

From: [Brian Hart](#)
To: [IDEM OLQ Solid Waste Permits Submittals](#)
Cc: ["Mike T. Miller"; WEAVER, TROY](#)
Subject: CE Systems (AO Case # 2002-12341-H) April 2024 Ground Water Report
Date: Saturday, June 22, 2024 7:33:52 AM
Attachments: [CE Systems GrdWater Report April 2024.pdf](#)

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Kate Garvey, Permit Manager
IDEM-OLQ Permit Branch

Re: CE Systems (AO Case # 2002-12341-H)
Ground Water Monitoring Report for April 2024

Dear Ms. Garvey,

On behalf of CE Systems, Inc., attached is a pdf formatted electronic version of the April 2024 ground water sampling report for CE Systems RWS III (Columbus, IN). No hard copy will be submitted unless requested. The electronic data file has been emailed to olqdata@idem.in.gov.

Thank you and please let us know if you have any questions or need additional information.

Brian Hart, P.E.
Regional Services Corp
6147 E. SR 44
Franklin, IN 46131
Ph: 317-736-5523

POST-CLOSURE
ANNUAL GROUND WATER MONITORING REPORT
(Agreed Order #2002-12341-H)

Foundry Sand Fill Site
CE System, Inc.
Columbus, Bartholomew County, Indiana

Sampling Date: April 23, 2024

Report Date: June 2024

Prepared for:
CE Systems, Inc.
1045 South Gladstone Ave
Columbus, IN 47201

Prepared by:
Regional Services Corp
6147 E. SR 44
Franklin, IN 46131

Table of Contents

I. Introduction 1

II. Statistical Evaluation Report..... 2

 A. Current Detection (Phase I) Sampling and Statistical Prediction Limits 2

 B. Sampling Results and Statistical Evaluation 2

II. Field Sampling Logs & Chain-of-Custody 3

III. Sample Identification Numbers 3

IV. Well Sampling Sequence..... 3

V. Static Water Elevations and Ground Water Flow Map..... 3

Figures

1 - Sampling Results Summary Table

Tables

1 - Historical Ground Water Level Summary Table

Appendices

A - Analytical and Quality Control Report w/ Chain-of-Custody

B - Field Sampling Forms

G - Ground Water Flow Map

I. Introduction

On April 23, 2024 ground water sampling was completed at CE System's Foundry Sand Disposal Site in accordance with the facility's approved Sampling and Analysis Plan (SAP). Roadside (upgradient) wells MW-3, MW-5 and MW-5D (duplicate for MW-5), and downgradient wells MW-2, -3 and -4 were sampled for the Phase I parameters and phenols. Additionally, an equipment blank and trip blank were collected.

Field sampling was completed by Regional Services Corp (RSC). Laboratory analysis was completed by ENVision Laboratories, Inc of Indianapolis at a requested minimum ADQ Level III. The laboratory's analytical and quality control report is included in **Appendix A**. A digital copy of the ground water data has been e-mailed to IDEM.

For this event and per IDEM's December 29, 2016 ground water report review letter (email), the landfill continued sampling for the Phase I program as outlined in Section II.B.1 of this report.

In March 2017, CE Systems requested a reduced sampling frequency (from semi-annual to annual) based on historical sampling results. IDEM approved the reduced sampling frequency request in a letter dated April 7, 2017 (VFC # 80443033). Per the approval letter, ground water sampling was reduced to annual sampling in April of each year with the addition of phenols as a Phase I parameter.

II. Statistical Evaluation Report

A. Current Detection (Phase I) Sampling and Statistical Prediction Limits

Per IDEM's ground water review letter dated December 29, 2016, and the reduced sampling frequency letter dated April 7, 2017, the current approved Phase I parameters include:

Phase I

- (1) Field pH
- (2) Field specific conductance
- (3) Arsenic, dissolved
- (4) Barium, dissolved
- (5) Cadmium, dissolved
- (6) Chromium, dissolved
- (7) Lead, dissolved
- (8) Mercury, dissolved,
- (9) Selenium, dissolved, and
- (10) Phenols (added per IDEM's April 7, 2017 Reduced Sampling Approval Letter)

Per IDEM's April 7, 2017 Reduced Sampling Approval letter, the next regularly scheduled annual sampling event is April 2025.

Using background data, statistical Prediction Limits (PL) for all historically sampled parameters (Phase I and Phase II supplemental parameters) were proposed in the facility's December 2010 semi-annual ground water monitoring report. Proposed Prediction Limits were reviewed and approved by IDEM per Troy Weaver's (IDEM Geology Section) email dated February 17, 2011.

B. Sampling Results and Statistical Evaluation for April 2024 (Annual) Sampling

April 2024 Phase I sampling results and the approved statistical limits are summarized in **Figure 1**. For this event, statistical exceedances were noted for one parameter (phenols) at downgradient wells MW-1 (0.012 mg/l) and MW-2 (0.011 mg/l). Pursuant to Permit Requirement D15 (Plan Approval, March 2, 2011), two or more of the Phase I parameters were not exceeded at any downgradient well, and thus, the Facility will remain in detection (Phase I) monitoring.

II. Field Sampling Logs & Chain-of-Custody

Copies of the field sampling log forms are included in **Appendix B**. A copy of the chain-of-custody form is included with the Analytical Report contained in **Appendix A**.

III. Sample Identification Numbers

The monitoring well identification numbers are provided on the laboratory's analytical report (**Appendix A**) and chain-of-custody form.

IV. Well Sampling Sequence

The well sampling sequence is depicted on the field chain-of-custody form contained in **Appendix A**. Upgradient well MW-3 was sampled first.

V. Static Water Elevations and Ground Water Flow Map

Well static water elevations are provided on the field sampling forms contained in **Appendix B**. Historical ground water levels are summarized in **Table 1**. The ground water flow map for this sampling event is provided in **Appendix C**. As in previous events, mapping indicates a typical southern ground water flow towards the south side downgradient wells.

Figure 1
CE System Foundry Sand Disposal Area

Ground Water Sampling Results for April 23, 2024

	MW-3	MW-5	MW-4	MW-1	MW-2	UPL	
	(upgradient)	(side-gradient)	(dngradient)	(dngradient)	(dngradient)	interwell	GWPS
Water Elevation	604.60	604.43	604.31	604.31	604.32		
Water Column	4.44	4.97	4.99	7.41	9.00		
pH (s.u.)	7.33	7.41	7.29	7.37	7.48	6.3 - 7.8	5-9 (s)
Conductivity (uS/cm)	720	704	746	726	689	1143.0	
Dissolved Oxygen	4.57	4.37	3.28	1.92	3.82		
ORP	104	99	66	38	42		
Phenols (mg/l)	< 0.01	< 0.01	< 0.01	0.012	0.011	DL	
Dissolved Metals (mg/l):							
Arsenic	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	DL	0.01
Barium	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	DL	2.0
Cadmium	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	DL	0.005
Chromium	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	DL	0.1
Lead	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	DL	0.015
Mercury	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	DL	0.002
Selenium	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	DL	0.05

UPL: Upper Prediction Limit (December 2010)

(s) - secondary standard

GWPS: Ground Water Protection Standard

DL: Detection Limit

0.012 : Reported value exceeds UPL

(S): Secondary constituent 329 IAC 10-21-11(c)

GWPS: Ground Water Protection Standard 329 IAC 10-21-11

MCL: Maximum Contaminant Level (SMCL: Secondary MCL)

