2024
ANNUAL GROUNDWATER QUALITY REPORT

OF

THE IDA COUNTY SANITARY LANDFILL
47-SDP-01-76C
IDA GROVE, IOWA

by:
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January, 2025

6049-23A.320

Figures

Tables

Appendices

Section 1.0 Background Information

1.1 Report Format

Table 1 through Table 13 are attached to this report and satisfy the IDNR requirement to provide the tables to meet the IDNR format requirements.

1.2 Report Priority

No requests are made herein for priority review of this document.

1.3 Period of Report Coverage

Water quality data evaluation is based on a running compilation of data beginning in March 31, 2010. Statistical evaluations herein are based on the most recent water quality data collected through December 10, 2024.

1.4 Current Site Maps

Figure 1 is attached illustrating the current site features, monitoring well locations, buildings, and leachate piezometer locations.

Figure 2 represents the groundwater contour map.

1.5 Site Status and Applicable Rules

Site Location & Status

The landfill site occupies about 50 acres in the NW 1/4 NW 1/4 and W 1/2 NE 1/4 NW 1/4 sec. 3, T87N, R40W, Ida County, Iowa. The site has a physical address of 2202 Indian Avenue, Ida Grove, Iowa 51145. The facility operates under the Iowa Department of Natural Resources (IDNR) Permit Number 49-SDP-01-76C.

On October 1, 2007, the landfill ceased accepting waste and began closure activities. A closure permit application was issued by IDNR on April 16, 2008. Final cover was installed during August 2008 and certification documents submitted to IDNR on September 25, 2008. Retesting of the closure cap was conducted during the fall of 2016 and IDNR approved the closure documentation in permit amendment #4 dated April 28, 2017. When operating, household and municipal waste were the chief refuse materials, but the permit also provided for the acceptance of asbestos and petroleum-contaminated soil.

Site Geology/Hydrogeology

An intermittent stream flows from south to north in the eastern part of the landfill property. A drainage-way extends eastward from the toe of the landfill to the intermittent stream. Deposits of alluvial and colluvial silts were found along the intermittent stream (MW-17).

The site is underlain by Wisconsinan loess and underlying pre-Illinoian glacial till. The glacial till is about 300 ft. thick; the overlying loess is as much as 25 ft. thick in the upland parts of the site (Green Environmental Services, 1991). In places (MW-4), lenses of fine-grained sand as much as 5 ft. thick are enclosed by the loess (Green Environmental Services, 1991). Elsewhere, the drilling (MW-7) penetrated lenses of very fine-grained sand that is as much as 14 ft. thick and separates the loess from the underlying till. Cross-sections prepared by Green Environmental Services (1991) indicate that the sand lenses along the loess-till contact finger out into the till section. Other lenses of silty sand as much as two feet thick are enclosed by the till (MW-9).

Monitoring wells in the sampling program at the Ida County Sanitary Landfill

Monitoring Well	Screened Interval (ft bgs)	Screened Across
MW-3	27.0-32.0	Loess on oxidized glacial till
MW-7	15.0-25.0	Loess on very fine sand
MW-10	20.0-30.0	Oxidized glacial till
PZ-11	10.0-20.0	Loess on glacial till
MW-13	15.0-25.0	Loess on oxidized glacial till

Landfill Layout

According to the Green report, the landfill was developed partly as a valley fill between two east-trending topographic noses that act as groundwater divides. The flow of shallow groundwater is generally east.

The existing down-gradient monitoring wells are located to intercept any groundwater flow exiting the landfill. There are no potential receptors for the groundwater in the surficial deposits.

Groundwater collection and diversion piping does not exist below the filled portions of this facility.

Applicable Rules

Iowa Administrative Code (IAC) 567-113 (*12/11/2002*) is applicable to the site.

MONITORING WELL MAINTENANCE PERFORMANCE REEVALUATION

Table 3 outlines the status of well performance and maintenance activities performed as required by IAC 567-113.10(2)”f’. Water elevation information is summarized in Table 4 and Table 4A.

High & Low Water Levels
Current year water elevation data is included on Table 4. Historic water elevation data (1989 to present) is included in Table 4A. The high and low water elevations in 2024 are summarized in Table 4.

A Water Table Contour Map (Figure 2) dated October 17, 2024, is included with this report and illustrates the water surfaces and the effects of the topography.

Review of the 2024 water elevation data does not indicate any remarkable water elevation conditions.

Well Depth & Sedimentation
Well depth measurements were made October 17, 2024. Review of the well depth data included on Table 4 do not indicate that significant well sedimentation is occurring at any site monitoring wells (0 to 0.75 feet of sedimentation).

Well Recharge Rates & Chemistry
The general in-situ permeability was defined in the 1991 Hydrogeologic Investigation Report - Hydrologic Monitoring System Plan for the Ida County Landfill (Doc #62479). The summary information is included in Appendix A.

Table 4B is included summarizing the original measured hydraulic conductivities and well recovery information collected in 2020, 2022, and 2024. No significant trends are noted in the well recovery data to date. The well recovery rate is sufficient in all cases to collect an appropriate sample and the wells are functioning as intended. Monitoring well recovery rate reevaluation is due every other year and should be evaluated again in 2026.

Based on the apparent static conditions across the site, it appears that the semi-annual water elevation data is sufficient to adequately monitor the hydrologic condition of the site. Review of the water elevation data for 2024 does not indicate excessive variability compared to historic water elevation data. The wells are interpreted to be appropriately located to detect any impact, should it occur.

Section 2.0 Reporting Period Monitoring Activities

The Hydrologic Monitoring for the site is approved by Special Provision 5 of Permit Amendment #2, dated October 26, 2010 (Doc# 60921). The current HMSP is summarized in Table 1. The HMSP Implementation Schedule for 2025 is itemized in Table 2.

Background monitoring wells are restricted to a single well (MW-3). The background monitoring well is functioning as valid sampling point based on the hydrogeology and the water quality results.

Downgradient monitoring points include MW-7, MW-10, PZ-11, and MW-13. A variance approved on October 25, 2010 (see Permit Amendment #2) allows Appendix I and Appendix II sampling in accordance with IAC 567, Chapter 113.10(4) and 113.10(5) (2007 version).

A summary of the planned 2025 sample collection events at each well is included on Table 2.

Field sampling information for April 17, 2024; October 17, 2024; and December 10, 2024 sampling episodes is included on the field forms (IDNR Form 542-1322) in Appendix B.

A comprehensive summary of Analytical Data for the episodes between March 31, 2010 and October 17, 2024 is included on Table 9.

2.1 Current Detection Monitoring Activities

The background well is currently MW-3.

Downgradient monitoring points include MW-10 and MW-13.

2.2 Current Assessment Monitoring Activities

Monitoring wells MW-7 and PZ-11 are included in the assessment monitoring program. To date, bis(2-ethylhexyl)phthalate and dichlorodifluoromethane are the only Appendix II compounds detected.

The full Appendix II parameter list is analyzed on an approved five (5) year frequency at all assessment wells. Approval of the five (5) year frequency is included in an IDNR Comment Letter dated March 22, 2013 (Doc #76247).

The most recent full Appendix II sampling was completed on October 7, 2022 at MW-7 and April 12, 2021 at PZ-11. Table 2 lists the next required full Appendix II sample collection episodes.

Section 3.0 Data Evaluation and Summary

Field Sampling Forms for April 17, 2024; October 17, 2024; and December 10, 2024 sample collection episodes are included in Appendix B. Chemical analytical results for the April 17, 2024; October 17, 2024; and December 10, 2024 sample collection episodes are included in Appendix C. The cumulative chemical analytical data is also presented in summary form in Table 9.

Statistical Evaluations are prepared by Otter Creek Environmental Services for the Spring and Fall monitoring episodes. <u>The Groundwater Statistics Report for the Ida County Sanitary Landfill, First Semi-Annual Monitoring Event in 2024</u>, dated May, 2024 is included in Appendix D. <u>The Groundwater Statistics Report for the Ida County Sanitary Landfill, Second Semi-Annual Monitoring Event in 2024</u>, dated November, 2024 is also included in Appendix D.

QUALITY ASSURANCE/QUALITY CONTROL

A blind duplicate sample was collected at PZ-11 during the April 17, 2024 sampling episode. A blind duplicate was collected at MW-3 during the October 17, 2024 sampling episode.

The purpose of the field duplicate is to evaluate the precision of sample collection and analysis process from the field through the laboratory. The calculation of the Relative Percent Difference (RPD) for duplicate pair results is used as a means to evaluate the precision.
The Quality Control (QC) limit for the RPD on field duplicates is established at thirty percent (30%) for duplicate pairs that have reported concentrations five (5) times greater than the laboratory Reporting Limit. For samples and respective duplicates with reported analyte concentrations nearer the Reporting Limit, the RPD calculations demonstrate greater variability and the RPD can be very large. RPD values are considered non-representative in the following conditions:

a) Both the original and the duplicate results are less than five (5) times the Reporting Limit.
b) One or both results are qualified, flagged, or estimated.
c) One or both results are non-detected.

The results of the blind duplicate and the monitoring well results (April 17, 2024 and October 17, 2024) were within the limits established and indicate that the data quality is acceptable without restriction.

SITE SPECIFIC GWPS

There are no Site-Specific GWPS established for this facility, *with the exception of cobalt*. GWPS are as listed in the Statewide Standards published in Iowa Administrative Code (IAC) 567, Chapter 137. The prediction limit for cobalt (3.6 ug/L) in the site background well exceeds the Statewide Standard (2.1 ug/L) published in Iowa Administrative Code (IAC) 567, Chapter 137. Therefore, a site-Specific GWPS for cobalt is established herein at the value equal to the Prediction Limit (3.6 ug/L). All GWPS are listed on Table 5.

STATISTICALLY SIGNIFICANT INCREASES (SSI)

Test results from background monitoring well MW-3 (Table 5) are utilized to establish background conditions of site groundwater.

All downgradient data collected since March 31, 2010 is evaluated herein. In the downgradient wells, compounds that have exceeded a calculated prediction limit in 2024 (spring and/or fall) are summarized in Table 6.

The water quality data at each downgradient well is also evaluated over time in Table 7 which summarizes compounds in downgradient wells that have exceeded a control limit since March 31, 2010. Note that exceedances are only documented at MW-7 and PZ-11.

ASSESSMENT MONITORING SUMMARY

The full Appendix II (assessment) monitoring events have historically been completed at MW-7 and PZ-11. Bis (2-ethylhexyl)phthalate and dichlorodifluoromethane are the only Appendix II compound detected (beyond the Appendix I list).

Full Appendix II List Assessment Monitoring is required on a five (5) year frequency as approved by the IDNR Comment Letter dated March 22, 2013 (Doc #76247).

The most recent full Appendix II sampling was completed on October 7, 2022 at MW-7 and April 12, 2021 at PZ-11.

A summary of bis(2-ethylhexyl) phthalate and dichlorodifluoromethane testing to date is presented in Appendix E. The full Appendix II sampling episodes are highlighted in green in the tables in Appendix E.

STATISTICALLY SIGNIFICANT LEVELS (SSL)

The detections that exceed site prediction limits (brown highlights on Table 7) are utilized to calculate the Confidence Interval (the 95% lower confidence limits (LCL) and the 95% upper control limits (UCL)) in accordance with the <u>2009 Unified Guidance for Statistical Analysis of Groundwater Monitoring Data at RCRA Facilities</u> by US EPA. The 95% LCL values are compared to applicable GWPS. Any 95% LCL value that exceeds an applicable GWPS is recorded as an SSL.

The Confidence Intervals (95% LCL and 95% UCL) are calculated during each statistical evaluation based on the most recent four (4) data points. Recorded SSL are highlighted in yellow in Table 7.

SSL are summarized as:

MW-7 – vinyl chloride (2013-2019)

Note that the SSL was never addressed through corrective action, rather the issue resolved without action years ago. Further, vinyl chloride has not been detected (reported as less than the MRL) at MW-7 in the past four (4) years.

Table 8, Table 10, and Table 11 specific to MW-7 are attached and illustrate the resolution of the temporary vinyl chloride SSL.

CORRECTIVE MEASURES MONITORING RESULTS

Not applicable at this time.

Section 4.0 Leachate Collection System Performance Evaluation

General – The Ida County Landfill is a closed landfill that stopped accepting waste October 1, 2007 and received final cover during August 2008. The original design and construction of the site was approved under previous rules prior to the requirement for liners. Historic documents suggest that portions of the site are underlain by a "liner" consisting of two feet of compacted on-site soils. No wastes were placed outside of the original "footprint" after the rules were revised requiring liners and leachate collection.

The Landfill does not currently have a leachate control system. In June 1995, a Risk Assessment and a *Certification of Landfill Risk Assessment* document were provided by H. R. Green staff. A letter dated September 26, 1995, from the IDNR accepts the Certification and granted an exemption from installation of the leachate control system.

A DNR review letter dated March 5, 2020 (#97158) approved the reduction of leachate piezometer monitoring from quarterly to semi-annually.

Leachate Line Cleaning – Not Applicable.

Leachate Head Measurements - Eight leachate piezometers were installed in the waste early in 1991. Since that time, IDNR approved the vertical expansion of the landfill that resulted in the extension of the casing on most of the piezometers. After the placement of the final cover during August 2008, the site was surveyed, and the current elevations of the leachate piezometers verified. PZ-8 no longer exists. Table 12 is a summary of the 2024 measurements. Leachate varies in thickness from 0.0 feet to 5.33 feet in 2024 and is typically greatest at piezometer PZ-5. Current rule does not limit leachate head on those landfills constructed prior to regulation to incorporate leachate collection systems. Leachate seeps are not evident.

Table 12A is also included and summarizes leachate levels over time at each of the seven (7) piezometers.

Section 5.0 Gas Monitoring

Explosive gas monitoring was performed semi-annually during monitoring well sampling events. The results are summarized in Table 13.

Review of Table 13 indicates that all recorded readings in 2024 were reported at <1% of the Lower Explosive Limit (LEL).

Gas monitoring was conducted in all site structures and no elevated readings were recorded in 2024.

Section 6.0 Recommendations

a. Continue to perform sampling in accordance with Special Provision 5 of the Permit.

b. Continue to evaluate water quality in the Annual Water Quality Report, due January 31 of each year.

c. Continue to perform semi-annual water level measurements in the Spring & Fall of each year and reevaluate the data in the Annual Water Quality Report.

d. The Well Recharge Rate Evaluation should be performed again in 2026.

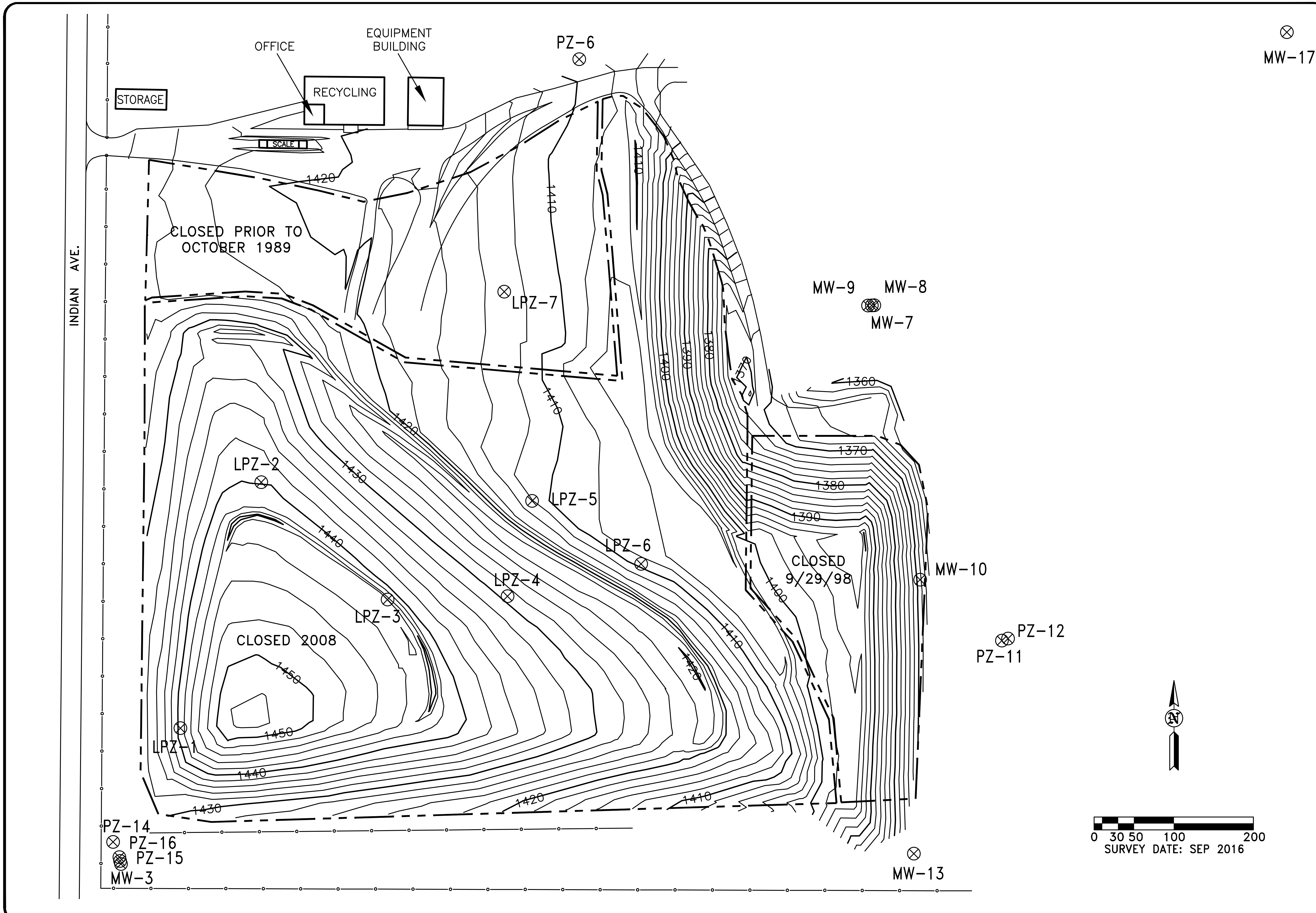
e. Continue to perform *semi-annual* leachate level measurements at LW-1, LW-2, LW-3, LW-4, LW-5, LW-6, and LW-7. Continue to re-evaluate leachate levels in the Annual Groundwater Quality Report/Leachate Control System Performance Evaluation.

f. Continue to perform semi-annual explosive gas monitoring and report the results in the Annual Groundwater Quality Report.

g. Consider this site for an Environmental Covenant in lieu of IDNR oversight through the current Closure Permit. A Spring of 2025 site visit by IDNR would be useful in initiating the Environmental Covenant process.

DOUGLAS J. LUZBETAK LICENSED 12654 IOWA PROFESSIONAL ENGINEER	I hereby certify that this engineering document was prepared by me or under my direct personal supervision and that I am a duly licensed Professional Engineer under the laws of the State of Iowa. 1/15/25 DOUGLAS J. LUZBETAK, P.E. DATE License number 12654 My license renewal date is December 31, 2026. Pages or sheets covered by this seal: All except Appendices A, C, D, & E

Figures



SITE PLAN

IDA COUNTY SANITARY LANDFILL
IDA GROVE, IOWA

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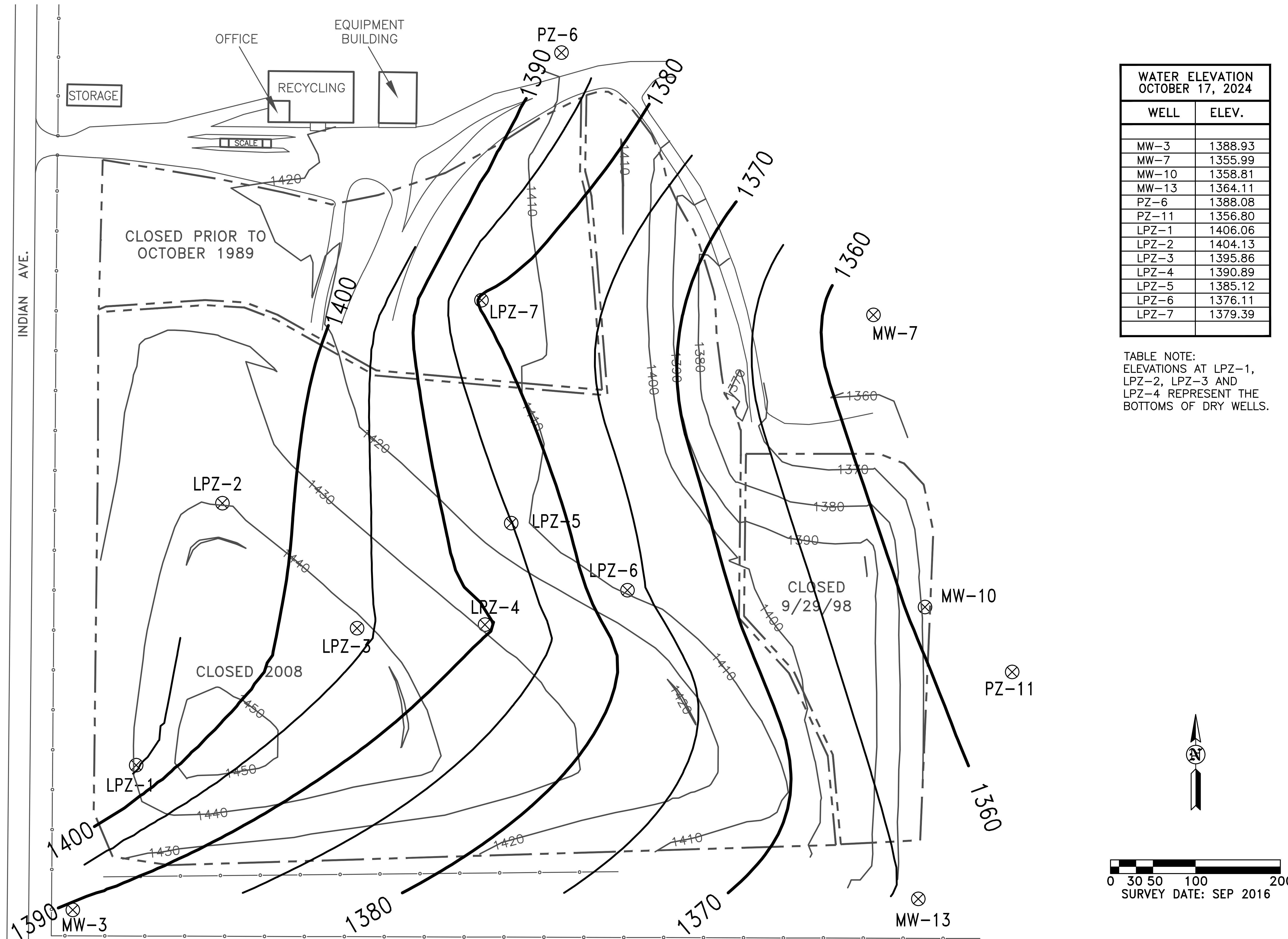
FIGURE: 1

REVISION	NO.	DATE

DRAWN	PROJECT NO.	DATE
DRA	6049	12-11-24



WATER ELEVATION OCTOBER 17, 2024

WELL	ELEV.
MW-3	1388.93
MW-7	1355.99
MW-10	1358.81
MW-13	1364.11
PZ-6	1388.08
PZ-11	1356.80
LPZ-1	1406.06
LPZ-2	1404.13
LPZ-3	1395.86
LPZ-4	1390.89
LPZ-5	1385.12
LPZ-6	1376.11
LPZ-7	1379.39

TABLE NOTE:
ELEVATIONS AT LPZ-1, LPZ-2, LPZ-3 AND LPZ-4 REPRESENT THE BOTTOMS OF DRY WELLS.

