10	UA	Compliance	03/20/2023	A6	Chloride, total	mg/L	96.1	42.6	Determined
MW-10	UA	Compliance	09/20/2023	A6D	Chloride, total	mg/L	80.7	42.6	Determined
MW-10	UA	Compliance	03/20/2023	A6	Fluoride, total	mg/L	0.911	0.106	Determined
MW-10	UA	Compliance	09/20/2023	A6D	Fluoride, total	mg/L	1.32	0.106	Determined
MW-10	UA	Compliance	03/20/2023	A6	pH (field)	SU	7.0	6.9/8.6	No Exceedance
MW-10	UA	Compliance	09/20/2023	A6D	pH (field)	SU	7.0	6.9/8.6	No Exceedance
MW-10	UA	Compliance	03/20/2023	A6	Sulfate, total	mg/L	468	72.9	Determined
MW-10	UA	Compliance	09/20/2023	A6D	Sulfate, total	mg/L	351	72.9	Determined
MW-10	UA	Compliance	03/20/2023	A6	Total Dissolved Solids	mg/L	1,080	580	Determined
MW-10	UA	Compliance	09/20/2023	A6D	Total Dissolved Solids	mg/L	652	580	Determined
MW-11	UA	Compliance	03/20/2023	A6	Boron, total	mg/L	0.374	0.0916	Determined
MW-11	UA	Compliance	09/20/2023	A6D	Boron, total	mg/L	0.893	0.0916	Determined
MW-11	UA	Compliance	03/20/2023	A6	Calcium, total	mg/L	115	170	No Exceedance
MW-11	UA	Compliance	09/20/2023	A6D	Calcium, total	mg/L	140	170	No Exceedance



**TABLE 2**  
**ANALYTICAL RESULTS - APPENDIX III PARAMETERS**  
 2023 40 C.F.R. § 257 ANNUAL GROUNDWATER MONITORING AND CORRECTIVE ACTION REPORT  
 ZIMMER POWER PLANT  
 GYPSUM RECYCLE POND  
 MOSCOW, OH

Well ID	HSU	Well Type	Date	Event ID	Parameter	Unit	Result	Background	SSI Type
MW-11	UA	Compliance	03/20/2023	A6	Chloride, total	mg/L	26.9	42.6	No Exceedance
MW-11	UA	Compliance	09/20/2023	A6D	Chloride, total	mg/L	43.8	42.6	Determined
MW-11	UA	Compliance	03/20/2023	A6	Fluoride, total	mg/L	0.232 J+	0.106	Determined
MW-11	UA	Compliance	09/20/2023	A6D	Fluoride, total	mg/L	0.204	0.106	Determined
MW-11	UA	Compliance	03/20/2023	A6	pH (field)	SU	7.0	6.9/8.6	No Exceedance
MW-11	UA	Compliance	09/20/2023	A6D	pH (field)	SU	7.0	6.9/8.6	No Exceedance
MW-11	UA	Compliance	03/20/2023	A6	Sulfate, total	mg/L	188	72.9	Determined
MW-11	UA	Compliance	09/20/2023	A6D	Sulfate, total	mg/L	229	72.9	Determined
MW-11	UA	Compliance	03/20/2023	A6	Total Dissolved Solids	mg/L	519	580	No Exceedance
MW-11	UA	Compliance	09/20/2023	A6D	Total Dissolved Solids	mg/L	678	580	Determined

**Notes:**

HSU = hydrostratigraphic unit:

UA = Uppermost Aquifer

ID = identification

mg/L = milligrams per liter

NA = not applicable

Statistically Significant Increase (SSI) Type:

No Exceedance: No exceedance of the background.

Determined: An exceedance was determined without comparison to a resample.

SU = Standard Units

J = The result is an estimated quantity. The associated numerical value is the approximate concentration of the analyte in the sample.

J+ = The result is an estimated quantity, but the result may be biased high.

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**TABLE 3**  
**ANALYTICAL RESULTS - APPENDIX IV PARAMETERS**  
 2023 40 C.F.R. § 257 ANNUAL GROUNDWATER MONITORING AND CORRECTIVE ACTION REPORT  
 ZIMMER POWER PLANT  
 GYPSUM RECYCLE POND  
 MOSCOW, OH

Well ID	Well Type	Date	Event ID	Antimony, total (mg/L)	Arsenic, total (mg/L)	Barium, total (mg/L)	Beryllium, total (mg/L)	Cadmium, total (mg/L)	Chromium, total (mg/L)	Cobalt, total (mg/L)	Fluoride, total (mg/L)	Lead, total (mg/L)	Lithium, total (mg/L)	Mercury, total (mg/L)	Molybdenum, total (mg/L)	Radium 226 + 228 (pCi/L)	Selenium, total (mg/L)	Thallium, total (mg/L)
MW-8	B	03/20/2023	A6	0.00103 U	0.00165 J	0.0381	0.00019 U	0.00015 U	0.00124 U	0.000776 J	0.097 J	0.000849 U	0.00502	0.0001 U	0.00743	1.34	0.00687	0.000121 U
MW-8	B	09/20/2023	A6D	--	0.00018 U	0.0451	0.00019 U	0.000394 J	0.00124 U	0.0000596 U	0.113 J	0.000849 U	0.00480	--	0.000348 U	0.0850	0.0003 U	0.000121 U
MW-7A	C	03/20/2023	A6	0.00103 U	0.00051 J	0.0412	0.00019 U	0.000161 J	0.00124 U	0.0011 J	0.234 J+	0.000849 U	0.000965 J	0.0001 U	0.00134 J	0.293	0.00768	0.000121 U
MW-7A	C	09/20/2023	A6D	--	0.000332 J	0.0298	0.00019 U	0.00015 U	0.00124 U	0.000823 J	0.229	0.000849 U	0.000921 J	--	0.000458 J	0.995	0.00336 J	0.000121 U
MW-10	C	03/20/2023	A6	0.00103 U	0.000963 J	0.0238	0.00019 U	0.00015 U	0.00124 UJ	0.000385 J	0.911	0.000849 U	0.00493	0.0001 U	0.000829 J	0.787	0.00423	0.000121 U
MW-10	C	09/20/2023	A6D	--	0.000484 J	0.0187	0.00019 U	0.00015 U	0.00124 U	0.000127 J	1.32	0.000849 U	0.00673	--	0.00231 J	0.843	0.00213	0.000121 U
MW-11	C	03/20/2023	A6	0.00103 U	0.000963 J	0.0403	0.000255 J	0.000507 J	0.00124 U	0.00174 J	0.232 J+	0.000849 U	0.0011 J	0.0001 U	0.00324 J	0.487	0.00722	0.00125 J
MW-11	C	09/20/2023	A6D	--	0.000397 J	0.0468	0.00019 U	0.000292 J	0.00124 U	0.001 J	0.204	0.000849 U	0.00141 J	--	0.00362 J	0.825	0.0137	0.000121 U

**Notes:**  
 - = no data available  
 ID = identification  
 mg/L = milligrams per liter  
 pCi/L = picoCuries per liter  
 J = The result is an estimated quantity. The associated numerical value is the approximate concentration of the analyte in the sample.  
 J+ = The result is an estimated quantity, but the result may be biased high.  
 U = The analyte was analyzed for, but was not detected above the level of the adjusted detection limit or quantitation limit, as appropriate.  
 UJ = The analyte was analyzed for, but was not detected. The reported quantitation limit is approximate and may be inaccurate or imprecise.  
 Well Type:  
 B = Background  
 C = Compliance

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**TABLE 4**  
**STATISTICAL BACKGROUND VALUES**  
 2023 40 C.F.R. § 257 ANNUAL GROUNDWATER MONITORING AND CORRECTIVE ACTION REPORT  
 ZIMMER POWER PLANT  
 GYPSUM RECYCLE POND  
 MOSCOW, OH

Parameter	Date Range	Sample Count	Percent Non-Detects	Statistical Calculation	Statistical Background Value (LPL/UPL)
Boron (mg/L)	12/30/2015 - 07/13/2017	8	38	Parametric UPL (log-transformed)	0.0916
Calcium (mg/L)	12/30/2015 - 07/13/2017	8	0	Parametric UPL (log-transformed)	170
Chloride (mg/L)	12/30/2015 - 07/13/2017	8	0	Parametric UPL	42.6
Fluoride (mg/L)	12/30/2015 - 07/13/2017	8	75	Non-parametric UPL	0.106
pH (field) (SU)	12/30/2015 - 07/13/2017	8	0	Non-parametric LPL/UPL	6.9/8.6
Sulfate (mg/L)	12/30/2015 - 07/13/2017	8	0	Parametric UPL	72.9
Total Dissolved Solids (mg/L)	12/30/2015 - 07/13/2017	8	0	Parametric UPL	580

**Notes:**  
 LPL = lower prediction limit (applicable for pH only)  
 mg/L = milligrams per liter  
 SU = standard units  
 UPL = upper prediction limit

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**TABLE 5**  
**GROUNDWATER PROTECTION STANDARDS**  
 2023 40 C.F.R. § 257 ANNUAL GROUNDWATER MONITORING AND CORRECTIVE ACTION REPORT  
 ZIMMER POWER PLANT  
 GYPSUM RECYCLE POND  
 MOSCOW, OH

Parameter	Background					MCL/HBL	Groundwater Protection Standard*	Groundwater Protection Standard Source
	Date Range	Sample Count	Percent Non-Detects	Statistical Calculation	Value			
Antimony (mg/L)	12/30/2015 - 07/13/2017	8	100	All ND - Last Reporting Limit	0.002	0.006	0.006	MCL/HBL
Arsenic (mg/L)	12/30/2015 - 07/13/2017	8	88	Non-parametric UTL	0.00115	0.010	0.010	MCL/HBL
Barium (mg/L)	12/30/2015 - 07/13/2017	8	0	Parametric UTL (log-transformed)	0.0806	2.0	2.0	MCL/HBL
Beryllium (mg/L)	12/30/2015 - 07/13/2017	8	100	All ND - Last Reporting Limit	0.001	0.004	0.004	MCL/HBL
Cadmium (mg/L)	12/30/2015 - 07/13/2017	8	100	All ND - Last Reporting Limit	0.001	0.005	0.005	MCL/HBL
Chromium (mg/L)	12/30/2015 - 07/13/2017	8	100	All ND - Last Reporting Limit	0.002	0.1	0.1	MCL/HBL
Cobalt (mg/L)	12/30/2015 - 07/13/2017	8	100	All ND - Last Reporting Limit	0.0005	0.006	0.006	MCL/HBL
Fluoride (mg/L)	12/30/2015 - 07/13/2017	8	75	Non-parametric UTL	0.106	4.0	4.0	MCL/HBL
Lead (mg/L)	12/30/2015 - 07/13/2017	8	100	All ND - Last Reporting Limit	0.001	0.015	0.015	MCL/HBL
Lithium (mg/L)	12/30/2015 - 07/13/2017	8	88	Non-parametric UTL	0.00635	0.04	0.04	MCL/HBL
Mercury (mg/L)	12/30/2015 - 07/13/2017	8	100	All ND - Last Reporting Limit	0.0002	0.002	0.002	MCL/HBL
Molybdenum (mg/L)	12/30/2015 - 07/13/2017	8	100	All ND - Last Reporting Limit	0.005	0.1	0.1	MCL/HBL
Radium 226 + Radium 228 (pCi/L)	12/30/2015 - 07/13/2017	8	0	Parametric UTL	0.973	5	5	MCL/HBL
Selenium (mg/L)	12/30/2015 - 07/13/2017	8	100	All ND - Last Reporting Limit	0.005	0.05	0.05	MCL/HBL
Thallium (mg/L)	12/30/2015 - 07/13/2017	8	100	All ND - Last Reporting Limit	0.001	0.002	0.002	MCL/HBL

**Notes:**  
 \* Groundwater Protection Standard is the higher of the MCL/HBL or background.  
 MCL/HBL = maximum contaminant level/health-based level  
 mg/L = milligrams per liter  
 ND = non-detect  
 pCi/L = picoCuries per liter  
 UTL = upper tolerance limit

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**TABLE 6**  
**DETERMINATION OF STATISTICALLY SIGNIFICANT LEVELS**  
 2023 40 C.F.R. § 257 ANNUAL GROUNDWATER MONITORING AND CORRECTIVE ACTION REPORT  
 ZIMMER POWER PLANT  
 GYPSUM RECYCLE POND  
 MOSCOW, OH

Well ID	HSU	Event ID	Parameter	Units	Date Range	Sample Count	Percent ND	Statistical Calculation	Statistical Result	GWPS	GWPS Source	SSL Type
MW-7A	UA	A6	Antimony, total	mg/L	12/30/2015 - 03/20/2023	16	94	CB around T-S line	0.002	0.006	MCL/HBL	No Exceedance
MW-7A	UA	A6D	Antimony, total	mg/L	--	--	--	--	--	0.006	MCL/HBL	--
MW-7A	UA	A6	Arsenic, total	mg/L	12/30/2015 - 03/20/2023	19	89	CI around median	0.001	0.010	MCL/HBL	No Exceedance
MW-7A	UA	A6D	Arsenic, total	mg/L	12/30/2015 - 09/20/2023	20	90	CI around median	0.001	0.010	MCL/HBL	No Exceedance
MW-7A	UA	A6	Barium, total	mg/L	12/30/2015 - 03/20/2023	18	5.6	CI around geomean	0.0334	2.0	MCL/HBL	No Exceedance
MW-7A	UA	A6D	Barium, total	mg/L	12/30/2015 - 09/20/2023	19	5.3	CI around geomean	0.0331	2.0	MCL/HBL	No Exceedance
MW-7A	UA	A6	Beryllium, total	mg/L	12/30/2015 - 03/20/2023	16	100	All ND - Last	0.002	0.004	MCL/HBL	No Exceedance
MW-7A	UA	A6D	Beryllium, total	mg/L	12/30/2015 - 09/20/2023	17	100	All ND - Last	0.002	0.004	MCL/HBL	No Exceedance
MW-7A	UA	A6	Cadmium, total	mg/L	12/30/2015 - 03/20/2023	18	100	All ND - Last	0.001	0.005	MCL/HBL	No Exceedance
MW-7A	UA	A6D	Cadmium, total	mg/L	12/30/2015 - 09/20/2023	19	100	All ND - Last	0.001	0.005	MCL/HBL	No Exceedance
MW-7A	UA	A6	Chromium, total	mg/L	12/30/2015 - 03/20/2023	19	84	CI around median	0.002	0.1	MCL/HBL	No Exceedance
MW-7A	UA	A6D	Chromium, total	mg/L	12/30/2015 - 09/20/2023	20	85	CI around median	0.002	0.1	MCL/HBL	No Exceedance
MW-7A	UA	A6	Cobalt, total	mg/L	12/30/2015 - 03/20/2023	18	44	CB around linear reg	-0.00275	0.006	MCL/HBL	No Exceedance
MW-7A	UA	A6D	Cobalt, total	mg/L	12/30/2015 - 09/20/2023	19	47	CB around linear reg	-0.00254	0.006	MCL/HBL	No Exceedance
MW-7A	UA	A6	Fluoride, total	mg/L	12/30/2015 - 03/20/2023	20	65	CI around median	0.167	4.0	MCL/HBL	No Exceedance
MW-7A	UA	A6D	Fluoride, total	mg/L	12/30/2015 - 09/20/2023	21	62	CI around median	0.185	4.0	MCL/HBL	No Exceedance
MW-7A	UA	A6	Lead, total	mg/L	12/30/2015 - 03/20/2023	18	100	All ND - Last	0.002	0.015	MCL/HBL	No Exceedance
MW-7A	UA	A6D	Lead, total	mg/L	12/30/2015 - 09/20/2023	19	100	All ND - Last	0.002	0.015	MCL/HBL	No Exceedance
MW-7A	UA	A6	Lithium, total	mg/L	12/30/2015 - 03/20/2023	18	78	CI around median	0.002	0.04	MCL/HBL	No Exceedance
MW-7A	UA	A6D	Lithium, total	mg/L	12/30/2015 - 09/20/2023	19	79	CI around median	0.002	0.04	MCL/HBL	No Exceedance
MW-7A	UA	A6	Mercury, total	mg/L	12/30/2015 - 03/20/2023	16	100	All ND - Last	0.0002	0.002	MCL/HBL	No Exceedance
MW-7A	UA	A6D	Mercury, total	mg/L	--	--	--	--	--	0.002	MCL/HBL	--
MW-7A	UA	A6	Molybdenum, total	mg/L	12/30/2015 - 03/20/2023	18	89	CI around median	0.005	0.1	MCL/HBL	No Exceedance
MW-7A	UA	A6D	Molybdenum, total	mg/L	12/30/2015 - 09/20/2023	19	89	CI around median	0.005	0.1	MCL/HBL	No Exceedance
MW-7A	UA	A6	Radium 226 + Radium 228, total	pCi/L	12/30/2015 - 03/20/2023	19	0	CI around mean	0.332	5	MCL/HBL	No Exceedance
MW-7A	UA	A6D	Radium 226 + Radium 228, total	pCi/L	12/30/2015 - 09/20/2023	20	0	CI around mean	0.349	5	MCL/HBL	No Exceedance
MW-7A	UA	A6	Selenium, total	mg/L	12/30/2015 - 03/20/2023	18	72	CI around median	0.00266	0.05	MCL/HBL	No Exceedance

**TABLE 6**  
**DETERMINATION OF STATISTICALLY SIGNIFICANT LEVELS**  
 2023 40 C.F.R. § 257 ANNUAL GROUNDWATER MONITORING AND CORRECTIVE ACTION REPORT  
 ZIMMER POWER PLANT  
 GYPSUM RECYCLE POND  
 MOSCOW, OH

Well ID	HSU	Event ID	Parameter	Units	Date Range	Sample Count	Percent ND	Statistical Calculation	Statistical Result	GWPS	GWPS Source	SSL Type
MW-7A	UA	A6D	Selenium, total	mg/L	12/30/2015 - 09/20/2023	19	68	CI around median	0.00266	0.05	MCL/HBL	No Exceedance
MW-7A	UA	A6	Thallium, total	mg/L	12/30/2015 - 03/20/2023	16	100	All ND - Last	0.002	0.002	MCL/HBL	No Exceedance
MW-7A	UA	A6D	Thallium, total	mg/L	12/30/2015 - 09/20/2023	17	100	All ND - Last	0.002	0.002	MCL/HBL	No Exceedance
MW-10	UA	A6	Antimony, total	mg/L	12/29/2015 - 03/20/2023	16	100	All ND - Last	0.004	0.006	MCL/HBL	No Exceedance
MW-10	UA	A6D	Antimony, total	mg/L	--	--	--	--	--	0.006	MCL/HBL	--
MW-10	UA	A6	Arsenic, total	mg/L	12/29/2015 - 03/20/2023	19	21	CI around geomean	0.00164	0.010	MCL/HBL	No Exceedance
MW-10	UA	A6D	Arsenic, total	mg/L	12/29/2015 - 09/20/2023	20	25	CI around geomean	0.00162	0.010	MCL/HBL	No Exceedance
MW-10	UA	A6	Barium, total	mg/L	12/29/2015 - 03/20/2023	18	22	CB around T-S line	-0.0756	2.0	MCL/HBL	No Exceedance
MW-10	UA	A6D	Barium, total	mg/L	12/29/2015 - 09/20/2023	19	21	CB around T-S line	-0.0526	2.0	MCL/HBL	No Exceedance
MW-10	UA	A6	Beryllium, total	mg/L	12/29/2015 - 03/20/2023	16	100	All ND - Last	0.002	0.004	MCL/HBL	No Exceedance
MW-10	UA	A6D	Beryllium, total	mg/L	12/29/2015 - 09/20/2023	17	100	All ND - Last	0.002	0.004	MCL/HBL	No Exceedance
MW-10	UA	A6	Cadmium, total	mg/L	12/29/2015 - 03/20/2023	18	100	All ND - Last	0.001	0.005	MCL/HBL	No Exceedance
MW-10	UA	A6D	Cadmium, total	mg/L	12/29/2015 - 09/20/2023	19	100	All ND - Last	0.001	0.005	MCL/HBL	No Exceedance
MW-10	UA	A6	Chromium, total	mg/L	12/29/2015 - 03/20/2023	19	95	CI around median	0.002	0.1	MCL/HBL	No Exceedance
MW-10	UA	A6D	Chromium, total	mg/L	12/29/2015 - 09/20/2023	20	95	CI around median	0.002	0.1	MCL/HBL	No Exceedance
MW-10	UA	A6	Cobalt, total	mg/L	12/29/2015 - 03/20/2023	18	33	CB around linear reg	-0.00144	0.006	MCL/HBL	No Exceedance
MW-10	UA	A6D	Cobalt, total	mg/L	12/29/2015 - 09/20/2023	19	37	CB around linear reg	-0.00144	0.006	MCL/HBL	No Exceedance
MW-10	UA	A6	Fluoride, total	mg/L	12/29/2015 - 03/20/2023	20	30	CI around mean	0.738	4.0	MCL/HBL	No Exceedance
MW-10	UA	A6D	Fluoride, total	mg/L	12/29/2015 - 09/20/2023	21	29	CI around mean	0.767	4.0	MCL/HBL	No Exceedance
MW-10	UA	A6	Lead, total	mg/L	12/29/2015 - 03/20/2023	18	100	All ND - Last	0.002	0.015	MCL/HBL	No Exceedance
MW-10	UA	A6D	Lead, total	mg/L	12/29/2015 - 09/20/2023	19	100	All ND - Last	0.002	0.015	MCL/HBL	No Exceedance
MW-10	UA	A6	Lithium, total	mg/L	12/29/2015 - 03/20/2023	18	39	CI around geomean	0.00452	0.04	MCL/HBL	No Exceedance
MW-10	UA	A6D	Lithium, total	mg/L	12/29/2015 - 09/20/2023	19	37	CI around median	0.0064	0.04	MCL/HBL	No Exceedance
MW-10	UA	A6	Mercury, total	mg/L	12/29/2015 - 03/20/2023	16	100	All ND - Last	0.0002	0.002	MCL/HBL	No Exceedance
MW-10	UA	A6D	Mercury, total	mg/L	--	--	--	--	--	0.002	MCL/HBL	--
MW-10	UA	A6	Molybdenum, total	mg/L	12/29/2015 - 03/20/2023	18	33	CB around linear reg	0.00183	0.1	MCL/HBL	No Exceedance
MW-10	UA	A6D	Molybdenum, total	mg/L	12/29/2015 - 09/20/2023	19	37	CB around linear reg	0.0018	0.1	MCL/HBL	No Exceedance

**TABLE 6**  
**DETERMINATION OF STATISTICALLY SIGNIFICANT LEVELS**  
 2023 40 C.F.R. § 257 ANNUAL GROUNDWATER MONITORING AND CORRECTIVE ACTION REPORT  
 ZIMMER POWER PLANT  
 GYPSUM RECYCLE POND  
 MOSCOW, OH

Well ID	HSU	Event ID	Parameter	Units	Date Range	Sample Count	Percent ND	Statistical Calculation	Statistical Result	GWPS	GWPS Source	SSL Type
MW-10	UA	A6	Radium 226 + Radium 228, total	pCi/L	12/29/2015 - 03/20/2023	19	0	CI around mean	0.292	5	MCL/HBL	No Exceedance
MW-10	UA	A6D	Radium 226 + Radium 228, total	pCi/L	12/29/2015 - 09/20/2023	20	0	CI around mean	0.316	5	MCL/HBL	No Exceedance
MW-10	UA	A6	Selenium, total	mg/L	12/29/2015 - 03/20/2023	18	89	CI around median	0.002	0.05	MCL/HBL	No Exceedance
MW-10	UA	A6D	Selenium, total	mg/L	12/29/2015 - 09/20/2023	19	84	CI around median	0.002	0.05	MCL/HBL	No Exceedance
MW-10	UA	A6	Thallium, total	mg/L	12/29/2015 - 03/20/2023	16	100	All ND - Last	0.002	0.002	MCL/HBL	No Exceedance
MW-10	UA	A6D	Thallium, total	mg/L	12/29/2015 - 09/20/2023	17	100	All ND - Last	0.002	0.002	MCL/HBL	No Exceedance
MW-11	UA	A6	Antimony, total	mg/L	12/29/2015 - 03/20/2023	16	100	All ND - Last	0.004	0.006	MCL/HBL	No Exceedance
MW-11	UA	A6D	Antimony, total	mg/L	--	--	--	--	--	0.006	MCL/HBL	--
MW-11	UA	A6	Arsenic, total	mg/L	12/29/2015 - 03/20/2023	19	68	CI around median	0.001	0.010	MCL/HBL	No Exceedance
MW-11	UA	A6D	Arsenic, total	mg/L	12/29/2015 - 09/20/2023	20	70	CI around median	0.001	0.010	MCL/HBL	No Exceedance
MW-11	UA	A6	Barium, total	mg/L	12/29/2015 - 03/20/2023	18	5.6	CI around mean	0.0418	2.0	MCL/HBL	No Exceedance
MW-11	UA	A6D	Barium, total	mg/L	12/29/2015 - 09/20/2023	19	5.3	CI around mean	0.0421	2.0	MCL/HBL	No Exceedance
MW-11	UA	A6	Beryllium, total	mg/L	12/29/2015 - 03/20/2023	16	100	All ND - Last	0.002	0.004	MCL/HBL	No Exceedance
MW-11	UA	A6D	Beryllium, total	mg/L	12/29/2015 - 09/20/2023	17	100	All ND - Last	0.002	0.004	MCL/HBL	No Exceedance
MW-11	UA	A6	Cadmium, total	mg/L	12/29/2015 - 03/20/2023	18	100	All ND - Last	0.001	0.005	MCL/HBL	No Exceedance
MW-11	UA	A6D	Cadmium, total	mg/L	12/29/2015 - 09/20/2023	19	100	All ND - Last	0.001	0.005	MCL/HBL	No Exceedance
MW-11	UA	A6	Chromium, total	mg/L	12/29/2015 - 03/20/2023	19	84	CI around median	0.002	0.1	MCL/HBL	No Exceedance
MW-11	UA	A6D	Chromium, total	mg/L	12/29/2015 - 09/20/2023	20	85	CI around median	0.002	0.1	MCL/HBL	No Exceedance
MW-11	UA	A6	Cobalt, total	mg/L	12/29/2015 - 03/20/2023	18	33	CI around median	0.00176	0.006	MCL/HBL	No Exceedance
MW-11	UA	A6D	Cobalt, total	mg/L	12/29/2015 - 09/20/2023	19	37	CI around median	0.00176	0.006	MCL/HBL	No Exceedance
MW-11	UA	A6	Fluoride, total	mg/L	12/29/2015 - 03/20/2023	20	55	CI around median	0.175	4.0	MCL/HBL	No Exceedance
MW-11	UA	A6D	Fluoride, total	mg/L	12/29/2015 - 09/20/2023	21	52	CI around median	0.184	4.0	MCL/HBL	No Exceedance
MW-11	UA	A6	Lead, total	mg/L	12/29/2015 - 03/20/2023	18	100	All ND - Last	0.002	0.015	MCL/HBL	No Exceedance
MW-11	UA	A6D	Lead, total	mg/L	12/29/2015 - 09/20/2023	19	100	All ND - Last	0.002	0.015	MCL/HBL	No Exceedance
MW-11	UA	A6	Lithium, total	mg/L	12/29/2015 - 03/20/2023	18	89	CI around median	0.002	0.04	MCL/HBL	No Exceedance
MW-11	UA	A6D	Lithium, total	mg/L	12/29/2015 - 09/20/2023	19	89	CB around T-S line	-0.00367	0.04	MCL/HBL	No Exceedance
MW-11	UA	A6	Mercury, total	mg/L	12/29/2015 - 03/20/2023	16	100	All ND - Last	0.0002	0.002	MCL/HBL	No Exceedance

**TABLE 6**  
**DETERMINATION OF STATISTICALLY SIGNIFICANT LEVELS**  
 2023 40 C.F.R. § 257 ANNUAL GROUNDWATER MONITORING AND CORRECTIVE ACTION REPORT  
 ZIMMER POWER PLANT  
 GYPSUM RECYCLE POND  
 MOSCOW, OH

Well ID	HSU	Event ID	Parameter	Units	Date Range	Sample Count	Percent ND	Statistical Calculation	Statistical Result	GWPS	GWPS Source	SSL Type
MW-11	UA	A6D	Mercury, total	mg/L	--	--	--	--	--	0.002	MCL/HBL	--
MW-11	UA	A6	Molybdenum, total	mg/L	12/29/2015 - 03/20/2023	18	83	CI around median	0.005	0.1	MCL/HBL	No Exceedance
MW-11	UA	A6D	Molybdenum, total	mg/L	12/29/2015 - 09/20/2023	19	84	CI around median	0.005	0.1	MCL/HBL	No Exceedance
MW-11	UA	A6	Radium 226 + Radium 228, total	pCi/L	12/29/2015 - 03/20/2023	19	0	CI around mean	0.369	5	MCL/HBL	No Exceedance
MW-11	UA	A6D	Radium 226 + Radium 228, total	pCi/L	12/29/2015 - 09/20/2023	20	0	CI around mean	0.389	5	MCL/HBL	No Exceedance
MW-11	UA	A6	Selenium, total	mg/L	12/29/2015 - 03/20/2023	18	89	CI around median	0.002	0.05	MCL/HBL	No Exceedance
MW-11	UA	A6D	Selenium, total	mg/L	12/29/2015 - 09/20/2023	19	84	CI around median	0.002	0.05	MCL/HBL	No Exceedance
MW-11	UA	A6	Thallium, total	mg/L	12/29/2015 - 03/20/2023	16	100	All ND - Last	0.002	0.002	MCL/HBL	No Exceedance
MW-11	UA	A6D	Thallium, total	mg/L	12/29/2015 - 09/20/2023	17	100	All ND - Last	0.002	0.002	MCL/HBL	No Exceedance

**Notes:**

-- = no data available

Statistically Significant Level (SSL) Type:

No Exceedance: No exceedance of the GWPS and no resample was collected.

GWPS = Groundwater Protection Standard

GWPS Source:

MCL/HBL = maximum contaminant level/health-based level

HSU = hydrostratigraphic unit:

UA = Uppermost Aquifer

ID = identification

mg/L = milligrams per liter

ND = non-detect

pCi/L = picocuries per liter

Sample Count = number of samples from Sampled Date Range used to calculate the Statistical Result

Statistical Calculation = method used to calculate the statistical result:

All ND - Last = All results were below the reporting limit, and the last determined reporting limit is shown

CB around T-S line = Confidence band around Thiel-Sen line

CB around linear reg = Confidence band around linear regression

CI around geomean = Confidence interval around the geometric mean

CI around mean = Confidence interval around the mean

CI around median = Confidence interval around the median

Statistical Result = calculated in accordance with Statistical Analysis Plan using constituent concentrations observed at monitoring well during all sampling events within the specified date range

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## FIGURES



- BACKGROUND WELL
- COMPLIANCE WELL
- REGULATED UNIT (SUBJECT UNIT)



**MONITORING WELL LOCATION MAP**

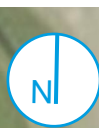
**2023 ANNUAL GROUNDWATER MONITORING AND CORRECTIVE ACTION REPORT**  
**GYPSUM RECYCLE POND**  
 ZIMMER POWER PLANT  
 MOSCOW, OHIO

**FIGURE 1**

RAMBOLL AMERICAS  
 ENGINEERING SOLUTIONS, INC.



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



- COMPLIANCE MONITORING WELL
- BACKGROUND MONITORING WELL
- GROUNDWATER ELEVATION CONTOUR (1-FT CONTOUR INTERVAL, NAVD88)
- INFERRED GROUNDWATER ELEVATION CONTOUR
- GROUNDWATER FLOW DIRECTION
- REGULATED UNIT (SUBJECT UNIT)

**NOTES:**  
 1. ELEVATION CONTOURS SHOWN IN FEET, NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD88).



**POTENTIOMETRIC SURFACE MAP  
 MARCH 20, 2023**

**2023 ANNUAL GROUNDWATER MONITORING  
 AND CORRECTIVE ACTION REPORT  
 GYPSUM RECYCLE POND  
 ZIMMER POWER PLANT  
 MOSCOW, OHIO**

**FIGURE 2**





- COMPLIANCE MONITORING WELL
- BACKGROUND MONITORING WELL
- GROUNDWATER ELEVATION CONTOUR (0.5-FT CONTOUR INTERVAL, NAVD88)
- INFERRED GROUNDWATER ELEVATION CONTOUR
- GROUNDWATER FLOW DIRECTION
- REGULATED UNIT (SUBJECT UNIT)

**NOTES:**  
 1. ELEVATION CONTOURS SHOWN IN FEET, NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD88).



**POTENTIOMETRIC SURFACE MAP  
 SEPTEMBER 18, 2023**

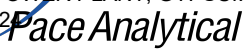
**2023 ANNUAL GROUNDWATER MONITORING  
 AND CORRECTIVE ACTION REPORT  
 GYPSUM RECYCLE POND  
 ZIMMER POWER PLANT  
 MOSCOW, OHIO**

**FIGURE 3**



## **APPENDICES**

**APPENDIX A**  
**LABORATORY REPORTS AND FIELD DATA SHEETS**



# ANALYTICAL REPORT

March 30, 2023

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

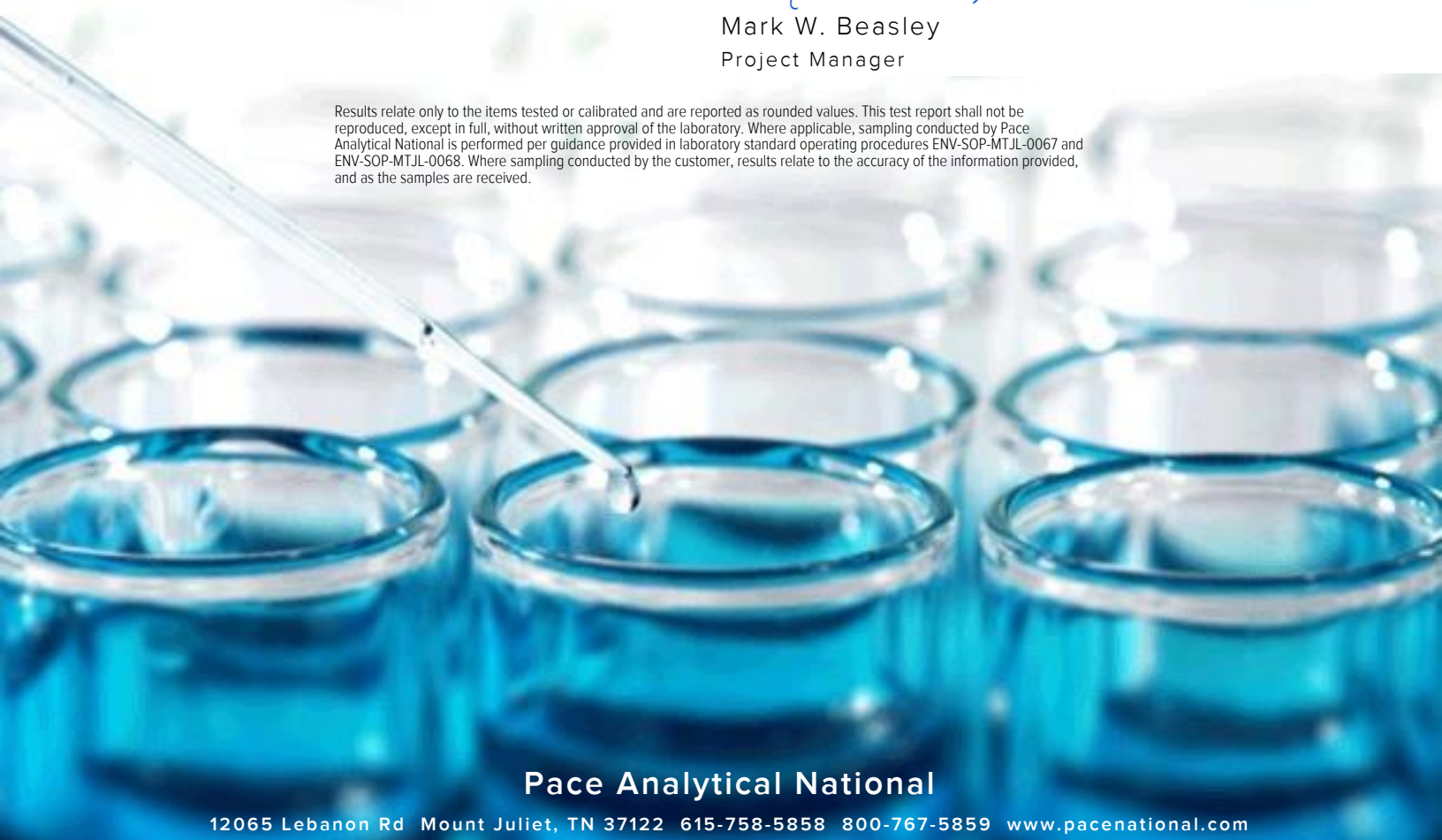
## S&ME - Nashville, TN

Sample Delivery Group: L1597570  
Samples Received: 03/23/2023  
Project Number: 7217-17-001D  
Description: Zimmer Station  
Site: WHZ UNIT 124 (GYPS POND)  
Report To: Vince Epps  
862 East Crescentville Road  
Cincinnati, OH 45246

Entire Report Reviewed By:

Mark W. Beasley  
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.