UPL: Upper Prediction Limit

Table 1
CE System Foundry Sand Disposal Area

Historical Ground Water Level Summary Table

	MW-3	MW-5	MW-4	MW-1	MW-2
	(upgradient)	(upgradient)	(dngradient)	(dngradient)	(dngradient)
11-3-06	604.15	604.12	603.99	603.81	603.82
4-30-07	607.28	607.24	607.14	606.97	606.92
10-30-07	601.38	601.36	601.25	601.06	601.04
4-24-08	608.42	608.44	608.41	608.20	608.16
10-30-08	603.05	602.77	602.93	602.71	602.75
4-23-09	604.63	604.73	604.61	604.44	604.40
10-29-09	605.97	605.96	605.89	605.72	605.67
4-29-10	605.44	605.47	605.37	605.20	605.17
10-25-10	602.33	602.32	602.21	602.10	601.95
4-29-11	608.53	609.70	609.35	609.19	609.14
8-2-11	605.87	606.14	606.08	605.86	605.83
10-21-11	603.38	603.37	603.25	603.05	603.03
4-24-11	606.13	606.21	606.12	605.94	605.89
10-24-12	601.72	601.78	601.65	601.46	601.46
4-10-13	604.58	604.70	604.56	604.38	604.39
10-10-13	602.24	602.29	602.12	601.96	601.98
4-14-14	607.38	607.53	607.44	607.27	607.21
10-15-14	603.42	603.48	603.33	603.14	602.99
4-2-15*	605.12	604.95	604.84	604.84	604.81
10-6-15	604.19	603.91	603.87	603.82	603.76
4-19-16	607.12	606.96	606.95	606.91	606.84
10-13-16	605.65	605.27	605.23	605.51	605.17
4-24-17	604.42	604.18	604.11	604.09	604.05
4-16-18	608.38	608.21	608.17	608.15	608.13
4-3-19	608.23	607.98	607.92	607.91	607.86
4-1-20	607.50	607.31	607.21	607.21	607.18
4-6-21	605.74	605.55	605.43	605.42	605.41
4-4-22	607.54	607.30	607.23	607.18	607.17
4-6-23	606.44	606.28	606.18	606.19	606.39
04-23-2024	604.60	604.43	604.31	604.31	604.32

*TOC Resurveyed 3-20-15 (Revised)

TOC Original	617.68	614.88	617.69	617.25	614.89
TOC Revised 3-20-15	617.54	614.38	617.21	616.93	614.56
Elevation Change	-0.14	-0.50	-0.48	-0.32	-0.33
Revised 4-1-20	617.40*	-	-	-	-

*Adjusted for cut-off

Appendix A

CE Systems, Inc Foundry Sand Disposal Area
Annual Ground Water Monitoring Report

Analytical and Quality Control Report for April 2024 Annual Sampling Event
(Includes Chain-of-Custody)



ENVISSION Laboratories, Inc.
1439 Sadlier Circle West Drive
Indianapolis, IN 46239
Tel: 317.351.8632
Fax: 317.351.8639
www.envisionlaboratories.com

Mr. Brian Hart
Regional Services Corp.
6147 E. SR 44
Franklin, IN 46131

May 1, 2024

ENVISSION Project Number: 2024-830
Client Project Name: CE System

Dear Mr. Hart,

Please find the attached analytical report for the samples received April 23, 2024. All test methods performed were fully compliant with local, state, and federal EPA methods unless otherwise noted. The project was analyzed as requested on the enclosed chain of custody record. Please review the comments section for additional information about your results or Quality Control data.

Feel free to contact me if you have any questions or comments regarding your analytical report or service.

Thank you for your business. ENVISSION Laboratories looks forward to working with you on your next project.

Yours Sincerely,

A handwritten signature in black ink that reads "David Norris".

David Norris

Client Services Manager
ENVISSION Laboratories, Inc.



Analytical Report

Client Name: REGIONAL SERVICES CORP.

Project ID: CE SYSTEMS

Client Project Manager: BRIAN HART

ENVision Project Number: 2024-830

Analytical Method: EPA 6010
Prep Method: EPA 3010A

Client Sample ID: TRIP BLANK
Envision Sample Number: 24-5064
Sample Matrix: water
Sample Collection Date/Time: 4/23/24 8:20
Sample Received Date/Time: 4/23/24 0.55

<u>Compounds</u>	<u>Sample Results (ug/L)</u>	<u>Reporting Limit (ug/L)</u>	<u>Flags</u>
Arsenic, dissolved	< 10	10	
Barium, dissolved	< 100	100	
Cadmium, dissolved	< 5	5	
Chromium, dissolved	< 10	10	
Lead, dissolved	< 10	10	
Selenium, dissolved	< 10	10	

ICP Analysis Date/Time: 4-23-24/20:04
Analyst Initials: gjd
Date Digested: 4/22/2024
Initial Sample Volume: 50 mL
Final Volume: 50 mL
Analytical Batch: 042324icp

Analytical & Prep Method: EPA 7470

<u>Compounds</u>	<u>Sample Results (ug/L)</u>	<u>Reporting Limit (ug/L)</u>	<u>Flags</u>
Mercury, dissolved	< 2	2	

Hg Analysis Date/Time: 04/25/24/13:40hg
Hg Analyst Initials: gjd
Date Digested: 4/24/2024
Initial Sample Volume: 50 mL
Final Volume: 50 mL
Analytical Batch: 042524hg



Analytical Report

Client Name: REGIONAL SERVICES CORP.

Project ID: CE SYSTEMS

Client Project Manager: BRIAN HART

ENVision Project Number: 2024-830

Analytical Method: EPA 6010
Prep Method: EPA 3010A

Client Sample ID: MW-3
Envision Sample Number: 24-5065
Sample Matrix: water

Sample Collection Date/Time: 4/23/24 9:11
Sample Received Date/Time: 4/23/24 0.55

<u>Compounds</u>	<u>Sample Results (ug/L)</u>	<u>Reporting Limit (ug/L)</u>	<u>Flags</u>
Arsenic, dissolved	< 10	10	
Barium, dissolved	< 100	100	
Cadmium, dissolved	< 5	5	
Chromium, dissolved	< 10	10	
Lead, dissolved	< 10	10	
Selenium, dissolved	< 10	10	

ICP Analysis Date/Time: 4-23-24/20:08
Analyst Initials: gjd
Date Digested: 4/22/2024
Initial Sample Volume: 50 mL
Final Volume: 50 mL
Analytical Batch: 042324icp

Analytical & Prep Method: EPA 7470

<u>Compounds</u>	<u>Sample Results (ug/L)</u>	<u>Reporting Limit (ug/L)</u>	<u>Flags</u>
Mercury, dissolved	< 2	2	

Hg Analysis Date/Time: 04/25/24/13:42hg
Hg Analyst Initials: gjd
Date Digested: 4/24/2024
Initial Sample Volume: 50 mL
Final Volume: 50 mL
Analytical Batch: 042524hg



Analytical Report

Client Name: REGIONAL SERVICES CORP.

Project ID: CE SYSTEMS

Client Project Manager: BRIAN HART

ENVision Project Number: 2024-830

Analytical Method: EPA 6010
Prep Method: EPA 3010A

Client Sample ID: MW-5
Envision Sample Number: 24-5066
Sample Matrix: water

Sample Collection Date/Time: 4/23/24 9:48
Sample Received Date/Time: 4/23/24 0.55

<u>Compounds</u>	<u>Sample Results (ug/L)</u>	<u>Reporting Limit (ug/L)</u>	<u>Flags</u>
Arsenic, dissolved	< 10	10	
Barium, dissolved	< 100	100	
Cadmium, dissolved	< 5	5	
Chromium, dissolved	< 10	10	
Lead, dissolved	< 10	10	
Selenium, dissolved	< 10	10	

ICP Analysis Date/Time: 4-23-24/20:11
Analyst Initials: gjd
Date Digested: 4/22/2024
Initial Sample Volume: 50 mL
Final Volume: 50 mL
Analytical Batch: 042324icp

Analytical & Prep Method: EPA 7470

<u>Compounds</u>	<u>Sample Results (ug/L)</u>	<u>Reporting Limit (ug/L)</u>	<u>Flags</u>
Mercury, dissolved	< 2	2	

Hg Analysis Date/Time: 04/25/24/13:43hg
Hg Analyst Initials: gjd
Date Digested: 4/24/2024
Initial Sample Volume: 50 mL
Final Volume: 50 mL
Analytical Batch: 042524hg



Analytical Report

Client Name: REGIONAL SERVICES CORP.

