Energy Safety Response Group llc

8350 US HWY 23
Delaware, Ohio 43015
+1 740.981.7683
Nick.warner@energyresponsegroup.com

ESRG
ENERGY SAFETY
RESPONSE GROUP

September 26th, 2023

Mr. Paul Oberdorfer,

CC: Frank Patrizio, Brent Pohlschneider

Subject: Cessation of Testing Operations at Piqua Fire Training and Research Facility

Effective Friday, September 22nd, 2023, Energy Safety Response Group has ceased all destructive testing operations at the facility at 9300 OH-66, Piqua, Ohio. ESRG is working to re-route shipments of additional test materials slated to be received at the facility. If they cannot be re-routed in time, they will be shipped back out without performing any testing. In the immediate future, ESRG shall begin packing all equipment at the site, as well as remaining test specimens for shipment to other locations. These operations may involve the delivery of empty cargo containers to pack equipment and the use of cranes to load trucks. ESRG will remove electrical test equipment installed at their expense. ESRG shall leave in place a myriad of site improvements made at their expense as a goodwill gift to the people of Piqua.

ESRG is thankful for the opportunity to have worked with the city and their leadership team and wishes them the best of luck with the training center and all future endeavors.

Nick Warner
Principal, ESRG

Zimmer, Robert

Subject: FW: ESRG Piqua Battery Testing Site
Attachments: Re: Water Dropoff; Re: Water Disposal; Pit Vac; ESRG Water Sample Results Nov22.pdf; ESRG Water Sample Results Jun23.pdf

---

From: Nick Warner <nick.warner@energyresponsegroup.com>
Sent: Sunday, October 1, 2023 7:47 PM
To: Kavalec, James <James.Kavalec@epa.ohio.gov>; Brown, Russell <Russell.Brown@epa.ohio.gov>
Cc: Moran, Eileen <emoran@rapca.org>; Weisman, Andy <aweisman@rapca.org>; Buthker, Bonnie <Bonnie.Buthker@epa.ohio.gov>; Glasgow, Marcus <marcus.glasgow@epa.ohio.gov>
Subject: RE: ESRG Piqua Battery Testing Site

Mr. Kavalec,

See attached data per the request in Ohio EPA's notice of violation dated September 26, 2023 for wastewater collection and disposal records from the last three years.

During that time period, we have disposed of wastewater once in 2022 and once in 2023. This wastewater was tested prior to its removal from our facility, and those sample analyses are enclosed. The wastewater was removed by Buckeye Elm Contracting on both occasions. Buckeye Elm Contracting delivered the wastewater to Valicor Environmental Services in 2022 and to the City of Piqua wastewater treatment plant in 2023. The disposal records in our possession are enclosed.

A couple of notes when reviewing the data:

- Between the industry guidance of letting batteries burn, our need to minimize water because of containment limitations, and our desire to show that battery fires, with proper training, can be managed with minimal water; we always tried to use as little water as possible when managing these events.
    - This typically results in much higher concentrations than would be seen in normal firefighting operations where thousands of gallons are used indiscriminately.
    - This also explains why we have disposed of wastewater only twice during the last three years.
- We saw a bit of a slowdown in battery testing during COVID, coupled with increased industry guidance to not use water. Therefore, from early 2020 until now, we only had two water disposal runs. Disposal took place once we had received the results from the lab about contents.
- In February and April 2023, we performed two large outdoor tests in which some or all of the battery enclosure failed or came open after testing. This resulted in large quantities of the degraded batteries in the enclosure spilling out onto the north pad near the basin. Despite efforts to scoop everything back up into bins while dry, a lot of the particulate debris was swept or washed into the basin. I believe these two events contributed to the bulk of the nickel, manganese, and cobalt in the north basin in the 2023 disposal data as both of those tests were on lithium-ion batteries with nickel manganese cobalt oxide (NMC) electrodes.
- Samples from the holding tanks (IBCs) were combined into a composite sample with the idea that if anything came back high, we would sample them individually.
- We will be generating one more round of predisposal samples prior to disposal of the water on site currently. That water will be disposed of accordingly with basins drained to the bottom. Assuming no hazardous materials are present, ESRG will consider the pads and basins clean.

We are collecting the air emission information requested by the notice of violation and will provide that information as soon as that process is finished.

Nick

Nick Warner
Principal, Co-Founder
Cell: +1 740 981 7683
Email: nick.warner@energyresponsegroup.com

energyresponsegroup.com

From: James.Kavalec@epa.ohio.gov <James.Kavalec@epa.ohio.gov>
Sent: Thursday, September 28, 2023 7:40 AM
To: Nick Warner <nick.warner@energyresponsegroup.com>; Russell.Brown@epa.ohio.gov
Cc: emoran@rapca.org; aweisman@rapca.org; Bonnie.Buthker@epa.ohio.gov; marcus.glasgow@epa.ohio.gov
Subject: RE: ESRG Piqua Battery Testing Site

The information is attached. If you have questions you can email Marc Glasgow, he is with out legal office and can assist you with trade secret questions. I have copied him on this email

James Kavalec
Assistant Chief of Compliance and Enforcement
50 W. Town Street, Suite 700
Columbus, Ohio 43215
D: 614.644.4840 C: 614.302.3587
James.Kavalec@epa.ohio.gov

From: Nick Warner <nick.warner@energyresponsegroup.com>
Sent: Thursday, September 28, 2023 2:20 AM
To: Kavalec, James <James.Kavalec@epa.ohio.gov>; Brown, Russell <Russell.Brown@epa.ohio.gov>
Cc: Moran, Eileen <emoran@rapca.org>; Weisman, Andy <aweisman@rapca.org>; Buthker, Bonnie <Bonnie.Buthker@epa.ohio.gov>
Subject: RE: ESRG Piqua Battery Testing Site

Mr. Kavalec,

Per our conversation yesterday, please connect me with your staff who can provide the information on submitting the requested data as trade secret.

