

Ms. Paula Bansch
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Attention: Chief, Permits Branch

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Date: August 28, 2023

Our Ref: 30131348

Subject: Groundwater Data Statistical Evaluation – 2023 Annual Sampling,
Closed Hazardous Waste Surface Impoundment, RACER Trust –
INR000021436, 2701 West Raymond Street, Indianapolis, IN

Dear Ms. Bansch,

On behalf of Revitalizing Auto Communities Environmental Response (RACER) Trust, Arcadis U.S., Inc. (Arcadis) respectfully submits this Groundwater Data Statistical Evaluation (Evaluation) for the former Allison Gas Turbine Hazardous Waste Surface Impoundment (Site) located at 2701 West Raymond Street, Indianapolis, Indiana. As required by the Hazardous Waste Post-Closure Permit (Permit) dated September 1, 2017, this Evaluation provides details regarding the annual groundwater monitoring performed between May 15 and May 17, 2023 and is being submitted within 90 days of the final laboratory report with Level IV backup, which was received by Arcadis on June 1, 2023 (Indiana Department of Environmental Management 2017). Signed Certification by RACER Trust is attached per the Permit. The following sections provide details of the groundwater monitoring and data evaluation.

Groundwater Gauging

Monitoring wells at the Site were gauged on May 15, 2023. The locations of the monitoring wells are presented on **Figure 1** and the gauging data are presented in **Table 1**. Groundwater elevations were calculated for monitoring wells installed within the surface impoundment (internal or A-series wells) and those installed outside the slurry wall in both the upper and the lower sand units (external, or B-series and C-series wells, respectively). For the C-series wells, the average groundwater elevation from transducer data between May 1 and May 15, 2023 was also calculated and presented on **Figure 2**. These elevations were reviewed to determine if an inward hydraulic gradient is being maintained across the slurry wall. Arcadis calculated the differences in head between the A-series and B-series monitoring wells with the minimum difference in head of 2.79 feet occurring at the MW-202A and MW-202B well pair.

Arcadis calculated the differences in head between the A-series and C-series wells (average groundwater elevation from transducer data between May 1 and May 15, 2023) for C-series wells:

- MW-202A and two-week average MW-202C: 3.34 feet head difference
- MW-203A and two-week average MW-203C: 3.46 feet head difference
- MW-206A and two-week average MW-200C: 1.53 feet head difference
- MW-207A and two-week average MW-200C: 2.46 feet head difference

A graphical depiction of the elevations is presented on **Figure 2**.

In accordance with the Permit, groundwater should be extracted when groundwater elevations in an A-series interior well reach an elevation within one foot of the groundwater elevation observed in the shallow aquifer (B series monitoring wells) of the same monitoring well nest and/or pair (e.g., MW-202A and MW-202B), or when the A-series groundwater elevations reach within one foot of those observed in the corresponding C-series wells. During the May 15, 2023 groundwater gauging event, A-series groundwater elevations were not within one foot of those observed in the corresponding B-series or C-series monitoring well nests as presented in **Table 1** and **Figure 2**; therefore, groundwater extraction was not necessary.

Groundwater Monitoring

On May 16 and May 17, 2023, in accordance with the Permit, one groundwater sample was collected from each of the three downgradient monitoring wells (MW-201B, MW-202B, and MW-203B), and the background upgradient monitoring well, MW-206B. The locations of the monitoring wells are presented on **Figure 1**. Groundwater samples were collected using a low-flow/low-stress sampling technique. A stainless-steel submersible pump equipped with disposable polyethylene tubing was used to purge the monitoring wells prior to sampling. Field parameters (pH, temperature, turbidity, conductivity, oxidation-reduction potential, and dissolved oxygen) were measured during the purging of the monitoring wells. Groundwater was purged until the field parameters reached stabilized measurements as specified in the Permit. Approximately ten gallons of water were purged from the four monitoring wells during the sampling event.

After field measurements stabilized, groundwater samples for total cyanide were collected in laboratory-supplied containers, and groundwater samples for dissolved metals were filtered through a 0.45-micron filter and collected in laboratory-supplied containers. The containers were immediately sealed, labeled, and placed in an ice-packed cooler that was delivered to Pace Analytical Services, LLC (Pace) located in Indianapolis, Indiana, observing proper chain-of-custody procedures. The groundwater samples were analyzed for dissolved metals (arsenic, barium, cadmium, chromium, lead, mercury, silver, and selenium) and total cyanide. Pace was provided the estimated quantitation limits (EQLs), outlined in the Permit (Appendix H-Sampling and Analysis Plan). Pace's reporting limits were all equal to the EQLs outlined in the Permit.

Groundwater analytical results for the monitoring wells are presented in **Table 2**. Groundwater field data sheets from the May 2023 sampling event are provided in **Attachment 1**. Note that the data in the electronic groundwater sampling log for MW-201B was inadvertently not saved from start of purging (11:50) through 12:40. The final laboratory analytical report was issued on June 1, 2023. The laboratory analytical report and validation report are provided in **Attachment 2**. No analytes were detected at concentrations higher than the laboratory reporting limits except dissolved barium and dissolved chromium at background upgradient monitoring well MW-206B. The detections present in the background monitoring well MW-206B are presented below:

- Dissolved Barium = 0.419 mg/L
- Dissolved Chromium = 0.101 mg/L

None of the downgradient monitoring wells reported concentrations of any monitored analyte higher than the reporting limit.

Groundwater Evaluation

In accordance with the Permit, analytical data from monitoring well MW-206B (designated as background upgradient monitoring well), was evaluated to establish background groundwater quality conditions. Details of the exploratory data analysis and statistical evaluation of background and compliance well data (conducted in accordance with Appendix H, Section 4.3 of the Permit), are included as **Attachment 3**.

BSLs were calculated for each indicator parameter in accordance with Appendix H, Section 4.3.4 of the Permit. Analytical results from the last 16 rounds of monitoring for the upgradient background well MW-206B were used in this calculation (**Table 3**). The desired statistic to represent the BSL is a 95% Upper Prediction Limit (UPL). For all datasets parametric UPLs could not be calculated. Therefore, the BSLs for all indicator parameters for this data evaluation are conservatively based on the maximum detected concentration (non-parametric UPL) or the maximum reporting limit (Double Quantification [DQ] rule) due to insufficient detections in the background dataset. Arsenic, barium, chromium, selenium, and cyanide were detected in at least one but fewer than four groundwater samples from MW-206B. The BSL for these parameters was based on the maximum detected concentration when the maximum detected concentration was above the maximum reporting limit (quantification limit). Otherwise, the DQ rule was imposed (arsenic and selenium). Cadmium, lead, mercury, and silver were not detected in any groundwater samples from MW-206B, and as such an upper bound concentration could not be established. For these metals, the double quantification rule was applied. The final BSL values are presented in **Table 4**.

The results of the three compliance wells from the May 2023 sampling event were compared to the calculated BSLs. As presented in **Table 4**, concentrations of all indicator parameters from the three compliance wells were lower than the BSLs.

Conclusion

Based on this evaluation, no concentrations detected in the compliance wells monitored during this sampling event were higher than the BSL. Additionally, the May 2023 groundwater gauging event demonstrated an inward gradient was maintained. The next annual gauging and sampling event will occur in the fall of 2024.

In addition to this report, an electronic digital dataset (EDD) report, in the format specified in Appendix H, Section 3 of the Permit, will be submitted electronically to the email address specified in the Permit.

If you have any questions or comments regarding this data evaluation, please contact Mr. Robert Hare of RACER Trust at 419-277-0815 or the undersigned.

Sincerely,
Arcadis U.S., Inc.



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Ms. Paula Bansch
Indiana Department of Environmental Management
August 28, 2023

CC. Robert Hare, RACER Trust

Enclosures:

Tables

- 1 Groundwater Elevation Data – May 15, 2023
- 2 Groundwater Analytical Data
- 3 Upgradient Monitoring Well MW-206B Background Data
- 4 Background Screening Levels

Figures

- 1 Site Map
- 2 May 15, 2023 Groundwater Elevations

Attachments

- 1 Groundwater Sampling Field Sheets
- 2 Laboratory Analytical Report and Validation Report
- 3 Statistical Evaluation of Background Groundwater Quality

References:

Indiana Department of Environmental Management 2017. Hazardous Waste Management Post-Closure Permit Renewal, RACER Trust (former AGT facility), Indianapolis, Indiana, INR000021436. September 1.

Certification

Certification: I certify, under penalty of law, that this document and attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

INR000021436
U.S EPA I.D. Number

Closed Hazardous Waste Surface Impoundment, RACER Trust
Site Name



Robert W. Hare, P.E., CHMM
RACER Trust
Cleanup Manager (IL, IN, KS, MO, NJ, WI)

8-24-2023
Date

Tables

Table 1
Groundwater Elevation Data - May 15, 2023
Closed Hazardous Waste Surface Impoundment
RACER Trust, Indianapolis, Indiana
INR00021436

Monitoring Well	Northing	Easting	Top of Pipe Elevation (ft amsl)	Gauged Depth to Water (ft bgs)	Average Groundwater Elevation (ft amsl)	Groundwater Elevation (ft amsl)	Difference in A and B Series Groundwater Elevation (ft)	Difference in A and C Series Groundwater Elevation (ft)	Total Well Depth As Built (ft bgs)	Measured Well Depth (ft bgs)	Difference in Well Depth (ft)	Total Well Depth (ft amsl)
MW-201A	1634602.46	176359.20	693.89	23.65	--	670.24	-3.97	--	39.31	39.30	0.01	654.59
MW-201B	1634670.80	176351.45	693.06	18.85	--	674.21			38.51	37.73	0.78	655.33
MW-202A	1634462.95	176536.18	697.58	26.92	--	670.66	-2.79	-3.34	44.50	43.95	0.55	653.63
MW-202B	1634460.00	176600.00	691.43	17.98	--	673.45			37.71	37.37	0.34	654.06
MW-202C	1634467.49	176616.19	692.14	19.48	674.00	672.66			77.01	76.50	0.51	615.64
MW-203A	1634052.87	176534.18	694.46	24.23	--	670.23	-4.87	-3.46	40.06	40.05	0.01	654.41
MW-203B	1634016.00	176583.00	691.65	16.55	--	675.10			34.30	33.93	0.37	657.72
MW-203C	1633997.97	176595.31	690.40	17.98	673.69	672.42			80.91	80.89	0.02	609.51
MW-204A	1633883.59	176334.69	693.89	23.36	--	670.53	-4.90	--	38.80	38.75	0.05	655.14
MW-204B	1633837.09	176327.64	693.23	17.80	--	675.43			37.82	37.80	0.02	655.43
MW-205A	1633985.33	176103.00	693.74	24.60	--	669.14	-6.26	--	39.61	39.62	-0.01	654.12
MW-205B	1633948.64	176060.68	693.97	18.57	--	675.40			38.20	37.98	0.22	655.99
MW-206A	1634167.43	176054.69	698.52	27.34	--	671.18	-4.28	-1.53	43.25	43.14	0.11	655.38
MW-206B	1634155.37	175997.55	693.46	18.00	--	675.46			37.73	37.63	0.10	655.83
MW-200C	1634203.31	175899.36	696.81	24.44	672.71	672.37			88.38	88.00	0.38	608.81
MW-207A	1634349.90	176038.92	697.22	26.97	--	670.25	-5.24	-2.46	43.58	43.57	0.01	653.65
MW-207B	1634353.00	175977.76	693.72	18.23	--	675.49			38.87	38.67	0.20	655.05
MW-200C	1634203.31	175899.36	696.81	24.44	672.71	672.37			88.38	88.00	0.38	608.81
MW-208A	1634592.95	176116.92	694.50	24.11	--	670.39	-4.81	--	40.76	40.67	0.09	653.83
MW-208B	1634649.00	176085.50	694.72	19.52	--	675.20			39.28	39.17	0.11	655.55

Notes: amsl - above mean sea level
bgs - below ground surface
ft - feet
Average elevation reported for the C-series wells is the average groundwater elevation from transducer data between May 1 and May 15, 2023.
Difference in A and C series groundwater elevations includes the average groundwater elevation from transducer data between May 1 and May 15, 2023.

Table 2
Groundwater Analytical Data
Closed Hazardous Waste Surface Impoundment
RACER Trust, Indianapolis, Indiana
INR000021436



Monitoring Well	Sample ID	Sample Date	Arsenic	Barium	Cadmium	Chromium	Lead	Mercury	Selenium	Silver	Cyanide
MW-201B											
	MW-201B (060410)	6/4/2010	<0.0050	<-0.100	<0.0050	<-0.0100	<0.0050	<-0.0020	<-0.0100	<0.0500	<0.010
	MW-201B (10202010)	10/20/2010	0.0063 J	<-0.100	<0.0050	<-0.0100	<0.0050	<-0.0020	<-0.0100	<0.0500	<0.010
	MW-201B (053111)	5/31/2011	<0.0100	0.011 J	<0.0020	<-0.0050	<0.0030	<-0.00020	<-0.0050	<0.0500	<0.010
	MW-201B (102011)	10/20/2011	<0.0100	<-0.100	<0.0050	<-0.0100	<0.0100	<-0.0020	<-0.0100	<0.0500	<0.010
	MW-201B (101712)	10/17/2012	<0.0100	<-0.100	<0.0050	<-0.0100	<0.0100	<-0.0020	<-0.0100	<0.0500	<0.020
	MW-201B (101712) FD	10/17/2012	<0.0100	<-0.100	<0.0050	<-0.0100	<0.0100	<-0.0020	0.0112	<0.0500	<0.020
	MW-201B (052113)	5/21/2013	<0.0100	<-0.100	<0.0050	<-0.0100	<0.0100	<-0.0020	<-0.0100	<0.0500	<0.020
	MW-201B (052113) FD	5/21/2013	<0.0100	<-0.100	<0.0050	<-0.0100	<0.0100	<-0.0020	<-0.0100	<0.0500	<0.020
	MW-201B (100214)	10/2/2014	<0.0100	<-0.0109	<0.0020	<-0.0100	<0.0100	<-0.0020	<-0.0100	<0.010	<0.020
	MW-201B (100214) FD	10/2/2014	<0.0100	<-0.0109	<0.0020	<-0.0100	<0.0100	<-0.0020	<-0.0100	<0.010	<0.010
	MW-201B (052615)	5/26/2015	<0.0100	<-0.100	<0.0050	<-0.0100	<0.0100	<-0.0020	<-0.0100	<0.0500	<0.020
	MW-201B (090716)	9/7/2016	0.0031 J	<-0.100	<0.0050	<-0.0100	<0.0100	<-0.0020	<-0.0100	<0.0500	<0.020
	MW-201B (090716) FD	9/7/2016	0.0031 J	<-0.100	<0.0050	<-0.0100	<0.0100	<-0.0020	<-0.0100	<0.0500	<0.020
	MW-201B (050417)	5/4/2017	0.0069 J	<-0.100	<0.0050	0.0027 J	<0.0100	<-0.0020	<-0.0100	<0.0500	<0.020
	MW-201B (050417) FD	5/4/2017	0.0058 J	<-0.100	<0.0050	0.0037 J	<0.0100	<-0.0020	0.0036 J	<0.0500	<0.020
	MW-201B (092618)	9/26/2018	<0.0100	<-0.100	<0.0050	<-0.0100	<0.0100	<-0.0020	0.0054 J	<0.0500 J	<0.020
	MW-201B (092618) FD	9/26/2018	<0.0100	<-0.100	<0.0050	<-0.0100	<0.0100	<-0.0020	0.0061 J	<0.0500 J	<0.020
	MW-201B (051319)	5/13/2019	<0.0100	<-0.100	<0.0050	<-0.0100	<0.0100	<-0.0020	<-0.0100	<0.0500	<0.020
	MW-201B (051319) FD	5/13/2019	<0.0100	<-0.100	<0.0050	<-0.0100	<0.0100	<-0.0020	<-0.0100	<0.0500	<0.020
	MW-201B (090920)	9/9/2020	0.0051 J	<-0.100	<0.0050	<-0.0100	<0.0100	<-0.0020	<-0.0100	<0.0500	<0.020
	MW-201B (090920) FD	9/9/2020	<0.0100	<-0.100	<0.0050	0.0022 J	<0.0100	<-0.0020	<-0.0100	<0.0500	<0.020
	MW-201B (052021)	5/20/2021	<0.0100 B	<-0.100	<0.0050	<-0.0100	<0.0100	<-0.0020	<-0.0100	<0.0500	<0.020
	MW-201B (101422)	10/14/2022	<0.0100	<-0.100	<0.0050	<-0.0100	<0.0100	<-0.0020	<-0.0100	<0.0500	<0.020
	MW-201B (051723)	5/17/2023	<0.0100	<-0.100	<0.0050	<-0.0100	<0.0100	<-0.0020	<-0.0100	<0.0500	<0.020
MW-202B											
	MW-202B (060410)	6/4/2010	<0.0050	<-0.100	<0.0050	<-0.0100	<0.0050	<-0.0020	<-0.0100	<0.0500	<0.010
	MW-202B (10202010)	10/20/2010	<0.0050	0.110	<0.0050	<-0.0100	<0.0050	<-0.0020	<-0.0100	<0.0500	<0.010
	MW-202B (053111)	5/31/2011	<0.0100	0.035 J	<0.0020	<-0.0050	<0.0030	<-0.00020	<-0.0050	<0.0500	<0.010
	MW-202B (102011)	10/20/2011	<0.0100	<-0.100	<0.0050	<-0.0100	<0.0100	<-0.0020	<-0.0100	<0.0500	<0.010
	MW-202B (101712)	10/17/2012	<0.0100	<-0.100	<0.0050	<-0.0100	<0.0100	<-0.0020	<-0.0100	<0.0500	<0.020
	MW-202B (052113)	5/21/2013	<0.0100	<-0.100	<0.0050	<-0.0100	<0.0050	<-0.0020	<-0.0100	<0.0500	<0.020
	MW-202B (100214)	10/2/2014	<0.0100	<-0.0397	<0.0020	<-0.0100	<0.0100	<-0.0020	<-0.0100	<0.0100	<0.020
	MW-202B (052615)	5/26/2015	<0.0100	<-0.100	<0.0050	<-0.0100	<0.0100	<-0.0020	<-0.0100	<0.0500	<0.020
	MW-202B (052615) FD	5/26/2015	<0.0100	<-0.100	<0.0050	<-0.0100	<0.0100	<-0.0020	<-0.0100	<0.0500	<0.020
	MW-202B (090716)	9/7/2016	<0.0100	<-0.100	<0.0050	<-0.0100	<0.0100	<-0.0020	<-0.0100	<0.0500	<0.020
	MW-202B (050417)	5/4/2017	<0.0100	<-0.100	<0.0050	0.0094 J	<0.0100	<-0.0020	<-0.0100	<0.0500	<0.020
	MW-202B (092618)	9/26/2018	<0.0100	<-0.100	<0.0050	<-0.0100	<0.0100	<-0.0020	0.0080 J	<0.0500 J	<0.020
	MW-202B (051319)	5/13/2019	<0.0100	<-0.100	<0.0050	<-0.0100	<0.0100	<-0.0020	<-0.0100	<0.0500	<0.020
	MW-202B (090920)	9/9/2020	<0.0100	<-0.100	<0.0050	0.0062 J	<0.0100	<-0.0020	<-0.0100	<0.0500	<0.020
	MW-202B (052021)	5/20/2021	<0.0100	<-0.100	<0.0050	0.0031 J	<0.0100	<-0.0020	<-0.0100	<0.0500	<0.020
	MW-202B (052021) FD	5/20/2021	<0.0100 B	<-0.100	<0.0050	0.0029 J	<0.0100	<-0.0020	<-0.0100	<0.0500	<0.020
	MW-202B (101322)	10/13/2022	0.0047 J	<-0.100	<0.0050	0.001 J	<0.0100	<-0.0020	<-0.0100	<0.0500	<0.020
	MW-202B (051723)	5/17/2023	<0.0100	<-0.100	<0.0050	<-0.0100	<0.0100	<-0.0020	<-0.0100	<0.0500	<0.020

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Closed Hazardous Waste Surface Impoundment
RACER Trust, Indianapolis, Indiana
INR000021436