Project ID: CE SYSTEMS

Client Project Manager: BRIAN HART

ENVision Project Number: 2024-830

Analytical Method: EPA 6010
Prep Method: EPA 3010A

Client Sample ID: MW-5 DUP
Envision Sample Number: 24-5067
Sample Matrix: water
Sample Collection Date/Time: 4/23/24 9:50
Sample Received Date/Time: 4/23/24 0.55

<u>Compounds</u>	<u>Sample Results (ug/L)</u>	<u>Reporting Limit (ug/L)</u>	<u>Flags</u>
Arsenic, dissolved	< 10	10	
Barium, dissolved	< 100	100	
Cadmium, dissolved	< 5	5	
Chromium, dissolved	< 10	10	
Lead, dissolved	< 10	10	
Selenium, dissolved	< 10	10	

ICP Analysis Date/Time: 4-23-24/20:14
Analyst Initials: gjd
Date Digested: 4/22/2024
Initial Sample Volume: 50 mL
Final Volume: 50 mL
Analytical Batch: 042324icp

Analytical & Prep Method: EPA 7470

<u>Compounds</u>	<u>Sample Results (ug/L)</u>	<u>Reporting Limit (ug/L)</u>	<u>Flags</u>
Mercury, dissolved	< 2	2	

Hg Analysis Date/Time: 04/25/24/13:45hg
Hg Analyst Initials: gjd
Date Digested: 4/24/2024
Initial Sample Volume: 50 mL
Final Volume: 50 mL
Analytical Batch: 042524hg



Analytical Report

Client Name: REGIONAL SERVICES CORP.

Project ID: CE SYSTEMS

Client Project Manager: BRIAN HART

ENVision Project Number: 2024-830

Analytical Method: EPA 6010
Prep Method: EPA 3010A

Client Sample ID: MW-4
Envision Sample Number: 24-5068
Sample Matrix: water

Sample Collection Date/Time: 4/23/24 10:24
Sample Received Date/Time: 4/23/24 0.55

<u>Compounds</u>	<u>Sample Results (ug/L)</u>	<u>Reporting Limit (ug/L)</u>	<u>Flags</u>
Arsenic, dissolved	< 10	10	
Barium, dissolved	< 100	100	
Cadmium, dissolved	< 5	5	
Chromium, dissolved	< 10	10	
Lead, dissolved	< 10	10	
Selenium, dissolved	< 10	10	

ICP Analysis Date/Time: 4-23-24/20:22
Analyst Initials: gjd
Date Digested: 4/22/2024
Initial Sample Volume: 50 mL
Final Volume: 50 mL
Analytical Batch: 042324icp

Analytical & Prep Method: EPA 7470

<u>Compounds</u>	<u>Sample Results (ug/L)</u>	<u>Reporting Limit (ug/L)</u>	<u>Flags</u>
Mercury, dissolved	< 2	2	

Hg Analysis Date/Time: 04/25/24/13:46hg
Hg Analyst Initials: gjd
Date Digested: 4/24/2024
Initial Sample Volume: 50 mL
Final Volume: 50 mL
Analytical Batch: 042524hg



Analytical Report

Client Name: REGIONAL SERVICES CORP.

Project ID: CE SYSTEMS

Client Project Manager: BRIAN HART

ENVision Project Number: 2024-830

Analytical Method: EPA 6010
Prep Method: EPA 3010A

Client Sample ID: MW-1
Envision Sample Number: 24-5069
Sample Matrix: water
Sample Collection Date/Time: 4/23/24 11:00
Sample Received Date/Time: 4/23/24 0.55

<u>Compounds</u>	<u>Sample Results (ug/L)</u>	<u>Reporting Limit (ug/L)</u>	<u>Flags</u>
Arsenic, dissolved	< 10	10	
Barium, dissolved	< 100	100	
Cadmium, dissolved	< 5	5	
Chromium, dissolved	< 10	10	
Lead, dissolved	< 10	10	
Selenium, dissolved	< 10	10	

ICP Analysis Date/Time: 4-23-24/20:26
Analyst Initials: gjd
Date Digested: 4/22/2024
Initial Sample Volume: 50 mL
Final Volume: 50 mL
Analytical Batch: 042324icp

Analytical & Prep Method: EPA 7470

<u>Compounds</u>	<u>Sample Results (ug/L)</u>	<u>Reporting Limit (ug/L)</u>	<u>Flags</u>
Mercury, dissolved	< 2	2	

Hg Analysis Date/Time: 04/25/24/13:48hg
Hg Analyst Initials: gjd
Date Digested: 4/24/2024
Initial Sample Volume: 50 mL
Final Volume: 50 mL
Analytical Batch: 042524hg



Analytical Report

Client Name: REGIONAL SERVICES CORP.

Project ID: CE SYSTEMS

Client Project Manager: BRIAN HART

ENVision Project Number: 2024-830

Analytical Method: EPA 6010
Prep Method: EPA 3010A

Client Sample ID: MW-2
Envision Sample Number: 24-5070
Sample Matrix: water

Sample Collection Date/Time: 4/23/24 11:32
Sample Received Date/Time: 4/23/24 0.55

<u>Compounds</u>	<u>Sample Results (ug/L)</u>	<u>Reporting Limit (ug/L)</u>	<u>Flags</u>
Arsenic, dissolved	< 10	10	
Barium, dissolved	< 100	100	
Cadmium, dissolved	< 5	5	
Chromium, dissolved	< 10	10	
Lead, dissolved	< 10	10	
Selenium, dissolved	< 10	10	

ICP Analysis Date/Time: 4-23-24/20:29
Analyst Initials: gjd
Date Digested: 4/22/2024
Initial Sample Volume: 50 mL
Final Volume: 50 mL
Analytical Batch: 042324icp

Analytical & Prep Method: EPA 7470

<u>Compounds</u>	<u>Sample Results (ug/L)</u>	<u>Reporting Limit (ug/L)</u>	<u>Flags</u>
Mercury, dissolved	< 2	2	

Hg Analysis Date/Time: 04/25/24/13:50hg
Hg Analyst Initials: gjd
Date Digested: 4/24/2024
Initial Sample Volume: 50 mL
Final Volume: 50 mL
Analytical Batch: 042524hg



Analytical Report

Client Name: REGIONAL SERVICES CORP.

Project ID: CE SYSTEMS

Client Project Manager: BRIAN HART

ENVision Project Number: 2024-830

Analytical Method: EPA 6010
Prep Method: EPA 3010A

Client Sample ID: EQ BLANK
Envision Sample Number: 24-5071
Sample Matrix: water
Sample Collection Date/Time: 4/23/24 11:45
Sample Received Date/Time: 4/23/24 0.55

<u>Compounds</u>	<u>Sample Results (ug/L)</u>	<u>Reporting Limit (ug/L)</u>	<u>Flags</u>
Arsenic, dissolved	< 10	10	
Barium, dissolved	< 100	100	
Cadmium, dissolved	< 5	5	
Chromium, dissolved	< 10	10	
Lead, dissolved	< 10	10	
Selenium, dissolved	< 10	10	

ICP Analysis Date/Time: 4-23-24/20:32
Analyst Initials: gjd
Date Digested: 4/22/2024
Initial Sample Volume: 50 mL
Final Volume: 50 mL
Analytical Batch: 042324icp

Analytical & Prep Method: EPA 7470

<u>Compounds</u>	<u>Sample Results (ug/L)</u>	<u>Reporting Limit (ug/L)</u>	<u>Flags</u>
Mercury, dissolved	< 2	2	

Hg Analysis Date/Time: 04/25/24/13:51hg
Hg Analyst Initials: gjd
Date Digested: 4/24/2024
Initial Sample Volume: 50 mL
Final Volume: 50 mL
Analytical Batch: 042524hg



**First
Environmental
Laboratories, Inc**

IL ELAP / NELAC Certification # 100292

1600 Shore Road • Naperville, Illinois 60563 • Phone (630) 778-1200 • FirstEnv.com

May 01, 2024

Mr. David Norris

ENVISION LABORATORIES, INC.