Thank you,

Nick

Nick Warner
Principal, Co-Founder
Cell: +1 740 981 7683
Email: nick.warner@energyresponsegroup.com

energyresponsegroup.com

From: James.Kavalec@epa.ohio.gov <James.Kavalec@epa.ohio.gov>
Sent: Tuesday, September 26, 2023 2:29 PM
To: Nick Warner <nick.warner@energyresponsegroup.com>; Russell.Brown@epa.ohio.gov
Cc: emoran@rapca.org; aweisman@rapca.org; Bonnie.Buthker@epa.ohio.gov
Subject: RE: ESRG Piqua Battery Testing Site

Mr. Warner,

Attached is the Notice of Violation that was referenced in the email below, if you can please acknowledge receipt. Please feel free to reach out with questions.

James Kavalec
Assistant Chief of Compliance and Enforcement
50 W. Town Street, Suite 700
Columbus, Ohio 43215
D: 614.644.4840 C: 614.302.3587
James.Kavalec@epa.ohio.gov

CERTIFICATE OF ANALYSIS

Reported by Alloway - Marion

Chain of Custody attached

Lab Project # 2316958

Received: 5/17/2023

Reported: 5/30/2023

Buckeye Elm Contracting
Attn: Bo Timmons
1333 Research Rd.
Columbus, OH 43230

Date/Time Sampled: 05/16/2023 11:00
Sampled By: BT
Sampled Matrix: Surface Water
Containers: 2
Collection Method: Grab

Project Name: ESRG House Water Disposal

Sample ID: House IBC Comp

Lab Sample # 2316958-01

pH was adjusted for P/NO3/Metals upon receipt.
Samples received outside of temperature requirement; analyze per client request.

Analyte	Results	Units	PQL	Analyst	Extraction Date	Analysis Start Date/Time
Analytical Method: EPA 300.0 Rev 2.1	Preparation Method:				Validation Date:	5/30/2023
Chloride	140	mg/L	5.0	DAW		05/24/2023 23:06
Analytical Method: SM 4500-F B,C-11, SM 4500-F C-97	Preparation Method:	Undistilled			Validation Date:	5/30/2023
Fluoride	152	mg/L	10.0	LGE		05/20/2023 06:30
Analytical Method: EPA 353.2 Rev. 2.0/SM4500-NO3 F-00,16	Preparation Method:				Validation Date:	5/30/2023
Nitrate/Nitrite-N	0.59	mg/L	0.50	TLL		05/25/2023 12:12
Analytical Method: SM 4500-H B-11	Preparation Method:				Validation Date:	5/30/2023
pH, Laboratory Analyzed (Estimate)	3.7	S.U.	1.0	LGE		05/18/2023 14:40
Analytical Method: SM 4500-P E-11	Preparation Method:	SM 4500P-B(5)-11			Validation Date:	5/30/2023
Phosphate, Total as P	47.1	mg/L	2.00	TLL		05/21/2023 11:32
Phosphate, Total as PO4	144	mg/L	6.00	TLL		05/21/2023 11:32
Analytical Method: EPA 300.0 Rev 2.1	Preparation Method:				Validation Date:	5/30/2023
Sulfate	63	mg/L	5.0	DAW		05/24/2023 23:06
Analytical Method: EPA 200.7 Rev. 4.4	Preparation Method:	EPA-200.7			Validation Date:	5/30/2023
Arsenic, Total	<15	ug/L	15	CMB		05/22/2023 08:27
Aluminum, Total	31000	ug/L	750	CMB		05/22/2023 08:27
Barium, Total	<50	ug/L	50	CMB		05/22/2023 08:27
Beryllium, Total	<2.5	ug/L	2.5	CMB		05/22/2023 08:27
Boron, Total	1300	ug/L	100	CMB		05/23/2023 12:27
Cadmium, Total	<2.5	ug/L	2.5	CMB		05/22/2023 08:27

Analysis Certified By: Rhonda C. Morris

Rhonda C Morris

This report shall not be reproduced, except in its entirety, without the written approval of the laboratory.
The results presented on this Certificate of Analysis only reflect those parameters that were requested by the client on the chain of custody or other documentation received with the sample(s). The analytical results relate only to the items tested.