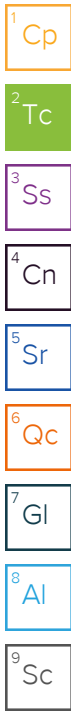


**Pace Analytical National**

12065 Lebanon Rd Mount Juliet, TN 37122 615-758-5858 800-767-5859 www.pacenational.com

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# SAMPLE SUMMARY

## ANNUAL GROUNDWATER MONITORING AND CORRECTIVE ACTION REPORT - QUARTER 1, 2023

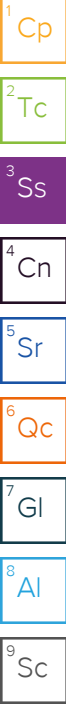
### ZIMMER POWER PLANT, GYPSUM RECYCLE POND

ZIM-257-124

#### MW-07A L1597570-01 GW

Collected by: Carter H  
 Collected date/time: 03/20/23 11:55  
 Received date/time: 03/23/23 09:15

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Gravimetric Analysis by Method 2540 C-2011	WG2029488	1	03/25/23 09:17	03/25/23 10:02	MMF	Mt. Juliet, TN
Wet Chemistry by Method 2320 B-2011	WG2031278	1	03/29/23 12:22	03/29/23 12:22	ARD	Mt. Juliet, TN
Wet Chemistry by Method 9056A	WG2031537	1	03/29/23 04:34	03/29/23 04:34	GEB	Mt. Juliet, TN
Wet Chemistry by Method 9056A	WG2031537	10	03/29/23 04:48	03/29/23 04:48	GEB	Mt. Juliet, TN
Mercury by Method 7470A	WG2030401	1	03/28/23 17:37	03/29/23 09:42	SRT	Mt. Juliet, TN
Metals (ICPMS) by Method 6020	WG2032107	1	03/29/23 14:43	03/29/23 23:53	SJM	Mt. Juliet, TN
Metals (ICPMS) by Method 6020	WG2032107	1	03/29/23 14:43	03/30/23 12:41	SJM	Mt. Juliet, TN
Metals (ICPMS) by Method 6020	WG2032107	10	03/29/23 14:43	03/30/23 11:23	SJM	Mt. Juliet, TN
Metals (ICPMS) by Method 6020	WG2032954	1	03/30/23 15:12	03/30/23 17:53	LD	Mt. Juliet, TN



#### MW-10 L1597570-02 GW

Collected by: Carter H  
 Collected date/time: 03/20/23 16:00  
 Received date/time: 03/23/23 09:15

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Gravimetric Analysis by Method 2540 C-2011	WG2029488	1	03/25/23 09:17	03/25/23 10:02	MMF	Mt. Juliet, TN
Wet Chemistry by Method 2320 B-2011	WG2031278	1	03/29/23 12:27	03/29/23 12:27	ARD	Mt. Juliet, TN
Wet Chemistry by Method 9056A	WG2031537	1	03/29/23 05:01	03/29/23 05:01	GEB	Mt. Juliet, TN
Wet Chemistry by Method 9056A	WG2031537	10	03/29/23 05:15	03/29/23 05:15	GEB	Mt. Juliet, TN
Mercury by Method 7470A	WG2030401	1	03/28/23 17:37	03/29/23 09:44	SRT	Mt. Juliet, TN
Metals (ICPMS) by Method 6020	WG2032107	1	03/29/23 14:43	03/29/23 23:56	SJM	Mt. Juliet, TN
Metals (ICPMS) by Method 6020	WG2032107	1	03/29/23 14:43	03/30/23 12:44	SJM	Mt. Juliet, TN
Metals (ICPMS) by Method 6020	WG2032107	20	03/29/23 14:43	03/30/23 11:26	SJM	Mt. Juliet, TN
Metals (ICPMS) by Method 6020	WG2032954	1	03/30/23 15:12	03/30/23 17:57	LD	Mt. Juliet, TN

#### MW-11 L1597570-03 GW

Collected by: Carter H  
 Collected date/time: 03/20/23 12:50  
 Received date/time: 03/23/23 09:15

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Gravimetric Analysis by Method 2540 C-2011	WG2029488	1	03/25/23 09:17	03/25/23 10:02	MMF	Mt. Juliet, TN
Wet Chemistry by Method 2320 B-2011	WG2031278	1	03/29/23 12:32	03/29/23 12:32	ARD	Mt. Juliet, TN
Wet Chemistry by Method 9056A	WG2031537	1	03/29/23 05:28	03/29/23 05:28	GEB	Mt. Juliet, TN
Mercury by Method 7470A	WG2030401	1	03/28/23 17:37	03/29/23 09:46	SRT	Mt. Juliet, TN
Metals (ICPMS) by Method 6020	WG2032107	1	03/29/23 14:43	03/30/23 00:00	SJM	Mt. Juliet, TN
Metals (ICPMS) by Method 6020	WG2032107	1	03/29/23 14:43	03/30/23 11:29	SJM	Mt. Juliet, TN
Metals (ICPMS) by Method 6020	WG2032954	1	03/30/23 15:12	03/30/23 18:00	LD	Mt. Juliet, TN

#### DUP-1 L1597570-04 GW

Collected by: Carter H  
 Collected date/time: 03/20/23 00:00  
 Received date/time: 03/23/23 09:15

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Gravimetric Analysis by Method 2540 C-2011	WG2029488	1	03/25/23 09:17	03/25/23 10:02	MMF	Mt. Juliet, TN
Wet Chemistry by Method 2320 B-2011	WG2031278	1	03/29/23 12:37	03/29/23 12:37	ARD	Mt. Juliet, TN
Wet Chemistry by Method 9056A	WG2031537	1	03/29/23 05:55	03/29/23 05:55	GEB	Mt. Juliet, TN
Wet Chemistry by Method 9056A	WG2031537	10	03/29/23 06:08	03/29/23 06:08	GEB	Mt. Juliet, TN
Mercury by Method 7470A	WG2030401	1	03/28/23 17:37	03/29/23 09:52	SRT	Mt. Juliet, TN
Metals (ICPMS) by Method 6020	WG2032107	1	03/29/23 14:43	03/30/23 00:03	SJM	Mt. Juliet, TN
Metals (ICPMS) by Method 6020	WG2032107	1	03/29/23 14:43	03/30/23 12:48	SJM	Mt. Juliet, TN
Metals (ICPMS) by Method 6020	WG2032107	20	03/29/23 14:43	03/30/23 11:32	SJM	Mt. Juliet, TN
Metals (ICPMS) by Method 6020	WG2032954	1	03/30/23 15:12	03/30/23 18:03	LD	Mt. Juliet, TN

# CASE NARRATIVE

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.



Mark W. Beasley  
Project Manager

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

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Dissolved Solids	721000		13300	1	03/25/2023 10:02	<a href="#">WG2029488</a>

Wet Chemistry by Method 2320 B-2011

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
Alkalinity,Bicarbonate	251000		8450	20000	1	03/29/2023 12:22	<a href="#">WG2031278</a>
Alkalinity,Carbonate	U		8450	20000	1	03/29/2023 12:22	<a href="#">WG2031278</a>

Sample Narrative:

L1597570-01 WG2031278: Endpoint pH 4.5 Headspace

Wet Chemistry by Method 9056A

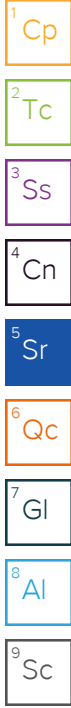
Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
Chloride	41300		379	1000	1	03/29/2023 04:34	<a href="#">WG2031537</a>
Fluoride	234	<u>B</u>	64.0	150	1	03/29/2023 04:34	<a href="#">WG2031537</a>
Sulfate	322000		5940	50000	10	03/29/2023 04:48	<a href="#">WG2031537</a>

Mercury by Method 7470A

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
Mercury	U		0.100	0.200	1	03/29/2023 09:42	<a href="#">WG2030401</a>

Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
Antimony	U		1.03	4.00	1	03/30/2023 12:41	<a href="#">WG2032107</a>
Arsenic	0.510	<u>J</u>	0.180	2.00	1	03/29/2023 23:53	<a href="#">WG2032107</a>
Barium	41.2		0.381	2.00	1	03/29/2023 23:53	<a href="#">WG2032107</a>
Beryllium	U		0.190	2.00	1	03/29/2023 23:53	<a href="#">WG2032107</a>
Boron	1830		96.3	300	10	03/30/2023 11:23	<a href="#">WG2032107</a>
Cadmium	0.161	<u>J</u>	0.150	1.00	1	03/29/2023 23:53	<a href="#">WG2032107</a>
Calcium	109000		93.6	1000	1	03/29/2023 23:53	<a href="#">WG2032107</a>
Chromium	U		1.24	2.00	1	03/29/2023 23:53	<a href="#">WG2032107</a>
Cobalt	1.10	<u>J</u>	0.0596	2.00	1	03/29/2023 23:53	<a href="#">WG2032107</a>
Lead	U		0.849	2.00	1	03/30/2023 12:41	<a href="#">WG2032107</a>
Magnesium	77500		73.5	1000	1	03/29/2023 23:53	<a href="#">WG2032107</a>
Molybdenum	1.34	<u>J</u>	0.348	5.00	1	03/29/2023 23:53	<a href="#">WG2032107</a>
Potassium	5700		108	2000	1	03/29/2023 23:53	<a href="#">WG2032107</a>
Selenium	7.68		0.300	2.00	1	03/29/2023 23:53	<a href="#">WG2032107</a>
Sodium	26400		376	2000	1	03/29/2023 23:53	<a href="#">WG2032107</a>
Thallium	U		0.121	2.00	1	03/30/2023 12:41	<a href="#">WG2032107</a>
Lithium	0.965	<u>J</u>	0.695	2.00	1	03/30/2023 17:53	<a href="#">WG2032954</a>



Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Dissolved Solids	1080000		20000	1	03/25/2023 10:02	<a href="#">WG2029488</a>

Wet Chemistry by Method 2320 B-2011

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
Alkalinity,Bicarbonate	238000		8450	20000	1	03/29/2023 12:27	<a href="#">WG2031278</a>
Alkalinity,Carbonate	U		8450	20000	1	03/29/2023 12:27	<a href="#">WG2031278</a>

Sample Narrative:

L1597570-02 WG2031278: Endpoint pH 4.5 Headspace

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
Chloride	96100		379	1000	1	03/29/2023 05:01	<a href="#">WG2031537</a>
Fluoride	911		64.0	150	1	03/29/2023 05:01	<a href="#">WG2031537</a>
Sulfate	468000		5940	50000	10	03/29/2023 05:15	<a href="#">WG2031537</a>

Mercury by Method 7470A

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
Mercury	U		0.100	0.200	1	03/29/2023 09:44	<a href="#">WG2030401</a>

Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
Antimony	U		1.03	4.00	1	03/30/2023 12:44	<a href="#">WG2032107</a>
Arsenic	0.963	J	0.180	2.00	1	03/29/2023 23:56	<a href="#">WG2032107</a>
Barium	23.8		0.381	2.00	1	03/29/2023 23:56	<a href="#">WG2032107</a>
Beryllium	U		0.190	2.00	1	03/29/2023 23:56	<a href="#">WG2032107</a>
Boron	3490		193	600	20	03/30/2023 11:26	<a href="#">WG2032107</a>
Cadmium	U		0.150	1.00	1	03/29/2023 23:56	<a href="#">WG2032107</a>
Calcium	131000		93.6	1000	1	03/29/2023 23:56	<a href="#">WG2032107</a>
Chromium	U		1.24	2.00	1	03/29/2023 23:56	<a href="#">WG2032107</a>
Cobalt	0.385	J	0.0596	2.00	1	03/29/2023 23:56	<a href="#">WG2032107</a>
Lead	U		0.849	2.00	1	03/30/2023 12:44	<a href="#">WG2032107</a>
Magnesium	105000		73.5	1000	1	03/29/2023 23:56	<a href="#">WG2032107</a>
Molybdenum	0.829	J	0.348	5.00	1	03/29/2023 23:56	<a href="#">WG2032107</a>
Potassium	5420		108	2000	1	03/29/2023 23:56	<a href="#">WG2032107</a>
Selenium	4.23		0.300	2.00	1	03/29/2023 23:56	<a href="#">WG2032107</a>
Sodium	41900		376	2000	1	03/29/2023 23:56	<a href="#">WG2032107</a>
Thallium	U		0.121	2.00	1	03/30/2023 12:44	<a href="#">WG2032107</a>
Lithium	4.93		0.695	2.00	1	03/30/2023 17:57	<a href="#">WG2032954</a>

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Dissolved Solids	519000		10000	1	03/25/2023 10:02	<a href="#">WG2029488</a>

Wet Chemistry by Method 2320 B-2011

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
Alkalinity,Bicarbonate	243000		8450	20000	1	03/29/2023 12:32	<a href="#">WG2031278</a>
Alkalinity,Carbonate	U		8450	20000	1	03/29/2023 12:32	<a href="#">WG2031278</a>

Sample Narrative:

L1597570-03 WG2031278: Endpoint pH 4.5 Headspace

Wet Chemistry by Method 9056A

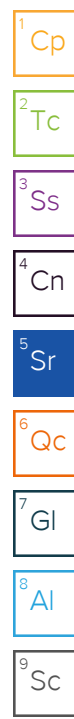
Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
Chloride	26900		379	1000	1	03/29/2023 05:28	<a href="#">WG2031537</a>
Fluoride	232	<u>B</u>	64.0	150	1	03/29/2023 05:28	<a href="#">WG2031537</a>
Sulfate	188000		594	5000	1	03/29/2023 05:28	<a href="#">WG2031537</a>

Mercury by Method 7470A

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
Mercury	U		0.100	0.200	1	03/29/2023 09:46	<a href="#">WG2030401</a>

Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
Antimony	U		1.03	4.00	1	03/30/2023 11:29	<a href="#">WG2032107</a>
Arsenic	0.963	<u>J</u>	0.180	2.00	1	03/30/2023 00:00	<a href="#">WG2032107</a>
Barium	40.3		0.381	2.00	1	03/30/2023 00:00	<a href="#">WG2032107</a>
Beryllium	0.255	<u>J</u>	0.190	2.00	1	03/30/2023 00:00	<a href="#">WG2032107</a>
Boron	374		9.63	30.0	1	03/30/2023 11:29	<a href="#">WG2032107</a>
Cadmium	0.507	<u>J</u>	0.150	1.00	1	03/30/2023 00:00	<a href="#">WG2032107</a>
Calcium	115000		93.6	1000	1	03/30/2023 00:00	<a href="#">WG2032107</a>
Chromium	U		1.24	2.00	1	03/30/2023 00:00	<a href="#">WG2032107</a>
Cobalt	1.74	<u>J</u>	0.0596	2.00	1	03/30/2023 00:00	<a href="#">WG2032107</a>
Lead	U		0.849	2.00	1	03/30/2023 11:29	<a href="#">WG2032107</a>
Magnesium	26100		73.5	1000	1	03/30/2023 00:00	<a href="#">WG2032107</a>
Molybdenum	3.24	<u>J</u>	0.348	5.00	1	03/30/2023 00:00	<a href="#">WG2032107</a>
Potassium	3330		108	2000	1	03/30/2023 00:00	<a href="#">WG2032107</a>
Selenium	7.22		0.300	2.00	1	03/30/2023 00:00	<a href="#">WG2032107</a>
Sodium	24300		376	2000	1	03/30/2023 00:00	<a href="#">WG2032107</a>
Thallium	1.25	<u>J</u>	0.121	2.00	1	03/30/2023 11:29	<a href="#">WG2032107</a>
Lithium	1.10	<u>J</u>	0.695	2.00	1	03/30/2023 18:00	<a href="#">WG2032954</a>



Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Dissolved Solids	1040000		20000	1	03/25/2023 10:02	<a href="#">WG2029488</a>

Wet Chemistry by Method 2320 B-2011

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
Alkalinity,Bicarbonate	240000		8450	20000	1	03/29/2023 12:37	<a href="#">WG2031278</a>
Alkalinity,Carbonate	U		8450	20000	1	03/29/2023 12:37	<a href="#">WG2031278</a>

Sample Narrative:

L1597570-04 WG2031278: Endpoint pH 4.5 Headspace

Wet Chemistry by Method 9056A

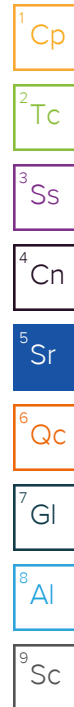
Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
Chloride	95200		379	1000	1	03/29/2023 05:55	<a href="#">WG2031537</a>
Fluoride	881		64.0	150	1	03/29/2023 05:55	<a href="#">WG2031537</a>
Sulfate	463000		5940	50000	10	03/29/2023 06:08	<a href="#">WG2031537</a>

Mercury by Method 7470A

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
Mercury	U		0.100	0.200	1	03/29/2023 09:52	<a href="#">WG2030401</a>

Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
Antimony	U		1.03	4.00	1	03/30/2023 12:48	<a href="#">WG2032107</a>
Arsenic	0.818	J	0.180	2.00	1	03/30/2023 00:03	<a href="#">WG2032107</a>
Barium	22.2		0.381	2.00	1	03/30/2023 00:03	<a href="#">WG2032107</a>
Beryllium	U		0.190	2.00	1	03/30/2023 00:03	<a href="#">WG2032107</a>
Boron	3310		193	600	20	03/30/2023 11:32	<a href="#">WG2032107</a>
Cadmium	0.161	J	0.150	1.00	1	03/30/2023 00:03	<a href="#">WG2032107</a>
Calcium	130000		93.6	1000	1	03/30/2023 00:03	<a href="#">WG2032107</a>
Chromium	8.24		1.24	2.00	1	03/30/2023 00:03	<a href="#">WG2032107</a>
Cobalt	0.526	J	0.0596	2.00	1	03/30/2023 00:03	<a href="#">WG2032107</a>
Lead	U		0.849	2.00	1	03/30/2023 12:48	<a href="#">WG2032107</a>
Magnesium	104000		73.5	1000	1	03/30/2023 00:03	<a href="#">WG2032107</a>
Molybdenum	2.10	J	0.348	5.00	1	03/30/2023 00:03	<a href="#">WG2032107</a>
Potassium	5400		108	2000	1	03/30/2023 00:03	<a href="#">WG2032107</a>
Selenium	4.65		0.300	2.00	1	03/30/2023 00:03	<a href="#">WG2032107</a>
Sodium	40700		376	2000	1	03/30/2023 00:03	<a href="#">WG2032107</a>
Thallium	0.214	J	0.121	2.00	1	03/30/2023 12:48	<a href="#">WG2032107</a>
Lithium	4.72		0.695	2.00	1	03/30/2023 18:03	<a href="#">WG2032954</a>



(MB) R3906492-1 03/25/23 10:02

Analyte	MB Result	MB Qualifier	MB MDL	MB RDL
Dissolved Solids	U		10000	10000

L1596618-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1596618-01 03/25/23 10:02 • (DUP) R3906492-3 03/25/23 10:02

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Dissolved Solids	796000	806000	1	1.25		5

L1596819-01 Original Sample (OS) • Duplicate (DUP)

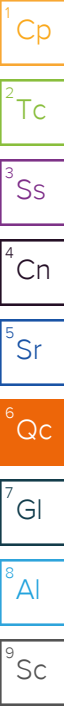
(OS) L1596819-01 03/25/23 10:02 • (DUP) R3906492-4 03/25/23 10:02

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Dissolved Solids	5570000	5960000	1	6.76	J3	5

Laboratory Control Sample (LCS)

(LCS) R3906492-2 03/25/23 10:02

Analyte	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier
Dissolved Solids	8800000	6840000	77.7	77.3-123	



(MB) R3907113-2 03/29/23 12:03

Analyte	MB Result	MB Qualifier	MB MDL	MB RDL
	ug/l		ug/l	ug/l
Alkalinity,Bicarbonate	U		8450	20000
Alkalinity,Carbonate	U		8450	20000

Sample Narrative:

BLANK: Endpoint pH 4.5

L1598041-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1598041-01 03/29/23 12:14 • (DUP) R3907113-3 03/29/23 12:18

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
	ug/l	ug/l		%		%
Alkalinity,Bicarbonate	540000	534000	1	1.10		20
Alkalinity,Carbonate	U	U	1	0.000		20

Sample Narrative:

OS: Endpoint pH 4.5 Headspace

DUP: Endpoint pH 4.5

L1598041-04 Original Sample (OS) • Duplicate (DUP)

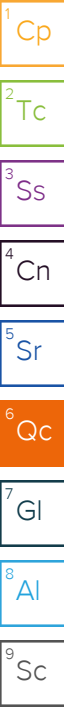
(OS) L1598041-04 03/29/23 14:01 • (DUP) R3907113-4 03/29/23 14:05

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
	ug/l	ug/l		%		%
Alkalinity,Bicarbonate	385000	386000	1	0.268		20
Alkalinity,Carbonate	U	U	1	0.000		20

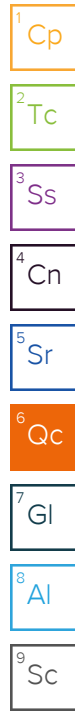
Sample Narrative:

OS: Endpoint pH 4.5 Headspace

DUP: Endpoint pH 4.5







(MB) R3907338-1 03/29/23 01:54

Analyte	MB Result	MB Qualifier	MB MDL	MB RDL
Chloride	438	U	379	1000
Fluoride	80.8	U	64.0	150
Sulfate	U		594	5000

L1597585-03 Original Sample (OS) • Duplicate (DUP)

(OS) L1597585-03 03/29/23 10:50 • (DUP) R3907338-3 03/29/23 11:03

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Chloride	5810	5790	1	0.412		15
Fluoride	292	270	1	7.86		15
Sulfate	11300	11200	1	0.913		15

L1597585-04 Original Sample (OS) • Duplicate (DUP)

(OS) L1597585-04 03/29/23 11:44 • (DUP) R3907338-6 03/29/23 11:57

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Chloride	86200	87200	1	1.20		15
Fluoride	278	278	1	0.216		15
Sulfate	27300	27600	1	0.998		15

Laboratory Control Sample (LCS)

(LCS) R3907338-2 03/29/23 02:07

Analyte	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier
Chloride	40000	39900	99.7	80.0-120	
Fluoride	8000	8470	106	80.0-120	
Sulfate	40000	41500	104	80.0-120	

L1597585-03 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1597585-03 03/29/23 10:50 • (MS) R3907338-4 03/29/23 11:17 • (MSD) R3907338-5 03/29/23 11:30

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 %
Chloride	50000	5810	54400	54200	97.2	96.8	1	80.0-120			0.341	15
Fluoride	5000	292	5270	5260	99.5	99.4	1	80.0-120			0.146	15
Sulfate	50000	11300	61000	60900	99.4	99.2	1	80.0-120			0.221	15

L1597585-04 Original Sample (OS) • Matrix Spike (MS)

(OS) L1597585-04 03/29/23 11:44 • (MS) R3907338-7 03/29/23 12:37

Analyte	Spike Amount ug/l	Original Result ug/l	MS Result ug/l	MS Rec. %	Dilution	Rec. Limits %	MS Qualifier
Chloride	50000	86200	131000	89.4	1	80.0-120	
Fluoride	5000	278	5290	100	1	80.0-120	
Sulfate	50000	27300	76300	98.1	1	80.0-120	

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

(MB) R3906722-1 03/29/23 09:19

Analyte	MB Result	MB Qualifier	MB MDL	MB RDL
Mercury	U		0.100	0.200

Laboratory Control Sample (LCS)

(LCS) R3906722-2 03/29/23 09:21

Analyte	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier
Mercury	3.00	2.88	95.9	80.0-120	

L1597585-03 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1597585-03 03/29/23 09:28 • (MS) R3906722-3 03/29/23 09:30 • (MSD) R3906722-4 03/29/23 09:32

Analyte	Spike Amount	Original Result	MS Result	MSD Result	MS Rec.	MSD Rec.	Dilution	Rec. Limits	MS Qualifier	MSD Qualifier	RPD	RPD Limits
Mercury	3.00	U	2.96	2.97	98.6	99.2	1	75.0-125			0.556	20

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

(MB) R3907081-1 03/29/23 22:15

Analyte	MB Result	MB Qualifier	MB MDL	MB RDL
	ug/l		ug/l	ug/l
Antimony	U		1.03	4.00
Arsenic	U		0.180	2.00
Barium	U		0.381	2.00
Beryllium	U		0.190	2.00
Boron	U		9.63	30.0
Cadmium	U		0.150	1.00
Calcium	U		93.6	1000
Chromium	U		1.24	2.00
Cobalt	U		0.0596	2.00
Lead	U		0.849	2.00
Magnesium	U		73.5	1000
Molybdenum	U		0.348	5.00
Potassium	191	U	108	2000
Selenium	U		0.300	2.00
Sodium	U		376	2000
Thallium	U		0.121	2.00

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

Laboratory Control Sample (LCS)

(LCS) R3907081-2 03/29/23 22:19

Analyte	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier
	ug/l	ug/l	%	%	
Antimony	50.0	47.6	95.2	80.0-120	
Arsenic	50.0	47.6	95.2	80.0-120	
Barium	50.0	45.7	91.3	80.0-120	
Beryllium	50.0	48.7	97.5	80.0-120	
Boron	50.0	51.5	103	80.0-120	
Cadmium	50.0	49.3	98.7	80.0-120	
Calcium	5000	4760	95.1	80.0-120	
Chromium	50.0	49.3	98.7	80.0-120	
Cobalt	50.0	50.2	100	80.0-120	
Lead	50.0	47.7	95.5	80.0-120	
Magnesium	5000	4760	95.3	80.0-120	
Molybdenum	50.0	48.9	97.8	80.0-120	
Potassium	5000	5280	106	80.0-120	
Selenium	50.0	48.6	97.1	80.0-120	
Sodium	5000	5050	101	80.0-120	
Thallium	50.0	47.1	94.2	80.0-120	

(OS) L1597529-86 03/29/23 22:22 • (MS) R3907081-4 03/29/23 22:28 • (MSD) R3907081-5 03/29/23 22:32

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 %
Antimony	50.0	U	51.7	51.7	103	103	1	75.0-125			0.00983	20
Arsenic	50.0	8.44	59.8	60.3	103	104	1	75.0-125			0.937	20
Barium	50.0	22.4	71.3	71.6	97.7	98.3	1	75.0-125			0.445	20
Beryllium	50.0	U	48.7	48.7	97.5	97.4	1	75.0-125			0.00462	20
Boron	50.0	1040	1120	1130	167	179	1	75.0-125	∇	∇	0.549	20
Cadmium	50.0	U	47.7	48.3	95.5	96.5	1	75.0-125			1.06	20
Calcium	5000	577000	585000	577000	162	8.85	1	75.0-125	∇	∇	1.32	20
Chromium	50.0	U	50.8	51.3	102	103	1	75.0-125			0.931	20
Cobalt	50.0	4.79	55.4	55.3	101	101	1	75.0-125			0.0375	20
Lead	50.0	12.0	63.0	61.8	102	99.6	1	75.0-125			2.00	20
Magnesium	5000	406000	424000	422000	368	329	1	75.0-125	∇	∇	0.458	20
Molybdenum	50.0	58.9	112	111	107	104	1	75.0-125			1.50	20
Potassium	5000	9150	14000	13800	97.0	92.0	1	75.0-125			1.80	20
Selenium	50.0	4.42	58.7	57.8	109	107	1	75.0-125			1.60	20
Sodium	5000	267000	273000	274000	131	141	1	75.0-125	∇	∇	0.189	20
Thallium	50.0	U	50.9	50.3	102	101	1	75.0-125			1.26	20

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

(MB) R3907533-1 03/30/23 17:12

Analyte	MB Result	MB Qualifier	MB MDL	MB RDL
Lithium	U		0.695	2.00

Laboratory Control Sample (LCS)

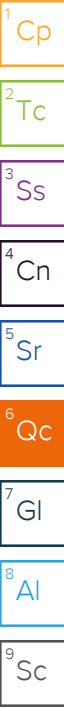
(LCS) R3907533-2 03/30/23 17:16

Analyte	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier
Lithium	50.0	47.5	95.1	80.0-120	

L1598451-02 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1598451-02 03/30/23 17:19 • (MS) R3907533-4 03/30/23 17:26 • (MSD) R3907533-5 03/30/23 17:29

Analyte	Spike Amount	Original Result	MS Result	MSD Result	MS Rec.	MSD Rec.	Dilution	Rec. Limits	MS Qualifier	MSD Qualifier	RPD	RPD Limits
Lithium	50.0	U	44.3	44.2	88.6	88.3	1	75.0-125			0.306	20



1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

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.
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.

## Qualifier Description

B	The same analyte is found in the associated blank.
J	The identification of the analyte is acceptable; the reported value is an estimate.
J3	The associated batch QC was outside the established quality control range for precision.
V	The sample concentration is too high to evaluate accurate spike recoveries.

## ACCREDITATIONS &amp; LOCATIONS

ANNUAL GROUNDWATER MONITORING AND CORRECTIVE ACTION REPORT - QUARTER 1, 2023

ZIMMER POWER PLANT, GYPSUM RECYCLE POND

ZIM-257-124

Pace Analytical National 12065 Lebanon Rd Mount Juliet, TN 37122

Alabama	40660	Nebraska	NE-OS-15-05
Alaska	17-026	Nevada	TN000032021-1
Arizona	AZ0612	New Hampshire	2975
Arkansas	88-0469	New Jersey–NELAP	TN002
California	2932	New Mexico <sup>1</sup>	TN00003
Colorado	TN00003	New York	11742
Connecticut	PH-0197	North Carolina	Env375
Florida	E87487	North Carolina <sup>1</sup>	DW21704
Georgia	NELAP	North Carolina <sup>3</sup>	41
Georgia <sup>1</sup>	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 <sup>1,6</sup>	KY90010	South Carolina	84004002
Kentucky <sup>2</sup>	16	South Dakota	n/a
Louisiana	AI30792	Tennessee <sup>1,4</sup>	2006
Louisiana	LA018	Texas	T104704245-20-18
Maine	TN00003	Texas <sup>5</sup>	LAB0152
Maryland	324	Utah	TN000032021-11
Massachusetts	M-TN003	Vermont	VT2006
Michigan	9958	Virginia	110033
Minnesota	047-999-395	Washington	C847
Mississippi	TN00003	West Virginia	233
Missouri	340	Wisconsin	998093910
Montana	CERT0086	Wyoming	A2LA
A2LA – ISO 17025	1461.01	AIHA-LAP,LLC EMLAP	100789
A2LA – ISO 17025 <sup>5</sup>	1461.02	DOD	1461.01
Canada	1461.01	USDA	P330-15-00234
EPA–Crypto	TN00003		

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

\* 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 Analytical.

<sup>1</sup> Cp<sup>2</sup> Tc<sup>3</sup> Ss<sup>4</sup> Cn<sup>5</sup> Sr<sup>6</sup> Qc<sup>7</sup> Gl<sup>8</sup> Al<sup>9</sup> Sc



58 ME Cincinnati  
 862 E. Crescentville Rd.  
 Cincinnati, OH 45246

Accounts Payable  
 AP@smeinc.com

Pres  
 Chk

Analysis / Container / Preservative



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

Submitting a sample via this chain of custody constitutes acknowledgment and acceptance of the Pace Terms and Conditions found at: <https://info.pacelabs.com/hubs/pas-standard-terms.pdf>

SDG # L1597570  
H067

Acctnum: LITEGNTN

Template:

Prelogin:

PM: 134

PB:

Shipped Via:

Report to: **Vince Epps** Email To: **vepps@smeinc.com**

Project Description: **Zimmer Station** City/State Collected: **Moscow, OH** Please Circle: **PT MT CT ET**

Phone: **513-771-8471** Client Project # **7217-17-001D** Lab Project # **LITEGNTN-ZIMMER**

Collected by (print): *Carter Holden* Site/Facility ID # **WHZ Unit 124 (Gyps. Pond)** P.O. #

Collected by (signature): *Carter Holden* **Rush?** (Lab MUST Be Notified) Quote #

Immediately Packed on Ice N \_\_\_ Y X **Same Day** \_\_\_ **Five Day** \_\_\_ **Next Day** \_\_\_ **5 Day (Rad Only)** \_\_\_ **Two Day** \_\_\_ **10 Day (Rad Only)** \_\_\_ **Three Day** \_\_\_ **Date Results Needed** No. of **Cntrs**

Sample ID	Comp/Grab	Matrix*	Depth	Date	Time	No. of Cntrs	Alk Bi/Ca, Cl, F, SO4	125mIHDPE-NonPres	CCR Metals+B, Li, K, Na, Mg	250mIHDPE-NonPres	RA-226/228COMB	1L-HPE-HNO3	TDS	250mIHDPE-NonPres	Remarks	Sample # (lab only)
MW-07A	Grab	GW	NA	3/20/23	1155	5	X	X	X	X						01
MW-10	Grab	GW	NA	3/20/23	1600	5	X	X	X	X						02
MW-11	Grab	GW	NA	3/20/23	1250	5	X	X	X	X						03
DUP-1	Grab	GW	NA	3/20/23	-	5	X	X		X						09
						7										
						2										

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

Remarks: pH \_\_\_\_\_ Temp \_\_\_\_\_  
 Flow \_\_\_\_\_ Other \_\_\_\_\_

Samples returned via: UPS FedEx Courier Tracking # 6377 9917 4754

Sample Receipt Checklist

COC Seal Present/Intact:	NP	Y	N
COC Signed/Accurate:		Y	N
Bottles arrive intact:		Y	N
Correct bottles used:		Y	N
Sufficient volume sent:		Y	N
If Applicable			
VOA Zero Headpace:		Y	N
Preservation Correct/Checked:		Y	N
RAD Screen <0.5 mR/hr:		Y	N

Relinquished by: (Signature) <i>Carter Holden</i>	Date: <u>3/22/23</u>	Time: <u>1740</u>	Received by: (Signature)	Trip Blank Received: Yes / No	HCL / MeOH	TBR
Relinquished by: (Signature)	Date:	Time:	Received by: (Signature)	Temp: <u>15.47</u> °C	Bottles Received: <u>18</u>	If preservation required by Login: Date/Time
Relinquished by: (Signature)	Date:	Time:	Received for lab by: (Signature)	Date: <u>3/23/23</u>	Time: <u>0915</u>	Hold: Condition: <u>NCF / OK</u>

## ANALYTICAL REPORT

April 24, 2023

1  
Cp2  
Tc3  
Ss4  
Cn5  
Sr6  
Qc7  
Gl8  
Al9  
Sc**S&ME - Nashville, TN**

Sample Delivery Group: L1597592  
 Samples Received: 03/23/2023  
 Project Number: 7217-17-001D  
 Description: Zimmer Station  
 Site: BG WELLS  
 Report To: Vince Epps  
 862 East Crescentville Road  
 Cincinnati, OH 45246

Entire Report Reviewed By:

Mark W. Beasley  
Project Manager

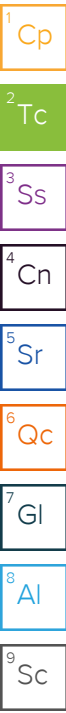
Results relate only to the items tested or calibrated and are reported as rounded values. This test report shall not be reproduced, except in full, without written approval of the laboratory. Where applicable, sampling conducted by Pace Analytical National is performed per guidance provided in laboratory 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.