1439 Sadlier Circle West Drive

Indianapolis, IN 46239

Project ID: 2024-830

First Environmental File ID: 24-3303

Date Received: April 24, 2024

Dear Mr. David Norris:

The above referenced project was analyzed as directed on the enclosed chain of custody record.

All Quality Control criteria as outlined in the methods and current IL ELAP/NELAP have been met unless otherwise noted. QA/QC documentation and raw data will remain on file for future reference. Our accreditation number is 100292 and our current certificate is number:

1002922024-13: effective 03/06/24 through 02/28/2025.

I thank you for the opportunity to be of service to you and look forward to working with you again in the future. Should you have any questions regarding any of the enclosed analytical data or need additional information, please contact me at (630) 778-1200.

Sincerely,

A handwritten signature in black ink that reads "Joy Geraci". The signature is written in a cursive, flowing style.

Joy Geraci
Project Manager



Case Narrative

ENVISION LABORATORIES, INC.

Lab File ID: **24-3303**

Project ID: **2024-830**

Date Received: **April 24, 2024**

All quality control criteria, as outlined in the methods, have been met except as noted below or on the following analytical report.

The results in this report apply to the samples in the following table:

Laboratory Sample ID	Client Sample Identifier	Date/Time Collected
24-3303-001	24-5064, TRIP BLANK	4/23/2024 8:20
24-3303-002	24-5065, MW-3	4/23/2024 9:11
24-3303-003	24-5066, MW-5	4/23/2024 9:48
24-3303-004	24-5067, MW-5 DUP	4/23/2024 9:50
24-3303-005	24-5068, MW-4	4/23/2024 10:24
24-3303-006	24-5069, MW-1	4/23/2024 11:00
24-3303-007	24-5070, MW-2	4/23/2024 11:32

Sample Batch Comments:

Sample acceptance criteria were met.



Case Narrative

ENVISION LABORATORIES, INC.

Lab File ID: **24-3303**

Project ID: **2024-830**

Date Received: **April 24, 2024**

All quality control criteria, as outlined in the methods, have been met except as noted below or on the following analytical report.

The following is a definition of flags that may be used in this report:

Flag	Description	Flag	Description
A	Method holding time is 15 minutes from collection. Lab analysis was performed as soon as possible.		
B	Analyte was found in the method blank.	L	LCS recovery outside control limits.
<	Analyte not detected at or above the reporting limit.	M	MS recovery outside control limits; LCS acceptable.
C	Sample received in an improper container for this test.	P	Chemical preservation pH adjusted in lab.
D	Surrogates diluted out; recovery not available.	Q	Result was determined by a GC/MS database search.
E	Estimated result; concentration exceeds calibration range.	S	Analysis was subcontracted to another laboratory.
G	Surrogate recovery outside control limits.	T	Result is less than three times the MDL value.
H	Analysis or extraction holding time exceeded.	W	Reporting limit elevated due to sample matrix.
I	ICVS % rec outside 95-105% but within 90-110%		
J	Estimated result; concentration is less than routine RL but greater than MDL.	N	Analyte is not part of our NELAC accreditation or accreditation may not be available for this parameter.
RL	Routine Reporting Limit (Lowest amount that can be detected when routine weights/volumes are used without dilution.)	ND	Analyte was not detected using a library search routine; No calibration standard was analyzed.



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Analytical Report

Client: ENVISION LABORATORIES, INC.
Project ID: 2024-830
Sample ID: 24-5064, TRIP BLANK
Sample No: 24-3303-001

Date Collected: 04/23/24
Time Collected: 8:20
Date Received: 04/24/24
Date Reported: 05/01/24

Analyte	Result	R.L.	Units	Flags
Phenols	Method: 420.4R1.0			
Phenols	< 0.010	0.010	mg/L	



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Analytical Report

Client: ENVISION LABORATORIES, INC.
Project ID: 2024-830
Sample ID: 24-5065, MW-3
Sample No: 24-3303-002

Date Collected: 04/23/24
Time Collected: 9:11
Date Received: 04/24/24
Date Reported: 05/01/24

Analyte	Result	R.L.	Units	Flags
Phenols	Method: 420.4R1.0			
Phenols	< 0.010	0.010	mg/L	



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Analytical Report

Client:	ENVISION LABORATORIES, INC.	Date Collected:	04/23/24
Project ID:	2024-830	Time Collected:	9:48
Sample ID:	24-5066, MW-5	Date Received:	04/24/24
Sample No:	24-3303-003	Date Reported:	05/01/24

Analyte	Result	R.L.	Units	Flags
Phenols	Method: 420.4R1.0			
Phenols	< 0.010	0.010	mg/L	



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Analytical Report

Client: ENVISION LABORATORIES, INC.
Project ID: 2024-830
Sample ID: 24-5067, MW-5 DUP
Sample No: 24-3303-004

Date Collected: 04/23/24
Time Collected: 9:50
Date Received: 04/24/24
Date Reported: 05/01/24

Analyte	Result	R.L.	Units	Flags
Phenols				
Analysis Date: 05/01/24				
Phenols	< 0.010	0.010	mg/L	

Method: 420.4R1.0



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Analytical Report

Client:	ENVISION LABORATORIES, INC.	Date Collected:	04/23/24
Project ID:	2024-830	Time Collected:	10:24
Sample ID:	24-5068, MW-4	Date Received:	04/24/24
Sample No:	24-3303-005	Date Reported:	05/01/24

Analyte	Result	R.L.	Units	Flags
Phenols	Method: 420.4R1.0			
Phenols	< 0.010	0.010	mg/L	



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Analytical Report

Client:	ENVISION LABORATORIES, INC.	Date Collected:	04/23/24
Project ID:	2024-830	Time Collected:	11:00
Sample ID:	24-5069, MW-1	Date Received:	04/24/24
Sample No:	24-3303-006	Date Reported:	05/01/24

Analyte	Result	R.L.	Units	Flags
Phenols	Method: 420.4R1.0			
Analysis Date: 05/01/24				
Phenols	0.012	0.010	mg/L	



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Analytical Report

Client:	ENVISION LABORATORIES, INC.	Date Collected:	04/23/24
Project ID:	2024-830	Time Collected:	11:32
Sample ID:	24-5070, MW-2	Date Received:	04/24/24
Sample No:	24-3303-007	Date Reported:	05/01/24

Analyte	Result	R.L.	Units	Flags
Phenols	Method: 420.4R1.0			
Phenols	0.011	0.010	mg/L	



Quality Control Summary

Client: ENVISION LABORATORIES, INC.

Lab File ID: 24-3303

Project ID: 2024-830

QC Lab#	Time QC Code	Parameter	Reported Result	Units	QC Result	%R Limits Low High	RPD Limit
Parameter: Phenols		Analytical Method: 420.4R1.0		Analytical WS #: 244121		Analysis Date: 5/1/2024	
24-2991-015MS	MS	Phenols	21.6	ug/L	%R: 108.2	90 - 110	
24-2991-015MSD	MSD	Phenols	22.2	ug/L	%R: 110.9 *	90 - 110	RPD: 2 20
MSD outside control limits. All other QCIs are within acceptance limits.							
24-3303-005MS	MS	Phenols	40.1	ug/L	%R: 100.3	90 - 110	
24-3303-005MSD	MSD	Phenols	47.7	ug/L	%R: 119.2 *	90 - 110	RPD: 17 20
MSD outside control limits. All other QCIs are within acceptance limits.							
CCB879492	CB	Phenols	< 0.010	mg/L	0	-	
CCVS879493	CCVS	Phenols	0.048	mg/L	%R: 95.3	90 - 110	
ICB879494	CB	Phenols	< 0.010	mg/L	0	-	
ICVS879495	ICVS	Phenols	0.047	mg/L	%R: 94.7	90 - 110	

* The QC indicator is outside control limits. %R = percent recovery; RPD = Relative percent difference
 CB = Calibration Blank; CCVS = Continuing Calibration Verification Standard; MS = Matrix Spike;
 MSD = Matrix Spike Duplicate; LCS = Laboratory Control Spike; SURR = Surrogate Spiking Compound;
 PB = Procedure Blank; BLK = Method Blank; D = QCI diluted out.