CERTIFICATE OF ANALYSIS

Reported by Alloway - Marion

Chain of Custody attached

Lab Project # 2316958

Received: 5/17/2023

Reported: 5/30/2023

Buckeye Elm Contracting
Attn: Bo Timmons
1333 Research Rd.
Columbus, OH 43230

Date/Time Sampled: 05/16/2023 11:00
Sampled By: BT
Sampled Matrix: Surface Water
Containers: 2
Collection Method: Grab

Project Name: ESRG House Water Disposal

Sample ID: House IBC Comp

Lab Sample # 2316958-01

pH was adjusted for P/NO3/Metals upon receipt.
Samples received outside of temperature requirement; analyze per client request.

Analyte	Results	Units	PQL	Analyst	Extraction Date	Analysis Start Date/Time
Calcium, Total	61.2	mg/L	10.0	CMB		05/22/2023 08:27
Chromium, Total	90	ug/L	50	CMB		05/22/2023 08:27
Cobalt, Total	1400	ug/L	50	CMB		05/22/2023 08:27
Copper, Total	1200	ug/L	50	CMB		05/22/2023 08:27
Iron, Total	15000	ug/L	200	CMB		05/22/2023 08:27
Lead, Total	24	ug/L	10	CMB		05/22/2023 08:27
Magnesium, Total	22.8	mg/L	10.0	CMB		05/22/2023 08:27
Molybdenum, Total	<50	ug/L	50	CMB		05/22/2023 08:27
Manganese, Total	4700	ug/L	1000	CMB		05/22/2023 08:27
Nickel, Total	2400	ug/L	50	CMB		05/22/2023 08:27
Potassium, Total	17	mg/L	5.0	CMB		05/22/2023 08:27
Selenium, Total	<25	ug/L	25	CMB		05/22/2023 08:27
Silicon, Total	32.3	mg/L	5.00	CMB		05/22/2023 08:27
Sodium, Total	55.9	mg/L	2.00	CMB		05/22/2023 08:27
Strontium, Total	400	ug/L	50	CMB		05/22/2023 08:27
Tin, Total	120	ug/L	50	CMB		05/22/2023 08:27
Titanium, Total	350	ug/L	50	CMB		05/22/2023 08:27
Vanadium, Total	<50	ug/L	50	CMB		05/22/2023 08:27
Zinc, Total	72000	ug/L	1000	CMB		05/22/2023 08:27
Analytical Method: EPA 200.8 Rev. 5.4			Preparation Method: EPA-200.8		Validation Date: 5/30/2023	
Antimony, Total	200	ug/L	3.0	SLB		05/25/2023 22:31
Lithium, Total	200	ug/L	200	SLB		05/27/2023 23:18
Silver, Total	1.8	ug/L	1.0	SLB		05/25/2023 22:31

Analysis Certified By: Rhonda C Morris

Rhonda C Morris

This report shall not be reproduced, except in its entirety, without the written approval of the laboratory.
The results presented on this Certificate of Analysis only reflect those parameters that were requested by the client on the chain of custody or other documentation received with the sample(s). The analytical results relate only to the items tested.

CERTIFICATE OF ANALYSIS

Reported by Alloway - Marion

Chain of Custody attached

Lab Project # 2316958

Received: 5/17/2023

Reported: 5/30/2023

Buckeye Elm Contracting
Attn: Bo Timmons
1333 Research Rd.
Columbus, OH 43230

Date/Time Sampled: 05/16/2023 11:10
Sampled By: BT
Sampled Matrix: Surface Water
Containers: 1
Collection Method: Grab

Project Name: ESRG House Water Disposal

Sample ID: House IBC Comp

Lab Sample # 2316958-01

pH was adjusted for P/NO3/Metals upon receipt.
Samples received outside of temperature requirement; analyze per client request.

Analyte	Results	Units	PQL	Analyst	Extraction Date	Analysis Start Date/Time
Thallium, Total	<1.0	ug/L	1.0	SLB		05/25/2023 22:31

Analysis Certified By: Rhonda C Morris

Rhonda C Morris

This report shall not be reproduced, except in its entirety, without the written approval of the laboratory.
The results presented on this Certificate of Analysis only reflect those parameters that were requested by the client on the chain of custody or other documentation received with the sample(s). The analytical results relate only to the items tested.

Alloway
Your Resource for Defensible Data

CERTIFICATE OF ANALYSIS

Reported by Alloway - Marion
Chain of Custody attached

Lab Project # 2316958
Received: 5/17/2023
Reported: 5/30/2023

Buckeye Elm Contracting
Attn: Bo Timmons
1333 Research Rd.
Columbus, OH 43230

Date/Time Sampled: 05/16/2023 11:10
Sampled By: BT
Sampled Matrix: Surface Water
Containers: 1
Collection Method: Grab

Project Name: ESRG House Water Disposal

Sample ID: House Fire Room

Lab Sample # 2316958-02

pH was adjusted for P/NO3/Metals upon receipt.
Samples received outside of temperature requirement; analyze per client request.