FIGURE: 2

REVISION	NO.	DATE
DRAWN DRA	PROJECT NO. 6049	DATE 12-11-24

GROUNDWATER CONTOURS

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Tables

Table 1 – Monitoring Program Summary

Table 1
Monitoring Program Summary
Annual Water Quality Report
Ida County Sanitary Landfill
Permit No. 47-SDP-01-76C

2024

Monitoring Well	Formation	Current Monitoring Program	Change for next sampling event	Historic - Constituents w/ SSI	Spring - Constituents w/ SSI	Fall - Constituents w/ SSI	Historic - Constituents w/ SSL	Spring - Constituents w/ SSL	Fall - Constituents w/ SSL	Total # of Samples in each monitoring program since March 31, 2010		
										Detection	Assessment	Corrective Action
MW-3	Loess	Background	No Change	None	None	None	None	None	None	30	0	0
MW-7	Loess	Assessment	No Change	**chlorobenzene, chloroethane, cis-1,2-dichloroethylene, dichlorofluoromethane,vinyl chloride, cobalt, nickel**	**cis-1,2-dichloroethylene, dichlorodifluoromethane**	**chlorobenzene, cis-1,2-dichloroethylene, nickel**	**vinyl chloride**	None	None	0	30	0
MW-10	Glacial Till	Detection	No Change	None	None	None	None	None	None	30	0	0
PZ-11	Loess	Assessment	No Change	**1,1-dichloroethane, chloroethane, nickel**	**1,1-dichloroethane**	**1,1-dichloroethane, nickel**	None	None	None	0	30	0
MW-13	Loess	Detection	No Change	None	None	None	None	None	None	30	0	0

Table 2 – Monitoring Program Implementation Schedule

Table 2
Monitoring Program Implementation Schedule
Annual Water Quality Report
Ida County Sanitary Landfill
Permit No. 49-SDP-01-76C

2024

Monitoring Well	Recent Sampling Dates and Constituents	Upcoming Sampling Dates and Constituents		Full Appendix II Sample Dates	
		April, 2025	October, 2025	Previously Collected	Next Event
MW-3	See Table 9	Appendix I	Appendix I		N/A
MW-7	See Table 9	Appendix I + dichlorofluoromethane	Appendix I + dichlorofluoromethane	4/11/11, 4/1/12, 410/17, 10/7/22	October 2027
MW-10	See Table 9	Appendix I	Appendix I		N/A
PZ-11	See Table 9	Appendix I	Appendix I	4/12/13, 4/8/20, 4/12/21	April 2026
MW-13	See Table 9	Appendix I	Appendix I		N/A
					N/A

Table 3 – Monitoring Well Maintenance Performance Reevaluation Schedule

Table 3
Monitoring Well Maintenance and Performance Revaluation Schedule
Annual Water Quality Report
Ida County Sanitary Landfill
Permit No.49-SDP-01-76C

Compliance with:	Monitoring Calendar Years									
	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028
567 IAC 113.10(2)"f"(1) high and low water levels (biennial)	X		X		X	X		P		P
567 IAC 113.10(2)"f"(2) changes in the hydrologic setting and flow paths (biennial)	X		X		X	X		P		P
567 IAC 113.10(2)"f"(3) well depths (annual)	X	X	X	X	X	X		P		P
567 IAC 113.10(2)"f"(4) well recharge rates and chemistry (biennial)		X		X		X		P		P

Table 4 – Monitoring Well Maintenance Performance Reevaluation Summary

Table 4
Monitoring Well Maintenance and Performance Summary
Annual Water Quality Report
Ida County Sanitary Landfill
Permit No. 47-SDP-01-76C

Well	Top of casing	Top of Screen	Total Depth		Date of Measurements		Maximum Depth Discrepancy (ft)
					4/17/2024	10/17/2024	
MW-3	1419.29	1384.89	39.4	Groundwater Level (ft)	32	30.36	0.35
				Groundwater Elevation (Ft MSL)	1387.29	1388.93	
				Measured Well Depth (ft)	39.05	39.05	
				Submerged (+) or Exposed screen (-)	2.4	4.04	
MW-7	1367.8	1351.65	26.15	Groundwater Level (ft)	9.49	11.81	0.75
				Groundwater Elevation (Ft MSL)	1358.31	1355.99	
				Measured Well Depth (ft)	25.4	25.4	
				Submerged (+) or Exposed screen (-)	6.66	4.34	
MW-10	1377.05	1354.35	32.7	Groundwater Level (ft)	14.58	18.24	0.25
				Groundwater Elevation (Ft MSL)	1362.47	1358.81	
				Measured Well Depth (ft)	32.45	32.45	
				Submerged (+) or Exposed screen (-)	8.12	4.46	
PZ-11	1366.7	1354.05	22.65	Groundwater Level (ft)	6.98	9.9	0
				Groundwater Elevation (Ft MSL)	1359.72	1356.8	
				Measured Well Depth (ft)	22.65	22.65	
				Submerged (+) or Exposed screen (-)	5.67	2.75	
MW-13	1381.39	1363.72	27.67	Groundwater Level (ft)	15.33	17.28	0
				Groundwater Elevation (Ft MSL)	1366.06	1364.11	
				Measured Well Depth (ft)	27.67	27.67	
				Submerged (+) or Exposed screen (-)	2.34	0.39	

Table 4A – Water Elevation Summary Over Time

Table 4A--- Water-level data, Ida County Sanitary Landfill.

Monitor Well/ TOC Elev. (ft)	Screened Interval Depth (ft)	Elev. (ft)	Water Level	Date								Mean/ Std. Dev.
				4/4/2005	9/8/2005	4/22/2006	9/19/2006	4/30/2007	9/13/2007	4/21/2008	9/16/2008	
MW-3	34.0	1385.3	Depth (ft)	30.33	30.24	30.41	30.05	28.04	28.35	30.30	27.36	
1419.29	37.0	1382.3	Elev. (ft)	1388.96	1389.05	1388.88	1389.24	1391.25	1390.94	1388.99	1391.93	
				3/21/2009	9/10/2009	3/31/2010	9/16/2010	4/11/2011	9/26/2011	4/1/2012	8/23/2012	
			Depth (ft)	29.23	27.68	20.74	25.26	28.60	28.82	30.43	30.53	
			Elev. (ft)	1390.06	1391.61	1398.55	1394.03	1390.69	1390.47	1388.86	1388.76	
				4/13/2013	9/14/2013	4/11/2014	9/27/2014	3/16/2015	9/28/2015	3/14/2016	9/3/2016	
			Depth (ft)	30.90	29.49	30.59	27.46	29.27	26.72	25.54	28.32	
			Elev. (ft)	1388.39	1389.80	1388.70	1391.83	1390.02	1392.57	1393.75	1390.97	
				4/10/2017	9/1/2017	4/23/2018	9/14/2018	4/15/2019	9/17/2019	4/8/2020	10/2/2020	
			Depth (ft)	30.33	29.21	29.00	28.89	26.13	28.86	28.56	30.30	29.14
			Elev. (ft)	1388.96	1390.08	1390.29	1390.40	1393.16	1390.43	1390.73	1388.99	2.16
				4/12/2021	10/26/2021	4/4/2022	10/7/2022	4/19/2023	10/25/2023	4/17/2024	10/17/2024	
			Depth (ft)	30.41	30.56	31.02	31.39	31.68	32.42	32.00	30.36	
			Elev. (ft)	1388.88	1388.73	1388.27	1387.90	1387.61	1386.87	1387.29	1388.93	
				11/1990	1/1991	2/1991	3/1991	4/10/1991	10/29/1991	4/27/1992	10/27/1992	
MW-7	17.8	1350.0	Depth (ft)	12.77	12.74	12.68	12.00	12.27	12.42	11.13	11.84	
1367.80	27.8	1340.0	Elev. (ft)	1355.03	1355.06	1355.12	1355.80	1355.53	1355.38	1356.67	1355.96	
				4/27/1993	10/27/1993	4/27/1994	10/28/1994	4/27/1995	10/28/1995	4/29/1996	10/28/1996	
			Depth (ft)	10.06	11.37	11.57	11.96	10.69	11.98	11.96	11.77	
			Elev. (ft)	1357.74	1356.43	1356.23	1355.84	1357.11	1355.82	1355.84	1356.03	
				4/28/1997	9/29/1997	4/28/1998	10/15/1998	4/13/1999	10/4/1999	3/22/2000	9/13/2000	
			Depth (ft)	11.49	11.95	10.63	11.56	11.39	11.80	11.76	12.88	
			Elev. (ft)	1356.31	1355.85	1357.17	1356.24	1356.41	1356.00	1356.04	1354.92	
				4/18/2001	9/26/2001	4/9/2002	9/11/2002	4/10/2003	9/9/2003	4/6/2004	9/16/2004	
			Depth (ft)	10.44	11.78	11.41	11.90	11.09	11.98	10.42	11.52	
			Elev. (ft)	1357.36	1356.02	1356.39	1355.90	1356.71	1355.82	1357.38	1356.28	
				4/4/2005	9/8/2005	4/22/2006	9/19/2006	4/30/2007	9/13/2007	4/21/2008	9/16/2008	
			Depth (ft)	11.58	12.24	10.55	12.00	9.52	10.80	9.96	10.65	
			Elev. (ft)	1356.22	1355.56	1357.25	1355.80	1358.28	1357.00	1357.84	1357.15	
				3/21/2009	9/10/2009	3/31/2010	9/16/2010	4/11/2011	9/26/2011	4/1/2012	8/2382012	
			Depth (ft)	10.49	11.22	9.07	9.76	9.44	10.90	10.58	12.06	
			Elev. (ft)	1357.31	1356.58	1358.73	1358.04	1358.36	1356.90	1357.22	1355.74	
				4/13/2013	9/14/2013	4/11/2014	9/27/2014	3/16/2015	9/28/2015	3/14/2016	9/3/2016	
			Depth (ft)	9.31	11.51	11.44	9.29	9.95	9.68	8.79	9.99	
			Elev. (ft)	1358.49	1356.29	1356.36	1358.51	1357.85	1358.12	1359.01	1357.81	
				4/10/2017	9/1/2017	4/23/2018	9/14/2018	4/15/2019	9/17/2019	4/8/2020	10/2/2020	
			Depth (ft)	9.20	9.45	8.56	9.27	8.70	9.35	8.63	10.98	10.88
			Elev. (ft)	1358.60	1358.35	1359.24	1358.53	1359.10	1358.45	1359.17	1356.82	1.17
				4/12/2021	10/26/2021	4/4/2022	10/7/2022	4/19/2023	10/25/2023	4/17/2024	10/17/2024	
			Depth (ft)	8.88	11.01	10.35	12.06	10.03	11.55	9.49	11.81	
			Elev. (ft)	1358.92	1356.79	1357.45	1355.74	1357.77	1356.25	1358.31	1355.99	

Table 4A--- Water-level data, Ida County Sanitary Landfill.

Monitor Well/ TOC Elev. (ft)	Screened Interval Depth (ft)	Elev. (ft)	Water Level	Date								Mean/ Std. Dev.
				11/1990	1/1991	2/1991	3/1991	4/10/1991	10/29/1991	4/27/1992	10/27/1992	
MW-10	22.3	1354.8	Depth (ft)	---	---	---	---	16.29	18.91	15.83	17.96	
1377.05	32.3	1344.8	Elev. (ft)	---	---	---	---	1360.76	1358.14	1361.22	1359.09	
				4/27/1993	10/27/1993	4/27/1994	10/28/1994	4/27/1995	10/28/1995	4/29/1996	10/28/1996	
			Depth (ft)	15.22	17.45	16.83	18.76	15.41	18.16	17.61	17.16	
			Elev. (ft)	1361.83	1359.60	1360.22	1358.29	1361.64	1358.89	1359.44	1359.89	
				4/28/1997	9/29/1997	4/28/1998	10/15/1998	4/13/1999	10/4/1999	3/22/2000	9/13/2000	
			Depth (ft)	16.39	18.25	15.09	17.89	15.62	19.04	17.36	20.88	
			Elev. (ft)	1360.66	1358.80	1361.96	1359.16	1361.43	1358.01	1359.69	1356.17	
				4/18/2001	9/26/2001	4/9/2002	9/11/2002	4/10/2003	9/9/2003	4/6/2004	9/16/2004	
			Depth (ft)	14.61	17.66	17.05	18.81	16.07	19.49	14.81	18.25	
			Elev. (ft)	1362.44	1359.39	1360.00	1358.24	1360.98	1357.56	1362.24	1358.80	
				4/4/2005	9/8/2005	4/22/2006	9/19/2006	4/30/2007	9/13/2007	4/21/2008	9/16/2008	
			Depth (ft)	18.06	20.07	15.68	18.22	1/13/1900	16.45	15.38	16.99	
			Elev. (ft)	1358.99	1356.98	1361.37	1358.83	1363.70	1360.60	1361.67	1360.06	
				3/21/2009	9/10/2009	3/31/2010	9/16/2010	4/11/2011	9/26/2011	4/1/2012	8/23/2012	
			Depth (ft)	13.36	17.59	13.13	16.22	15.80	19.06	17.01	20.90	
			Elev. (ft)	1363.69	1359.46	1363.92	1360.83	1361.25	1357.99	1360.04	1356.15	
				4/13/2013	9/14/2013	4/11/2014	9/27/2014	3/16/2015	9/28/2015	3/14/2016	9/3/2016	
			Depth (ft)	13.89	19.46	17.22	14.75	16.93	15.25	14.85	17.80	
			Elev. (ft)	1363.16	1357.59	1359.83	1362.30	1360.12	1361.80	1362.20	1359.25	
				4/10/2017	9/1/2017	4/23/2018	9/14/2018	4/15/2019	9/17/2019	4/8/2020	10/2/2020	
			Depth (ft)	16.36	15.26	14.04	15.40	14.86	15.74	14.96	19.20	16.77
			Elev. (ft)	1360.69	1361.79	1363.01	1361.65	1362.19	1361.31	1362.09	1357.85	1.83
				4/12/2021	10/26/2021	4/4/2022	10/7/2022	4/19/2023	10/25/2023	4/17/2024	10/17/2024	
			Depth (ft)	14.56	17.07	16.4	19.87	16.43	16.89	14.58	18.24	
			Elev. (ft)	1362.49	1359.98	1360.65	1357.18	1360.62	1360.16	1362.47	1358.81	
				11/1990	1/1991	2/1991	3/1991	4/10/1991	10/29/1991	4/27/1992	10/27/1992	
PZ-11	13.0	1353.8	Depth (ft)	10.61	10.80	8.92	6.76	7.16	10.56	7.74	10.08	
1366.70	23.0	1343.8	Elev. (ft)	1356.09	1355.90	1357.78	1359.94	1359.54	1356.14	1358.96	1356.62	
				4/27/1993	10/27/1993	4/27/1994	10/28/1994	4/27/1995	10/28/1995	4/29/1996	10/28/1996	
			Depth (ft)	6.64	8.93	8.04	10.35	7.38	10.38	10.21	8.14	
			Elev. (ft)	1360.06	1357.77	1358.66	1356.35	1359.32	1356.32	1356.49	1358.56	
				4/28/1997	9/29/1997	4/28/1998	10/15/1998	4/13/1999	10/4/1999	3/22/2000	9/13/2000	
			Depth (ft)	7.65	10.13	7.33	9.52	7.95	10.65	10.51	11.42	
			Elev. (ft)	1359.05	1356.57	1359.37	1357.18	1358.75	1356.05	1356.19	1355.28	
				4/18/2001	9/26/2001	4/9/2002	9/11/2002	4/10/2003	9/9/2003	4/6/2004	9/16/2004	
			Depth (ft)	7.19	10.43	8.28	10.55	9	10.49	7.09	10.38	
			Elev. (ft)	1359.51	1356.27	1358.42	1356.15	1357.70	1356.21	1359.61	1356.32	
				4/4/2005	9/8/2005	4/22/2006	9/19/2006	4/30/2007	9/13/2007	4/21/2008	9/16/2008	
			Depth (ft)	10.44	10.41	8.96	10.48	7.11	9.32	8.13	8.99	
			Elev. (ft)	1356.26	1356.29	1357.74	1356.22	1359.59	1357.38	1358.57	1357.71	
				3/21/2009	9/10/2009	3/31/2010	9/16/2010	4/11/2011	9/26/2011	4/1/2012	8/23/2012	
			Depth (ft)	9.28	9.55	6.04	7.13	8.15	10.13	9.25	10.80	
			Elev. (ft)	1357.42	1357.15	1360.66	1359.57	1358.55	1356.57	1357.45	1355.90	
				4/13/2013	9/14/2013	4/11/2014	9/27/2014	3/16/2015	9/28/2015	3/14/2016	9/3/2016	
			Depth (ft)	6.04	10.41	10.31	6.69	8.19	6.94	6.39	9.02	
			Elev. (ft)	1360.66	1356.29	1356.39	1360.01	1358.51	1359.76	1360.31	1357.68	
				4/10/2017	9/1/2017	4/23/2018	9/14/2018	4/15/2019	9/17/2019	4/8/2020	10/2/2020	
			Depth (ft)	8.37	7.06	6.50	7.02	6.61	8.24	6.69	10.18	8.77
			Elev. (ft)	1358.33	1359.64	1360.20	1359.68	1360.09	1358.46	1360.01	1356.52	1.53
				4/12/2021	10/26/2021	4/4/2022	10/7/2022	4/19/2023	10/25/2023	4/17/2024	10/17/2024	
			Depth (ft)	6.85	10.20	10.02	10.35	7.81	9.41	6.98	9.90	
			Elev. (ft)	1359.85	1356.50	1356.68	1356.35	1358.89	1357.29	1359.72	1356.80	

Table 4A--- Water-level data, Ida County Sanitary Landfill.

Monitor Well/ TOC Elev. (ft)	Screened Interval Depth (ft)	Screened Interval Elev. (ft)	Water Level	Date								Mean/ Std. Dev.
				11/1990	**1/1991**	**2/1991**	**3/1991**	**4/10/1991**	**10/29/1991**	**4/27/1992**	**10/27/1992**	
MW-13	17.4	1364.0	**Depth (ft)**	---	---	---	---	14.71	18.65	15.53	17.11	
1381.39	27.4	1354.0	**Elev. (ft)**	---	---	---	---	1366.68	1362.74	1365.86	1364.28	
				4/27/1993	**10/27/1993**	**4/27/1994**	**10/28/1994**	**4/27/1995**	**10/28/1995**	**4/29/1996**	**10/28/1996**	
			Depth (ft)	11.26	16.89	16.81	18.10	15.80	18.26	18.04	16.61	
			Elev. (ft)	1370.13	1364.50	1364.58	1363.29	1365.59	1363.13	1363.35	1364.78	
				4/28/1997	**9/29/1997**	**4/28/1998**	**10/15/1998**	**4/13/1999**	**10/4/1999**	**3/22/2000**	**9/13/2000**	
			Depth (ft)	16.28	17.49	15.65	16.96	16.17	17.48	17.61	19.59	
			Elev. (ft)	1365.11	1363.90	1365.74	1364.43	1365.22	1363.91	1363.78	1361.80	
				4/18/2001	**9/26/2001**	**4/9/2002**	**9/11/2002**	**4/10/2003**	**9/9/2003**	**4/6/2004**	**9/16/2004**	
			Depth (ft)	11.56	17.99	15.52	18.13	16.5	17.84	13.60	17.64	
			Elev. (ft)	1369.83	1363.40	1365.87	1363.26	1364.89	1363.55	1367.79	1363.75	
				4/4/2005	**9/8/2005**	**4/22/2006**	**9/19/2006**	**4/30/2007**	**9/13/2007**	**4/21/2008**	**9/16/2008**	
			Depth (ft)	18.51	19.06	16.59	18.58	13.99	16.83	16.68	14.60	
			Elev. (ft)	1362.88	1362.33	1364.80	1362.81	1367.40	1364.56	1364.71	1366.79	
				3/21/2009	**9/10/2009**	**3/31/2010**	**9/16/2010**	**4/11/2011**	**9/26/2011**	**4/1/2012**	**8/23/2012**	
			Depth (ft)	16.78	16.63	9.55	13.40	16.22	16.51	17.05	19.08	
			Elev. (ft)	1364.61	1364.76	1371.84	1367.99	1365.17	1364.88	1364.34	1362.31	
				4/13/2013	**9/14/2013**	**4/11/2014**	**9/27/2014**	**3/16/2015**	**9/28/2015**	**3/14/2016**	**9/3/2016**	
			Depth (ft)	12.09	17.68	18.59	13.70	16.23	14.17	12.45	15.74	
			Elev. (ft)	1369.30	1363.71	1362.80	1367.69	1365.16	1367.22	1368.94	1365.65	
				4/10/2017	**9/1/2017**	**4/23/2018**	**9/14/2018**	**4/15/2019**	**9/17/2019**	**4/8/2020**	**10/2/2020**	
			Depth (ft)	16.27	13.98	13.68	14.20	13.64	15.75	13.78	17.07	16.13
			Elev. (ft)	1365.12	1367.41	1367.71	1367.19	1367.75	1365.64	1367.61	1364.32	2.05
				4/12/2021	**10/26/2021**	**4/4/2022**	**10/7/2022**	**4/19/2023**	**10/25/2023**	**4/17/2024**	**10/17/2024**	
			Depth (ft)	15.22	17.97	17.25	18.05	17.00	15.96	15.33	17.28	
			Elev. (ft)	1366.17	1363.42	1364.14	1363.34	1364.39	1365.43	1366.06	1364.11	