CHAIN OF CUSTODY RECORD

ENVision Laboratories, Inc. [1439 Sadlier Circle West Drive, Indianapolis, IN 46239] Phone: 317-351-8632 Fax: 317-351-8639

Client: ENVision Labs	Invoice Address: SEE ABOVE	PHENOLS	REQUESTED PAR	Sample Integrity:	
Report Address: SEE ABOVE	Project Name: 2024-830			Cooler Temp: <u>2.3</u> °C	Samples on ice? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
Report To: DAVID NORRIS	Lab contact:			Samples Intact? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Custody Seal? Yes <input type="checkbox"/> No
Phone: SEE ABOVE	Sampler:			ENVision provided bottles? Yes <input type="checkbox"/> No	Vials free of head space? Yes <input type="checkbox"/> No <input type="checkbox"/> N/A
e-mail: SEE ABOVE	P.O. #:			pH Checked? Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	Method 5035 collection used? YES <input type="checkbox"/> NO
Desired TAT: (Please Circle one) 1-DAY 2-DAY 3-DAY STD (5-7 BUS. DAYS)	QA/QC Required: (Circle One) Level II Level III Level IV			5035 samples received within 48hrs of collection? Yes <input type="checkbox"/> No	

Sample #	Sample ID	Matrix	Coll. Date	Coll. Time				HNO3	H2SO4	NaOH	Other	None	ENVision Sample ID
24-5064	TRIP BLANK	WT	4/23/24	8:20	X								24-3303-001
24-5065	MW-3	WT	4/23/24	9:11	X								-002
24-5066	MW-5	WT	4/23/24	9:48	X								-003
24-5067	MW-5 DUP	WT	4/23/24	9:50	X								-004
24-5068	MW-4	WT	4/23/24	10:24	X								-005
24-5069	MW-1	WT	4/23/24	11:00	X								-006
24-5070	MW-2	WT	4/23/24	11:32	X								-007

COMMENTS:

RELINQUISHED BY:	DATE	TIME	RECEIVED BY:	DATE	TIME
LISA DAULTON	4/23/2024	14:00	<i>[Signature]</i>	4/24/24	12:00



ENVision Laboratories, Inc.
 1439 Sadlier Circle West Drive
 Indianapolis, IN 46239
 Tel: 317.351.8632
 Fax: 317.351.8639
 www.envisionlaboratories.com

EPA 6010B/7470A Metals Quality Control Data

ENVision Batch Number: 042324icp/042524hg

<u>Method Blank (MB):</u>	<u>MB Results(mg/L)</u>	<u>Rep Lim (mg/L)</u>	<u>Flag</u>
Arsenic, dissolved	< 0.01	0.01	
Barium, dissolved	< 0.1	0.1	
Cadmium, dissolved	< 0.005	0.005	
Chromium, dissolved	< 0.01	0.01	
Lead, dissolved	< 0.01	0.01	
Mercury, dissolved	< 0.002	0.002	
Selenium, dissolved	< 0.01	0.01	
Analysis Date/Time:	4-23-24/16:40icp/04/25/24/13:12hg		
Analyst Initials:	gjd		

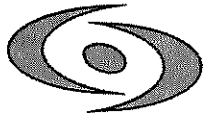
<u>Laboratory Control Standard (LCS):</u>	<u>LCS Results (mg/L)</u>	<u>LCS Conc.(mg/L)</u>	<u>% Rec</u>	<u>Flag</u>
Arsenic, dissolved	0.47	0.50	94%	
Barium, dissolved	0.51	0.50	102%	
Cadmium, dissolved	0.54	0.50	108%	
Chromium, dissolved	0.49	0.50	98%	
Lead, dissolved	0.46	0.05		
Mercury, dissolved	0.0049	0.0050	98%	
Selenium, dissolved	0.55	0.50	110%	
Analysis Date/Time:	4-23-24/16:37icp/4/25/24/13:10hg			
Analyst Initials:	gjd			



ENVision Laboratories, Inc.
1439 Sadlier Circle West Drive
Indianapolis, IN 46239
Tel: 317.351.8632
Fax: 317.351.8639
www.envisionlaboratories.com

Flag Number

Comments



CHAIN OF CUSTODY RECORD

ENVision Laboratories, Inc. | 1439 Sadlier Circle West Drive | Indianapolis, IN 46239 | Phone: (317) 351-8632 | Fax: (317) 351-8639

Client: CE Systems	Invoice Address:	REQUESTED PARAMETERS <i>Phenols</i> <i>Dis Metals</i>	Sample Integrity: Cooler Temp: <u>4</u> °C (Circle) Samples on Ice? <input checked="" type="radio"/> Yes <input type="radio"/> No Samples Intact? <input checked="" type="radio"/> Yes <input type="radio"/> No Custody Seal: Yes <input checked="" type="radio"/> No ENVision provided bottles: <input checked="" type="radio"/> Yes <input type="radio"/> No VOC vials free of head-space: Yes <input type="radio"/> No <input checked="" type="radio"/> N/A pH checked? <input checked="" type="radio"/> Yes <input type="radio"/> No Method 5035 collection used? Yes <input type="radio"/> No 5035 samples received within 48 hr of Collection? Yes <input type="radio"/> No
Report Address: Regional Services Corp 6147 E SR 44 Franklin IN 46231	Project Name: CE Systems		
Report To: Brian Hart	Lab Contact:		
Phone: 317 736 5523	Sampled by: C KOONTZ		
Fax: bhart@rs-colp.com	P.O. Number:		
Desired TAT: (Please Circle One) 1-day 2-day 3-day <input checked="" type="radio"/> Std 15-7 bus. days	QA/QC Required: (circle if applicable) <input checked="" type="radio"/> Level III <input type="radio"/> Level IV		

Sample ID	Coll. Date	Coll. Time	Comp (C) Grab (G)	Matrix	Please indicate number of containers per preservative below										ENVision Sample ID	
					HCl	HNO ₃	H ₂ SO ₄	NaOH	Other	None						
TRIP Blank	4/23/24	8:22	G	WT	X	X										24-5064
MW-3	4/23/24	9:11	G	WT	X	X										5065
MW-5	4/23/24	9:48	G	WT	X	X										5066
MW-5 Dup	4/23/24	9:50	G	WT	X	X										5067
MW-4	4/23/24	10:24	G	WT	X	X										5068
MW-1	4/23/24	11:00	G	WT	X	X										5069
MW-2	4/23/24	11:32	G	WT	X	X										5070
EQ Blank	4/23/24	11:45	G	WT		X										5071

Comments:

Relinquished by:	Date	Time	Received by:	Date	Time
Charlie Koontz RSC	4/23/24	13:15	Y Paulson	4/23/24	13:15