Pace Analytical National

12065 Lebanon Rd Mount Juliet, TN 37122 615-758-5858 800-767-5859 www.pacenational.com

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# SAMPLE SUMMARY

ANNUAL GROUNDWATER MONITORING AND CORRECTIVE ACTION REPORT - QUARTER 1, 2023

ZIMMER POWER PLANT, GYPSUM RECYCLE POND

ZIM-257-124

## MW-01 L1597592-01 Non-Potable Water

Collected by Carter H.	Collected date/time 03/21/23 09:10	Received date/time 03/23/23 09:15
---------------------------	---------------------------------------	--------------------------------------

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Radiochemistry by Method 904/9320	WG2044320	1	04/19/23 12:37	04/21/23 10:57	SWM	Mt. Juliet, TN
Radiochemistry by Method Calculation	WG2034931	1	04/17/23 16:38	04/21/23 10:57	SWM	Mt. Juliet, TN
Radiochemistry by Method SM7500Ra B M	WG2034931	1	04/17/23 16:38	04/19/23 19:09	RGT	Mt. Juliet, TN

## MW-08 L1597592-02 Non-Potable Water

Collected by Carter H.	Collected date/time 03/20/23 13:45	Received date/time 03/23/23 09:15
---------------------------	---------------------------------------	--------------------------------------

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Radiochemistry by Method 904/9320	WG2044320	1	04/19/23 12:37	04/21/23 10:57	SWM	Mt. Juliet, TN
Radiochemistry by Method Calculation	WG2034931	1	04/17/23 16:38	04/21/23 10:57	SWM	Mt. Juliet, TN
Radiochemistry by Method SM7500Ra B M	WG2034931	1	04/17/23 16:38	04/19/23 19:09	RGT	Mt. Juliet, TN

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

# CASE NARRATIVE

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 radiochemical sample results for solids are reported on a dry weight basis with the exception of tritium, carbon-14 and radon, unless wet weight was requested by the client. 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.



Mark W. Beasley  
Project Manager

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

Analyte	Result	Qualifier	Uncertainty	MDA	Analysis Date	Batch
	pCi/l		+ / -	pCi/l	date / time	
RADIUM-228	0.153	<u>U</u>	0.280	0.519	04/21/2023 10:57	<a href="#">WG2044320</a>
(T) Barium	113			30.0-143	04/21/2023 10:57	<a href="#">WG2044320</a>
(T) Yttrium	104			30.0-136	04/21/2023 10:57	<a href="#">WG2044320</a>

Radiochemistry by Method Calculation

Analyte	Result	Qualifier	Uncertainty	MDA	Analysis Date	Batch
	pCi/l		+ / -	pCi/l	date / time	
Combined Radium	0.153	<u>U</u>	0.340	0.693	04/21/2023 10:57	<a href="#">WG2034931</a>

Radiochemistry by Method SM7500Ra B M

Analyte	Result	Qualifier	Uncertainty	MDA	Analysis Date	Batch
	pCi/l		+ / -	pCi/l	date / time	
RADIUM-226	-0.0567	<u>U</u>	0.192	0.459	04/19/2023 19:09	<a href="#">WG2034931</a>
(T) Barium-133	59.4			30.0-143	04/19/2023 19:09	<a href="#">WG2034931</a>

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

Radiochemistry by Method 904/9320

Analyte	Result	Qualifier	Uncertainty	MDA	Analysis Date	Batch
	pCi/l		+ / -	pCi/l	date / time	
RADIUM-228	-0.501	<u>U</u>	0.277	0.528	04/21/2023 10:57	<a href="#">WG2044320</a>
(T) Barium	108			30.0-143	04/21/2023 10:57	<a href="#">WG2044320</a>
(T) Yttrium	103			30.0-136	04/21/2023 10:57	<a href="#">WG2044320</a>

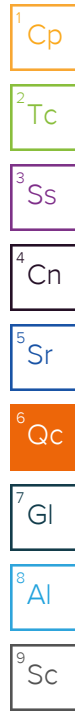
Radiochemistry by Method Calculation

Analyte	Result	Qualifier	Uncertainty	MDA	Analysis Date	Batch
	pCi/l		+ / -	pCi/l	date / time	
Combined Radium	1.34		0.560	0.620	04/21/2023 10:57	<a href="#">WG2034931</a>

Radiochemistry by Method SM7500Ra B M

Analyte	Result	Qualifier	Uncertainty	MDA	Analysis Date	Batch
	pCi/l		+ / -	pCi/l	date / time	
RADIUM-226	1.34		0.487	0.325	04/19/2023 19:09	<a href="#">WG2034931</a>
(T) Barium-133	86.6			30.0-143	04/19/2023 19:09	<a href="#">WG2034931</a>

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



(MB) R3916733-1 04/21/23 10:57

Analyte	MB Result	MB Qualifier	MB Uncertainty	MB MDA
	pCi/l		+ / -	pCi/l
Radium-228	0.150	↓	0.126	0.234
(T) Barium	113		113	
(T) Yttrium	116		116	

L1597559-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1597559-01 04/21/23 10:57 • (DUP) R3916733-5 04/21/23 10:57

Analyte	Original Result	Original Uncertainty	Original MDA	DUP Result	DUP Uncertainty	DUP MDA	Dilution	DUP RPD	DUP RER	DUP Qualifier	DUP RPD Limits	DUP RER Limit
	pCi/l	+ / -	pCi/l	pCi/l	+ / -	pCi/l		%			%	
Radium-228	0.225	0.237	0.419	0.691	0.335	0.419	1	102	1.14		20	3
(T) Barium	111			117	117							
(T) Yttrium	105			99.5	99.5							

Laboratory Control Sample (LCS)

(LCS) R3916733-2 04/21/23 10:57

Analyte	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier
	pCi/l	pCi/l	%	%	
Radium-228	5.00	5.38	108	80.0-120	
(T) Barium			113		
(T) Yttrium			109		

L1597617-03 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1597617-03 04/21/23 10:57 • (MS) R3916733-3 04/21/23 10:57 • (MSD) R3916733-4 04/21/23 10:57

Analyte	Spike Amount	Original Result	MS Result	MSD Result	MS Rec.	MSD Rec.	Dilution	Rec. Limits	MS Qualifier	MSD Qualifier	RPD	MS RER	RPD Limits
	pCi/l	pCi/l	pCi/l	pCi/l	%	%		%			%		%
Radium-228	10.0	-0.0118	9.99	9.26	99.9	92.6	1	70.0-130			7.57		20
(T) Barium		96.8			108	111							
(T) Yttrium		103			104	100							



(MB) R3915555-1 04/19/23 18:51

Analyte	MB Result	MB Qualifier	MB Uncertainty	MB MDA
	pCi/l		+ / -	pCi/l
Radium-226	0.00529	<u>U</u>	0.0319	0.0641
(T) Barium-133	89.5		89.5	

L1597703-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1597703-01 04/19/23 22:38 • (DUP) R3915555-5 04/19/23 19:09

Analyte	Original Result	Original Uncertainty	Original MDA	DUP Result	DUP Uncertainty	DUP MDA	Dilution	DUP RPD	DUP RER	DUP Qualifier	DUP RPD Limits	DUP RER Limit
	pCi/l	+ / -	pCi/l	pCi/l	+ / -	pCi/l		%			%	
Radium-226	7.34	1.04	0.287	5.86	0.936	0.287	1	22.3	1.05		20	3
(T) Barium-133	104			102	102							

Laboratory Control Sample (LCS)

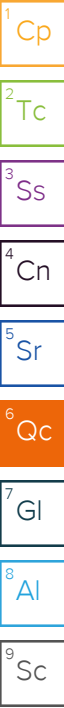
(LCS) R3915555-2 04/19/23 18:51

Analyte	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier
	pCi/l	pCi/l	%	%	
Radium-226	5.01	4.42	88.3	80.0-120	
(T) Barium-133			62.5		

L1597701-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1597701-01 04/19/23 22:38 • (MS) R3915555-3 04/19/23 19:09 • (MSD) R3915555-4 04/19/23 19:09

Analyte	Spike Amount	Original Result	MS Result	MSD Result	MS Rec.	MSD Rec.	Dilution	Rec. Limits	MS Qualifier	MSD Qualifier	RPD	MS RER	RPD Limits
	pCi/l	pCi/l	pCi/l	pCi/l	%	%		%			%		%
Radium-226	20.0	12.0	36.1	35.2	121	116	1	75.0-125			2.61		20
(T) Barium-133		109			111	113							



1  
Cp2  
Tc3  
Ss4  
Cn5  
Sr6  
Qc7  
Gl8  
Al9  
Sc

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

MDA	Minimum Detectable Activity.
Rec.	Recovery.
RER	Replicate Error Ratio.
RPD	Relative Percent Difference.
SDG	Sample Delivery Group.
(T)	Tracer - A radioisotope of known concentration added to a solution of chemically equivalent radioisotopes at a known concentration to assist in monitoring the yield of the chemical separation.
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.

## Qualifier Description

J	The identification of the analyte is acceptable; the reported value is an estimate.
U	Below Detectable Limits: Indicates that the analyte was not detected.

## ACCREDITATIONS &amp; LOCATIONS

ANNUAL GROUNDWATER MONITORING AND CORRECTIVE ACTION REPORT - QUARTER 1, 2023

ZIMMER POWER PLANT, GYPSUM RECYCLE POND

ZIM-257-124

Pace Analytical National 12065 Lebanon Rd Mount Juliet, TN 37122

Alabama	40660	Nebraska	NE-OS-15-05
Alaska	17-026	Nevada	TN000032021-1
Arizona	AZ0612	New Hampshire	2975
Arkansas	88-0469	New Jersey-NELAP	TN002
California	2932	New Mexico <sup>1</sup>	TN00003
Colorado	TN00003	New York	11742
Connecticut	PH-0197	North Carolina	Env375
Florida	E87487	North Carolina <sup>1</sup>	DW21704
Georgia	NELAP	North Carolina <sup>3</sup>	41
Georgia <sup>1</sup>	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 <sup>1,6</sup>	KY90010	South Carolina	84004002
Kentucky <sup>2</sup>	16	South Dakota	n/a
Louisiana	AI30792	Tennessee <sup>1,4</sup>	2006
Louisiana	LA018	Texas	T104704245-20-18
Maine	TN00003	Texas <sup>5</sup>	LAB0152
Maryland	324	Utah	TN000032021-11
Massachusetts	M-TN003	Vermont	VT2006
Michigan	9958	Virginia	110033
Minnesota	047-999-395	Washington	C847
Mississippi	TN00003	West Virginia	233
Missouri	340	Wisconsin	998093910
Montana	CERT0086	Wyoming	A2LA
A2LA – ISO 17025	1461.01	AIHA-LAP,LLC EMLAP	100789
A2LA – ISO 17025 <sup>5</sup>	1461.02	DOD	1461.01
Canada	1461.01	USDA	P330-15-00234
EPA-Crypto	TN00003		

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

\* 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 Analytical.

<sup>1</sup> Cp<sup>2</sup> Tc<sup>3</sup> Ss<sup>4</sup> Cn<sup>5</sup> Sr<sup>6</sup> Qc<sup>7</sup> Gl<sup>8</sup> Al<sup>9</sup> Sc

APPENDIX A.  
ANNUAL GROUNDWATER MONITORING AND CORRECTIVE ACTION REPORT - QUARTER 1, 2023

ZIMMER POWER PLANT, GYPSUM RECYCLE POND

Name/Address:  
**S&ME - Cincinnati**  
862 E. Crescentville Rd.  
Cincinnati, OH 45246

Billing Information:  
**Accounts Payable**  
AP@smeinc.com

Pres  
Chk

Analysis / Container / Preservative

Chain of Custody Page \_\_\_ of \_\_\_



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

Submitting a sample via this chain of custody constitutes acknowledgment and acceptance of the Pace Terms and Conditions found at:  
<https://info.pacelabs.com/hubs/pas-standard-terms.pdf>

Report to:  
**Vince Epps**

Email To:  
vepps@smeinc.com

Project Description:  
**Zimmer Station**

City/State Collected: **Moscow, OH**

Please Circle:  
PT MT CT ET

Phone: **513-771-8471**

Client Project #  
**7217-17-001D**

Lab Project #  
**LITEGNTN-ZIMMER**

Collected by (print):  
*Carter Herban*

Site/Facility ID #  
**BG Wells**

P.O. #

Collected by (signature):  
*Carter Hill*

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 X

No. of  
Cntrs

Sample ID	Comp/Grab	Matrix*	Depth	Date	Time	No. of Cntrs	Alk Bi/Ca, Cl, F, SO4 125miHDPE-NonPres	CCR Metals+B, Li, K, Na, Mg 250miHDPE-NonPres	RA-226/228COMB 1L-HPE-HNO3	TDS 250miHDPE-NonPres					Remarks	Sample # (lab only)
MW-01	Grab	GW	NA	3/21/23	910	5	X	X	X	X						01
MW-08	Grab	GW	NA	3/20/23	1345	5	X	X	X	X						02

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

Remarks:  
pH \_\_\_\_\_ Temp \_\_\_\_\_  
Flow \_\_\_\_\_ Other \_\_\_\_\_

Samples returned via:  
\_\_\_ UPS \_\_\_ FedEx \_\_\_ Courier

Tracking #

Sample Receipt Checklist

COC Seal Present/Intact:	___ NP	Y ___ N
COC Signed/Accurate:		Y ___ N
Bottles arrive intact:		Y ___ N
Correct bottles used:		Y ___ N
Sufficient volume sent:		Y ___ N
If Applicable		
VOA Zero Headspace:		Y ___ N
Preservation Correct/Checked:		Y ___ N
RAD Screen <0.5 mR/hr:		Y ___ N

Relinquished by: (Signature)  
*Carter Hill*

Date: **3/22/23**

Time: **1740**

Received by: (Signature)  
*FedEx*

Trip Blank Received: Yes/No  
HCL / MeOH  
TBR

Relinquished by: (Signature)

Date:

Time:

Received by: (Signature)

Temp: °C Bottles Received:  
**10**

If preservation required by Login: Date/Time

Relinquished by: (Signature)

Date:

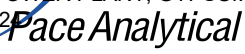
Time:

Received for lab by: (Signature)  
*[Signature]*

Date: **3/23/23** Time: **0945**

Hold: Condition:  
NCF / **OK**

<u>Tracking Numbers</u>	<u>Temperature</u>
6357 9911 4700	NSA 4.0 to = 4.0
4751	NSA 2.5 to = 2.5
4721	NSA 3.6 to = 7.6



# ANALYTICAL REPORT

April 25, 2023

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

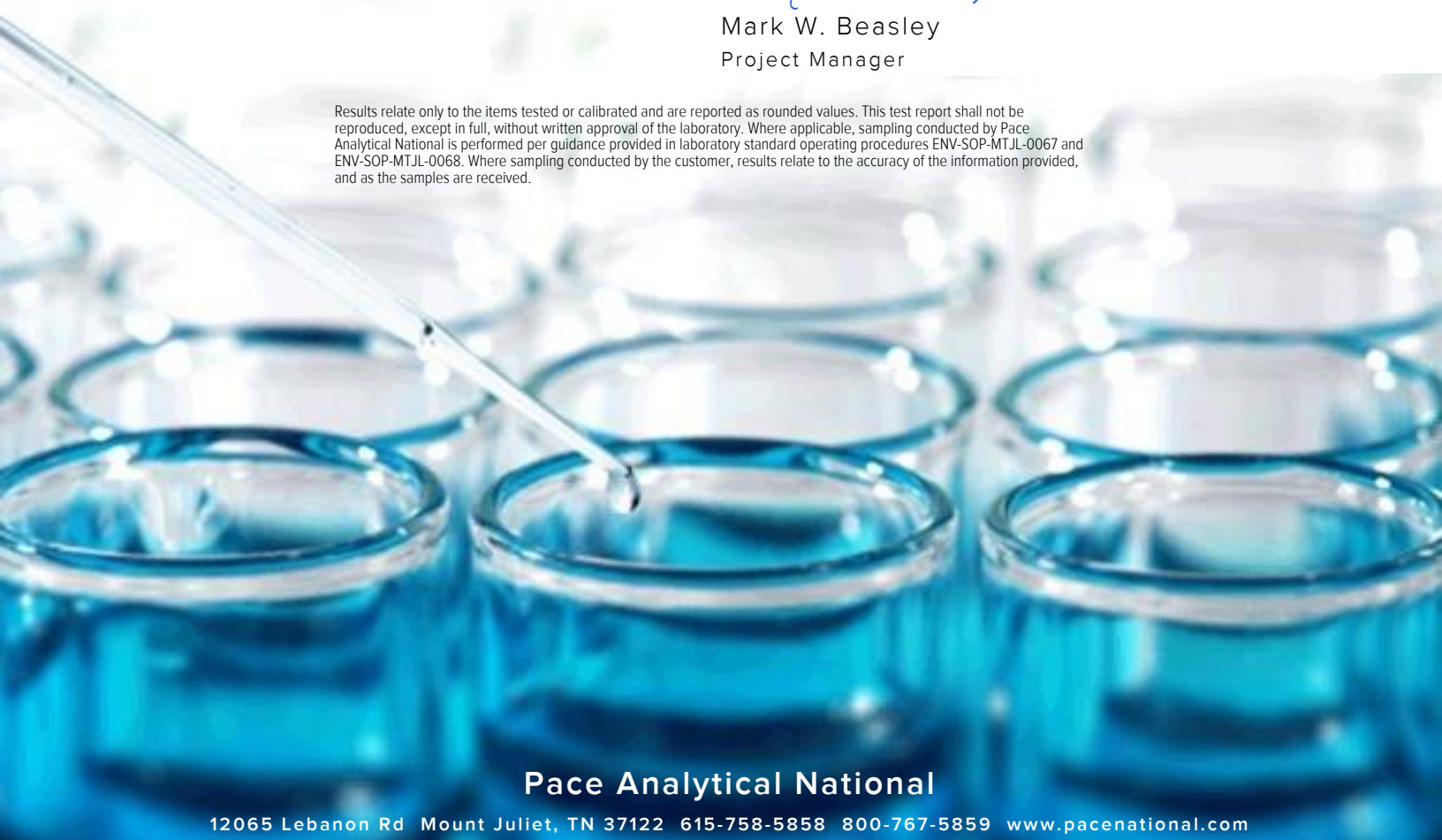
## S&ME - Nashville, TN

Sample Delivery Group: L1597598  
Samples Received: 03/23/2023  
Project Number: 7217-17-001D  
Description: Zimmer Station  
Site: WHZ UNIT 124 (GYPS POND)  
Report To: Vince Epps  
862 East Crescentville Road  
Cincinnati, OH 45246

Entire Report Reviewed By:

Mark W. Beasley  
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.

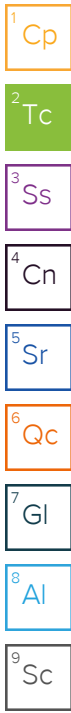


**Pace Analytical National**

12065 Lebanon Rd Mount Juliet, TN 37122 615-758-5858 800-767-5859 www.pacenational.com

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<b>Sc: Sample Chain of Custody</b>	12



# SAMPLE SUMMARY

## ANNUAL GROUNDWATER MONITORING AND CORRECTIVE ACTION REPORT - QUARTER 1, 2023

ZIMMER POWER PLANT, GYPSUM RECYCLE POND

ZIM-257-124

### MW-07A L1597598-01 Non-Potable Water

Collected by Carter H.	Collected date/time 03/20/23 11:55	Received date/time 03/23/23 09:15
---------------------------	---------------------------------------	--------------------------------------

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Radiochemistry by Method 904/9320	WG2044320	1	04/19/23 12:37	04/21/23 10:57	SWM	Mt. Juliet, TN
Radiochemistry by Method Calculation	WG2034932	1	04/20/23 10:16	04/24/23 13:55	RGT	Mt. Juliet, TN
Radiochemistry by Method SM7500Ra B M	WG2034932	1	04/20/23 10:16	04/24/23 13:55	RGT	Mt. Juliet, TN

### MW-10 L1597598-02 Non-Potable Water

Collected by Carter H.	Collected date/time 03/20/23 16:00	Received date/time 03/23/23 09:15
---------------------------	---------------------------------------	--------------------------------------

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Radiochemistry by Method 904/9320	WG2044320	1	04/19/23 12:37	04/21/23 10:57	SWM	Mt. Juliet, TN
Radiochemistry by Method Calculation	WG2034932	1	04/20/23 10:16	04/24/23 13:55	RGT	Mt. Juliet, TN
Radiochemistry by Method SM7500Ra B M	WG2034932	1	04/20/23 10:16	04/24/23 13:55	RGT	Mt. Juliet, TN

### MW-11 L1597598-03 Non-Potable Water

Collected by Carter H.	Collected date/time 03/20/23 12:50	Received date/time 03/23/23 09:15
---------------------------	---------------------------------------	--------------------------------------

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Radiochemistry by Method 904/9320	WG2044320	1	04/19/23 12:37	04/21/23 10:57	SWM	Mt. Juliet, TN
Radiochemistry by Method Calculation	WG2034932	1	04/20/23 10:16	04/24/23 13:55	RGT	Mt. Juliet, TN
Radiochemistry by Method SM7500Ra B M	WG2034932	1	04/20/23 10:16	04/24/23 13:55	RGT	Mt. Juliet, TN

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc



# CASE NARRATIVE

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 radiochemical sample results for solids are reported on a dry weight basis with the exception of tritium, carbon-14 and radon, unless wet weight was requested by the client. 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.



Mark W. Beasley  
Project Manager

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

Analyte	Result	Qualifier	Uncertainty	MDA	Analysis Date	Batch
	pCi/l		+ / -	pCi/l	date / time	
RADIUM-228	-0.225	U	0.196	0.381	04/21/2023 10:57	WG2044320
(T) Barium	93.6			30.0-143	04/21/2023 10:57	WG2044320
(T) Yttrium	109			30.0-136	04/21/2023 10:57	WG2044320

Radiochemistry by Method Calculation

Analyte	Result	Qualifier	Uncertainty	MDA	Analysis Date	Batch
	pCi/l		+ / -	pCi/l	date / time	
Combined Radium	0.293	J	0.363	0.555	04/24/2023 13:55	WG2034932

Radiochemistry by Method SM7500Ra B M

Analyte	Result	Qualifier	Uncertainty	MDA	Analysis Date	Batch
	pCi/l		+ / -	pCi/l	date / time	
RADIUM-226	0.293	J	0.306	0.403	04/24/2023 13:55	WG2034932
(T) Barium-133	71.3			30.0-143	04/24/2023 13:55	WG2034932

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

Analyte	Result	Qualifier	Uncertainty	MDA	Analysis Date	Batch
	pCi/l		+ / -	pCi/l	date / time	
RADIUM-228	0.0106	<u>U</u>	0.263	0.492	04/21/2023 10:57	<a href="#">WG2044320</a>
(T) Barium	97.4			30.0-143	04/21/2023 10:57	<a href="#">WG2044320</a>
(T) Yttrium	107			30.0-136	04/21/2023 10:57	<a href="#">WG2044320</a>

Radiochemistry by Method Calculation

Analyte	Result	Qualifier	Uncertainty	MDA	Analysis Date	Batch
	pCi/l		+ / -	pCi/l	date / time	
Combined Radium	0.787		0.503	0.648	04/24/2023 13:55	<a href="#">WG2034932</a>

Radiochemistry by Method SM7500Ra B M

Analyte	Result	Qualifier	Uncertainty	MDA	Analysis Date	Batch
	pCi/l		+ / -	pCi/l	date / time	
RADIUM-226	0.776		0.429	0.422	04/24/2023 13:55	<a href="#">WG2034932</a>
(T) Barium-133	73.3			30.0-143	04/24/2023 13:55	<a href="#">WG2034932</a>

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

Analyte	Result	Qualifier	Uncertainty	MDA	Analysis Date	Batch
	pCi/l		+ / -	pCi/l	date / time	
RADIUM-228	-0.0541	<u>U</u>	0.215	0.409	04/21/2023 10:57	<a href="#">WG2044320</a>
(T) Barium	101			30.0-143	04/21/2023 10:57	<a href="#">WG2044320</a>
(T) Yttrium	100			30.0-136	04/21/2023 10:57	<a href="#">WG2044320</a>

Radiochemistry by Method Calculation

Analyte	Result	Qualifier	Uncertainty	MDA	Analysis Date	Batch
	pCi/l		+ / -	pCi/l	date / time	
Combined Radium	0.487	<u>J</u>	0.425	0.582	04/24/2023 13:55	<a href="#">WG2034932</a>

Radiochemistry by Method SM7500Ra B M

Analyte	Result	Qualifier	Uncertainty	MDA	Analysis Date	Batch
	pCi/l		+ / -	pCi/l	date / time	
RADIUM-226	0.487		0.367	0.414	04/24/2023 13:55	<a href="#">WG2034932</a>
(T) Barium-133	76.9			30.0-143	04/24/2023 13:55	<a href="#">WG2034932</a>

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

1 Cp

(MB) R3916733-1 04/21/23 10:57

Analyte	MB Result	MB Qualifier	MB Uncertainty	MB MDA
	pCi/l		+ / -	pCi/l
Radium-228	0.150	J	0.126	0.234
(T) Barium	113		113	
(T) Yttrium	116		116	

2 Tc

3 Ss

4 Cn

L1597559-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1597559-01 04/21/23 10:57 • (DUP) R3916733-5 04/21/23 10:57

Analyte	Original Result	Original Uncertainty	Original MDA	DUP Result	DUP Uncertainty	DUP MDA	Dilution	DUP RPD	DUP RER	DUP Qualifier	DUP RPD Limits	DUP RER Limit
	pCi/l	+ / -	pCi/l	pCi/l	+ / -	pCi/l		%			%	
Radium-228	0.225	0.237	0.419	0.691	0.335	0.419	1	102	1.14		20	3
(T) Barium	111			117	117							
(T) Yttrium	105			99.5	99.5							

5 Sr

6 Qc

7 Gl

Laboratory Control Sample (LCS)

(LCS) R3916733-2 04/21/23 10:57

Analyte	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier
	pCi/l	pCi/l	%	%	
Radium-228	5.00	5.38	108	80.0-120	
(T) Barium			113		
(T) Yttrium			109		

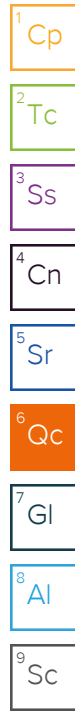
8 Al

9 Sc

L1597617-03 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1597617-03 04/21/23 10:57 • (MS) R3916733-3 04/21/23 10:57 • (MSD) R3916733-4 04/21/23 10:57

Analyte	Spike Amount	Original Result	MS Result	MSD Result	MS Rec.	MSD Rec.	Dilution	Rec. Limits	MS Qualifier	MSD Qualifier	RPD	MS RER	RPD Limits
	pCi/l	pCi/l	pCi/l	pCi/l	%	%		%			%		%
Radium-228	10.0	-0.0118	9.99	9.26	99.9	92.6	1	70.0-130			7.57		20
(T) Barium		96.8			108	111							
(T) Yttrium		103			104	100							



(MB) R3916774-1 04/24/23 13:55

Analyte	MB Result	MB Qualifier	MB Uncertainty	MB MDA
	pCi/l		+ / -	pCi/l
Radium-226	0.0833	J	0.0825	0.105
(T) Barium-133	62.7		62.7	

L1597598-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1597598-01 04/24/23 13:55 • (DUP) R3916774-5 04/24/23 13:55

Analyte	Original Result	Original Uncertainty	Original MDA	DUP Result	DUP Uncertainty	DUP MDA	Dilution	DUP RPD	DUP RER	DUP Qualifier	DUP RPD Limits	DUP RER Limit
	pCi/l	+ / -	pCi/l	pCi/l	+ / -	pCi/l		%			%	
Radium-226	0.293	0.306	0.403	0.00738	0.248	0.403	1	190	0.725	U	20	3
(T) Barium-133	71.3			80.2	80.2							

Laboratory Control Sample (LCS)

(LCS) R3916774-2 04/24/23 13:55

Analyte	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier
	pCi/l	pCi/l	%	%	
Radium-226	5.01	5.42	108	80.0-120	
(T) Barium-133			71.3		

L1597599-05 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1597599-05 04/24/23 13:55 • (MS) R3916774-3 04/24/23 13:55 • (MSD) R3916774-4 04/24/23 13:55

Analyte	Spike Amount	Original Result	MS Result	MSD Result	MS Rec.	MSD Rec.	Dilution	Rec. Limits	MS Qualifier	MSD Qualifier	RPD	MS RER	RPD Limits
	pCi/l	pCi/l	pCi/l	pCi/l	%	%		%			%		%
Radium-226	20.0	0.699	21.2	20.9	103	101	1	75.0-125			1.42		20
(T) Barium-133		78.0			79.2	78.6							

1  
Cp2  
Tc3  
Ss4  
Cn5  
Sr6  
Qc7  
Gl8  
Al9  
Sc

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

MDA	Minimum Detectable Activity.
Rec.	Recovery.
RER	Replicate Error Ratio.
RPD	Relative Percent Difference.
SDG	Sample Delivery Group.
(T)	Tracer - A radioisotope of known concentration added to a solution of chemically equivalent radioisotopes at a known concentration to assist in monitoring the yield of the chemical separation.
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.

## Qualifier Description

J	The identification of the analyte is acceptable; the reported value is an estimate.
U	Below Detectable Limits: Indicates that the analyte was not detected.

## ACCREDITATIONS &amp; LOCATIONS

ANNUAL GROUNDWATER MONITORING AND CORRECTIVE ACTION REPORT - QUARTER 1, 2023

ZIMMER POWER PLANT, GYPSUM RECYCLE POND

ZIM-257-124

Pace Analytical National 12065 Lebanon Rd Mount Juliet, TN 37122

Alabama	40660	Nebraska	NE-OS-15-05
Alaska	17-026	Nevada	TN000032021-1
Arizona	AZ0612	New Hampshire	2975
Arkansas	88-0469	New Jersey–NELAP	TN002
California	2932	New Mexico <sup>1</sup>	TN00003
Colorado	TN00003	New York	11742
Connecticut	PH-0197	North Carolina	Env375
Florida	E87487	North Carolina <sup>1</sup>	DW21704
Georgia	NELAP	North Carolina <sup>3</sup>	41
Georgia <sup>1</sup>	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 <sup>1,6</sup>	KY90010	South Carolina	84004002
Kentucky <sup>2</sup>	16	South Dakota	n/a
Louisiana	AI30792	Tennessee <sup>1,4</sup>	2006
Louisiana	LA018	Texas	T104704245-20-18
Maine	TN00003	Texas <sup>5</sup>	LAB0152
Maryland	324	Utah	TN000032021-11
Massachusetts	M-TN003	Vermont	VT2006
Michigan	9958	Virginia	110033
Minnesota	047-999-395	Washington	C847
Mississippi	TN00003	West Virginia	233
Missouri	340	Wisconsin	998093910
Montana	CERT0086	Wyoming	A2LA
A2LA – ISO 17025	1461.01	AIHA-LAP,LLC EMLAP	100789
A2LA – ISO 17025 <sup>5</sup>	1461.02	DOD	1461.01
Canada	1461.01	USDA	P330-15-00234
EPA–Crypto	TN00003		

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

\* 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 Analytical.