Table 4B – Well Recharge Rate Evaluation

Table 4B - Well Recovery Evaluation over Time
Monitoring Well Maintenance and Performance Summary
Annual Water Quality Report
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Monitoring Well	**1991 Hydraulic Conductivity (cm/Sec)**	**2020 Well Recharge (ft/min)**	**2022 Well Recharge (ft/min)**	**2024 Well Recharge (ft/min)**
MW-3	NM	0.0059	0.0055	0.0061
MW-7	$3x10^{-4}$	0.1384	0.0788	0.2510
MW-10	$1x10^{-6}$	0.0250	0.0307	0.0851
PZ-11	$1x10^{-4}$	0.0267	0.0117	0.0104
MW-13	$4x10^{-5}$	0.0180	0.0264	0.0272

Table 5 – Background and GWPS Summary

Table 5
Background and GWPS Summary
Annual Water Quality Report
Ida County Sanitary Landfill
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Interwell Background Wells (MW-3)

Inorganics - Appendix I										
Constituent	**Units**	**Model Type**	**Samples - N**	**Detections**	**Mean**	**SD**	**Prediction Limit**	**Confidence**	**GWPS**	**Source**
Antimony (Sb)	µg/l	nonparametric	30	0			2.0000	0.99	6	SS
Arsenic (As)	µg/l	nonparametric	30	1			4.1000	0.99	10	SS
Barium (Ba)	µg/l	normal	30	**30**	315.2333	103.8429	575.0931		2000	SS
Beryllium (Be)	µg/l	nonparametric	30	0			4.0000	0.99	4	SS
Cadmium (Cd)	µg/l	nonparametric	30	4			1.5000	0.99	5	SS
Chromium (Cr)	µg/l	nonparametric	30	0			8.0000	0.99	100	SS
Cobalt (Co)	µg/l	nonparametric	30	9			3.6000	0.99	**3.6**	**Site**
Copper (Cu)	µg/l	nonparametric	30	3			5.5000	0.99	1300	SS
Lead (Pb)	µg/l	nonparametric	30	0			4.0000	0.99	15	SS
Nickel (Ni)	µg/l	nonparametric	30	11			15.6000	0.99	100	SS
Selenium (Se)	µg/l	nonparametric	30	0			4.0000	0.99	50	SS
Silver (Ag)	µg/l	nonparametric	30	0			4.0000	0.99	100	SS
Thallium (Tl)	µg/l	nonparametric	30	0			2.0000	0.99	2	SS
Vanadium (V)	µg/l	nonparametric	30	2			21.8000	0.99	35	SS
Zinc (Zn)	µg/l	nonparametric	30	8			30.3000	0.99	2000	SS

VOC - Appendix I										
Constituent	**Units**	**Model Type**	**Samples - N**	**Detections**	**Mean**	**SD**	**Prediction Limit**	**Confidence**	**GWPS**	**Source**
All	µg/l	DQR	30	0	<1	<1	<1	<1	various	SS

= Prediction limit exceeds the GWPS. A Site-Specific GWPS is warranted

Table 6 – Summary of Current Year Exceedances

Table 6
Summary of Well/Detected Constituent Pairs that Exceed the Background Standard
Annual Water Quality Report
Ida County Sanitary Landfill
Permit No. 47-SDP-01-76C

2024

Interwell Statistics

Well	System	Constituent	Date	Units	Result	Prediction Limit	GWPS
MW-7	Water Table	chlorobenzene	10/17/2024	ug/L	1.2	1	**100**
MW-7	Water Table	cis-1,2-dichloroethene	4/17/2024	ug/L	2.3	1	**70**
MW-7	Water Table	cis-1,2-dichloroethene	10/17/2024	ug/L	6.1	1	**70**
MW-7	Water Table	dichlorodifluoromethane	4/17/2024	ug/L	1.0	1	**1000**
MW-7	Water Table	Copper	10/17/2024	ug/L	6.4	5.5	**1300**
MW-7	Water Table	Nickel	10/17/2024	ug/L	49.60	15.6	**100**
PZ-11	Water Table	1,1-dichloroethane	4/17/2024	mg/L	1.3	1	**140**
PZ-11	Water Table	1,1-dichloroethane	10/17/2024	mg/L	1.0	1	**140**
PZ-11	Water Table	Nickel	10/17/2024	ug/L	31.1	15.6	**100**

Table 7 – Summary of Ongoing and Newly Identified SSI & SSL

Table 7
Summary of Ongoing & Newly Identified SSI
Annual Water Quality Report
Ida County Sanitary Landfill
Permit No. 47-SDP-01-76C

KEY:	SSI	SSL LCL>GWPS

Note: The absence of shading indicates that the condition does not exist.

Monitoring Well	Compound	Sample Date	Each Result (ug/L)	Prediction Limit (ug/L)	95% LCL (ug/L)	GWPS Limit (ug/L)	SSI Initial Exceedance	Resamples Due	5th Background Sample
MW-7	chlorobenzene	3/31/2010	<1	1	---	100	3/31/2010	NA	4/1/2012
MW-7	chlorobenzene	9/16/2010	<1	1	---	100	3/31/2010	NA	4/1/2012
MW-7	chlorobenzene	4/11/2011	<1	1	---	100	3/31/2010	NA	4/1/2012
MW-7	chlorobenzene	9/26/2011	<1	1	0.500	100	3/31/2010	NA	4/1/2012
MW-7	chlorobenzene	4/1/2012	<1	1	0.500	100	3/31/2010	NA	4/1/2012
MW-7	chlorobenzene	8/23/2012	<1	1	0.500	100	3/31/2010	NA	4/1/2012
MW-7	chlorobenzene	4/13/2013	<1	1	0.500	100	3/31/2010	NA	4/1/2012
MW-7	chlorobenzene	9/14/2013	<1	1	0.500	100	3/31/2010	NA	4/1/2012
MW-7	chlorobenzene	4/11/2014	<1	1	0.500	100	3/31/2010	NA	4/1/2012
MW-7	chlorobenzene	9/27/2014	<1	1	0.500	100	3/31/2010	NA	4/1/2012
MW-7	chlorobenzene	3/16/2015	<1	1	0.500	100	3/31/2010	NA	4/1/2012
MW-7	chlorobenzene	9/28/2015	**1.0**	1	0.408	100	3/31/2010	NA	4/1/2012
MW-7	chlorobenzene	3/14/2016	<1	1	0.408	100	3/31/2010	NA	4/1/2012
MW-7	chlorobenzene	9/3/2016	<1	1	0.408	100	3/31/2010	NA	4/1/2012
MW-7	chlorobenzene	4/10/2017	**1.0**	1	0.500	100	3/31/2010	NA	4/1/2012
MW-7	chlorobenzene	9/1/2017	**1.5**	1	0.460	100	3/31/2010	NA	4/1/2012
MW-7	chlorobenzene	4/23/2018	**1.7**	1	0.709	100	3/31/2010	NA	4/1/2012
MW-7	chlorobenzene	9/14/2018	**1.2**	1	1.081	100	3/31/2010	NA	4/1/2012
MW-7	chlorobenzene	4/15/2019	**1.6**	1	1.313	100	3/31/2010	NA	4/1/2012
MW-7	chlorobenzene	9/17/2019	**2.4**	1	1.293	100	3/31/2010	NA	4/1/2012
MW-7	chlorobenzene	4/8/2020	**2.0**	1	1.353	100	3/31/2010	NA	4/1/2012
MW-7	chlorobenzene	10/2/2020	**2.8**	1	1.753	100	3/31/2010	NA	4/1/2012
MW-7	chlorobenzene	4/12/2021	**1.7**	1	1.810	100	3/31/2010	NA	4/1/2012
MW-7	chlorobenzene	10/26/2021	**2.4**	1	1.810	100	3/31/2010	NA	4/1/2012
MW-7	chlorobenzene	4/4/2022	**1.1**	1	1.115	100	3/31/2010	NA	4/1/2012
MW-7	chlorobenzene	10/7/2022	**1.8**	1	1.124	100	3/31/2010	NA	4/1/2012
MW-7	chlorobenzene	4/19/2023	<1	1	0.478	100	3/31/2010	NA	4/1/2012
MW-7	chlorobenzene	10/25/2023	<1	1	0.248	100	3/31/2010	NA	4/1/2012
MW-7	chlorobenzene	4/17/2024	<1	1	0.060	100	3/31/2010	NA	4/1/2012
MW-7	chlorobenzene	10/17/2024	**1.0**	1	0.263	100	3/31/2010	NA	4/1/2012

Table 7
Summary of Ongoing & Newly Identified SSI
Annual Water Quality Report
Ida County Sanitary Landfill
Permit No. 47-SDP-01-76C

KEY:	SSI	SSL LCL>GWPS

Note: The absence of shading indicates that the condition does not exist.

Monitoring Well	Compound	Sample Date	Each Result (ug/L)	Prediction Limit (ug/L)	95% LCL (ug/L)	GWPS Limit (ug/L)	SSI Initial Exceedance	Resamples Due	5th Background Sample
MW-7	chloroethane	3/31/2010	**1.5**	1	---	2800	3/31/2010	NA	4/1/2012
MW-7	chloroethane	9/16/2010	<1	1	---	2800	3/31/2010	NA	4/1/2012
MW-7	chloroethane	4/11/2011	<1	1	---	2800	3/31/2010	NA	4/1/2012
MW-7	chloroethane	9/26/2011	**1.0**	1	0.460	2800	3/31/2010	NA	4/1/2012
MW-7	chloroethane	4/1/2012	**1.6**	1	0.447	2800	3/31/2010	NA	4/1/2012
MW-7	chloroethane	8/23/2012	**1.5**	1	0.711	2800	3/31/2010	NA	4/1/2012
MW-7	chloroethane	4/13/2013	**1.8**	1	1.180	2800	3/31/2010	NA	4/1/2012
MW-7	chloroethane	9/14/2013	**1.3**	1	1.370	2800	3/31/2010	NA	4/1/2012
MW-7	chloroethane	4/11/2014	**2.3**	1	1.348	2800	3/31/2010	NA	4/1/2012
MW-7	chloroethane	9/27/2014	**2.6**	1	1.505	2800	3/31/2010	NA	4/1/2012
MW-7	chloroethane	3/16/2015	<1	1	0.843	2800	3/31/2010	NA	4/1/2012
MW-7	chloroethane	9/28/2015	**1.4**	1	0.878	2800	3/31/2010	NA	4/1/2012
MW-7	chloroethane	3/14/2016	**1.6**	1	0.779	2800	3/31/2010	NA	4/1/2012
MW-7	chloroethane	9/3/2016	<1	1	0.495	2800	3/31/2010	NA	4/1/2012
MW-7	chloroethane	4/10/2017	**1.2**	1	0.760	2800	3/31/2010	NA	4/1/2012
MW-7	chloroethane	9/1/2017	**1.7**	1	0.778	2800	3/31/2010	NA	4/1/2012
MW-7	chloroethane	4/23/2018	**1.7**	1	0.783	2800	3/31/2010	NA	4/1/2012
MW-7	chloroethane	9/14/2018	**1.2**	1	1.200	2800	3/31/2010	NA	4/1/2012
MW-7	chloroethane	4/15/2019	**1.6**	1	1.344	2800	3/31/2010	NA	4/1/2012
MW-7	chloroethane	9/17/2019	**1.1**	1	1.145	2800	3/31/2010	NA	4/1/2012
MW-7	chloroethane	4/8/2020	**1.5**	1	1.144	2800	3/31/2010	NA	4/1/2012
MW-7	chloroethane	10/2/2020	**1.3**	1	1.183	2800	3/31/2010	NA	4/1/2012
MW-7	chloroethane	4/12/2021	<1	1	0.726	2800	3/31/2010	NA	4/1/2012
MW-7	chloroethane	10/26/2021	**1.2**	1	0.748	2800	3/31/2010	NA	4/1/2012
MW-7	chloroethane	4/4/2022	**1.7**	1	0.588	2800	3/31/2010	NA	4/1/2012
MW-7	chloroethane	10/7/2022	**1.9**	1	0.591	2800	3/31/2010	NA	4/1/2012
MW-7	chloroethane	4/19/2023	<1	1	0.591	2800	3/31/2010	NA	4/1/2012
MW-7	chloroethane	10/25/2023	**1.3**	1	0.622	2800	3/31/2010	NA	4/1/2012
MW-7	chloroethane	4/17/2024	<1	1	0.249	2800	3/31/2010	NA	4/1/2012
MW-7	chloroethane	10/17/2024	<1	1	0.229	2800	3/31/2010	NA	4/1/2012

Table 7
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KEY:	SSI	SSL LCL>GWPS

Note: The absence of shading indicates that the condition does not exist.

Monitoring Well	Compound	Sample Date	Each Result (ug/L)	Prediction Limit (ug/L)	95% LCL (ug/L)	GWPS Limit (ug/L)	SSI Initial Exceedance	Resamples Due	5th Background Sample
MW-7	cis-1,2-dichloroethylene	3/31/2010	**36.4**	1	---	70	3/31/2010	NA	4/1/2012
MW-7	cis-1,2-dichloroethylene	9/16/2010	**1.3**	1	---	70	3/31/2010	NA	4/1/2012
MW-7	cis-1,2-dichloroethylene	4/11/2011	**4.8**	1	---	70	3/31/2010	NA	4/1/2012
MW-7	cis-1,2-dichloroethylene	9/26/2011	**19.2**	1	1.581	70	3/31/2010	NA	4/1/2012
MW-7	cis-1,2-dichloroethylene	4/1/2012	**69.1**	1	0.000	70	3/31/2010	NA	4/1/2012
MW-7	cis-1,2-dichloroethylene	8/23/2012	**124.0**	1	7.479	70	3/31/2010	NA	4/1/2012
MW-7	cis-1,2-dichloroethylene	4/13/2013	**17.7**	1	13.889	70	3/31/2010	NA	4/1/2012
MW-7	cis-1,2-dichloroethylene	9/14/2013	**95.0**	1	37.365	70	3/31/2010	NA	4/1/2012
MW-7	cis-1,2-dichloroethylene	4/11/2014	**92.3**	1	42.965	70	3/31/2010	NA	4/1/2012
MW-7	cis-1,2-dichloroethylene	9/27/2014	**24.4**	1	20.960	70	3/31/2010	NA	4/1/2012
MW-7	cis-1,2-dichloroethylene	3/16/2015	**58.2**	1	38.685	70	3/31/2010	NA	4/1/2012
MW-7	cis-1,2-dichloroethylene	9/28/2015	**62.8**	1	35.340	70	3/31/2010	NA	4/1/2012
MW-7	cis-1,2-dichloroethylene	3/14/2016	**20.8**	1	22.488	70	3/31/2010	NA	4/1/2012
MW-7	cis-1,2-dichloroethylene	9/3/2016	**3.4**	1	11.277	70	3/31/2010	NA	4/1/2012
MW-7	cis-1,2-dichloroethylene	4/10/2017	**4.8**	1	0.000	70	3/31/2010	NA	4/1/2012
MW-7	cis-1,2-dichloroethylene	9/1/2017	**18.3**	1	4.034	70	3/31/2010	NA	4/1/2012
MW-7	cis-1,2-dichloroethylene	4/23/2018	**10.2**	1	3.327	70	3/31/2010	NA	4/1/2012
MW-7	cis-1,2-dichloroethylene	9/14/2018	**10.4**	1	6.111	70	3/31/2010	NA	4/1/2012
MW-7	cis-1,2-dichloroethylene	4/15/2019	**5.9**	1	6.724	70	3/31/2010	NA	4/1/2012
MW-7	cis-1,2-dichloroethylene	9/17/2019	**7.7**	1	6.687	70	3/31/2010	NA	4/1/2012
MW-7	cis-1,2-dichloroethylene	4/8/2020	**6.6**	1	5.938	70	3/31/2010	NA	4/1/2012
MW-7	cis-1,2-dichloroethylene	10/2/2020	**22.5**	1	3.818	70	3/31/2010	NA	4/1/2012
MW-7	cis-1,2-dichloroethylene	4/12/2021	**14.9**	1	6.543	70	3/31/2010	NA	4/1/2012
MW-7	cis-1,2-dichloroethylene	10/26/2021	**5.9**	1	5.690	70	3/31/2010	NA	4/1/2012
MW-7	cis-1,2-dichloroethylene	4/4/2022	<1	1	0.000	70	3/31/2010	NA	4/1/2012
MW-7	cis-1,2-dichloroethylene	10/7/2022	**1.0**	1	0.000	70	3/31/2010	NA	4/1/2012
MW-7	cis-1,2-dichloroethylene	4/19/2023	**1.4**	1	0.000	70	3/31/2010	NA	4/1/2012
MW-7	cis-1,2-dichloroethylene	10/25/2023	**5.0**	1	0.000	70	3/31/2010	NA	4/1/2012
MW-7	cis-1,2-dichloroethylene	4/17/2024	**2.3**	1	0.307	70	3/31/2010	NA	4/1/2012
MW-7	cis-1,2-dichloroethylene	10/17/2024	**6.1**	1	1.096	70	3/31/2010	NA	4/1/2012

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KEY:	SSI	SSL LCL>GWPS

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Monitoring Well	Compound	Sample Date	Each Result (ug/L)	Prediction Limit (ug/L)	95% LCL (ug/L)	GWPS Limit (ug/L)	SSI Initial Exceedance	Resamples Due	5th Background Sample
MW-7	dichlorodifluoromethane	3/31/2010	---	1	---	1000	3/31/2010	NA	4/1/2012
MW-7	dichlorodifluoromethane	9/16/2010	---	1	---	1000	3/31/2010	NA	4/1/2012
MW-7	dichlorodifluoromethane	4/11/2011	---	1	---	1000	3/31/2010	NA	4/1/2012
MW-7	dichlorodifluoromethane	9/26/2011	---	1	---	1000	3/31/2010	NA	4/1/2012
MW-7	dichlorodifluoromethane	4/1/2012	**1.4**	1	---	1000	3/31/2010	NA	4/1/2012
MW-7	dichlorodifluoromethane	8/23/2012	**2.3**	1	---	1000	3/31/2010	NA	4/1/2012
MW-7	dichlorodifluoromethane	4/13/2013	**3.5**	1	---	1000	3/31/2010	NA	4/1/2012
MW-7	dichlorodifluoromethane	9/14/2013	**3.0**	1	1.761	1000	3/31/2010	NA	4/1/2012
MW-7	dichlorodifluoromethane	4/11/2014	**2.1**	1	2.167	1000	3/31/2010	NA	4/1/2012
MW-7	dichlorodifluoromethane	9/27/2014	**2.6**	1	2.285	1000	3/31/2010	NA	4/1/2012
MW-7	dichlorodifluoromethane	3/16/2015	<1	1	1.100	1000	3/31/2010	NA	4/1/2012
MW-7	dichlorodifluoromethane	9/28/2015	<1	1	0.483	1000	3/31/2010	NA	4/1/2012
MW-7	dichlorodifluoromethane	3/14/2016	<1	1	0.116	1000	3/31/2010	NA	4/1/2012
MW-7	dichlorodifluoromethane	9/3/2016	<1	1	0.500	1000	3/31/2010	NA	4/1/2012
MW-7	dichlorodifluoromethane	4/10/2017	**1.4**	1	0.335	1000	3/31/2010	NA	4/1/2012
MW-7	dichlorodifluoromethane	9/1/2017	<1	1	0.335	1000	3/31/2010	NA	4/1/2012
MW-7	dichlorodifluoromethane	4/23/2018	**1.4**	1	0.500	1000	3/31/2010	NA	4/1/2012
MW-7	dichlorodifluoromethane	9/14/2018	**1.2**	1	0.755	1000	3/31/2010	NA	4/1/2012
MW-7	dichlorodifluoromethane	4/15/2019	**1.4**	1	0.755	1000	3/31/2010	NA	4/1/2012
MW-7	dichlorodifluoromethane	9/17/2019	<1	1	0.755	1000	3/31/2010	NA	4/1/2012
MW-7	dichlorodifluoromethane	4/8/2020	**1.6**	1	0.760	1000	3/31/2010	NA	4/1/2012
MW-7	dichlorodifluoromethane	10/2/2020	**1.0**	1	0.704	1000	3/31/2010	NA	4/1/2012
MW-7	dichlorodifluoromethane	4/12/2021	<1	1	0.447	1000	3/31/2010	NA	4/1/2012
MW-7	dichlorodifluoromethane	10/26/2021	**1.4**	1	0.704	1000	3/31/2010	NA	4/1/2012
MW-7	dichlorodifluoromethane	4/4/2022	<1	1	0.337	1000	3/31/2010	NA	4/1/2012
MW-7	dichlorodifluoromethane	10/7/2022	**1.3**	1	0.346	1000	3/31/2010	NA	4/1/2012
MW-7	dichlorodifluoromethane	4/19/2023	<1	1	0.346	1000	3/31/2010	NA	4/1/2012
MW-7	dichlorodifluoromethane	10/25/2023	**1.0**	1	0.361	1000	3/31/2010	NA	4/1/2012
MW-7	dichlorodifluoromethane	4/17/2024	**1.0**	1	0.560	1000	3/31/2010	NA	4/1/2012
MW-7	dichlorodifluoromethane	10/17/2024	<1	1	0.410	1000	3/31/2010	NA	4/1/2012