Analyte	Results	Units	PQL	Analyst	Extraction Date	Analysis Start Date/Time
Analytical Method: EPA 300.0 Rev 2.1	Preparation Method:				Validation Date:	5/30/2023
Chloride	9.1	mg/L	5.0	DAW		05/25/2023 00:32
Analytical Method: SM 4500-F B,C-11, SM 4500-F C-97	Preparation Method:	Undistilled			Validation Date:	5/30/2023
Fluoride	45.5	mg/L	2.50	LGE		05/20/2023 06:30
Analytical Method: EPA 353.2 Rev. 2.0/SM4500-NO3 F-00,16	Preparation Method:				Validation Date:	5/30/2023
Nitrate/Nitrite-N	<0.50	mg/L	0.50	TLL		05/25/2023 12:12
The matrix spike / matrix spike duplicate recoveries are biased below method limits.						
Analytical Method: SM 4500-H B-11	Preparation Method:				Validation Date:	5/30/2023
pH, Laboratory Analyzed (Estimate)	7.0	S.U.	1.0	LGE		05/18/2023 14:40
Analytical Method: SM 4500-P E-11	Preparation Method:	SM 4500P-B(5)-11			Validation Date:	5/30/2023
Phosphate, Total as P	19.6	mg/L	2.00	TLL		05/21/2023 11:32
Phosphate, Total as PO4	59.9	mg/L	6.00	TLL		05/21/2023 11:32
Analytical Method: EPA 300.0 Rev 2.1	Preparation Method:				Validation Date:	5/30/2023
Sulfate	160	mg/L	5.0	DAW		05/25/2023 00:32
Analytical Method: EPA 200.7 Rev. 4.4	Preparation Method:	EPA-200.7			Validation Date:	5/30/2023
Arsenic, Total	<15	ug/L	15	CMB		05/22/2023 08:27
Aluminum, Total	25000	ug/L	750	CMB		05/22/2023 08:27
Barium, Total	3400	ug/L	50	CMB		05/22/2023 08:27
Beryllium, Total	<2.5	ug/L	2.5	CMB		05/22/2023 08:27
Boron, Total	190	ug/L	100	CMB		05/23/2023 12:27

Analysis Certified By: Rhonda C. Morris

Rhonda C Morris

This report shall not be reproduced, except in its entirety, without the written approval of the laboratory.
The results presented on this Certificate of Analysis only reflect those parameters that were requested by the client on the chain of custody or other documentation received with the sample(s). The analytical results relate only to the items tested.

CERTIFICATE OF ANALYSIS

Reported by Alloway - Marion

Chain of Custody attached

Lab Project # 2316958

Received: 5/17/2023

Reported: 5/30/2023

Buckeye Elm Contracting
Attn: Bo Timmons
1333 Research Rd.
Columbus, OH 43230

Date/Time Sampled: 05/16/2023 11:10
Sampled By: BT
Sampled Matrix: Surface Water
Containers: 1
Collection Method: Grab

Project Name: ESRG House Water Disposal

Sample ID: House Fire Room

Lab Sample # 2316958-02

pH was adjusted for P/NO3/Metals upon receipt.
Samples received outside of temperature requirement; analyze per client request.

Analyte	Results	Units	PQL	Analyst	Extraction Date	Analysis Start Date/Time
Cadmium, Total	<2.5	ug/L	2.5	CMB		05/22/2023 08:27
Calcium, Total	137	mg/L	10.0	CMB		05/22/2023 08:27
Chromium, Total	<50	ug/L	50	CMB		05/22/2023 08:27
Cobalt, Total	17000	ug/L	1000	CMB		05/22/2023 08:27
Copper, Total	4700	ug/L	1000	CMB		05/22/2023 08:27
Iron, Total	50000	ug/L	4000	CMB		05/22/2023 08:27
Lead, Total	70	ug/L	10	CMB		05/22/2023 08:27
Magnesium, Total	9.70	mg/L	0.50	CMB		05/22/2023 08:27
Molybdenum, Total	<50	ug/L	50	CMB		05/22/2023 08:27
Manganese, Total	17000	ug/L	1000	CMB		05/22/2023 08:27
Nickel, Total	33000	ug/L	1000	CMB		05/22/2023 08:27
Potassium, Total	9.8	mg/L	5.0	CMB		05/22/2023 08:27
Selenium, Total	<25	ug/L	25	CMB		05/22/2023 08:27
Silicon, Total	13.4	mg/L	5.00	CMB		05/22/2023 08:27
Sodium, Total	8.02	mg/L	2.00	CMB		05/22/2023 08:27
Strontium, Total	490	ug/L	50	CMB		05/22/2023 08:27
Tin, Total	280	ug/L	50	CMB		05/22/2023 08:27
Titanium, Total	390	ug/L	50	CMB		05/22/2023 08:27
Vanadium, Total	<50	ug/L	50	CMB		05/22/2023 08:27
Zinc, Total	3200	ug/L	50	CMB		05/22/2023 08:27
Analytical Method: EPA 200.8 Rev. 5.4		Preparation Method: EPA-200.8			Validation Date: 5/30/2023	
Antimony, Total	120	ug/L	3.0	SLB		05/25/2023 22:31
Lithium, Total	<500	ug/L	500	SLB		05/27/2023 23:18

Analysis Certified By: Rhonda C. Morris

Rhonda C Morris

This report shall not be reproduced, except in its entirety, without the written approval of the laboratory.
The results presented on this Certificate of Analysis only reflect those parameters that were requested by the client on the chain of custody or other documentation received with the sample(s). The analytical results relate only to the items tested.