Monitoring Well	Sample ID	Sample Date	Arsenic	Barium	Cadmium	Chromium	Lead	Mercury	Selenium	Silver	Cyanide
MW-203B											
	MW-203B (060410)	6/4/2010	<0.0050	<0.100	<0.0050	<0.0100	<0.0050	<0.0020	<0.0100	<0.0500	<0.010
	MW-203B (10202010)	10/20/2010	<0.0050	<0.100	<0.0050	<0.0100	<0.0050	<0.0020	<0.0100	<0.0500	<0.010
	MW-203B (10202010) FD	10/20/2010	<0.0050	<0.100	<0.0050	<0.0100	<0.0050	<0.0020	<0.0100	<0.0500	<0.010
	MW-203B (053111)	5/31/2011	<0.0100	0.030 J	<0.0020	<0.0050	<0.0030	<0.00020	<0.0050	<0.0500	<0.010
	MW-203B (053111) FD	5/31/2011	<0.0100	0.032 J	<0.0020	<0.0050	<0.0030	<0.00020	<0.0050	<0.0500	<0.010
	MW-203B (102011)	10/20/2011	<0.0100	<0.100	<0.0050	<0.0100	<0.0100	<0.0020	<0.0100	<0.0500	<0.010
	MW-203B (101712)	10/17/2012	<0.0100	<0.100	<0.0050	<0.0100	<0.0100	<0.0020	<0.0100	<0.0500	<0.020
	MW-203B (052113)	5/21/2013	<0.0100	<0.100	<0.0050	<0.0100	<0.0100	<0.0020	<0.0100	<0.0500	<0.020
	MW-203B (100214)	10/2/2014	<0.0100	<0.0509	<0.0020	<0.0100	<0.0100	<0.0020	0.0116	<0.0100	<0.020
	MW-203B (052615)	5/26/2015	<0.0100	<0.100	<0.0050	<0.0100	<0.0100	<0.0020	<0.0100	<0.0500	<0.020
	MW-203B (090716)	9/7/2016	<0.0100	<0.100	<0.0050	<0.0100	<0.0100	<0.0020	0.0096 J	<0.0500	<0.020
	MW-203B (050417)	5/4/2017	0.0056 J	<0.100	<0.0050	0.097	<0.0100	<0.0020	0.0048 J	<0.0500	<0.020
	MW-203B (092618)	9/26/2018	<0.0100	<0.100	<0.0050	<0.0100	<0.0100	<0.0020	<0.0100	<0.0500 J	<0.020
	MW-203B (051319)	5/13/2019	<0.0100	<0.100	<0.0050	<0.0100	<0.0100	<0.0020	<0.0100	<0.0500	<0.020
	MW-203B (090920)	9/9/2020	<0.0100	<0.100	<0.0050	0.0040 J	<0.0100	<0.0020	<0.0100	<0.0500	<0.020
	MW-203B (052021)	5/20/2021	<0.0100 B	<0.100	<0.0050	<0.0100	<0.0100	<0.0020	<0.0100	<0.0500	<0.020
	MW-203B (101222) FD	10/13/2022	<0.0100	<0.100	<0.0050	0.0034 J	<0.0100	<0.0020	<0.0100	<0.0500	<0.020
	MW-203B (101322)	10/13/2022	<0.0100	<0.100	<0.0050	0.0033 J	<0.0100	<0.0020	<0.0100	<0.0500	<0.020
	MW-203B (051623)	5/16/2023	<0.0100	<0.100	<0.0050	<0.0100	<0.0100	<0.0020	<0.0100	<0.0500	<0.020
	MW-203B (051623) FD	5/16/2023	<0.0100	<0.100	<0.0050	<0.0100	<0.0100	<0.0020	<0.0100	<0.0500	<0.020
MW-206B											
	MW-206B(060410)	6/4/2010	<0.0050	<0.100	<0.0050	<0.0100	<0.0050	<0.0020	<0.0100	<0.0500	<0.010
	MW-206B (10202010)	10/20/2010	<0.0050	<0.100	<0.0050	<0.0100	<0.0050	<0.0020	<0.0100	<0.0500	<0.010
	MW-206B (053111)	5/31/2011	<0.0100	0.090 J	<0.0020	<0.0050	<0.0030	<0.00020	<0.0050	<0.0050	<0.010
	MW-206B (102011)	10/20/2011	<0.0100	<0.100	<0.0050	<0.0100	<0.0100	<0.0020	<0.0100	<0.0500	<0.010
	MW-206B (102011) FD	10/20/2011	<0.0100	<0.100	<0.0050	<0.0100	<0.0100	<0.0020	<0.0100	<0.0500	<0.010
	MW-206B (101712)	10/17/2012	<0.0100	<0.100	<0.0050	<0.0100	<0.0100	<0.0020	<0.0100	<0.0500	<0.020
	MW-206B (052113)	5/21/2013	<0.0100	<0.100	<0.0050	<0.0100	<0.0100	<0.0020	<0.0100	<0.0500	<0.020
	MW-206B (100214)	10/2/2014	<0.0100	<0.0667	<0.0020	<0.0100	<0.0100	<0.0020	<0.0100	<0.0100	<0.020
	MW-206B (052615)	5/26/2015	<0.0100	<0.100	<0.0050	<0.0100	<0.0100	<0.0020	<0.0100	<0.0500	<0.020
	MW-206B (090716)	9/7/2016	<0.0100	<0.100	<0.0050	<0.0100	<0.0100	<0.0020	0.0032 J	<0.0500	<0.020
	MW-206B (050417)	5/4/2017	<0.0100	<0.100	<0.0050	1.7	<0.0100	<0.0020	<0.0100	<0.0500	<0.020
	MW-206B (092618)	9/26/2018	<0.0100	<0.100	<0.0050	<0.0100	<0.0100	<0.0020	<0.0100	<0.0500 J	<0.020
	MW-206B (051319)	5/13/2019	<0.0100	<0.100	<0.0050	<0.0100	<0.0100	<0.0020	<0.0100	<0.0500	<0.020
	MW-206B (090920)	9/9/2020	<0.0100	<0.100	<0.0050	0.0034 J	<0.0100	<0.0020	<0.0100	<0.0500	0.028
	MW-206B (052021)	5/20/2021	<0.0100 B	0.114	<0.0050	<0.0100	<0.0100	<0.0020	<0.0100	<0.0500	<0.020
	MW-206B (101322)	10/13/2022	0.0074 J	0.462	<0.0050	0.0043 J	<0.0100	<0.0020	<0.0100	<0.0500	<0.020
	MW-206B (051623)	5/16/2023	<0.0100	0.419	<0.0050	0.101	<0.0100	<0.0020	<0.0100	<0.0500	<0.020

Notes: Table includes results for most recent 16 sample observations.
Concentrations are in units of milligrams per liter (mg/L).
< = nondetect, value equal to estimated quantitation limit (EQL)
B - Analyte considered non-detect at the listed value due to associated blank contamination.
J - The analyte was positively identified; however, the associated numerical value is an estimated concentration only.



Table 3
Upgradient Monitoring Well MW-206B Background Data
Closed Hazardous Waste Surface Impoundment
RACER Trust, Indianapolis, Indiana
INR000021436

Monitoring Well	Sample Date	Arsenic	Barium	Cadmium	Chromium	Lead	Mercury	Selenium	Silver	Cyanide
MW-206B										
	6/4/2010	<0.0050	<0.100	<0.0050	<0.0100	<0.0050	<0.0020	<0.0100	<0.0500	<0.010
	10/20/2010	<0.0050	<0.100	<0.0050	<0.0100	<0.0050	<0.0020	<0.0100	<0.0500	<0.010
	5/31/2011	<0.0100	0.090 J	<0.0020	<0.0050	<0.0030	<0.0002	<0.0050	<0.0050	<0.010
	10/20/2011	<0.0100	<0.100	<0.0050	<0.0100	<0.0100	<0.0020	<0.0100	<0.0500	<0.010
	10/17/2012	<0.0100	<0.100	<0.0050	<0.0100	<0.0100	<0.0020	<0.0100	<0.0500	<0.020
	5/21/2013	<0.0100	<0.100	<0.0050	<0.0100	<0.0100	<0.0020	<0.0100	<0.0500	<0.020
	10/2/2014	<0.0100	<0.0667	<0.0020	<0.0100	<0.0100	<0.0020	<0.0100	<0.0100	<0.020
	5/26/2015	<0.0100	<0.100	<0.0050	<0.0100	<0.0100	<0.0020	<0.0100	<0.0500	<0.020
	9/7/2016	<0.0100	<0.100	<0.0050	<0.0100	<0.0100	<0.0020	0.0032 J	<0.0500	<0.020
	5/4/2017	<0.0100	<0.100	<0.0050	1.7	<0.0100	<0.0020	<0.0100	<0.0500	<0.020
	9/26/2018	<0.0100	<0.100	<0.0050	<0.0100	<0.0100	<0.0020	<0.0100	<0.0500 J	<0.020
	5/13/2019	<0.0100	<0.100	<0.0050	<0.0100	<0.0100	<0.0020	<0.0100	<0.0500	<0.020
	9/9/2020	<0.0100	<0.100	<0.0050	0.0034 J	<0.0100	<0.0020	<0.0100	<0.0500	0.028
	5/20/2021	<0.0100 B	0.114	<0.0050	<0.0100	<0.0100	<0.0020	<0.0100	<0.0500	<0.020
	10/13/2022	0.0074	0.462	<0.0050	0.0043	<0.0100	<0.0020	<0.0100	<0.0500	<0.020
	5/16/2023	<0.0100	0.419	<0.0050	0.101	<0.0100	<0.0020	<0.0100	<0.0500	<0.020
Estimated Quantitation Limit		0.0100	0.100	0.0050	0.0100	0.0100	0.0020	0.0100	0.0500	0.0200

Notes: < = nondetect, value equal to estimated quantitation limit (EQL)
 Concentrations are in units of milligrams per liter (mg/L).
 B - Analyte considered non-detect at the listed value due to associated blank contamination.
 J - The analyte was positively identified; however, the associated numerical value is an estimated concentration only.

Table 4
Background Screening Levels
Closed Hazardous Waste Surface Impoundment
RACER Trust, Indianapolis, Indiana
INR000021436

Analyte	Background Well (MW-206B)					Compliance Wells (MW-201B, MW-202B, MW-203B)		
	Detects / n	Maximum (mg/L)	95 UPL (mg/L)	Method	BSL (mg/L) ¹	2023 Maximum (mg/L)	Well	> BSL ?
Arsenic	1 / 16	0.0074	0.01	DQ Rule	0.01	<0.0100	All 3 wells ²	No
Barium	4 / 16	0.462	0.462	Non-Parametric	0.462	< 0.1	All 3 wells ²	No
Cadmium	0 / 16	0.005	0.005	DQ Rule	0.005	< 0.005	All 3 wells ²	No
Chromium	4 / 16	1.7	1.7	Non-Parametric	1.7	<0.0100	All 3 wells ²	No
Lead	0 / 16	0.01	0.01	DQ Rule	0.01	< 0.01	All 3 wells ²	No
Mercury	0 / 16	0.002	0.002	DQ Rule	0.002	< 0.002	All 3 wells ²	No
Selenium	1 / 16	0.0032	0.01	DQ Rule	0.0032	< 0.01	All 3 wells ²	No
Silver	0 / 16	0.05	0.05	DQ Rule	0.05	< 0.05	All 3 wells ²	No
Cyanide	1 / 16	0.028	0.028	Non-Parametric	0.028	< 0.02	All 3 wells ²	No

Abbreviations:

< = nondetect, value equal to estimated quantitation limit (EQL)

95 = upper prediction limit

BSL = background screening level

DQ = double quantification

n = sample size

mg/L = milligrams per liter

J - The analyte was positively identified; however, the associated numerical value is an estimated concentration only.

Notes:

¹ If detects = 0, the maximum reporting limit of nondetects is used as the BSL (DQ Rule). If detects < 5, BSL = maximum detect (Non-Parametric UPL). If detects ≥ 5, BSL= 95 UPL. BSL calculated with the most recent 16 samples only.

² All 3 wells were non-detect.

Figures

RAYMOND STREET

PW5-1

OVERHEAD ELECTRICAL POLE AND TRANSFORMER

DISCHARGE BUILDING

90 degree ELLIPTICAL STORM

MW-201B

STORM STRUCTURE

4" CONCRETE CULVERT

MW-208B

MW-201A

MW-208A

EW-201

EW-202

MW-202C

MW-202A

MW-202B

STORM STRUCTURE

MW-207A

GAS VENT

EXTRACTION WELL DEWATERING PIPING

FUEL STORAGE

STORM STRUCTURE

MW-207B

EW-209

EW-203

MW-200C

MW-206A

MW-206B

EW-208

4 INCH DEWATERING PIPE

4 INCH DEWATERING PIPE

EW-207

EW-204

MW-203A

MW-203B

MW-203C

MW-205B

MW-205A

EW-206

MW-204A

4" CONCRETE CULVERT

MW-204B

RIPRAP

FENCE

LEGEND

- MW-206B EXISTING HYDRAULIC MONITORING WELL
- EW-206 EXISTING EXTRACTION WELL
- PW5-1 ROLLS-ROYCE CORPORATION PRODUCTION WELL
- SLURRY WALL
- PROPERTY BOUNDARY

Approximate Scale In Feet

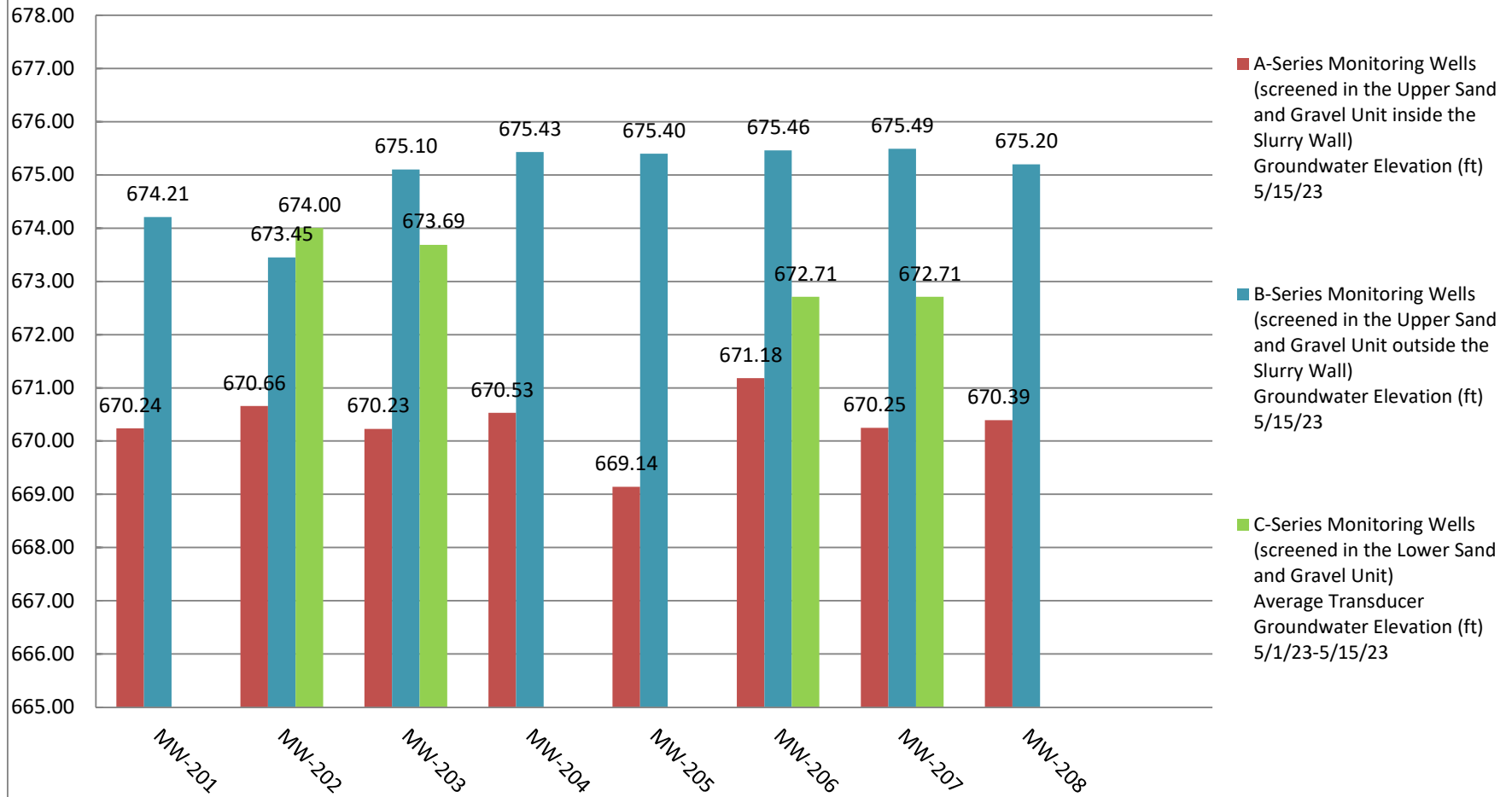
NOTE: PIPING AND BUILDING LOCATIONS ARE APPROXIMATE.

RACER TRUST
INDIANAPOLIS, INDIANA

SITE MAP

CITY/Indianapolis_DIV/GRP/USER: DB/HGL_P/M.../Cagrove_T/M/Ort
 C:\Users\sigalaur@arcadis-us.com\Desktop\Treatment\Site_151231.dwg LAYOUT:1 - SAVED: 2/14/2016 3:47 PM ACADVER: 19.15 (LMS TECH) PAGESETUP: --- PLOTSTYLETABLE: --- PLOTTED: 2/14/2016 3:48 PM BY: GASTINEAU/LYONS, HEATHER
 IMAGES: PROJECTNAME: Surface Impoundment
 ARCADIS Color Library
 Pages from Site Map_Surface Impoundment_test.jpg
 XREFS:

**Figure 2: May 15, 2023 Groundwater Elevations
Surface Impoundment
RACER TRUST**



Attachment 1

Groundwater Sampling Field Sheets

Groundwater Sampling Form



Project Number	30131348	Well ID	MW-201B	Date	5/17/2023
Project Name/Location	RACER 2022 Former AGT Surface Impoundment		Weather(°F)	60s, Sunny.	
Measuring Pt. Description	Top of Inner Casing	MP Elevation		Casing Diameter (in)	2
				Well Casing Material	Stainless Steel
Static Water Level (ft-bmp)	18.85	Total Depth (ft-bmp)	37.9	Water Column (ft)	19.05
				Gallons in Well	3.10
Purge Start	11:50	Pump Intake (ft-bmp)		Purge Method	Low-Flow
				Purge Equipment	Submersible
Purge End	13:00	Volumes Purged	0.26	Sample ID	MW-201B
				Sampled by	Keith Antell
Sample Time	12:55	Gallons Purged	0.79	Replicate/ Code No.	NA
				Sample Type	Grab

Time	Minutes Elapsed	Total Elapsed Minutes	Rate mL/min	Depth to Water (ft)	Gallon Purged	pH (standard units)	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temperature °C	Redox (mV)	Appearance	
												Color	Odor
12:40	0	0	199	18.85	0.00	8.1	0.4	12	1.7	17.9	158	Clear	None
12:45	5	5	200	18.85	0.00	8.1	0.4	6	1.7	18	158	Clear	None
12:50	5	10	200	18.85	0.00	8.1	0.4	4	1.7	18	157	Clear	None
12:55	5	15	200	18.85	0.00	8.1	0.4	4	1.7	18.1	156	Clear	None

Constituent Sampled	Container	Number	Preservative
Cyanide	250 mL Plastic	2	NaOH
Metals	250 mL Plastic	2	HNO3

Comments: Original electronic form did not save during purging from 11:50 to 12:40. Data was recorded manually from 12:40-12:55 (when stabilization was achieved).

Well Casing Volume Conversion

Well diameter (inches) = gallons per foot 1 = 0.04; 1.5 = 0.09; 2.5 = 0.26; 3.5 = 0.50; 6 = 1.47
 1.25 = 0.06; 2 = 0.16; 3 = 0.37; 4 = 0.65

Well Information

Well Location: _____	Well Locked at Arrival: _____
Condition of Well: _____	Well Locked at Departure: _____
Well Completion: _____	Key Number To Well: NA _____

ft-bmp = feet below measuring point
 in = inches
 ft = feet
 mL/min = milliliters per minute

mS/cm = milliSiemens per centimeter
 NTU = Nephelometric Turbidity Unit
 mg/L = milligrams per liter

mV = millivolts
 °F = degrees Fahrenheit
 °C = degrees Celsius

Groundwater Sampling Form



Project Number	30131348	Well ID	MW-202B	Date	5/17/2023
Project Name/Location	RACER 2022 Former AGT Surface Impoundment		Weather(°F)	57.9 degrees F and Partly Cloudy. The wind is blowing E/NE at 12.8 mph.	
Measuring Pt. Description	Top of Inner Casing	MP Elevation		Casing Diameter (in)	2
				Well Casing Material	Stainless Steel
Static Water Level (ft-bmp)	17.98	Total Depth (ft-bmp)	37.37	Water Column (ft)	19.39
				Gallons in Well	3.15
Purge Start	09:55	Pump Intake (ft-bmp)	32	Purge Method	Low-Flow
				Purge Equipment	Submersible
Purge End	11:05	Volumes Purged	1.01	Sample ID	MW-202B
				Sampled by	Keith Antell
Sample Time	11:00	Gallons Purged	3.17	Replicate/ Code No.	NA
				Sample Type	Grab

Time	Minutes Elapsed	Total Elapsed Minutes	Rate mL/min	Depth to Water (ft)	Gallon Purged	pH (standard units)	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temperature °C	Redox (mV)	Appearance	
												Color	Odor
10:00	0	0	200	17.98	0.26	8	0.4	294	7.7	13.8	160	Clear	None
10:05	5	5	200	17.98	0.53	8	0.4	278	6.3	14	163	Clear	None
10:10	5	10	200	17.98	0.79	8	0.4	352	5.9	13.4	165	Clear	None
10:15	5	15	200	17.98	1.06	8	0.4	312	6	12.7	165	Clear	None
10:20	5	20	200	17.98	1.32	8	0.4	247	5.9	12.7	166	Clear	None
10:25	5	25	200	17.98	1.59	8	0.4	116	5.8	12.7	166	Clear	None
10:30	5	30	200	17.98	1.85	8	0.4	68	5.7	12.7	165	Clear	None
10:35	5	35	200	17.98	2.11	8	0.4	66	5.7	12.8	165	Clear	None
10:40	5	40	200	17.98	2.38	8	0.4	37.8	5.6	13	164	Clear	None
10:45	5	45	200	17.98	2.64	8	0.4	33.2	5.5	13.2	164	Clear	None
10:50	5	50	200	17.98	2.91	8	0.4	16.3	5.6	13.2	163	Clear	None
10:55	5	55	200	17.98	0.32	8	0.4	14.9	5.6	13.4	163	Clear	None
11:00	5	60	200	17.98	3.43	8	0.4	9	5.6	13.3	163	Clear	None

Constituent Sampled	Container	Number	Preservative
Cyanide	250 mL Plastic	1	NaOH
Metals	250 mL Plastic	1	HNO3

Comments: Collect EB-1 after decontamination of pump through disposable filter

Well Casing Volume Conversion

Well diameter (inches) = gallons per foot 1 = 0.04; 1.5 = 0.09; 2.5 = 0.26; 3.5 = 0.50; 6 = 1.47
 1.25 = 0.06; 2 = 0.16; 3 = 0.37; 4 = 0.65