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KEY:	SSI	SSL LCL>GWPS

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Monitoring Well	Compound	Sample Date	Each Result (ug/L)	Prediction Limit (ug/L)	95% LCL (ug/L)	GWPS Limit (ug/L)	SSI Initial Exceedance	Resamples Due	5th Background Sample
MW-7	vinyl chloride	3/31/2010	**1.3**	1	---	2	3/31/2010	NA	4/1/2012
MW-7	vinyl chloride	9/16/2010	<1	1	---	2	3/31/2010	NA	4/1/2012
MW-7	vinyl chloride	4/11/2011	<1	1	---	2	3/31/2010	NA	4/1/2012
MW-7	vinyl chloride	9/26/2011	<1	1	0.354	2	3/31/2010	NA	4/1/2012
MW-7	vinyl chloride	4/1/2012	**2.4**	1	0.152	2	3/31/2010	NA	4/1/2012
MW-7	vinyl chloride	8/23/2012	**6.2**	1	0.073	2	3/31/2010	NA	4/1/2012
MW-7	vinyl chloride	4/13/2013	**3.6**	1	1.108	2	3/31/2010	NA	4/1/2012
MW-7	vinyl chloride	9/14/2013	**6.4**	1	2.945	2	3/31/2010	NA	4/1/2012
MW-7	vinyl chloride	4/11/2014	**4.4**	1	3.964	2	3/31/2010	NA	4/1/2012
MW-7	vinyl chloride	9/27/2014	**3.1**	1	3.117	2	3/31/2010	NA	4/1/2012
MW-7	vinyl chloride	3/16/2015	<1	1	1.459	2	3/31/2010	NA	4/1/2012
MW-7	vinyl chloride	9/28/2015	**3.0**	1	1.338	2	3/31/2010	NA	4/1/2012
MW-7	vinyl chloride	3/14/2016	**1.2**	1	0.822	2	3/31/2010	NA	4/1/2012
MW-7	vinyl chloride	9/3/2016	<1	1	0.278	2	3/31/2010	NA	4/1/2012
MW-7	vinyl chloride	4/10/2017	**1.7**	1	0.686	2	3/31/2010	NA	4/1/2012
MW-7	vinyl chloride	9/1/2017	**3.2**	1	0.659	2	3/31/2010	NA	4/1/2012
MW-7	vinyl chloride	4/23/2018	**2.1**	1	0.910	2	3/31/2010	NA	4/1/2012
MW-7	vinyl chloride	9/14/2018	**2.1**	1	1.717	2	3/31/2010	NA	4/1/2012
MW-7	vinyl chloride	4/15/2019	**1.1**	1	1.382	2	3/31/2010	NA	4/1/2012
MW-7	vinyl chloride	9/17/2019	**1.0**	1	1.049	2	3/31/2010	NA	4/1/2012
MW-7	vinyl chloride	4/8/2020	**1.7**	1	1.026	2	3/31/2010	NA	4/1/2012
MW-7	vinyl chloride	10/2/2020	**2.5**	1	0.978	2	3/31/2010	NA	4/1/2012
MW-7	vinyl chloride	4/12/2021	<1	1	0.672	2	3/31/2010	NA	4/1/2012
MW-7	vinyl chloride	10/26/2021	<1	1	0.451	2	3/31/2010	NA	4/1/2012
MW-7	vinyl chloride	4/4/2022	<1	1	0.000	2	3/31/2010	NA	4/1/2012
MW-7	vinyl chloride	10/7/2022	<1	1	0.500	2	3/31/2010	NA	4/1/2012
MW-7	vinyl chloride	4/19/2023	<1	1	0.500	2	3/31/2010	NA	4/1/2012
MW-7	vinyl chloride	10/25/2023	<1	1	0.500	2	3/31/2010	NA	4/1/2012
MW-7	vinyl chloride	4/17/2024	<1	1	0.500	2	3/31/2010	NA	4/1/2012
MW-7	vinyl chloride	10/17/2024	<1	1	0.500	2	3/31/2010	NA	4/1/2012

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Monitoring Well	Compound	Sample Date	Each Result (ug/L)	Prediction Limit (ug/L)	95% LCL (ug/L)	GWPS Limit (ug/L)	SSI Initial Exceedance	Resamples Due	5th Background Sample
MW-7	cobalt	3/31/2010	<4	3.6	---	**3.6**	3/31/2010	NA	4/1/2012
MW-7	cobalt	9/16/2010	<4	3.6	---	**3.6**	3/31/2010	NA	4/1/2012
MW-7	cobalt	4/11/2011	<4	3.6	---	**3.6**	3/31/2010	NA	4/1/2012
MW-7	cobalt	9/26/2011	<4	3.6	2.000	**3.6**	3/31/2010	NA	4/1/2012
MW-7	cobalt	4/1/2012	<4	3.6	2.000	**3.6**	3/31/2010	NA	4/1/2012
MW-7	cobalt	8/23/2012	<4	3.6	2.000	**3.6**	3/31/2010	NA	4/1/2012
MW-7	cobalt	4/13/2013	<4	3.6	2.000	**3.6**	3/31/2010	NA	4/1/2012
MW-7	cobalt	9/14/2013	<4	3.6	2.000	**3.6**	3/31/2010	NA	4/1/2012
MW-7	cobalt	4/11/2014	<4	3.6	2.000	**3.6**	3/31/2010	NA	4/1/2012
MW-7	cobalt	9/27/2014	**1.6**	3.6	1.727	**3.6**	3/31/2010	NA	4/1/2012
MW-7	cobalt	3/16/2015	**2.6**	3.6	1.693	**3.6**	3/31/2010	NA	4/1/2012
MW-7	cobalt	9/28/2015	<0.8	3.6	0.845	**3.6**	3/31/2010	NA	4/1/2012
MW-7	cobalt	3/14/2016	<0.8	3.6	0.329	**3.6**	3/31/2010	NA	4/1/2012
MW-7	cobalt	9/3/2016	<0.8	3.6	0.000	**3.6**	3/31/2010	NA	4/1/2012
MW-7	cobalt	4/10/2017	<0.8	3.6	0.400	**3.6**	3/31/2010	NA	4/1/2012
MW-7	cobalt	9/1/2017	**2.0**	3.6	0.107	**3.6**	3/31/2010	NA	4/1/2012
MW-7	cobalt	4/23/2018	**1.7**	3.6	0.392	**3.6**	3/31/2010	NA	4/1/2012
MW-7	cobalt	9/14/2018	**3.6**	3.6	0.786	**3.6**	3/31/2010	NA	4/1/2012
MW-7	cobalt	4/15/2019	**2.8**	3.6	1.785	**3.6**	3/31/2010	NA	4/1/2012
MW-7	cobalt	9/17/2019	**6.1**	3.6	1.931	**3.6**	3/31/2010	NA	4/1/2012
MW-7	cobalt	4/8/2020	**4.3**	3.6	2.981	**3.6**	3/31/2010	NA	4/1/2012
MW-7	cobalt	10/2/2020	**8.5**	3.6	3.300	**3.6**	3/31/2010	NA	4/1/2012
MW-7	cobalt	4/12/2021	**2.7**	3.6	3.244	**3.6**	3/31/2010	NA	4/1/2012
MW-7	cobalt	10/26/2021	**8.6**	3.6	3.437	**3.6**	3/31/2010	NA	4/1/2012
MW-7	cobalt	4/4/2022	**1.1**	3.6	0.644	**3.6**	3/31/2010	NA	4/1/2012
MW-7	cobalt	10/7/2022	**9.4**	3.6	0.055	**3.6**	3/31/2010	NA	4/1/2012
MW-7	cobalt	4/19/2023	**0.7**	3.6	0.000	**3.6**	3/31/2010	NA	4/1/2012
MW-7	cobalt	10/25/2023	**1.9**	3.6	0.000	**3.6**	3/31/2010	NA	4/1/2012
MW-7	cobalt	4/17/2024	**1.0**	3.6	0.000	**3.6**	3/31/2010	NA	4/1/2012
MW-7	cobalt	10/17/2024	**2.8**	3.6	0.484	**3.6**	3/31/2010	NA	4/1/2012

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Monitoring Well	Compound	Sample Date	Each Result (ug/L)	Prediction Limit (ug/L)	95% LCL (ug/L)	GWPS Limit (ug/L)	SSI Initial Exceedance	Resamples Due	5th Background Sample
MW-7	Nickel	3/31/2010	**21.3**	15.6	---	100	3/31/2010	NA	4/1/2012
MW-7	Nickel	9/16/2010	**8.6**	15.6	---	100	3/31/2010	NA	4/1/2012
MW-7	Nickel	4/11/2011	**20.4**	15.6	---	100	3/31/2010	NA	4/1/2012
MW-7	Nickel	9/26/2011	**24.2**	15.6	12.669	100	3/31/2010	NA	4/1/2012
MW-7	Nickel	4/1/2012	**32.6**	15.6	12.817	100	3/31/2010	NA	4/1/2012
MW-7	Nickel	8/23/2012	**26.8**	15.6	21.561	100	3/31/2010	NA	4/1/2012
MW-7	Nickel	4/13/2013	**26.9**	15.6	24.555	100	3/31/2010	NA	4/1/2012
MW-7	Nickel	9/14/2013	**19.6**	15.6	21.863	100	3/31/2010	NA	4/1/2012
MW-7	Nickel	4/11/2014	**21.8**	15.6	20.603	100	3/31/2010	NA	4/1/2012
MW-7	Nickel	9/27/2014	**25.3**	15.6	20.534	100	3/31/2010	NA	4/1/2012
MW-7	Nickel	3/16/2015	**26.4**	15.6	20.557	100	3/31/2010	NA	4/1/2012
MW-7	Nickel	9/28/2015	**32.9**	15.6	22.586	100	3/31/2010	NA	4/1/2012
MW-7	Nickel	3/14/2016	**34.4**	15.6	25.795	100	3/31/2010	NA	4/1/2012
MW-7	Nickel	9/3/2016	**30.0**	15.6	27.871	100	3/31/2010	NA	4/1/2012
MW-7	Nickel	4/10/2017	**56.3**	15.6	27.945	100	3/31/2010	NA	4/1/2012
MW-7	Nickel	9/1/2017	**64.8**	15.6	31.802	100	3/31/2010	NA	4/1/2012
MW-7	Nickel	4/23/2018	**68.7**	15.6	39.863	100	3/31/2010	NA	4/1/2012
MW-7	Nickel	9/14/2018	**65.6**	15.6	59.254	100	3/31/2010	NA	4/1/2012
MW-7	Nickel	4/15/2019	**57.2**	15.6	59.847	100	3/31/2010	NA	4/1/2012
MW-7	Nickel	9/17/2019	**94.9**	15.6	57.505	100	3/31/2010	NA	4/1/2012
MW-7	Nickel	4/8/2020	**73.4**	15.6	58.775	100	3/31/2010	NA	4/1/2012
MW-7	Nickel	10/2/2020	**77.6**	15.6	62.361	100	3/31/2010	NA	4/1/2012
MW-7	Nickel	4/12/2021	**65.5**	15.6	67.090	100	3/31/2010	NA	4/1/2012
MW-7	Nickel	10/26/2021	**57.5**	15.6	60.806	100	3/31/2010	NA	4/1/2012
MW-7	Nickel	4/4/2022	**39.1**	15.6	40.921	100	3/31/2010	NA	4/1/2012
MW-7	Nickel	10/7/2022	**68.3**	15.6	42.126	100	3/31/2010	NA	4/1/2012
MW-7	Nickel	4/19/2023	**14.2**	15.6	16.919	100	3/31/2010	NA	4/1/2012
MW-7	Nickel	10/25/2023	**48.8**	15.6	15.272	100	3/31/2010	NA	4/1/2012
MW-7	Nickel	4/17/2024	**9.1**	15.6	1.390	100	3/31/2010	NA	4/1/2012
MW-7	Nickel	10/17/2024	**49.6**	15.6	5.084	100	3/31/2010	NA	4/1/2012

Bold Result *= A value that exceeds the GWPS.*
Bold GWPS *= A Site Specific GWPS that is equal to the Prediction Limit. All other GWPS are IAC 567-137 Statewide Standards for Protected Groundwater.*

Table 7	KEY:	SSI	SSL LCL>GWPS

Summary of Ongoing & Newly Identified SSI
Annual Water Quality Report
Ida County Sanitary Landfill
Permit No. 47-SDP-01-76C

Note: The absence of shading indicates that the condition does not exist.

Monitoring Well	Compound	Sample Date	Each Result (ug/L)	Prediction Limit (ug/L)	95% LCL (ug/L)	GWPS Limit (ug/L)	SSI Initial Exceedance	Resamples Due	5th Background Sample
PZ-11	1,1-dichloroethane	3/31/2010	<1	1	---	100	4/19/2023	NA	4/1/2012
PZ-11	1,1-dichloroethane	9/16/2010	<1	1	---	100	4/19/2023	NA	4/1/2012
PZ-11	1,1-dichloroethane	4/11/2011	<1	1	---	100	4/19/2023	NA	4/1/2012
PZ-11	1,1-dichloroethane	9/26/2011	<1	1	0.500	100	4/19/2023	NA	4/1/2012
PZ-11	1,1-dichloroethane	4/1/2012	<1	1	0.500	100	4/19/2023	NA	4/1/2012
PZ-11	1,1-dichloroethane	8/23/2012	<1	1	0.500	100	4/19/2023	NA	4/1/2012
PZ-11	1,1-dichloroethane	4/13/2013	<1	1	0.500	100	4/19/2023	NA	4/1/2012
PZ-11	1,1-dichloroethane	9/14/2013	<1	1	0.500	100	4/19/2023	NA	4/1/2012
PZ-11	1,1-dichloroethane	4/11/2014	<1	1	0.500	100	4/19/2023	NA	4/1/2012
PZ-11	1,1-dichloroethane	9/27/2014	<1	1	0.500	100	4/19/2023	NA	4/1/2012
PZ-11	1,1-dichloroethane	3/16/2015	<1	1	0.500	100	4/19/2023	NA	4/1/2012
PZ-11	1,1-dichloroethane	9/28/2015	<1	1	0.500	100	4/19/2023	NA	4/1/2012
PZ-11	1,1-dichloroethane	3/14/2016	<1	1	0.500	100	4/19/2023	NA	4/1/2012
PZ-11	1,1-dichloroethane	9/3/2016	<1	1	0.500	100	4/19/2023	NA	4/1/2012
PZ-11	1,1-dichloroethane	4/10/2017	<1	1	0.500	100	4/19/2023	NA	4/1/2012
PZ-11	1,1-dichloroethane	9/1/2017	<1	1	0.500	100	4/19/2023	NA	4/1/2012
PZ-11	1,1-dichloroethane	4/23/2018	<1	1	0.500	100	4/19/2023	NA	4/1/2012
PZ-11	1,1-dichloroethane	9/14/2018	<1	1	0.500	100	4/19/2023	NA	4/1/2012
PZ-11	1,1-dichloroethane	4/15/2019	<1	1	0.500	100	4/19/2023	NA	4/1/2012
PZ-11	1,1-dichloroethane	9/17/2019	<1	1	0.500	100	4/19/2023	NA	4/1/2012
PZ-11	1,1-dichloroethane	4/8/2020	<1	1	0.500	100	4/19/2023	NA	4/1/2012
PZ-11	1,1-dichloroethane	10/2/2020	<1	1	0.500	100	4/19/2023	NA	4/1/2012
PZ-11	1,1-dichloroethane	4/12/2021	<1	1	0.500	100	4/19/2023	NA	4/1/2012
PZ-11	1,1-dichloroethane	10/26/2021	<1	1	0.500	100	4/19/2023	NA	4/1/2012
PZ-11	1,1-dichloroethane	4/4/2022	<1	1	0.500	100	4/19/2023	NA	4/1/2012
PZ-11	1,1-dichloroethane	10/7/2022	<1	1	0.500	100	4/19/2023	NA	4/1/2012
PZ-11	1,1-dichloroethane	4/19/2023	**1.2**	1	0.263	100	4/19/2023	NA	4/1/2012
PZ-11	1,1-dichloroethane	10/25/2023	**1.2**	1	0.375	100	4/19/2023	NA	4/1/2012
PZ-11	1,1-dichloroethane	4/17/2024	**1.3**	1	0.615	100	4/19/2023	NA	4/1/2012
PZ-11	1,1-dichloroethane	10/17/2024	**1.0**	1	1.027	100	4/19/2023	NA	4/1/2012

	KEY:	SSI	SSL LCL>GWPS

Table 7
Summary of Ongoing & Newly Identified SSI
Annual Water Quality Report
Ida County Sanitary Landfill
Permit No. 47-SDP-01-76C

Note: The absence of shading indicates that the condition does not exist.

Monitoring Well	Compound	Sample Date	Each Result (ug/L)	Prediction Limit (ug/L)	95% LCL (ug/L)	GWPS Limit (ug/L)	SSI Initial Exceedance	Resamples Due	5th Background Sample
PZ-11	chloroethane	3/31/2010	<1	1	---	2800	10/25/2023	NA	4/1/2012
PZ-11	chloroethane	9/16/2010	<1	1	---	2800	10/25/2023	NA	4/1/2012
PZ-11	chloroethane	4/11/2011	<1	1	---	2800	10/25/2023	NA	4/1/2012
PZ-11	chloroethane	9/26/2011	<1	1	0.500	2800	10/25/2023	NA	4/1/2012
PZ-11	chloroethane	4/1/2012	<1	1	0.500	2800	10/25/2023	NA	4/1/2012
PZ-11	chloroethane	8/23/2012	<1	1	0.500	2800	10/25/2023	NA	4/1/2012
PZ-11	chloroethane	4/13/2013	<1	1	0.500	2800	10/25/2023	NA	4/1/2012
PZ-11	chloroethane	9/14/2013	<1	1	0.500	2800	10/25/2023	NA	4/1/2012
PZ-11	chloroethane	4/11/2014	<1	1	0.500	2800	10/25/2023	NA	4/1/2012
PZ-11	chloroethane	9/27/2014	<1	1	0.500	2800	10/25/2023	NA	4/1/2012
PZ-11	chloroethane	3/16/2015	<1	1	0.500	2800	10/25/2023	NA	4/1/2012
PZ-11	chloroethane	9/28/2015	<1	1	0.500	2800	10/25/2023	NA	4/1/2012
PZ-11	chloroethane	3/14/2016	<1	1	0.500	2800	10/25/2023	NA	4/1/2012
PZ-11	chloroethane	9/3/2016	<1	1	0.500	2800	10/25/2023	NA	4/1/2012
PZ-11	chloroethane	4/10/2017	<1	1	0.500	2800	10/25/2023	NA	4/1/2012
PZ-11	chloroethane	9/1/2017	<1	1	0.500	2800	10/25/2023	NA	4/1/2012
PZ-11	chloroethane	4/23/2018	<1	1	0.500	2800	10/25/2023	NA	4/1/2012
PZ-11	chloroethane	9/14/2018	<1	1	0.500	2800	10/25/2023	NA	4/1/2012
PZ-11	chloroethane	4/15/2019	<1	1	0.500	2800	10/25/2023	NA	4/1/2012
PZ-11	chloroethane	9/17/2019	<1	1	0.500	2800	10/25/2023	NA	4/1/2012
PZ-11	chloroethane	4/8/2020	<1	1	0.500	2800	10/25/2023	NA	4/1/2012
PZ-11	chloroethane	10/2/2020	<1	1	0.500	2800	10/25/2023	NA	4/1/2012
PZ-11	chloroethane	4/12/2021	<1	1	0.500	2800	10/25/2023	NA	4/1/2012
PZ-11	chloroethane	10/26/2021	<1	1	0.500	2800	10/25/2023	NA	4/1/2012
PZ-11	chloroethane	4/4/2022	<1	1	0.500	2800	10/25/2023	NA	4/1/2012
PZ-11	chloroethane	10/7/2022	<1	1	0.500	2800	10/25/2023	NA	4/1/2012
PZ-11	chloroethane	4/19/2023	<1	1	0.500	2800	10/25/2023	NA	4/1/2012
PZ-11	chloroethane	10/25/2023	**1.6**	1	0.128	2800	10/25/2023	NA	4/1/2012
PZ-11	chloroethane	4/17/2024	<1	1	0.128	2800	10/25/2023	NA	4/1/2012
PZ-11	chloroethane	10/17/2024	<1	1	0.128	2800	10/25/2023	NA	4/1/2012

Table 7	KEY:	SSI	SSL LCL>GWPS

Table 7
Summary of Ongoing & Newly Identified SSI
Annual Water Quality Report
Ida County Sanitary Landfill
Permit No. 47-SDP-01-76C

KEY: SSI | SSL LCL>GWPS

Note: The absence of shading indicates that the condition does not exist.

Monitoring Well	Compound	Sample Date	Each Result (ug/L)	Prediction Limit (ug/L)	95% LCL (ug/L)	GWPS Limit (ug/L)	SSI Initial Exceedance	Resamples Due	5th Background Sample
PZ-11	Nickel	3/31/2010	**26.1**	15.6	---	100	3/31/2010	NA	4/1/2012
PZ-11	Nickel	9/16/2010	**23.0**	15.6	---	100	3/31/2010	NA	4/1/2012
PZ-11	Nickel	4/11/2011	**23.2**	15.6	---	100	3/31/2010	NA	4/1/2012
PZ-11	Nickel	9/26/2011	**31.3**	15.6	22.550	100	3/31/2010	NA	4/1/2012
PZ-11	Nickel	4/1/2012	**40.9**	15.6	22.267	100	3/31/2010	NA	4/1/2012
PZ-11	Nickel	8/23/2012	**17.7**	15.6	19.527	100	3/31/2010	NA	4/1/2012
PZ-11	Nickel	4/13/2013	**20.5**	15.6	18.394	100	3/31/2010	NA	4/1/2012
PZ-11	Nickel	9/14/2013	**21.0**	15.6	15.774	100	3/31/2010	NA	4/1/2012
PZ-11	Nickel	4/11/2014	**42.7**	15.6	15.451	100	3/31/2010	NA	4/1/2012
PZ-11	Nickel	9/27/2014	**32.1**	15.6	19.944	100	3/31/2010	NA	4/1/2012
PZ-11	Nickel	3/16/2015	**16.7**	15.6	18.007	100	3/31/2010	NA	4/1/2012
PZ-11	Nickel	9/28/2015	<4	15.6	7.956	100	3/31/2010	NA	4/1/2012
PZ-11	Nickel	3/14/2016	<4	15.6	0.747	100	3/31/2010	NA	4/1/2012
PZ-11	Nickel	9/3/2016	<4	15.6	0.000	100	3/31/2010	NA	4/1/2012
PZ-11	Nickel	4/10/2017	**12.9**	15.6	0.005	100	3/31/2010	NA	4/1/2012
PZ-11	Nickel	9/1/2017	**16.5**	15.6	1.874	100	3/31/2010	NA	4/1/2012
PZ-11	Nickel	11/15/2017	<4	15.6	1.874	100	3/31/2010	NA	4/1/2012
PZ-11	Nickel	4/23/2018	<4	15.6	1.874	100	3/31/2010	NA	4/1/2012
PZ-11	Nickel	9/14/2018	**8.2**	15.6	1.226	100	3/31/2010	NA	4/1/2012
PZ-11	Nickel	4/15/2019	<4	15.6	0.865	100	3/31/2010	NA	4/1/2012
PZ-11	Nickel	9/17/2019	<4	15.6	0.865	100	3/31/2010	NA	4/1/2012
PZ-11	Nickel	4/8/2020	<4	15.6	0.865	100	3/31/2010	NA	4/1/2012
PZ-11	Nickel	10/2/2020	**4.4**	15.6	1.561	100	3/31/2010	NA	4/1/2012
PZ-11	Nickel	4/12/2021	**10.6**	15.6	1.233	100	3/31/2010	NA	4/1/2012
PZ-11	Nickel	10/26/2021	**20.9**	15.6	2.170	100	3/31/2010	NA	4/1/2012
PZ-11	Nickel	4/4/2022	**14.5**	15.6	4.458	100	3/31/2010	NA	4/1/2012
PZ-11	Nickel	10/7/2022	**22.7**	15.6	10.563	100	3/31/2010	NA	4/1/2012
PZ-11	Nickel	4/19/2023	**10.9**	15.6	10.775	100	3/31/2010	NA	4/1/2012
PZ-11	Nickel	10/25/2023	**10.5**	15.6	7.992	100	3/31/2010	NA	4/1/2012
PZ-11	Nickel	4/17/2024	**8.8**	15.6	5.718	100	3/31/2010	NA	4/1/2012
PZ-11	Nickel	10/17/2024	**31.1**	15.6	2.908	100	3/31/2010	NA	4/1/2012

Bold Result *= A value that exceeds the GWPS.*
Bold GWPS *= A Site Specific GWPS that is equal to the Prediction Limit. All other GWPS are IAC 567-137 Statewide Standards for Protected Groundwater.*

Table 8 - Summary of Ongoing of Identified SSL

Table 8
Summary of Ongoing & Newly Identified SSL
Annual Water Quality Report
Ida County Sanitary Landfill
Permit No. 47-SDP-01-76C

KEY:	SSI	SSL UCL>GWPS

Note: The absence of shading indicates that the condition does not exist.