CERTIFICATE OF ANALYSIS

Reported by Alloway - Marion

Chain of Custody attached

Lab Project # 2316958

Received: 5/17/2023

Reported: 5/30/2023

Buckeye Elm Contracting
Attn: Bo Timmons
1333 Research Rd.
Columbus, OH 43230

Date/Time Sampled: 05/16/2023 11:10
Sampled By: BT
Sampled Matrix: Surface Water
Containers: 1
Collection Method: Grab

Project Name: ESRG House Water Disposal

Sample ID: House Fire Room

Lab Sample # 2316958-02

pH was adjusted for P/NO3/Metals upon receipt.
Samples received outside of temperature requirement; analyze per client request.

Analyte	Results	Units	PQL	Analyst	Extraction Date	Analysis Start Date/Time
Silver, Total	<1.0	ug/L	1.0	SLB		05/25/2023 22:31
Thallium, Total	<1.0	ug/L	1.0	SLB		05/25/2023 22:31

Analysis Certified By: Rhonda C Morris

Rhonda C Morris

This report shall not be reproduced, except in its entirety, without the written approval of the laboratory.
The results presented on this Certificate of Analysis only reflect those parameters that were requested by the client on the chain of custody or other documentation received with the sample(s). The analytical results relate only to the items tested.

CERTIFICATE OF ANALYSIS

Reported by Alloway - Marion

Chain of Custody attached

Lab Project # 2316958

Received: 5/17/2023

Reported: 5/30/2023

Buckeye Elm Contracting
Attn: Bo Timmons
1333 Research Rd.
Columbus, OH 43230

Date/Time Sampled: 05/16/2023 11:15
Sampled By: BT
Sampled Matrix: Surface Water
Containers: 1
Collection Method: Grab

Project Name: ESRG House Water Disposal

Sample ID: House Outside Pit North

Lab Sample # 2316958-03

pH was adjusted for P/NO3/Metals upon receipt.
Samples received outside of temperature requirement; analyze per client request.

Analyte	Results	Units	PQL	Analyst	Extraction Date	Analysis Start Date/Time
Analytical Method: EPA 300.0 Rev 2.1	Preparation Method:				Validation Date:	5/30/2023
Chloride	58	mg/L	5.0	DAW		05/25/2023 00:32
Analytical Method: SM 4500-F B,C-11, SM 4500-F C-97	Preparation Method:	Undistilled			Validation Date:	5/30/2023
Fluoride	194	mg/L	10.0	LGE		05/20/2023 06:30
Analytical Method: EPA 353.2 Rev. 2.0/SM4500-NO3 F-00,16	Preparation Method:				Validation Date:	5/30/2023
Nitrate/Nitrite-N	<0.50	mg/L	0.50	TLL		05/25/2023 12:12
Analytical Method: SM 4500-H B-11	Preparation Method:				Validation Date:	5/30/2023
pH, Laboratory Analyzed (Estimate)	9.9	S.U.	1.0	LGE		05/18/2023 14:40
Analytical Method: SM 4500-P E-11	Preparation Method:	SM 4500P-B(5)-11			Validation Date:	5/30/2023
Phosphate, Total as P	5.62	mg/L	0.20	TLL		05/21/2023 11:32
Phosphate, Total as PO4	17.2	mg/L	0.60	TLL		05/21/2023 11:32
Analytical Method: EPA 300.0 Rev 2.1	Preparation Method:				Validation Date:	5/30/2023
Sulfate	48	mg/L	5.0	DAW		05/25/2023 00:32
Analytical Method: EPA 200.7 Rev. 4.4	Preparation Method:	EPA-200.7			Validation Date:	5/30/2023
Arsenic, Total	<15	ug/L	15	CMB		05/22/2023 08:27
Aluminum, Total	26000	ug/L	750	CMB		05/22/2023 08:27
Barium, Total	390	ug/L	50	CMB		05/22/2023 08:27
Beryllium, Total	<2.5	ug/L	2.5	CMB		05/22/2023 08:27
Boron, Total	1900	ug/L	100	CMB		05/23/2023 12:27
Cadmium, Total	<2.5	ug/L	2.5	CMB		05/22/2023 08:27

Analysis Certified By: Rhonda C. Morris

Rhonda C Morris

This report shall not be reproduced, except in its entirety, without the written approval of the laboratory.
The results presented on this Certificate of Analysis only reflect those parameters that were requested by the client on the chain of custody or other documentation received with the sample(s). The analytical results relate only to the items tested.

CERTIFICATE OF ANALYSIS

Reported by Alloway - Marion

Chain of Custody attached

Lab Project # 2316958

Received: 5/17/2023

Reported: 5/30/2023

Buckeye Elm Contracting
Attn: Bo Timmons
1333 Research Rd.
Columbus, OH 43230

Date/Time Sampled: 05/16/2023 11:15
Sampled By: BT
Sampled Matrix: Surface Water
Containers: 1
Collection Method: Grab

Project Name: ESRG House Water Disposal

Sample ID: House Outside Pit North

Lab Sample # 2316958-03

pH was adjusted for P/NO3/Metals upon receipt.
Samples received outside of temperature requirement; analyze per client request.