Well Information

Well Location: _____	Well Locked at Arrival: <input checked="" type="checkbox"/> yes
Condition of Well: <u>Good condition</u>	Well Locked at Departure: <input type="checkbox"/> yes
Well Completion: <u>Stick-up</u>	Key Number To Well: <u>2246</u>

ft-bmp = feet below measuring point
 in = inches
 ft = feet
 mL/min = milliliters per minute

mS/cm = milliSiemens per centimeter
 NTU = Nephelometric Turbidity Unit
 mg/L = milligrams per liter

mV = millivolts
 °F = degrees Fahrenheit
 °C = degrees Celsius

Groundwater Sampling Form



Project Number	30131348	Well ID	MW-203B	Date	5/16/2023
Project Name/Location	RACER 2022 Former AGT Surface Impoundment		Weather(°F)	57.9 degrees F and Light Rain. The wind is blowing W at 5.8 mph.	
Measuring Pt. Description	Top of Inner Casing	MP Elevation		Casing Diameter (in)	2
				Well Casing Material	Stainless Steel
Static Water Level (ft-bmp)	16.55	Total Depth (ft-bmp)	33.93	Water Column (ft)	17.38
				Gallons in Well	2.82
Purge Start	13:45	Pump Intake (ft-bmp)	29	Purge Method	Low-Flow
				Purge Equipment	Submersible
Purge End	15:00	Volumes Purged	1.12	Sample ID	MW-203B
				Sampled by	Keith Antell
Sample Time	14:55	Gallons Purged	3.17	Replicate/Code No.	Dup-1
				Sample Type	Grab

Time	Minutes Elapsed	Total Elapsed Minutes	Rate mL/min	Depth to Water (ft)	Gallon Purged	pH (standard units)	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temperature °C	Redox (mV)	Appearance	
												Color	Odor
13:50	0	0	200	16.50	0.26	7.4	0.6	77	8	14.7	122	Clear	None
13:55	5	5	200	16.50	0.53	7.3	0.6	69	7	14.9	117	Clear	None
14:00	5	10	200	16.50	0.79	7.3	0.6	59	6.6	15	114	Clear	None
14:05	5	15	200	16.50	1.06	7.3	0.6	48	6	15.1	113	Clear	None
14:10	5	20	200	16.50	1.32	7.3	0.6	44	5.8	15	112	Clear	None
14:15	5	25	200	16.50	1.59	7.3	0.6	38	5.6	15	112	Clear	None
14:20	5	30	200	16.50	1.85	7.3	0.6	31.6	5.3	15.1	112	Clear	None
14:25	5	35	200	16.50	2.11	7.3	0.6	25.3	5.1	15	113	Clear	None
14:30	5	40	200	16.50	2.38	7.3	0.6	21.7	4.8	14.9	114	Clear	None
14:35	5	45	200	16.50	0.26	7.3	0.6	28	4.4	14.7	116	Clear	None
14:40	5	50	200	16.50	2.91	7.3	0.6	22.7	4.4	14.8	116	Clear	None
14:45	5	55	200	16.50	3.17	7.3	0.6	22.1	4.3	14.7	116	Clear	None
14:50	5	60	200	16.50	3.43	7.3	0.6	30	4.1	14.7	117	Clear	None

Constituent Sampled	Container	Number	Preservative
Cyanide	250 mL Plastic	2	NaOH
Metals	250 mL Plastic	2	HNO3

Comments:

Well Casing Volume Conversion

Well diameter (inches) = gallons per foot 1 = 0.04; 1.5 = 0.09; 2.5 = 0.26; 3.5 = 0.50; 6 = 1.47
 1.25 = 0.06; 2 = 0.16; 3 = 0.37; 4 = 0.65

Well Information

Well Location: _____	Well Locked at Arrival: <input checked="" type="checkbox"/> yes
Condition of Well: <u>Good condition</u>	Well Locked at Departure: <input checked="" type="checkbox"/> yes
Well Completion: <u>Stick-up</u>	Key Number To Well: <u>2246</u>

ft-bmp = feet below measuring point
 in = inches
 ft = feet
 mL/min = milliliters per minute

mS/cm = milliSiemens per centimeter
 NTU = Nephelometric Turbidity Unit
 mg/L = milligrams per liter

mV = millivolts
 °F = degrees Fahrenheit
 °C = degrees Celsius

Groundwater Sampling Form



Project Number	30131348	Well ID	MW-206B	Date	5/16/2023
Project Name/Location	RACER 2022 Former AGT Surface Impoundment		Weather(°F)	57.0 degrees F and Light Rain. The wind is blowing N/NE at 5.8 mph.	
Measuring Pt. Description	Top of Inner Casing	MP Elevation		Casing Diameter (in)	2
				Well Casing Material	Stainless Steel
Static Water Level (ft-bmp)	18.00	Total Depth (ft-bmp)	37.63	Water Column (ft)	19.63
				Gallons in Well	3.19
Purge Start	11:40	Pump Intake (ft-bmp)	32.5	Purge Method	Low-Flow
				Purge Equipment	Submersible
Purge End	12:40	Volumes Purged	0.66	Sample ID	MW-206B
				Sampled by	Keith Antell
Sample Time	12:30	Gallons Purged	2.11	Replicate/ Code No.	MW-206B
				Sample Type	Grab

Time	Minutes Elapsed	Total Elapsed Minutes	Rate mL/min	Depth to Water (ft)	Gallon Purged	pH (standard units)	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temperature °C	Redox (mV)	Appearance	
												Color	Odor
11:45	0	0	200	18.00	0.26	7.3	1.1	25.5	1.8	14.7	-119	Clear	None
11:50	5	5	200	18.00	0.53	7.3	1.1	25	1.5	14.8	-120	Clear	None
11:55	5	10	200	18.00	0.79	7.3	1.1	15.2	1.4	14.9	-119	Clear	None
12:00	5	15	200	18.00	1.06	7.3	1.1	12.2	1.3	15	-117	Clear	None
12:05	5	20	200	18.00	1.32	7.3	1.1	10.8	1.1	15	-116	Clear	None
12:10	5	25	200	18.00	1.59	7.3	1.1	10.4	1.1	15	-114	Clear	None
12:15	5	30	200	18.00	1.85	7.3	1.1	8.5	1.1	15	-113	Clear	None
12:20	5	35	200	18.00	2.11	7.3	1.1	7.9	1	15	-112	Clear	None
12:25	5	40	200	18.00	2.38	7.3	1.1	7.9	1	15	-112	Clear	None

Constituent Sampled	Container	Number	Preservative
Cyanide	250 mL Plastic	3	NaOH
Metals	250 mL Plastic	3	HNO3

Comments:

Well Casing Volume Conversion

Well diameter (inches) = gallons per foot 1 = 0.04; 1.5 = 0.09; 2.5 = 0.26; 3.5 = 0.50; 6 = 1.47
 1.25 = 0.06; 2 = 0.16; 3 = 0.37; 4 = 0.65

Well Information

Well Location: _____	Well Locked at Arrival: <u>yes</u>
Condition of Well: <u>Good condition</u>	Well Locked at Departure: <u>yes</u>
Well Completion: <u>Stick-up</u>	Key Number To Well: <u>2246</u>

ft-bmp = feet below measuring point
 in = inches
 ft = feet
 mL/min = milliliters per minute

mS/cm = milliSiemens per centimeter
 NTU = Nephelometric Turbidity Unit
 mg/L = milligrams per liter

mV = millivolts
 °F = degrees Fahrenheit
 °C = degrees Celsius

Attachment 2

Laboratory Analytical Report and Validation Report

June 01, 2023

Ms. Heather Gastineau-Lyons
Arcadis U.S., Inc.
55 Monument Circle
Suite 300B
Indianapolis, IN 46204

RE: Project: Racer SI
Pace Project No.: 50345148

Dear Ms. Gastineau-Lyons:

Enclosed are the analytical results for sample(s) received by the laboratory on May 17, 2023. The results relate only to the samples included in this report. Results reported herein conform to the applicable TNI/NELAC Standards and the laboratory's Quality Manual, where applicable, unless otherwise noted in the body of the report.

The test results provided in this final report were generated by each of the following laboratories within the Pace Network:

- Pace Analytical Services - Indianapolis

If you have any questions concerning this report, please feel free to contact me.

Sincerely,



Olivia Deck
olivia.deck@pacelabs.com
(317)228-3102
Project Manager

Enclosures

cc: Ms. Sarah Fisher, Arcadis U.S., Inc.
Emma TerBeek, Arcadis U.S., Inc.



REPORT OF LABORATORY ANALYSIS

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CERTIFICATIONS

Project: Racer SI
Pace Project No.: 50345148

Pace Analytical Services Indianapolis

7726 Moller Road, Indianapolis, IN 46268
Illinois Accreditation #: 200074
Indiana Drinking Water Laboratory #: C-49-06
Kansas/TNI Certification #: E-10177
Kentucky UST Agency Interest #: 80226
Kentucky WW Laboratory ID #: 98019
Michigan Drinking Water Laboratory #9050

Ohio VAP Certified Laboratory #: CL0065
Oklahoma Laboratory #: 9204
Texas Certification #: T104704355
Wisconsin Laboratory #: 999788130
USDA Foreign Soil Permit #: 525-23-13-23119
USDA Compliance Agreement #: IN-SL-22-001

REPORT OF LABORATORY ANALYSIS

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SAMPLE SUMMARY

Project: Racer SI
Pace Project No.: 50345148

Lab ID	Sample ID	Matrix	Date Collected	Date Received
50345148001	MW-206B (51623)	Water	05/16/23 12:30	05/17/23 15:20
50345148002	MW-203B (51623)	Water	05/16/23 14:55	05/17/23 15:20
50345148003	MW-202B (51723)	Water	05/17/23 11:00	05/17/23 15:20
50345148004	EB-1 (51723)	Water	05/17/23 11:15	05/17/23 15:20
50345148005	MW-201B (51723)	Water	05/17/23 13:00	05/17/23 15:20
50345148006	Dup-1 (51623)	Water	05/16/23 08:00	05/17/23 15:20

REPORT OF LABORATORY ANALYSIS

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SAMPLE ANALYTE COUNT

Project: Racer SI
Pace Project No.: 50345148

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
50345148001	MW-206B (51623)	EPA 6010	DJS	7	PASI-I
		EPA 7470	EAE	1	PASI-I
		EPA 9012	YAM	1	PASI-I
50345148002	MW-203B (51623)	EPA 6010	DJS	7	PASI-I
		EPA 7470	EAE	1	PASI-I
		EPA 9012	YAM	1	PASI-I
50345148003	MW-202B (51723)	EPA 6010	DJS	7	PASI-I
		EPA 7470	EAE	1	PASI-I
		EPA 9012	YAM	1	PASI-I
50345148004	EB-1 (51723)	EPA 6010	DJS	7	PASI-I
		EPA 7470	EAE	1	PASI-I
		EPA 9012	YAM	1	PASI-I
50345148005	MW-201B (51723)	EPA 6010	DJS	7	PASI-I
		EPA 7470	EAE	1	PASI-I
		EPA 9012	YAM	1	PASI-I
50345148006	Dup-1 (51623)	EPA 6010	DJS	7	PASI-I
		EPA 7470	EAE	1	PASI-I
		EPA 9012	YAM	1	PASI-I

PASI-I = Pace Analytical Services - Indianapolis

REPORT OF LABORATORY ANALYSIS

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SUMMARY OF DETECTION

Project: Racer SI
Pace Project No.: 50345148

Lab Sample ID Method	Client Sample ID Parameters	Result	Units	Report Limit	Analyzed	Qualifiers
50345148001	MW-206B (51623)					
EPA 6010	Barium, Dissolved	419	ug/L	100	05/31/23 15:00	
EPA 6010	Chromium, Dissolved	101	ug/L	10.0	05/31/23 15:00	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: Racer SI
Pace Project No.: 50345148

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
Sample: MW-206B (51623)								
Lab ID: 50345148001								
Collected: 05/16/23 12:30 Received: 05/17/23 15:20 Matrix: Water								
6010 MET ICP, Dissolved								
Analytical Method: EPA 6010 Preparation Method: EPA 3010								
Pace Analytical Services - Indianapolis								
Arsenic, Dissolved	ND	ug/L	10.0	1	05/31/23 12:56	05/31/23 15:00	7440-38-2	
Barium, Dissolved	419	ug/L	100	1	05/31/23 12:56	05/31/23 15:00	7440-39-3	
Cadmium, Dissolved	ND	ug/L	5.0	1	05/31/23 12:56	05/31/23 15:00	7440-43-9	
Chromium, Dissolved	101	ug/L	10.0	1	05/31/23 12:56	05/31/23 15:00	7440-47-3	
Lead, Dissolved	ND	ug/L	10.0	1	05/31/23 12:56	05/31/23 15:00	7439-92-1	
Selenium, Dissolved	ND	ug/L	10.0	1	05/31/23 12:56	05/31/23 15:00	7782-49-2	
Silver, Dissolved	ND	ug/L	50.0	1	05/31/23 12:56	05/31/23 15:00	7440-22-4	
7470 Mercury, Dissolved								
Analytical Method: EPA 7470 Preparation Method: EPA 7470								
Pace Analytical Services - Indianapolis								
Mercury, Dissolved	ND	ug/L	2.0	1	05/30/23 08:45	05/30/23 15:56	7439-97-6	
9012 Cyanide, Total								
Analytical Method: EPA 9012 Preparation Method: EPA 9012								
Pace Analytical Services - Indianapolis								
Cyanide	ND	mg/L	0.020	1	05/29/23 07:23	05/30/23 14:24	57-12-5	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: Racer SI
Pace Project No.: 50345148

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
Sample: MW-203B (51623)								
Lab ID: 50345148002								
Collected: 05/16/23 14:55 Received: 05/17/23 15:20 Matrix: Water								
6010 MET ICP, Dissolved								
Analytical Method: EPA 6010 Preparation Method: EPA 3010								
Pace Analytical Services - Indianapolis								
Arsenic, Dissolved	ND	ug/L	10.0	1	05/31/23 12:56	05/31/23 15:07	7440-38-2	
Barium, Dissolved	ND	ug/L	100	1	05/31/23 12:56	05/31/23 15:07	7440-39-3	
Cadmium, Dissolved	ND	ug/L	5.0	1	05/31/23 12:56	05/31/23 15:07	7440-43-9	
Chromium, Dissolved	ND	ug/L	10.0	1	05/31/23 12:56	05/31/23 15:07	7440-47-3	
Lead, Dissolved	ND	ug/L	10.0	1	05/31/23 12:56	05/31/23 15:07	7439-92-1	
Selenium, Dissolved	ND	ug/L	10.0	1	05/31/23 12:56	05/31/23 15:07	7782-49-2	
Silver, Dissolved	ND	ug/L	50.0	1	05/31/23 12:56	05/31/23 15:07	7440-22-4	
7470 Mercury, Dissolved								
Analytical Method: EPA 7470 Preparation Method: EPA 7470								
Pace Analytical Services - Indianapolis								
Mercury, Dissolved	ND	ug/L	2.0	1	05/30/23 08:45	05/30/23 16:03	7439-97-6	
9012 Cyanide, Total								
Analytical Method: EPA 9012 Preparation Method: EPA 9012								
Pace Analytical Services - Indianapolis								
Cyanide	ND	mg/L	0.020	1	05/29/23 07:23	05/30/23 14:26	57-12-5	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: Racer SI
Pace Project No.: 50345148

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
Sample: MW-202B (51723)								
Lab ID: 50345148003								
Collected: 05/17/23 11:00 Received: 05/17/23 15:20 Matrix: Water								
6010 MET ICP, Dissolved								
Analytical Method: EPA 6010 Preparation Method: EPA 3010								
Pace Analytical Services - Indianapolis								
Arsenic, Dissolved	ND	ug/L	10.0	1	05/31/23 12:56	05/31/23 15:09	7440-38-2	
Barium, Dissolved	ND	ug/L	100	1	05/31/23 12:56	05/31/23 15:09	7440-39-3	
Cadmium, Dissolved	ND	ug/L	5.0	1	05/31/23 12:56	05/31/23 15:09	7440-43-9	
Chromium, Dissolved	ND	ug/L	10.0	1	05/31/23 12:56	05/31/23 15:09	7440-47-3	
Lead, Dissolved	ND	ug/L	10.0	1	05/31/23 12:56	05/31/23 15:09	7439-92-1	
Selenium, Dissolved	ND	ug/L	10.0	1	05/31/23 12:56	05/31/23 15:09	7782-49-2	
Silver, Dissolved	ND	ug/L	50.0	1	05/31/23 12:56	05/31/23 15:09	7440-22-4	
7470 Mercury, Dissolved								
Analytical Method: EPA 7470 Preparation Method: EPA 7470								
Pace Analytical Services - Indianapolis								
Mercury, Dissolved	ND	ug/L	2.0	1	05/30/23 08:45	05/30/23 16:06	7439-97-6	
9012 Cyanide, Total								
Analytical Method: EPA 9012 Preparation Method: EPA 9012								
Pace Analytical Services - Indianapolis								
Cyanide	ND	mg/L	0.020	1	05/29/23 12:49	05/30/23 16:33	57-12-5	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: Racer SI
Pace Project No.: 50345148

Sample: EB-1 (51723)	Lab ID: 50345148004	Collected: 05/17/23 11:15		Received: 05/17/23 15:20		Matrix: Water		
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
6010 MET ICP, Dissolved								
Analytical Method: EPA 6010 Preparation Method: EPA 3010								
Pace Analytical Services - Indianapolis								
Arsenic, Dissolved	ND	ug/L	10.0	1	05/31/23 12:56	05/31/23 15:12	7440-38-2	
Barium, Dissolved	ND	ug/L	100	1	05/31/23 12:56	05/31/23 15:12	7440-39-3	
Cadmium, Dissolved	ND	ug/L	5.0	1	05/31/23 12:56	05/31/23 15:12	7440-43-9	
Chromium, Dissolved	ND	ug/L	10.0	1	05/31/23 12:56	05/31/23 15:12	7440-47-3	
Lead, Dissolved	ND	ug/L	10.0	1	05/31/23 12:56	05/31/23 15:12	7439-92-1	
Selenium, Dissolved	ND	ug/L	10.0	1	05/31/23 12:56	05/31/23 15:12	7782-49-2	
Silver, Dissolved	ND	ug/L	50.0	1	05/31/23 12:56	05/31/23 15:12	7440-22-4	
7470 Mercury, Dissolved								
Analytical Method: EPA 7470 Preparation Method: EPA 7470								
Pace Analytical Services - Indianapolis								
Mercury, Dissolved	ND	ug/L	2.0	1	05/30/23 08:45	05/30/23 16:08	7439-97-6	
9012 Cyanide, Total								
Analytical Method: EPA 9012 Preparation Method: EPA 9012								
Pace Analytical Services - Indianapolis								
Cyanide	ND	mg/L	0.020	1	05/29/23 12:49	05/30/23 16:33	57-12-5	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: Racer SI
Pace Project No.: 50345148

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
Sample: MW-201B (51723)								
Lab ID: 50345148005								
Collected: 05/17/23 13:00 Received: 05/17/23 15:20 Matrix: Water								
6010 MET ICP, Dissolved								
Analytical Method: EPA 6010 Preparation Method: EPA 3010								
Pace Analytical Services - Indianapolis								
Arsenic, Dissolved	ND	ug/L	10.0	1	05/31/23 12:56	05/31/23 15:14	7440-38-2	
Barium, Dissolved	ND	ug/L	100	1	05/31/23 12:56	05/31/23 15:14	7440-39-3	
Cadmium, Dissolved	ND	ug/L	5.0	1	05/31/23 12:56	05/31/23 15:14	7440-43-9	
Chromium, Dissolved	ND	ug/L	10.0	1	05/31/23 12:56	05/31/23 15:14	7440-47-3	
Lead, Dissolved	ND	ug/L	10.0	1	05/31/23 12:56	05/31/23 15:14	7439-92-1	
Selenium, Dissolved	ND	ug/L	10.0	1	05/31/23 12:56	05/31/23 15:14	7782-49-2	
Silver, Dissolved	ND	ug/L	50.0	1	05/31/23 12:56	05/31/23 15:14	7440-22-4	
7470 Mercury, Dissolved								
Analytical Method: EPA 7470 Preparation Method: EPA 7470								
Pace Analytical Services - Indianapolis								
Mercury, Dissolved	ND	ug/L	2.0	1	05/30/23 08:45	05/30/23 16:11	7439-97-6	
9012 Cyanide, Total								
Analytical Method: EPA 9012 Preparation Method: EPA 9012								
Pace Analytical Services - Indianapolis								
Cyanide	ND	mg/L	0.020	1	05/29/23 12:49	05/30/23 16:35	57-12-5	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: Racer SI
Pace Project No.: 50345148

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
Sample: Dup-1 (51623)								
Lab ID: 50345148006								
Collected: 05/16/23 08:00 Received: 05/17/23 15:20 Matrix: Water								
6010 MET ICP, Dissolved								
Analytical Method: EPA 6010 Preparation Method: EPA 3010								
Pace Analytical Services - Indianapolis								
Arsenic, Dissolved	ND	ug/L	10.0	1	05/31/23 12:56	05/31/23 15:21	7440-38-2	
Barium, Dissolved	ND	ug/L	100	1	05/31/23 12:56	05/31/23 15:21	7440-39-3	
Cadmium, Dissolved	ND	ug/L	5.0	1	05/31/23 12:56	05/31/23 15:21	7440-43-9	
Chromium, Dissolved	ND	ug/L	10.0	1	05/31/23 12:56	05/31/23 15:21	7440-47-3	
Lead, Dissolved	ND	ug/L	10.0	1	05/31/23 12:56	05/31/23 15:21	7439-92-1	
Selenium, Dissolved	ND	ug/L	10.0	1	05/31/23 12:56	05/31/23 15:21	7782-49-2	
Silver, Dissolved	ND	ug/L	50.0	1	05/31/23 12:56	05/31/23 15:21	7440-22-4	
7470 Mercury, Dissolved								
Analytical Method: EPA 7470 Preparation Method: EPA 7470								
Pace Analytical Services - Indianapolis								
Mercury, Dissolved	ND	ug/L	2.0	1	05/30/23 08:45	05/30/23 16:13	7439-97-6	
9012 Cyanide, Total								
Analytical Method: EPA 9012 Preparation Method: EPA 9012								
Pace Analytical Services - Indianapolis								
Cyanide	ND	mg/L	0.020	1	05/29/23 07:23	05/30/23 14:29	57-12-5	