<sup>1</sup> Cp<sup>2</sup> Tc<sup>3</sup> Ss<sup>4</sup> Cn<sup>5</sup> Sr<sup>6</sup> Qc<sup>7</sup> Gl<sup>8</sup> Al<sup>9</sup> Sc



ZIMMER POWER PLANT, GYPSUM RECYCLE POND

Company Name: **S&ME Cincinnati**  
862 E. Crescentville Rd.  
Cincinnati, OH 45246

Billing Information:  
**Accounts Payable**  
AP@smeinc.com

Pres  
Chk

Analysis / Container / Preservative

Chain of Custody Page \_\_\_ of \_\_\_



PEOPLE ADVANCING SCIENCE

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

Submitting a sample via this chain of custody constitutes acknowledgment and acceptance of the Pace Terms and Conditions found at: <https://info.pacelabs.com/hubs/pas-standard-terms.pdf>

SDG # **US97598**  
**H067**

Acctnum: **LITEGNTN**

Template:

Prelogin:

PM: **134**

PB:

Shipped Via:

Report to: **Vince Epps**  
Email To: **vepps@smeinc.com**

Project Description: **Zimmer Station**  
City/State Collected: **Moscow, OH**  
Please Circle: PT MT CT ET

Phone: **513-771-8471**  
Client Project #: **7217-17-001D**  
Lab Project #: **LITEGNTN-ZIMMER**

Collected by (print): **Carter Herken**  
Site/Facility ID #: **WHZ Unit 124 (Gyps. Pond)**  
P.O. #

Collected by (signature): **Carter Herken**  
**Rush?** (Lab MUST Be Notified)  
Date Results Needed

Immediately Packed on Ice N \_\_\_ Y   
\_\_\_ Same Day \_\_\_ Five Day  
\_\_\_ Next Day \_\_\_ 5 Day (Rad Only)  
\_\_\_ Two Day \_\_\_ 10 Day (Rad Only)  
\_\_\_ Three Day

Sample ID	Comp/Grab	Matrix*	Depth	Date	Time	No. of Cntrs	Alk Bi/Ca, Cl, F, SO4 125mIHDPE-NonPres	CCR Metals+B, Li, K, Na, Mg 250mIHDPE F	RA-226/228COMB 1L-HPE-HNO3	TDS 250mIHDPE-NonPres											Remarks	Sample # (lab only)	
MW-07A	Grab	GW	NA	3/20/23	1155	5	X	X	X	X													01
MW-10	Grab	GW	NA	3/20/23	1600	5	X	X	X	X													02
MW-11	Grab	GW	NA	3/20/23	1250	5	X	X	X	X													03
DUP-1	Grab	GW	NA	3/20/23	-	5	X	X		X													

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

Remarks:

pH \_\_\_\_\_ Temp \_\_\_\_\_

Flow \_\_\_\_\_ Other \_\_\_\_\_

Samples returned via:  
\_\_\_ UPS \_\_\_ FedEx \_\_\_ Courier

Tracking # **6357 9917 4757**

Sample Receipt Checklist

COC Seal Present/Intact:	NP	Y	N
COC Signed/Accurate:		Y	N
Bottles arrive intact:		Y	N
Correct bottles used:		Y	N
Sufficient volume sent:		Y	N
If Applicable			
VOA Zero Headspace:		Y	N
Preservation Correct/Checked:		Y	N
RAD Screen <0.5 mR/hr:		Y	N

Relinquished by: (Signature) **Carter Herken**  
Date: **3/22/23** Time: **1740**

Received by: (Signature) \_\_\_\_\_  
Trip Blank Received: Yes/No  
HCL/MeOH TBR

Relinquished by: (Signature) \_\_\_\_\_  
Date: \_\_\_\_\_ Time: \_\_\_\_\_

Received by: (Signature) \_\_\_\_\_  
Temp: **14.7 °C** Bottles Received: **18**  
**2.540 ± 0.25**

If preservation required by Login: Date/Time

Relinquished by: (Signature) \_\_\_\_\_  
Date: \_\_\_\_\_ Time: \_\_\_\_\_

Received for lab by: (Signature) **[Signature]**  
Date: **3/23/23** Time: **0915**

Hold: \_\_\_\_\_ Condition: **NCF / OK**



## LOW FLOW GROUNDWATER SAMPLING FORM

Project Name:	Zimmer Station	Purge Date:	March 21, 2023
Project Location:	Moscow, Ohio	Purge Time:	25 Minutes
Project Number:	7217-17-001D	Sample Date:	March 21, 2023
Source Well:	MW-01	Sample Time:	9:10
Locked?:	Yes	Air Temp:	30F
Sampled By:	Carter Harlan		
Weather:	Sunny		

**Water Level & Well Data**

Measuring Point:		Top of Casing	
Depth to Water:	46.20	ft-TOC	
Total Well Depth:	86.40	ft-TOC	
Height of Water Column:	40.20	feet	
Screen Length:	20	feet	Stickup:
			ft-GRD

Well Volume		
Well Diameter	2	inch
Water Volume	6.6	Gal
3 * Well Volume	19.68	Gal
5 * Well Volume	32.80	Gal

**Well Purging Information**

Purge Method:	Bladder Pump	Start Time:	8:40	End Time:	9:05
(If Used) Bladder Pump Control Settings:	On (sec):	Off (sec):		Pressure:	psi
Pump Intake Depth from Top of Casing:		ft-TOC			
Water Column Above Pump Intake:		feet	Flow Through Cell Vol:	200	mL
DTW-TOC at 25% Drawdown of WC Above Pump:		ft-TOC	<b>Comments:</b>		
Final Volume Purged:	2.0	Gallons			
Final Volume Purge Rate:	300	mL/min			
Well Purged Dry?:		(Yes/No)			

**Field Parameters (Taken at time intervals ≥ 5 minutes and purge volumes ≥ 1 flow-through cell volume)**

Time	Volume Purged (gal)	Flow Rate (mL/min)	Depth to Water (ft)	Temp (°C)	pH (s.u.)	Spec. Cond. (mS/cm)	Dissolved Oxygen (mg/L)	ORP* (mV)	Turbidity (NTU)	Comment	
08:40	0.0	---	---	---	---	---	---	---	---	Start Purging	
08:45	0.4	300	46.20	12.5	7.0	1.091	0.8	84	3.01	Clear, no odor	
08:50	0.8	300	46.18	13.2	6.9	1.128	0.6	84	0.63	Clear, no odor	
08:55	1.2	300	46.18	13.4	6.9	1.137	0.6	87	0.53	Clear, no odor	
09:00	1.6	300	46.18	13.5	6.9	1.136	0.7	89	0.67	Clear, no odor	
09:05	2.0	300	46.18	13.5	6.9	1.137	0.8	91	0.17	Clear, no odor	
Final:	09:05	2.0	300	46.18	13.5	6.9	1.137	0.8	91	0.2	End of Purging

Sample Method: Bladder Pump      Sample Start Time: 09:10      Sample End Time: 09:25

**Analytical Data**

Method	Qty	Container	Preservative	Method	Qty	Container	Preservative

Name	Signature	Date
(1) _____	_____	

Notes:



## LOW FLOW GROUNDWATER SAMPLING FORM

Project Name:	Zimmer Station			Purge Date:	March 21, 2023
Project Location:	Moscow, Ohio			Purge Time:	25 Minutes
Project Number:	7217-17-001D			Sample Date:	March 21, 2023
Source Well:	MW-03S			Sample Time:	11:55
Locked?:	Yes			Air Temp:	43F
Sampled By:	Carter Harlan				
Weather:	Sunny				

**Water Level & Well Data**

Measuring Point:	Top of Casing		
Depth to Water:	48.68	ft	ft-TOC
Total Well Depth:	68.60	ft	ft-TOC
Height of Water Column:	19.92	feet	
Screen Length:	20	feet	Stickup: _____ ft-GRD

Well Volume		
Well Diameter	4	inch
Water Volume	13.0	Gal
3 * Well Volume	39.01	Gal
5 * Well Volume	65.01	Gal

**Well Purging Information**

Purge Method:	Bladder Pump		Start Time:	11:25	End Time:	11:50
(If Used) Bladder Pump Control Settings:	On (sec): _____	Off (sec): _____	Pressure:		psi	
Pump Intake Depth from Top of Casing:		ft-TOC				
Water Column Above Pump Intake:		feet	Flow Through Cell Vol:	200	mL	
DTW-TOC at 25% Drawdown of WC Above Pump:		ft-TOC	Comments:			
Final Volume Purged:	1.3	Gallons				
Final Volume Purge Rate:	200	mL/min				
Well Purged Dry?:		(Yes/No)				

**Field Parameters (Taken at time intervals ≥ 5 minutes and purge volumes ≥ 1 flow-through cell volume)**

Time	Volume Purged (gal)	Flow Rate (mL/min)	Depth to Water (ft)	Temp (°C)	pH (s.u.)	Spec. Cond. (mS/cm)	Dissolved Oxygen (mg/L)	ORP* (mV)	Turbidity (NTU)	Comment	
11:25	0.0	---	---	---	---	---	---	---	---	Start Purging	
11:30	0.3	200	48.63	15.1	6.8	1.481	0.3	91	2.27	Clear, no odor	
11:35	0.5	200	48.63	15.3	6.9	1.585	0.3	91	0.42	Clear, no odor	
11:40	0.8	200	48.63	15.6	6.9	1.594	0.3	91	0.23	Clear, no odor	
11:45	1.1	200	48.63	15.5	6.9	1.600	0.3	91	0.73	Clear, no odor	
11:50	1.3	200	48.63	15.6	6.9	1.601	0.3	91	0.19	Clear, no odor	
Final:	11:50	1.3	200	48.63	15.6	6.9	1.601	0.3	91	0.2	End of Purging

Sample Method: Bladder Pump      Sample Start Time: 11:55      Sample End Time: 12:10

**Analytical Data**

Method	Qty	Container	Preservative	Method	Qty	Container	Preservative

<b>Name</b>	<b>Signature</b>	<b>Date</b>

(1) \_\_\_\_\_

Notes:



## LOW FLOW GROUNDWATER SAMPLING FORM

Project Name:	Zimmer Station	Purge Date:	March 20, 2023
Project Location:	Moscow, Ohio	Purge Time:	35 Minutes
Project Number:	7217-17-001D	Sample Date:	March 20, 2023
Source Well:	MW-07	Sample Time:	11:55
Locked?:	Yes	Air Temp:	38F
Sampled By:	Carter Harlan		
Weather:	Sunny		

Water Level & Well Data			
Measuring Point:	Top of Casing		
Depth to Water:	47.55	ft-TOC	
Total Well Depth:	64.24	ft-TOC	
Height of Water Column:	16.69	feet	
Screen Length:	20	feet	Stickup: ft-GRD

Well Volume		
Well Diameter	4	inch
Water Volume	10.9	Gal
3 * Well Volume	32.68	Gal
5 * Well Volume	54.47	Gal

Well Purging Information							
Purge Method:	Bladder Pump	Start Time:	11:20	End Time:	11:55		
(If Used) Bladder Pump Control Settings:	On (sec):	Off (sec):		Pressure:		psi	
Pump Intake Depth from Top of Casing:		ft-TOC					
Water Column Above Pump Intake:		feet	Flow Through Cell Vol:		200	mL	
DTW-TOC at 25% Drawdown of WC Above Pump:		ft-TOC	<b>Comments:</b>				
Final Volume Purged:	1.6	Gallons					
Final Volume Purge Rate:	200	mL/min					
Well Purged Dry?:		(Yes/No)					

Field Parameters (Taken at time intervals ≥ 5 minutes and purge volumes ≥ 1 flow-through cell volume)											
Time	Volume Purged (gal)	Flow Rate (mL/min)	Depth to Water (ft)	Temp (°C)	pH (s.u.)	Spec. Cond. (mS/cm)	Dissolved Oxygen (mg/L)	ORP* (mV)	Turbidity (NTU)	Comment	
11:20	0.0	---	---	---	---	---	---	---	---	Start Purging	
11:25	0.3	200	47.55	12.3	7.3	0.943	4.1	85	5.82	Clear, no odor	
11:30	0.5	200	47.55	13.3	7.1	0.968	2.5	85	4.52	Clear, no odor	
11:35	0.8	200	47.55	13.6	7.0	0.993	0.7	86	3.66	Clear, no odor	
11:40	1.1	200	47.55	13.6	7.0	1.000	0.6	87	2.65	Clear, no odor	
11:45	1.3	200	47.55	13.8	7.0	1.002	0.5	87	2.22	Clear, no odor	
11:50	1.6	200	47.55	13.9	7.0	1.007	0.4	88	1.31	Clear, no odor	
11:55											
<b>Final:</b>	11:55	1.6	200	47.55	13.9	7.0	1.007	0.4	88	1.3	End of Purging
Sample Method:		Bladder Pump		Sample Start Time:		11:55		Sample End Time:		12:10	

Analytical Data							
Method	Qty	Container	Preservative	Method	Qty	Container	Preservative

<b>Name</b>	<b>Signature</b>	<b>Date</b>

(1) \_\_\_\_\_

Notes: \_\_\_\_\_



# LOW FLOW GROUNDWATER SAMPLING FORM

Project Name:	Zimmer Station	Purge Date:	March 20, 2023
Project Location:	Moscow, Ohio	Purge Time:	25 Minutes
Project Number:	7217-17-001D	Sample Date:	March 20, 2023
Source Well:	MW-08	Sample Time:	13:45
Locked?:	Yes	Air Temp:	42F
Sampled By:	Carter Harlan		
Weather:	Sunny		

### Water Level & Well Data

Measuring Point:			Top of Casing		
Depth to Water:		46.52	ft-TOC		
Total Well Depth:		95.60	ft-TOC		
Height of Water Column:			49.08	feet	
Screen Length:		20	feet		Stickup: _____ ft-GRD

Well Volume		
Well Diameter	4	inch
Water Volume	32.0	Gal
3 * Well Volume	96.11	Gal
5 * Well Volume	160.19	Gal

### Well Purging Information

Purge Method:		Bladder Pump		Start Time:	13:15	End Time:	13:40
(If Used)	Bladder Pump Control Settings:	On (sec):		Off (sec):		Pressure:	
Pump Intake Depth from Top of Casing:				ft-TOC			
Water Column Above Pump Intake:				feet			
DTW-TOC at 25% Drawdown of WC Above Pump:				ft-TOC			
Final Volume Purged:		1.5		Gallons			
Final Volume Purge Rate:		200		mL/min			
Well Purged Dry?:		No		(Yes/No)			

### Field Parameters (Taken at time intervals ≥ 5 minutes and purge volumes ≥ 1 flow-through cell volume)

Time	Volume Purged (gal)	Flow Rate (mL/min)	Depth to Water (ft)	Temp (°C)	pH (s.u.)	Spec. Cond. (mS/cm)	Dissolved Oxygen (mg/L)	ORP* (mV)	Turbidity (NTU)	Comment	
13:15	0.0	---	---	---	---	---	---	---	---	Start Purging	
13:20	0.3	250	46.55	13.1	7.3	0.637	2.5	88	0.49	Clear, no odor	
13:25	0.7	250	46.55	12.7	7.0	0.664	2.2	89	0.33	Clear, no odor	
13:30	0.9	200	46.55	11.9	7.0	0.665	2.3	90	0.65	Clear, no odor	
13:35	1.2	200	46.55	11.5	7.0	0.662	2.3	91	0.33	Clear, no odor	
13:40	1.5	200	46.55	11.8	7.0	0.661	2.2	90	0.31	Clear, no odor	
Final:	13:40	1.5	200	46.55	11.8	7.0	0.661	2.2	90	0.3	End of Purging

Sample Method:       Sample Start Time:       Sample End Time:

### Analytical Data

Method	Qty	Container	Preservative	Method	Qty	Container	Preservative

Name \_\_\_\_\_ Signature \_\_\_\_\_ Date

(1) \_\_\_\_\_

Notes:



## LOW FLOW GROUNDWATER SAMPLING FORM

Project Name:	Zimmer Station	Purge Date:	March 21, 2023
Project Location:	Moscow, Ohio	Purge Time:	23 Minutes
Project Number:	7217-17-001D	Sample Date:	March 21, 2023
Source Well:	MW-09	Sample Time:	13:35
Locked?:	No	Air Temp:	47F
Sampled By:	Carter Harlan		
Weather:	Sunny		

### Water Level & Well Data

Measuring Point:		Top of Casing	
Depth to Water:	47.65	ft-TOC	
Total Well Depth:	93.50	ft-TOC	
Height of Water Column:	45.85	feet	
Screen Length:	20	feet	Stickup:
			ft-GRD

Well Volume		
Well Diameter	4	inch
Water Volume	29.9	Gal
3 * Well Volume	89.79	Gal
5 * Well Volume	149.64	Gal

### Well Purging Information

Purge Method:		Bladder Pump		Start Time:	13:07	End Time:	13:30
(If Used)	Bladder Pump Control Settings:	On (sec):		Off (sec):		Pressure:	
Pump Intake Depth from Top of Casing:				ft-TOC			
Water Column Above Pump Intake:				feet		Flow Through Cell Vol:	200
DTW-TOC at 25% Drawdown of WC Above Pump:				ft-TOC		Comments:	
Final Volume Purged:		1.7		Gallons			
Final Volume Purge Rate:		300		mL/min			
Well Purged Dry?:				(Yes/No)			

### Field Parameters (Taken at time intervals ≥ 5 minutes and purge volumes ≥ 1 flow-through cell volume)

Time	Volume Purged (gal)	Flow Rate (mL/min)	Depth to Water (ft)	Temp (°C)	pH (s.u.)	Spec. Cond. (mS/cm)	Dissolved Oxygen (mg/L)	ORP* (mV)	Turbidity (NTU)	Comment	
13:07	0.0	---	---	---	---	---	---	---	---	Start Purging	
13:10	0.2	250	47.65	11.5	7.2	1.393	0.4	91	0.83	Clear, no odor	
13:15	0.5	250	47.65	14.7	7.1	1.406	0.2	89	0.75	Clear, no odor	
13:20	0.9	250	47.65	14.6	7.0	1.357	0.2	89	3.50	Clear, no odor	
13:25	1.3	300	47.65	14.5	7.0	1.367	0.2	89	4.08	Clear, no odor	
13:30	1.7	300	47.65	14.5	7.0	1.403	0.2	89	3.28	Clear, no odor	
Final:	13:30	1.7	300	47.65	14.5	7.0	1.403	0.2	89	3.3	End of Purging

Sample Method: Bladder Pump      Sample Start Time: 13:35      Sample End Time: 13:50

### Analytical Data

Method	Qty	Container	Preservative	Method	Qty	Container	Preservative

Name	Signature	Date
(1)		

Notes:



# LOW FLOW GROUNDWATER SAMPLING FORM

Project Name:	Zimmer Station			Purge Date:	March 20, 2023
Project Location:	Moscow, Ohio			Purge Time:	30 Minutes
Project Number:	7217-17-001D			Sample Date:	March 20, 2023
Source Well:	MW-10			Sample Time:	16:00
Locked?:	Yes			Weather:	Sunny
Sampled By:	Carter Harlan			Air Temp:	47F

**Water Level & Well Data**

Measuring Point:				Top of Casing			
Depth to Water:				47.43	ft-TOC		
Total Well Depth:				63.68	ft-TOC		
Height of Water Column:				16.25	feet		
Screen Length:	20	feet		Stickup:	ft-GRD		

Well Volume		
Well Diameter	2	inch
Water Volume	2.7	Gal
3 * Well Volume	7.96	Gal
5 * Well Volume	13.26	Gal

**Well Purging Information**

Purge Method:			Bladder Pump		Start Time:	15:25	End Time:	15:55
(If Used)	Bladder Pump Control Settings:		On (sec):		Off (sec):		Pressure:	psi
Pump Intake Depth from Top of Casing:						ft-TOC		
Water Column Above Pump Intake:						feet	Flow Through Cell Vol:	200 mL
DTW-TOC at 25% Drawdown of WC Above Pump:						ft-TOC		
Final Volume Purged:				1.6		Gallons	<b>Comments:</b> Duplicate sample collected (DUP-1)	
Final Volume Purge Rate:				200		mL/min		
Well Purged Dry?:						(Yes/No)		

**Field Parameters (Taken at time intervals ≥ 5 minutes and purge volumes ≥ 1 flow-through cell volume)**

Time	Volume Purged (gal)	Flow Rate (mL/min)	Depth to Water (ft)	Temp (°C)	pH (s.u.)	Spec. Cond. (mS/cm)	Dissolved Oxygen (mg/L)	ORP* (mV)	Turbidity (NTU)	Comment	
15:25	0.0	---	---	---	---	---	---	---	---	Start Purging	
15:30	0.3	200	47.45	13.2	7.2	1.338	2.2	87	12.5	Clear, no odor	
15:35	0.5	200	47.45	14.0	7.0	1.391	1.9	87	47.3	Cloudy, no odor	
15:40	0.8	200	47.45	13.9	7.0	1.379	1.1	87	23.2	Clear, no odor	
15:45	1.1	200	47.45	13.9	7.0	1.366	1.0	87	8.66	Clear, no odor	
15:50	1.3	200	47.45	13.9	7.0	1.354	0.9	87	5.19	Clear, no odor	
15:55	1.6	200	47.45	14.0	7.0	1.340	0.9	87	3.07	Clear, no odor	
<b>Final:</b>	15:55	1.6	200	47.45	14.0	7.0	1.340	0.9	87	3.1	End of Purging

Sample Method: Bladder Pump      Sample Start Time: 16:00      Sample End Time: 16:20

**Analytical Data**

Method	Qty	Container	Preservative	Method	Qty	Container	Preservative

Name \_\_\_\_\_ Signature \_\_\_\_\_ Date

(1) \_\_\_\_\_

**Notes:** Duplicate sample collected (DUP-1)



## LOW FLOW GROUNDWATER SAMPLING FORM

Project Name:	Zimmer Station	Purge Date:	March 20, 2023
Project Location:	Moscow, Ohio	Purge Time:	25 Minutes
Project Number:	7217-17-001D	Sample Date:	March 20, 2023
Source Well:	MW-11	Sample Time:	12:50
Locked?:	No	Air Temp:	40F
Sampled By:	Carter Harlan		
Weather:	Sunny		

**Water Level & Well Data**

Measuring Point:		Top of Casing	
Depth to Water:	44.49	ft-TOC	
Total Well Depth:	64.31	ft-TOC	
Height of Water Column:	19.82	feet	
Screen Length:	20	feet	Stickup:
			ft-GRD

Well Volume		
Well Diameter	2	inch
Water Volume	3.2	Gal
3 * Well Volume	9.70	Gal
5 * Well Volume	16.17	Gal

**Well Purging Information**

Purge Method:	Bladder Pump	Start Time:	12:20	End Time:	12:45
(If Used) Bladder Pump Control Settings:	On (sec):	Off (sec):		Pressure:	psi
Pump Intake Depth from Top of Casing:		ft-TOC			
Water Column Above Pump Intake:		feet	Flow Through Cell Vol:	200	mL
DTW-TOC at 25% Drawdown of WC Above Pump:		ft-TOC	<b>Comments:</b>		
Final Volume Purged:	1.3	Gallons			
Final Volume Purge Rate:	200	mL/min			
Well Purged Dry?:		(Yes/No)			

**Field Parameters (Taken at time intervals ≥ 5 minutes and purge volumes ≥ 1 flow-through cell volume)**

Time	Volume Purged (gal)	Flow Rate (mL/min)	Depth to Water (ft)	Temp (°C)	pH (s.u.)	Spec. Cond. (mS/cm)	Dissolved Oxygen (mg/L)	ORP* (mV)	Turbidity (NTU)	Comment	
12:20	0.0	---	---	---	---	---	---	---	---	Start Purging	
12:25	0.3	200	44.49	14.2	7.1	0.726	2.4	89	8.58	Clear, no odor	
12:30	0.5	200	44.49	13.9	7.0	0.765	0.7	89	8.94	Clear, no odor	
12:35	0.8	200	44.49	13.8	7.0	0.765	0.5	89	5.17	Clear, no odor	
12:40	1.1	200	44.49	14.0	7.0	0.763	0.4	89	3.56	Clear, no odor	
12:45	1.3	200	44.49	14.0	7.0	0.765	0.4	90	2.49	Clear, no odor	
Final:	12:45	1.3	200	44.49	14.0	7.0	0.765	0.4	90	2.5	End of Purging

Sample Method: Bladder Pump      Sample Start Time: 12:50      Sample End Time: 13:05

**Analytical Data**

Method	Qty	Container	Preservative	Method	Qty	Container	Preservative

Name	Signature	Date
(1) _____	_____	_____

Notes:





**LOW FLOW GROUNDWATER SAMPLING FORM**

Project Name:	Zimmer Station	Purge Date:	March 20, 2023
Project Location:	Moscow, Ohio	Purge Time:	30 Minutes
Project Number:	7217-17-001D	Sample Date:	March 20, 2023
Source Well:	MW-12	Sample Time:	15:05
Locked?:	Yes	Air Temp:	45F
Sampled By:	Carter Harlan		
Weather:	Sunny		

**Water Level & Well Data**

Measuring Point:				Top of Casing			
Depth to Water:				45.85	ft-TOC		
Total Well Depth:				62.92	ft-TOC		
Height of Water Column:				17.07	feet		
Screen Length:		20	feet	Stickup:			ft-GRD

Well Volume		
Well Diameter	4	inch
Water Volume	11.1	Gal
3 * Well Volume	33.43	Gal
5 * Well Volume	55.71	Gal

**Well Purging Information**

Purge Method:	Bladder Pump	Start Time:	14:30	End Time:	15:00
(If Used)	Bladder Pump Control Settings:	On (sec):		Off (sec):	
		Pressure:			psi
Pump Intake Depth from Top of Casing:			ft-TOC		
Water Column Above Pump Intake:			feet	Flow Through Cell Vol:	200 mL
DTW-TOC at 25% Drawdown of WC Above Pump:			ft-TOC		
Final Volume Purged:			2.0	Gallons	
Final Volume Purge Rate:			250	mL/min	
Well Purged Dry?:				(Yes/No)	

**Field Parameters (Taken at time intervals ≥ 5 minutes and purge volumes ≥ 1 flow-through cell volume)**

Time	Volume Purged (gal)	Flow Rate (mL/min)	Depth to Water (ft)	Temp (°C)	pH (s.u.)	Spec. Cond. (mS/cm)	Dissolved Oxygen (mg/L)	ORP* (mV)	Turbidity (NTU)	Comment	
14:30	0.0	---	---	---	---	---	---	---	---	Start Purging	
14:35	0.4	300	45.85	13.8	6.9	0.801	2.4	90	18.0	Clear, no odor	
14:40	0.7	250	45.85	13.8	6.9	0.891	2.3	90	19.3	Clear, no odor	
14:45	1.1	250	45.85	14.0	6.9	0.808	2.3	88	16.3	Clear, no odor	
14:50	1.4	250	45.85	14.1	6.9	0.808	1.9	88	9.81	Clear, no odor	
14:55	1.7	250	45.85	13.9	6.9	0.809	2.0	88	5.70	Clear, no odor	
15:00	2.0	250	45.85	14.1	6.9	0.809	2.0	88	3.09	Clear, no odor	
<b>Final:</b>	15:00	2.0	250	45.85	14.1	6.9	0.809	2.0	88	3.1	End of Purging

Sample Method: Bladder Pump      Sample Start Time: 15:05      Sample End Time: 15:20

**Analytical Data**

Method	Qty	Container	Preservative	Method	Qty	Container	Preservative

Name: \_\_\_\_\_ Signature: \_\_\_\_\_ Date: \_\_\_\_\_

(1) \_\_\_\_\_

Notes: \_\_\_\_\_



# LOW FLOW GROUNDWATER SAMPLING FORM

Project Name:	Zimmer Station	Purge Date:	March 21, 2023
Project Location:	Moscow, Ohio	Purge Time:	23 Minutes
Project Number:	7217-17-001D	Sample Date:	March 21, 2023
Source Well:	MW-13	Sample Time:	14:25
Locked?:	Yes	Air Temp:	51F
Sampled By:	Carter Harlan		
Weather:	Sunny		

**Water Level & Well Data**

Measuring Point:	Top of Casing		
Depth to Water:	37.42	ft-	TOC
Total Well Depth:	54.31	ft-	TOC
Height of Water Column:	16.89	feet	
Screen Length:	20	feet	Stickup: ft-GRD

<b>Well Volume</b>		
Well Diameter	4	inch
Water Volume	11.0	Gal
3 * Well Volume	33.08	Gal
5 * Well Volume	55.13	Gal

**Well Purging Information**

Purge Method:	Bladder Pump	Start Time:	13:57	End Time:	14:20
(If Used) Bladder Pump Control Settings:	On (sec):	Off (sec):		Pressure:	psi
Pump Intake Depth from Top of Casing:		ft-	TOC		
Water Column Above Pump Intake:		feet		Flow Through Cell Vol:	200 mL
DTW-TOC at 25% Drawdown of WC Above Pump:		ft-	TOC	<b>Comments:</b>	
Final Volume Purged:	1.8	Gallons		Duplicate sample collected (DUP-2)	
Final Volume Purge Rate:	300	mL/min			
Well Purged Dry?:		(Yes/No)			

**Field Parameters (Taken at time intervals ≥ 5 minutes and purge volumes ≥ 1 flow-through cell volume)**

Time	Volume Purged (gal)	Flow Rate (mL/min)	Depth to Water (ft)	Temp (°C)	pH (s.u.)	Spec. Cond. (mS/cm)	Dissolved Oxygen (mg/L)	ORP* (mV)	Turbidity (NTU)	Comment
13:57	0.0	---	---	---	---	---	---	---	---	Start Purging
14:00	0.2	300	37.42	15.3	7.0	0.885	0.1	90	22.3	Clear, no odor
14:05	0.6	300	37.41	15.3	7.0	0.934	0.1	88	14.0	Clear, no odor
14:10	1.0	300	37.41	15.3	7.0	0.948	0.1	88	4.94	Clear, no odor
14:15	1.4	300	37.41	15.3	7.0	0.967	0.1	88	2.73	Clear, no odor
14:20	1.8	300	37.41	15.2	7.0	0.977	0.2	88	2.34	Clear, no odor
<b>Final:</b>	1.8	300	37.41	15.2	7.0	0.977	0.2	88	2.3	End of Purging

Sample Method: Bladder Pump      Sample Start Time: 14:25      Sample End Time: 14:40

**Analytical Data**

Method	Qty	Container	Preservative	Method	Qty	Container	Preservative

Name: \_\_\_\_\_ Signature: \_\_\_\_\_ Date:       

(1) \_\_\_\_\_

Notes: Duplicate sample collected (DUP-2)

**LOW FLOW GROUNDWATER SAMPLING FORM**



Project Name:	Zimmer Station	Purge Date:	March 21, 2023
Project Location:	Moscow, Ohio	Purge Time:	30 Minutes
Project Number:	7217-17-001D	Sample Date:	March 21, 2023
Source Well:	MW-14	Sample Time:	15:20
Locked?:	Yes	Air Temp:	54 F
Sampled By:	Carter Harlan		
Weather:	Sunny		

**Water Level & Well Data**

Measuring Point:		Top of Casing	
Depth to Water:	41.97	ft-TOC	
Total Well Depth:	58.75	ft-TOC	
Height of Water Column:	16.78	feet	
Screen Length:	20	feet	Stickup: ft-GRD

<b>Well Volume</b>		
Well Diameter	4	inch
Water Volume	11.0	Gal
3 * Well Volume	32.86	Gal
5 * Well Volume	54.77	Gal

**Well Purging Information**

Purge Method:	Bladder Pump	Start Time:	14:45	End Time:	15:15
(If Used) Bladder Pump Control Settings:	On (sec):	Off (sec):		Pressure:	psi
Pump Intake Depth from Top of Casing:		ft-TOC			
Water Column Above Pump Intake:		feet	Flow Through Cell Vol:	200	mL
DTW-TOC at 25% Drawdown of WC Above Pump:		ft-TOC	<b>Comments:</b>		
Final Volume Purged:	1.6	Gallons			
Final Volume Purge Rate:	200	mL/min			
Well Purged Dry?:		(Yes/No)			

**Field Parameters (Taken at time intervals  $\geq$  5 minutes and purge volumes  $\geq$  1 flow-through cell volume)**

Time	Volume Purged (gal)	Flow Rate (mL/min)	Depth to Water (ft)	Temp ( $^{\circ}$ C)	pH (s.u.)	Spec. Cond. (mS/cm)	Dissolved Oxygen (mg/L)	ORP* (mV)	Turbidity (NTU)	Comment	
14:45	0.0	---	---	---	---	---	---	---	---	Start Purging	
14:50	0.3	200	42.00	14.8	6.9	1.130	0.3	154	11.8	Clear, No odor	
14:55	0.5	200	42.00	15.0	6.8	1.230	0.3	164	10.8	Clear, No odor	
15:00	0.8	200	42.00	15.0	6.9	1.234	0.3	91	28.5	Clear, No odor	
15:05	1.1	200	42.00	15.0	6.9	1.239	0.3	88	9.64	Clear, No odor	
15:10	1.3	200	42.00	15.0	6.9	1.243	0.3	88	2.31	Clear, No odor	
15:15	1.6	200	42.00	15.1	6.9	1.248	0.2	88	1.39	Clear, No odor	
<b>Final:</b>	15:15	1.6	200	42.00	15.1	6.9	1.248	0.2	88	1.4	End of Purging

Sample Method:       Sample Start Time:       Sample End Time:

**Analytical Data**

Method	Qty	Container	Preservative	Method	Qty	Container	Preservative

Name \_\_\_\_\_ Signature \_\_\_\_\_ Date

(1) \_\_\_\_\_

Notes:

# LOW FLOW GROUNDWATER SAMPLING FORM



Project Name:	Zimmer Station	Purge Date:	March 21, 2023
Project Location:	Moscow, Ohio	Purge Time:	25 Minutes
Project Number:	7217-17-001D	Sample Date:	March 21, 2023
Source Well:	MW-15	Sample Time:	16:10
Locked?:	Yes	Air Temp:	55F
Sampled By:	Carter Harlan		
Weather:	Sunny		

## Water Level & Well Data

Measuring Point:	Top of Casing	
Depth to Water:	48.50	ft-TOC
Total Well Depth:	61.96	ft-TOC
Height of Water Column:	13.46	feet
Screen Length:	20	feet
Stickup:		ft-GRD

Well Diameter	4	inch
Water Volume	8.8	Gal
3 * Well Volume	26.36	Gal
5 * Well Volume	43.93	Gal

## Well Purging Information

Purge Method:	Bladder Pump	Start Time:	15:40	End Time:	16:05
(If Used)	Bladder Pump Control Settings:	On (sec):		Off (sec):	
		Pressure:			psi
Pump Intake Depth from Top of Casing:		ft-TOC			
Water Column Above Pump Intake:		feet	Flow Through Cell Vol:	200	mL
DTW-TOC at 25% Drawdown of WC Above Pump:		ft-TOC	<b>Comments:</b>		
Final Volume Purged:	2.0	Gallons			
Final Volume Purge Rate:	300	mL/min			
Well Purged Dry?:		(Yes/No)			

## Field Parameters (Taken at time intervals ≥ 5 minutes and purge volumes ≥ 1 flow-through cell volume)

Time	Volume Purged (gal)	Flow Rate (mL/min)	Depth to Water (ft)	Temp (°C)	pH (s.u.)	Spec. Cond. (mS/cm)	Dissolved Oxygen (mg/L)	ORP* (mV)	Turbidity (NTU)	Comment
15:40	0.0	---	---	---	---	---	---	---	---	Start Purging
15:45	0.4	300	48.54	15.1	6.8	1.718	0.2	88	4.34	Clear, no odor
15:50	0.8	300	48.53	15.1	6.9	1.727	0.2	88	2.35	Clear, no odor
15:55	1.2	300	48.55	15.1	6.9	1.725	0.2	88	1.34	Clear, no odor
16:00	1.6	300	48.54	15.1	6.9	1.721	0.2	88	1.08	Clear, no odor
16:05	2.0	300	48.54	15.0	6.9	1.708	0.2	88	0.61	Clear, no odor

**Final:** 16:05    2.0    300    48.54    15.0    6.9    1.708    0.2    88    0.6    End of Purging

Sample Method:     Sample Start Time:     Sample End Time:

## Analytical Data

Method	Qty	Container	Preservative	Method	Qty	Container	Preservative

Name: \_\_\_\_\_ Signature: \_\_\_\_\_ Date:

(1) \_\_\_\_\_

Notes:



## LOW FLOW GROUNDWATER SAMPLING FORM

Project Name:	Zimmer Station	Purge Date:	March 21, 2023
Project Location:	Moscow, Ohio	Purge Time:	25 Minutes
Project Number:	7217-17-001D	Sample Date:	March 21, 2023
Source Well:	MW-16	Sample Time:	10:10
Locked?:	Yes	Air Temp:	34F
Sampled By:	Carter Harlan		
Weather:	Sunny		

### Water Level & Well Data

Measuring Point:	Top of Casing			
Depth to Water:	49.89	ft-TOC		
Total Well Depth:	69.78	ft-TOC		
Height of Water Column:	19.89	feet		
Screen Length:	20	feet	Stickup:	ft-GRD

Well Diameter	4	inch
Water Volume	13.0	Gal
3 * Well Volume	38.95	Gal
5 * Well Volume	64.92	Gal

### Well Purging Information

Purge Method:	Bladder Pump	Start Time:	9:40	End Time:	10:05	
(If Used) Bladder Pump Control Settings:	On (sec):	Off (sec):	Pressure:			psi
Pump Intake Depth from Top of Casing:	ft-TOC					
Water Column Above Pump Intake:	feet		Flow Through Cell Vol:	200	mL	
DTW-TOC at 25% Drawdown of WC Above Pump:	ft-TOC					
Final Volume Purged:	2.0	Gallons				
Final Volume Purge Rate:	300	mL/min				
Well Purged Dry?:	(Yes/No)					

### Field Parameters (Taken at time intervals ≥ 5 minutes and purge volumes ≥ 1 flow-through cell volume)

Time	Volume Purged (gal)	Flow Rate (mL/min)	Depth to Water (ft)	Temp (°C)	pH (s.u.)	Spec. Cond. (mS/cm)	Dissolved Oxygen (mg/L)	ORP* (mV)	Turbidity (NTU)	Comment
09:40	0.0	---	---	---	---	---	---	---	---	Start Purging
09:45	0.4	300	49.89	14.1	6.9	1.306	0.4	88	1.25	Clear, no odor
09:50	0.8	300	49.89	14.7	6.9	1.304	0.3	87	0.60	Clear, no odor
09:55	1.2	300	49.89	14.9	6.9	1.303	0.2	87	0.69	Clear, no odor
10:00	1.6	300	49.89	15.0	6.9	1.302	0.2	88	0.30	Clear, no odor
10:05	2.0	300	49.89	14.6	6.9	1.313	0.3	89	0.18	Clear, no odor
Final:	2.0	300	49.89	14.6	6.9	1.313	0.3	89	0.2	End of Purging

Sample Method:  Sample Start Time:  Sample End Time:

### Analytical Data

Method	Qty	Container	Preservative	Method	Qty	Container	Preservative

Name	Signature	Date
(1) _____	_____	<input type="text"/>

Notes: \_\_\_\_\_



## LOW FLOW GROUNDWATER SAMPLING FORM

Project Name:	Zimmer Station	Purge Date:	March 21, 2023
Project Location:	Moscow, Ohio	Purge Time:	25 Minutes
Project Number:	7217-17-001D	Sample Date:	March 21, 2023
Source Well:	MW-17	Sample Time:	11:00
Locked?:	Yes	Air Temp:	40F
Sampled By:	Carter Harlan		
Weather:	Sunny		