Analyte	Results	Units	PQL	Analyst	Extraction Date	Analysis Start Date/Time
Calcium, Total	21.9	mg/L	0.50	CMB		05/22/2023 08:27
Chromium, Total	<50	ug/L	50	CMB		05/22/2023 08:27
Cobalt, Total	100000	ug/L	10000	CMB		05/22/2023 08:27
Copper, Total	660	ug/L	50	CMB		05/22/2023 08:27
Iron, Total	1100	ug/L	200	CMB		05/22/2023 08:27
Lead, Total	37	ug/L	10	CMB		05/22/2023 08:27
Magnesium, Total	2.47	mg/L	0.50	CMB		05/22/2023 08:27
Molybdenum, Total	<50	ug/L	50	CMB		05/22/2023 08:27
Manganese, Total	120000	ug/L	10000	CMB		05/22/2023 08:27
Nickel, Total	220	ug/L	50	CMB		05/22/2023 08:27
Potassium, Total	19	mg/L	5.0	CMB		05/22/2023 08:27
Selenium, Total	62	ug/L	25	CMB		05/22/2023 08:27
Silicon, Total	5.46	mg/L	5.00	CMB		05/22/2023 08:27
Sodium, Total	14.0	mg/L	2.00	CMB		05/22/2023 08:27
Strontium, Total	120	ug/L	50	CMB		05/22/2023 08:27
Tin, Total	62	ug/L	50	CMB		05/22/2023 08:27
Titanium, Total	880	ug/L	50	CMB		05/22/2023 08:27
Vanadium, Total	<50	ug/L	50	CMB		05/22/2023 08:27
Zinc, Total	4800	ug/L	1000	CMB		05/22/2023 08:27
Analytical Method: EPA 200.8 Rev. 5.4			Preparation Method: EPA-200.8		Validation Date: 5/30/2023	
Antimony, Total	250	ug/L	3.0	SLB		05/25/2023 22:31
Lithium, Total	<1000	ug/L	1000	SLB		05/27/2023 23:18
Silver, Total	<1.0	ug/L	1.0	SLB		05/25/2023 22:31

Analysis Certified By: Rhonda C Morris

This report shall not be reproduced, except in its entirety, without the written approval of the laboratory.
The results presented on this Certificate of Analysis only reflect those parameters that were requested by the client on the chain of custody or other documentation received with the sample(s). The analytical results relate only to the items tested.

CERTIFICATE OF ANALYSIS

Reported by Alloway - Marion

Chain of Custody attached

Lab Project # 2316958

Received: 5/17/2023

Reported: 5/30/2023

Buckeye Elm Contracting
Attn: Bo Timmons
1333 Research Rd.
Columbus, OH 43230

Date/Time Sampled: 05/16/2023 11:20
Sampled By: BT
Sampled Matrix: Surface Water
Containers: 1
Collection Method: Grab

Project Name: ESRG House Water Disposal

Sample ID: House Outside Pit North

Lab Sample # 2316958-03

pH was adjusted for P/NO3/Metals upon receipt.
Samples received outside of temperature requirement; analyze per client request.

Analyte	Results	Units	PQL	Analyst	Extraction Date	Analysis Start Date/Time
Thallium, Total	<1.0	ug/L	1.0	SLB		05/25/2023 22:31

Analysis Certified By: Rhonda C Morris

Rhonda C Morris

This report shall not be reproduced, except in its entirety, without the written approval of the laboratory.
The results presented on this Certificate of Analysis only reflect those parameters that were requested by the client on the chain of custody or other documentation received with the sample(s). The analytical results relate only to the items tested.

CERTIFICATE OF ANALYSIS

Reported by Alloway - Marion

Chain of Custody attached

Lab Project # 2316958

Received: 5/17/2023

Reported: 5/30/2023

Buckeye Elm Contracting
Attn: Bo Timmons
1333 Research Rd.
Columbus, OH 43230

Date/Time Sampled: 05/16/2023 11:20
Sampled By: BT
Sampled Matrix: Surface Water
Containers: 1
Collection Method: Grab

Project Name: ESRG House Water Disposal

Sample ID: House Outside Pit South

Lab Sample # 2316958-04

pH was adjusted for P/NO3/Metals upon receipt.
Samples received outside of temperature requirement; analyze per client request.

Analyte	Results	Units	PQL	Analyst	Extraction Date	Analysis Start Date/Time
Analytical Method: EPA 300.0 Rev 2.1	Preparation Method:				Validation Date:	5/30/2023
Chloride	5.3	mg/L	5.0	DAW		05/25/2023 00:32
Analytical Method: SM 4500-F B,C-11, SM 4500-F C-97	Preparation Method:	Undistilled			Validation Date:	5/30/2023
Fluoride	5.55	mg/L	0.100	LGE		05/20/2023 06:30
Analytical Method: EPA 353.2 Rev. 2.0/SM4500-NO3 F-00,16	Preparation Method:				Validation Date:	5/30/2023
Nitrate/Nitrite-N	<0.50	mg/L	0.50	TLL		05/25/2023 12:12
Analytical Method: SM 4500-H B-11	Preparation Method:				Validation Date:	5/30/2023
pH, Laboratory Analyzed (Estimate)	7.3	S.U.	1.0	LGE		05/18/2023 14:40
Analytical Method: SM 4500-P E-11	Preparation Method:	SM 4500P-B(5)-11			Validation Date:	5/30/2023
Phosphate, Total as P	2.29	mg/L	0.20	TLL		05/21/2023 11:32
Phosphate, Total as PO4	7.02	mg/L	0.60	TLL		05/21/2023 11:32
Analytical Method: EPA 300.0 Rev 2.1	Preparation Method:				Validation Date:	5/30/2023
Sulfate	5.7	mg/L	5.0	DAW		05/25/2023 00:32
Analytical Method: EPA 200.7 Rev. 4.4	Preparation Method:	EPA-200.7			Validation Date:	5/30/2023
Arsenic, Total	<3.0	ug/L	3.0	CMB		05/22/2023 08:27
Aluminum, Total	370	ug/L	150	CMB		05/22/2023 08:27
Barium, Total	27	ug/L	10	CMB		05/22/2023 08:27
Beryllium, Total	<0.5	ug/L	0.5	CMB		05/22/2023 08:27
Boron, Total	76	ug/L	10	CMB		05/23/2023 12:27
Cadmium, Total	<0.5	ug/L	0.5	CMB		05/22/2023 08:27