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: Racer SI
Pace Project No.: 50345148

QC Batch: 735843 Analysis Method: EPA 7470
QC Batch Method: EPA 7470 Analysis Description: 7470 Mercury Dissolved
Laboratory: Pace Analytical Services - Indianapolis
Associated Lab Samples: 50345148001, 50345148002, 50345148003, 50345148004, 50345148005, 50345148006

METHOD BLANK: 3376448 Matrix: Water
Associated Lab Samples: 50345148001, 50345148002, 50345148003, 50345148004, 50345148005, 50345148006

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Mercury, Dissolved	ug/L	ND	2.0	05/30/23 15:51	

LABORATORY CONTROL SAMPLE: 3376449

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Mercury, Dissolved	ug/L	5	5.2	103	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3376450 3376451

Parameter	Units	50345148001		50345148002		50345148003		50345148004		% Rec Limits	RPD	Max RPD	Qual
		MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec						
Mercury, Dissolved	ug/L	ND	5	5	5.2	5.1	105	101	75-125	4	20		

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3376452 3376453

Parameter	Units	50345371007		50345371008		50345371009		50345371010		% Rec Limits	RPD	Max RPD	Qual
		MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec						
Mercury, Dissolved	ug/L	ND	5	5	5.0	4.7	100	93	75-125	7	20		

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: Racer SI

Pace Project No.: 50345148

QC Batch: 736769

Analysis Method: EPA 6010

QC Batch Method: EPA 3010

Analysis Description: 6010 MET Dissolved

Laboratory: Pace Analytical Services - Indianapolis

Associated Lab Samples: 50345148001, 50345148002, 50345148003, 50345148004, 50345148005, 50345148006

METHOD BLANK: 3380347

Matrix: Water

Associated Lab Samples: 50345148001, 50345148002, 50345148003, 50345148004, 50345148005, 50345148006

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Arsenic, Dissolved	ug/L	ND	10.0	05/31/23 14:57	
Barium, Dissolved	ug/L	ND	100	05/31/23 14:57	
Cadmium, Dissolved	ug/L	ND	5.0	05/31/23 14:57	
Chromium, Dissolved	ug/L	ND	10.0	05/31/23 14:57	
Lead, Dissolved	ug/L	ND	10.0	05/31/23 14:57	
Selenium, Dissolved	ug/L	ND	10.0	05/31/23 14:57	
Silver, Dissolved	ug/L	ND	50.0	05/31/23 14:57	

LABORATORY CONTROL SAMPLE: 3380348

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Arsenic, Dissolved	ug/L	1000	977	98	80-120	
Barium, Dissolved	ug/L	1000	850	85	80-120	
Cadmium, Dissolved	ug/L	1000	971	97	80-120	
Chromium, Dissolved	ug/L	1000	993	99	80-120	
Lead, Dissolved	ug/L	1000	949	95	80-120	
Selenium, Dissolved	ug/L	1000	978	98	80-120	
Silver, Dissolved	ug/L	500	509	102	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3380349 3380350

Parameter	Units	MS		MSD		MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
		50345148001 Result	Spike Conc.	Spike Conc.	Result						
Arsenic, Dissolved	ug/L	ND	1000	1000	1030	1040	102	103	75-125	1	20
Barium, Dissolved	ug/L	419	1000	1000	1230	1260	82	84	75-125	2	20
Cadmium, Dissolved	ug/L	ND	1000	1000	993	1000	99	100	75-125	1	20
Chromium, Dissolved	ug/L	101	1000	1000	1060	1070	95	97	75-125	1	20
Lead, Dissolved	ug/L	ND	1000	1000	913	923	91	92	75-125	1	20
Selenium, Dissolved	ug/L	ND	1000	1000	1070	1080	107	108	75-125	1	20
Silver, Dissolved	ug/L	ND	500	500	490	500	98	100	75-125	2	20

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: Racer SI
Pace Project No.: 50345148

QC Batch: 736325	Analysis Method: EPA 9012
QC Batch Method: EPA 9012	Analysis Description: 9012 Cyanide, Total
	Laboratory: Pace Analytical Services - Indianapolis

Associated Lab Samples: 50345148001, 50345148002, 50345148006

METHOD BLANK: 3378996 Matrix: Water
Associated Lab Samples: 50345148001, 50345148002, 50345148006

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Cyanide	mg/L	ND	0.020	05/30/23 14:53	

LABORATORY CONTROL SAMPLE: 3378997

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Cyanide	mg/L	0.1	0.099	99	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3378998 3378999

Parameter	Units	50345148001		3378999		MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
		MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result						
Cyanide	mg/L	ND	0.2	0.2	0.21	0.20	103	100	90-110	3	20

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: Racer SI
Pace Project No.: 50345148

QC Batch: 736339 Analysis Method: EPA 9012
QC Batch Method: EPA 9012 Analysis Description: 9012 Cyanide, Total
Laboratory: Pace Analytical Services - Indianapolis

Associated Lab Samples: 50345148003, 50345148004, 50345148005

METHOD BLANK: 3379039 Matrix: Water

Associated Lab Samples: 50345148003, 50345148004, 50345148005

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Cyanide	mg/L	ND	0.020	05/30/23 16:19	

LABORATORY CONTROL SAMPLE: 3379040

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Cyanide	mg/L	0.1	0.095	95	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3379041 3379042

Parameter	Units	50345115005		3379041		3379042		% Rec	% Rec	% Rec Limits	RPD	Max RPD	Qual
		MS Result	MSD Spike Conc.	MS Result	MSD Spike Conc.	MS Result	MSD Spike Conc.						
Cyanide	mg/L	ND	0.1	0.1	0.093	0.098	92	98	90-110	6	20		

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3379043 3379044

Parameter	Units	50345152003		3379043		3379044		% Rec	% Rec	% Rec Limits	RPD	Max RPD	Qual
		MS Result	MSD Spike Conc.	MS Result	MSD Spike Conc.	MS Result	MSD Spike Conc.						
Cyanide	mg/L	<5.0 ug/L	0.1	0.1	0.088	0.082	87	81	90-110	6	20	M3	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

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QUALIFIERS

Project: Racer SI
Pace Project No.: 50345148

DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to dilution of the sample aliquot.

ND - Not Detected at or above adjusted reporting limit.

TNTC - Too Numerous To Count

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

RL - Reporting Limit - The lowest concentration value that meets project requirements for quantitative data with known precision and bias for a specific analyte in a specific matrix.

S - Surrogate

1,2-Diphenylhydrazine decomposes to and cannot be separated from Azobenzene using Method 8270. The result for each analyte is a combined concentration.

Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

U - Indicates the compound was analyzed for, but not detected.

N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.

Reported results are not rounded until the final step prior to reporting. Therefore, calculated parameters that are typically reported as "Total" may vary slightly from the sum of the reported component parameters.

Pace Analytical is TNI accredited. Contact your Pace PM for the current list of accredited analytes.

TNI - The NELAC Institute.

ANALYTE QUALIFIERS

M3 Matrix spike recovery was outside laboratory control limits due to matrix interferences.

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: Racer SI
Pace Project No.: 50345148

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
50345148001	MW-206B (51623)	EPA 3010	736769	EPA 6010	736771
50345148002	MW-203B (51623)	EPA 3010	736769	EPA 6010	736771
50345148003	MW-202B (51723)	EPA 3010	736769	EPA 6010	736771
50345148004	EB-1 (51723)	EPA 3010	736769	EPA 6010	736771
50345148005	MW-201B (51723)	EPA 3010	736769	EPA 6010	736771
50345148006	Dup-1 (51623)	EPA 3010	736769	EPA 6010	736771
50345148001	MW-206B (51623)	EPA 7470	735843	EPA 7470	736518
50345148002	MW-203B (51623)	EPA 7470	735843	EPA 7470	736518
50345148003	MW-202B (51723)	EPA 7470	735843	EPA 7470	736518
50345148004	EB-1 (51723)	EPA 7470	735843	EPA 7470	736518
50345148005	MW-201B (51723)	EPA 7470	735843	EPA 7470	736518
50345148006	Dup-1 (51623)	EPA 7470	735843	EPA 7470	736518
50345148001	MW-206B (51623)	EPA 9012	736325	EPA 9012	736553
50345148002	MW-203B (51623)	EPA 9012	736325	EPA 9012	736553
50345148003	MW-202B (51723)	EPA 9012	736339	EPA 9012	736584
50345148004	EB-1 (51723)	EPA 9012	736339	EPA 9012	736584
50345148005	MW-201B (51723)	EPA 9012	736339	EPA 9012	736584
50345148006	Dup-1 (51623)	EPA 9012	736325	EPA 9012	736553

REPORT OF LABORATORY ANALYSIS

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Pace Container Order #1100826

Addresses	Ship To :	Return To:
Order By :	Company Hold for Client Pickup	Company Pace Analytical Indianapolis
Company Arcadis_Racer	Contact _____	Contact Deck, Olivia
Contact Fisher, Sarah	Email _____	Email olivia.deck@pacelabs.com
Email sarah.fisher@arcadis.com	Address _____	Address 7726 Moller Road
Address 55 Monument Circle	Address 2 _____	Address 2 _____
Address 2 Suite 300B	City _____	City Indianapolis
City Indianapolis	State _____ Zip _____	State IN Zip 46268
State IN Zip 46204	Phone _____	Phone (317)228-3102
Phone 236-2813		

Info			
Project Name Racer 30131348	Due Date 05/15/2023	Profile 5636-1	Quote _____
Project Manager Deck, Olivia	Return Date _____	Carrier Client Pick Up	Location IN

Trip Blanks <input type="checkbox"/> Include Trip Blanks	Bottle Labels <input type="checkbox"/> Blank <input checked="" type="checkbox"/> Pre-Printed No Sample IDs <input type="checkbox"/> Pre-Printed With Sample IDs	Bottles <input type="checkbox"/> Boxed Cases <input type="checkbox"/> Individually Wrapped <input type="checkbox"/> Grouped By Sample ID/Matrix
Return Shipping Labels <input type="checkbox"/> No Shipper <input type="checkbox"/> With Shipper	Misc <input type="checkbox"/> Sampling Instructions <input checked="" type="checkbox"/> Custody Seal <input checked="" type="checkbox"/> Temp. Blanks <input checked="" type="checkbox"/> Coolers _____ <input type="checkbox"/> Syringes _____	
COC Options <input type="checkbox"/> Number of Blanks _____ <input checked="" type="checkbox"/> Pre-Printed _____	<input type="checkbox"/> Extra Bubble Wrap <input type="checkbox"/> Short Hold/Rush Stickers <input type="checkbox"/> DI Water <input type="text" value="Liter(s)"/> <input type="checkbox"/> USDA Regulated Soils	

# of Samples	Matrix	Test	Container	Total	# of	Lot #	Notes
8	WT	IN Metals, Field Filtered	250mL plastic, HNO3 +FF labels	8	0		includes 7470 Hg
8	WT	IN Cyanide, Total	250mL plastic, NaOH	8	0		9012

Hazard Shipping Placard In Place : NO

LAB USE:

*Sample receiving hours are typically 8am-5pm, but may differ by location. Please check with your Pace Project Manager.

Ship Date : 05/12/2023

*Pace Analytical reserves the right to return hazardous, toxic, or radioactive samples to you.

Prepared By: JF

*Pace Analytical reserves the right to charge for unused bottles, as well as cost associated with sample storage/disposal.

Verified By: DD

*Payment term are net 30 days.

Tracking Num: _____

*Please include the proposal number on the chain of custody to insure proper billing.

Sample

CLIENT USE (Optional):

Date Rec'd: _____

Received By: _____

Verified By: _____

Internal



SAMPLE CONDITION UPON RECEIPT FORM

Date/Time and Initials of person examining contents: IBM 5/17/23 20:26

1. Courier: FED EX UPS CLIENT PACE USPS OTHER _____

2. Custody Seal on Cooler/Box Present: Yes No
 (If yes)Seals Intact: Yes No (leave blank if no seals were present)

3. Thermometer: 1 2 3 4 5 6 A B C D E F

4. Cooler Temperature(s): 15.8
 (Initial/Corrected) RECORD TEMPS OF ALL COOLERS RECEIVED (use Comments below to add more)

5. Packing Material: Bubble Wrap Bubble Bags
 None Other _____

6. Ice Type: Wet Blue None

7. If temp. is over 6°C or under 0°C, was the PM notified?: Yes No
 Cooler temp should be above freezing to 6°C

All discrepancies will be written out in the comments section below.

	Yes	No		Yes	No	N/A
USDA Regulated Soils? (HI, ID, NY, WA, OR, CA, NM, TX, OK, AR, LA, TN, AL, MS, NC, SC, GA, FL, or Puerto Rico)		X	All containers needing acid/base preservation have been pH CHECKED?: Exceptions: VOA, coliform, LLHg, O&G, RAD CHEM, and any container with a septum cap or preserved with HCl.			
Short Hold Time Analysis (48 hours or less)? Analysis:		X	Circle: HNO3 (<2) H2SO4 (<2) NaOH (>10) NaOH/ZnAc (>9) Any non-conformance to pH recommendations will be noted on the container count form	X		
Time 5035A TC placed in Freezer or Short Holds To Lab	Time:			Present	Absent	N/A
Rush TAT Requested (4 days or less):		X	Residual Chlorine Check (SVOC 625 Pest/PCB 608)			X
Custody Signatures Present?	X		Residual Chlorine Check (Total/Amenable/Free Cyanide)			X
Containers Intact?:	X		Headspace Wisconsin Sulfide?	Present	Absent	No VOA Vials Sent
Sample Label (IDs/Dates/Times) Match COC?: Except TCs, which only require sample ID	X		Headspace in VOA Vials (>6mm): See Containter Count form for details			X
Extra labels on Terracore Vials? (soils only)			Trip Blank Present?		X	
			Trip Blank Custody Seals?:			X

COMMENTS:

Racer Trust Surface Impoundment

Data Review

Indianapolis, Indiana

Metals and Miscellaneous Analyses

SDG #50345148

Analyses Performed By:
Pace Analytical Services, Inc.
Indianapolis, Indiana

Report #50086R
Review Level: Tier II
Project: 30176690.01

Summary

This data quality assessment summarizes the review of Sample Delivery Group (SDG) #50345148 for samples collected in association with the Surface Impoundment site. The review was conducted as a Tier II evaluation and included review of data package completeness. Only analytical data as reported by the laboratory were reviewed for this validation. Field documentation was not included in this review. Included with this assessment are the validation annotated sample result sheets, and chain of custody. Analyses were performed on the following samples:

Sample ID	Lab ID	Matrix	Sample Collection Date	Parent Sample	Analysis	
					MET	MISC
MW-206B (51623)	50345148001	Water	5/16/2023		X	X
MW-203B (51623)	50345148002	Water	5/16/2023		X	X
MW-202B (51723)	50345148003	Water	5/17/2023		X	X
EB-1 (51723)	50345148004	Water	5/17/2023		X	X
MW-201B (51723)	50345148005	Water	5/17/2023		X	X
DUP-1 (51623)	50345148006	Water	5/16/2023	MW-203B (51623)	X	X

Note:

1. The matrix spike/matrix spike duplicate (MS/MSD) analysis was performed on sample location MW-206B (51623).

Analytical Data Package Documentation

The table below evaluates the data package completeness.

Items Reviewed	Reported		Performance Acceptable		Not Required
	No	Yes	No	Yes	
1. Sample receipt condition		X		X	
2. Requested analyses and sample results		X		X	
3. Master tracking list		X		X	
4. Methods of analysis		X		X	
5. Reporting limits		X		X	
6. Sample collection date		X		X	
7. Laboratory sample received date		X		X	
8. Sample preservation verification (as applicable)		X		X	
9. Sample preparation/extraction/analysis dates		X		X	
10. Fully executed chain-of-custody form		X		X	
11. Narrative summary of QA or sample problems provided		X		X	
12. Data package completeness and compliance		X		X	

Notes:

QA = quality assurance

Inorganic Analysis Introduction

Analyses were performed according to United States Environmental Protection Agency (USEPA) SW-846 Methods 6010, 7470, and 9012. Data were reviewed in accordance with USEPA National Functional Guidelines NFG for Inorganic Superfund Methods Data Review, EPA-540-R-20-006 (November 2020), with reference to the historical USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Data Review, OSWER 9240.1-05A-P, October 2004, as appropriate).

The data review process is an evaluation of data on a technical basis rather than a determination of contract compliance. As such, the standards against which the data are being weighed may differ from those specified in the analytical method. It is assumed that the data package represents the best efforts of the laboratory and that it was already subjected to adequate and sufficient quality review prior to submission.

During the review process, laboratory qualified and unqualified data are verified against the supporting documentation. Based on this evaluation, qualifier codes may be added, deleted, or modified by the data reviewer. Results are qualified with the following codes in accordance with the USEPA National Functional Guidelines:

- Concentration (C) Qualifiers
 - U The analyte was analyzed for but not detected. The associated value is the analyte instrument detection limit.
 - J The reported value was obtained from a reading less than the reporting limit (RL), but greater than or equal to the method detection limit (MDL).
- Quantitation (Q) Qualifiers
 - E The reported value is estimated due to the presence of interference.
 - N Spiked sample recovery is not within control limits.
 - * Duplicate analysis is not within control limits.
- Validation Qualifiers
 - J The analyte was positively identified; however, the associated numerical value is an estimated concentration only.
 - UJ The analyte was not detected above the reporting limit. However, the reported limit is approximate and may or may not represent the actual limit of detection.
 - UB Analyte considered non-detect at the listed value due to associated blank contamination.
 - R The sample results are rejected.

Two facts should be noted by all data users. First, the "R" flag means that the associated value is unusable. In other words, due to significant quality control (QC) problems, the analysis is invalid and provides no information as to whether the compound is present or not. "R" values should not appear on data tables because they cannot be relied upon, even as a last resort. The second fact to keep in mind is that no compound concentration, even if it has passed all QC tests, is guaranteed to be accurate. Strict QC serves to increase confidence in data but any value potentially contains error.

Metals Analyses

1. Holding Times

The specified holding times for the following methods are presented in the following table.

Method	Matrix	Holding Time	Preservation
SW-846 6010	Water	180 days from collection to analysis	Cool to < 6 °C; pH < 2 with HNO ₃
SW-846 7470	Water	28 days from collection to analysis	Cool to < 6 °C; pH < 2 with HNO ₃

Samples were analyzed within the specified holding times.

2. Blank Contamination

Quality assurance (QA) blanks (i.e., method and rinse blanks) are prepared to identify any contamination which may have been introduced into the samples during sample preparation or field activity. Method blanks measure laboratory contamination. Rinse blanks measure contamination of samples during field operations.

A blank action level (BAL) of five times the concentration of a detected compound in an associated blank is calculated for QA blanks containing concentrations greater than the method detection limit (MDL). The BAL is compared to the associated sample results to determine the appropriate qualification of the sample results, if needed.

Compounds were not detected above the MDL in the associated blanks; therefore, detected sample results were not associated with blank contamination.

3. Matrix Spike/Matrix Spike Duplicate (MS/MSD)/Laboratory Duplicate Analysis

MS/MSD and laboratory duplicate data are used to assess the precision and accuracy of the analytical method.

3.1 MS/MSD Analysis

All metal analytes must exhibit recoveries within the established acceptance limits of 75% to 125%. The relative percent difference (RPD) between the MS and MSD results must be no greater than the established acceptance limit of 20%. The MS/MSD control limits do not apply for MS/MSDs performed on sample locations where the analyte's concentration detected in the parent sample exceeds the MS/MSD spiking concentration by a factor of four or greater. In instance where this is true, the data will not be qualified and the laboratory qualifier will be removed. Sample results associated with MS/MSD exceedances where the parent samples are not site-specific are not qualified.

The MS/MSD analysis exhibited recoveries within the control limits.

3.2 Laboratory Duplicate Analysis

The laboratory duplicate sample relative percent difference (RPD) criterion is applied when both the parent and duplicate sample concentrations are greater than or equal to five times the reporting limit (RL). A control limit of 20% for water matrices is applied when the criteria above is true. In the instance when the parent and/or duplicate sample concentrations are less than or equal to five times the detection limit, a control limit of two times the reporting limit (RL) for water matrices.

Laboratory duplicate analysis was not performed on samples from this SDG.

4. Field Duplicate Analysis

Field duplicate analysis is used to assess the overall precision of the field sampling procedures and analytical method. A control limit of 50% for soil matrices is applied to the RPD between the parent sample and the field duplicate. In the instance when the parent and/or duplicate sample concentrations are less than or equal to 5 times the RL, a control limit of two times the RL is applied for water matrices or three times the RL is applied for soil matrices.

Results for duplicate samples are summarized in the following table.

Sample ID/ Duplicate ID	Analyte	Sample Result (mg/L)	Duplicate Result (mg/L)	RPD
MW-203B (51623) / DUP-1 (51623)	Analytes reported within this SDG	ND	ND	AC

Notes:

AC = acceptable
 ND = non-detect

The calculated RPDs between the parent sample and field duplicate were acceptable.

5. Laboratory Control Sample (LCS) Analysis

The LCS analysis is used to assess the precision and accuracy of the analytical method independent of matrix interferences. The analytes associated with the LCS analysis must exhibit a percent recovery between the control limits of 80% and 120%.

The LCS analysis exhibited recoveries within the control limits.

6. Serial Dilution

The serial dilution analysis is used to assess if a significant physical or chemical interference exists due to sample matrix. Analytes exhibiting concentrations greater than 50 times the MDL in the undiluted sample are evaluated to determine if matrix interference exists. These analytes are required to have less than a 10% difference (%D) between sample results from the undiluted (parent) sample and results associated with the same sample analyzed with a five-fold dilution.

Serial dilution analysis was not performed.

7. System Performance and Overall Assessment

Overall system performance was acceptable. Other than for those deviations specifically mentioned in this review, the overall data quality is within the guidelines specified in the method.