Appendix B

CE Systems, Inc Foundry Sand Disposal Area
Annual Ground Water Monitoring Report

Field Sampling Forms for April 2024 Annual Sampling Event

Field Data Record

Project Name: <u>CE Systems</u>		Date: <u>4/23/24</u>		Weather Conditions: <u>Sunny 50°</u>		Sampling Personnel: <u>C. Koc ATZ</u> <u>R. Griggs</u>																		
Project Location: <u>Columbus IN</u>																								
Well ID	Condition of Wellhead							Condition of Lock					Well Designation			Purge Equipment				Sampling Equipment				
	Ref Mark	OK	ID Missing	Cap Missing	Concrete Cracked	Pro-Cover Damaged	Other	OK	Missing	Damaged	Unlocked	Frozen	Cut-Off	Upgradient	Downgradient	Other	Pump	Bailer (List Type)	Rope (List Type)	Other	Pump	Bailer (List Type)	Rope (List Type)	Other
MW-3	✓	✓					<u>New Hinge</u>	✓							✓		<u>SS Pump</u>	Polyp.			<u>SS Pump</u>	Polyp.		
MW-5	✓	✓	<u>Part</u>					✓		<u>Refurb label</u>													Polyp.	
MW-4	✓	✓	"					✓		"	"												Polyp.	
MW-1	✓	✓						✓															Polyp.	
MW-2	✓	✓	"					✓		"	"												Polyp.	
																							Polyp.	
																							Polyp.	
																							Polyp.	
																							Polyp.	
Notes:																								
Field Calibration Standards:												Source:												
pH <u>EXTRA EXTRA II 322027</u>												<u>4.0 6/25</u> <u>7.0 5/25</u> <u>10.0 6/25</u>												
SC <u>EXTRA EXTRA II 254444</u>												<u>1413</u> <u>7/25</u>												
Eh <u>EXTRA EXTRA II 116520</u>												_____												
DO <u>EXTRA EXTRA II 235322</u>												<u>100% Columbus</u>												



Groundwater Low Flow Sampling Log

Project Name: CE Systems		Project Location: Columbus, IN.			Well Number: MW-3	
Date: 4/23/24	Weather Conditions: Sunny 52°		Sampling Personnel: E. KOSIŹ			Well Material: 2" PVC
Pump: Monsieur	Meter: See Field Data Sheet		R. GRIGGS			
SN: 1091	SN:					

Initial	Time	Reference Elevation (ft.)	Depth to Water (ft.)	Water Elevation (ft.)	Constructed Depth of Well (ft.)	Total Depth of Well (ft.)	Water Column (ft.)	One Well Volume (gallons)	Turbidity H - high, M - medium, L - low, N - none	Odor Y - yes N - no
---------	------	---------------------------	----------------------	-----------------------	---------------------------------	---------------------------	--------------------	---------------------------	--	---------------------------

8:50		617.54 617.68	12.80	604.60	-	17.24	4.44		H M (N)	Y (N)
-------------	--	--	--------------	---------------	---	--------------	-------------	--	----------------	--------------

Purge Data	Time	pH (su)	Specific Conductance (umhos/cm)	Dissolved Oxygen (mg/l)	Temp. (°C)	ORP	Pump Rate	Volume Removed	Purge Equipment
------------	------	---------	---------------------------------	-------------------------	------------	-----	-----------	----------------	-----------------

12.94

9:01	8:51	7.07	730	5.19	13.8	58	5L/min	.3 gal	Dedicated: Yes (N)
-------------	-------------	-------------	------------	-------------	-------------	-----------	---------------	---------------	---------------------------

12.95	9:02	7.31	732	5.05	14.4	92	5L/min	.5 gal	Bailer: poly
--------------	-------------	-------------	------------	-------------	-------------	-----------	---------------	---------------	---------------------

12.95	9:03	7.39	724	4.75	14.9	100	5L/min	.75 gal	Pump: monsieur
--------------	-------------	-------------	------------	-------------	-------------	------------	---------------	----------------	-----------------------

12.95	9:06	7.33	720	4.57	14.9	104	5L/min	1.1 gal	Tubing: poly
--------------	-------------	-------------	------------	-------------	-------------	------------	---------------	----------------	---------------------

Stabilization Criteria:	0.1 ± su	3%±	10%±	10 mv±
-------------------------	----------	-----	------	--------

Sampling Data	Turbidity	Odor
9:11	H M (N)	Y (N)

									Dedicated: Yes (N)
									Bailer:
									Rope: poly
									Pump: monsieur
									Tubing: poly

Sequence	Number of Containers	Bottle Size & Type	Preservative	Field Filtered
1. Diss Metals	1	250 ml plastic	HNO3	(Y) N
2. Phenols	1	1L Amber	H2SO4	
3. Other		1L plastic	Unpreserved	

Decon Time & Procedure:

ran 1 Gallon DI through pump/tubing

Special notes of sampling crew:



Groundwater Low Flow Sampling Log

Project Name: CE Systems		Project Location: Columbus IN.			Well Number: MW-5 DUP	
Date: 7/23/24	Weather Conditions: SUN 50°		Sampling Personnel: C. KOWATZ		Well Material: 2" PVC	
Pump: MW5001	Meter: see Field Data SHEET		R. G. GYS			
SN: 1091	SN:					

Initial	Time	Reference Elevation (TOC) (ft.)	Depth to Water (ft.)	Water Elevation (ft.)	Constructed Depth of Well (ft.)	Total Depth of Well (ft.)	Water Column (ft.)	One Well Volume (gallons)	Turbidity H - high, M - medium, L - low, N - none	Odor Y - yes N - no
9.95	9:33	614.38 614.88	9.95	604.43	-	14.92	4.97		H M L N	Y N
Purge Data	Time	pH (su)	Specific Conductance (umhos/cm)	Dissolved Oxygen (mg/l)	Temp. (°C)	ORP	Pump Rate	Volume Removed	Purge Equipment	
10.01	9:36	7.25	717	4.47	13.5	110	2.5L/min	.39gal	Dedicated: Yes <input checked="" type="checkbox"/> No	
9.99	9:39	7.45	708	4.72	13.7	100		.69gal	Bailer: PO14	
10.00	9:42	7.47	704	4.39	14.1	110		.9 gal	Pump: MW5001	
10.01	9:45	7.41	704	4.37	14.3	99		1.29gal	Tubing: PO14	
Stabilization Criteria:		0.1 ± su	3%±	10%±		10 mv±				

Sampling Data	Time	Turbidity	Odor
MW-5	9:48	H M L N	Y N
MW-5 DUP	9:50		
		Dedicated: Yes <input checked="" type="checkbox"/> No	
		Bailer: PO14	
		Pump: MW5001	
		Tubing: PO14	

Sequence	Number of Containers	Bottle Size & Type	Preservative	Field Filtered
1. Diss Metals	1	250 ml plastic	HNO3	Y N
2. Phenols	1	1L Amber	H2SO4	
3. Other		1L plastic	Unpreserved	

Decon Time & Procedure:

can be done DE through Pump/Tubing

Special notes of sampling crew:

DUP MW-5



Groundwater Low Flow Sampling Log

Project Name: CE Systems		Project Location: Columbus IN			Well Number: MW-4	
Date: 7/23/24	Weather Conditions: Sunny 52°		Sampling Personnel: C KOOATZ			Well Material: 2" PVC
Pump: MONSON	Meter:		SN: 261995			
SN: 1091	SN:					

Initial	Time	Reference Elevation (TOC) (ft.)	Depth to Water (ft.)	Water Elevation (ft.)	Constructed Depth of Well (ft.)	Total Depth of Well (ft.)	Water Column (ft.)	One Well Volume (gallons)	Turbidity H - high, M - medium, L - low, N - none	Odor Y - yes N - no
	10:09	617.21 -617.69	12.90	604.31	-	17.89	4.99		H M (L) (N)	Y (N)
Purge Data	Time	pH (su)	Specific Conductance (umhos/cm)	Dissolved Oxygen (mg/l)	Temp. (°C)	ORP	Pump Rate	Volume Removed	Purge Equipment	
13.4	10:12	7.24	723	3.11	13.6	117	0.2/min	1.3 gal	Dedicated: Yes / (NO) Bailer:	
13.06	10:15	7.36	742	3.45	13.4	72		0.6	Rope: poly Pump: monson	
13.05	10:18	7.35	744	3.16	13.5	64		0.9 gal	Tubing: poly	
13.04	10:21	7.29	746	3.28	13.9	66		1.2		
Stabilization Criteria:		0.1 ± su	3%±	10%±	10 mv±					