Monitoring Well	Compound	Sample Date	Each Result (ug/L)	95% UCL (ug/L)	GWPS Limit (ug/L)	SSL Initial Exceedance	Compliance Date 1st Occurrence	Compliance Date Most Recent	Compliance Date Duration (years)
MW-7	vinyl chloride	3/31/2010	**1.3**	---	2	9/14/2013	4/8/2020	NA	NA
MW-7	vinyl chloride	9/16/2010	<1	---	2	9/14/2013	4/8/2020	NA	NA
MW-7	vinyl chloride	4/11/2011	<1	---	2	9/14/2013	4/8/2020	NA	NA
MW-7	vinyl chloride	9/26/2011	<1	1.046	2	9/14/2013	4/8/2020	NA	NA
MW-7	vinyl chloride	4/1/2012	**2.4**	1.800	2	9/14/2013	4/8/2020	NA	NA
MW-7	vinyl chloride	8/23/2012	**6.2**	4.727	2	9/14/2013	4/8/2020	NA	NA
MW-7	vinyl chloride	4/13/2013	**3.6**	5.242	2	9/14/2013	4/8/2020	NA	NA
MW-7	vinyl chloride	9/14/2013	**6.4**	6.355	2	9/14/2013	4/8/2020	NA	NA
MW-7	vinyl chloride	4/11/2014	**4.4**	6.336	2	9/14/2013	4/8/2020	NA	NA
MW-7	vinyl chloride	9/27/2014	**3.1**	5.633	2	9/14/2013	4/8/2020	NA	NA
MW-7	vinyl chloride	3/16/2015	<1	5.741	2	9/14/2013	4/8/2020	NA	NA
MW-7	vinyl chloride	9/28/2015	**3.0**	4.160	2	9/14/2013	4/8/2020	NA	NA
MW-7	vinyl chloride	3/14/2016	**1.2**	3.078	2	9/14/2013	4/8/2020	NA	NA
MW-7	vinyl chloride	9/3/2016	<1	2.322	2	9/14/2013	4/8/2020	NA	NA
MW-7	vinyl chloride	4/10/2017	**1.7**	2.514	2	9/14/2013	4/8/2020	NA	NA
MW-7	vinyl chloride	9/1/2017	**3.2**	2.641	2	9/14/2013	4/8/2020	NA	NA
MW-7	vinyl chloride	4/23/2018	**2.1**	2.840	2	9/14/2013	4/8/2020	NA	NA
MW-7	vinyl chloride	9/14/2018	**2.1**	2.833	2	9/14/2013	4/8/2020	NA	NA
MW-7	vinyl chloride	4/15/2019	**1.1**	2.868	2	9/14/2013	4/8/2020	NA	NA
MW-7	vinyl chloride	9/17/2019	**1.0**	2.101	2	9/14/2013	4/8/2020	NA	NA
MW-7	vinyl chloride	4/8/2020	**1.7**	1.924	2	9/14/2013	4/8/2020	4/8/2020	0
MW-7	vinyl chloride	10/2/2020	**2.5**	2.172	2	9/14/2013	4/8/2020	10/2/2020	0.5
MW-7	vinyl chloride	4/12/2021	<1	2.178	2	9/14/2013	4/8/2020	4/12/2021	1
MW-7	vinyl chloride	10/26/2021	<1	2.149	2	9/14/2013	4/8/2020	10/26/2021	1.5
MW-7	vinyl chloride	4/4/2022	<1	2.176	2	9/14/2013	4/8/2020	4/4/2022	2
MW-7	vinyl chloride	10/7/2022	<1	0.500	2	9/14/2013	4/8/2020	10/7/2022	2.5
MW-7	vinyl chloride	4/19/2023	<1	0.500	2	9/14/2013	4/8/2020	4/19/2023	3
MW-7	vinyl chloride	10/25/2023	<1	0.500	2	9/14/2013	4/8/2020	10/25/2023	3.5
MW-7	vinyl chloride	4/17/2024	<1	0.500	2	9/14/2013	4/8/2020	10/25/2023	3.5
MW-7	vinyl chloride	10/17/2024	<1	0.500	2	9/14/2013	4/8/2020	10/25/2023	3.5

Table 9 – Analytical Data Summary

Table 9

Analytical Data Summary for MW-10

Constituents	Units	3/31/2010	9/16/2010	4/11/2011	9/26/2011	4/1/2012	8/23/2012	4/13/2013	9/14/2013	4/11/2014
1,1,1,2-tetrachloroethane	ug/L	<1	<1	<1	<1	<1	<1	<1	<1	<1
1,1,1-trichloroethane	ug/L	<1	<1	<1	<1	<1	<1	<1	<1	<1
1,1,2,2-tetrachloroethane	ug/L	<1	<1	<1	<1	<1	<1	<1	<1	<1
1,1,2-trichloroethane	ug/L	<1	<1	<1	<1	<1	<1	<1	<1	<1
1,1-dichloroethane	ug/L	<1	<1	<1	<1	<1	<1	<1	<1	<1
1,1-dichloroethylene	ug/L	<1	<1	<1	<1	<1	<1	<1	<1	<1
1,2,3-trichloropropane	ug/L	<1	<1	<1	<1	<1	<1	<1	<1	<1
1,2-dibromo-3-chloropropane	ug/L	<1	<1	<1	<1	<1	<1	<1	<1	<1
1,2-dibromoethane	ug/L	<1	<1	<1	<1	<1	<1	<1	<1	<1
1,2-dichlorobenzene	ug/L	<1	<1	<1	<1	<1	<1	<1	<1	<1
1,2-dichloroethane	ug/L	<1	<1	<1	<1	<1	<1	<1	<1	<1
1,2-dichloropropane	ug/L	<1	<1	<1	<1	<1	<1	<1	<1	<1
1,4-dichlorobenzene	ug/L	<1	<1	<1	<1	<1	<1	<1	<1	<1
2-butanone (mek)	ug/L	<5	<5	<5	<5	<5	<5	<5	<5	<5
2-hexanone (mbk)	ug/L	<5	<5	<5	<5	<5	<5	<5	<5	<5
4-methyl-2-pentanone (mibk)	ug/L	<5	<5	<5	<5	<5	<5	<5	<5	<5
Acetone	ug/L	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0
Acrylonitrile	ug/L	<5	<5	<5	<5	<5	<5	<5	<5	<5
Antimony, total	ug/L	<2	<2	<2	<2	<2	<2	<2	<2	<2
Arsenic, total	ug/L	<4.0	<4.0	<4.0	<4.0	5.7	8.3	<4.0	<4.0	<4.0
Barium, total	ug/L	88.6	92.2	102.0	134.0	135.0	97.1	129.0	109.0	120.0
Benzene	ug/L	<1	<1	<1	<1	<1	<1	<1	<1	<1
Beryllium, total	ug/L	<4	<4	<4	<4	<4	<4	<4	<4	<4
Bromochloromethane	ug/L	<1	<1	<1	<1	<1	<1	<1	<1	<1
Bromodichloromethane	ug/L	<1	<1	<1	<1	<1	<1	<1	<1	<1
Bromoform	ug/L	<1	<1	<1	<1	<1	<1	<1	<1	<1
Bromomethane	ug/L	<1	<1	<1	<1	<1	<1	<1	<1	<1
Cadmium, total	ug/L	<1.0	<1.0	<.8	<.8	<.8	<.8	<.8	<.8	<.8
Carbon disulfide	ug/L	<1	<1	<1	<1	<1	<1	<1	<1	<1
Carbon tetrachloride	ug/L	<1	<1	<1	<1	<1	<1	<1	<1	<1
Chlorobenzene	ug/L	<1	<1	<1	<1	<1	<1	<1	<1	<1
Chloroethane	ug/L	<1	<1	<1	<1	<1	<1	<1	<1	<1
Chloroform	ug/L	<1	<1	<1	<1	<1	<1	<1	<1	<1
Chloromethane	ug/L	<1	<1	<1	<1	<1	<1	<1	<1	<1
Chromium, total	ug/L	<10.0	<10.0	<8.0	<8.0	<8.0	8.1	<8.0	<8.0	<8.0
Cis-1,2-dichloroethylene	ug/L	<1	<1	<1	<1	<1	<1	<1	<1	<1
Cis-1,3-dichloropropene	ug/L	<1	<1	<1	<1	<1	<1	<1	<1	<1
Cobalt, total	ug/L	<4.0	<4.0	<4.0	<4.0	<4.0	<4.0	<4.0	<4.0	<4.0
Copper, total	ug/L	<4.0	<4.0	<4.0	<4.0	<4.0	<4.0	<4.0	<4.0	<4.0
Dibromochloromethane	ug/L	<1	<1	<1	<1	<1	<1	<1	<1	<1
Dibromomethane	ug/L	<1	<1	<1	<1	<1	<1	<1	<1	<1
Ethylbenzene	ug/L	<1	<1	<1	<1	<1	<1	<1	<1	<1
Lead, total	ug/L	<4	<4	<4	<4	<4	<4	<4	<4	<4
Methyl iodide	ug/L	<1	<1	<1	<1	<1	<1	<1	<1	<1
Methylene chloride	ug/L	<5	<5	<5	<5	<5	<5	<5	<5	<5
Nickel, total	ug/L	4.9	5.3	9.1	6.3	8.7	6.3	7.2	<4.0	<4.0
Selenium, total	ug/L	<4.0	<4.0	4.7	<4.0	<4.0	<4.0	<4.0	<4.0	<4.0
Silver, total	ug/L	<4	<4	<4	<4	<4	<4	<4	<4	<4
Solids, total suspended	mg/L									
Styrene	ug/L	<1	<1	<1	<1	<1	<1	<1	<1	<1
Tetrachloroethylene	ug/L	<1	<1	<1	<1	<1	<1	<1	<1	<1
Thallium, total	ug/L	<4	<4	<4	<4	<2	<2	<2	<4	<4
Toluene	ug/L	<1	<1	<1	<1	<1	<1	<1	<1	<1
Trans-1,2-dichloroethylene	ug/L	<1	<1	<1	<1	<1	<1	<1	<1	<1
Trans-1,3-dichloropropene	ug/L	<1	<1	<1	<1	<1	<1	<1	<1	<1
Trans-1,4-dichloro-2-butene	ug/L	<5	<5	<5	<5	<5	<5	<5	<5	<5
Trichloroethylene	ug/L	<1	<1	<1	<1	<1	<1	<1	<1	<1
Trichlorofluoromethane	ug/L	<1	<1	<1	<1	<1	<1	<1	<1	<1
Vanadium, total	ug/L	11.3	<10.0	25.8	<20.0	<20.0	<20.0	<20.0	<20.0	<20.0
Vinyl acetate	ug/L	<5	<5	<5	<5	<5	<5	<5	<5	<5
Vinyl chloride	ug/L	<1	<1	<1	<1	<1	<1	<1	<1	<1
Xylenes, total	ug/L	<2	<2	<2	<2	<2	<2	<2	<2	<2
Zinc, total	ug/L	<10.0	16.0	<8.0	<8.0	<8.0	18.2	<8.0	<20.0	<20.0

* - The displayed value is the arithmetic mean of multiple database matches.

Table 9

Analytical Data Summary for MW-10

Constituents	9/27/2014	3/16/2015	9/28/2015	3/14/2016	9/3/2016	9/29/2016	4/10/2017	9/1/2017	11/15/2017
1,1,1,2-tetrachloroethane	<1	<1	<1	<1	<1		<1	<1	
1,1,1-trichloroethane	<1	<1	<1	<1	<1		<1	<1	
1,1,2,2-tetrachloroethane	<1	<1	<1	<1	<1		<1	<1	
1,1,2-trichloroethane	<1	<1	<1	<1	<1		<1	<1	
1,1-dichloroethane	<1	<1	<1	<1	<1		<1	<1	
1,1-dichloroethylene	<1	<1	<1	<1	<1		<1	<1	
1,2,3-trichloropropane	<1	<1	<1	<1	<1		<1	<1	
1,2-dibromo-3-chloropropane	<1	<1	<1	<1	<1		<1	<1	
1,2-dibromoethane	<1	<1	<1	<1	<1		<1	<1	
1,2-dichlorobenzene	<1	<1	<1	<1	<1		<1	<1	
1,2-dichloroethane	<1	<1	<1	<1	<1		<1	<1	
1,2-dichloropropane	<1	<1	<1	<1	<1		<1	<1	
1,4-dichlorobenzene	<1	<1	<1	<1	<1		<1	<1	
2-butanone (mek)	<5	<5	<5	<5	<5		<5	<5	
2-hexanone (mbk)	<5	<5	<5	<5	<5		<5	<5	
4-methyl-2-pentanone (mibk)	<5	<5	<5	<5	<5		<5	<5	
Acetone	<10.0	<10.0	<10.0	<10.0	<10.0		<10.0	18.5	<10.0
Acrylonitrile	<5	<5	<5	<5	<5		<5	<5	
Antimony, total	<2	<2	<2	<2	<2		<2	<2	
Arsenic, total	<4.0	<4.0	<4.0	<4.0	<4.0		<4.0	<4.0	
Barium, total	122.0	119.0	106.0	112.0	116.0		106.0	105.0	
Benzene	<1	<1	<1	<1	<1		<1	<1	
Beryllium, total	<4	<4	<4	<4	<4		<4	<4	
Bromochloromethane	<1	<1	<1	<1	<1		<1	<1	
Bromodichloromethane	<1	<1	<1	<1	<1		<1	<1	
Bromoform	<1	<1	<1	<1	<1		<1	<1	
Bromomethane	<1	<1	<1	<1	<1		<1	<1	
Cadmium, total	<.8	<.8	<.8	<.8	.9	<.8	<.8	<.8	
Carbon disulfide	<1	<1	<1	<1	<1		<1	<1	
Carbon tetrachloride	<1	<1	<1	<1	<1		<1	<1	
Chlorobenzene	<1	<1	<1	<1	<1		<1	<1	
Chloroethane	<1	<1	<1	<1	<1		<1	<1	
Chloroform	<1	<1	<1	<1	<1		<1	<1	
Chloromethane	<1	<1	<1	<1	<1		<1	<1	
Chromium, total	<8.0	<8.0	<8.0	<8.0	<8.0		<8.0	<8.0	
Cis-1,2-dichloroethylene	<1	<1	<1	<1	<1		<1	<1	
Cis-1,3-dichloropropene	<1	<1	<1	<1	<1		<1	<1	
Cobalt, total	<.8	<.8	<.8	<.8	<.8		<.8	<.8	
Copper, total	<4.0	<4.0	<4.0	<4.0	25.1	<4.0	<4.0	<4.0	
Dibromochloromethane	<1	<1	<1	<1	<1		<1	<1	
Dibromomethane	<1	<1	<1	<1	<1		<1	<1	
Ethylbenzene	<1	<1	<1	<1	<1		<1	<1	
Lead, total	<4	<4	<4	<4	<4		<4	<4	
Methyl iodide	<1	<1	<1	<1	<1		<1	<1	
Methylene chloride	<5	<5	<5	<5	<5		<5	<5	
Nickel, total	<4.0	<4.0	<4.0	<4.0	<4.0		<4.0	<4.0	
Selenium, total	<4.0	<4.0	<4.0	<4.0	<4.0		<4.0	<4.0	
Silver, total	<4	<4	<4	<4	<4		<4	<4	
Solids, total suspended	27	8	4	<2	6		55	<2	
Styrene	<1	<1	<1	<1	<1		<1	<1	
Tetrachloroethylene	<1	<1	<1	<1	<1		<1	<1	
Thallium, total	<4	<4	<1	<4	<4		<4	<4	
Toluene	<1	<1	<1	<1	<1		<1	<1	
Trans-1,2-dichloroethylene	<1	<1	<1	<1	<1		<1	<1	
Trans-1,3-dichloropropene	<1	<1	<1	<1	<1		<1	<1	
Trans-1,4-dichloro-2-butene	<5	<5	<5	<5	<5		<5	<5	
Trichloroethylene	<1	<1	<1	<1	<1		<1	<1	
Trichlorofluoromethane	<1	<1	<1	<1	<1		<1	<1	
Vanadium, total	<20.0	<20.0	<20.0	<20.0	<20.0		<20.0	<20.0	
Vinyl acetate	<5	<5	<5	<5	<5		<5	<5	
Vinyl chloride	<1	<1	<1	<1	<1		<1	<1	
Xylenes, total	<2	<2	<2	<2	<2		<2	<2	
Zinc, total	<8.0	<8.0	<8.0	<20.0	25.2	12.1	<8.0	<8.0	

* - The displayed value is the arithmetic mean of multiple database matches.

Table 9

Analytical Data Summary for MW-10

Constituents	4/23/2018	9/14/2018	4/15/2019	9/17/2019	4/8/2020	10/2/2020	4/12/2021	10/26/2021	4/4/2022
1,1,1,2-tetrachloroethane	<1	<1	<1	<1	<1	<1	<1	<1	<1
1,1,1-trichloroethane	<1	<1	<1	<1	<1	<1	<1	<1	<1
1,1,2,2-tetrachloroethane	<1	<1	<1	<1	<1	<1	<1	<1	<1
1,1,2-trichloroethane	<1	<1	<1	<1	<1	<1	<1	<1	<1
1,1-dichloroethane	<1	<1	<1	<1	<1	<1	<1	<1	<1
1,1-dichloroethylene	<1	<1	<1	<1	<1	<1	<1	<1	<1
1,2,3-trichloropropane	<1	<1	<1	<1	<1	<1	<1	<1	<1
1,2-dibromo-3-chloropropane	<1	<1	<1	<1	<5	<5	<5	<5	<5
1,2-dibromoethane	<1	<1	<1	<1	<1	<1	<1	<1	<1
1,2-dichlorobenzene	<1	<1	<1	<1	<1	<1	<1	<1	<1
1,2-dichloroethane	<1	<1	<1	<1	<1	<1	<1	<1	<1
1,2-dichloropropane	<1	<1	<1	<1	<1	<1	<1	<1	<1
1,4-dichlorobenzene	<1	<1	<1	<1	<1	<1	<1	<1	<1
2-butanone (mek)	<5	<5	<5	<5	<5	<5	<5	<5	<10
2-hexanone (mbk)	<5	<5	<5	<5	<5	<5	<5	<5	<5
4-methyl-2-pentanone (mibk)	<5	<5	<5	<5	<5	<5	<5	<5	<5
Acetone	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0
Acrylonitrile	<5	<5	<5	<5	<5	<5	<5	<5	<5
Antimony, total	<2	<2	<2	<2	<2	<2	<2	<2	<2
Arsenic, total	<4.0	<4.0	<4.0	<4.0	<4.0	<4.0	<4.0	<4.0	<4.0
Barium, total	116.0	110.0	113.0	115.0	110.0	111.0	121.0	109.0	110.0
Benzene	<1	<1	<1	<1	<1	<1	<1	<1	<1
Beryllium, total	<4	<4	<4	<4	<4	<4	<4	<4	<4
Bromochloromethane	<1	<1	<1	<1	<1	<1	<1	<1	<1
Bromodichloromethane	<1	<1	<1	<1	<1	<1	<1	<1	<1
Bromoform	<1	<1	<1	<1	<1	<1	<1	<1	<1
Bromomethane	<1	<1	<1	<1	<1	<1	<1	<1	<1
Cadmium, total	<.8	<.8	<.8	<.8	<.8	<.8	<.8	<.8	<.8
Carbon disulfide	<1	<1	<1	<1	<1	<1	<1	<1	<1
Carbon tetrachloride	<1	<1	<1	<1	<1	<1	<1	<1	<1
Chlorobenzene	<1	<1	<1	<1	<1	<1	<1	<1	<1
Chloroethane	<1	<1	<1	<1	<1	<1	<1	<1	<1
Chloroform	<1	<1	<1	<1	<1	<1	<1	<1	<1
Chloromethane	<1	<1	<1	<1	<1	<1	<1	<1	<1
Chromium, total	<8.0	<8.0	<8.0	<8.0	<8.0	<8.0	<8.0	<8.0	<8.0
Cis-1,2-dichloroethylene	<1	<1	<1	<1	<1	<1	<1	<1	<1
Cis-1,3-dichloropropene	<1	<1	<1	<1	<1	<1	<1	<1	<1
Cobalt, total	<.8	<.8	<.8	<.8	<.4	<.4	<.4	<.4	<.4
Copper, total	<4.0	<4.0	<4.0	<4.0	<4.0	<4.0	<4.0	<4.0	<4.0
Dibromochloromethane	<1	<1	<1	<1	<1	<1	<1	<1	<1
Dibromomethane	<1	<1	<1	<1	<1	<1	<1	<1	<1
Ethylbenzene	<1	<1	<1	<1	<1	<1	<1	<1	<1
Lead, total	<4	<4	<4	<4	<4	<4	<4	<4	<4
Methyl iodide	<1	<1	<1	<1	<1	<1	<1	<1	<1
Methylene chloride	<5	<5	<5	<5	<5	<5	<5	<5	<5
Nickel, total	<20.0	<4.0	<4.0	<4.0	<4.0	<4.0	<4.0	<4.0	<4.0
Selenium, total	<4.0	<4.0	<4.0	<4.0	<4.0	<4.0	<4.0	<4.0	<4.0
Silver, total	<4	<4	<4	<4	<4	<4	<4	<4	<4
Solids, total suspended	<2	<2	<2	3	4	6			
Styrene	<1	<1	<1	<1	<1	<1	<1	<1	<1
Tetrachloroethylene	<1	<1	<1	<1	<1	<1	<1	<1	<1
Thallium, total	<4	<4	<2	<2	<2	<2	<2	<2	<2
Toluene	<1	<1	<1	<1	<1	<1	<1	<1	<1
Trans-1,2-dichloroethylene	<1	<1	<1	<1	<1	<1	<1	<1	<1
Trans-1,3-dichloropropene	<1	<1	<1	<1	<1	<1	<1	<1	<1
Trans-1,4-dichloro-2-butene	<5	<5	<5	<5	<5	<5	<5	<5	<5
Trichloroethylene	<1	<1	<1	<1	<1	<1	<1	<1	<1
Trichlorofluoromethane	<1	<1	<1	<1	<1	<1	<1	<1	<1
Vanadium, total	<20.0	<20.0	<20.0	<20.0	<20.0	<20.0	<20.0	<20.0	<20.0
Vinyl acetate	<5	<5	<5	<5	<5	<5	<5	<5	<5
Vinyl chloride	<1	<1	<1	<1	<1	<1	<1	<1	<1
Xylenes, total	<2	<2	<2	<2	<2	<2	<2	<2	<2
Zinc, total	<8.0	<20.0	10.4	<20.0	<20.0	<20.0	<20.0	<20.0	<20.0

* - The displayed value is the arithmetic mean of multiple database matches.