**Water Level & Well Data**

Measuring Point:		Top of Casing	
Depth to Water:	49.49	ft-TOC	
Total Well Depth:	69.80	ft-TOC	
Height of Water Column:	20.31	feet	
Screen Length:	20	feet	Stickup:
			ft-GRD

Well Volume		
Well Diameter	4	inch
Water Volume	13.3	Gal
3 * Well Volume	39.77	Gal
5 * Well Volume	66.29	Gal

**Well Purging Information**

Purge Method:	Bladder Pump	Start Time:	10:30	End Time:	10:55
(If Used) Bladder Pump Control Settings:	On (sec):	Off (sec):		Pressure:	psi
Pump Intake Depth from Top of Casing:		ft-TOC			
Water Column Above Pump Intake:		feet	Flow Through Cell Vol:	200	mL
DTW-TOC at 25% Drawdown of WC Above Pump:		ft-TOC	<b>Comments:</b>		
Final Volume Purged:	2.0	Gallons			
Final Volume Purge Rate:	300	mL/min			
Well Purged Dry?:		(Yes/No)			

**Field Parameters (Taken at time intervals ≥ 5 minutes and purge volumes ≥ 1 flow-through cell volume)**

Time	Volume Purged (gal)	Flow Rate (mL/min)	Depth to Water (ft)	Temp (°C)	pH (s.u.)	Spec. Cond. (mS/cm)	Dissolved Oxygen (mg/L)	ORP* (mV)	Turbidity (NTU)	Comment	
10:30	0.0	---	---	---	---	---	---	---	---	Start Purging	
10:35	0.4	300	49.50	15.2	6.9	1.378	0.5	93	29.5	Clear, no odor	
10:40	0.8	300	49.50	15.5	6.9	1.395	0.3	92	22.3	Clear, no odor	
10:45	1.2	300	49.50	15.5	7.0	1.393	0.3	91	8.21	Clear, no odor	
10:50	1.6	300	49.50	15.2	7.0	1.396	0.2	91	4.11	Clear, no odor	
10:55	2.0	300	49.50	15.0	7.0	1.393	0.2	92	3.30	Clear, no odor	
Final:	10:55	2.0	300	49.50	15.0	7.0	1.393	0.2	92	3.3	End of Purging

Sample Method: Bladder Pump      Sample Start Time: 11:00      Sample End Time: 11:15

**Analytical Data**

Method	Qty	Container	Preservative	Method	Qty	Container	Preservative

Name	Signature	Date
(1) _____	_____	_____

Notes:



## LOW FLOW GROUNDWATER SAMPLING FORM

Project Name:	Zimmer Station	Purge Date:	March 21, 2023
Project Location:	Moscow, Ohio	Purge Time:	25 Minutes
Project Number:	7217-17-001D	Sample Date:	March 21, 2023
Source Well:	MW-18	Sample Time:	12:40
Locked?:	Yes	Air Temp:	45F
Sampled By:	Carter Harlan		
Weather:	Sunny		

**Water Level & Well Data**

Measuring Point:		Top of Casing	
Depth to Water:	49.93	ft-TOC	
Total Well Depth:	70.20	ft-TOC	
Height of Water Column:	20.27	feet	
Screen Length:	20	feet	Stickup:
			ft-GRD

Well Volume		
Well Diameter	4	inch
Water Volume	13.2	Gal
3 * Well Volume	39.69	Gal
5 * Well Volume	66.16	Gal

**Well Purging Information**

Purge Method:	Bladder Pump	Start Time:	12:10	End Time:	12:35
(If Used) Bladder Pump Control Settings:	On (sec):	Off (sec):		Pressure:	psi
Pump Intake Depth from Top of Casing:		ft-TOC			
Water Column Above Pump Intake:		feet	Flow Through Cell Vol:	200	mL
DTW-TOC at 25% Drawdown of WC Above Pump:		ft-TOC	<b>Comments:</b>		
Final Volume Purged:	2.0	Gallons			
Final Volume Purge Rate:	300	mL/min			
Well Purged Dry?:		(Yes/No)			

**Field Parameters (Taken at time intervals ≥ 5 minutes and purge volumes ≥ 1 flow-through cell volume)**

Time	Volume Purged (gal)	Flow Rate (mL/min)	Depth to Water (ft)	Temp (°C)	pH (s.u.)	Spec. Cond. (mS/cm)	Dissolved Oxygen (mg/L)	ORP* (mV)	Turbidity (NTU)	Comment	
12:10	0.0	---	---	---	---	---	---	---	---	Start Purging	
12:15	0.4	300	49.89	14.2	7.2	2.052	0.3	91	0.97	Clear, no odor	
12:20	0.8	300	49.89	15.6	7.1	2.034	0.2	89	0.82	Clear, no odor	
12:25	1.2	300	49.89	15.6	7.0	2.028	0.2	89	0.48	Clear, no odor	
12:30	1.6	300	49.89	15.6	7.0	2.026	0.1	89	0.38	Clear, no odor	
12:35	2.0	300	49.89	15.7	7.0	2.023	0.1	89	0.21	Clear, no odor	
Final:	12:35	2.0	300	49.89	15.7	7.0	2.023	0.1	89	0.2	End of Purging

Sample Method: Bladder Pump      Sample Start Time: 12:40      Sample End Time: 12:55

**Analytical Data**

Method	Qty	Container	Preservative	Method	Qty	Container	Preservative

Name	Signature	Date
(1) _____	_____	_____

Notes:

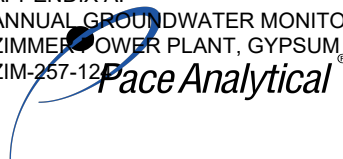
APPENDIX A.  
 ANNUAL GROUNDWATER MONITORING AND CORRECTIVE ACTION REPORT - QUARTER 1, 2023  
 ZIMMER POWER PLANT, GYPSUM RECYCLE POND  
 ZIM-257-124

<b>Zimmer Station</b>			
<b>Well ID</b>	<b>Date</b>	<b>Time</b>	<b>Depth to Water</b>
<b>D Basin - Unit 121</b>			
MW-01	3/20/2023	10:37	45.97
MW-08	3/20/2023	8:41	46.57
MW-09	3/20/2023	9:53	47.87
MW-12	3/20/2023	10:43	45.89
MW-13	3/20/2023	9:48	37.64
MW-14	3/20/2023	9:45	42.32
MW-15	3/20/2023	9:41	48.84
<b>Gypsum Recycle Pond - Unit 124</b>			
MW-07A	3/20/2023	8:55	46.63
MW-10	3/20/2023	15:23	47.43
MW-11	3/20/2023	9:03	44.54
<b>Coal Pile Runoff Pond - Unit 125</b>			
MW-03S	3/20/2023	10:12	48.76
MW-16	3/20/2023	10:19	50.06
MW-17	3/20/2023	10:15	49.68
MW-18	3/20/2023	10:00	50.15
<b>Piezometers</b>			
PZ-1	3/20/2023	9:24	46.55
PZ-2	3/20/2023	9:18	40.90
PZ-3	3/20/2023	9:30	48.02



APPENDIX A.  
 ANNUAL GROUNDWATER MONITORING AND CORRECTIVE ACTION REPORT - QUARTER 1, 2023  
 ZIMMER POWER PLANT, GYPSUM RECYCLE POND  
 ZIM-257-124

Well I.D.	Date	Time	Depth	Temp	pH	Spec. Cond.	Dissolved Oxygen	ORP*	Turbidity
MW-01	3/21/2023	9:10	45.97	13.52	6.88	1.137	0.81	90.8	0.17
MW-08	3/20/2023	13:45	46.57	11.8	7	0.661	2.22	90.2	0.31
MW-09	3/21/2023	13:35	47.87	14.5	7.01	1.403	0.16	88.9	3.28
MW-12	3/20/2023	15:05	45.89	14.1	6.91	0.809	2.02	87.8	3.09
MW-13	3/21/2023	14:25	37.64	15.2	7.01	0.977	0.16	88.1	2.34
MW-14	3/21/2023	9:10	42.32	15.1	6.89	1.248	0.21	87.9	1.39
MW-15	3/21/2023	16:10	48.84	15	6.9	1.708	0.17	88.3	0.61
MW-07A	3/20/2023	11:55	46.63	13.9	6.98	1.007	0.38	88.3	1.31
MW-10	3/20/2023	16:00	47.43	14.0	7.00	1.34	0.87	86.5	3.07
MW-11	3/20/2023	12:50	44.54	14	7.02	0.765	0.39	89.5	2.49
MW-03S	3/21/2023	11:55	48.76	15.6	6.86	1.601	0.25	90.6	0.19
MW-16	3/21/2023	10:10	50.06	14.6	6.87	1.313	0.27	88.6	0.18
MW-17	3/21/2023	11:00	49.68	15	6.95	1.393	0.22	91.9	3.3
MW-18	3/21/2023	12:40	50.15	15.7	7	2.023	0.12	88.6	0.21



# ANALYTICAL REPORT

October 06, 2023

Revised Report

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

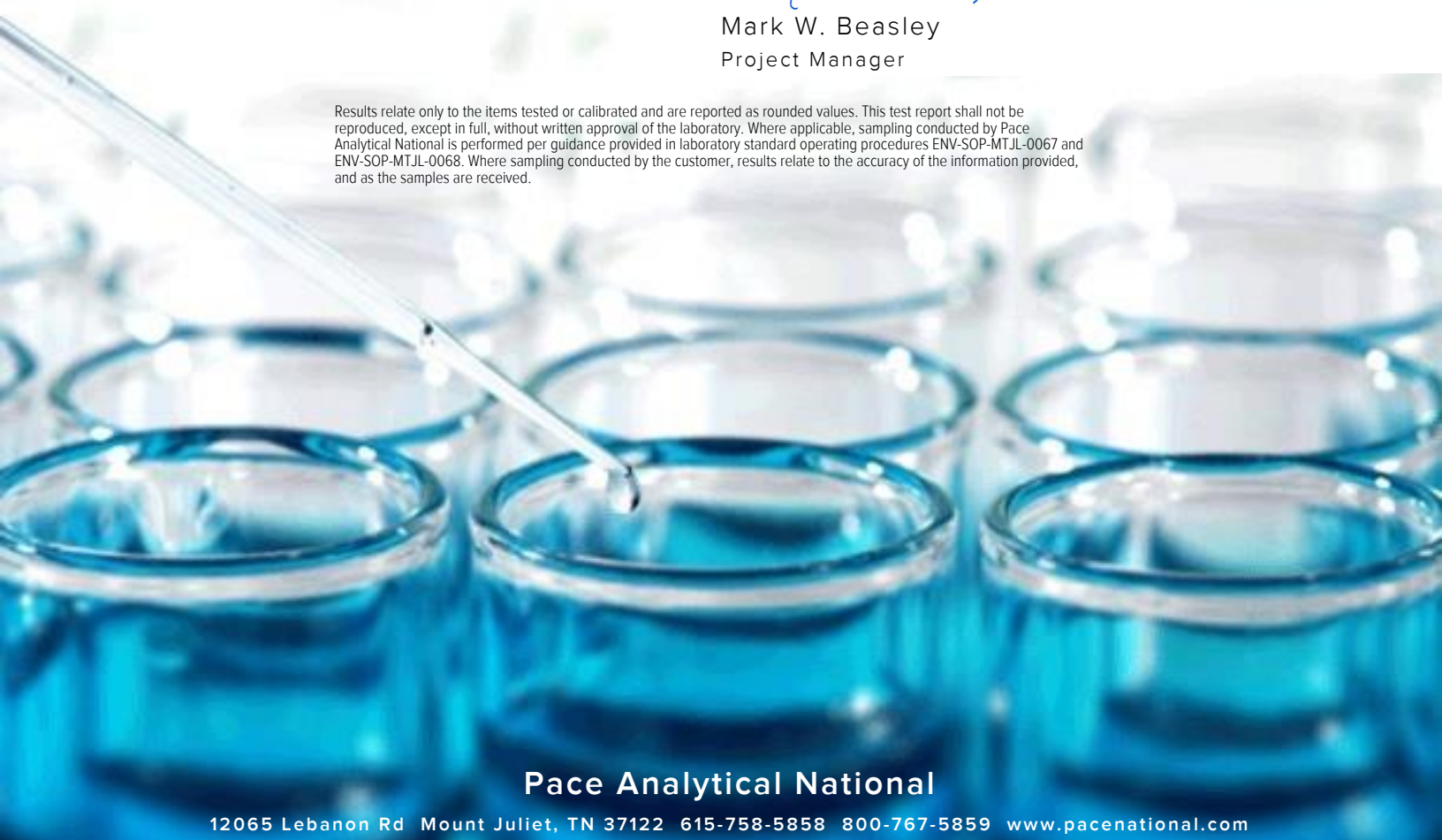
## S&ME - Nashville, TN

Sample Delivery Group: L1658197  
Samples Received: 09/21/2023  
Project Number: 7217-17-001D  
Description:  
Site: BG WELLS  
Report To: Vince Epps  
862 East Crescentville Road  
Cincinnati, OH 45246

Entire Report Reviewed By:

Mark W. Beasley  
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.

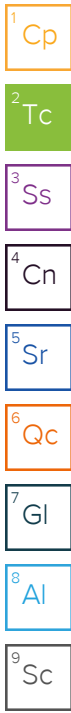


Pace Analytical National

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Collected by

Collected date/time

Received date/time

## MW-01 L1658197-01 GW

09/18/23 12:15

09/21/23 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Gravimetric Analysis by Method 2540 C-2011	WG2137489	1	09/22/23 09:57	09/22/23 16:06	JAC	Mt. Juliet, TN
Wet Chemistry by Method 2320 B-2011	WG2137674	1	09/25/23 12:42	09/25/23 12:42	BJM	Mt. Juliet, TN
Wet Chemistry by Method 9056A	WG2138268	1	09/24/23 07:08	09/24/23 07:08	GEB	Mt. Juliet, TN
Metals (ICPMS) by Method 6020	WG2137818	1	09/24/23 10:58	09/25/23 13:40	SJM	Mt. Juliet, TN
Metals (ICPMS) by Method 6020	WG2137818	1	09/24/23 10:58	09/26/23 13:55	JPD	Mt. Juliet, TN

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

## MW-01 L1658197-02 Non-Potable Water

Collected by

Collected date/time

Received date/time

09/18/23 12:15

09/21/23 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Radiochemistry by Method 904/9320	WG2140277	1	09/27/23 12:21	09/29/23 21:09	DDD	Mt. Juliet, TN
Radiochemistry by Method Calculation	WG2137491	1	09/25/23 15:11	09/29/23 21:09	RGT	Mt. Juliet, TN
Radiochemistry by Method SM7500Ra B M	WG2137491	1	09/25/23 15:11	09/26/23 15:47	RGT	Mt. Juliet, TN

## MW-08 L1658197-03 GW

Collected by

Collected date/time

Received date/time

09/20/23 12:40

09/21/23 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Gravimetric Analysis by Method 2540 C-2011	WG2137489	1	09/22/23 09:57	09/22/23 16:06	JAC	Mt. Juliet, TN
Wet Chemistry by Method 2320 B-2011	WG2137674	1	09/25/23 12:54	09/25/23 12:54	BJM	Mt. Juliet, TN
Wet Chemistry by Method 9056A	WG2138268	1	09/24/23 07:46	09/24/23 07:46	GEB	Mt. Juliet, TN
Metals (ICPMS) by Method 6020	WG2137818	1	09/24/23 10:58	09/25/23 13:44	SJM	Mt. Juliet, TN
Metals (ICPMS) by Method 6020	WG2137818	1	09/24/23 10:58	09/26/23 13:58	JPD	Mt. Juliet, TN

## MW-08 L1658197-04 Non-Potable Water

Collected by

Collected date/time

Received date/time

09/20/23 12:40

09/21/23 09:00

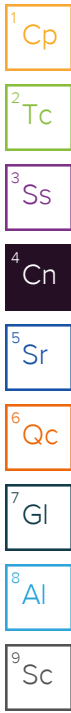
Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Radiochemistry by Method 904/9320	WG2140277	1	09/27/23 12:21	09/29/23 21:09	DDD	Mt. Juliet, TN
Radiochemistry by Method Calculation	WG2137491	1	09/25/23 15:11	09/29/23 21:09	RGT	Mt. Juliet, TN
Radiochemistry by Method SM7500Ra B M	WG2137491	1	09/25/23 15:11	09/26/23 15:47	RGT	Mt. Juliet, TN

# CASE NARRATIVE

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 radiochemical sample results for solids are reported on a dry weight basis with the exception of tritium, carbon-14 and radon, unless wet weight was requested by the client. 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.



Mark W. Beasley  
Project Manager



## Report Revision History

---

Level II Report - Version 1: 10/02/23 16:41

## Project Narrative

---

Prelim results

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Dissolved Solids	585000		13300	1	09/22/2023 16:06	<a href="#">WG2137489</a>

Wet Chemistry by Method 2320 B-2011

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
Alkalinity	378000		8450	20000	1	09/25/2023 12:42	<a href="#">WG2137674</a>
Alkalinity,Bicarbonate	378000		8450	20000	1	09/25/2023 12:42	<a href="#">WG2137674</a>
Alkalinity,Carbonate	U		8450	20000	1	09/25/2023 12:42	<a href="#">WG2137674</a>

Sample Narrative:

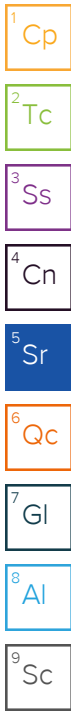
L1658197-01 WG2137674: Endpoint pH 4.5 Headspace

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
Chloride	83100	<a href="#">J6</a>	379	1000	1	09/24/2023 07:08	<a href="#">WG2138268</a>
Fluoride	144	<a href="#">J P1</a>	64.0	150	1	09/24/2023 07:08	<a href="#">WG2138268</a>
Sulfate	79300	<a href="#">J6</a>	594	5000	1	09/24/2023 07:08	<a href="#">WG2138268</a>

Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
Arsenic	U		0.180	2.00	1	09/25/2023 13:40	<a href="#">WG2137818</a>
Barium	73.9		0.381	2.00	1	09/25/2023 13:40	<a href="#">WG2137818</a>
Beryllium	U		0.190	2.00	1	09/25/2023 13:40	<a href="#">WG2137818</a>
Boron	67.7		9.63	30.0	1	09/26/2023 13:55	<a href="#">WG2137818</a>
Cadmium	U		0.150	1.00	1	09/25/2023 13:40	<a href="#">WG2137818</a>
Calcium	162000		93.6	1000	1	09/25/2023 13:40	<a href="#">WG2137818</a>
Chromium	U		1.24	2.00	1	09/25/2023 13:40	<a href="#">WG2137818</a>
Cobalt	U		0.0596	2.00	1	09/25/2023 13:40	<a href="#">WG2137818</a>
Lead	U		0.849	2.00	1	09/25/2023 13:40	<a href="#">WG2137818</a>
Magnesium	22100		73.5	1000	1	09/25/2023 13:40	<a href="#">WG2137818</a>
Molybdenum	U		0.348	5.00	1	09/25/2023 13:40	<a href="#">WG2137818</a>
Potassium	2270		108	2000	1	09/25/2023 13:40	<a href="#">WG2137818</a>
Selenium	0.567	<a href="#">J</a>	0.300	2.00	1	09/25/2023 13:40	<a href="#">WG2137818</a>
Sodium	25800		376	2000	1	09/25/2023 13:40	<a href="#">WG2137818</a>
Thallium	U		0.121	2.00	1	09/25/2023 13:40	<a href="#">WG2137818</a>
Lithium	8.08		0.695	2.00	1	09/25/2023 13:40	<a href="#">WG2137818</a>



Analyte	Result	Qualifier	Uncertainty	MDA	Analysis Date	Batch
	pCi/l		+ / -	pCi/l	date / time	
RADIUM-228	1.35		0.265	0.455	09/29/2023 21:09	<a href="#">WG2140277</a>
(T) Barium	126			30.0-143	09/29/2023 21:09	<a href="#">WG2140277</a>
(T) Yttrium	101			30.0-136	09/29/2023 21:09	<a href="#">WG2140277</a>

Radiochemistry by Method Calculation

Analyte	Result	Qualifier	Uncertainty	MDA	Analysis Date	Batch
	pCi/l		+ / -	pCi/l	date / time	
Combined Radium	1.38		0.348	0.596	09/29/2023 21:09	<a href="#">WG2137491</a>

Radiochemistry by Method SM7500Ra B M

Analyte	Result	Qualifier	Uncertainty	MDA	Analysis Date	Batch
	pCi/l		+ / -	pCi/l	date / time	
RADIUM-226	0.0348	<u>U</u>	0.226	0.385	09/26/2023 15:47	<a href="#">WG2137491</a>
(T) Barium-133	86.1			30.0-143	09/26/2023 15:47	<a href="#">WG2137491</a>

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

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Dissolved Solids	428000		10000	1	09/22/2023 16:06	<a href="#">WG2137489</a>

Wet Chemistry by Method 2320 B-2011

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
Alkalinity	333000		8450	20000	1	09/25/2023 12:54	<a href="#">WG2137674</a>
Alkalinity,Bicarbonate	333000		8450	20000	1	09/25/2023 12:54	<a href="#">WG2137674</a>
Alkalinity,Carbonate	U		8450	20000	1	09/25/2023 12:54	<a href="#">WG2137674</a>

Sample Narrative:

L1658197-03 WG2137674: Endpoint pH 4.5 Headspace

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
Chloride	14500		379	1000	1	09/24/2023 07:46	<a href="#">WG2138268</a>
Fluoride	113	J	64.0	150	1	09/24/2023 07:46	<a href="#">WG2138268</a>
Sulfate	57500		594	5000	1	09/24/2023 07:46	<a href="#">WG2138268</a>

Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
Arsenic	U		0.180	2.00	1	09/25/2023 13:44	<a href="#">WG2137818</a>
Barium	45.1		0.381	2.00	1	09/25/2023 13:44	<a href="#">WG2137818</a>
Beryllium	U		0.190	2.00	1	09/25/2023 13:44	<a href="#">WG2137818</a>
Boron	52.6		9.63	30.0	1	09/26/2023 13:58	<a href="#">WG2137818</a>
Cadmium	0.394	J	0.150	1.00	1	09/25/2023 13:44	<a href="#">WG2137818</a>
Calcium	114000		93.6	1000	1	09/25/2023 13:44	<a href="#">WG2137818</a>
Chromium	U		1.24	2.00	1	09/25/2023 13:44	<a href="#">WG2137818</a>
Cobalt	U		0.0596	2.00	1	09/25/2023 13:44	<a href="#">WG2137818</a>
Lead	U		0.849	2.00	1	09/25/2023 13:44	<a href="#">WG2137818</a>
Magnesium	21000		73.5	1000	1	09/25/2023 13:44	<a href="#">WG2137818</a>
Molybdenum	U		0.348	5.00	1	09/25/2023 13:44	<a href="#">WG2137818</a>
Potassium	1590	J	108	2000	1	09/25/2023 13:44	<a href="#">WG2137818</a>
Selenium	U		0.300	2.00	1	09/25/2023 13:44	<a href="#">WG2137818</a>
Sodium	9190		376	2000	1	09/25/2023 13:44	<a href="#">WG2137818</a>
Thallium	U		0.121	2.00	1	09/25/2023 13:44	<a href="#">WG2137818</a>
Lithium	4.80		0.695	2.00	1	09/25/2023 13:44	<a href="#">WG2137818</a>

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc



Analyte	Result	Qualifier	Uncertainty	MDA	Analysis Date	Batch
	pCi/l		+ / -	pCi/l	date / time	
RADIUM-228	0.0850	<u>U</u>	0.260	0.486	09/29/2023 21:09	<a href="#">WG2140277</a>
(T) Barium	116			30.0-143	09/29/2023 21:09	<a href="#">WG2140277</a>
(T) Yttrium	85.8			30.0-136	09/29/2023 21:09	<a href="#">WG2140277</a>

Radiochemistry by Method Calculation

Analyte	Result	Qualifier	Uncertainty	MDA	Analysis Date	Batch
	pCi/l		+ / -	pCi/l	date / time	
Combined Radium	0.0850	<u>U</u>	0.331	0.626	09/29/2023 21:09	<a href="#">WG2137491</a>

Radiochemistry by Method SM7500Ra B M

Analyte	Result	Qualifier	Uncertainty	MDA	Analysis Date	Batch
	pCi/l		+ / -	pCi/l	date / time	
RADIUM-226	0.000	<u>U</u>	0.205	0.395	09/26/2023 15:47	<a href="#">WG2137491</a>
(T) Barium-133	77.8			30.0-143	09/26/2023 15:47	<a href="#">WG2137491</a>

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

(MB) R3977878-1 09/22/23 16:06

Analyte	MB Result	MB Qualifier	MB MDL	MB RDL
Dissolved Solids	U	U	10000	10000

L1658000-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1658000-01 09/22/23 16:06 • (DUP) R3977878-3 09/22/23 16:06

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Dissolved Solids	1100000	1130000	1	2.33		5

L1658010-01 Original Sample (OS) • Duplicate (DUP)

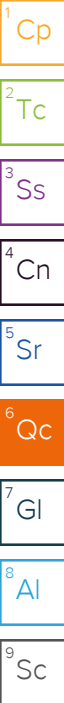
(OS) L1658010-01 09/22/23 16:06 • (DUP) R3977878-4 09/22/23 16:06

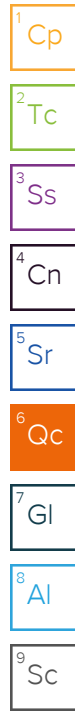
Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Dissolved Solids	900000	936000	1	3.92		5

Laboratory Control Sample (LCS)

(LCS) R3977878-2 09/22/23 16:06

Analyte	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier
Dissolved Solids	8800000	8580000	97.5	77.3-123	





(MB) R3981388-1 09/29/23 21:09

Analyte	MB Result pCi/l	MB Qualifier	MB Uncertainty + / -	MB MDA pCi/l
Radium-228	0.377		0.172	0.312
(T) Barium	111		111	
(T) Yttrium	99.5		99.5	

L1658192-08 Original Sample (OS) • Duplicate (DUP)

(OS) L1658192-08 09/29/23 21:09 • (DUP) R3981388-5 09/29/23 21:09

Analyte	Original Result pCi/l	Original Uncertainty + / -	Original MDA pCi/l	DUP Result pCi/l	DUP Uncertainty + / -	DUP MDA pCi/l	Dilution	DUP RPD %	DUP RER	DUP Qualifier	DUP RPD Limits %	DUP RER Limit
Radium-228	1.07	0.311	0.545	0.554	0.327	0.596	1	63.9	1.15	J	20	3
(T) Barium	104			107	107							
(T) Yttrium	86.3			96.0	96.0							

Laboratory Control Sample (LCS)

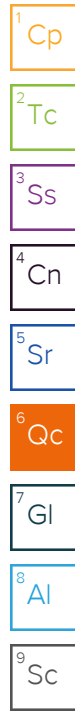
(LCS) R3981388-2 09/29/23 21:09

Analyte	Spike Amount pCi/l	LCS Result pCi/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Radium-228	5.00	5.13	103	80.0-120	
(T) Barium			121		
(T) Yttrium			92.4		

L1659083-19 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1659083-19 09/29/23 21:09 • (MS) R3981388-3 09/29/23 21:09 • (MSD) R3981388-4 09/29/23 21:09

Analyte	Spike Amount pCi/l	Original Result pCi/l	MS Result pCi/l	MSD Result pCi/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	MS RER	RPD Limits %
Radium-228	16.7	0.469	16.1	15.3	93.3	89.0	1	70.0-130			4.59		20
(T) Barium		98.7			104	108							
(T) Yttrium		107			87.4	99.8							



(MB) R3982569-1 09/25/23 19:20

Analyte	MB Result	MB Qualifier	MB Uncertainty	MB MDA
	pCi/l		+ / -	pCi/l
Radium-226	0.0295	<u>U</u>	0.0634	0.105
(T) Barium-133	72.4		72.4	

L1658192-02 Original Sample (OS) • Duplicate (DUP)

(OS) L1658192-02 09/25/23 19:20 • (DUP) R3982569-5 09/25/23 19:20

Analyte	Original Result	Original Uncertainty	Original MDA	DUP Result	DUP Uncertainty	DUP MDA	Dilution	DUP RPD	DUP RER	DUP Qualifier	DUP RPD Limits	DUP RER Limit
	pCi/l	+ / -	pCi/l	pCi/l	+ / -	pCi/l		%			%	
Radium-226	0.238	0.266	0.358	1.59	0.522	0.359	1	148	2.31		20	3
(T) Barium-133	84.2			101	101							

Laboratory Control Sample (LCS)

(LCS) R3982569-2 09/25/23 19:20

Analyte	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier
	pCi/l	pCi/l	%	%	
Radium-226	5.01	5.40	108	80.0-120	
(T) Barium-133			71.8		

L1658218-24 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1658218-24 09/25/23 19:20 • (MS) R3982569-3 09/25/23 19:20 • (MSD) R3982569-4 09/25/23 19:20

Analyte	Spike Amount	Original Result	MS Result	MSD Result	MS Rec.	MSD Rec.	Dilution	Rec. Limits	MS Qualifier	MSD Qualifier	RPD	MS RER	RPD Limits
	pCi/l	pCi/l	pCi/l	pCi/l	%	%		%			%		%
Radium-226	20.0	1.73	19.4	19.4	88.3	88.4	1	75.0-125			0.103		20
(T) Barium-133		102			92.4	86.2							

(MB) R3977409-2 09/25/23 09:51

Analyte	MB Result	MB Qualifier	MB MDL	MB RDL
	ug/l		ug/l	ug/l
Alkalinity	U		8450	20000
Alkalinity,Bicarbonate	U		8450	20000
Alkalinity,Carbonate	U		8450	20000

Sample Narrative:

BLANK: Endpoint pH 4.5

L1658192-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1658192-01 09/25/23 10:06 • (DUP) R3977409-3 09/25/23 10:12

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
	ug/l	ug/l		%		%
Alkalinity	354000	353000	1	0.288		20
Alkalinity,Bicarbonate	354000	353000	1	0.288		20
Alkalinity,Carbonate	U	U	1	0.000		20

Sample Narrative:

OS: Endpoint pH 4.5 Headspace

DUP: Endpoint pH 4.5

L1658197-01 Original Sample (OS) • Duplicate (DUP)

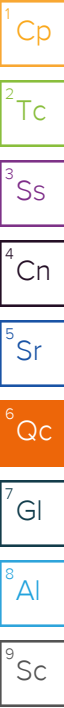
(OS) L1658197-01 09/25/23 12:42 • (DUP) R3977409-4 09/25/23 12:48

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
	ug/l	ug/l		%		%
Alkalinity	378000	376000	1	0.568		20
Alkalinity,Bicarbonate	378000	376000	1	0.568		20
Alkalinity,Carbonate	U	U	1	0.000		20

Sample Narrative:

OS: Endpoint pH 4.5 Headspace

DUP: Endpoint pH 4.5



(LCS) R3977409-1 09/25/23 09:45

Analyte	Spike Amount ug/l	LCS Result ug/l	LCS Rec. %	Rec. Limits %	<u>LCS Qualifier</u>
Alkalinity	100000	100000	100	90.0-110	

Sample Narrative:

LCS: Endpoint pH 4.5

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

1 Cp

(MB) R3977734-1 09/24/23 02:06

Analyte	MB Result	MB Qualifier	MB MDL	MB RDL
Chloride	U		379	1000
Fluoride	U		64.0	150
Sulfate	U		594	5000

2 Tc

3 Ss

4 Cn

L1657521-24 Original Sample (OS) • Duplicate (DUP)

(OS) L1657521-24 09/24/23 03:09 • (DUP) R3977734-3 09/24/23 03:22

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Chloride	5440	5230	1	3.80		15
Fluoride	96.1	67.5	1	35.0	J P1	15
Sulfate	8650	8610	1	0.449		15

5 Sr

6 Qc

7 Gl

L1658197-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1658197-01 09/24/23 07:08 • (DUP) R3977734-6 09/24/23 07:21

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Chloride	83100	82800	1	0.367		15
Fluoride	144	199	1	32.1	P1	15
Sulfate	79300	79500	1	0.190		15

8 Al

9 Sc

Laboratory Control Sample (LCS)

(LCS) R3977734-2 09/24/23 02:19

Analyte	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier
Chloride	40000	40200	101	80.0-120	
Fluoride	8000	8150	102	80.0-120	
Sulfate	40000	40000	99.9	80.0-120	

L1657521-24 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1657521-24 09/24/23 03:09 • (MS) R3977734-4 09/24/23 03:34 • (MSD) R3977734-5 09/24/23 03:47

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 %
Chloride	40000	5440	44800	44400	98.5	97.5	1	80.0-120			0.950	15
Fluoride	8000	96.1	8220	8260	102	102	1	80.0-120			0.506	15
Sulfate	40000	8650	47500	47400	97.0	96.9	1	80.0-120			0.0896	15

L1658197-01 Original Sample (OS) • Matrix Spike (MS)

(OS) L1658197-01 09/24/23 07:08 • (MS) R3977734-7 09/24/23 07:33

Analyte	Spike Amount ug/l	Original Result ug/l	MS Result ug/l	MS Rec. %	Dilution	Rec. Limits %	MS Qualifier
Chloride	40000	83100	106000	57.7	1	80.0-120	<u>J6</u>
Fluoride	8000	144	8060	98.9	1	80.0-120	
Sulfate	40000	79300	104000	60.6	1	80.0-120	<u>J6</u>

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



ZM-257-12 Blank (MB)

(MB) R3977402-1 09/25/23 12:57

Analyte	MB Result	MB Qualifier	MB MDL	MB RDL
	ug/l		ug/l	ug/l
Arsenic	U		0.180	2.00
Barium	0.414	U	0.381	2.00
Beryllium	U		0.190	2.00
Cadmium	U		0.150	1.00
Calcium	U		93.6	1000
Chromium	U		1.24	2.00
Cobalt	U		0.0596	2.00
Lead	U		0.849	2.00
Magnesium	U		73.5	1000
Molybdenum	U		0.348	5.00
Potassium	U		108	2000
Selenium	U		0.300	2.00
Sodium	U		376	2000
Thallium	U		0.121	2.00
Lithium	U		0.695	2.00

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

Method Blank (MB)

(MB) R3977815-1 09/26/23 12:56

Analyte	MB Result	MB Qualifier	MB MDL	MB RDL
	ug/l		ug/l	ug/l
Boron	U		9.63	30.0

Laboratory Control Sample (LCS)

(LCS) R3977402-2 09/25/23 13:01

Analyte	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier
	ug/l	ug/l	%	%	
Arsenic	50.0	50.0	100	80.0-120	
Barium	50.0	49.4	98.7	80.0-120	
Beryllium	50.0	48.5	97.0	80.0-120	
Cadmium	50.0	52.1	104	80.0-120	
Calcium	5000	4910	98.3	80.0-120	
Chromium	50.0	49.1	98.2	80.0-120	
Cobalt	50.0	50.0	100	80.0-120	
Lead	50.0	50.7	101	80.0-120	
Magnesium	5000	5060	101	80.0-120	
Molybdenum	50.0	49.1	98.1	80.0-120	
Potassium	5000	4980	99.7	80.0-120	

Laboratory Control Sample (LCS)

(LCS) R3977402-2 09/25/23 13:01

Analyte	Spike Amount ug/l	LCS Result ug/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Selenium	50.0	52.7	105	80.0-120	
Sodium	5000	5110	102	80.0-120	
Thallium	50.0	49.9	99.9	80.0-120	
Lithium	50.0	49.2	98.4	80.0-120	

Laboratory Control Sample (LCS)

(LCS) R3977815-2 09/26/23 12:59

Analyte	Spike Amount ug/l	LCS Result ug/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Boron	50.0	51.2	102	80.0-120	

L1658192-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1658192-01 09/25/23 13:04 • (MS) R3977402-4 09/25/23 13:11 • (MSD) R3977402-5 09/25/23 13:14

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 %
Arsenic	50.0	1.06	49.7	50.3	97.2	98.5	1	75.0-125			1.27	20
Barium	50.0	19.1	66.6	68.0	94.9	97.8	1	75.0-125			2.14	20
Beryllium	50.0	U	48.0	47.4	95.9	94.7	1	75.0-125			1.26	20
Cadmium	50.0	U	51.4	50.8	103	102	1	75.0-125			1.07	20
Calcium	5000	164000	167000	168000	58.4	71.3	1	75.0-125	V	V	0.385	20
Chromium	50.0	U	46.5	47.6	93.0	95.3	1	75.0-125			2.47	20
Cobalt	50.0	1.24	48.0	48.6	93.6	94.8	1	75.0-125			1.22	20
Lead	50.0	U	50.6	50.2	101	100	1	75.0-125			0.809	20
Magnesium	5000	31400	35700	35600	86.1	83.5	1	75.0-125			0.376	20
Molybdenum	50.0	1.46	53.5	53.0	104	103	1	75.0-125			0.927	20
Potassium	5000	2590	7410	7340	96.4	95.1	1	75.0-125			0.853	20
Selenium	50.0	U	54.8	54.0	110	108	1	75.0-125			1.54	20
Sodium	5000	16100	20700	20500	92.0	88.9	1	75.0-125			0.757	20
Thallium	50.0	0.207	49.6	49.3	98.8	98.2	1	75.0-125			0.674	20
Lithium	50.0	5.57	53.7	52.3	96.3	93.4	1	75.0-125			2.74	20

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

(OS) L1658192-01 09/26/23 13:02 • (MS) R3977815-4 09/26/23 13:09 • (MSD) R3977815-5 09/26/23 13:12

Analyte	Spike Amount ug/l	Original Result ug/l	MS Result ug/l	MSD Result ug/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	<u>MS Qualifier</u>	<u>MSD Qualifier</u>	RPD %	RPD Limits %
Boron	50.0	56.0	112	111	112	109	1	75.0-125			1.19	20

<sup>1</sup> Cp

<sup>2</sup> Tc

<sup>3</sup> Ss

<sup>4</sup> Cn

<sup>5</sup> Sr

<sup>6</sup> Qc

<sup>7</sup> Gl

<sup>8</sup> Al

<sup>9</sup> Sc

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

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

MDA	Minimum Detectable Activity.
MDL	Method Detection Limit.
RDL	Reported Detection Limit.
Rec.	Recovery.
RER	Replicate Error Ratio.
RPD	Relative Percent Difference.
SDG	Sample Delivery Group.
U	Not detected at the Reporting Limit (or MDL where applicable).
(T)	Tracer - A radioisotope of known concentration added to a solution of chemically equivalent radioisotopes at a known concentration to assist in monitoring the yield of the chemical separation.
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.