Analysis Certified By: Rhonda C. Morris

Rhonda C Morris

This report shall not be reproduced, except in its entirety, without the written approval of the laboratory.
The results presented on this Certificate of Analysis only reflect those parameters that were requested by the client on the chain of custody or other documentation received with the sample(s). The analytical results relate only to the items tested.

CERTIFICATE OF ANALYSIS
Reported by Alloway - Marion
Chain of Custody attached

Lab Project # 2316958
Received: 5/17/2023
Reported: 5/30/2023

Buckeye Elm Contracting
Attn: Bo Timmons
1333 Research Rd.
Columbus, OH 43230

Date/Time Sampled: 05/16/2023 11:20
Sampled By: BT
Sampled Matrix: Surface Water
Containers: 1
Collection Method: Grab

Project Name: ESRG House Water Disposal

Sample ID: House Outside Pit South

Lab Sample # 2316958-04

pH was adjusted for P/NO3/Metals upon receipt.
Samples received outside of temperature requirement; analyze per client request.

Analyte	Results	Units	PQL	Analyst	Extraction Date	Analysis Start Date/Time
Calcium, Total	18.5	mg/L	1.00	CMB		05/22/2023 08:27
Chromium, Total	<10	ug/L	10	CMB		05/22/2023 08:27
Cobalt, Total	1400	ug/L	100	CMB		05/22/2023 08:27
Copper, Total	16	ug/L	10	CMB		05/22/2023 08:27
Iron, Total	740	ug/L	40	CMB		05/22/2023 08:27
Lead, Total	4.3	ug/L	2.0	CMB		05/22/2023 08:27
Magnesium, Total	2.93	mg/L	0.10	CMB		05/22/2023 08:27
Molybdenum, Total	<10	ug/L	10	CMB		05/22/2023 08:27
Manganese, Total	5300	ug/L	100	CMB		05/22/2023 08:27
Nickel, Total	1400	ug/L	100	CMB		05/22/2023 08:27
Potassium, Total	10	mg/L	1.0	CMB		05/22/2023 08:27
Selenium, Total	<5.0	ug/L	5.0	CMB		05/22/2023 08:27
Silicon, Total	4.04	mg/L	1.00	CMB		05/22/2023 08:27
Sodium, Total	6.83	mg/L	0.40	CMB		05/22/2023 08:27
Strontium, Total	69	ug/L	10	CMB		05/22/2023 08:27
Tin, Total	<10	ug/L	10	CMB		05/22/2023 08:27
Titanium, Total	<10	ug/L	10	CMB		05/22/2023 08:27
Vanadium, Total	<10	ug/L	10	CMB		05/22/2023 08:27
Zinc, Total	820	ug/L	10	CMB		05/22/2023 08:27
Analytical Method: EPA 200.8 Rev. 5.4		Preparation Method: EPA-200.8			Validation Date: 5/30/2023	
Antimony, Total	16	ug/L	3.0	SLB		05/25/2023 22:31
Lithium, Total	32	ug/L	20	SLB		05/27/2023 23:18
Silver, Total	<1.0	ug/L	1.0	SLB		05/25/2023 22:31

Analysis Certified By: Rhonda C. Morris

Rhonda C Morris

This report shall not be reproduced, except in its entirety, without the written approval of the laboratory.
The results presented on this Certificate of Analysis only reflect those parameters that were requested by the client on the chain of custody or other documentation received with the sample(s). The analytical results relate only to the items tested.

CERTIFICATE OF ANALYSIS

Reported by Alloway - Marion

Chain of Custody attached

Lab Project # 2316958

Received: 5/17/2023

Reported: 5/30/2023

Buckeye Elm Contracting
Attn: Bo Timmons
1333 Research Rd.
Columbus, OH 43230

Date/Time Sampled: 05/16/2023 11:20
Sampled By: BT
Sampled Matrix: Surface Water
Containers: 1
Collection Method: Grab

Project Name: ESRG House Water Disposal

Sample ID: House Outside Pit South

Lab Sample # 2316958-04

pH was adjusted for P/NO3/Metals upon receipt.
Samples received outside of temperature requirement; analyze per client request.