Sampling Data	Time	Turbidity	Odor
	10:24	H M (L) (N)	Y (N)
		Dedicated: Yes / (NO) Bailer:	
		Rope: poly Pump: monson Tubing: poly	

Sequence	Number of Containers	Bottle Size & Type	Preservative	Field Filtered
1. Diss Metals	1	250 ml plastic	HNO3	(Y) N
2. Phenols	1	1L Amber	H2SO4	
3. Other		1L plastic	Unpreserved	

Decon Time & Procedure:
Rinse 1 gallon DI Through Pump/Tubing

Special notes of sampling crew:



Groundwater Low Flow Sampling Log

Project Name: CE Systems		Project Location: Columbus IN.			Well Number: MW-1	
Date: 4/23/24	Weather Conditions:		Sampling Personnel: L Koc ATZ		Well Material: 2" PVC	
Pump: MO 15007	Meter: See Field Data Sheet		SN: R 61995			
SN: 1091		SN:				

Initial	Time	Reference Elevation (TOC) (ft.)	Depth to Water (ft.)	Water Elevation (ft.)	Constructed Depth of Well (ft.)	Total Depth of Well (ft.)	Water Column (ft.)	One Well Volume (gallons)	Turbidity H - high, M - medium, L - low, N - none	Odor Y - yes N - no
	10:42	616.93 617.25	12.62	604.31	—	20.03	7.41		H M (EN)	Y (N)
Purge Data	Time	pH (su)	Specific Conductance (umhos/cm)	Dissolved Oxygen (mg/l)	Temp. (°C)	ORP	Pump Rate	Volume Removed	Purge Equipment	
12.70	10:45	7.54	768	2.78	15.4	64	154ml/min	13gal	Dedicated: Yes (No)	
12.72	10:48	7.35	724	2.05	14.4	58		16gal	Bailer: Poly	
12.74	10:51	7.33	718	1.97	14.7	42		18gal	Rope: poly	
12.74	10:54	7.37	724	2.04	14.8	36		1.2gal	Pump: mo 15007	
12.74	10:57	7.37	726	1.92	14.8	38		1.5gal	Tubing: Poly	
Stabilization Criteria:		0.1 ± su	3%±	10%±		10 mv±				

Sampling Data	Time	Turbidity	Odor
	11:00	H M (DN)	Y (N)
		Dedicated: Yes (No)	
		Bailer:	
		Rope: poly	
		Pump: mo 15007	
		Tubing: Poly	

Sequence	Number of Containers	Bottle Size & Type	Preservative	Field Filtered
1. Diss Metals	1	250 ml plastic	HNO3	(N)
2. Phenols	1	1L Amber	H2SO4	
3. Other		1L plastic	Unpreserved	

Decon Time & Procedure:

Ren 1 gallon DI Through Pump / Tubing

Special notes of sampling crew:



Groundwater Low Flow Sampling Log

Project Name: CE Systems		Project Location: <u>Columbus IN</u>		Well Number: MW-2
Date: <u>4/23/24</u>	Weather Conditions:		Sampling Personnel: <u>C Kowitz</u> <u>R Giggis</u>	Well Material: 2" PVC
Pump: <u>Monsieur</u>	Meter: <u>See Field Data Sheet</u>			
SN: <u>1091</u>	SN:			

Initial	Time	Reference Elevation (TOC) (ft.)	Depth to Water (ft.)	Water Elevation (ft.)	Constructed Depth of Well (ft.)	Total Depth of Well (ft.)	Water Column (ft.)	One Well Volume (gallons)	Turbidity H - high, M - medium, L - low, N - none	Odor Y - yes N - no
	<u>11:14</u>	<u>614.56</u> 614.89	<u>10.24</u>	<u>604.32</u>	<u>—</u>	<u>19.24</u>	<u>9.00</u>		H M <u>(D)</u> N	Y <u>(N)</u>
Purge Data	Time	pH (su)	Specific Conductance (umhos/cm)	Dissolved Oxygen (mg/l)	Temp. (°C)	ORP	Pump Rate	Volume Removed	Purge Equipment	
<u>10.36</u>	<u>11:17</u>	<u>7.54</u>	<u>678</u>	<u>3.84</u>	<u>16.6</u>	<u>55</u>	<u>.5L/min</u>	<u>.3 gal</u>	Dedicated: Yes <u>(No)</u> Bailer:	
<u>10.40</u>	<u>11:20</u>	<u>7.63</u>	<u>677</u>	<u>3.93</u>	<u>15.7</u>	<u>53</u>		<u>.4</u>	Rope: <u>poly</u> Pump: <u>monsieur</u> Tubing: <u>poly</u>	
<u>10.41</u>	<u>11:23</u>	<u>7.52</u>	<u>685</u>	<u>3.78</u>	<u>15.7</u>	<u>46</u>		<u>.9 gal</u>		
<u>10.4</u>	<u>11:26</u>	<u>7.47</u>	<u>687</u>	<u>3.79</u>	<u>15.6</u>	<u>44</u>		<u>1.2 gal</u>		
<u>10.41</u>	<u>11:29</u>	<u>7.48</u>	<u>689</u>	<u>3.82</u>	<u>15.4</u>	<u>42</u>		<u>1.5 gal</u>		
Stabilization Criteria:		0.1 ± su	3%±	10%±		10 mv±				

Sampling Data	Time	Turbidity	Odor
	<u>11:32</u>	H M L N	Y N
		Dedicated: Yes <u>(No)</u> Bailer: Rope: <u>poly</u> Pump: <u>monsieur</u> Tubing: <u>poly</u>	

Sequence	Number of Containers	Bottle Size & Type	Preservative	Field Filtered
1. Diss Metals	<u>1</u>	250 ml plastic	HNO3	<u>(D)</u> N
2. Phenols	<u>1</u>	1L Amber	H2SO4	
3. Other		<u>1L plastic</u>	<u>Unpreserved</u>	

Decon Time & Procedure:

1 gallon DI ran through pump tubing before EQ blank

Special notes of sampling crew:



Groundwater Low Flow Sampling Log

Project Name: CE Systems		Project Location: Columbus IN		Well Number: Equip Blank	
Date: 4/23/24	Weather Conditions: Cloudy 53°		Sampling Personnel: C. KOONTZ		Well Material:
Pump: manison	Meter: N/A		RG1993		
SN: 1091	SN:				

Initial	Time	Reference Elevation (TOC) (ft.)	Depth to Water (ft.)	Water Elevation (ft.)	Constructed Depth of Well (ft.)	Total Depth of Well (ft.)	Water Column (ft.)	One Well Volume (gallons)	Turbidity H - high, M - medium, L - low, N - none	Odor Y - yes N - no
									H M L N	Y N

Purge Data	Time	pH (su)	Specific Conductance (umhos/cm)	Dissolved Oxygen (mg/l)	Temp. (°C)	ORP	Pump Rate	Volume Removed	Purge Equipment
									Dedicated: Yes / No
									Bailer:
									Rope:
									Pump:
									Tubing:
Stabilization Criteria:		0.1 ± su	3%±	10%±		10 mv±			

Sampling Data	Time	Reference Elevation (TOC) (ft.)	Depth to Water (ft.)	Water Elevation (ft.)	Constructed Depth of Well (ft.)	Total Depth of Well (ft.)	Water Column (ft.)	One Well Volume (gallons)	Turbidity	Odor
	11:45								H M L (N)	Y (N)
									Dedicated: Yes (No)	
									Bailer:	
									Rope: poly	
									Pump: manison	
									Tubing: poly	

Sequence	Number of Containers	Bottle Size & Type	Preservative	Field Filtered
1. Diss Metals	1	250 ml plastic	HNO3	(Y) N