## Qualifier Description

J	The identification of the analyte is acceptable; the reported value is an estimate.
J6	The sample matrix interfered with the ability to make any accurate determination; spike value is low.
P1	RPD value not applicable for sample concentrations less than 5 times the reporting limit.
U	Below Detectable Limits: Indicates that the analyte was not detected.
V	The sample concentration is too high to evaluate accurate spike recoveries.

## ACCREDITATIONS &amp; LOCATIONS

ANNUAL GROUNDWATER MONITORING AND CORRECTIVE ACTION REPORT - QUARTER 3, 2023

ZIMMER POWER PLANT, GYPSUM RECYCLE POND

ZIM-257-124

Pace Analytical National 12065 Lebanon Rd Mount Juliet, TN 37122

Alabama	40660	Nebraska	NE-OS-15-05
Alaska	17-026	Nevada	TN000032021-1
Arizona	AZ0612	New Hampshire	2975
Arkansas	88-0469	New Jersey-NELAP	TN002
California	2932	New Mexico <sup>1</sup>	TN00003
Colorado	TN00003	New York	11742
Connecticut	PH-0197	North Carolina	Env375
Florida	E87487	North Carolina <sup>1</sup>	DW21704
Georgia	NELAP	North Carolina <sup>3</sup>	41
Georgia <sup>1</sup>	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 <sup>1,6</sup>	KY90010	South Carolina	84004002
Kentucky <sup>2</sup>	16	South Dakota	n/a
Louisiana	AI30792	Tennessee <sup>1,4</sup>	2006
Louisiana	LA018	Texas	T104704245-20-18
Maine	TN00003	Texas <sup>5</sup>	LAB0152
Maryland	324	Utah	TN000032021-11
Massachusetts	M-TN003	Vermont	VT2006
Michigan	9958	Virginia	110033
Minnesota	047-999-395	Washington	C847
Mississippi	TN00003	West Virginia	233
Missouri	340	Wisconsin	998093910
Montana	CERT0086	Wyoming	A2LA
A2LA – ISO 17025	1461.01	AIHA-LAP,LLC EMLAP	100789
A2LA – ISO 17025 <sup>5</sup>	1461.02	DOD	1461.01
Canada	1461.01	USDA	P330-15-00234
EPA-Crypto	TN00003		

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

\* 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 Analytical.

<sup>1</sup> Cp<sup>2</sup> Tc<sup>3</sup> Ss<sup>4</sup> Cn<sup>5</sup> Sr<sup>6</sup> Qc<sup>7</sup> Gl<sup>8</sup> Al<sup>9</sup> Sc

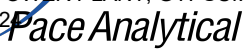
APPENDIX A.  
ANNUAL GROUNDWATER MONITORING AND CORRECTIVE ACTION REPORT - QUARTER 3, 2023

ZIMMER POWER PLANT GYPSUM RECYCLE POND  
ZIM-257-124

<b>Company Name/Address:</b> <b>S&amp;ME - Cincinnati</b> <b>862 E. Crescentville Rd.</b> <b>Cincinnati. OH 45246</b>		<b>Billing Information:</b> <b>Accounts Payable</b> <b>smeinc_invoice@concurolutions</b> <b>.com</b>		<b>Analysis / Container / Preservative</b>				<b>Chain of Custody</b> Page ___ of ___	
<b>Report to:</b> <b>Vince Epps</b>		<b>Email To:</b> <b>vepps@smeinc.com</b>		<b>Pres Chk</b> <i>CR</i>					
<b>Project Description:</b> <b>Zimmer Station</b>		<b>City/State Collected:</b> <b>Moscow, OH</b>		<b>Please Circle:</b> PT MT CT ET				<b>12065 Lebanon Rd Mount Juliet, TN 37122</b> <b>Phone: 615-758-5858 Alt: 800-767-5859</b> <small>Submitting a sample via this chain of custody constitutes acknowledgment and acceptance of the Pace Terms and Conditions found at: <a href="http://info.pacelabs.com/subs/pas-standard-terms.pdf">http://info.pacelabs.com/subs/pas-standard-terms.pdf</a></small>	
<b>Phone:</b> 513-771-8471		<b>Client Project #</b> <b>7217-17-001D</b>		<b>Lab Project #</b> <b>LITEGNTN-ZIMMER</b>				<b>SDG #</b> <i>4658197</i> <b>A231</b>	
<b>Collected by (print):</b>		<b>Site/Facility ID #</b> <b>BG Wells</b>		<b>P.O. #</b>				<b>Acctnum:</b> LITEGNTN	
<b>Collected by (signature):</b>		<b>Rush? (Lab MUST Be Notified)</b> <input type="checkbox"/> Same Day <input type="checkbox"/> Five Day <input type="checkbox"/> Next Day <input type="checkbox"/> 5 Day (Rad Only) <input type="checkbox"/> Two Day <input type="checkbox"/> 10 Day (Rad Only) <input type="checkbox"/> Three Day		<b>Quote #</b>				<b>Template:</b>	
<b>Immediately Packed on Ice</b> N ___ Y <input checked="" type="checkbox"/>		<b>Date Results Needed</b>		<b>No. of Cntrs</b>				<b>Prelogin:</b>	
<b>Sample ID</b>		<b>Comp/Grab</b>	<b>Matrix*</b>	<b>Depth</b>	<b>Date</b>	<b>Time</b>	<b>Cntrs</b>	<b>PM:</b> 134	
<b>MW-01</b>		<b>Grab</b>	<b>GW</b>	<b>NA</b>	<b>9/18</b>	<b>12:15</b>	<b>5</b>	<b>PB:</b>	
<b>MW-08</b>		<b>Grab</b>	<b>GW</b>	<b>NA</b>	<b>9/20</b>	<b>12:40</b>	<b>5</b>	<b>Shipped Via:</b>	
								<b>Remarks</b>	
								<b>Sample # (lab only)</b>	
								<i>01/02</i> <i>03/09</i>	

<b>* Matrix:</b> SS - Soil AIR - Air F - Filter GW - Groundwater B - Bioassay WW - WasteWater DW - Drinking Water OT - Other _____			<b>Remarks:</b> <b>Log Rad to same SDG as different dash #s as EX 10 day TAT</b> <b>CCR Metals: As, Ba, Be, B, Cd, Ca, Cr, Co, K, Pb, Li, Mg, Mo, Na, Se, Tl</b>			<p>pH _____ Temp _____</p> <p>Flow _____ Other _____</p>			<b>Sample Receipt Checklist:</b> COC Seal Present/Intact: <input checked="" type="checkbox"/> <b>NP</b> <input type="checkbox"/> <b>N</b> COC Signed/Accurate: <input checked="" type="checkbox"/> <b>N</b> <input type="checkbox"/> <b>N</b> Bottles arrive intact: <input checked="" type="checkbox"/> <b>N</b> <input type="checkbox"/> <b>N</b> Correct bottles used: <input checked="" type="checkbox"/> <b>N</b> <input type="checkbox"/> <b>N</b> Sufficient volume sent: <input checked="" type="checkbox"/> <b>N</b> <input type="checkbox"/> <b>N</b> If Applicable: VOA Zero Headpace: <input checked="" type="checkbox"/> <b>N</b> <input type="checkbox"/> <b>N</b> Preservation Correct/Checked: <input checked="" type="checkbox"/> <b>N</b> <input type="checkbox"/> <b>N</b> RAD Screen <0.5 mR/hr: <input checked="" type="checkbox"/> <b>N</b> <input type="checkbox"/> <b>N</b>		
<b>Samples returned via:</b> <input type="checkbox"/> UPS <input type="checkbox"/> FedEx <input type="checkbox"/> Courier			<b>Tracking #</b>								
<b>Relinquished by: (Signature)</b> <i>Cody Flynn</i>		<b>Date:</b> <b>9/20/23</b>	<b>Time:</b> <b>18:00</b>	<b>Received by: (Signature)</b>		<b>Trip Blank Received: Yes/NO</b> <input checked="" type="checkbox"/> <b>HCL/MeOH</b> <input type="checkbox"/> <b>TBR</b>		<b>Bottles Received:</b> <i>10</i>			<b>If preservation required by Login: Date/Time</b>
<b>Relinquished by: (Signature)</b>		<b>Date:</b>	<b>Time:</b>	<b>Received by: (Signature)</b>		<b>Date:</b>		<b>Time:</b>		<b>Hold:</b>	<b>Condition:</b>

Tracking Numbers	Temperature
7019 S6852436	2.8
0503	0.9
2447	1.5
2458	2.3
2425	1.8
6643 4303133	1.5



# ANALYTICAL REPORT

October 06, 2023

Revised Report

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

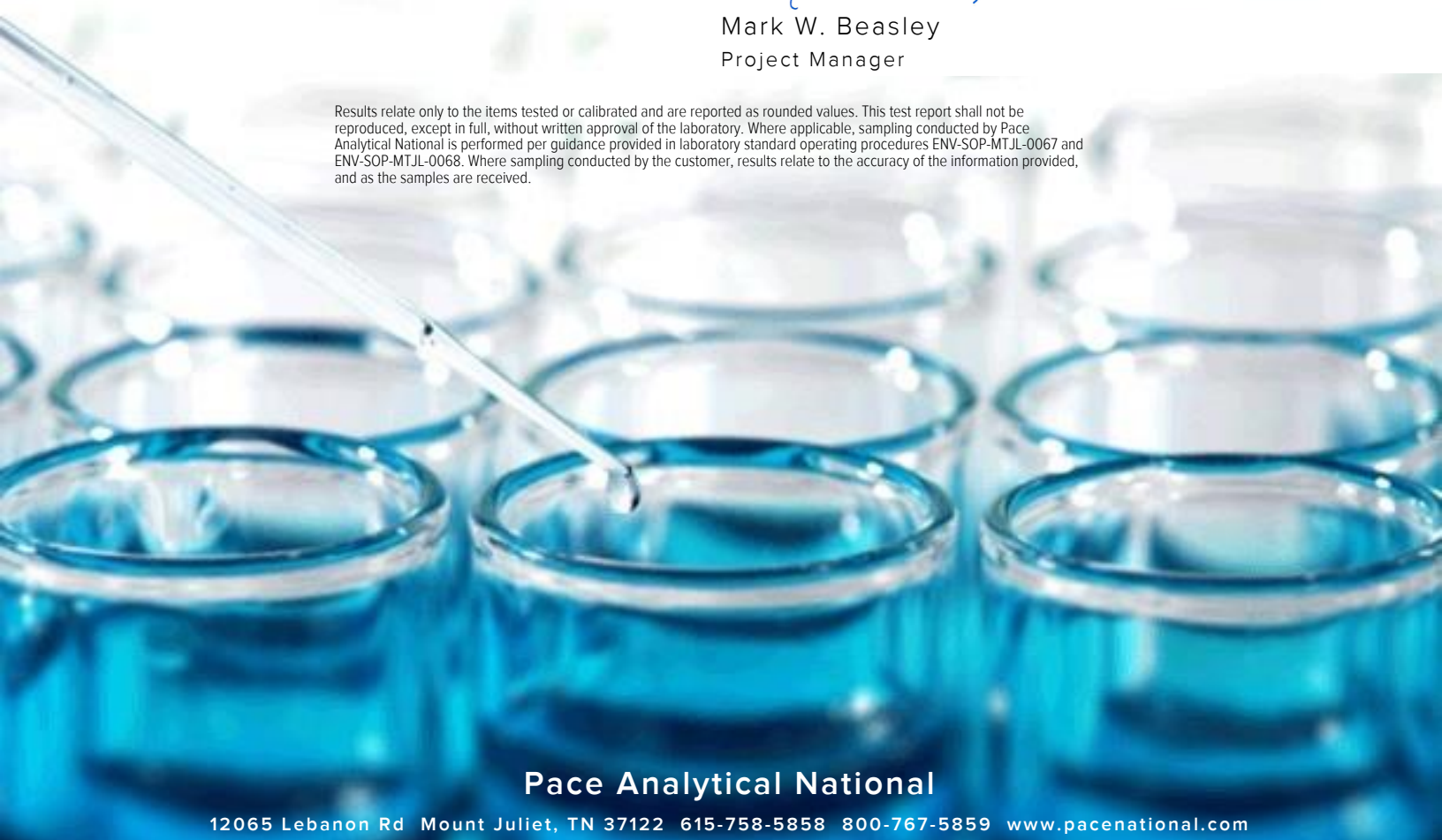
## S&ME - Nashville, TN

Sample Delivery Group: L1658200  
Samples Received: 09/21/2023  
Project Number: 7217-17-001D  
Description: Zimmer Station  
Site: WHZ UNIT 124  
Report To: Vince Epps  
862 East Crescentville Road  
Cincinnati, OH 45246

Entire Report Reviewed By:

Mark W. Beasley  
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.



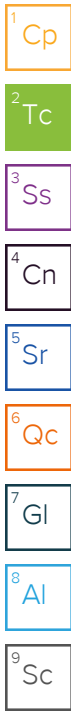
Pace Analytical National

12065 Lebanon Rd Mount Juliet, TN 37122 615-758-5858 800-767-5859 www.pacenational.com



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# SAMPLE SUMMARY

## ANNUAL GROUNDWATER MONITORING AND CORRECTIVE ACTION REPORT - QUARTER 3, 2023

### ZIMMER POWER PLANT, GYPSUM RECYCLE POND

ZIM-257-124

#### MW-07A L1658200-01 GW

Collected by \_\_\_\_\_ Collected date/time 09/20/23 15:25 Received date/time 09/21/23 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Gravimetric Analysis by Method 2540 C-2011	WG2138752	1	09/25/23 09:21	09/25/23 10:37	MMF	Mt. Juliet, TN
Wet Chemistry by Method 2320 B-2011	WG2137677	1	09/25/23 10:45	09/25/23 10:45	BJM	Mt. Juliet, TN
Wet Chemistry by Method 9056A	WG2138268	1	09/24/23 10:05	09/24/23 10:05	GEB	Mt. Juliet, TN
Metals (ICPMS) by Method 6020	WG2137818	1	09/24/23 10:58	09/25/23 14:00	SJM	Mt. Juliet, TN
Metals (ICPMS) by Method 6020	WG2137818	10	09/24/23 10:58	09/26/23 14:54	JPD	Mt. Juliet, TN



#### MW-07A L1658200-02 Non-Potable Water

Collected by \_\_\_\_\_ Collected date/time 09/20/23 15:25 Received date/time 09/21/23 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Radiochemistry by Method 904/9320	WG2140277	1	09/27/23 12:21	09/29/23 21:09	DDD	Mt. Juliet, TN
Radiochemistry by Method Calculation	WG2137491	1	09/25/23 15:11	09/29/23 21:09	RGT	Mt. Juliet, TN
Radiochemistry by Method SM7500Ra B M	WG2137491	1	09/25/23 15:11	09/26/23 15:47	RGT	Mt. Juliet, TN

#### MW-10 L1658200-03 GW

Collected by \_\_\_\_\_ Collected date/time 09/20/23 14:15 Received date/time 09/21/23 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Gravimetric Analysis by Method 2540 C-2011	WG2138752	1	09/25/23 09:21	09/25/23 10:37	MMF	Mt. Juliet, TN
Wet Chemistry by Method 2320 B-2011	WG2137677	1	09/25/23 11:06	09/25/23 11:06	BJM	Mt. Juliet, TN
Wet Chemistry by Method 9056A	WG2138268	1	09/24/23 10:30	09/24/23 10:30	GEB	Mt. Juliet, TN
Wet Chemistry by Method 9056A	WG2138268	10	09/24/23 10:42	09/24/23 10:42	GEB	Mt. Juliet, TN
Metals (ICPMS) by Method 6020	WG2137818	1	09/24/23 10:58	09/25/23 14:03	SJM	Mt. Juliet, TN
Metals (ICPMS) by Method 6020	WG2137818	20	09/24/23 10:58	09/26/23 14:41	JPD	Mt. Juliet, TN

#### MW-10 L1658200-04 Non-Potable Water

Collected by \_\_\_\_\_ Collected date/time 09/20/23 14:15 Received date/time 09/21/23 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Radiochemistry by Method 904/9320	WG2140673	1	09/27/23 22:22	10/02/23 16:33	DDD	Mt. Juliet, TN
Radiochemistry by Method Calculation	WG2137491	1	09/25/23 15:11	10/02/23 16:33	DDD	Mt. Juliet, TN
Radiochemistry by Method SM7500Ra B M	WG2137491	1	09/25/23 15:11	09/26/23 15:47	RGT	Mt. Juliet, TN

#### MW-11 L1658200-05 GW

Collected by \_\_\_\_\_ Collected date/time 09/20/23 15:35 Received date/time 09/21/23 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Gravimetric Analysis by Method 2540 C-2011	WG2137500	1	09/22/23 10:03	09/25/23 09:32	JAC	Mt. Juliet, TN
Wet Chemistry by Method 2320 B-2011	WG2137677	1	09/25/23 11:11	09/25/23 11:11	BJM	Mt. Juliet, TN
Wet Chemistry by Method 9056A	WG2138268	1	09/24/23 10:55	09/24/23 10:55	GEB	Mt. Juliet, TN
Wet Chemistry by Method 9056A	WG2138268	10	09/24/23 11:08	09/24/23 11:08	GEB	Mt. Juliet, TN
Metals (ICPMS) by Method 6020	WG2137818	1	09/24/23 10:58	09/25/23 14:07	SJM	Mt. Juliet, TN
Metals (ICPMS) by Method 6020	WG2137818	10	09/24/23 10:58	09/26/23 14:44	JPD	Mt. Juliet, TN

#### MW-11 L1658200-06 Non-Potable Water

Collected by \_\_\_\_\_ Collected date/time 09/20/23 15:35 Received date/time 09/21/23 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Radiochemistry by Method 904/9320	WG2140673	1	09/27/23 22:22	10/02/23 16:33	DDD	Mt. Juliet, TN
Radiochemistry by Method Calculation	WG2137491	1	09/25/23 15:11	10/02/23 16:33	DDD	Mt. Juliet, TN
Radiochemistry by Method SM7500Ra B M	WG2137491	1	09/25/23 15:11	09/26/23 15:47	RGT	Mt. Juliet, TN

# SAMPLE SUMMARY

ANNUAL GROUNDWATER MONITORING AND CORRECTIVE ACTION REPORT - QUARTER 3, 2023

ZIMMER POWER PLANT, GYPSUM RECYCLE POND

Collected by

Collected date/time

Received date/time

ZIM-257-124

09/20/23 00:00

09/21/23 09:00

DUP-1 L1658200-07 GW

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Gravimetric Analysis by Method 2540 C-2011	WG2137489	1	09/22/23 09:57	09/22/23 16:06	JAC	Mt. Juliet, TN
Wet Chemistry by Method 2320 B-2011	WG2137677	1	09/25/23 11:16	09/25/23 11:16	BJM	Mt. Juliet, TN
Wet Chemistry by Method 9056A	WG2138268	1	09/24/23 11:20	09/24/23 11:20	GEB	Mt. Juliet, TN
Metals (ICPMS) by Method 6020	WG2137818	1	09/24/23 10:58	09/25/23 14:21	SJM	Mt. Juliet, TN
Metals (ICPMS) by Method 6020	WG2137818	10	09/24/23 10:58	09/26/23 14:48	JPD	Mt. Juliet, TN

<sup>1</sup> Cp

<sup>2</sup> Tc

<sup>3</sup> Ss

<sup>4</sup> Cn

<sup>5</sup> Sr

<sup>6</sup> Qc

<sup>7</sup> Gl

<sup>8</sup> Al

<sup>9</sup> Sc

# CASE NARRATIVE

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 radiochemical sample results for solids are reported on a dry weight basis with the exception of tritium, carbon-14 and radon, unless wet weight was requested by the client. 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.

Mark W. Beasley  
Project Manager

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

## Report Revision History

---

Level II Report - Version 1: 10/02/23 16:42

## Project Narrative

---

Prelim results

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Dissolved Solids	366000		10000	1	09/25/2023 10:37	<a href="#">WG2138752</a>

Wet Chemistry by Method 2320 B-2011

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
Alkalinity	218000		8450	20000	1	09/25/2023 10:45	<a href="#">WG2137677</a>
Alkalinity,Bicarbonate	218000		8450	20000	1	09/25/2023 10:45	<a href="#">WG2137677</a>
Alkalinity,Carbonate	U		8450	20000	1	09/25/2023 10:45	<a href="#">WG2137677</a>

Sample Narrative:

L1658200-01 WG2137677: Endpoint pH 4.5 Headspace

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
Chloride	58500		379	1000	1	09/24/2023 10:05	<a href="#">WG2138268</a>
Fluoride	229		64.0	150	1	09/24/2023 10:05	<a href="#">WG2138268</a>
Sulfate	154000		594	5000	1	09/24/2023 10:05	<a href="#">WG2138268</a>

Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
Arsenic	0.332	J	0.180	2.00	1	09/25/2023 14:00	<a href="#">WG2137818</a>
Barium	29.8		0.381	2.00	1	09/25/2023 14:00	<a href="#">WG2137818</a>
Beryllium	U		0.190	2.00	1	09/25/2023 14:00	<a href="#">WG2137818</a>
Boron	1380		96.3	300	10	09/26/2023 14:54	<a href="#">WG2137818</a>
Cadmium	U		0.150	1.00	1	09/25/2023 14:00	<a href="#">WG2137818</a>
Calcium	75400		93.6	1000	1	09/25/2023 14:00	<a href="#">WG2137818</a>
Chromium	U		1.24	2.00	1	09/25/2023 14:00	<a href="#">WG2137818</a>
Cobalt	0.823	J	0.0596	2.00	1	09/25/2023 14:00	<a href="#">WG2137818</a>
Lead	U		0.849	2.00	1	09/25/2023 14:00	<a href="#">WG2137818</a>
Magnesium	50900		73.5	1000	1	09/25/2023 14:00	<a href="#">WG2137818</a>
Molybdenum	0.458	J	0.348	5.00	1	09/25/2023 14:00	<a href="#">WG2137818</a>
Potassium	5200		108	2000	1	09/25/2023 14:00	<a href="#">WG2137818</a>
Selenium	3.36		0.300	2.00	1	09/25/2023 14:00	<a href="#">WG2137818</a>
Sodium	23000		376	2000	1	09/25/2023 14:00	<a href="#">WG2137818</a>
Thallium	U		0.121	2.00	1	09/25/2023 14:00	<a href="#">WG2137818</a>
Lithium	0.921	J	0.695	2.00	1	09/25/2023 14:00	<a href="#">WG2137818</a>

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

Analyte	Result	Qualifier	Uncertainty	MDA	Analysis Date	Batch
	pCi/l		+ / -	pCi/l	date / time	
RADIUM-228	0.776		0.303	0.544	09/29/2023 21:09	<a href="#">WG2140277</a>
(T) Barium	97.7			30.0-143	09/29/2023 21:09	<a href="#">WG2140277</a>
(T) Yttrium	108			30.0-136	09/29/2023 21:09	<a href="#">WG2140277</a>

Radiochemistry by Method Calculation

Analyte	Result	Qualifier	Uncertainty	MDA	Analysis Date	Batch
	pCi/l		+ / -	pCi/l	date / time	
Combined Radium	0.995		0.359	0.587	09/29/2023 21:09	<a href="#">WG2137491</a>

Radiochemistry by Method SM7500Ra B M

Analyte	Result	Qualifier	Uncertainty	MDA	Analysis Date	Batch
	pCi/l		+ / -	pCi/l	date / time	
RADIUM-226	0.219	J	0.193	0.220	09/26/2023 15:47	<a href="#">WG2137491</a>
(T) Barium-133	105			30.0-143	09/26/2023 15:47	<a href="#">WG2137491</a>

1 Cp

2 Tc

3 Ss

4 Cn

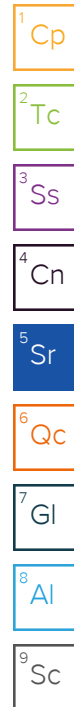
5 Sr

6 Qc

7 Gl

8 Al

9 Sc



Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Dissolved Solids	652000		13300	1	09/25/2023 10:37	<a href="#">WG2138752</a>

Wet Chemistry by Method 2320 B-2011

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
Alkalinity	217000		8450	20000	1	09/25/2023 11:06	<a href="#">WG2137677</a>
Alkalinity,Bicarbonate	217000		8450	20000	1	09/25/2023 11:06	<a href="#">WG2137677</a>
Alkalinity,Carbonate	U		8450	20000	1	09/25/2023 11:06	<a href="#">WG2137677</a>

Sample Narrative:

L1658200-03 WG2137677: Endpoint pH 4.5 Headspace

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
Chloride	80700		379	1000	1	09/24/2023 10:30	<a href="#">WG2138268</a>
Fluoride	1320		64.0	150	1	09/24/2023 10:30	<a href="#">WG2138268</a>
Sulfate	351000		5940	50000	10	09/24/2023 10:42	<a href="#">WG2138268</a>

Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
Arsenic	0.484	J	0.180	2.00	1	09/25/2023 14:03	<a href="#">WG2137818</a>
Barium	18.7		0.381	2.00	1	09/25/2023 14:03	<a href="#">WG2137818</a>
Beryllium	U		0.190	2.00	1	09/25/2023 14:03	<a href="#">WG2137818</a>
Boron	2880		193	600	20	09/26/2023 14:41	<a href="#">WG2137818</a>
Cadmium	U		0.150	1.00	1	09/25/2023 14:03	<a href="#">WG2137818</a>
Calcium	109000		93.6	1000	1	09/25/2023 14:03	<a href="#">WG2137818</a>
Chromium	U		1.24	2.00	1	09/25/2023 14:03	<a href="#">WG2137818</a>
Cobalt	0.127	J	0.0596	2.00	1	09/25/2023 14:03	<a href="#">WG2137818</a>
Lead	U		0.849	2.00	1	09/25/2023 14:03	<a href="#">WG2137818</a>
Magnesium	72700		73.5	1000	1	09/25/2023 14:03	<a href="#">WG2137818</a>
Molybdenum	2.31	J	0.348	5.00	1	09/25/2023 14:03	<a href="#">WG2137818</a>
Potassium	5230		108	2000	1	09/25/2023 14:03	<a href="#">WG2137818</a>
Selenium	2.13		0.300	2.00	1	09/25/2023 14:03	<a href="#">WG2137818</a>
Sodium	45900		376	2000	1	09/25/2023 14:03	<a href="#">WG2137818</a>
Thallium	U		0.121	2.00	1	09/25/2023 14:03	<a href="#">WG2137818</a>
Lithium	6.73		0.695	2.00	1	09/25/2023 14:03	<a href="#">WG2137818</a>

Analyte	Result	Qualifier	Uncertainty	MDA	Analysis Date	Batch
	pCi/l		+ / -	pCi/l	date / time	
RADIUM-228	0.843		0.391	0.687	10/02/2023 16:33	<a href="#">WG2140673</a>
(T) Barium	114			30.0-143	10/02/2023 16:33	<a href="#">WG2140673</a>
(T) Yttrium	89.3			30.0-136	10/02/2023 16:33	<a href="#">WG2140673</a>

Radiochemistry by Method Calculation

Analyte	Result	Qualifier	Uncertainty	MDA	Analysis Date	Batch
	pCi/l		+ / -	pCi/l	date / time	
Combined Radium	0.843		0.394	0.711	10/02/2023 16:33	<a href="#">WG2137491</a>

Radiochemistry by Method SM7500Ra B M

Analyte	Result	Qualifier	Uncertainty	MDA	Analysis Date	Batch
	pCi/l		+ / -	pCi/l	date / time	
RADIUM-226	-0.0191	<u>U</u>	0.0482	0.184	09/26/2023 15:47	<a href="#">WG2137491</a>
(T) Barium-133	98.5			30.0-143	09/26/2023 15:47	<a href="#">WG2137491</a>

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



Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Dissolved Solids	678000		10000	1	09/25/2023 09:32	<a href="#">WG2137500</a>

Wet Chemistry by Method 2320 B-2011

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
Alkalinity	227000		8450	20000	1	09/25/2023 11:11	<a href="#">WG2137677</a>
Alkalinity,Bicarbonate	227000		8450	20000	1	09/25/2023 11:11	<a href="#">WG2137677</a>
Alkalinity,Carbonate	U		8450	20000	1	09/25/2023 11:11	<a href="#">WG2137677</a>

Sample Narrative:

L1658200-05 WG2137677: Endpoint pH 4.5 Headspace

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
Chloride	43800		379	1000	1	09/24/2023 10:55	<a href="#">WG2138268</a>
Fluoride	204		64.0	150	1	09/24/2023 10:55	<a href="#">WG2138268</a>
Sulfate	229000		5940	50000	10	09/24/2023 11:08	<a href="#">WG2138268</a>

Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
Arsenic	0.397	J	0.180	2.00	1	09/25/2023 14:07	<a href="#">WG2137818</a>
Barium	46.8		0.381	2.00	1	09/25/2023 14:07	<a href="#">WG2137818</a>
Beryllium	U		0.190	2.00	1	09/25/2023 14:07	<a href="#">WG2137818</a>
Boron	893		96.3	300	10	09/26/2023 14:44	<a href="#">WG2137818</a>
Cadmium	0.292	J	0.150	1.00	1	09/25/2023 14:07	<a href="#">WG2137818</a>
Calcium	140000		93.6	1000	1	09/25/2023 14:07	<a href="#">WG2137818</a>
Chromium	U		1.24	2.00	1	09/25/2023 14:07	<a href="#">WG2137818</a>
Cobalt	1.00	J	0.0596	2.00	1	09/25/2023 14:07	<a href="#">WG2137818</a>
Lead	U		0.849	2.00	1	09/25/2023 14:07	<a href="#">WG2137818</a>
Magnesium	30500		73.5	1000	1	09/25/2023 14:07	<a href="#">WG2137818</a>
Molybdenum	3.62	J	0.348	5.00	1	09/25/2023 14:07	<a href="#">WG2137818</a>
Potassium	3820		108	2000	1	09/25/2023 14:07	<a href="#">WG2137818</a>
Selenium	13.7		0.300	2.00	1	09/25/2023 14:07	<a href="#">WG2137818</a>
Sodium	18500		376	2000	1	09/25/2023 14:07	<a href="#">WG2137818</a>
Thallium	U		0.121	2.00	1	09/25/2023 14:07	<a href="#">WG2137818</a>
Lithium	1.41	J	0.695	2.00	1	09/25/2023 14:07	<a href="#">WG2137818</a>

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

Analyte	Result	Qualifier	Uncertainty	MDA	Analysis Date	Batch
	pCi/l		+ / -	pCi/l	date / time	
RADIUM-228	0.825		0.316	0.552	10/02/2023 16:33	<a href="#">WG2140673</a>
(T) Barium	85.1			30.0-143	10/02/2023 16:33	<a href="#">WG2140673</a>
(T) Yttrium	96.0			30.0-136	10/02/2023 16:33	<a href="#">WG2140673</a>

Radiochemistry by Method Calculation

Analyte	Result	Qualifier	Uncertainty	MDA	Analysis Date	Batch
	pCi/l		+ / -	pCi/l	date / time	
Combined Radium	0.825		0.317	0.575	10/02/2023 16:33	<a href="#">WG2137491</a>

Radiochemistry by Method SM7500Ra B M

Analyte	Result	Qualifier	Uncertainty	MDA	Analysis Date	Batch
	pCi/l		+ / -	pCi/l	date / time	
RADIUM-226	-0.00700	<u>U</u>	0.0307	0.161	09/26/2023 15:47	<a href="#">WG2137491</a>
(T) Barium-133	101			30.0-143	09/26/2023 15:47	<a href="#">WG2137491</a>

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

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Dissolved Solids	546000		10000	1	09/22/2023 16:06	<a href="#">WG2137489</a>

Wet Chemistry by Method 2320 B-2011

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
Alkalinity	218000		8450	20000	1	09/25/2023 11:16	<a href="#">WG2137677</a>
Alkalinity,Bicarbonate	218000		8450	20000	1	09/25/2023 11:16	<a href="#">WG2137677</a>
Alkalinity,Carbonate	U		8450	20000	1	09/25/2023 11:16	<a href="#">WG2137677</a>

Sample Narrative:

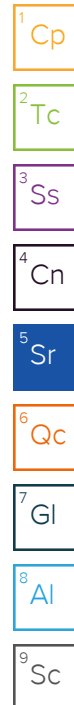
L1658200-07 WG2137677: Endpoint pH 4.5 Headspace

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
Chloride	57300		379	1000	1	09/24/2023 11:20	<a href="#">WG2138268</a>
Fluoride	220		64.0	150	1	09/24/2023 11:20	<a href="#">WG2138268</a>
Sulfate	156000		594	5000	1	09/24/2023 11:20	<a href="#">WG2138268</a>

Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
Arsenic	0.328	J	0.180	2.00	1	09/25/2023 14:21	<a href="#">WG2137818</a>
Barium	34.1		0.381	2.00	1	09/25/2023 14:21	<a href="#">WG2137818</a>
Beryllium	U		0.190	2.00	1	09/25/2023 14:21	<a href="#">WG2137818</a>
Boron	1520		96.3	300	10	09/26/2023 14:48	<a href="#">WG2137818</a>
Cadmium	U		0.150	1.00	1	09/25/2023 14:21	<a href="#">WG2137818</a>
Calcium	75900		93.6	1000	1	09/25/2023 14:21	<a href="#">WG2137818</a>
Chromium	U		1.24	2.00	1	09/25/2023 14:21	<a href="#">WG2137818</a>
Cobalt	1.09	J	0.0596	2.00	1	09/25/2023 14:21	<a href="#">WG2137818</a>
Lead	U		0.849	2.00	1	09/25/2023 14:21	<a href="#">WG2137818</a>
Magnesium	50800		73.5	1000	1	09/25/2023 14:21	<a href="#">WG2137818</a>
Molybdenum	0.398	J	0.348	5.00	1	09/25/2023 14:21	<a href="#">WG2137818</a>
Potassium	5200		108	2000	1	09/25/2023 14:21	<a href="#">WG2137818</a>
Selenium	2.26		0.300	2.00	1	09/25/2023 14:21	<a href="#">WG2137818</a>
Sodium	23000		376	2000	1	09/25/2023 14:21	<a href="#">WG2137818</a>
Thallium	U		0.121	2.00	1	09/25/2023 14:21	<a href="#">WG2137818</a>
Lithium	0.909	J	0.695	2.00	1	09/25/2023 14:21	<a href="#">WG2137818</a>



(MB) R3977878-1 09/22/23 16:06

Analyte	MB Result	MB Qualifier	MB MDL	MB RDL
Dissolved Solids	U	U	10000	10000

L1658000-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1658000-01 09/22/23 16:06 • (DUP) R3977878-3 09/22/23 16:06

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Dissolved Solids	1100000	1130000	1	2.33		5

L1658010-01 Original Sample (OS) • Duplicate (DUP)

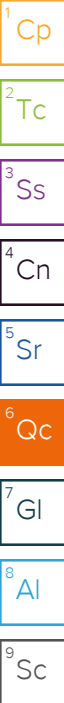
(OS) L1658010-01 09/22/23 16:06 • (DUP) R3977878-4 09/22/23 16:06

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Dissolved Solids	900000	936000	1	3.92		5

Laboratory Control Sample (LCS)

(LCS) R3977878-2 09/22/23 16:06

Analyte	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier
Dissolved Solids	8800000	8580000	97.5	77.3-123	



ZM-257-12 Blank (MB)

(MB) R3978403-1 09/25/23 09:32

Analyte	MB Result	MB Qualifier	MB MDL	MB RDL
Dissolved Solids	U		10000	10000

L1658103-06 Original Sample (OS) • Duplicate (DUP)

(OS) L1658103-06 09/25/23 09:32 • (DUP) R3978403-3 09/25/23 09:32

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Dissolved Solids	1440000	1410000	1	1.75		5

L1658199-05 Original Sample (OS) • Duplicate (DUP)

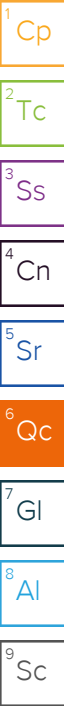
(OS) L1658199-05 09/25/23 09:32 • (DUP) R3978403-4 09/25/23 09:32

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Dissolved Solids	991000	985000	1	0.540		5

Laboratory Control Sample (LCS)

(LCS) R3978403-2 09/25/23 09:32

Analyte	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier
Dissolved Solids	8800000	8610000	97.8	77.3-123	



ZIMMER POWER PLANT, GYPSUM RECYCLE POND

ZM-257-12 Blank (MB)

(MB) R3978558-1 09/25/23 10:37

Analyte	MB Result	MB Qualifier	MB MDL	MB RDL
Dissolved Solids	U	U	10000	10000

L1658459-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1658459-01 09/25/23 10:37 • (DUP) R3978558-3 09/25/23 10:37

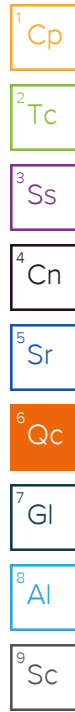
Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Dissolved Solids	1750000	1940000	1	10.5	J3	5

Laboratory Control Sample (LCS)

(LCS) R3978558-2 09/25/23 10:37

Analyte	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier
Dissolved Solids	8800000	8680000	98.6	77.3-123	

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



(MB) R3981388-1 09/29/23 21:09

Analyte	MB Result	MB Qualifier	MB Uncertainty	MB MDA
	pCi/l		+ / -	pCi/l
Radium-228	0.377		0.172	0.312
(T) Barium	111		111	
(T) Yttrium	99.5		99.5	

L1658192-08 Original Sample (OS) • Duplicate (DUP)

(OS) L1658192-08 09/29/23 21:09 • (DUP) R3981388-5 09/29/23 21:09

Analyte	Original Result	Original Uncertainty	Original MDA	DUP Result	DUP Uncertainty	DUP MDA	Dilution	DUP RPD	DUP RER	DUP Qualifier	DUP RPD Limits	DUP RER Limit
	pCi/l	+ / -	pCi/l	pCi/l	+ / -	pCi/l		%			%	
Radium-228	1.07	0.311	0.545	0.554	0.327	0.596	1	63.9	1.15	J	20	3
(T) Barium	104			107	107							
(T) Yttrium	86.3			96.0	96.0							

Laboratory Control Sample (LCS)

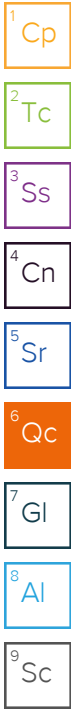
(LCS) R3981388-2 09/29/23 21:09

Analyte	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier
	pCi/l	pCi/l	%	%	
Radium-228	5.00	5.13	103	80.0-120	
(T) Barium			121		
(T) Yttrium			92.4		

L1659083-19 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1659083-19 09/29/23 21:09 • (MS) R3981388-3 09/29/23 21:09 • (MSD) R3981388-4 09/29/23 21:09

Analyte	Spike Amount	Original Result	MS Result	MSD Result	MS Rec.	MSD Rec.	Dilution	Rec. Limits	MS Qualifier	MSD Qualifier	RPD	MS RER	RPD Limits
	pCi/l	pCi/l	pCi/l	pCi/l	%	%		%			%		%
Radium-228	16.7	0.469	16.1	15.3	93.3	89.0	1	70.0-130			4.59		20
(T) Barium		98.7			104	108							
(T) Yttrium		107			87.4	99.8							



(MB) R3982620-1 10/02/23 16:33

Analyte	MB Result pCi/l	MB Qualifier	MB Uncertainty + / -	MB MDA pCi/l
Radium-228	0.655		0.191	0.329
(T) Barium	109		109	
(T) Yttrium	91.7		91.7	

L1658200-04 Original Sample (OS) • Duplicate (DUP)

(OS) L1658200-04 10/02/23 16:33 • (DUP) R3982620-5 10/02/23 16:33

Analyte	Original Result pCi/l	Original Uncertainty + / -	Original MDA pCi/l	DUP Result pCi/l	DUP Uncertainty + / -	DUP MDA pCi/l	Dilution	DUP RPD %	DUP RER	DUP Qualifier	DUP RPD Limits %	DUP RER Limit
Radium-228	0.843	0.391	0.687	-0.682	0.401	0.756	1	200	2.72	<u>U</u>	20	3
(T) Barium	114			94.7	94.7							
(T) Yttrium	89.3			86.2	86.2							

Laboratory Control Sample (LCS)

(LCS) R3982620-2 10/02/23 16:33

Analyte	Spike Amount pCi/l	LCS Result pCi/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Radium-228	5.00	4.91	98.2	80.0-120	
(T) Barium			108		
(T) Yttrium			108		

L1658218-24 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1658218-24 10/02/23 16:33 • (MS) R3982620-3 10/02/23 16:33 • (MSD) R3982620-4 10/02/23 16:33

Analyte	Spike Amount pCi/l	Original Result pCi/l	MS Result pCi/l	MSD Result pCi/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	MS RER	RPD Limits %
Radium-228	16.7	1.62	19.1	18.9	105	104	1	70.0-130			1.10		20
(T) Barium		122			112	119							
(T) Yttrium		95.1			106	100							



(MB) R3982569-1 09/25/23 19:20

Analyte	MB Result	MB Qualifier	MB Uncertainty	MB MDA
	pCi/l		+ / -	pCi/l
Radium-226	0.0295	<u>U</u>	0.0634	0.105
(T) Barium-133	72.4		72.4	

L1658192-02 Original Sample (OS) • Duplicate (DUP)

(OS) L1658192-02 09/25/23 19:20 • (DUP) R3982569-5 09/25/23 19:20

Analyte	Original Result	Original Uncertainty	Original MDA	DUP Result	DUP Uncertainty	DUP MDA	Dilution	DUP RPD	DUP RER	DUP Qualifier	DUP RPD Limits	DUP RER Limit
	pCi/l	+ / -	pCi/l	pCi/l	+ / -	pCi/l		%			%	
Radium-226	0.238	0.266	0.358	1.59	0.522	0.359	1	148	2.31		20	3
(T) Barium-133	84.2			101	101							

Laboratory Control Sample (LCS)

(LCS) R3982569-2 09/25/23 19:20

Analyte	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier
	pCi/l	pCi/l	%	%	
Radium-226	5.01	5.40	108	80.0-120	
(T) Barium-133			71.8		

L1658218-24 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1658218-24 09/25/23 19:20 • (MS) R3982569-3 09/25/23 19:20 • (MSD) R3982569-4 09/25/23 19:20

Analyte	Spike Amount	Original Result	MS Result	MSD Result	MS Rec.	MSD Rec.	Dilution	Rec. Limits	MS Qualifier	MSD Qualifier	RPD	MS RER	RPD Limits
	pCi/l	pCi/l	pCi/l	pCi/l	%	%		%			%		%
Radium-226	20.0	1.73	19.4	19.4	88.3	88.4	1	75.0-125			0.103		20
(T) Barium-133		102			92.4	86.2							

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

(MB) R3977347-2 09/25/23 08:51

Analyte	MB Result	MB Qualifier	MB MDL	MB RDL
Alkalinity	U		8450	20000
Alkalinity,Bicarbonate	U		8450	20000
Alkalinity,Carbonate	U		8450	20000

Sample Narrative:

BLANK: Endpoint pH 4.5

L1656160-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1656160-01 09/25/23 09:21 • (DUP) R3977347-3 09/25/23 09:25

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Alkalinity	120000	125000	1	3.61		20
Alkalinity,Bicarbonate	120000	125000	1	3.61		20
Alkalinity,Carbonate	U	U	1	0.000		20

Sample Narrative:

OS: Endpoint pH 4.5 Headspace

DUP: Endpoint pH 4.5

L1657189-03 Original Sample (OS) • Duplicate (DUP)

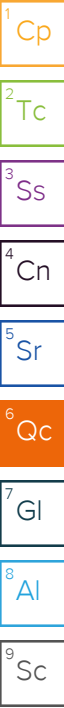
(OS) L1657189-03 09/25/23 10:59 • (DUP) R3977347-4 09/25/23 11:03

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Alkalinity	126000	125000	1	0.463		20
Alkalinity,Bicarbonate	126000	125000	1	0.463		20
Alkalinity,Carbonate	U	U	1	0.000		20

Sample Narrative:

OS: Endpoint pH 4.5 Headspace

DUP: Endpoint pH 4.5



(LCS) R3977347-1 09/25/23 08:46

Analyte	Spike Amount ug/l	LCS Result ug/l	LCS Rec. %	Rec. Limits %	<u>LCS Qualifier</u>
Alkalinity	100000	99900	99.9	90.0-110	

Sample Narrative:

LCS: Endpoint pH 4.5

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

1 Cp

(MB) R3977734-1 09/24/23 02:06

Analyte	MB Result	MB Qualifier	MB MDL	MB RDL
Chloride	U		379	1000
Fluoride	U		64.0	150
Sulfate	U		594	5000

2 Tc

3 Ss

4 Cn

L1657521-24 Original Sample (OS) • Duplicate (DUP)

(OS) L1657521-24 09/24/23 03:09 • (DUP) R3977734-3 09/24/23 03:22

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Chloride	5440	5230	1	3.80		15
Fluoride	96.1	67.5	1	35.0	J P1	15
Sulfate	8650	8610	1	0.449		15

5 Sr

6 Qc

7 Gl

L1658197-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1658197-01 09/24/23 07:08 • (DUP) R3977734-6 09/24/23 07:21

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Chloride	83100	82800	1	0.367		15
Fluoride	144	199	1	32.1	P1	15
Sulfate	79300	79500	1	0.190		15

8 Al

9 Sc

Laboratory Control Sample (LCS)

(LCS) R3977734-2 09/24/23 02:19

Analyte	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier
Chloride	40000	40200	101	80.0-120	
Fluoride	8000	8150	102	80.0-120	
Sulfate	40000	40000	99.9	80.0-120	

L1657521-24 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1657521-24 09/24/23 03:09 • (MS) R3977734-4 09/24/23 03:34 • (MSD) R3977734-5 09/24/23 03:47

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 %
Chloride	40000	5440	44800	44400	98.5	97.5	1	80.0-120			0.950	15
Fluoride	8000	96.1	8220	8260	102	102	1	80.0-120			0.506	15
Sulfate	40000	8650	47500	47400	97.0	96.9	1	80.0-120			0.0896	15

L1658197-01 Original Sample (OS) • Matrix Spike (MS)

(OS) L1658197-01 09/24/23 07:08 • (MS) R3977734-7 09/24/23 07:33

Analyte	Spike Amount ug/l	Original Result ug/l	MS Result ug/l	MS Rec. %	Dilution	Rec. Limits %	MS Qualifier
Chloride	40000	83100	106000	57.7	1	80.0-120	J6
Fluoride	8000	144	8060	98.9	1	80.0-120	
Sulfate	40000	79300	104000	60.6	1	80.0-120	J6

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

ZM-257-12 Blank (MB)

(MB) R3977402-1 09/25/23 12:57

Analyte	MB Result	MB Qualifier	MB MDL	MB RDL
	ug/l		ug/l	ug/l
Arsenic	U		0.180	2.00
Barium	0.414	U	0.381	2.00
Beryllium	U		0.190	2.00
Cadmium	U		0.150	1.00
Calcium	U		93.6	1000
Chromium	U		1.24	2.00
Cobalt	U		0.0596	2.00
Lead	U		0.849	2.00
Magnesium	U		73.5	1000
Molybdenum	U		0.348	5.00
Potassium	U		108	2000
Selenium	U		0.300	2.00
Sodium	U		376	2000
Thallium	U		0.121	2.00
Lithium	U		0.695	2.00

Method Blank (MB)

(MB) R3977815-1 09/26/23 12:56

Analyte	MB Result	MB Qualifier	MB MDL	MB RDL
	ug/l		ug/l	ug/l
Boron	U		9.63	30.0

Laboratory Control Sample (LCS)

(LCS) R3977402-2 09/25/23 13:01

Analyte	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier
	ug/l	ug/l	%	%	
Arsenic	50.0	50.0	100	80.0-120	
Barium	50.0	49.4	98.7	80.0-120	
Beryllium	50.0	48.5	97.0	80.0-120	
Cadmium	50.0	52.1	104	80.0-120	
Calcium	5000	4910	98.3	80.0-120	
Chromium	50.0	49.1	98.2	80.0-120	
Cobalt	50.0	50.0	100	80.0-120	
Lead	50.0	50.7	101	80.0-120	
Magnesium	5000	5060	101	80.0-120	
Molybdenum	50.0	49.1	98.1	80.0-120	
Potassium	5000	4980	99.7	80.0-120	

1  
Cp

2  
Tc

3  
Ss

4  
Cn

5  
Sr

6  
Qc

7  
Gl

8  
Al

9  
Sc

Laboratory Control Sample (LCS)

(LCS) R3977402-2 09/25/23 13:01

Analyte	Spike Amount ug/l	LCS Result ug/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Selenium	50.0	52.7	105	80.0-120	
Sodium	5000	5110	102	80.0-120	
Thallium	50.0	49.9	99.9	80.0-120	
Lithium	50.0	49.2	98.4	80.0-120	

Laboratory Control Sample (LCS)

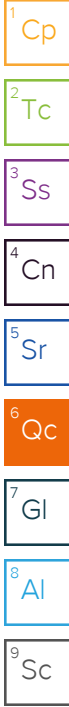
(LCS) R3977815-2 09/26/23 12:59

Analyte	Spike Amount ug/l	LCS Result ug/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Boron	50.0	51.2	102	80.0-120	

L1658192-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1658192-01 09/25/23 13:04 • (MS) R3977402-4 09/25/23 13:11 • (MSD) R3977402-5 09/25/23 13:14

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 %
Arsenic	50.0	1.06	49.7	50.3	97.2	98.5	1	75.0-125			1.27	20
Barium	50.0	19.1	66.6	68.0	94.9	97.8	1	75.0-125			2.14	20
Beryllium	50.0	U	48.0	47.4	95.9	94.7	1	75.0-125			1.26	20
Cadmium	50.0	U	51.4	50.8	103	102	1	75.0-125			1.07	20
Calcium	5000	164000	167000	168000	58.4	71.3	1	75.0-125	V	V	0.385	20
Chromium	50.0	U	46.5	47.6	93.0	95.3	1	75.0-125			2.47	20
Cobalt	50.0	1.24	48.0	48.6	93.6	94.8	1	75.0-125			1.22	20
Lead	50.0	U	50.6	50.2	101	100	1	75.0-125			0.809	20
Magnesium	5000	31400	35700	35600	86.1	83.5	1	75.0-125			0.376	20
Molybdenum	50.0	1.46	53.5	53.0	104	103	1	75.0-125			0.927	20
Potassium	5000	2590	7410	7340	96.4	95.1	1	75.0-125			0.853	20
Selenium	50.0	U	54.8	54.0	110	108	1	75.0-125			1.54	20
Sodium	5000	16100	20700	20500	92.0	88.9	1	75.0-125			0.757	20
Thallium	50.0	0.207	49.6	49.3	98.8	98.2	1	75.0-125			0.674	20
Lithium	50.0	5.57	53.7	52.3	96.3	93.4	1	75.0-125			2.74	20



(OS) L1658192-01 09/26/23 13:02 • (MS) R3977815-4 09/26/23 13:09 • (MSD) R3977815-5 09/26/23 13:12

Analyte	Spike Amount ug/l	Original Result ug/l	MS Result ug/l	MSD Result ug/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	<u>MS Qualifier</u>	<u>MSD Qualifier</u>	RPD %	RPD Limits %
Boron	50.0	56.0	112	111	112	109	1	75.0-125			1.19	20

<sup>1</sup> Cp

<sup>2</sup> Tc

<sup>3</sup> Ss

<sup>4</sup> Cn

<sup>5</sup> Sr

<sup>6</sup> Qc

<sup>7</sup> Gl

<sup>8</sup> Al

<sup>9</sup> Sc



1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

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

MDA	Minimum Detectable Activity.
MDL	Method Detection Limit.
RDL	Reported Detection Limit.
Rec.	Recovery.
RER	Replicate Error Ratio.
RPD	Relative Percent Difference.
SDG	Sample Delivery Group.
U	Not detected at the Reporting Limit (or MDL where applicable).
(T)	Tracer - A radioisotope of known concentration added to a solution of chemically equivalent radioisotopes at a known concentration to assist in monitoring the yield of the chemical separation.
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.

## Qualifier Description

J	The identification of the analyte is acceptable; the reported value is an estimate.
J3	The associated batch QC was outside the established quality control range for precision.
J6	The sample matrix interfered with the ability to make any accurate determination; spike value is low.
P1	RPD value not applicable for sample concentrations less than 5 times the reporting limit.
U	Below Detectable Limits: Indicates that the analyte was not detected.
V	The sample concentration is too high to evaluate accurate spike recoveries.

# ACCREDITATIONS & LOCATIONS

ANNUAL GROUNDWATER MONITORING AND CORRECTIVE ACTION REPORT - QUARTER 3, 2023

ZIMMER POWER PLANT, GYPSUM RECYCLE POND

ZIM-257-124

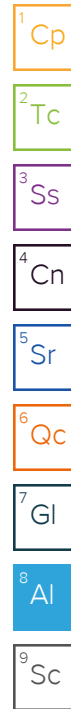
Pace Analytical National 12065 Lebanon Rd Mount Juliet, TN 37122

Alabama	40660	Nebraska	NE-OS-15-05
Alaska	17-026	Nevada	TN000032021-1
Arizona	AZ0612	New Hampshire	2975
Arkansas	88-0469	New Jersey-NELAP	TN002
California	2932	New Mexico <sup>1</sup>	TN00003
Colorado	TN00003	New York	11742
Connecticut	PH-0197	North Carolina	Env375
Florida	E87487	North Carolina <sup>1</sup>	DW21704
Georgia	NELAP	North Carolina <sup>3</sup>	41
Georgia <sup>1</sup>	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 <sup>1,6</sup>	KY90010	South Carolina	84004002
Kentucky <sup>2</sup>	16	South Dakota	n/a
Louisiana	AI30792	Tennessee <sup>1,4</sup>	2006
Louisiana	LA018	Texas	T104704245-20-18
Maine	TN00003	Texas <sup>5</sup>	LAB0152
Maryland	324	Utah	TN000032021-11
Massachusetts	M-TN003	Vermont	VT2006
Michigan	9958	Virginia	110033
Minnesota	047-999-395	Washington	C847
Mississippi	TN00003	West Virginia	233
Missouri	340	Wisconsin	998093910
Montana	CERT0086	Wyoming	A2LA
A2LA – ISO 17025	1461.01	AIHA-LAP,LLC EMLAP	100789
A2LA – ISO 17025 <sup>5</sup>	1461.02	DOD	1461.01
Canada	1461.01	USDA	P330-15-00234
EPA-Crypto	TN00003		

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

\* 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 Analytical.



APPENDIX A.  
ANNUAL GROUNDWATER MONITORING AND CORRECTIVE ACTION REPORT - QUARTER 3, 2023

ZIMMER POWER PLANT GYPSUM RECYCLE POND

**S&ME - Cincinnati**  
862 E. Crescentville Rd.  
Cincinnati, OH 45246

Billing Information:  
**Accounts Payable**  
smeinc\_invoice@concur solutions.com

Pres Chk  CR  
Analysis / Container / Preservative  
Chain of Custody Page \_\_\_ of \_\_\_

Report to:  
**Vince Epps**  
Email To: **vepps@smcinc.com**

Project Description: **Zimmer Station**  
City/State Collected: **Moscow, OH**  
Please Circle: PT MT CT ET

Phone: **513-771-8471**  
Client Project #: **7217-17-001D**  
Lab Project #: **LITEGNTN-ZIMMER**

Collected by (print):  
Site/Facility ID #: **WHZ Unit 124 (Gyps. Pond)**  
P.O. #

Collected by (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 \_\_\_ X  
Sample ID Comp/Grab Matrix\* Depth Date Time Cntrs

Sample ID	Comp/Grab	Matrix*	Depth	Date	Time	Cntrs
MW-07A	Grab	GW	NA	9/20	15:25	5
MW-10	Grab	GW	NA	9/20	14:15	5
MW-11	Grab	GW	NA	9/20	15:35	5
DUP-1	Grab	GW	NA	9/20	-	3
DUP-2	Grab	GW	NA	9/20	-	3

Analysis / Container / Preservative	Chain of Custody
Alk Bi/Ca, Cl, F, SO4 125mlHDPE-NonPres	 12065 Lebanon Rd Mount Juliet, TN 37122 Phone: 615-758-5858 Aik: 800-767-5859 Submitting a sample via this chain of custody constitutes acknowledgment and acceptance of the Pace Terms and Conditions found at: <a href="https://info.pacelabs.com/hubfs/pas-standard-terms.pdf">https://info.pacelabs.com/hubfs/pas-standard-terms.pdf</a> SDG #: <b>U658200</b> <b>A233</b> Acctnum: <b>LITEGNTN</b> Template: Prelogin: PM: <b>134</b> PB: Shipped Via: Remarks: Sample # (lab only) 01/02 03/04 05/16 07/02/05/06/07/08/09/10/11/12/13
CCR Metals+B, Li, K, Na, Mg 250mlHDPE F	
RA-226/228COMB 1L-HPE-HNO3	
TDS 250mlHDPE-NonPres	

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

Remarks:  
**Log Rad to same SDG as different dash #s as EX 10 day TAT**  
**CCR Metals: As, Ba, Be, B, Cd, Ca, Cr, Co, K, Pb, Li, Mg, Mo, Na, S**  
Samples returned via:  
\_\_\_ UPS \_\_\_ FedEx \_\_\_ Courier

PH-10BDH4321 TRC-235/257  
CR6-20221V  
pH \_\_\_\_\_ Temp \_\_\_\_\_  
Other \_\_\_\_\_

Sample Receipt Checklist:  
COC Seal Present/Intact: NP \_\_\_ N  
COC Signed/Accurate: \_\_\_ N  
Bottles arrive intact: \_\_\_ N  
Correct bottles used: \_\_\_ N  
Sufficient volume sent: \_\_\_ N  
If Applicable  
VOA Zero Headpace: \_\_\_ N  
Preservation Correct/Checked: \_\_\_ N  
RAD Screen <0.5 mR/hr: \_\_\_ N

Relinquished by: (Signature) **Cody Flynn** Date: **9/20/23** Time: **18:00**  
Received by: (Signature) **[Signature]** Trip Blank Received: Yes (No) **[Signature]**  
Temp: °C Bottles Received: **17**  
If preservation required by Login: Date/Time  
Relinquished by: (Signature) Date: Time: Received for lab by: (Signature) Date: Time: Hold: Condition: **OK / OK**

APPENDIX A.  
 ANNUAL GROUNDWATER MONITORING AND CORRECTIVE ACTION REPORT - QUARTER 3, 2023  
 ZIMMER POWER PLANT, GYPSUM RECYCLE POND  
 ZIM-257-124

Tracking Numbers		Temperature
7019 S08S0436		2.8
0803		0.9
2447		1.5
2458		2.3
2425		1.8
6043 4303 133		1.5

9/21/23 - NCF L1658200 LITENGTIN

R5

Time estimate: oh

Time spent: oh

Members

- MS Matthew Shacklock (responsible)
- MB Mark Beasley

- Login Clarification needed
- Chain of custody is incomplete
- Please specify Metals requested
- Please specify TCLP requested
- Received additional samples not listed on COC
- Sample IDs on containers do not match IDs on COC
- Client did not "X" analysis
- Chain of Custody is missing
- If no COC: Received by: \_\_\_\_\_
- If no COC: Date/Time: \_\_\_\_\_
- If no COC: Temp./Cont.Rec./pH: \_\_\_\_\_
- If no COC: Carrier: \_\_\_\_\_
- If no COC: Tracking #: \_\_\_\_\_
- Client informed by call
- Client informed by Email
- Client informed by Voicemail
- Date/Time: 9/22/23 \_\_\_\_\_
- PM initials: MB \_\_\_\_\_
- Client Contact: \_\_\_\_\_

Comments

Matthew Shacklock 21 September 2023 4:26 PM

didn't receive TDS bottles for MW-07A and MW-10

Dup-2 on two different chains only received 1 set. Logged to the chain that was Xed for analysis

Mark Beasley 22 September 2023 8:51 AM

Run TDS from anions container  
Disregard Dup-2

Matthew Shacklock 22 September 2023 9:50 AM

Done



## LOW FLOW GROUNDWATER SAMPLING FORM

Project Name:	Zimmer Station	Purge Date:	September 18, 2023
Project Location:	Moscow, Ohio	Purge Time:	50 Minutes
Project Number:	7217-17-001D	Sample Date:	September 18, 2023
Source Well:	MW-01	Sample Time:	12:15
Locked?:	Yes	Air Temp:	
Sampled By:	JEB/EF		
Weather:	Sunny; 75		

Water Level & Well Data			
Measuring Point:	Top of Casing		
Depth to Water:	53.89	ft-TOC	
Total Well Depth:	86.40	ft-TOC	
Height of Water Column:	32.51	feet	
Screen Length:	20	feet	Stickup: ft-GRD

Well Volume		
Well Diameter	2	inch
Water Volume	5.3	Gal
3 * Well Volume	15.92	Gal
5 * Well Volume	26.53	Gal

Well Purging Information					
Purge Method:	Bladder Pump	Start Time:	11:25	End Time:	12:15
(If Used)	Bladder Pump Control Settings:	On (sec):	Off (sec):	Pressure:	psi
Pump Intake Depth from Top of Casing:		ft-TOC			
Water Column Above Pump Intake:		feet		Flow Through Cell Vol: 200 mL	
DTW-TOC at 25% Drawdown of WC Above Pump:		ft-TOC			
Final Volume Purged:		1.3	Gallons		
Final Volume Purge Rate:		100	mL/min		
Well Purged Dry?:		(Yes/No)			
<b>Comments:</b> Used YSI ProQuattro - B22672B 2100P Turbidimeter - B22918B					

**Field Parameters (Taken at time intervals ≥ 5 minutes and purge volumes ≥ 1 flow-through cell volume)**

Time	Volume Purged (gal)	Flow Rate (mL/min)	Depth to Water (ft)	Temp (°C)	pH (s.u.)	Spec. Cond. (mS/cm)	Dissolved Oxygen (mg/L)	ORP* (mV)	Turbidity (NTU)	Comment	
11:25	0.0	---	---	---	---	---	---	---	---	Start Purging	
11:30	0.1	100	53.88	17.5	7.0	1.064	10.8	201	2.42	Clear, no odor	
11:35	0.3	100	53.88	18.4	7.0	1.073	5.9	254	1.78	Clear, no odor	
11:40	0.4	100	53.88	18.6	7.0	1.076	5.3	272	1.21	Clear, no odor	
11:45	0.5	100	53.88	18.5	7.0	1.078	5.4	276	0.67	Clear, no odor	
11:50	0.7	100	53.88	18.8	7.0	1.074	5.1	280	0.57	Clear, no odor	
11:55	0.8	100	53.88	19.0	7.0	1.077	4.9	283	0.65	Clear, no odor	
12:00	0.9	100	53.88	19.4	7.0	1.077	4.8	284	0.39	Clear, no odor	
12:05	1.1	100	53.88	19.6	7.0	1.081	4.8	284	0.47	Clear, no odor	
12:15	1.3	100	53.88	19.6	7.0	1.082	4.8	284	0.45	Clear, no odor	
<b>Final:</b>	12:15	1.3	100	53.88	19.6	7.0	1.082	4.8	284	0.5	End of Purging

Sample Method: Bladder Pump      Sample Start Time: 12:15      Sample End Time: 13:15

Analytical Data							
Method	Qty	Container	Preservative	Method	Qty	Container	Preservative

<b>Name</b>	<b>Signature</b>	<b>Date</b>

(1) \_\_\_\_\_

Notes: \_\_\_\_\_



LOW FLOW GROUNDWATER SAMPLING FORM

Project Name:	Zimmer Station	Purge Date:	September 19, 2023
Project Location:	Moscow, Ohio	Purge Time:	45 Minutes
Project Number:	7217-17-001D	Sample Date:	September 19, 2023
Source Well:	MW-03S	Sample Time:	10:10
Locked?:	Yes	Air Temp:	78F
Sampled By:	JEB/EF		
Weather:	Sunny; 65		

Water Level & Well Data			
Measuring Point:		Top of Casing	
Depth to Water:	54.57	ft-TOC	
Total Well Depth:	68.60	ft-TOC	
Height of Water Column:	14.03	feet	
Screen Length:	20	feet	Stickup:
			ft-GRD

Well Volume		
Well Diameter	2	inch
Water Volume	2.3	Gal
3 * Well Volume	6.87	Gal
5 * Well Volume	11.45	Gal

Well Purging Information							
Purge Method:		Bladder Pump		Start Time:	9:25	End Time:	10:10
(If Used)	Bladder Pump Control Settings:	On (sec):	10	Off (sec):	4	Pressure:	psi
Pump Intake Depth from Top of Casing:				ft-TOC			
Water Column Above Pump Intake:				feet		Flow Through Cell Vol:	
DTW-TOC at 25% Drawdown of WC Above Pump:				ft-TOC		200 mL	
Final Volume Purged:				1.2		Gallons	
Final Volume Purge Rate:				100		mL/min	
Well Purged Dry?:				(Yes/No)			
				Comments: Used YSI ProQuattro - B22672B 2100P Turbidimeter - B22918B			

Field Parameters (Taken at time intervals ≥ 5 minutes and purge volumes ≥ 1 flow-through cell volume)

Time	Volume Purged (gal)	Flow Rate (mL/min)	Depth to Water (ft)	Temp (°C)	pH (s.u.)	Spec. Cond. (mS/cm)	Dissolved Oxygen (mg/L)	ORP* (mV)	Turbidity (NTU)	Comment
09:25	0.0	---	---	---	---	---	---	---	---	Start Purging
09:30	0.1	100	54.64	17.8	7.0	1.488	2.3	284	1.31	Clear, no odor
09:35	0.3	100	54.64	17.8	7.2	0.976	8.1	285	0.89	Clear, no odor
09:40	0.4	100	54.64	17.8	7.0	1.669	4.9	284	0.70	Clear, no odor
09:45	0.5	100	54.64	17.8	7.0	1.666	3.4	278	0.96	Clear, no odor
09:50	0.7	100	54.64	17.9	7.0	1.662	2.4	271	1.09	Clear, no odor
09:55	0.8	100	54.64	18.3	7.0	1.661	1.6	261	1.02	Clear, no odor
10:00	0.9	100	54.64	18.8	7.0	1.664	1.5	258	0.82	Clear, no odor
10:05	1.1	100	54.64	19.1	7.0	1.666	1.3	253	1.40	Clear, no odor
10:10	1.2	100	54.64	18.7	7.0	1.667	1.2	250	1.18	Clear, no odor

<b>Final:</b>	10:10	1.2	100	54.64	18.7	7.0	1.667	1.2	250	1.2	End of Purging
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Sample Method: Bladder Pump      Sample Start Time: 10:10      Sample End Time: \_\_\_\_\_

Analytical Data

Method	Qty	Container	Preservative	Method	Qty	Container	Preservative

Name: \_\_\_\_\_ Signature: \_\_\_\_\_ Date: \_\_\_\_\_

(1) \_\_\_\_\_

Notes:







## LOW FLOW GROUNDWATER SAMPLING FORM

Project Name:	Zimmer Station	Purge Date:	September 20, 2023
Project Location:	Moscow, Ohio	Purge Time:	40 Minutes
Project Number:	7217-17-001D	Sample Date:	September 20, 2023
Source Well:	MW-08	Sample Time:	12:40
Locked?:	Yes	Air Temp:	73F
Sampled By:	Elisa Flynn		
Weather:	Sunny		

**Water Level & Well Data**

Measuring Point:		Top of Casing	
Depth to Water:	55.10	ft-TOC	
Total Well Depth:	95.60	ft-TOC	
Height of Water Column:	40.50	feet	
Screen Length:	20	feet	Stickup:
			ft-GRD

Well Volume		
Well Diameter	2	inch
Water Volume	6.6	Gal
3 * Well Volume	19.83	Gal
5 * Well Volume	33.05	Gal

**Well Purging Information**

Purge Method:		Bladder Pump		Start Time:	11:55	End Time:	12:35
(If Used)	Bladder Pump Control Settings:	On (sec):		Off (sec):		Pressure:	
							psi
Pump Intake Depth from Top of Casing:				ft-TOC			
Water Column Above Pump Intake:				feet		Flow Through Cell Vol:	
DTW-TOC at 25% Drawdown of WC Above Pump:				ft-TOC		200 mL	
Final Volume Purged:				1.1		Gallons	
Final Volume Purge Rate:				100		mL/min	
Well Purged Dry?:				No		(Yes/No)	
<b>Comments:</b> Used YSI ProQuattro - B22672B 2100P Turbidimeter - B22918B							