Table 9

Analytical Data Summary for MW-10

Constituents	10/7/2022	4/19/2023	10/25/2023	4/17/2024	10/17/2024
1,1,1,2-tetrachloroethane	<1	<1	<1	<1	<1
1,1,1-trichloroethane	<1	<1	<1	<1	<1
1,1,2,2-tetrachloroethane	<1	<1	<1	<1	<1
1,1,2-trichloroethane	<1	<1	<1	<1	<1
1,1-dichloroethane	<1	<1	<1	<1	<1
1,1-dichloroethylene	<1	<1	<1	<1	<1
1,2,3-trichloropropane	<1	<1	<1	<1	<1
1,2-dibromo-3-chloropropane	<5	<5	<5	<5	<5
1,2-dibromoethane	<1	<1	<1	<1	<1
1,2-dichlorobenzene	<1	<1	<1	<1	<1
1,2-dichloroethane	<1	<1	<1	<1	<1
1,2-dichloropropane	<1	<1	<1	<1	<1
1,4-dichlorobenzene	<1	<1	<1	<1	<1
2-butanone (mek)	<10	<10	<10	<10	<10
2-hexanone (mbk)	<5	<5	<5	<5	<5
4-methyl-2-pentanone (mibk)	<5	<5	<5	<5	<5
Acetone	<10.0	<10.0	<10.0	<10.0	<10.0
Acrylonitrile	<5	<5	<5	<5	<5
Antimony, total	<2	<2	<2	<2	<2
Arsenic, total	<4.0	<4.0	<4.0	<4.0	<4.0
Barium, total	117.0	131.0	114.0	146.0	141.0
Benzene	<1	<1	<1	<1	<1
Beryllium, total	<4	<4	<4	<4	<4
Bromochloromethane	<1	<1	<1	<1	<1
Bromodichloromethane	<1	<1	<1	<1	<1
Bromoform	<1	<1	<1	<1	<1
Bromomethane	<1	<1	<1	<1	<1
Cadmium, total	<.8	<.8	1.1	.8	2.4
Carbon disulfide	<1	<1	<1	<1	<1
Carbon tetrachloride	<1	<1	<1	<1	<1
Chlorobenzene	<1	<1	<1	<1	<1
Chloroethane	<1	<1	<1	<1	<1
Chloroform	<1	<1	<1	<1	<1
Chloromethane	<1	<1	<1	<1	<1
Chromium, total	<8.0	<8.0	<8.0	<8.0	<8.0
Cis-1,2-dichloroethylene	<1	<1	<1	<1	<1
Cis-1,3-dichloropropene	<1	<1	<1	<1	<1
Cobalt, total	<2.0	<.4	<.4	<.4	<.4
Copper, total	<4.0	<4.0	<4.0	<4.0	<4.0
Dibromochloromethane	<1	<1	<1	<1	<1
Dibromomethane	<1	<1	<1	<1	<1
Ethylbenzene	<1	<1	<1	<1	<1
Lead, total	<4	<4	<4	<4	<4
Methyl iodide	<1	<1	<1	<1	<1
Methylene chloride	<5	<5	<5	<5	<5
Nickel, total	4.2	5.3	5.4	8.4	10.2
Selenium, total	<4.0	<4.0	<4.0	<4.0	<4.0
Silver, total	<4	<4	<4	<4	<4
Solids, total suspended					
Styrene	<1	<1	<1	<1	<1
Tetrachloroethylene	<1	<1	<1	<1	<1
Thallium, total	<2	<2	<2	<2	<2
Toluene	<1	<1	<1	<1	<1
Trans-1,2-dichloroethylene	<1	<1	<1	<1	<1
Trans-1,3-dichloropropene	<1	<1	<1	<1	<1
Trans-1,4-dichloro-2-butene	<5	<5	<5	<5	<5
Trichloroethylene	<1	<1	<1	<1	<1
Trichlorofluoromethane	<1	<1	<1	<1	<1
Vanadium, total	<20.0	<20.0	<20.0	<20.0	<20.0
Vinyl acetate	<5	<5	<5	<5	<5
Vinyl chloride	<1	<1	<1	<1	<1
Xylenes, total	<2	<2	<2	<2	<2
Zinc, total	<20.0	<20.0	<20.0	<20.0	<20.0

* - The displayed value is the arithmetic mean of multiple database matches.

Table 9

Analytical Data Summary for MW-13

Constituents	Units	3/31/2010	9/16/2010	4/11/2011	9/26/2011	4/1/2012	8/23/2012	4/13/2013	9/14/2013	4/11/2014
1,1,1,2-tetrachloroethane	ug/L	<1	<1	<1	<1	<1	<1	<1	<1	<1
1,1,1-trichloroethane	ug/L	<1	<1	<1	<1	<1	<1	<1	<1	<1
1,1,2,2-tetrachloroethane	ug/L	<1	<1	<1	<1	<1	<1	<1	<1	<1
1,1,2-trichloroethane	ug/L	<1	<1	<1	<1	<1	<1	<1	<1	<1
1,1-dichloroethane	ug/L	<1	<1	<1	<1	<1	<1	<1	<1	<1
1,1-dichloroethylene	ug/L	<1	<1	<1	<1	<1	<1	<1	<1	<1
1,2,3-trichloropropane	ug/L	<1	<1	<1	<1	<1	<1	<1	<1	<1
1,2-dibromo-3-chloropropane	ug/L	<1	<1	<1	<1	<1	<1	<1	<1	<1
1,2-dibromoethane	ug/L	<1	<1	<1	<1	<1	<1	<1	<1	<1
1,2-dichlorobenzene	ug/L	<1	<1	<1	<1	<1	<1	<1	<1	<1
1,2-dichloroethane	ug/L	<1	<1	<1	<1	<1	<1	<1	<1	<1
1,2-dichloropropane	ug/L	<1	<1	<1	<1	<1	<1	<1	<1	<1
1,4-dichlorobenzene	ug/L	<1	<1	<1	<1	<1	<1	<1	<1	<1
2-butanone (mek)	ug/L	<5	<5	<5	<5	<5	<5	<5	<5	<5
2-hexanone (mbk)	ug/L	<5	<5	<5	<5	<5	<5	<5	<5	<5
4-methyl-2-pentanone (mibk)	ug/L	<5	<5	<5	<5	<5	<5	<5	<5	<5
Acetone	ug/L	<10	<10	<10	<10	<10	<10	<10	<10	<10
Acrylonitrile	ug/L	<5	<5	<5	<5	<5	<5	<5	<5	<5
Antimony, dissolved	ug/L							<2		
Antimony, total	ug/L	<2	<2	<2	<2	<2	<2	<2	<2	<2
Arsenic, dissolved	ug/L							<4		
Arsenic, total	ug/L	<4.0	<4.0	<4.0	<4.0	5.5	8.2	<4.0	4.7	5.8
Barium, dissolved	ug/L							71.2		
Barium, total	ug/L	125.0	120.0	169.0	153.0	238.0	153.0	112.0	87.3	157.0
Benzene	ug/L	<1	<1	<1	<1	<1	<1	<1	<1	<1
Beryllium, dissolved	ug/L							<4		
Beryllium, total	ug/L	<4	<4	<4	<4	<4	<4	<4	<4	<4
Bromochloromethane	ug/L	<1	<1	<1	<1	<1	<1	<1	<1	<1
Bromodichloromethane	ug/L	<1	<1	<1	<1	<1	<1	<1	<1	<1
Bromoform	ug/L	<1	<1	<1	<1	<1	<1	<1	<1	<1
Bromomethane	ug/L	<1	<1	<1	<1	<1	<1	<1	<1	<1
Cadmium, dissolved	ug/L							<.8		
Cadmium, total	ug/L	<1.0	<1.0	<.8	<.8	<.8	<.8	<.8	<.8	<.8
Carbon disulfide	ug/L	<1	<1	<1	<1	<1	<1	<1	<1	<1
Carbon tetrachloride	ug/L	<1	<1	<1	<1	<1	<1	<1	<1	<1
Chlorobenzene	ug/L	<1	<1	<1	<1	<1	<1	<1	<1	<1
Chloroethane	ug/L	<1	<1	<1	<1	<1	<1	<1	<1	<1
Chloroform	ug/L	<1	<1	<1	<1	<1	<1	<1	<1	<1
Chloromethane	ug/L	<1	<1	<1	<1	<1	<1	<1	<1	<1
Chromium, dissolved	ug/L							<8		
Chromium, total	ug/L	<10.0	<10.0	<8.0	<8.0	12.1	13.0	<8.0	<8.0	11.3
Cis-1,2-dichloroethylene	ug/L	<1	<1	<1	<1	<1	<1	<1	<1	<1
Cis-1,3-dichloropropene	ug/L	<1	<1	<1	<1	<1	<1	<1	<1	<1
Cobalt, dissolved	ug/L							<4		
Cobalt, total	ug/L	<4.0	<4.0	<4.0	<4.0	<4.0	<4.0	<4.0	<4.0	4.1
Copper, dissolved	ug/L							<4		
Copper, total	ug/L	<4.0	<4.0	5.0	<4.0	10.8	9.7	4.6	9.7	13.5
Dibromochloromethane	ug/L	<1	<1	<1	<1	<1	<1	<1	<1	<1
Dibromomethane	ug/L	<1	<1	<1	<1	<1	<1	<1	<1	<1
Ethylbenzene	ug/L	<1	<1	<1	<1	<1	<1	<1	<1	<1
Lead, dissolved	ug/L							<2		
Lead, total	ug/L	<4.0	<4.0	<4.0	<4.0	4.1	<4.0	<4.0	5.5	6.8
Methyl iodide	ug/L	<1	<1	<1	<1	<1	<1	<1	<1	<1
Methylene chloride	ug/L	<5	<5	<5	<5	<5	<5	<5	<5	<5
Nickel, dissolved	ug/L							5.8		
Nickel, total	ug/L	6.6	7.4	14.5	10.6	18.2	14.3	9.2	8.0	12.7
Selenium, dissolved	ug/L							<4		
Selenium, total	ug/L	<4	<4	<4	<4	<4	<4	<4	<4	<4
Silver, dissolved	ug/L							<4		
Silver, total	ug/L	<4	<4	<4	<4	<4	<4	<4	<4	<4
Solids, total suspended	mg/L									
Styrene	ug/L	<1	<1	<1	<1	<1	<1	<1	<1	<1
Tetrachloroethylene	ug/L	<1	<1	<1	<1	<1	<1	<1	<1	<1
Thallium, dissolved	ug/L							<2		
Thallium, total	ug/L	<4	<4	<4	<4	<2	<2	<2	<4	<4
Tin, dissolved	ug/L							<20		
Toluene	ug/L	<1	<1	<1	<1	<1	<1	<1	<1	<1
Trans-1,2-dichloroethylene	ug/L	<1	<1	<1	<1	<1	<1	<1	<1	<1
Trans-1,3-dichloropropene	ug/L	<1	<1	<1	<1	<1	<1	<1	<1	<1
Trans-1,4-dichloro-2-butene	ug/L	<5	<5	<5	<5	<5	<5	<5	<5	<5
Trichloroethylene	ug/L	<1	<1	<1	<1	<1	<1	<1	<1	<1
Trichlorofluoromethane	ug/L	<1	<1	<1	<1	<1	<1	<1	<1	<1
Vanadium, dissolved	ug/L							<20		
Vanadium, total	ug/L	13.1	<10.0	24.9	<20.0	<20.0	<20.0	<20.0	<20.0	<20.0
Vinyl acetate	ug/L	<5	<5	<5	<5	<5	<5	<5	<5	<5
Vinyl chloride	ug/L	<1	<1	<1	<1	<1	<1	<1	<1	<1
Xylenes, total	ug/L	<2	<2	<2	<2	<2	<2	<2	<2	<2

* - The displayed value is the arithmetic mean of multiple database matches.

Table 9

Analytical Data Summary for MW-13

Constituents	9/27/2014	3/16/2015	9/28/2015	3/14/2016	9/3/2016	4/10/2017	9/1/2017	4/23/2018	9/14/2018
1,1,1,2-tetrachloroethane	<1	<1	<1	<1	<1	<1	<1	<1	<1
1,1,1-trichloroethane	<1	<1	<1	<1	<1	<1	<1	<1	<1
1,1,2,2-tetrachloroethane	<1	<1	<1	<1	<1	<1	<1	<1	<1
1,1,2-trichloroethane	<1	<1	<1	<1	<1	<1	<1	<1	<1
1,1-dichloroethane	<1	<1	<1	<1	<1	<1	<1	<1	<1
1,1-dichloroethylene	<1	<1	<1	<1	<1	<1	<1	<1	<1
1,2,3-trichloropropane	<1	<1	<1	<1	<1	<1	<1	<1	<1
1,2-dibromo-3-chloropropane	<1	<1	<1	<1	<1	<1	<1	<1	<1
1,2-dibromoethane	<1	<1	<1	<1	<1	<1	<1	<1	<1
1,2-dichlorobenzene	<1	<1	<1	<1	<1	<1	<1	<1	<1
1,2-dichloroethane	<1	<1	<1	<1	<1	<1	<1	<1	<1
1,2-dichloropropane	<1	<1	<1	<1	<1	<1	<1	<1	<1
1,4-dichlorobenzene	<1	<1	<1	<1	<1	<1	<1	<1	<1
2-butanone (mek)	<5	<5	<5	<5	<5	<5	<5	<5	<5
2-hexanone (mbk)	<5	<5	<5	<5	<5	<5	<5	<5	<5
4-methyl-2-pentanone (mibk)	<5	<5	<5	<5	<5	<5	<5	<5	<5
Acetone	<10	<10	<10	<10	<10	<10	<10	<10	<10
Acrylonitrile	<5	<5	<5	<5	<5	<5	<5	<5	<5
Antimony, dissolved									
Antimony, total	<2	<2	<2	<2	<2	<2	<2	<2	<2
Arsenic, dissolved									
Arsenic, total	<4.0	<4.0	<4.0	<4.0	<4.0	<4.0	<4.0	<4.0	<4.0
Barium, dissolved									
Barium, total	150.0	110.0	72.5	68.4	75.0	82.0	64.8	68.6	68.9
Benzene	<1	<1	<1	<1	<1	<1	<1	<1	<1
Beryllium, dissolved									
Beryllium, total	<4	<4	<4	<4	<4	<4	<4	<4	<4
Bromochloromethane	<1	<1	<1	<1	<1	<1	<1	<1	<1
Bromodichloromethane	<1	<1	<1	<1	<1	<1	<1	<1	<1
Bromoform	<1	<1	<1	<1	<1	<1	<1	<1	<1
Bromomethane	<1	<1	<1	<1	<1	<1	<1	<1	<1
Cadmium, dissolved									
Cadmium, total	<.8	<.8	<.8	<.8	<.8	<.8	<.8	<.8	<.8
Carbon disulfide	<1	<1	<1	<1	<1	<1	<1	<1	<1
Carbon tetrachloride	<1	<1	<1	<1	<1	<1	<1	<1	<1
Chlorobenzene	<1	<1	<1	<1	<1	<1	<1	<1	<1
Chloroethane	<1	<1	<1	<1	<1	<1	<1	<1	<1
Chloroform	<1	<1	<1	<1	<1	<1	<1	<1	<1
Chloromethane	<1	<1	<1	<1	<1	<1	<1	<1	<1
Chromium, dissolved									
Chromium, total	<8.0	<8.0	<8.0	<8.0	<8.0	<8.0	<8.0	<8.0	<8.0
Cis-1,2-dichloroethylene	<1	<1	<1	<1	<1	<1	<1	<1	<1
Cis-1,3-dichloropropene	<1	<1	<1	<1	<1	<1	<1	<1	<1
Cobalt, dissolved									
Cobalt, total	1.3	1.0	<.8	<.8	<.8	<.8	<.8	<.8	<.8
Copper, dissolved									
Copper, total	6.2	<4.0	<4.0	<4.0	<4.0	<4.0	<4.0	<4.0	<4.0
Dibromochloromethane	<1	<1	<1	<1	<1	<1	<1	<1	<1
Dibromomethane	<1	<1	<1	<1	<1	<1	<1	<1	<1
Ethylbenzene	<1	<1	<1	<1	<1	<1	<1	<1	<1
Lead, dissolved									
Lead, total	<4.0	<4.0	<4.0	<4.0	<4.0	<4.0	<4.0	<4.0	<4.0
Methyl iodide	<1	<1	<1	<1	<1	<1	<1	<1	<1
Methylene chloride	<5	<5	<5	<5	<5	<5	<5	<5	<5
Nickel, dissolved									
Nickel, total	5.7	4.1	<4.0	<4.0	<4.0	<4.0	<4.0	<20.0	<4.0
Selenium, dissolved									
Selenium, total	<4	<4	<4	<4	<4	<4	<4	<4	<4
Silver, dissolved									
Silver, total	<4	<4	<4	<4	<4	<4	<4	<4	<4
Solids, total suspended	78	97	9	<2	24	113	2	5	13
Styrene	<1	<1	<1	<1	<1	<1	<1	<1	<1
Tetrachloroethylene	<1	<1	<1	<1	<1	<1	<1	<1	<1
Thallium, dissolved									
Thallium, total	<4	<4	<1	<4	<4	<4	<4	<4	<4
Tin, dissolved									
Toluene	<1	<1	<1	<1	<1	<1	<1	<1	<1
Trans-1,2-dichloroethylene	<1	<1	<1	<1	<1	<1	<1	<1	<1
Trans-1,3-dichloropropene	<1	<1	<1	<1	<1	<1	<1	<1	<1
Trans-1,4-dichloro-2-butene	<5	<5	<5	<5	<5	<5	<5	<5	<5
Trichloroethylene	<1	<1	<1	<1	<1	<1	<1	<1	<1
Trichlorofluoromethane	<1	<1	<1	<1	<1	<1	<1	<1	<1
Vanadium, dissolved									
Vanadium, total	<20.0	<20.0	<20.0	<20.0	<20.0	<20.0	<20.0	<20.0	<20.0
Vinyl acetate	<5	<5	<5	<5	<5	<5	<5	<5	<5
Vinyl chloride	<1	<1	<1	<1	<1	<1	<1	<1	<1
Xylenes, total	<2	<2	<2	<2	<2	<2	<2	<2	<2

* - The displayed value is the arithmetic mean of multiple database matches.

Table 9

Analytical Data Summary for MW-13

Constituents	4/15/2019	9/17/2019	4/8/2020	10/2/2020	4/12/2021	10/26/2021	4/4/2022	10/7/2022	4/19/2023
1,1,1,2-tetrachloroethane	<1	<1	<1	<1	<1	<1	<1	<1	<1
1,1,1-trichloroethane	<1	<1	<1	<1	<1	<1	<1	<1	<1
1,1,2,2-tetrachloroethane	<1	<1	<1	<1	<1	<1	<1	<1	<1
1,1,2-trichloroethane	<1	<1	<1	<1	<1	<1	<1	<1	<1
1,1-dichloroethane	<1	<1	<1	<1	<1	<1	<1	<1	<1
1,1-dichloroethylene	<1	<1	<1	<1	<1	<1	<1	<1	<1
1,2,3-trichloropropane	<1	<1	<1	<1	<1	<1	<1	<1	<1
1,2-dibromo-3-chloropropane	<1	<1	<5	<5	<5	<5	<5	<5	<5
1,2-dibromoethane	<1	<1	<1	<1	<1	<1	<1	<1	<1
1,2-dichlorobenzene	<1	<1	<1	<1	<1	<1	<1	<1	<1
1,2-dichloroethane	<1	<1	<1	<1	<1	<1	<1	<1	<1
1,2-dichloropropane	<1	<1	<1	<1	<1	<1	<1	<1	<1
1,4-dichlorobenzene	<1	<1	<1	<1	<1	<1	<1	<1	<1
2-butanone (mek)	<5	<5	<5	<5	<5	<5	<10	<10	<10
2-hexanone (mbk)	<5	<5	<5	<5	<5	<5	<5	<5	<5
4-methyl-2-pentanone (mibk)	<5	<5	<5	<5	<5	<5	<5	<5	<5
Acetone	<10	<10	<10	<10	<10	<10	<10	<10	<10
Acrylonitrile	<5	<5	<5	<5	<5	<5	<5	<5	<5
Antimony, dissolved									
Antimony, total	<2	<2	<2	<2	<2	<2	<2	<2	<2
Arsenic, dissolved									
Arsenic, total	<4.0	<4.0	<4.0	<4.0	<4.0	<4.0	<4.0	<4.0	<4.0
Barium, dissolved									
Barium, total	62.7	81.1	56.7	65.4	74.7	56.8	61.2	50.4	47.0
Benzene	<1	<1	<1	<1	<1	<1	<1	<1	<1
Beryllium, dissolved									
Beryllium, total	<4	<4	<4	<4	<4	<4	<4	<4	<4
Bromochloromethane	<1	<1	<1	<1	<1	<1	<1	<1	<1
Bromodichloromethane	<1	<1	<1	<1	<1	<1	<1	<1	<1
Bromoform	<1	<1	<1	<1	<1	<1	<1	<1	<1
Bromomethane	<1	<1	<1	<1	<1	<1	<1	<1	<1
Cadmium, dissolved									
Cadmium, total	<.8	<.8	<.8	<.8	<.8	<.8	<.8	<.8	<.8
Carbon disulfide	<1	<1	<1	<1	<1	<1	<1	<1	<1
Carbon tetrachloride	<1	<1	<1	<1	<1	<1	<1	<1	<1
Chlorobenzene	<1	<1	<1	<1	<1	<1	<1	<1	<1
Chloroethane	<1	<1	<1	<1	<1	<1	<1	<1	<1
Chloroform	<1	<1	<1	<1	<1	<1	<1	<1	<1
Chloromethane	<1	<1	<1	<1	<1	<1	<1	<1	<1
Chromium, dissolved									
Chromium, total	<8.0	<8.0	<8.0	<8.0	<8.0	<8.0	<8.0	<8.0	<8.0
Cis-1,2-dichloroethylene	<1	<1	<1	<1	<1	<1	<1	<1	<1
Cis-1,3-dichloropropene	<1	<1	<1	<1	<1	<1	<1	<1	<1
Cobalt, dissolved									
Cobalt, total	<.8	<.8	<.4	<.4	<.4	<.4	<.4	1.6	<.4
Copper, dissolved									
Copper, total	<4.0	<4.0	<4.0	<4.0	<4.0	<4.0	<4.0	<4.0	<4.0
Dibromochloromethane	<1	<1	<1	<1	<1	<1	<1	<1	<1
Dibromomethane	<1	<1	<1	<1	<1	<1	<1	<1	<1
Ethylbenzene	<1	<1	<1	<1	<1	<1	<1	<1	<1
Lead, dissolved									
Lead, total	<4.0	<4.0	<4.0	<4.0	<4.0	<4.0	<4.0	<4.0	<4.0
Methyl iodide	<1	<1	<1	<1	<1	<1	<1	<1	<1
Methylene chloride	<5	<5	<5	<5	<5	<5	<5	<5	<5
Nickel, dissolved									
Nickel, total	<4.0	<4.0	<4.0	<4.0	<4.0	<4.0	<4.0	<4.0	<4.0
Selenium, dissolved									
Selenium, total	<4	<4	<4	<4	<4	<4	<4	<4	<4
Silver, dissolved									
Silver, total	<4	<4	<4	<4	<4	<4	<4	<4	<4
Solids, total suspended	5	28	45	91					
Styrene	<1	<1	<1	<1	<1	<1	<1	<1	<1
Tetrachloroethylene	<1	<1	<1	<1	<1	<1	<1	<1	<1
Thallium, dissolved									
Thallium, total	<2	<2	<2	<2	<2	<2	<2	<2	<2
Tin, dissolved									
Toluene	<1	<1	<1	<1	<1	<1	<1	<1	<1
Trans-1,2-dichloroethylene	<1	<1	<1	<1	<1	<1	<1	<1	<1
Trans-1,3-dichloropropene	<1	<1	<1	<1	<1	<1	<1	<1	<1
Trans-1,4-dichloro-2-butene	<5	<5	<5	<5	<5	<5	<5	<5	<5
Trichloroethylene	<1	<1	<1	<1	<1	<1	<1	<1	<1
Trichlorofluoromethane	<1	<1	<1	<1	<1	<1	<1	<1	<1
Vanadium, dissolved									
Vanadium, total	<20.0	<20.0	<20.0	<20.0	<20.0	<20.0	<20.0	<20.0	<20.0
Vinyl acetate	<5	<5	<5	<5	<5	<5	<5	<5	<5
Vinyl chloride	<1	<1	<1	<1	<1	<1	<1	<1	<1
Xylenes, total	<2	<2	<2	<2	<2	<2	<2	<2	<2

* - The displayed value is the arithmetic mean of multiple database matches.