Decon Time & Procedure:

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Special notes of sampling crew:



Groundwater Low Flow Sampling Log

Project Name: CE Systems		Project Location: <i>Columbus I,</i>		Well Number: Trip Blank	
Date: <i>4/23/24</i>	Weather Conditions:		Sampling Personnel:		Well Material:
Pump: <i>N/A</i>	Meter: <i>N/A</i>				
SN:	SN: <i>N/A</i>				

Initial	Time	Reference Elevation (TOC) (ft.)	Depth to Water (ft.)	Water Elevation (ft.)	Constructed Depth of Well (ft.)	Total Depth of Well (ft.)	Water Column (ft.)	One Well Volume (gallons)	Turbidity H - high, M - medium, L - low, N - none	Odor Y - yes N - no
									H M L N	Y N

Purge Data	Time	pH (su)	Specific Conductance (umhos/cm)	Dissolved Oxygen (mg/l)	Temp. (°C)	ORP	Pump Rate	Volume Removed	Purge Equipment
									Dedicated: Yes / No
									Bailer:
									Rope:
									Pump:
									Tubing:
Stabilization Criteria:		0.1 ± su	3%±	10%±		10 mv±			

Sampling Data	Time	pH (su)	Specific Conductance (umhos/cm)	Dissolved Oxygen (mg/l)	Temp. (°C)	ORP	Pump Rate	Volume Removed	Turbidity	Odor
<i>TRIP BLANK</i>	<i>8:20</i>								H M L N	Y N
									Dedicated: Yes / No	
									Bailer:	
									Rope:	
									Pump:	
									Tubing:	

Sequence	Number of Containers	Bottle Size & Type	Preservative	Field Filtered
1. Diss Metals		250 ml plastic	HNO3	Y N
2. Phenols		1L Amber	H2SO4	
3. Other		1L plastic	Unpreserved	

Decon Time & Procedure:

--	--	--	--	--	--	--	--

Special notes of sampling crew:

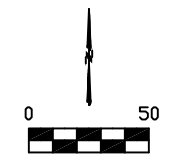
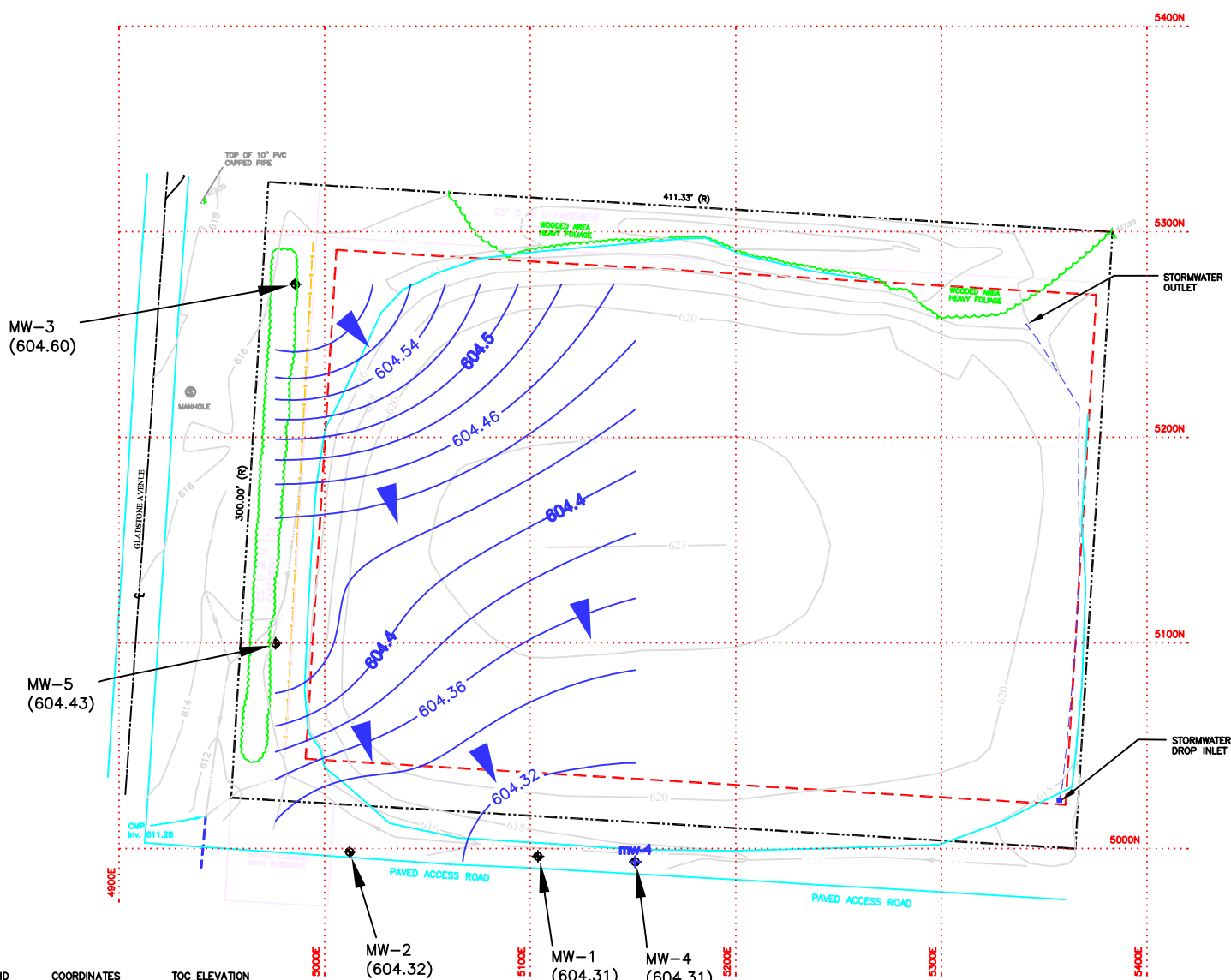
TRIP Blank Filled by lab

Appendix C

CE Systems, Inc Foundry Sand Disposal Area
Annual Ground Water Monitoring Report

Ground Water Flow Map for April 2024 Annual Sampling Event

Civil/Structural Flow Apr 2024.dwg



- LEGEND**
- PROPERTY LINE
 - - - FOUNDRY SAND FILL BOUNDARY ±
 - · · SITE GRID
 - CLOSURE SOIL CAP LIMIT ±
 - FINAL COVER CONTOUR (2 ft. C.L.)
 - - - BURIED STORM WATER CARRIER PIPE
 - FENCE
 - EASEMENT
 - GROUND WATER CONTOUR (0.02 C.L.)
 - ▲ GROUND WATER FLOW DIRECTION
 - SURFACE WATER FLOW LINE
 - FOLIAGE
 - ◆ GROUND WATER MONITORING WELL (STATIC WATER ELEVATION)

WELL ID	COORDINATES	TOC ELEVATION
MW-1	4996.2N / 5103.7E	616.93*
MW-2	4998.4N / 5012.2E	614.56*
MW-3	5274.5N / 4985.7E	617.40**
MW-4	4993.6N / 5151.0E	617.21*
MW-5	5099.8N / 4976.2E	614.38*

*TOC SURVEY RESULTS 3-20-15 **REV CUTOFF 4-1-20

GROUND WATER MEASUREMENTS TAKEN ON APRIL 23, 2024
SEE SAMPLING LOG FOR EXACT TIME OF MEASUREMENT

REVISIONS

NO.	DATE	DESCRIPTION	BY

CE Systems, Inc.
Columbus, Bartholomew County (AO # 2002-12341-H)
Foundry Sand Fill Site (Closed)
Potentiometric Surface Map (4-23-2024)

DRAWN BY	RSC	BH	As Shown
CHECKED BY			
DATE	April 2024		
SCALE			

RSC
6147 East S.R. 44
Franklin, Indiana 46131
(317) 736-5523