Data Validation Checklist for Metal

METALS: SW-846 6010 and 7470	Reported		Performance Acceptable		Not Required
	No	Yes	No	Yes	
Inductively Coupled Plasma – Atomic Emission Spectrometry (ICP), Atomic Absorption – Manual Cold Vapor (CV)					
Tier II Validation					
Holding Times		X		X	
Reporting limits (units)		X		X	
Blanks					
A. Method Blanks		X		X	
B. Equipment/Field Blanks		X		X	
Laboratory Control Sample (LCS)		X		X	
Matrix Spike (MS) %R		X		X	
Matrix Spike Duplicate (MSD) %R		X		X	
MS/MSD Precision (RPD)		X		X	
Field/Lab Duplicate (RPD)		X		X	
ICP Serial Dilution %D	X				X
Total vs. Dissolved	X				X
Reporting Limit Verification		X		X	
% Moisture	X				X

Notes:

%R Percent recovery

RPD Relative percent difference

General Chemistry Analyses

1. Holding Times

The specified holding times for the following methods are presented in the following table.

Method	Matrix	Holding Time	Preservation
Cyanide by SW-846 9012	Water	14 days from collection to analysis	Cool to < 6 °C; pH > 12

Samples were analyzed within the specified holding time criterion.

2. Blank Contamination

Quality assurance (QA) blanks (i.e., method and rinse blanks) are prepared to identify any contamination which may have been introduced into the samples during sample preparation or field activity. Method blanks measure laboratory contamination. Rinse blanks measure contamination of samples during field operations.

A blank action level (BAL) of five times the concentration of a detected compound in an associated blank is calculated for QA blanks containing concentrations greater than the method detection limit (MDL). The BAL is compared to the associated sample results to determine the appropriate qualification of the sample results, if needed.

Analytes were not detected above the MDL in the associated blanks; therefore, detected sample results were not associated with blank contamination.

3. Matrix Spike/Matrix Spike Duplicate (MS/MSD)/Laboratory Duplicate Analysis

MS/MSD and laboratory duplicate data are used to assess the precision and accuracy of the analytical method.

3.1 MS/MSD Analysis

All metal analytes must exhibit a percent recovery within the established acceptance limits of 75% to 125%. The MS/MSD recovery control limits do not apply for MS/MSD performed on sample locations where the analyte's concentration detected in the parent sample exceeds the MS/MSD concentration by a factor of four or greater. In instance where this is true, the data will not be qualified even if the percent recovery does not meet the control limits and the laboratory flag will be removed.

MS/MSD analysis exhibited recoveries within the control limits.

3.2 Laboratory Duplicate Analysis

The laboratory duplicate relative percent difference (RPD) criterion is applied when parent and duplicate sample concentrations are greater than or equal to 5 times the RL. A control limit of 20% for water matrices and 35% for soil

matrices is applied when the criteria above is true. In the instance when the parent and/or duplicate sample concentrations are less than or equal to 5 times the RL, a control limit of one time the RL is applied for water matrices and two times the RL for soil matrices.

MS/MSD analysis was performed in replacement of the laboratory duplicate analysis. The MS/MSD recoveries exhibited acceptable RPD.

4. Field Duplicate Analysis

Field duplicate analysis is used to assess the overall precision of the field sampling procedures and analytical method. A control limit of 50% for soil matrices is applied to the RPD between the parent sample and the field duplicate. In the instance when the parent and/or duplicate sample concentrations are less than or equal to 5 times the RL, a control limit of three times the RL is applied for soil matrices.

Results for duplicate samples are summarized in the following table.

Sample ID/ Duplicate ID	Analyte	Sample Result	Duplicate Result	RPD
MW-203B (51623) / DUP-1 (51623)	Cyanide	ND	ND	AC

Notes:

AC = acceptable

ND = non-detect

The calculated RPDs between the parent sample and field duplicate were acceptable.

5. Laboratory Control Sample / Laboratory Control Sample Duplicate (LCS/LCSD) Analysis

The LCS/LCSD analysis is used to assess the precision and accuracy of the analytical method independent of matrix interferences. The analytes associated with the LCS/LCSD analysis must exhibit a percent recovery between the control limits of 80% and 120%.

The LCS analysis exhibited recoveries within the control limits. The LCSD analysis was not performed.

6. System Performance and Overall Assessment

Overall system performance was acceptable. Other than for those deviations specifically mentioned in this review, the overall data quality is within the guidelines specified in the method.

Data Validation Checklist for General Chemistry

General Chemistry: SW-846 9012	Reported		Performance Acceptable		Not Required
	No	Yes	No	Yes	
Miscellaneous Instrumentation					
Tier II Validation					
Holding Times		X		X	
Reporting limits (units)		X		X	
Blanks					
A. Method Blanks		X		X	
B. Equipment/Field Blanks		X		X	
Laboratory Control Sample (LCS)		X		X	
Laboratory Control Sample Duplicate (LCSD)	X				X
LCS/LCSD Precision (RPD)	X				X
Matrix Spike (MS) %R		X		X	
Matrix Spike Duplicate (MSD) %R		X		X	
MS/MSD Precision (RPD)		X		X	
Field/Lab Duplicate (RPD)		X		X	
Reporting Limit Verification		X		X	

Notes:

%R = percent recovery

RPD = relative percent difference

VALIDATION PERFORMED BY: Todd Church

SIGNATURE:



DATE: June 14, 2023

PEER REVIEW: Dennis Capria

DATE: June 19, 2023

Analytical Data Validation Summary

Chain of Custody Corrected Sample Analysis Data Sheets

QUALIFIERS

Project: Racer SI
Pace Project No.: 50345148

DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to dilution of the sample aliquot.

ND - Not Detected at or above adjusted reporting limit.

TNTC - Too Numerous To Count

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

RL - Reporting Limit - The lowest concentration value that meets project requirements for quantitative data with known precision and bias for a specific analyte in a specific matrix.

S - Surrogate

1,2-Diphenylhydrazine decomposes to and cannot be separated from Azobenzene using Method 8270. The result for each analyte is a combined concentration.

Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

U - Indicates the compound was analyzed for, but not detected.

N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.

Reported results are not rounded until the final step prior to reporting. Therefore, calculated parameters that are typically reported as "Total" may vary slightly from the sum of the reported component parameters.

Pace Analytical is TNI accredited. Contact your Pace PM for the current list of accredited analytes.

TNI - The NELAC Institute.

ANALYTE QUALIFIERS

M3 Matrix spike recovery was outside laboratory control limits due to matrix interferences.

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: Racer SI
Pace Project No.: 50345148

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
Sample: MW-206B (51623)								
Lab ID: 50345148001								
Collected: 05/16/23 12:30 Received: 05/17/23 15:20 Matrix: Water								
6010 MET ICP, Dissolved								
Analytical Method: EPA 6010 Preparation Method: EPA 3010								
Pace Analytical Services - Indianapolis								
Arsenic, Dissolved	ND	ug/L	10.0	1	05/31/23 12:56	05/31/23 15:00	7440-38-2	
Barium, Dissolved	419	ug/L	100	1	05/31/23 12:56	05/31/23 15:00	7440-39-3	
Cadmium, Dissolved	ND	ug/L	5.0	1	05/31/23 12:56	05/31/23 15:00	7440-43-9	
Chromium, Dissolved	101	ug/L	10.0	1	05/31/23 12:56	05/31/23 15:00	7440-47-3	
Lead, Dissolved	ND	ug/L	10.0	1	05/31/23 12:56	05/31/23 15:00	7439-92-1	
Selenium, Dissolved	ND	ug/L	10.0	1	05/31/23 12:56	05/31/23 15:00	7782-49-2	
Silver, Dissolved	ND	ug/L	50.0	1	05/31/23 12:56	05/31/23 15:00	7440-22-4	
7470 Mercury, Dissolved								
Analytical Method: EPA 7470 Preparation Method: EPA 7470								
Pace Analytical Services - Indianapolis								
Mercury, Dissolved	ND	ug/L	2.0	1	05/30/23 08:45	05/30/23 15:56	7439-97-6	
9012 Cyanide, Total								
Analytical Method: EPA 9012 Preparation Method: EPA 9012								
Pace Analytical Services - Indianapolis								
Cyanide	ND	mg/L	0.020	1	05/29/23 07:23	05/30/23 14:24	57-12-5	

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ANALYTICAL RESULTS

Project: Racer SI
Pace Project No.: 50345148

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
Sample: MW-203B (51623)								
Lab ID: 50345148002								
Collected: 05/16/23 14:55 Received: 05/17/23 15:20 Matrix: Water								
6010 MET ICP, Dissolved								
Analytical Method: EPA 6010 Preparation Method: EPA 3010								
Pace Analytical Services - Indianapolis								
Arsenic, Dissolved	ND	ug/L	10.0	1	05/31/23 12:56	05/31/23 15:07	7440-38-2	
Barium, Dissolved	ND	ug/L	100	1	05/31/23 12:56	05/31/23 15:07	7440-39-3	
Cadmium, Dissolved	ND	ug/L	5.0	1	05/31/23 12:56	05/31/23 15:07	7440-43-9	
Chromium, Dissolved	ND	ug/L	10.0	1	05/31/23 12:56	05/31/23 15:07	7440-47-3	
Lead, Dissolved	ND	ug/L	10.0	1	05/31/23 12:56	05/31/23 15:07	7439-92-1	
Selenium, Dissolved	ND	ug/L	10.0	1	05/31/23 12:56	05/31/23 15:07	7782-49-2	
Silver, Dissolved	ND	ug/L	50.0	1	05/31/23 12:56	05/31/23 15:07	7440-22-4	
7470 Mercury, Dissolved								
Analytical Method: EPA 7470 Preparation Method: EPA 7470								
Pace Analytical Services - Indianapolis								
Mercury, Dissolved	ND	ug/L	2.0	1	05/30/23 08:45	05/30/23 16:03	7439-97-6	
9012 Cyanide, Total								
Analytical Method: EPA 9012 Preparation Method: EPA 9012								
Pace Analytical Services - Indianapolis								
Cyanide	ND	mg/L	0.020	1	05/29/23 07:23	05/30/23 14:26	57-12-5	

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ANALYTICAL RESULTS

Project: Racer SI
Pace Project No.: 50345148

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
Sample: MW-202B (51723)								
Lab ID: 50345148003								
Collected: 05/17/23 11:00 Received: 05/17/23 15:20 Matrix: Water								
6010 MET ICP, Dissolved								
Analytical Method: EPA 6010 Preparation Method: EPA 3010								
Pace Analytical Services - Indianapolis								
Arsenic, Dissolved	ND	ug/L	10.0	1	05/31/23 12:56	05/31/23 15:09	7440-38-2	
Barium, Dissolved	ND	ug/L	100	1	05/31/23 12:56	05/31/23 15:09	7440-39-3	
Cadmium, Dissolved	ND	ug/L	5.0	1	05/31/23 12:56	05/31/23 15:09	7440-43-9	
Chromium, Dissolved	ND	ug/L	10.0	1	05/31/23 12:56	05/31/23 15:09	7440-47-3	
Lead, Dissolved	ND	ug/L	10.0	1	05/31/23 12:56	05/31/23 15:09	7439-92-1	
Selenium, Dissolved	ND	ug/L	10.0	1	05/31/23 12:56	05/31/23 15:09	7782-49-2	
Silver, Dissolved	ND	ug/L	50.0	1	05/31/23 12:56	05/31/23 15:09	7440-22-4	
7470 Mercury, Dissolved								
Analytical Method: EPA 7470 Preparation Method: EPA 7470								
Pace Analytical Services - Indianapolis								
Mercury, Dissolved	ND	ug/L	2.0	1	05/30/23 08:45	05/30/23 16:06	7439-97-6	
9012 Cyanide, Total								
Analytical Method: EPA 9012 Preparation Method: EPA 9012								
Pace Analytical Services - Indianapolis								
Cyanide	ND	mg/L	0.020	1	05/29/23 12:49	05/30/23 16:33	57-12-5	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: Racer SI
Pace Project No.: 50345148

Sample: EB-1 (51723)	Lab ID: 50345148004	Collected: 05/17/23 11:15		Received: 05/17/23 15:20		Matrix: Water		
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
6010 MET ICP, Dissolved								
Analytical Method: EPA 6010 Preparation Method: EPA 3010								
Pace Analytical Services - Indianapolis								
Arsenic, Dissolved	ND	ug/L	10.0	1	05/31/23 12:56	05/31/23 15:12	7440-38-2	
Barium, Dissolved	ND	ug/L	100	1	05/31/23 12:56	05/31/23 15:12	7440-39-3	
Cadmium, Dissolved	ND	ug/L	5.0	1	05/31/23 12:56	05/31/23 15:12	7440-43-9	
Chromium, Dissolved	ND	ug/L	10.0	1	05/31/23 12:56	05/31/23 15:12	7440-47-3	
Lead, Dissolved	ND	ug/L	10.0	1	05/31/23 12:56	05/31/23 15:12	7439-92-1	
Selenium, Dissolved	ND	ug/L	10.0	1	05/31/23 12:56	05/31/23 15:12	7782-49-2	
Silver, Dissolved	ND	ug/L	50.0	1	05/31/23 12:56	05/31/23 15:12	7440-22-4	
7470 Mercury, Dissolved								
Analytical Method: EPA 7470 Preparation Method: EPA 7470								
Pace Analytical Services - Indianapolis								
Mercury, Dissolved	ND	ug/L	2.0	1	05/30/23 08:45	05/30/23 16:08	7439-97-6	
9012 Cyanide, Total								
Analytical Method: EPA 9012 Preparation Method: EPA 9012								
Pace Analytical Services - Indianapolis								
Cyanide	ND	mg/L	0.020	1	05/29/23 12:49	05/30/23 16:33	57-12-5	

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ANALYTICAL RESULTS

Project: Racer SI
Pace Project No.: 50345148

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
Sample: MW-201B (51723)								
Lab ID: 50345148005								
Collected: 05/17/23 13:00 Received: 05/17/23 15:20 Matrix: Water								
6010 MET ICP, Dissolved								
Analytical Method: EPA 6010 Preparation Method: EPA 3010								
Pace Analytical Services - Indianapolis								
Arsenic, Dissolved	ND	ug/L	10.0	1	05/31/23 12:56	05/31/23 15:14	7440-38-2	
Barium, Dissolved	ND	ug/L	100	1	05/31/23 12:56	05/31/23 15:14	7440-39-3	
Cadmium, Dissolved	ND	ug/L	5.0	1	05/31/23 12:56	05/31/23 15:14	7440-43-9	
Chromium, Dissolved	ND	ug/L	10.0	1	05/31/23 12:56	05/31/23 15:14	7440-47-3	
Lead, Dissolved	ND	ug/L	10.0	1	05/31/23 12:56	05/31/23 15:14	7439-92-1	
Selenium, Dissolved	ND	ug/L	10.0	1	05/31/23 12:56	05/31/23 15:14	7782-49-2	
Silver, Dissolved	ND	ug/L	50.0	1	05/31/23 12:56	05/31/23 15:14	7440-22-4	
7470 Mercury, Dissolved								
Analytical Method: EPA 7470 Preparation Method: EPA 7470								
Pace Analytical Services - Indianapolis								
Mercury, Dissolved	ND	ug/L	2.0	1	05/30/23 08:45	05/30/23 16:11	7439-97-6	
9012 Cyanide, Total								
Analytical Method: EPA 9012 Preparation Method: EPA 9012								
Pace Analytical Services - Indianapolis								
Cyanide	ND	mg/L	0.020	1	05/29/23 12:49	05/30/23 16:35	57-12-5	

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ANALYTICAL RESULTS

Project: Racer SI
Pace Project No.: 50345148

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
Sample: Dup-1 (51623)								
Lab ID: 50345148006								
Collected: 05/16/23 08:00 Received: 05/17/23 15:20 Matrix: Water								
6010 MET ICP, Dissolved								
Analytical Method: EPA 6010 Preparation Method: EPA 3010								
Pace Analytical Services - Indianapolis								
Arsenic, Dissolved	ND	ug/L	10.0	1	05/31/23 12:56	05/31/23 15:21	7440-38-2	
Barium, Dissolved	ND	ug/L	100	1	05/31/23 12:56	05/31/23 15:21	7440-39-3	
Cadmium, Dissolved	ND	ug/L	5.0	1	05/31/23 12:56	05/31/23 15:21	7440-43-9	
Chromium, Dissolved	ND	ug/L	10.0	1	05/31/23 12:56	05/31/23 15:21	7440-47-3	
Lead, Dissolved	ND	ug/L	10.0	1	05/31/23 12:56	05/31/23 15:21	7439-92-1	
Selenium, Dissolved	ND	ug/L	10.0	1	05/31/23 12:56	05/31/23 15:21	7782-49-2	
Silver, Dissolved	ND	ug/L	50.0	1	05/31/23 12:56	05/31/23 15:21	7440-22-4	
7470 Mercury, Dissolved								
Analytical Method: EPA 7470 Preparation Method: EPA 7470								
Pace Analytical Services - Indianapolis								
Mercury, Dissolved	ND	ug/L	2.0	1	05/30/23 08:45	05/30/23 16:13	7439-97-6	
9012 Cyanide, Total								
Analytical Method: EPA 9012 Preparation Method: EPA 9012								
Pace Analytical Services - Indianapolis								
Cyanide	ND	mg/L	0.020	1	05/29/23 07:23	05/30/23 14:29	57-12-5	

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Attachment 3

Statistical Evaluation of Background Groundwater Quality

RACER Trust

ATTACHMENT 3: STATISTICAL EVALUATION OF BACKGROUND GROUNDWATER QUALITY

Closed Hazardous Waste Surface Impoundment
Indianapolis, Indiana

July 12, 2023

A large, solid orange graphic element in the bottom right corner of the page. It consists of a large right-angled triangle with its hypotenuse running from the bottom-left towards the top-right. A thin white diagonal line runs parallel to the hypotenuse, and a thin white horizontal line runs across the triangle near its base.

ATTACHMENT 3: STATISTICAL EVALUATION OF BACKGROUND GROUNDWATER QUALITY

Closed Hazardous Waste Surface
Impoundment Indianapolis, Indiana

Prepared for:
RACER Trust

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Date:
July 12, 2023

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CONTENTS

1	Introduction	2
2	Data Analysis	2
2.1	Data Processing	2
2.2	Distribution Testing.....	2
2.3	Box and Whisker Plots	3
2.4	Trend Analysis.....	4
3	Statistical Analysis of Background Data.....	4
3.1	Calculation of Background Screening Levels.....	4
3.2	Comparison of Compliance Well Concentrations with Background Screening Levels	5
4	Summary	5

TABLES

Table 1. Groundwater Analytical Data

Table 2. Upgradient Monitoring Well MW-206B Background Data

Table 3. Background Screening Levels

FIGURES

Figure 1-1. Box and Whisker Plot Arsenic

Figure 1-2. Box and Whisker Plot Barium

Figure 1-3. Box and Whisker Plot Cadmium

Figure 1-4. Box and Whisker Plot Chromium

Figure 1-5. Box and Whisker Plot Cyanide

Figure 1-6. Box and Whisker Plot Lead

Figure 1-7. Box and Whisker Plot Mercury

Figure 1-8. Box and Whisker Plot Selenium

Figure 1-9. Box and Whisker Plot Silver

1 INTRODUCTION

This statistical evaluation was conducted in accordance with Appendix H, Section 4.3 of the Final Hazardous Waste Post-Closure Permit Renewal (Permit; dated September 1, 2017) in order to evaluate background groundwater quality for the Closed Hazardous Waste Surface Impoundment, owned by Revitalizing Auto Communities Environmental Response (RACER) Trust, in Indianapolis, Indiana. The following sections detail the statistical evaluation.

2 DATA ANALYSIS

The data analysis for the comparison of the background well to compliance wells was conducted in accordance with USEPA (2009) and Indiana state (IDEM 1997, Indiana Administrative Code [IAC] 2004) guidance. These documents provide guidelines for the evaluation of groundwater quality that are protective of both human health and the environment. The first step in this process is conducting exploratory data analysis of both the background and compliance well datasets to ensure that observations within each dataset are representative of single populations and follow consistent temporal trends. There are multiple statistical techniques to compare concentrations in background and compliance wells depending on sample size, degree of censoring (i.e., the presence of non-detects), and probability distribution. However, the high incidence of non-detections limits the choice of statistical techniques to those designed for a high degree of censoring. The statistical evaluations were limited for most indicator parameters by the high percentage of non-detects (NDs) in the data; these limitations are noted in the following sections discussing the data analysis techniques and associated results.

2.1 Data Processing

Annual groundwater monitoring is ongoing for three downgradient compliance monitoring wells (MW-201B, MW-202B, and MW-203B) and one upgradient monitoring well (MW-206B). Analytical results from each well for nine indicator parameters (dissolved metals [arsenic, barium, cadmium, chromium, lead, mercury, silver, and selenium] and total cyanide) are tabulated in **Table 1**. The most recent 16 observations from each well are considered for this evaluation, as specified in the Permit.

Table 1 provides the results for the compliance monitoring wells and the upgradient background well and **Table 2** provides a summary of processed results for the upgradient background well (MW-206B).

2.2 Distribution Testing

Statistical distribution testing determines if a dataset fits a parametric distribution (i.e., normal, lognormal, square root, cube root, etc.), or is non-parametric (i.e., does not fit a parametric distribution). Distribution test results are used to select the appropriate method for calculating background screening levels (BSLs). If there are not at least five detections and a minimum sample size of eight observations, then non-parametric methods were used. Each of the nine indicator parameter datasets contained less than five detections; therefore, distribution testing was not conducted due to insufficient detections.

2.3 Box and Whisker Plots

Box and whisker plots provide a side-by-side graphical comparison of analytical results of the three downgradient compliance monitoring wells (MW-201B, MW-202B, and MW-203B) and the one upgradient monitoring well (MW-206B). Box and whisker plots were prepared for each indicator parameter to assist in data evaluation by communicating features of the datasets visually (**Figures 1-1 through 1-9**).