Table 9

Analytical Data Summary for MW-13

Constituents	10/25/2023	4/17/2024	10/17/2024
1,1,1,2-tetrachloroethane	<1	<1	<1
1,1,1-trichloroethane	<1	<1	<1
1,1,2,2-tetrachloroethane	<1	<1	<1
1,1,2-trichloroethane	<1	<1	<1
1,1-dichloroethane	<1	<1	<1
1,1-dichloroethylene	<1	<1	<1
1,2,3-trichloropropane	<1	<1	<1
1,2-dibromo-3-chloropropane	<5	<5	<5
1,2-dibromoethane	<1	<1	<1
1,2-dichlorobenzene	<1	<1	<1
1,2-dichloroethane	<1	<1	<1
1,2-dichloropropane	<1	<1	<1
1,4-dichlorobenzene	<1	<1	<1
2-butanone (mek)	<10	<10	<10
2-hexanone (mbk)	<5	<5	<5
4-methyl-2-pentanone (mibk)	<5	<5	<5
Acetone	<10	<10	<10
Acrylonitrile	<5	<5	<5
Antimony, dissolved			
Antimony, total	<2	<2	<2
Arsenic, dissolved			
Arsenic, total	<4.0	<4.0	<4.0
Barium, dissolved			
Barium, total	54.4	64.5	48.2
Benzene	<1	<1	<1
Beryllium, dissolved			
Beryllium, total	<4	<4	<4
Bromochloromethane	<1	<1	<1
Bromodichloromethane	<1	<1	<1
Bromoform	<1	<1	<1
Bromomethane	<1	<1	<1
Cadmium, dissolved			
Cadmium, total	<.8	<.8	<.8
Carbon disulfide	<1	<1	<1
Carbon tetrachloride	<1	<1	<1
Chlorobenzene	<1	<1	<1
Chloroethane	<1	<1	<1
Chloroform	<1	<1	<1
Chloromethane	<1	<1	<1
Chromium, dissolved			
Chromium, total	<8.0	<8.0	<8.0
Cis-1,2-dichloroethylene	<1	<1	<1
Cis-1,3-dichloropropene	<1	<1	<1
Cobalt, dissolved			
Cobalt, total	<.4	<.4	<.4
Copper, dissolved			
Copper, total	<4.0	<4.0	<4.0
Dibromochloromethane	<1	<1	<1
Dibromomethane	<1	<1	<1
Ethylbenzene	<1	<1	<1
Lead, dissolved			
Lead, total	<4.0	<4.0	<4.0
Methyl iodide	<1	<1	<1
Methylene chloride	<5	<5	<5
Nickel, dissolved			
Nickel, total	<4.0	<4.0	<4.0
Selenium, dissolved			
Selenium, total	<4	<4	<4
Silver, dissolved			
Silver, total	<4	<4	<4
Solids, total suspended			
Styrene	<1	<1	<1
Tetrachloroethylene	<1	<1	<1
Thallium, dissolved			
Thallium, total	<2	<2	<2
Tin, dissolved			
Toluene	<1	<1	<1
Trans-1,2-dichloroethylene	<1	<1	<1
Trans-1,3-dichloropropene	<1	<1	<1
Trans-1,4-dichloro-2-butene	<5	<5	<5
Trichloroethylene	<1	<1	<1
Trichlorofluoromethane	<1	<1	<1
Vanadium, dissolved			
Vanadium, total	<20.0	<20.0	<20.0
Vinyl acetate	<5	<5	<5
Vinyl chloride	<1	<1	<1
Xylenes, total	<2	<2	<2

* - The displayed value is the arithmetic mean of multiple database matches.

Table 9

Analytical Data Summary for MW-13

Constituents	Units	3/31/2010	9/16/2010	4/11/2011	9/26/2011	4/1/2012	8/23/2012	4/13/2013	9/14/2013	4/11/2014
Zinc, dissolved	ug/L							<8		
Zinc, total	ug/L	<10.0	<10.0	11.2	10.7	22.1	20.2	<8.0	23.3	29.6

* - The displayed value is the arithmetic mean of multiple database matches.

Table 9

Analytical Data Summary for MW-13

Constituents	9/27/2014	3/16/2015	9/28/2015	3/14/2016	9/3/2016	4/10/2017	9/1/2017	4/23/2018	9/14/2018
Zinc, dissolved									
Zinc, total	8.2	9.3	<8.0	<20.0	<8.0	<8.0	9.3	<8.0	<20.0

* - The displayed value is the arithmetic mean of multiple database matches.

Table 9

Analytical Data Summary for MW-13

Constituents	4/15/2019	9/17/2019	4/8/2020	10/2/2020	4/12/2021	10/26/2021	4/4/2022	10/7/2022	4/19/2023
Zinc, dissolved									
Zinc, total	<8.0	<8.0	<20.0	<20.0	<20.0	<20.0	<20.0	<20.0	<20.0

* - The displayed value is the arithmetic mean of multiple database matches.

Table 9

Analytical Data Summary for MW-13

Constituents	10/25/2023	4/17/2024	10/17/2024
Zinc, dissolved			
Zinc, total	<20.0	<20.0	<20.0

* - The displayed value is the arithmetic mean of multiple database matches.

Table 9

Analytical Data Summary for MW-3

Constituents	Units	3/31/2010	9/16/2010	4/11/2011	9/26/2011	4/1/2012	8/23/2012	4/13/2013	9/14/2013	4/11/2014
1,1,1,2-tetrachloroethane	ug/L	<1	<1	<1	<1	<1	<1	<1	<1	<1
1,1,1-trichloroethane	ug/L	<1	<1	<1	<1	<1	<1	<1	<1	<1
1,1,2,2-tetrachloroethane	ug/L	<1	<1	<1	<1	<1	<1	<1	<1	<1
1,1,2-trichloroethane	ug/L	<1	<1	<1	<1	<1	<1	<1	<1	<1
1,1-dichloroethane	ug/L	<1	<1	<1	<1	<1	<1	<1	<1	<1
1,1-dichloroethylene	ug/L	<1	<1	<1	<1	<1	<1	<1	<1	<1
1,2,3-trichloropropane	ug/L	<1	<1	<1	<1	<1	<1	<1	<1	<1
1,2-dibromo-3-chloropropane	ug/L	<1	<1	<1	<1	<1	<1	<1	<1	<1
1,2-dibromoethane	ug/L	<1	<1	<1	<1	<1	<1	<1	<1	<1
1,2-dichlorobenzene	ug/L	<1	<1	<1	<1	<1	<1	<1	<1	<1
1,2-dichloroethane	ug/L	<1	<1	<1	<1	<1	<1	<1	<1	<1
1,2-dichloropropane	ug/L	<1	<1	<1	<1	<1	<1	<1	<1	<1
1,4-dichlorobenzene	ug/L	<1	<1	<1	<1	<1	<1	<1	<1	<1
2-butanone (mek)	ug/L	<5	<5	<5	<5	<5	<5	<5	<5	<5
2-hexanone (mbk)	ug/L	<5	<5	<5	<5	<5	<5	<5	<5	<5
4-methyl-2-pentanone (mibk)	ug/L	<5	<5	<5	<5	<5	<5	<5	<5	<5
Acetone	ug/L	<10	<10	<10	<10	<10	<10	<10	<10	<10
Acrylonitrile	ug/L	<5	<5	<5	<5	<5	<5	<5	<5	<5
Antimony, total	ug/L	<2	<2	<2	<2	<2	<2	<2	<2	<2
Arsenic, total	ug/L	<4.0	<4.0	<4.0	<4.0	<4.0	4.1	<4.0	<4.0	<4.0
Barium, total	ug/L	459	414	407	336	265	294	395	442	517
Benzene	ug/L	<1	<1	<1	<1	<1	<1	<1	<1	<1
Beryllium, total	ug/L	<4	<4	<4	<4	<4	<4	<4	<4	<4
Bromochloromethane	ug/L	<1	<1	<1	<1	<1	<1	<1	<1	<1
Bromodichloromethane	ug/L	<1	<1	<1	<1	<1	<1	<1	<1	<1
Bromoform	ug/L	<1	<1	<1	<1	<1	<1	<1	<1	<1
Bromomethane	ug/L	<1	<1	<1	<1	<1	<1	<1	<1	<1
Cadmium, total	ug/L	<1.0	<1.0	<.8	<.8	<.8	<.8	<.8	<.8	<.8
Carbon disulfide	ug/L	<1	<1	<1	<1	<1	<1	<1	<1	<1
Carbon tetrachloride	ug/L	<1	<1	<1	<1	<1	<1	<1	<1	<1
Chlorobenzene	ug/L	<1	<1	<1	<1	<1	<1	<1	<1	<1
Chloroethane	ug/L	<1	<1	<1	<1	<1	<1	<1	<1	<1
Chloroform	ug/L	<1	<1	<1	<1	<1	<1	<1	<1	<1
Chloromethane	ug/L	<1	<1	<1	<1	<1	<1	<1	<1	<1
Chromium, total	ug/L	<10	<10	<8	<8	<8	<8	<8	<8	<8
Cis-1,2-dichloroethylene	ug/L	<1	<1	<1	<1	<1	<1	<1	<1	<1
Cis-1,3-dichloropropene	ug/L	<1	<1	<1	<1	<1	<1	<1	<1	<1
Cobalt, total	ug/L	<4.0	<4.0	<4.0	<4.0	<4.0	<4.0	<4.0	<4.0	<4.0
Copper, total	ug/L	<4.0	<4.0	<4.0	<4.0	4.5	<4.0	<4.0	<4.0	4.1
Dibromochloromethane	ug/L	<1	<1	<1	<1	<1	<1	<1	<1	<1
Dibromomethane	ug/L	<1	<1	<1	<1	<1	<1	<1	<1	<1
Ethylbenzene	ug/L	<1	<1	<1	<1	<1	<1	<1	<1	<1
Lead, total	ug/L	<4	<4	<4	<4	<4	<4	<4	<4	<4
Methyl iodide	ug/L	<1	<1	<1	<1	<1	<1	<1	<1	<1
Methylene chloride	ug/L	<5	<5	<5	<5	<5	<5	<5	<5	<5
Nickel, total	ug/L	6.4	6.4	10.5	7.8	11.1	6.5	7.3	<4.0	4.2
Selenium, total	ug/L	<4	<4	<4	<4	<4	<4	<4	<4	<4
Silver, total	ug/L	<4	<4	<4	<4	<4	<4	<4	<4	<4
Solids, total suspended	mg/L									
Styrene	ug/L	<1	<1	<1	<1	<1	<1	<1	<1	<1
Tetrachloroethylene	ug/L	<1	<1	<1	<1	<1	<1	<1	<1	<1
Thallium, total	ug/L	<4	<4	<4	<4	<2	<2	<2	<4	<4
Toluene	ug/L	<1	<1	<1	<1	<1	<1	<1	<1	<1
Trans-1,2-dichloroethylene	ug/L	<1	<1	<1	<1	<1	<1	<1	<1	<1
Trans-1,3-dichloropropene	ug/L	<1	<1	<1	<1	<1	<1	<1	<1	<1
Trans-1,4-dichloro-2-butene	ug/L	<5	<5	<5	<5	<5	<5	<5	<5	<5
Trichloroethylene	ug/L	<1	<1	<1	<1	<1	<1	<1	<1	<1
Trichlorofluoromethane	ug/L	<1	<1	<1	<1	<1	<1	<1	<1	<1
Vanadium, total	ug/L	10.6	<10.0	21.8	<20.0	<20.0	<20.0	<20.0	<20.0	<20.0
Vinyl acetate	ug/L	<5	<5	<5	<5	<5	<5	<5	<5	<5
Vinyl chloride	ug/L	<1	<1	<1	<1	<1	<1	<1	<1	<1
Xylenes, total	ug/L	<2	<2	<2	<2	<2	<2	<2	<2	<2
Zinc, total	ug/L	<10.0	<10.0	<8.0	11.0	25.0	9.7	9.6	<20.0	<20.0

* - The displayed value is the arithmetic mean of multiple database matches.

Table 9

Analytical Data Summary for MW-3

Constituents	9/27/2014	3/16/2015	9/28/2015	3/14/2016	9/3/2016	4/10/2017	9/1/2017	4/23/2018	9/14/2018
1,1,1,2-tetrachloroethane	<1	<1	<1	<1	<1	<1	<1	<1	<1
1,1,1-trichloroethane	<1	<1	<1	<1	<1	<1	<1	<1	<1
1,1,2,2-tetrachloroethane	<1	<1	<1	<1	<1	<1	<1	<1	<1
1,1,2-trichloroethane	<1	<1	<1	<1	<1	<1	<1	<1	<1
1,1-dichloroethane	<1	<1	<1	<1	<1	<1	<1	<1	<1
1,1-dichloroethylene	<1	<1	<1	<1	<1	<1	<1	<1	<1
1,2,3-trichloropropane	<1	<1	<1	<1	<1	<1	<1	<1	<1
1,2-dibromo-3-chloropropane	<1	<1	<1	<1	<1	<1	<1	<1	<1
1,2-dibromoethane	<1	<1	<1	<1	<1	<1	<1	<1	<1
1,2-dichlorobenzene	<1	<1	<1	<1	<1	<1	<1	<1	<1
1,2-dichloroethane	<1	<1	<1	<1	<1	<1	<1	<1	<1
1,2-dichloropropane	<1	<1	<1	<1	<1	<1	<1	<1	<1
1,4-dichlorobenzene	<1	<1	<1	<1	<1	<1	<1	<1	<1
2-butanone (mek)	<5	<5	<5	<5	<5	<5	<5	<5	<5
2-hexanone (mbk)	<5	<5	<5	<5	<5	<5	<5	<5	<5
4-methyl-2-pentanone (mibk)	<5	<5	<5	<5	<5	<5	<5	<5	<5
Acetone	<10	<10	<10	<10	<10	<10	<10	<10	<10
Acrylonitrile	<5	<5	<5	<5	<5	<5	<5	<5	<5
Antimony, total	<2	<2	<2	<2	<2	<2	<2	<2	<2
Arsenic, total	<4.0	<4.0	<4.0	<4.0	<4.0	<4.0	<4.0	<4.0	<4.0
Barium, total	467	426	336	323	354	321	271	202	170
Benzene	<1	<1	<1	<1	<1	<1	<1	<1	<1
Beryllium, total	<4	<4	<4	<4	<4	<4	<4	<4	<4
Bromochloromethane	<1	<1	<1	<1	<1	<1	<1	<1	<1
Bromodichloromethane	<1	<1	<1	<1	<1	<1	<1	<1	<1
Bromoform	<1	<1	<1	<1	<1	<1	<1	<1	<1
Bromomethane	<1	<1	<1	<1	<1	<1	<1	<1	<1
Cadmium, total	<.8	<.8	<.8	.8	<.8	<.8	<.8	<.8	.9
Carbon disulfide	<1	<1	<1	<1	<1	<1	<1	<1	<1
Carbon tetrachloride	<1	<1	<1	<1	<1	<1	<1	<1	<1
Chlorobenzene	<1	<1	<1	<1	<1	<1	<1	<1	<1
Chloroethane	<1	<1	<1	<1	<1	<1	<1	<1	<1
Chloroform	<1	<1	<1	<1	<1	<1	<1	<1	<1
Chloromethane	<1	<1	<1	<1	<1	<1	<1	<1	<1
Chromium, total	<8	<8	<8	<8	<8	<8	<8	<8	<8
Cis-1,2-dichloroethylene	<1	<1	<1	<1	<1	<1	<1	<1	<1
Cis-1,3-dichloropropene	<1	<1	<1	<1	<1	<1	<1	<1	<1
Cobalt, total	.9	<.8	<.8	<.8	<.8	<.8	<.8	<.8	<.8
Copper, total	<4.0	<4.0	<4.0	<4.0	<4.0	<4.0	<4.0	<4.0	<4.0
Dibromochloromethane	<1	<1	<1	<1	<1	<1	<1	<1	<1
Dibromomethane	<1	<1	<1	<1	<1	<1	<1	<1	<1
Ethylbenzene	<1	<1	<1	<1	<1	<1	<1	<1	<1
Lead, total	<4	<4	<4	<4	<4	<4	<4	<4	<4
Methyl iodide	<1	<1	<1	<1	<1	<1	<1	<1	<1
Methylene chloride	<5	<5	<5	<5	<5	<5	<5	<5	<5
Nickel, total	<4.0	<4.0	<4.0	<4.0	<4.0	<4.0	<4.0	<20.0	<4.0
Selenium, total	<4	<4	<4	<4	<4	<4	<4	<4	<4
Silver, total	<4	<4	<4	<4	<4	<4	<4	<4	<4
Solids, total suspended	35	44	4	<2	6	42	4	2	9
Styrene	<1	<1	<1	<1	<1	<1	<1	<1	<1
Tetrachloroethylene	<1	<1	<1	<1	<1	<1	<1	<1	<1
Thallium, total	<4	<4	<1	<4	<4	<4	<4	<4	<4
Toluene	<1	<1	<1	<1	<1	<1	<1	<1	<1
Trans-1,2-dichloroethylene	<1	<1	<1	<1	<1	<1	<1	<1	<1
Trans-1,3-dichloropropene	<1	<1	<1	<1	<1	<1	<1	<1	<1
Trans-1,4-dichloro-2-butene	<5	<5	<5	<5	<5	<5	<5	<5	<5
Trichloroethylene	<1	<1	<1	<1	<1	<1	<1	<1	<1
Trichlorofluoromethane	<1	<1	<1	<1	<1	<1	<1	<1	<1
Vanadium, total	<20.0	<20.0	<20.0	<20.0	<20.0	<20.0	<20.0	<20.0	<20.0
Vinyl acetate	<5	<5	<5	<5	<5	<5	<5	<5	<5
Vinyl chloride	<1	<1	<1	<1	<1	<1	<1	<1	<1
Xylenes, total	<2	<2	<2	<2	<2	<2	<2	<2	<2
Zinc, total	8.9	<8.0	8.8	<20.0	<8.0	<8.0	<8.0	<8.0	<20.0

* - The displayed value is the arithmetic mean of multiple database matches.