**Field Parameters (Taken at time intervals ≥ 5 minutes and purge volumes ≥ 1 flow-through cell volume)**

Time	Volume Purged (gal)	Flow Rate (mL/min)	Depth to Water (ft)	Temp (°C)	pH (s.u.)	Spec. Cond. (mS/cm)	Dissolved Oxygen (mg/L)	ORP* (mV)	Turbidity (NTU)	Comment	
11:55	0.0	---	---	---	---	---	---	---	---	Start Purging	
12:00	0.1	100	55.10	15.3	6.9	0.745	6.4	18	2.47	Clear, odorless	
12:05	0.3	100	55.10	15.5	6.9	0.747	6.8	32	1.30	Clear, odorless	
12:10	0.4	100	55.10	15.2	6.9	0.748	7.2	77	1.08	Clear, odorless	
12:15	0.5	100	55.10	16.0	7.0	0.744	5.9	123	0.51	Clear, odorless	
12:20	0.7	100	55.10	16.6	7.0	0.747	6.5	139	1.27	Clear, odorless	
12:25	0.8	100	55.10	16.8	7.0	0.749	6.6	166	0.78	Clear, odorless	
12:30	0.9	100	55.10	16.5	7.0	0.748	6.6	194	0.70	Clear, odorless	
12:35	1.1	100	55.10	15.6	7.0	0.747	6.7	222	1.67	Clear, odorless	
Final:	12:35	1.1	100	55.10	15.6	7.0	0.747	6.7	222	1.7	End of Purging

Sample Method: Bladder Pump      Sample Start Time: 12:40      Sample End Time: 13:10

**Analytical Data**

Method	Qty	Container	Preservative	Method	Qty	Container	Preservative

Name	Signature	Date
(1)	_____	_____

Notes:



## LOW FLOW GROUNDWATER SAMPLING FORM

Project Name:	Zimmer Station	Purge Date:	September 19, 2023
Project Location:	Moscow, Ohio	Purge Time:	50 Minutes
Project Number:	7217-17-001D	Sample Date:	September 19, 2023
Source Well:	MW-09	Sample Time:	13:15
Locked?:	Yes	Weather:	Sunny; 75
Sampled By:	JEB/EF	Air Temp:	

**Water Level & Well Data**

Measuring Point:		Top of Casing	
Depth to Water:	53.95	ft-TOC	
Total Well Depth:	93.50	ft-TOC	
Height of Water Column:	39.55	feet	
Screen Length:	20	feet	Stickup:
			ft-GRD

Well Volume		
Well Diameter	2	inch
Water Volume	6.5	Gal
3 * Well Volume	19.36	Gal
5 * Well Volume	32.27	Gal

**Well Purging Information**

Purge Method:	Bladder Pump	Start Time:	12:20	End Time:	13:10
(If Used) Bladder Pump Control Settings:	On (sec):	Off (sec):		Pressure:	psi
Pump Intake Depth from Top of Casing:		ft-TOC			
Water Column Above Pump Intake:		feet	Flow Through Cell Vol:	200	mL
DTW-TOC at 25% Drawdown of WC Above Pump:		ft-TOC	<b>Comments:</b>		
Final Volume Purged:	1.0	Gallons	Used YSI ProQuattro - B22672B		
Final Volume Purge Rate:	75	mL/min	2100P Turbidimeter - B22918B		
Well Purged Dry?:		(Yes/No)			

**Field Parameters (Taken at time intervals ≥ 5 minutes and purge volumes ≥ 1 flow-through cell volume)**

Time	Volume Purged (gal)	Flow Rate (mL/min)	Depth to Water (ft)	Temp (°C)	pH (s.u.)	Spec. Cond. (mS/cm)	Dissolved Oxygen (mg/L)	ORP* (mV)	Turbidity (NTU)	Comment	
12:20	0.0	---	---	---	---	---	---	---	---	Start Purging	
12:25	0.1	75	53.85	21.5	7.3	1.220	5.7	277	1.89	Clear, no odor	
12:30	0.2	75	53.85	22.2	7.2	1.240	5.6	277	2.16	Clear, no odor	
12:35	0.3	75	53.85	22.3	7.2	1.257	5.2	278	1.43	Clear, no odor	
12:40	0.4	75	53.85	22.3	7.2	1.283	5.7	279	1.36	Clear, no odor	
12:45	0.5	75	53.85	22.3	7.2	1.306	5.8	279	0.81	Clear, no odor	
12:50	0.6	75	53.85	22.1	7.2	1.331	5.6	282	1.28	Clear, no odor	
12:55	0.7	75	53.85	21.8	7.1	1.350	4.4	280	1.50	Clear, no odor	
13:00	0.8	75	53.85	21.4	7.0	1.364	2.9	228	2.00	Clear, no odor	
13:05	0.9	75	53.85	21.1	7.0	1.354	2.0	115	3.23	Clear, no odor	
13:10	1.0	75	53.85	22.9	7.0	1.333	2.1	84	3.30	Clear, no odor	
Final:	13:10	1.0	75	53.85	22.9	7.0	1.333	2.1	84	3.3	End of Purging

Sample Method: Bladder Pump      Sample Start Time: 13:15      Sample End Time:  

**Analytical Data**

Method	Qty	Container	Preservative	Method	Qty	Container	Preservative

Name	Signature	Date
(1) _____	_____	_____

**Notes:** Collected sample a little early due to spreadsheet formatting

**LOW FLOW GROUNDWATER SAMPLING FORM**



Project Name:	Zimmer Station	Purge Date:	
Project Location:	Moscow, Ohio	Purge Time:	25 Minutes
Project Number:	7217-17-001D	Sample Date:	September 20, 2023
Source Well:	MW-10	Sample Time:	14:15
Locked?:	Yes	Air Temp:	81F
Sampled By:	Elisa Flynn		
Weather:	Sunny		

**Water Level & Well Data**

Measuring Point:	Top of Casing		
Depth to Water:	55.70	ft	ft-TOC
Total Well Depth:	63.68	ft	ft-TOC
Height of Water Column:	7.98	feet	
Screen Length:	20	feet	Stickup: ft-GRD

Well Volume		
Well Diameter	2	inch
Water Volume	1.3	Gal
3 * Well Volume	3.91	Gal
5 * Well Volume	6.51	Gal

**Well Purging Information**

Purge Method:	Bladder Pump	Start Time:	13:45	End Time:	14:10
(If Used)	Bladder Pump Control Settings:	On (sec):		Off (sec):	
		Pressure:			psi
Pump Intake Depth from Top of Casing:			ft-TOC		
Water Column Above Pump Intake:			feet	Flow Through Cell Vol:	200 mL
DTW-TOC at 25% Drawdown of WC Above Pump:			ft-TOC		
Final Volume Purged:	0.7	Gallons	<b>Comments:</b>		
Final Volume Purge Rate:	100	mL/min	Used YSI ProQuattro - B22672B		
Well Purged Dry?:		(Yes/No)	2100P Turbidimeter - B22918B		

**Field Parameters (Taken at time intervals ≥ 5 minutes and purge volumes ≥ 1 flow-through cell volume)**

Time	Volume Purged (gal)	Flow Rate (mL/min)	Depth to Water (ft)	Temp (°C)	pH (s.u.)	Spec. Cond. (mS/cm)	Dissolved Oxygen (mg/L)	ORP* (mV)	Turbidity (NTU)	Comment	
13:45	0.0	---	---	---	---	---	---	---	---	Start Purging	
13:50	0.1	100	55.95	18.2	7.0	1.314	0.3	217	8.83	Clear, odorless	
13:55	0.3	100	55.95	17.6	7.0	1.316	0.3	214	6.29	Clear, odorless	
14:00	0.4	100	55.95	18.3	7.0	1.298	0.3	210	4.81	Clear, odorless	
14:05	0.5	100	55.95	20.6	7.0	1.295	0.4	205	3.13	Clear, odorless	
14:10	0.7	100	55.95	19.3	7.0	1.312	0.4	204	2.50	Clear, odorless	
<b>Final:</b>	14:10	0.7	100	55.95	19.3	7.0	1.312	0.4	204	2.5	End of Purging

Sample Method: Bladder Pump      Sample Start Time: 14:15      Sample End Time: 15:05

**Analytical Data**

Method	Qty	Container	Preservative	Method	Qty	Container	Preservative

Name	Signature	Date
(1)		

Notes:



## LOW FLOW GROUNDWATER SAMPLING FORM

Project Name:	Zimmer Station	Purge Date:	September 20, 2023
Project Location:	Moscow, Ohio	Purge Time:	20 Minutes
Project Number:	7217-17-001D	Sample Date:	September 20, 2023
Source Well:	MW-11	Sample Time:	15:35
Locked?:	Yes	Air Temp:	84F
Sampled By:	CJH & AKL		
Weather:	Sunny		

**Water Level & Well Data**

Measuring Point:		Top of Casing	
Depth to Water:	52.50	ft-TOC	
Total Well Depth:	64.31	ft-TOC	
Height of Water Column:	11.81	feet	
Screen Length:	20	feet	Stickup:
			ft-GRD

Well Volume		
Well Diameter	2	inch
Water Volume	1.9	Gal
3 * Well Volume	5.78	Gal
5 * Well Volume	9.64	Gal

**Well Purging Information**

Purge Method:	Bladder Pump	Start Time:	15:10	End Time:	15:30
(If Used) Bladder Pump Control Settings:	On (sec):	Off (sec):		Pressure:	psi
Pump Intake Depth from Top of Casing:		ft-TOC			
Water Column Above Pump Intake:		feet	Flow Through Cell Vol:	200	mL
DTW-TOC at 25% Drawdown of WC Above Pump:		ft-TOC	<b>Comments:</b>		
Final Volume Purged:	1.3	Gallons	Duplicate sample collected (DUP-2)		
Final Volume Purge Rate:	250	mL/min			
Well Purged Dry?:		(Yes/No)			

**Field Parameters (Taken at time intervals ≥ 5 minutes and purge volumes ≥ 1 flow-through cell volume)**

Time	Volume Purged (gal)	Flow Rate (mL/min)	Depth to Water (ft)	Temp (°C)	pH (s.u.)	Spec. Cond. (mS/cm)	Dissolved Oxygen (mg/L)	ORP* (mV)	Turbidity (NTU)	Comment	
15:10	0.0	---	---	---	---	---	---	---	---	Start Purging	
15:15	0.3	250	52.41	15.9	7.0	1.009	0.5	40	5.18	Clear, no odor	
15:20	0.7	250	52.42	15.6	7.0	1.015	0.0	39	2.67	Clear, no odor	
15:25	1.0	250	52.40	16.3	7.0	1.011	-0.1	38	2.67	Clear, no odor	
15:30	1.3	250	52.57	15.5	7.0	1.003	0.0	39	0.51	Clear, no odor	
<b>Final:</b>	15:30	1.3	250	52.57	15.5	7.0	1.003	0.0	39	0.5	End of Purging

Sample Method: Bladder Pump      Sample Start Time: 15:35      Sample End Time: 15:50

**Analytical Data**

Method	Qty	Container	Preservative	Method	Qty	Container	Preservative

Name \_\_\_\_\_ Signature \_\_\_\_\_ Date

(1) \_\_\_\_\_

Notes:



## LOW FLOW GROUNDWATER SAMPLING FORM

Project Name:	Zimmer Station	Purge Date:	September 20, 2023
Project Location:	Moscow, Ohio	Purge Time:	20 Minutes
Project Number:	7217-17-001D	Sample Date:	September 20, 2023
Source Well:	MW-12	Sample Time:	9:50
Locked?:	Yes	Air Temp:	60F
Sampled By:	Elisa Flynn		
Weather:	Sunny		

**Water Level & Well Data**

Measuring Point:		Top of Casing	
Depth to Water:	54.52	ft-TOC	
Total Well Depth:	62.92	ft-TOC	
Height of Water Column:	8.40	feet	
Screen Length:	20	feet	Stickup:
			ft-GRD

Well Volume		
Well Diameter	2	inch
Water Volume	1.4	Gal
3 * Well Volume	4.11	Gal
5 * Well Volume	6.85	Gal

**Well Purging Information**

Purge Method:	Bladder Pump	Start Time:	9:25	End Time:	9:45
(If Used) Bladder Pump Control Settings:	On (sec):	Off (sec):		Pressure:	psi
Pump Intake Depth from Top of Casing:		ft-TOC			
Water Column Above Pump Intake:		feet	Flow Through Cell Vol:	200	mL
DTW-TOC at 25% Drawdown of WC Above Pump:		ft-TOC	<b>Comments:</b>		
Final Volume Purged:	0.3	Gallons	Used YSI ProQuattro - B22672B		
Final Volume Purge Rate:	65	mL/min	2100P Turbidimeter - B22918B		
Well Purged Dry?:		(Yes/No)			

**Field Parameters (Taken at time intervals ≥ 5 minutes and purge volumes ≥ 1 flow-through cell volume)**

Time	Volume Purged (gal)	Flow Rate (mL/min)	Depth to Water (ft)	Temp (°C)	pH (s.u.)	Spec. Cond. (mS/cm)	Dissolved Oxygen (mg/L)	ORP* (mV)	Turbidity (NTU)	Comment	
09:25	0.0	---	---	---	---	---	---	---	---	Start Purging	
09:30	0.1	65	54.52	16.0	6.8	0.824	7.4	311	1.76	Clear, odorless	
09:35	0.2	65	54.52	16.2	6.9	0.827	7.4	314	1.29	Clear, odorless	
09:40	0.3	65	54.52	16.2	6.9	0.827	7.5	316	0.80	Clear, odorless	
09:45	0.3	65	54.52	16.4	6.9	0.828	7.3	317	1.32	Clear, odorless	
<b>Final:</b>	09:45	0.3	65	54.52	16.4	6.9	0.828	7.3	317	1.3	End of Purging

Sample Method: Bladder Pump      Sample Start Time: 09:50      Sample End Time: 10:26

**Analytical Data**

Method	Qty	Container	Preservative	Method	Qty	Container	Preservative

Name	Signature	Date
(1) _____	_____	_____

Notes:



## LOW FLOW GROUNDWATER SAMPLING FORM

Project Name:	Zimmer Station	Purge Date:	September 19, 2023
Project Location:	Moscow, Ohio	Purge Time:	45 Minutes
Project Number:	7217-17-001D	Sample Date:	September 19, 2023
Source Well:	MW-13	Sample Time:	15:30
Locked?:	Yes	Air Temp:	
Sampled By:	JEB/EF		
Weather:	Sunny; 75		

**Water Level & Well Data**

Measuring Point:		Top of Casing	
Depth to Water:	46.57	ft-TOC	
Total Well Depth:	54.31	ft-TOC	
Height of Water Column:	7.74	feet	
Screen Length:	20	feet	Stickup:
			ft-GRD

Well Volume		
Well Diameter	2	inch
Water Volume	1.3	Gal
3 * Well Volume	3.79	Gal
5 * Well Volume	6.32	Gal

**Well Purging Information**

Purge Method:		Bladder Pump		Start Time:	14:40	End Time:	15:25
(If Used)	Bladder Pump Control Settings:	On (sec):		Off (sec):		Pressure:	
							psi
Pump Intake Depth from Top of Casing:				ft-TOC			
Water Column Above Pump Intake:				feet		Flow Through Cell Vol:	
DTW-TOC at 25% Drawdown of WC Above Pump:				ft-TOC		200 mL	
Final Volume Purged:				1.2		Gallons	
Final Volume Purge Rate:				100		mL/min	
Well Purged Dry?:				(Yes/No)			
				Used YSI ProQuattro - B22672B 2100P Turbidimeter - B22918B			

**Field Parameters (Taken at time intervals ≥ 5 minutes and purge volumes ≥ 1 flow-through cell volume)**

Time	Volume Purged (gal)	Flow Rate (mL/min)	Depth to Water (ft)	Temp (°C)	pH (s.u.)	Spec. Cond. (mS/cm)	Dissolved Oxygen (mg/L)	ORP* (mV)	Turbidity (NTU)	Comment	
14:40	0.0	---	---	---	---	---	---	---	---	Start Purging	
14:45	0.1	100	43.57	20.6	6.9	0.862	2.9	122	127	clear, no odor	
14:50	0.3	100	43.49	17.3	6.9	0.828	0.4	89	36.7	clear, no odor	
14:55	0.4	100	43.49	17.3	6.9	0.825	0.2	76	19.7	clear, no odor	
15:00	0.5	100	43.49	17.2	6.9	0.822	0.2	55	0.91	clear, no odor	
15:05	0.7	100	43.49	17.1	7.0	0.823	1.2	46	2.01	clear, no odor	
15:10	0.8	100	43.49	17.1	7.0	0.823	2.5	41	1.28	clear, no odor	
15:15	0.9	100	43.49	16.9	7.0	0.822	2.4	38	1.01	clear, no odor	
15:20	1.1	100	43.49	16.9	7.0	0.823	2.5	37	1.51	clear, no odor	
15:25	1.2	100	43.49	16.9	7.0	0.822	2.5	36	1.34	clear, no odor	
Final:	15:25	1.2	100	43.49	16.9	7.0	0.822	2.5	36	1.3	End of Purging

Sample Method: Bladder Pump      Sample Start Time: 15:30      Sample End Time:  

**Analytical Data**

Method	Qty	Container	Preservative	Method	Qty	Container	Preservative

Name	Signature	Date
(1) _____	_____	_____

Notes:



## LOW FLOW GROUNDWATER SAMPLING FORM

Project Name:	Zimmer Station	Purge Date:	September 19, 2023
Project Location:	Moscow, Ohio	Purge Time:	30 Minutes
Project Number:	7217-17-001D	Sample Date:	September 19, 2023
Source Well:	MW-14	Sample Time:	16:40
Locked?:	Yes	Weather:	Sunny; 75
Sampled By:	JEB/EF	Air Temp:	

**Water Level & Well Data**

Measuring Point:		Top of Casing	
Depth to Water:	48.08	ft-TOC	
Total Well Depth:	58.75	ft-TOC	
Height of Water Column:	10.67	feet	
Screen Length:	20	feet	Stickup:
			ft-GRD

Well Volume		
Well Diameter	2	inch
Water Volume	1.7	Gal
3 * Well Volume	5.22	Gal
5 * Well Volume	8.71	Gal

**Well Purging Information**

Purge Method:	Bladder Pump	Start Time:	16:05	End Time:	16:35
(If Used) Bladder Pump Control Settings:	On (sec):	Off (sec):		Pressure:	psi
Pump Intake Depth from Top of Casing:		ft-TOC			
Water Column Above Pump Intake:		feet	Flow Through Cell Vol:	200	mL
DTW-TOC at 25% Drawdown of WC Above Pump:		ft-TOC	<b>Comments:</b> Used YSI ProQuattro - B22672B 2100P Turbidimeter - B22918B		
Final Volume Purged:	1.0	Gallons			
Final Volume Purge Rate:	125	mL/min			
Well Purged Dry?:		(Yes/No)			

**Field Parameters (Taken at time intervals ≥ 5 minutes and purge volumes ≥ 1 flow-through cell volume)**

Time	Volume Purged (gal)	Flow Rate (mL/min)	Depth to Water (ft)	Temp (°C)	pH (s.u.)	Spec. Cond. (mS/cm)	Dissolved Oxygen (mg/L)	ORP* (mV)	Turbidity (NTU)	Comment	
16:05	0.0	---	---	---	---	---	---	---	---	Start Purging	
16:10	0.2	125	48.30	17.9	6.7	1.161	0.4	107	23.4	Clear, no odor	
16:15	0.3	125	48.30	18.3	6.7	1.154	0.2	101	11.5	Clear, no odor	
16:20	0.5	125	48.30	19.9	6.8	1.149	0.2	94	9.21	Clear, no odor	
16:25	0.7	125	48.30	19.2	6.8	1.168	0.3	89	4.56	Clear, no odor	
16:30	0.8	125	48.30	18.2	6.7	1.153	0.2	86	3.80	Clear, no odor	
16:35	1.0	125	48.30	18.2	6.7	1.153	0.2	85	2.58	Clear, no odor	
Final:	16:35	1.0	125	48.30	18.2	6.7	1.153	0.2	85	2.6	End of Purging

Sample Method: Bladder Pump      Sample Start Time: 16:40      Sample End Time:  

**Analytical Data**

Method	Qty	Container	Preservative	Method	Qty	Container	Preservative

Name	Signature	Date
(1) _____	_____	_____

Notes: \_\_\_\_\_

## LOW FLOW GROUNDWATER SAMPLING FORM



Project Name:	Zimmer Station	Purge Date:	September 20, 2023
Project Location:	Moscow, Ohio	Purge Time:	25 Minutes
Project Number:	7217-17-001D	Air Temp:	66F
Source Well:	MW-15		
Weather:	Sunny		

**Water Level & Well Data**

Measuring Point:	Top of Casing		
Depth to Water:	54.59	ft-TOC	
Total Well Depth:	61.96	ft-TOC	
Height of Water Column:	7.37	feet	
Screen Length:	20	feet	Stickup:
			ft-GRD

Well Volume		
Well Diameter	2	inch
Water Volume	1.2	Gal
3 * Well Volume	3.61	Gal
5 * Well Volume	6.01	Gal

**Well Purging Information**

Purge Method:	Bladder Pump	Start Time:	10:45	End Time:	11:10
(If Used) Bladder Pump Control Settings:	On (sec):	Off (sec):		Pressure:	psi
Pump Intake Depth from Top of Casing:		ft-TOC			
Water Column Above Pump Intake:		feet			
DTW-TOC at 25% Drawdown of WC Above Pump:		ft-TOC			
Final Volume Purged:	0.7	Gallons	Used YSI ProQuattro - B22672B		
Final Volume Purge Rate:	100	mL/min	2100P Turbidimeter - B22918B		
Well Purged Dry?:		(Yes/No)			

**Field Parameters (Taken at time intervals  $\geq$  5 minutes and purge volumes  $\geq$  1 flow-through cell volume)**

Time	Volume Purged (gal)	Flow Rate (mL/min)	Depth to Water (ft)	Temp (°C)	pH (s.u.)	Spec. Cond. (mS/cm)	Dissolved Oxygen (mg/L)	ORP* (mV)	Turbidity (NTU)	Comment
10:45	0.0	---	---	---	---	---	---	---	---	Start Purging
10:50	0.1	100	54.59	17.6	6.9	1.560	0.5	158	2.68	Clear, odorless
10:55	0.3	100	54.59	17.5	6.9	1.560	0.5	158	4.42	Clear, odorless
11:00	0.4	100	54.59	17.4	6.9	1.562	0.3	157	3.20	Clear, odorless
11:05	0.5	100	54.59	17.5	6.9	1.560	0.2	148	2.65	Clear, odorless
11:10	0.7	100	54.59	17.7	6.9	1.562	0.1	144	2.78	Clear, odorless

**Final:** 11:10    0.7    100    54.59    17.7    6.9    1.562    0.1    144    2.8    End of Purging

Sample Method: Bladder Pump      Sample Start Time: 11:15      Sample End Time: 11:41

**Analytical Data**

Method	Qty	Container	Preservative	Method	Qty	Container	Preservative

**Name** \_\_\_\_\_ **Signature** \_\_\_\_\_ **Date**

(1) \_\_\_\_\_

**Notes:**





## LOW FLOW GROUNDWATER SAMPLING FORM

Project Name:	Zimmer Station	Purge Date:	September 18, 2023
Project Location:	Moscow, Ohio	Purge Time:	40 Minutes
Project Number:	7217-17-001D	Sample Date:	September 18, 2023
Source Well:	MW-16	Sample Time:	14:55
Locked?:	Yes	Weather:	Sunny
Sampled By:	JEB/EF	Air Temp:	

**Water Level & Well Data**

Measuring Point:		Top of Casing	
Depth to Water:	55.92	ft-TOC	
Total Well Depth:	69.78	ft-TOC	
Height of Water Column:	13.86	feet	
Screen Length:	20	feet	Stickup:
			ft-GRD

Well Volume		
Well Diameter	2	inch
Water Volume	2.3	Gal
3 * Well Volume	6.79	Gal
5 * Well Volume	11.31	Gal

**Well Purging Information**

Purge Method:	Bladder Pump	Start Time:	14:15	End Time:	14:55
(If Used) Bladder Pump Control Settings:	On (sec):	Off (sec):		Pressure:	psi
Pump Intake Depth from Top of Casing:		ft-TOC			
Water Column Above Pump Intake:		feet	Flow Through Cell Vol:	200	mL
DTW-TOC at 25% Drawdown of WC Above Pump:		ft-TOC	<b>Comments:</b>		
Final Volume Purged:	1.1	Gallons	Used YSI ProQuattro - B22672B		
Final Volume Purge Rate:	100	mL/min	2100P Turbidimeter - B22918B		
Well Purged Dry?:	No	(Yes/No)			

**Field Parameters (Taken at time intervals ≥ 5 minutes and purge volumes ≥ 1 flow-through cell volume)**

Time	Volume Purged (gal)	Flow Rate (mL/min)	Depth to Water (ft)	Temp (°C)	pH (s.u.)	Spec. Cond. (mS/cm)	Dissolved Oxygen (mg/L)	ORP* (mV)	Turbidity (NTU)	Comment	
14:15	0.0	---	---	---	---	---	---	---	---	Start Purging	
14:25	0.3	100	55.84	19.5	7.0	1.285	2.1	174	1.95	clear, no odor	
14:30	0.4	100	55.86	19.0	7.0	1.283	1.9	194	0.66	clear, no odor	
14:35	0.5	100	55.90	18.8	7.0	1.283	1.7	200	0.71	clear, no odor	
14:40	0.7	100	55.94	18.7	7.0	1.285	1.6	206	1.16	clear, no odor	
14:45	0.8	100	55.95	18.5	7.0	1.283	1.5	211	0.31	clear, no odor	
14:50	0.9	100	55.95	18.6	7.0	1.283	1.5	212	0.25	clear, no odor	
14:55	1.1	100	55.95	18.6	7.0	1.283	1.5	211	0.22	clear, no odor	
Final:	14:55	1.1	100	55.95	18.6	7.0	1.283	1.5	211	0.2	End of Purging

Sample Method: Bladder Pump      Sample Start Time: 14:55      Sample End Time:

**Analytical Data**

Method	Qty	Container	Preservative	Method	Qty	Container	Preservative

Name \_\_\_\_\_ Signature \_\_\_\_\_ Date

(1) \_\_\_\_\_

Notes: 75 degrees F; sampled at 14:55



### LOW FLOW GROUNDWATER SAMPLING FORM

Project Name:	Zimmer Station		Purge Date:	September 18, 2023
Project Location:	Moscow, Ohio		Purge Time:	25 Minutes
Project Number:	7217-17-001D		Sample Date:	September 18, 2023
Source Well:	MW-17		Sample Time:	16:25
Locked?:	Yes		Air Temp:	
Sampled By:	JEB,EF			
Weather:	sunny;75			

**Water Level & Well Data**

Measuring Point:	Top of Casing			
Depth to Water:	55.49	ft-TOC		
Total Well Depth:	69.80	ft-TOC		
Height of Water Column:	14.31	feet		
Screen Length:	20	feet	Stickup:	ft-GRD

Well Volume		
Well Diameter	2	inch
Water Volume	2.3	Gal
3 * Well Volume	7.01	Gal
5 * Well Volume	11.68	Gal

**Well Purging Information**

Purge Method:	Bladder Pump	Start Time:	15:55	End Time:	16:20	
(If Used) Bladder Pump Control Settings:	On (sec):	Off (sec):		Pressure:		psi
Pump Intake Depth from Top of Casing:			ft-TOC			
Water Column Above Pump Intake:			feet	Flow Through Cell Vol:	200	mL
DTW-TOC at 25% Drawdown of WC Above Pump:			ft-TOC	<b>Comments:</b>		
Final Volume Purged:	0.7		Gallons	Used YSI ProQuattro - B22672B 2100P Turbidimeter - B22918B		
Final Volume Purge Rate:	100		mL/min			
Well Purged Dry?:			(Yes/No)			

**Field Parameters (Taken at time intervals ≥ 5 minutes and purge volumes ≥ 1 flow-through cell volume)**

Time	Volume Purged (gal)	Flow Rate (mL/min)	Depth to Water (ft)	Temp (°C)	pH (s.u.)	Spec. Cond. (mS/cm)	Dissolved Oxygen (mg/L)	ORP* (mV)	Turbidity (NTU)	Comment	
15:55	0.0	---	---	---	---	---	---	---	---	Start Purging	
16:00	0.1	100	55.45	18.8	6.9	1.315	3.5	166	2.45	clear, no odor	
16:05	0.3	100	55.45	17.9	7.0	1.330	0.5	180	3.25	clear, no odor	
16:10	0.4	100	55.45	18.3	7.1	1.326	0.5	181	1.93	clear, no odor	
16:15	0.5	100	55.45	18.9	7.1	1.334	0.5	181	1.56	clear, no odor	
16:20	0.7	100	55.45	18.5	7.1	1.331	0.5	182	1.65	clear, no odor	
Final:	16:20	0.7	100	55.45	18.5	7.1	1.331	0.5	182	1.7	End of Purging

Sample Method: Bladder Pump      Sample Start Time: 16:25      Sample End Time:

**Analytical Data**

Method	Qty	Container	Preservative	Method	Qty	Container	Preservative

Name	Signature	Date

(1) \_\_\_\_\_  
 Notes: Sampled at 1625



## LOW FLOW GROUNDWATER SAMPLING FORM

Project Name:	Zimmer Station	Purge Date:	September 19, 2023
Project Location:	Moscow, Ohio	Purge Time:	30 Minutes
Project Number:	7217-17-001D	Sample Date:	September 19, 2023
Source Well:	MW-18	Sample Time:	11:40
Locked?:	Yes	Air Temp:	
Sampled By:	JEB/EF		
Weather:	Sunny; 70		

**Water Level & Well Data**

Measuring Point:		Top of Casing	
Depth to Water:	55.90	ft-TOC	
Total Well Depth:	70.20	ft-TOC	
Height of Water Column:	14.30	feet	
Screen Length:	20	feet	Stickup:
			ft-GRD

Well Volume		
Well Diameter	2	inch
Water Volume	2.3	Gal
3 * Well Volume	7.00	Gal
5 * Well Volume	11.67	Gal

**Well Purging Information**

Purge Method:	Bladder Pump	Start Time:	11:05	End Time:	11:35
(If Used) Bladder Pump Control Settings:	On (sec):	Off (sec):		Pressure:	psi
Pump Intake Depth from Top of Casing:		ft-TOC			
Water Column Above Pump Intake:		feet	Flow Through Cell Vol:	200	mL
DTW-TOC at 25% Drawdown of WC Above Pump:		ft-TOC	<b>Comments:</b>		
Final Volume Purged:	0.8	Gallons	Used YSI ProQuattro - B22672B		
Final Volume Purge Rate:	100	mL/min	2100P Turbidimeter - B22918B		
Well Purged Dry?:		(Yes/No)			

**Field Parameters (Taken at time intervals ≥ 5 minutes and purge volumes ≥ 1 flow-through cell volume)**

Time	Volume Purged (gal)	Flow Rate (mL/min)	Depth to Water (ft)	Temp (°C)	pH (s.u.)	Spec. Cond. (mS/cm)	Dissolved Oxygen (mg/L)	ORP* (mV)	Turbidity (NTU)	Comment	
11:05	0.0	---	---	---	---	---	---	---	---	Start Purging	
11:15	0.3	100	55.90	18.5	7.0	1.918	3.1	271	0.92	clear, no odor	
11:20	0.4	100	55.90	17.6	7.0	1.926	0.7	261	1.21	clear, no odor	
11:25	0.5	100	55.90	17.7	7.0	1.921	0.7	253	1.37	clear, no odor	
11:30	0.7	100	55.90	18.3	7.0	1.927	0.5	246	0.60	clear, no odor	
11:35	0.8	100	55.90	18.0	7.0	1.927	0.4	243	0.37	clear, no odor	
Final:	11:35	0.8	100	55.90	18.0	7.0	1.927	0.4	243	0.4	End of Purging

Sample Method: Bladder Pump      Sample Start Time: 11:40      Sample End Time:  

**Analytical Data**

Method	Qty	Container	Preservative	Method	Qty	Container	Preservative

Name \_\_\_\_\_ Signature \_\_\_\_\_ Date

(1) \_\_\_\_\_

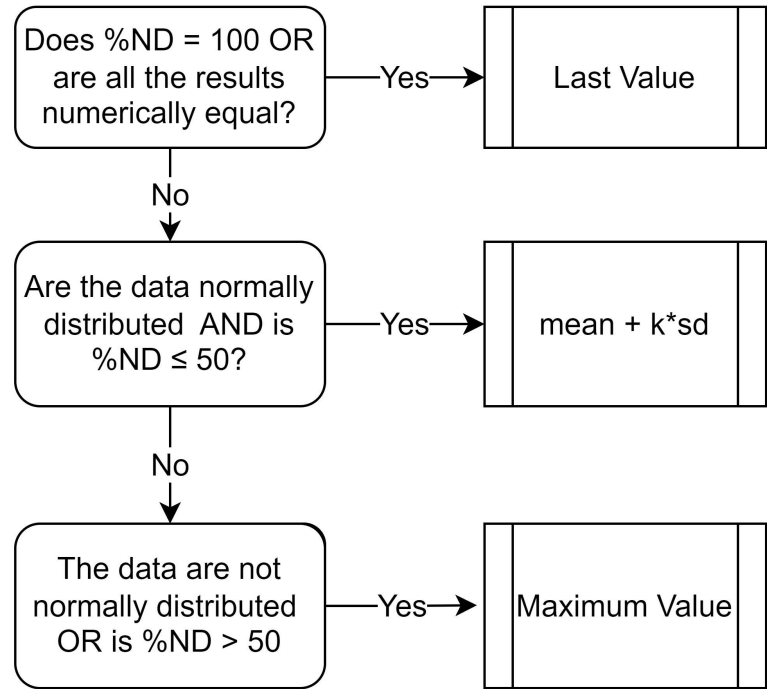
Notes:

APPENDIX A.  
 ANNUAL GROUNDWATER MONITORING AND CORRECTIVE ACTION REPORT - QUARTER 3, 2023  
 ZIMMER POWER PLANT, GYPSUM RECYCLE POND  
 ZIM-257-124

<b>Zimmer Station</b>			
<b>Well ID</b>	<b>Date</b>	<b>Time</b>	<b>Depth to Water</b>
<b>D Basin - Unit 121</b>			
MW-01	9/18/2023	10:47	53.89
MW-08	9/18/2023	8:53	55.03
MW-09	9/18/2023	9:51	53.95
MW-12	9/18/2023	9:00	54.52
MW-13	9/18/2023	9:18	46.57
MW-14	9/18/2023	9:22	48.08
MW-15	9/18/2023	9:27	54.59
<b>Gypsum Recycle Pond - Unit 124</b>			
MW-07A	9/18/2023	8:44	55.67
MW-10	9/18/2023	10:35	55.70
MW-11	9/18/2023	8:39	52.49
<b>Coal Pile Runoff Pond - Unit 125</b>			
MW-03S	9/18/2023	9:24	54.57
MW-16	9/18/2023	9:11	55.92
MW-17	9/18/2023	9:08	55.49
MW-18	9/18/2023	9:18	55.90

**APPENDIX B  
STATISTICAL METHODOLOGY FOR DETERMINATION  
OF BACKGROUND VALUES**

Notes
%ND = Percent non-detected samples
sd = standard deviation
k = kappa for tolerance limit (95% confidence/95% coverage)



**APPENDIX C  
STATISTICAL METHODOLOGY FOR DETERMINATION OF  
STATISTICALLY SIGNIFICANT LEVELS**

Notes
%ND = Percent non-detected samples
MK = Mann-Kendall Trend Test
<u>Alpha Levels</u>
Normality = 0.01
MK Trend = 0.01
Residuals = 0.01
Confidence Level= 0.01