The high percentage of NDs is notable for each parameter. Cadmium, lead, mercury, and silver were not detected in the background monitoring well (MW-206B) during the last 16 rounds of monitoring. Arsenic, barium, chromium, selenium, and cyanide have been detected in the background monitoring well MW-206B at least once during the last 16 rounds of monitoring, with the most recent barium and chromium detections occurring in May 2023, the most recent arsenic in October 2022, the most recent selenium detection occurring in September 2016, and the most recent cyanide detection occurring in September 2020. Arsenic, barium, chromium, and selenium have been detected (in some cases positively identified but the numerical value is an estimated concentration only identified by a 'J' qualifier) in at least one compliance well (i.e., MW-201B, MW-202B, and MW-203B) during the last 16 rounds of monitoring. Below is a summary of the arsenic, barium, chromium and selenium concentrations in the compliance monitoring wells.

- Arsenic has been detected in MW-201B during the October 2010 monitoring event (0.0063 J mg/L), during the September 2016 monitoring event (0.0031 J mg/L), during the May 2017 monitoring event (0.0069 J mg/L), and during the September 2020 monitoring event (0.0051 J mg/L). Arsenic has been detected in MW-202B during the October 2022 monitoring event (0.0047 mg/L). Arsenic has also been detected in MW-203B during the May 2017 monitoring event (0.0056 J mg/L). The arsenic detections in MW-201B, MW-202B and MW-203B are less than the arsenic estimated quantification limit of 0.010 mg/L for the background monitoring well MW-206B.
- Barium has been detected in four historic samples (0.011 J mg/L in MW-201B in May 2011, 0.110 mg/L and 0.035 J mg/L in MW-202B in October 2010 and May 2011, respectively, and 0.030 J mg/L in MW-203B in May 2011). Barium has not been detected since May 2011, with all recent October 2022 samples below the barium estimated quantification limit of 0.010 mg/L for the background monitoring well MW-206B.
- Chromium has been detected in MW-201B during the May 2017 monitoring event (0.0027 J mg/L). Chromium has been detected in MW-202B during the May 2017 monitoring event (0.0094 J mg/L), the September 2020 monitoring event (0.0062 J mg/L), the May 2021 monitoring event (0.0031 J mg/L), and the October 2022 monitoring event (0.001 mg/L). Chromium has also been detected in MW-203B in the May 2017 monitoring event (0.097 mg/L), the September 2020 monitoring event (0.0040 J mg/L) and the October 2022 monitoring event (0.0033 J mg/L). The chromium detections from 2020, 2021, and 2022 are below the chromium estimated quantification limit of 0.010 mg/L.
- Selenium has been detected in five historic samples (0.0054 J mg/L in MW-201B in September 2018, 0.0080 J mg/L in MW-202B in September 2018, and 0.0116 mg/L, 0.0096 J mg/L, and 0.0048 J mg/L in MW-203B in October 2014, September 2016, and May 2017, respectively). All but one of the samples were below the selenium estimated quantification limit of 0.010 mg/L for the background monitoring well MW-206B.
- All other arsenic, barium, chromium, and selenium results have indicated NDs for the last 16 rounds of monitoring.

2.4 Trend Analysis

Trend analysis reveals patterns in the data, such as periodic fluctuations (seasonality) or consistent increasing or decreasing trends. A trend analysis would be attempted in accordance with Appendix H, Section 4.3.5 of the Permit, for both compliance and background monitoring wells. Two tests would be considered for evaluation of increasing or decreasing trends at an alpha level of 0.05: the Mann-Kendall Test and Sen's Slope Estimator. Both of these tests require a minimum of four detections. Unified Guidance does not recommend running Sen's Slope Estimator unless the majority of the observations are detections (USEPA, 2009, p. 17-35). The minimum number of detections above the estimated quantification limit was not met to conduct trend analysis for any parameter.

2.5 Outlier Analysis

Outlier analysis was not attempted with these data due to the low rates of detection in the respective data sets. The two data sets with the highest detection rates were barium and chromium, which each had four detections out of sixteen samples, a rate of detection of only 25%. The other analytes had rates of detection that were even lower. Dixon's test for outliers requires that the data be normally distributed or to be normalized. It is impossible to accurately discern the statistical distribution of data sets with that level of censorship. The interquartile range (IQR) screening method is a non-parametric alternative, but this test is of limited value for data sets that are heavily censored because the IQR is compressed when the majority of the measurements are detection limits of the same value. Outlier testing will be resumed in a later annual report if any of the data sets has a rate of detection of 50% or greater.

3 STATISTICAL ANALYSIS OF BACKGROUND DATA

Analytical data from compliance monitoring wells were compared to background groundwater quality. Concentrations of indicator parameters (dissolved metals [arsenic, barium, cadmium, chromium, lead, mercury, silver and selenium] and cyanide) in upgradient monitoring well MW-206B were used to establish BSLs. BSLs were established for point-by-point comparisons (i.e., determining if one or more observations from a compliance well exceeds the BSL). This statistical analysis of background was conducted in accordance with Appendix H of the Permit, as summarized below.

3.1 Calculation of Background Screening Levels

BSLs were calculated for each indicator parameter in accordance with Appendix H, Section 4.3.4 of the Permit. Analytical results from the last 16 rounds of monitoring for the upgradient background well MW-206B were used in this calculation. The desired statistic to represent the BSL is a 95% Upper Prediction Limit (UPL). For all datasets parametric UPLs could not be calculated. Therefore, the BSLs for all indicator parameters for this data evaluation are conservatively based on the maximum detected concentration (non-parametric UPL) or the maximum reporting limit (Double Quantification (DQ) rule) due to insufficient detections in the background dataset. Arsenic, barium, chromium, selenium, and cyanide were detected in at least one but fewer than five groundwater samples from MW-206B. The BSL for these parameters was based on the maximum detected concentration when the maximum detected concentration was above the maximum reporting limit (quantification limit). Otherwise, the DQ rule was

imposed (arsenic and selenium). Cadmium, lead, mercury, and silver were not detected in any groundwater samples from MW-206B, and as such an upper bound concentration could not be established. For these metals, the double quantification rule was applied. The final BSL values are presented in **Table 3**.

3.2 Comparison of Compliance Well Concentrations with Background Screening Levels

The final BSLs were compared to each discrete observation from the three compliance wells from the May 2023 monitoring event. As presented in **Table 3**, all of the indicator parameters were ND. In summary, there were no exceedances of a BSL in the October 2022 monitoring event.

4 SUMMARY

BSLs were prepared following USEPA and IDEM guidance. These BSLs were compared to each discrete observation from the three compliance wells from the May 2023 monitoring event. As presented in **Table 3** all indicator parameters were ND and therefore did not exceed their respective BSL.

TABLES



Table 3
Background Screening Levels
Closed Hazardous Waste Surface Impoundment
RACER Trust, Indianapolis, Indiana
INR000021436

Analyte	Background Well (MW-206B)					Compliance Wells (MW-201B, MW-202B, MW-203B)		
	Detects / n	Maximum (mg/L)	95 UPL (mg/L)	Method	BSL (mg/L) ¹	2023 Maximum (mg/L)	Well	> BSL ?
Arsenic	1 / 16	0.0074	0.01	DQ Rule	0.01	<0.0100	All 3 wells ²	No
Barium	4 / 16	0.462	0.462	Non-Parametric	0.462	< 0.1	All 3 wells ²	No
Cadmium	0 / 16	0.005	0.005	DQ Rule	0.005	< 0.005	All 3 wells ²	No
Chromium	4 / 16	1.7	1.7	Non-Parametric	1.7	<0.0100	All 3 wells ²	No
Lead	0 / 16	0.01	0.01	DQ Rule	0.01	< 0.01	All 3 wells ²	No
Mercury	0 / 16	0.002	0.002	DQ Rule	0.002	< 0.002	All 3 wells ²	No
Selenium	1 / 16	0.0032	0.01	DQ Rule	0.0032	< 0.01	All 3 wells ²	No
Silver	0 / 16	0.05	0.05	DQ Rule	0.05	< 0.05	All 3 wells ²	No
Cyanide	1 / 16	0.028	0.028	Non-Parametric	0.028	< 0.02	All 3 wells ²	No

Abbreviations:

< = nondetect, value equal to estimated quantitation limit (EQL)

95 = upper prediction limit

BSL = background screening level

DQ = double quantification

n = sample size

mg/L = milligrams per liter

J - The analyte was positively identified; however, the associated numerical value is an estimated concentration only.

Notes:

¹ If detects = 0, the maximum reporting limit of nondetects is used as the BSL (DQ Rule). If detects < 5, BSL = maximum detect (Non-Parametric UPL). If detects ≥ 5, BSL= 95 UPL. BSL calculated with the most recent 16 samples only.

² All 3 wells were non-detect.

Table 1
Groundwater Analytical Data
Closed Hazardous Waste Surface Impoundment
RACER Trust, Indianapolis, Indiana
INR000021436

Monitoring Well	Sample ID	Sample Date	Arsenic	Barium	Cadmium	Chromium	Lead	Mercury	Selenium	Silver	Cyanide
MW-201B											
	MW-201B (060410)	6/4/2010	<0.0050	<-0.100	<0.0050	<-0.0100	<0.0050	<-0.0020	<-0.0100	<0.0500	<-0.010
	MW-201B (10202010)	10/20/2010	0.0063 J	<-0.100	<0.0050	<-0.0100	<0.0050	<-0.0020	<-0.0100	<0.0500	<-0.010
	MW-201B (053111)	5/31/2011	<0.0100	0.011 J	<0.0020	<-0.0050	<0.0030	<-0.00020	<-0.0050	<0.0500	<-0.010
	MW-201B (102011)	10/20/2011	<0.0100	<-0.100	<0.0050	<-0.0100	<0.0100	<-0.0020	<-0.0100	<0.0500	<-0.010
	MW-201B (101712)	10/17/2012	<0.0100	<-0.100	<0.0050	<-0.0100	<0.0100	<-0.0020	<-0.0100	<0.0500	<-0.020
	MW-201B (101712) FD	10/17/2012	<0.0100	<-0.100	<0.0050	<-0.0100	<0.0100	<-0.0020	0.0112	<0.0500	<-0.020
	MW-201B (052113)	5/21/2013	<0.0100	<-0.100	<0.0050	<-0.0100	<0.0100	<-0.0020	<-0.0100	<0.0500	<-0.020
	MW-201B (052113) FD	5/21/2013	<0.0100	<-0.100	<0.0050	<-0.0100	<0.0100	<-0.0020	<-0.0100	<0.0500	<-0.020
	MW-201B (100214)	10/2/2014	<0.0100	<-0.0109	<0.0020	<-0.0100	<0.0100	<-0.0020	<-0.0100	<-0.010	<-0.020
	MW-201B (100214) FD	10/2/2014	<0.0100	<-0.0109	<0.0020	<-0.0100	<0.0100	<-0.0020	<-0.0100	<-0.010	<-0.010
	MW-201B (052615)	5/26/2015	<0.0100	<-0.100	<0.0050	<-0.0100	<0.0100	<-0.0020	<-0.0100	<0.0500	<-0.020
	MW-201B (090716)	9/7/2016	0.0031 J	<-0.100	<0.0050	<-0.0100	<0.0100	<-0.0020	<-0.0100	<0.0500	<-0.020
	MW-201B (090716) FD	9/7/2016	0.0031 J	<-0.100	<0.0050	<-0.0100	<0.0100	<-0.0020	<-0.0100	<0.0500	<-0.020
	MW-201B (050417)	5/4/2017	0.0069 J	<-0.100	<0.0050	0.0027 J	<0.0100	<-0.0020	<-0.0100	<0.0500	<-0.020
	MW-201B (050417) FD	5/4/2017	0.0058 J	<-0.100	<0.0050	0.0037 J	<0.0100	<-0.0020	0.0036 J	<0.0500	<-0.020
	MW-201B (092618)	9/26/2018	<0.0100	<-0.100	<0.0050	<-0.0100	<0.0100	<-0.0020	0.0054 J	<-0.0500 J	<-0.020
	MW-201B (092618) FD	9/26/2018	<0.0100	<-0.100	<0.0050	<-0.0100	<0.0100	<-0.0020	0.0061 J	<-0.0500 J	<-0.020
	MW-201B (051319)	5/13/2019	<0.0100	<-0.100	<0.0050	<-0.0100	<0.0100	<-0.0020	<-0.0100	<0.0500	<-0.020
	MW-201B (051319) FD	5/13/2019	<0.0100	<-0.100	<0.0050	<-0.0100	<0.0100	<-0.0020	<-0.0100	<0.0500	<-0.020
	MW-201B (090920)	9/9/2020	0.0051 J	<-0.100	<0.0050	<-0.0100	<0.0100	<-0.0020	<-0.0100	<0.0500	<-0.020
	MW-201B (090920) FD	9/9/2020	<0.0100	<-0.100	<0.0050	0.0022 J	<0.0100	<-0.0020	<-0.0100	<0.0500	<-0.020
	MW-201B (052021)	5/20/2021	<0.0100 B	<-0.100	<0.0050	<-0.0100	<0.0100	<-0.0020	<-0.0100	<0.0500	<-0.020
	MW-201B (101422)	10/14/2022	<0.0100	<-0.100	<0.0050	<-0.0100	<0.0100	<-0.0020	<-0.0100	<0.0500	<-0.020
	MW-201B (051723)	5/17/2023	<0.0100	<-0.100	<0.0050	<-0.0100	<0.0100	<-0.0020	<-0.0100	<0.0500	<-0.020
MW-202B											
	MW-202B (060410)	6/4/2010	<0.0050	<-0.100	<0.0050	<-0.0100	<0.0050	<-0.0020	<-0.0100	<0.0500	<-0.010
	MW-202B (10202010)	10/20/2010	<0.0050	0.110	<0.0050	<-0.0100	<0.0050	<-0.0020	<-0.0100	<0.0500	<-0.010
	MW-202B (053111)	5/31/2011	<0.0100	0.035 J	<0.0020	<-0.0050	<0.0030	<-0.00020	<-0.0050	<0.0500	<-0.010
	MW-202B (102011)	10/20/2011	<0.0100	<-0.100	<0.0050	<-0.0100	<0.0100	<-0.0020	<-0.0100	<0.0500	<-0.010
	MW-202B (101712)	10/17/2012	<0.0100	<-0.100	<0.0050	<-0.0100	<0.0100	<-0.0020	<-0.0100	<0.0500	<-0.020
	MW-202B (052113)	5/21/2013	<0.0100	<-0.100	<0.0050	<-0.0100	<0.0050	<-0.0020	<-0.0100	<0.0500	<-0.020
	MW-202B (100214)	10/2/2014	<0.0100	<-0.0397	<0.0020	<-0.0100	<0.0100	<-0.0020	<-0.0100	<0.0100	<-0.020
	MW-202B (052615)	5/26/2015	<0.0100	<-0.100	<0.0050	<-0.0100	<0.0100	<-0.0020	<-0.0100	<0.0500	<-0.020
	MW-202B (052615) FD	5/26/2015	<0.0100	<-0.100	<0.0050	<-0.0100	<0.0100	<-0.0020	<-0.0100	<0.0500	<-0.020
	MW-202B (090716)	9/7/2016	<0.0100	<-0.100	<0.0050	<-0.0100	<0.0100	<-0.0020	<-0.0100	<0.0500	<-0.020
	MW-202B (050417)	5/4/2017	<0.0100	<-0.100	<0.0050	0.0094 J	<0.0100	<-0.0020	<-0.0100	<0.0500	<-0.020
	MW-202B (092618)	9/26/2018	<0.0100	<-0.100	<0.0050	<-0.0100	<0.0100	<-0.0020	0.0080 J	<-0.0500 J	<-0.020
	MW-202B (051319)	5/13/2019	<0.0100	<-0.100	<0.0050	<-0.0100	<0.0100	<-0.0020	<-0.0100	<0.0500	<-0.020
	MW-202B (090920)	9/9/2020	<0.0100	<-0.100	<0.0050	0.0062 J	<0.0100	<-0.0020	<-0.0100	<0.0500	<-0.020
	MW-202B (052021)	5/20/2021	<0.0100	<-0.100	<0.0050	0.0031 J	<0.0100	<-0.0020	<-0.0100	<0.0500	<-0.020
	MW-202B (052021) FD	5/20/2021	<0.0100 B	<-0.100	<0.0050	0.0029 J	<0.0100	<-0.0020	<-0.0100	<0.0500	<-0.020
	MW-202B (101322)	10/13/2022	0.0047 J	<-0.100	<0.0050	0.001 J	<0.0100	<-0.0020	<-0.0100	<0.0500	<-0.020
	MW-202B (051723)	5/17/2023	<0.0100	<-0.100	<0.0050	<-0.0100	<0.0100	<-0.0020	<-0.0100	<0.0500	<-0.020

Table 1
Groundwater Analytical Data
Closed Hazardous Waste Surface Impoundment
RACER Trust, Indianapolis, Indiana
INR000021436

Monitoring Well	Sample ID	Sample Date	Arsenic	Barium	Cadmium	Chromium	Lead	Mercury	Selenium	Silver	Cyanide
MW-203B											
	MW-203B (060410)	6/4/2010	<0.0050	<0.100	<0.0050	<0.0100	<0.0050	<0.0020	<0.0100	<0.0500	<0.010
	MW-203B (10202010)	10/20/2010	<0.0050	<0.100	<0.0050	<0.0100	<0.0050	<0.0020	<0.0100	<0.0500	<0.010
	MW-203B (10202010) FD	10/20/2010	<0.0050	<0.100	<0.0050	<0.0100	<0.0050	<0.0020	<0.0100	<0.0500	<0.010
	MW-203B (053111)	5/31/2011	<0.0100	0.030 J	<0.0020	<0.0050	<0.0030	<0.00020	<0.0050	<0.0500	<0.010
	MW-203B (053111) FD	5/31/2011	<0.0100	0.032 J	<0.0020	<0.0050	<0.0030	<0.00020	<0.0050	<0.0500	<0.010
	MW-203B (102011)	10/20/2011	<0.0100	<0.100	<0.0050	<0.0100	<0.0100	<0.0020	<0.0100	<0.0500	<0.010
	MW-203B (101712)	10/17/2012	<0.0100	<0.100	<0.0050	<0.0100	<0.0100	<0.0020	<0.0100	<0.0500	<0.020
	MW-203B (052113)	5/21/2013	<0.0100	<0.100	<0.0050	<0.0100	<0.0100	<0.0020	<0.0100	<0.0500	<0.020
	MW-203B (100214)	10/2/2014	<0.0100	<0.0509	<0.0020	<0.0100	<0.0100	<0.0020	0.0116	<0.0100	<0.020
	MW-203B (052615)	5/26/2015	<0.0100	<0.100	<0.0050	<0.0100	<0.0100	<0.0020	<0.0100	<0.0500	<0.020
	MW-203B (090716)	9/7/2016	<0.0100	<0.100	<0.0050	<0.0100	<0.0100	<0.0020	0.0096 J	<0.0500	<0.020
	MW-203B (050417)	5/4/2017	0.0056 J	<0.100	<0.0050	0.097	<0.0100	<0.0020	0.0048 J	<0.0500	<0.020
	MW-203B (092618)	9/26/2018	<0.0100	<0.100	<0.0050	<0.0100	<0.0100	<0.0020	<0.0100	<0.0500 J	<0.020
	MW-203B (051319)	5/13/2019	<0.0100	<0.100	<0.0050	<0.0100	<0.0100	<0.0020	<0.0100	<0.0500	<0.020
	MW-203B (090920)	9/9/2020	<0.0100	<0.100	<0.0050	0.0040 J	<0.0100	<0.0020	<0.0100	<0.0500	<0.020
	MW-203B (052021)	5/20/2021	<0.0100 B	<0.100	<0.0050	<0.0100	<0.0100	<0.0020	<0.0100	<0.0500	<0.020
	MW-203B (101222) FD	10/13/2022	<0.0100	<0.100	<0.0050	0.0034 J	<0.0100	<0.0020	<0.0100	<0.0500	<0.020
	MW-203B (101322)	10/13/2022	<0.0100	<0.100	<0.0050	0.0033 J	<0.0100	<0.0020	<0.0100	<0.0500	<0.020
	MW-203B (051623)	5/16/2023	<0.0100	<0.100	<0.0050	<0.0100	<0.0100	<0.0020	<0.0100	<0.0500	<0.020
	MW-203B (051623) FD	5/16/2023	<0.0100	<0.100	<0.0050	<0.0100	<0.0100	<0.0020	<0.0100	<0.0500	<0.020
MW-206B											
	MW-206B(060410)	6/4/2010	<0.0050	<0.100	<0.0050	<0.0100	<0.0050	<0.0020	<0.0100	<0.0500	<0.010
	MW-206B (10202010)	10/20/2010	<0.0050	<0.100	<0.0050	<0.0100	<0.0050	<0.0020	<0.0100	<0.0500	<0.010
	MW-206B (053111)	5/31/2011	<0.0100	0.090 J	<0.0020	<0.0050	<0.0030	<0.00020	<0.0050	<0.0050	<0.010
	MW-206B (102011)	10/20/2011	<0.0100	<0.100	<0.0050	<0.0100	<0.0100	<0.0020	<0.0100	<0.0500	<0.010
	MW-206B (102011) FD	10/20/2011	<0.0100	<0.100	<0.0050	<0.0100	<0.0100	<0.0020	<0.0100	<0.0500	<0.010
	MW-206B (101712)	10/17/2012	<0.0100	<0.100	<0.0050	<0.0100	<0.0100	<0.0020	<0.0100	<0.0500	<0.020
	MW-206B (052113)	5/21/2013	<0.0100	<0.100	<0.0050	<0.0100	<0.0100	<0.0020	<0.0100	<0.0500	<0.020
	MW-206B (100214)	10/2/2014	<0.0100	<0.0667	<0.0020	<0.0100	<0.0100	<0.0020	<0.0100	<0.0100	<0.020
	MW-206B (052615)	5/26/2015	<0.0100	<0.100	<0.0050	<0.0100	<0.0100	<0.0020	<0.0100	<0.0500	<0.020
	MW-206B (090716)	9/7/2016	<0.0100	<0.100	<0.0050	<0.0100	<0.0100	<0.0020	0.0032 J	<0.0500	<0.020
	MW-206B (050417)	5/4/2017	<0.0100	<0.100	<0.0050	1.7	<0.0100	<0.0020	<0.0100	<0.0500	<0.020
	MW-206B (092618)	9/26/2018	<0.0100	<0.100	<0.0050	<0.0100	<0.0100	<0.0020	<0.0100	<0.0500 J	<0.020
	MW-206B (051319)	5/13/2019	<0.0100	<0.100	<0.0050	<0.0100	<0.0100	<0.0020	<0.0100	<0.0500	<0.020
	MW-206B (090920)	9/9/2020	<0.0100	<0.100	<0.0050	0.0034 J	<0.0100	<0.0020	<0.0100	<0.0500	0.028
	MW-206B (052021)	5/20/2021	<0.0100 B	0.114	<0.0050	<0.0100	<0.0100	<0.0020	<0.0100	<0.0500	<0.020
	MW-206B (101322)	10/13/2022	0.0074 J	0.462	<0.0050	0.0043 J	<0.0100	<0.0020	<0.0100	<0.0500	<0.020
	MW-206B (051623)	5/16/2023	<0.0100	0.419	<0.0050	0.101	<0.0100	<0.0020	<0.0100	<0.0500	<0.020

Notes: Table includes results for most recent 16 sample observations.
Concentrations are in units of milligrams per liter (mg/L).
< = nondetect, value equal to estimated quantitation limit (EQL)
B - Analyte considered non-detect at the listed value due to associated blank contamination.
J - The analyte was positively identified; however, the associated numerical value is an estimated concentration only.