Analyte	Results	Units	PQL	Analyst	Extraction Date	Analysis Start Date/Time
Thallium, Total	<1.0	ug/L	1.0	SLB		05/25/2023 22:31

Analysis Certified By: Rhonda C Morris

Rhonda C Morris

This report shall not be reproduced, except in its entirety, without the written approval of the laboratory.
The results presented on this Certificate of Analysis only reflect those parameters that were requested by the client on the chain of custody or other documentation received with the sample(s). The analytical results relate only to the items tested.

CERTIFICATE OF ANALYSIS

Reported by Alloway - Marion

Chain of Custody attached

Lab Project # 2208003

Received: 11/21/2022

Reported: 12/8/2022

Buckeye Elm Contracting
Attn: Brad Timmons
782 Hartford St.
Worthington, OH 43085

Date/Time Sampled: 11/21/2022 13:30
Sampled By: BT
Sampled Matrix: Wastewater
Containers: 1
Collection Method: Grab

Project Name: ESRG Pit One

Sample ID: Fire Room Pit

Lab Sample # 2208003-01

pH was adjusted for metals upon receipt.

Analyte	Results	Units	PQL	Analyst	Extraction Date	Analysis Start Date/Time
Analytical Method: EPA 1020A	Preparation Method:				Validation Date:	12/8/2022
Flashpoint	>110	o C	20	PDB		11/28/2022 13:38
Analytical Method: EPA 200.7 Rev. 4.4	Preparation Method:	EPA-200.7			Validation Date:	12/8/2022
Barium, Total	<100	ug/L	100	CMB		12/05/2022 08:41
Cadmium, Total	<5.0	ug/L	5.0	CMB		12/01/2022 13:21
Chromium, Total	<100	ug/L	100	CMB		12/01/2022 13:21
Lead, Total	39	ug/L	20	CMB		12/01/2022 13:21
Selenium, Total	<50	ug/L	50	CMB		12/05/2022 08:41
Silver, Total	<50	ug/L	50	CMB		12/05/2022 08:41
Analytical Method: EPA 200.8 Rev. 5.4	Preparation Method:	EPA-200.8			Validation Date:	12/8/2022
Arsenic, Total	<15	ug/L	15	SLB		12/01/2022 15:31
Analytical Method: EPA 245.1 Rev. 3.0	Preparation Method:	EPA-245.1			Validation Date:	12/8/2022
Mercury, Total	<0.200	ug/L	0.200	PTE	12/06/2022	12/07/2022 07:20

Analysis Certified By: Rhonda C. Morris

Rhonda C Morris

This report shall not be reproduced, except in its entirety, without the written approval of the laboratory.
The results presented on this Certificate of Analysis only reflect those parameters that were requested by the client on the chain of custody or other documentation received with the sample(s). The analytical results relate only to the items tested. Analytical results are based on dry-weights for solid samples, unless otherwise specified.

CERTIFICATE OF ANALYSIS

Reported by Alloway - Marion

Chain of Custody attached

Lab Project # 2208003

Received: 11/21/2022

Reported: 12/8/2022

Buckeye Elm Contracting
Attn: Brad Timmons
782 Hartford St.
Worthington, OH 43085

Date/Time Sampled: 11/21/2022 13:35
Sampled By: BT
Sampled Matrix: Wastewater
Containers: 1
Collection Method: Grab

Project Name: ESRG Pit One

Sample ID: Outside Pit #1

Lab Sample # 2208003-02

pH was adjusted for metals upon receipt.

Analyte	Results	Units	PQL	Analyst	Extraction Date	Analysis Start Date/Time
Analytical Method: EPA 1020A	Preparation Method:				Validation Date:	12/8/2022
Flashpoint	>110	o C	20	PDB		11/28/2022 13:38
Analytical Method: EPA 200.7 Rev. 4.4	Preparation Method:	EPA-200.7			Validation Date:	12/8/2022
Barium, Total	1800	ug/L	100	CMB		12/05/2022 08:41
Cadmium, Total	<5.0	ug/L	5.0	CMB		12/01/2022 13:21
Chromium, Total	<100	ug/L	100	CMB		12/01/2022 13:21
Lead, Total	120	ug/L	20	CMB		12/01/2022 13:21
Selenium, Total	<50	ug/L	50	CMB		12/05/2022 08:41
Silver, Total	<50	ug/L	50	CMB		12/05/2022 08:41
Analytical Method: EPA 200.8 Rev. 5.4	Preparation Method:	EPA-200.8			Validation Date:	12/8/2022
Arsenic, Total	23	ug/L	15	SLB		12/01/2022 15:31
Analytical Method: EPA 245.1 Rev. 3.0	Preparation Method:	EPA-245.1			Validation Date:	12/8/2022
Mercury, Total	<0.200	ug/L	0.200	PTE	12/06/2022	12/07/2022 07:20

Analysis Certified By: Rhonda C. Morris

Rhonda C Morris

This report shall not be reproduced, except in its entirety, without the written approval of the laboratory.
The results presented on this Certificate of Analysis only reflect those parameters that were requested by the client on the chain of custody or other documentation received with the sample(s). The analytical results relate only to the items tested. Analytical results are based on dry-weights for solid samples, unless otherwise specified.