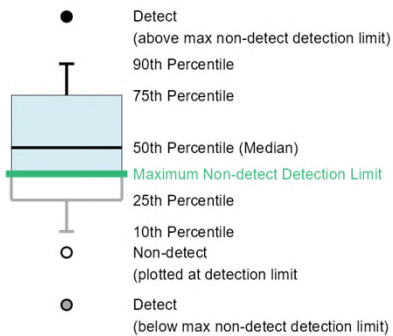
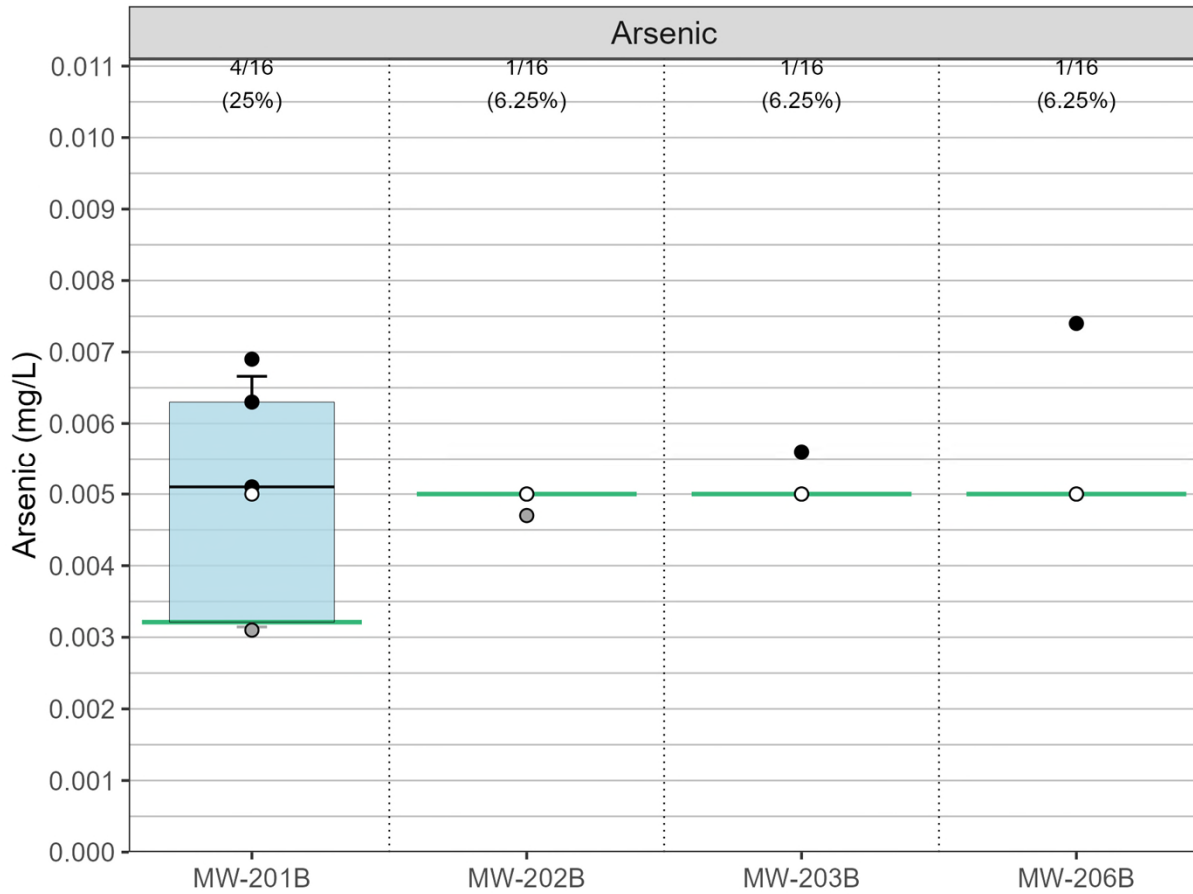
Table 2
Upgradient Monitoring Well MW-206B Background Data
Closed Hazardous Waste Surface Impoundment
RACER Trust, Indianapolis, Indiana
INR00021436

Monitoring Well	Sample Date	Arsenic	Barium	Cadmium	Chromium	Lead	Mercury	Selenium	Silver	Cyanide
MW-206B										
	6/4/2010	<0.0050	<0.100	<0.0050	<0.0100	<0.0050	<0.0020	<0.0100	<0.0500	<0.010
	10/20/2010	<0.0050	<0.100	<0.0050	<0.0100	<0.0050	<0.0020	<0.0100	<0.0500	<0.010
	5/31/2011	<0.0100	0.090 J	<0.0020	<0.0050	<0.0030	<0.0002	<0.0050	<0.0050	<0.010
	10/20/2011	<0.0100	<0.100	<0.0050	<0.0100	<0.0100	<0.0020	<0.0100	<0.0500	<0.010
	10/17/2012	<0.0100	<0.100	<0.0050	<0.0100	<0.0100	<0.0020	<0.0100	<0.0500	<0.020
	5/21/2013	<0.0100	<0.100	<0.0050	<0.0100	<0.0100	<0.0020	<0.0100	<0.0500	<0.020
	10/2/2014	<0.0100	<0.0667	<0.0020	<0.0100	<0.0100	<0.0020	<0.0100	<0.0100	<0.020
	5/26/2015	<0.0100	<0.100	<0.0050	<0.0100	<0.0100	<0.0020	<0.0100	<0.0500	<0.020
	9/7/2016	<0.0100	<0.100	<0.0050	<0.0100	<0.0100	<0.0020	0.0032 J	<0.0500	<0.020
	5/4/2017	<0.0100	<0.100	<0.0050	1.7	<0.0100	<0.0020	<0.0100	<0.0500	<0.020
	9/26/2018	<0.0100	<0.100	<0.0050	<0.0100	<0.0100	<0.0020	<0.0100	<0.0500 J	<0.020
	5/13/2019	<0.0100	<0.100	<0.0050	<0.0100	<0.0100	<0.0020	<0.0100	<0.0500	<0.020
	9/9/2020	<0.0100	<0.100	<0.0050	0.0034 J	<0.0100	<0.0020	<0.0100	<0.0500	0.028
	5/20/2021	<0.0100 B	0.114	<0.0050	<0.0100	<0.0100	<0.0020	<0.0100	<0.0500	<0.020
	10/13/2022	0.0074	0.462	<0.0050	0.0043	<0.0100	<0.0020	<0.0100	<0.0500	<0.020
	5/16/2023	<0.0100	0.419	<0.0050	0.101	<0.0100	<0.0020	<0.0100	<0.0500	<0.020
Estimated Quantitation Limit		0.0100	0.100	0.0050	0.0100	0.0100	0.0020	0.0100	0.0500	0.0200

Notes: < = nondetect, value equal to estimated quantitation limit (EQL)
Concentrations are in units of milligrams per liter (mg/L).
B - Analyte considered non-detect at the listed value due to associated blank contamination.
J - The analyte was positively identified; however, the associated numerical value is an estimated concentration only.

FIGURES





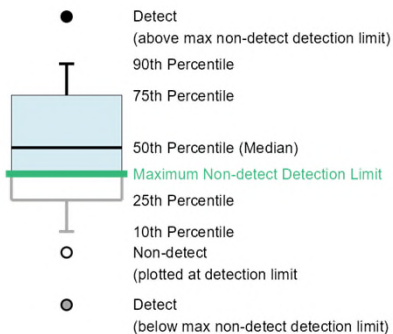
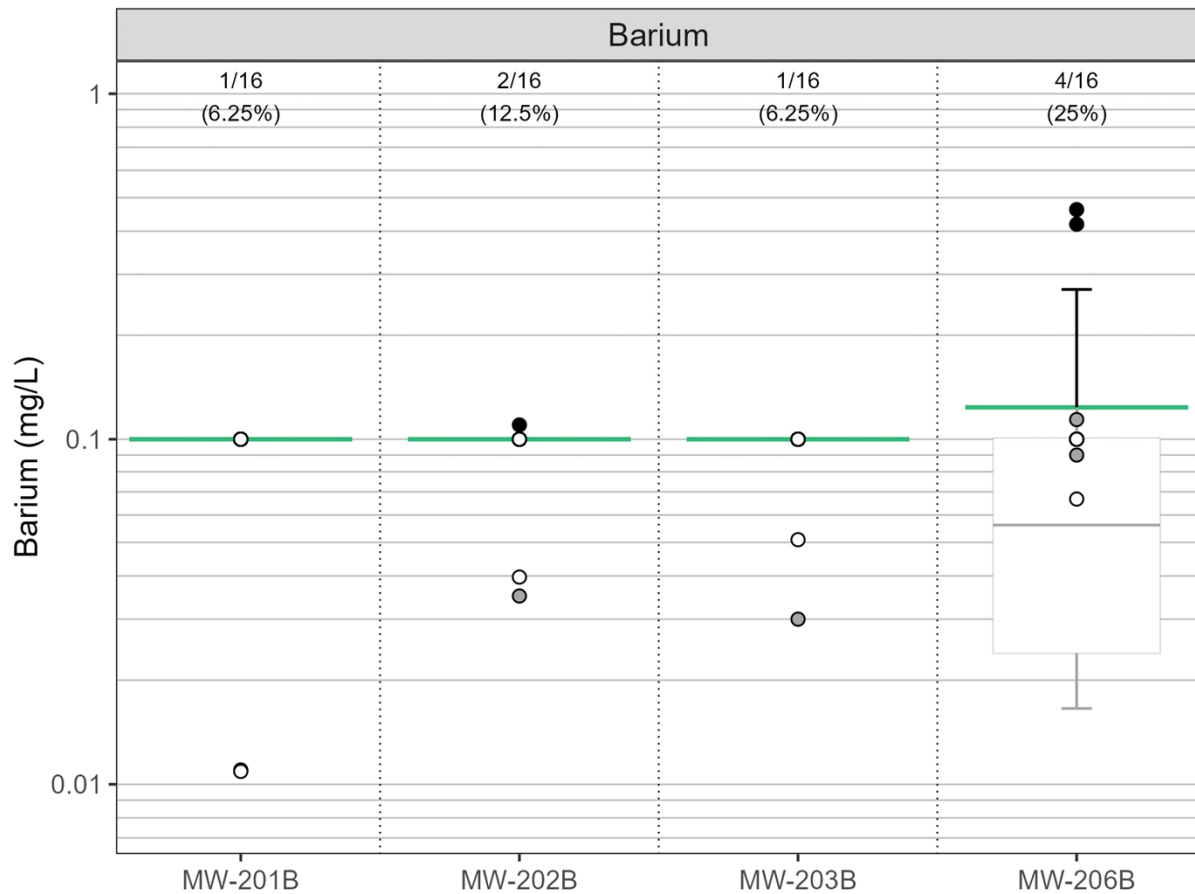
- Box plots were not developed for locations with fewer than 3 detected observations. The individual results are shown.
- Robust Regression on Order Statistics (rROS) imputation was used to estimate the value of non-detects.
- Any non-detect value with a detection limit greater than the maximum detected value were excluded from analysis. Elevated non-detect values typically do not have sufficient precision to be informative, and non-detects greater than the maximum detect value cannot be reliably imputed via rROS.

BOX-AND-WHISKER PLOTS

**RACER Trust Closed Hazardous Waste Surface Impoundment
Indianapolis, Indiana**

**ARSENIC CONCENTRATION
BOXPLOTS**

ARCADIS | **FIGURE 1-1**



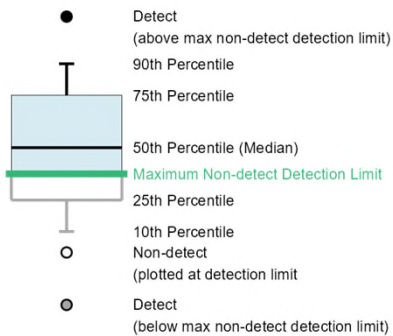
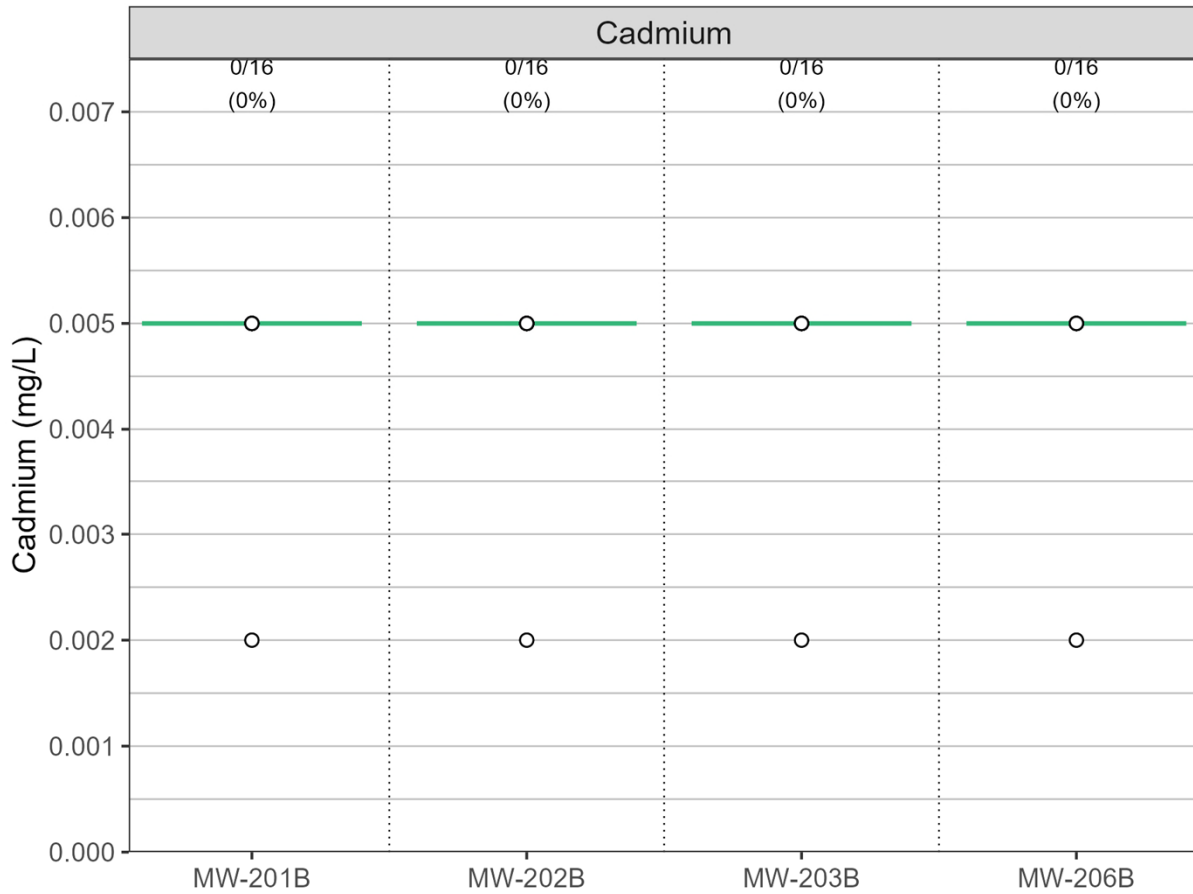
- Box plots were not developed for locations with fewer than 3 detected observations. The individual results are shown.
- Robust Regression on Order Statistics (rROS) imputation was used to estimate the value of non-detects.
- Any non-detect value with a detection limit greater than the maximum detected value were excluded from analysis. Elevated non-detect values typically do not have sufficient precision to be informative, and non-detects greater than the maximum detect value cannot be reliably imputed via rROS.

BOX-AND-WHISKER PLOTS

RACER Trust Closed Hazardous Waste Surface Impoundment
Indianapolis, Indiana

**BARIUM CONCENTRATION
BOXPLOTS**


FIGURE
1-2



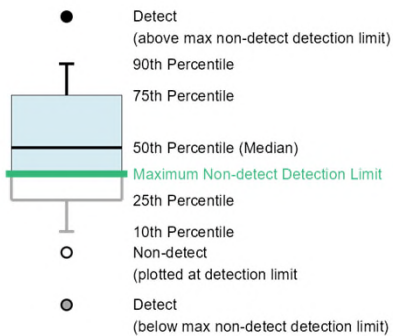
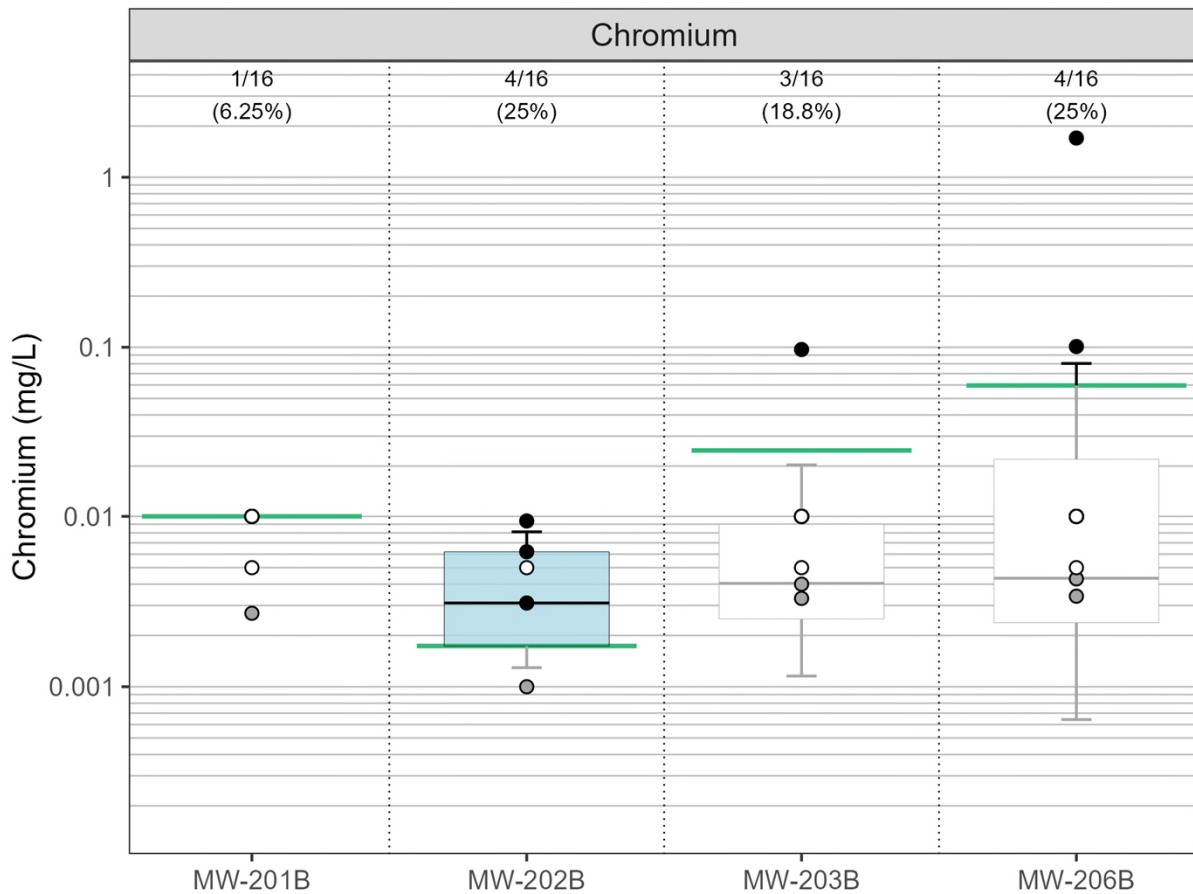
- Box plots were not developed for locations with fewer than 3 detected observations. The individual results are shown.
- Robust Regression on Order Statistics (rROS) imputation was used to estimate the value of non-detects.
- Any non-detect value with a detection limit greater than the maximum detected value were excluded from analysis. Elevated non-detect values typically do not have sufficient precision to be informative, and non-detects greater than the maximum detect value cannot be reliably imputed via rROS.

BOX-AND-WHISKER PLOTS

RACER Trust Closed Hazardous Waste Surface Impoundment
Indianapolis, Indiana

**CADMIUM CONCENTRATION
BOXPLOTS**

 | FIGURE 1-3



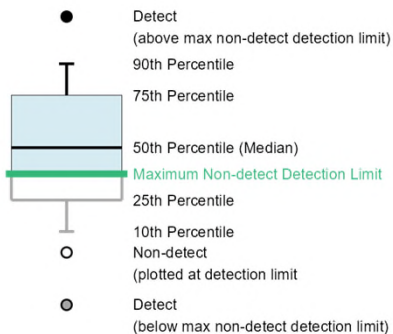
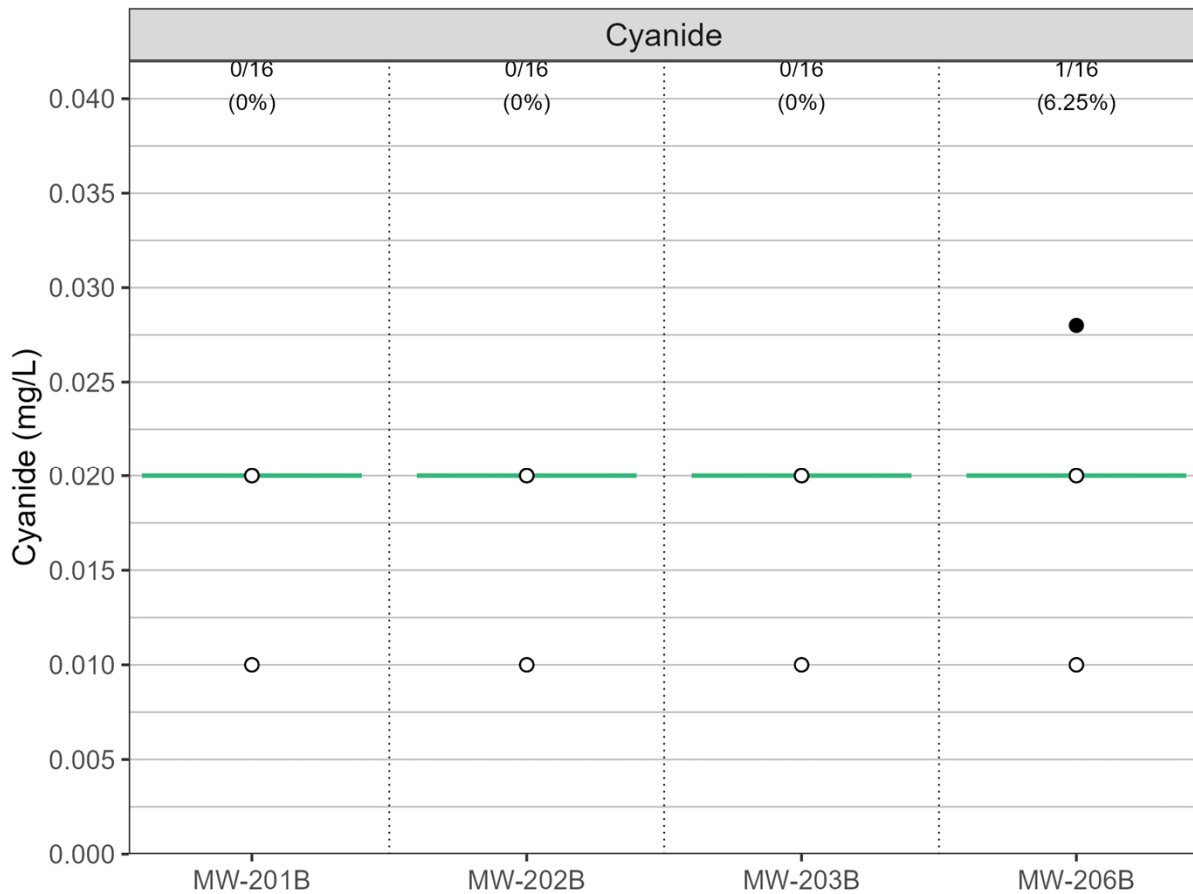
- Box plots were not developed for locations with fewer than 3 detected observations. The individual results are shown.
- Robust Regression on Order Statistics (rROS) imputation was used to estimate the value of non-detects.
- Any non-detect value with a detection limit greater than the maximum detected value were excluded from analysis. Elevated non-detect values typically do not have sufficient precision to be informative, and non-detects greater than the maximum detect value cannot be reliably imputed via rROS.

BOX-AND-WHISKER PLOTS

RACER Trust Closed Hazardous Waste Surface Impoundment
Indianapolis, Indiana

**CHROMIUM CONCENTRATION
BOXPLOTS**

 | FIGURE
1-4



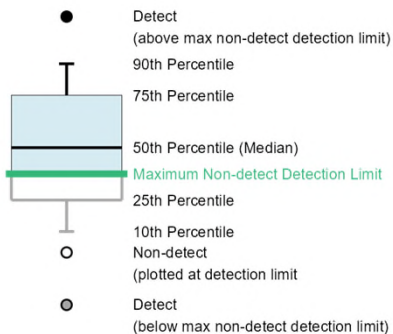
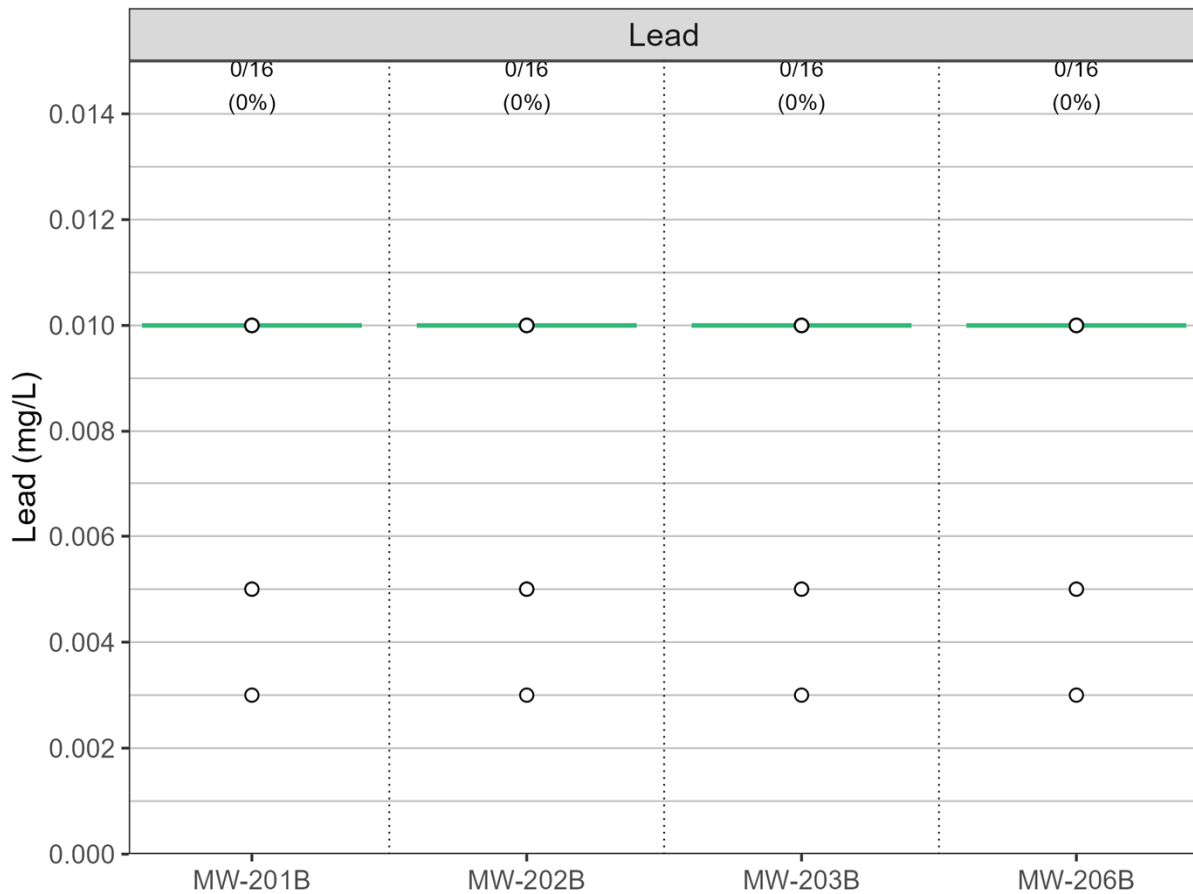
- Box plots were not developed for locations with fewer than 3 detected observations. The individual results are shown.
- Robust Regression on Order Statistics (rROS) imputation was used to estimate the value of non-detects.
- Any non-detect value with a detection limit greater than the maximum detected value were excluded from analysis. Elevated non-detect values typically do not have sufficient precision to be informative, and non-detects greater than the maximum detect value cannot be reliably imputed via rROS.

BOX-AND-WHISKER PLOTS

RACER Trust Closed Hazardous Waste Surface Impoundment
Indianapolis, Indiana

**CYANIDE CONCENTRATION
BOXPLOTS**


FIGURE
1-5



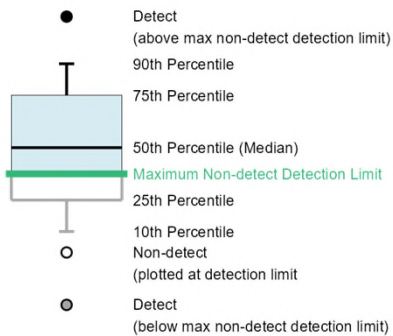
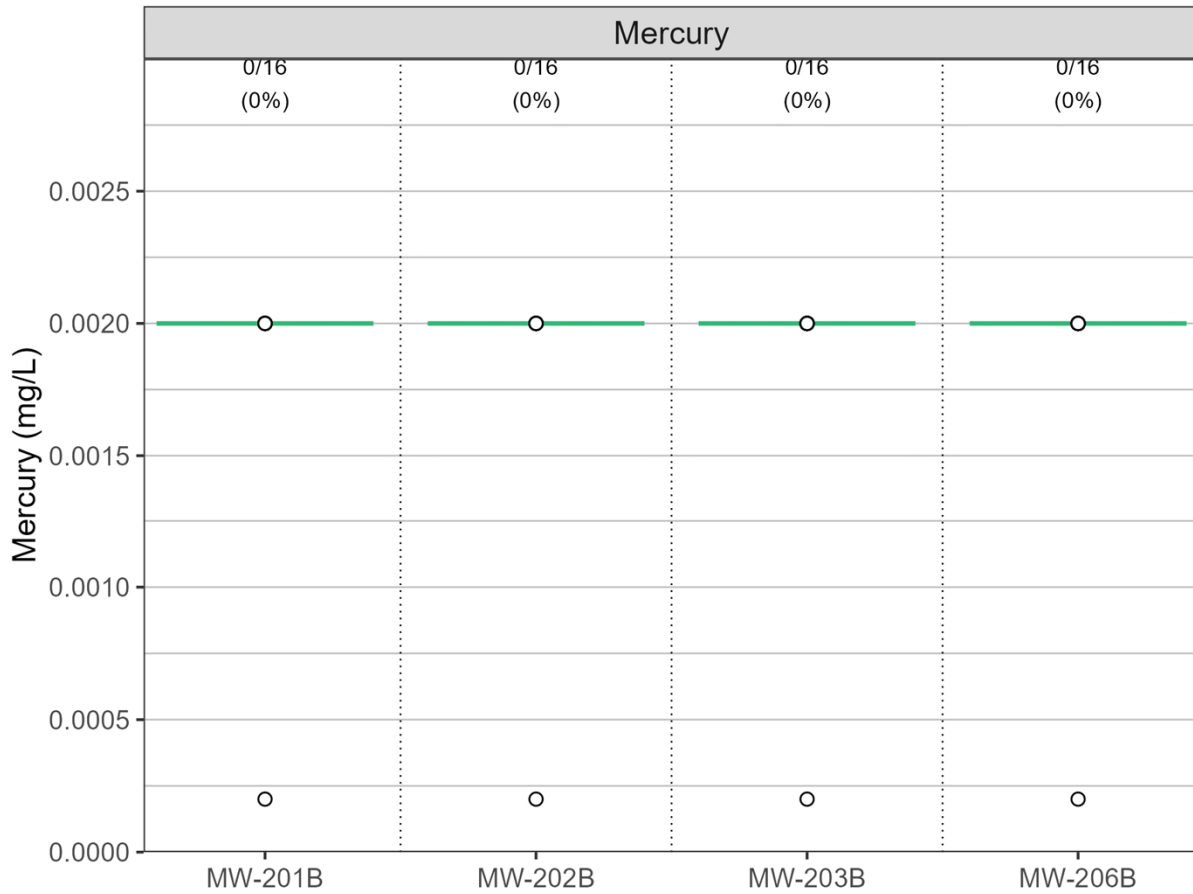
- Box plots were not developed for locations with fewer than 3 detected observations. The individual results are shown.
- Robust Regression on Order Statistics (rROS) imputation was used to estimate the value of non-detects.
- Any non-detect value with a detection limit greater than the maximum detected value were excluded from analysis. Elevated non-detect values typically do not have sufficient precision to be informative, and non-detects greater than the maximum detect value cannot be reliably imputed via rROS.

BOX-AND-WHISKER PLOTS

RACER Trust Closed Hazardous Waste Surface Impoundment
Indianapolis, Indiana

**LEAD CONCENTRATION
BOXPLOTS**


FIGURE
1-6



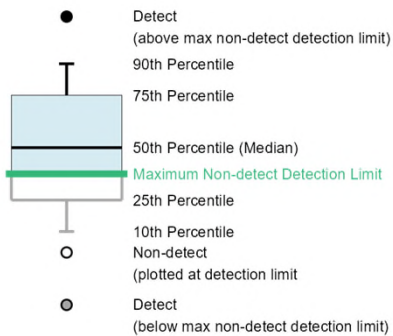
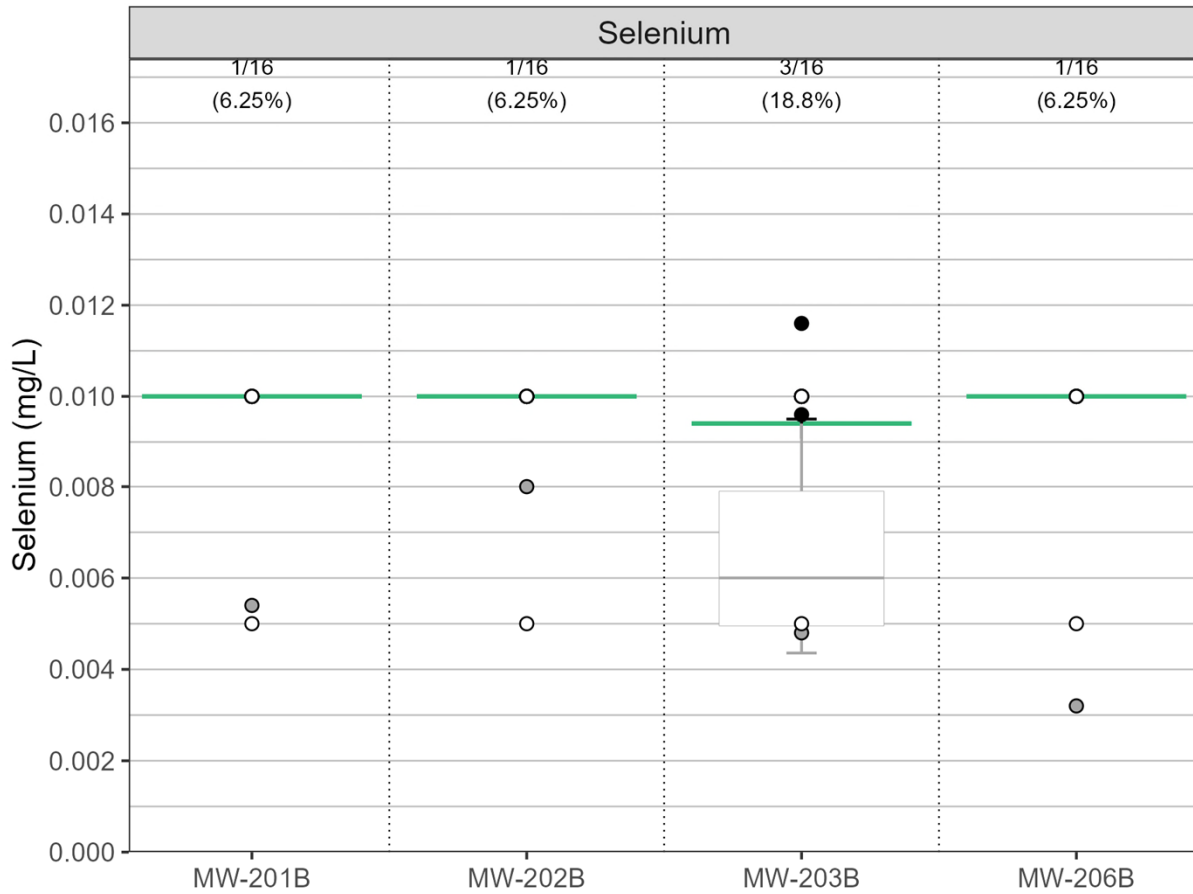
- Box plots were not developed for locations with fewer than 3 detected observations. The individual results are shown.
- Robust Regression on Order Statistics (rROS) imputation was used to estimate the value of non-detects.
- Any non-detect value with a detection limit greater than the maximum detected value were excluded from analysis. Elevated non-detect values typically do not have sufficient precision to be informative, and non-detects greater than the maximum detect value cannot be reliably imputed via rROS.

BOX-AND-WHISKER PLOTS

RACER Trust Closed Hazardous Waste Surface Impoundment
Indianapolis, Indiana

**MERCURY CONCENTRATION
BOXPLOTS**


FIGURE
1-7



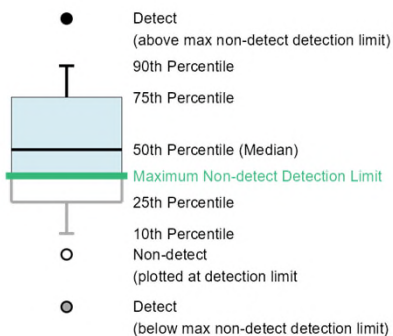
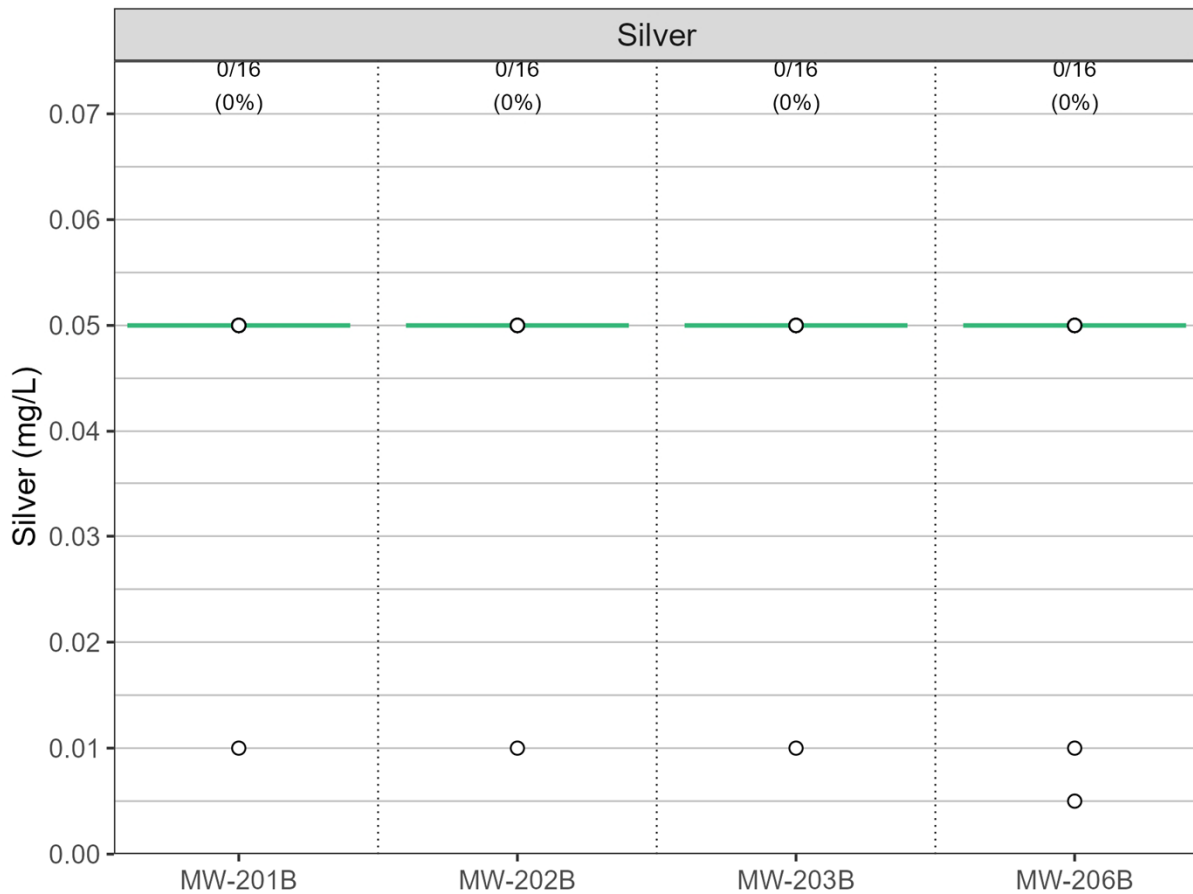
- Box plots were not developed for locations with fewer than 3 detected observations. The individual results are shown.
- Robust Regression on Order Statistics (rROS) imputation was used to estimate the value of non-detects.
- Any non-detect value with a detection limit greater than the maximum detected value were excluded from analysis. Elevated non-detect values typically do not have sufficient precision to be informative, and non-detects greater than the maximum detect value cannot be reliably imputed via rROS.

BOX-AND-WHISKER PLOTS

RACER Trust Closed Hazardous Waste Surface Impoundment
Indianapolis, Indiana

**SELENIUM CONCENTRATION
BOXPLOTS**


FIGURE
1-8



- Box plots were not developed for locations with fewer than 3 detected observations. The individual results are shown.
- Robust Regression on Order Statistics (rROS) imputation was used to estimate the value of non-detects.
- Any non-detect value with a detection limit greater than the maximum detected value were excluded from analysis. Elevated non-detect values typically do not have sufficient precision to be informative, and non-detects greater than the maximum detect value cannot be reliably imputed via rROS.

BOX-AND-WHISKER PLOTS

RACER Trust Closed Hazardous Waste Surface Impoundment
Indianapolis, Indiana

**SILVER CONCENTRATION
BOXPLOTS**


FIGURE
1-9



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