Table 9

Analytical Data Summary for MW-3

Constituents	4/15/2019	9/17/2019	4/8/2020	10/2/2020	4/12/2021	10/26/2021	4/4/2022	10/7/2022	4/19/2023
1,1,1,2-tetrachloroethane	<1	<1	<1	<1	<1	<1	<1	<1	<1
1,1,1-trichloroethane	<1	<1	<1	<1	<1	<1	<1	<1	<1
1,1,2,2-tetrachloroethane	<1	<1	<1	<1	<1	<1	<1	<1	<1
1,1,2-trichloroethane	<1	<1	<1	<1	<1	<1	<1	<1	<1
1,1-dichloroethane	<1	<1	<1	<1	<1	<1	<1	<1	<1
1,1-dichloroethylene	<1	<1	<1	<1	<1	<1	<1	<1	<1
1,2,3-trichloropropane	<1	<1	<1	<1	<1	<1	<1	<1	<1
1,2-dibromo-3-chloropropane	<1	<1	<5	<5	<5	<5	<5	<5	<5
1,2-dibromoethane	<1	<1	<1	<1	<1	<1	<1	<1	<1
1,2-dichlorobenzene	<1	<1	<1	<1	<1	<1	<1	<1	<1
1,2-dichloroethane	<1	<1	<1	<1	<1	<1	<1	<1	<1
1,2-dichloropropane	<1	<1	<1	<1	<1	<1	<1	<1	<1
1,4-dichlorobenzene	<1	<1	<1	<1	<1	<1	<1	<1	<1
2-butanone (mek)	<5	<5	<5	<5	<5	<5	<10	<10	<10
2-hexanone (mbk)	<5	<5	<5	<5	<5	<5	<5	<5	<5
4-methyl-2-pentanone (mibk)	<5	<5	<5	<5	<5	<5	<5	<5	<5
Acetone	<10	<10	<10	<10	<10	<10	<10	<10	<10
Acrylonitrile	<5	<5	<5	<5	<5	<5	<5	<5	<5
Antimony, total	<2	<2	<2	<2	<2	<2	<2	<2	<2
Arsenic, total	<4.0	<4.0	<4.0	<4.0	<4.0	<4.0	<4.0	<4.0	<4.0
Barium, total	191	197	407	157	117	157	269	292	317
Benzene	<1	<1	<1	<1	<1	<1	<1	<1	<1
Beryllium, total	<4	<4	<4	<4	<4	<4	<4	<4	<4
Bromochloromethane	<1	<1	<1	<1	<1	<1	<1	<1	<1
Bromodichloromethane	<1	<1	<1	<1	<1	<1	<1	<1	<1
Bromoform	<1	<1	<1	<1	<1	<1	<1	<1	<1
Bromomethane	<1	<1	<1	<1	<1	<1	<1	<1	<1
Cadmium, total	1.0	<.8	1.5	<.8	<.8	<.8	<.8	<.8	<.8
Carbon disulfide	<1	<1	<1	<1	<1	<1	<1	<1	<1
Carbon tetrachloride	<1	<1	<1	<1	<1	<1	<1	<1	<1
Chlorobenzene	<1	<1	<1	<1	<1	<1	<1	<1	<1
Chloroethane	<1	<1	<1	<1	<1	<1	<1	<1	<1
Chloroform	<1	<1	<1	<1	<1	<1	<1	<1	<1
Chloromethane	<1	<1	<1	<1	<1	<1	<1	<1	<1
Chromium, total	<8	<8	<8	<8	<8	<8	<8	<8	<8
Cis-1,2-dichloroethylene	<1	<1	<1	<1	<1	<1	<1	<1	<1
Cis-1,3-dichloropropene	<1	<1	<1	<1	<1	<1	<1	<1	<1
Cobalt, total	<.8	<.8	1.6	<.4	.7	3.6	.9	2.4	.6
Copper, total	<4.0	<4.0	5.5	<4.0	<4.0	<4.0	<4.0	<4.0	<4.0
Dibromochloromethane	<1	<1	<1	<1	<1	<1	<1	<1	<1
Dibromomethane	<1	<1	<1	<1	<1	<1	<1	<1	<1
Ethylbenzene	<1	<1	<1	<1	<1	<1	<1	<1	<1
Lead, total	<4	<4	<4	<4	<4	<4	<4	<4	<4
Methyl iodide	<1	<1	<1	<1	<1	<1	<1	<1	<1
Methylene chloride	<5	<5	<5	<5	<5	<5	<5	<5	<5
Nickel, total	<4.0	<4.0	15.6	<4.0	5.6	5.0	<4.0	<4.0	<4.0
Selenium, total	<4	<4	<4	<4	<4	<4	<4	<4	<4
Silver, total	<4	<4	<4	<4	<4	<4	<4	<4	<4
Solids, total suspended	3	2	36	39					
Styrene	<1	<1	<1	<1	<1	<1	<1	<1	<1
Tetrachloroethylene	<1	<1	<1	<1	<1	<1	<1	<1	<1
Thallium, total	<2	<2	<2	<2	<2	<2	<2	<2	<2
Toluene	<1	<1	<1	<1	<1	<1	<1	<1	<1
Trans-1,2-dichloroethylene	<1	<1	<1	<1	<1	<1	<1	<1	<1
Trans-1,3-dichloropropene	<1	<1	<1	<1	<1	<1	<1	<1	<1
Trans-1,4-dichloro-2-butene	<5	<5	<5	<5	<5	<5	<5	<5	<5
Trichloroethylene	<1	<1	<1	<1	<1	<1	<1	<1	<1
Trichlorofluoromethane	<1	<1	<1	<1	<1	<1	<1	<1	<1
Vanadium, total	<20.0	<20.0	<20.0	<20.0	<20.0	<20.0	<20.0	<20.0	<20.0
Vinyl acetate	<5	<5	<5	<5	<5	<5	<5	<5	<5
Vinyl chloride	<1	<1	<1	<1	<1	<1	<1	<1	<1
Xylenes, total	<2	<2	<2	<2	<2	<2	<2	<2	<2
Zinc, total	14.0	<20.0	30.3	<20.0	<20.0	<20.0	<20.0	<20.0	<20.0

* - The displayed value is the arithmetic mean of multiple database matches.

Table 9

Analytical Data Summary for MW-3

Constituents	10/25/2023	4/17/2024	10/17/2024
1,1,1,2-tetrachloroethane	<1	<1	<1
1,1,1-trichloroethane	<1	<1	<1
1,1,2,2-tetrachloroethane	<1	<1	<1
1,1,2-trichloroethane	<1	<1	<1
1,1-dichloroethane	<1	<1	<1
1,1-dichloroethylene	<1	<1	<1
1,2,3-trichloropropane	<1	<1	<1
1,2-dibromo-3-chloropropane	<5	<5	<5
1,2-dibromoethane	<1	<1	<1
1,2-dichlorobenzene	<1	<1	<1
1,2-dichloroethane	<1	<1	<1
1,2-dichloropropane	<1	<1	<1
1,4-dichlorobenzene	<1	<1	<1
2-butanone (mek)	<10	<10	<10
2-hexanone (mbk)	<5	<5	<5
4-methyl-2-pentanone (mibk)	<5	<5	<5
Acetone	<10	<10	<10
Acrylonitrile	<5	<5	<5
Antimony, total	<2	<2	<2
Arsenic, total	<4.0	<4.0	<4.0
Barium, total	269	360	325
Benzene	<1	<1	<1
Beryllium, total	<4	<4	<4
Bromochloromethane	<1	<1	<1
Bromodichloromethane	<1	<1	<1
Bromoform	<1	<1	<1
Bromomethane	<1	<1	<1
Cadmium, total	<.8	<.8	<.8
Carbon disulfide	<1	<1	<1
Carbon tetrachloride	<1	<1	<1
Chlorobenzene	<1	<1	<1
Chloroethane	<1	<1	<1
Chloroform	<1	<1	<1
Chloromethane	<1	<1	<1
Chromium, total	<8	<8	<8
Cis-1,2-dichloroethylene	<1	<1	<1
Cis-1,3-dichloropropene	<1	<1	<1
Cobalt, total	.9	.9	<.4
Copper, total	<4.0	<4.0	<4.0
Dibromochloromethane	<1	<1	<1
Dibromomethane	<1	<1	<1
Ethylbenzene	<1	<1	<1
Lead, total	<4	<4	<4
Methyl iodide	<1	<1	<1
Methylene chloride	<5	<5	<5
Nickel, total	<4.0	<4.0	<4.0
Selenium, total	<4	<4	<4
Silver, total	<4	<4	<4
Solids, total suspended			
Styrene	<1	<1	<1
Tetrachloroethylene	<1	<1	<1
Thallium, total	<2	<2	<2
Toluene	<1	<1	<1
Trans-1,2-dichloroethylene	<1	<1	<1
Trans-1,3-dichloropropene	<1	<1	<1
Trans-1,4-dichloro-2-butene	<5	<5	<5
Trichloroethylene	<1	<1	<1
Trichlorofluoromethane	<1	<1	<1
Vanadium, total	<20.0	<20.0	<20.0
Vinyl acetate	<5	<5	<5
Vinyl chloride	<1	<1	<1
Xylenes, total	<2	<2	<2
Zinc, total	<20.0	<20.0	<20.0

* - The displayed value is the arithmetic mean of multiple database matches.

Table 9

Analytical Data Summary for MW-7

Constituents	Units	3/31/2010	9/16/2010	4/11/2011	9/26/2011	4/1/2012	8/23/2012	4/12/2013	9/14/2013	4/11/2014
(3 4)-methylphenol	ug/L			<8		<8				
1,1,1,2-tetrachloroethane	ug/L	<1	<1	<1	<1	<1	<1	<1	<1	<1
1,1,1-trichloroethane	ug/L	<1	<1	<1	<1	<1	<1	<1	<1	<1
1,1,2,2-tetrachloroethane	ug/L	<1	<1	<1	<1	<1	<1	<1	<1	<1
1,1,2-trichloroethane	ug/L	<1	<1	<1	<1	<1	<1	<1	<1	<1
1,1-dichloroethane	ug/L	<1	<1	<1	<1	<1	<1	<1	<1	<1
1,1-dichloroethylene	ug/L	<1	<1	<1	<1	<1	<1	<1	<1	<1
1,1-dichloropropene	ug/L			<1		<1				
1,2,3-trichloropropane	ug/L	<1	<1	<1	<1	<1	<1	<1	<1	<1
1,2,4,5-tetrachlorobenzene	ug/L			<8		<8				
1,2,4-trichlorobenzene	ug/L			<1		<1				
1,2-dibromo-3-chloropropane	ug/L	<1	<1	<1	<1	<1	<1	<1	<1	<1
1,2-dibromoethane	ug/L	<1	<1	<1	<1	<1	<1	<1	<1	<1
1,2-dichlorobenzene	ug/L	<1	<1	<1	<1	<1	<1	<1	<1	<1
1,2-dichloroethane	ug/L	<1	<1	<1	<1	<1	<1	<1	<1	<1
1,2-dichloropropane	ug/L	<1	<1	<1	<1	<1	<1	<1	<1	<1
1,2-dinitrobenzene	ug/L			<8		<8				
1,3,5-trinitrobenzene	ug/L			<8		<8				
1,3-dichlorobenzene	ug/L			<1		<1				
1,3-dichloropropane	ug/L			<1		<1				
1,3-dinitrobenzene	ug/L			<8		<8				
1,4-dichlorobenzene	ug/L	<1	<1	<1	<1	<1	<1	<1	<1	<1
1,4-naphthoquinone	ug/L			<8		<8				
1,4-phenylenediamine	ug/L			<8		<8				
1-naphthylamine	ug/L			<8		<8				
2,2-dichloropropane	ug/L			<1		<1				
2,3,4,6-tetrachlorophenol	ug/L			<8		<8				
2,4,5-t	ug/L			<.5		<.5				
2,4,5-tp (silvex)	ug/L			<.5		<.5				
2,4,5-trichlorophenol	ug/L			<8		<8				
2,4,6-trichlorophenol	ug/L			<8		<8				
2,4-d	ug/L			<2		<2				
2,4-dichlorophenol	ug/L			<8		<8				
2,4-dimethylphenol	ug/L			<8		<8				
2,4-dinitrophenol	ug/L			<8		<8				
2,4-dinitrotoluene	ug/L			<8		<8				
2,6-dichlorophenol	ug/L			<8		<8				
2,6-dinitrotoluene	ug/L			<8		<8				
2-acetylaminofluorene	ug/L			<8		<8				
2-butanone (mek)	ug/L	<5	<5	<5	<5	<5	<5	<5	<5	<5
2-chloronaphthalene	ug/L			<8		<8				
2-chlorophenol	ug/L			<8		<8				
2-hexanone (mbk)	ug/L	<5	<5	<5	<5	<5	<5	<5	<5	<5
2-methylnaphthalene	ug/L			<8		<8				
2-methylphenol (o-cresol)	ug/L			<8		<8				
2-naphthylamine	ug/L			<8		<8				
2-nitroaniline	ug/L			<8		<8				
2-nitrophenol	ug/L			<8		<8				
3,3´-dichlorobenzidine	ug/L			<8		<8				
3,3'-dimethylbenzidine	ug/L			<8		<8				
3-methylcholanthrene	ug/L			<8		<8				
3-nitroaniline	ug/L			<8		<8				
4,4´-ddd	ug/L			<.05		<.05				
4,4´-dde	ug/L			<.05		<.05				
4,4´-ddt	ug/L			<.05		<.05				
4,6-dinitro-2-methylphenol	ug/L			<8		<8				
4-aminobiphenyl	ug/L			<8		<8				
4-bromophenyl phenyl ether	ug/L			<8		<8				
4-chloro-3-methylphenol	ug/L			<8		<8				
4-chloroaniline	ug/L			<8		<8				
4-chlorophenyl phenyl ether	ug/L			<8		<8				
4-methyl-2-pentanone (mibk)	ug/L	<5	<5	<5	<5	<5	<5	<5	<5	<5
4-nitroaniline	ug/L			<8		<8				
4-nitrophenol	ug/L			<8		<8				
5-nitro-o-toluidine	ug/L			<8		<8				
7,12-dimethylbenz(a)anthracene	ug/L			<8		<8				
Acenaphthene	ug/L			<8		<8				
Acenaphthylene	ug/L			<8		<8				
Acetone	ug/L	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0
Acetonitrile	ug/L			<10		<10				
Acetophenone	ug/L			<8		<8				
Acrolein	ug/L			<10		<10				
Acrylonitrile	ug/L	<5	<5	<5	<5	<5	<5	<5	<5	<5
Aldrin	ug/L			<.05		<.05				
Allyl chloride	ug/L			<1		<1				
Alpha-bhc	ug/L			<.05		<.05				
Anthracene	ug/L			<8		<8				

* - The displayed value is the arithmetic mean of multiple database matches.

Table 9

Analytical Data Summary for MW-7

Constituents	9/27/2014	3/16/2015	9/28/2015	3/14/2016	9/3/2016	4/10/2017	9/1/2017	4/23/2018	9/14/2018
(3 4)-methylphenol						<8			
1,1,1,2-tetrachloroethane	<1	<1	<1	<1	<1	<1	<1	<1	<1
1,1,1-trichloroethane	<1	<1	<1	<1	<1	<1	<1	<1	<1
1,1,2,2-tetrachloroethane	<1	<1	<1	<1	<1	<1	<1	<1	<1
1,1,2-trichloroethane	<1	<1	<1	<1	<1	<1	<1	<1	<1
1,1-dichloroethane	<1	<1	<1	<1	<1	<1	<1	<1	<1
1,1-dichloroethylene	<1	<1	<1	<1	<1	<1	<1	<1	<1
1,1-dichloropropene						<1			
1,2,3-trichloropropane	<1	<1	<1	<1	<1	<1	<1	<1	<1
1,2,4,5-tetrachlorobenzene						<8			
1,2,4-trichlorobenzene						<1			
1,2-dibromo-3-chloropropane	<1	<1	<1	<1	<1	<1	<1	<1	<1
1,2-dibromoethane	<1	<1	<1	<1	<1	<1	<1	<1	<1
1,2-dichlorobenzene	<1	<1	<1	<1	<1	<1	<1	<1	<1
1,2-dichloroethane	<1	<1	<1	<1	<1	<1	<1	<1	<1
1,2-dichloropropane	<1	<1	<1	<1	<1	<1	<1	<1	<1
1,2-dinitrobenzene						<8			
1,3,5-trinitrobenzene						<8			
1,3-dichlorobenzene						<1			
1,3-dichloropropane						<1			
1,3-dinitrobenzene						<8			
1,4-dichlorobenzene	<1	<1	<1	<1	<1	<1	<1	<1	<1
1,4-naphthoquinone						<8			
1,4-phenylenediamine						<8			
1-naphthylamine						<8			
2,2-dichloropropane						<1			
2,3,4,6-tetrachlorophenol						<8			
2,4,5-t						<.5			
2,4,5-tp (silvex)						<.5			
2,4,5-trichlorophenol						<8			
2,4,6-trichlorophenol						<8			
2,4-d						<2			
2,4-dichlorophenol						<8			
2,4-dimethylphenol						<8			
2,4-dinitrophenol						<8			
2,4-dinitrotoluene						<8			
2,6-dichlorophenol						<8			
2,6-dinitrotoluene						<8			
2-acetylaminofluorene						<8			
2-butanone (mek)	<5	<5	<5	<5	<5	<5	<5	<5	<5
2-chloronaphthalene						<8			
2-chlorophenol						<8			
2-hexanone (mbk)	<5	<5	<5	<5	<5	<5	<5	<5	<5
2-methylnaphthalene						<8			
2-methylphenol (o-cresol)						<8			
2-naphthylamine						<8			
2-nitroaniline						<8			
2-nitrophenol						<8			
3,3´-dichlorobenzidine						<8			
3,3'-dimethylbenzidine						<8			
3-methylcholanthrene						<8			
3-nitroaniline						<8			
4,4´-ddd						<.05			
4,4´-dde						<.05			
4,4´-ddt						<.05			
4,6-dinitro-2-methylphenol						<8			
4-aminobiphenyl						<8			
4-bromophenyl phenyl ether						<8			
4-chloro-3-methylphenol						<8			
4-chloroaniline						<8			
4-chlorophenyl phenyl ether						<8			
4-methyl-2-pentanone (mibk)	<5	<5	<5	<5	<5	<5	<5	<5	<5
4-nitroaniline						<8			
4-nitrophenol						<8			
5-nitro-o-toluidine						<8			
7,12-dimethylbenz(a)anthracene						<8			
Acenaphthene						<8			
Acenaphthylene						<8			
Acetone	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	14.8	<10.0	<10.0
Acetonitrile						<10			
Acetophenone						<8			
Acrolein						<10			
Acrylonitrile	<5	<5	<5	<5	<5	<5	<5	<5	<5
Aldrin						<.05			
Allyl chloride						<1			
Alpha-bhc						<.05			
Anthracene						<8			

* - The displayed value is the arithmetic mean of multiple database matches.

Table 9

Analytical Data Summary for MW-7

Constituents	4/15/2019	9/17/2019	4/8/2020	10/2/2020	4/12/2021	10/26/2021	4/4/2022	10/7/2022	4/19/2023
(3 4)-methylphenol								<8	
1,1,1,2-tetrachloroethane	<1	<1	<1	<1	<1	<1	<1	<1	<1
1,1,1-trichloroethane	<1	<1	<1	<1	<1	<1	<1	<1	<1
1,1,2,2-tetrachloroethane	<1	<1	<1	<1	<1	<1	<1	<1	<1
1,1,2-trichloroethane	<1	<1	<1	<1	<1	<1	<1	<1	<1
1,1-dichloroethane	<1	<1	<1	<1	<1	<1	<1	<1	<1
1,1-dichloroethylene	<1	<1	<1	<1	<1	<1	<1	<1	<1
1,1-dichloropropene								<1	
1,2,3-trichloropropane	<1	<1	<1	<1	<1	<1	<1	<1	<1
1,2,4,5-tetrachlorobenzene								<8	
1,2,4-trichlorobenzene								<1	
1,2-dibromo-3-chloropropane	<1	<1	<5	<5	<5	<5	<5	<1	<5
1,2-dibromoethane	<1	<1	<1	<1	<1	<1	<1	<1	<1
1,2-dichlorobenzene	<1	<1	<1	<1	<1	<1	<1	<1	<1
1,2-dichloroethane	<1	<1	<1	<1	<1	<1	<1	<1	<1
1,2-dichloropropane	<1	<1	<1	<1	<1	<1	<1	<1	<1
1,2-dinitrobenzene								<8	
1,3,5-trinitrobenzene								<8	
1,3-dichlorobenzene								<1	
1,3-dichloropropane								<1	
1,3-dinitrobenzene								<8	
1,4-dichlorobenzene	<1	<1	<1	<1	<1	<1	<1	<1	<1
1,4-naphthoquinone								<8	
1,4-phenylenediamine								<8	
1-naphthylamine								<8	
2,2-dichloropropane								<1	
2,3,4,6-tetrachlorophenol								<8	
2,4,5-t								<.5	
2,4,5-tp (silvex)								<.5	
2,4,5-trichlorophenol								<8	
2,4,6-trichlorophenol								<8	
2,4-d								<2	
2,4-dichlorophenol								<8	
2,4-dimethylphenol								<8	
2,4-dinitrophenol								<8	
2,4-dinitrotoluene								<8	
2,6-dichlorophenol								<8	
2,6-dinitrotoluene								<8	
2-acetylaminofluorene								<8	
2-butanone (mek)	<5	<5	<5	<5	<5	<5	<10	<5	<10
2-chloronaphthalene								<8	
2-chlorophenol								<8	
2-hexanone (mbk)	<5	<5	<5	<5	<5	<5	<5	<5	<5
2-methylnaphthalene								<8	
2-methylphenol (o-cresol)								<8	
2-naphthylamine								<8	
2-nitroaniline								<8	
2-nitrophenol								<8	
3,3´-dichlorobenzidine								<8	
3,3'-dimethylbenzidine								<8	
3-methylcholanthrene								<8	
3-nitroaniline								<8	
4,4´-ddd								<.05	
4,4´-dde								<.05	
4,4´-ddt								<.05	
4,6-dinitro-2-methylphenol								<8	
4-aminobiphenyl								<8	
4-bromophenyl phenyl ether								<8	
4-chloro-3-methylphenol								<8	
4-chloroaniline								<8	
4-chlorophenyl phenyl ether								<8	
4-methyl-2-pentanone (mibk)	<5	<5	<5	<5	<5	<5	<5	<5	<5
4-nitroaniline								<8	
4-nitrophenol								<8	
5-nitro-o-toluidine								<8	
7,12-dimethylbenz(a)anthracene								<8	
Acenaphthene								<8	
Acenaphthylene								<8	
Acetone	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0
Acetonitrile								<10	
Acetophenone								<8	
Acrolein								<10	
Acrylonitrile	<5	<5	<5	<5	<5	<5	<5	<5	<5
Aldrin								<.05	
Allyl chloride								<1	
Alpha-bhc								<.05	
Anthracene								<8	

* - The displayed value is the arithmetic mean of multiple database matches.

Table 9

Analytical Data Summary for MW-7

Constituents	10/25/2023	4/17/2024	10/17/2024
(3 4)-methylphenol			
1,1,1,2-tetrachloroethane	<1	<1	<1
1,1,1-trichloroethane	<1	<1	<1
1,1,2,2-tetrachloroethane	<1	<1	<1
1,1,2-trichloroethane	<1	<1	<1
1,1-dichloroethane	<1	<1	<1
1,1-dichloroethylene	<1	<1	<1
1,1-dichloropropene			
1,2,3-trichloropropane	<1	<1	<1
1,2,4,5-tetrachlorobenzene			
1,2,4-trichlorobenzene			
1,2-dibromo-3-chloropropane	<5	<5	<5
1,2-dibromoethane	<1	<1	<1
1,2-dichlorobenzene	<1	<1	<1
1,2-dichloroethane	<1	<1	<1
1,2-dichloropropane	<1	<1	<1
1,2-dinitrobenzene			
1,3,5-trinitrobenzene			
1,3-dichlorobenzene			
1,3-dichloropropane			
1,3-dinitrobenzene			
1,4-dichlorobenzene	<1	<1	<1
1,4-naphthoquinone			
1,4-phenylenediamine			
1-naphthylamine			
2,2-dichloropropane			
2,3,4,6-tetrachlorophenol			
2,4,5-t			
2,4,5-tp (silvex)			
2,4,5-trichlorophenol			
2,4,6-trichlorophenol			
2,4-d			
2,4-dichlorophenol			
2,4-dimethylphenol			
2,4-dinitrophenol			
2,4-dinitrotoluene			
2,6-dichlorophenol			
2,6-dinitrotoluene			
2-acetylaminofluorene			
2-butanone (mek)	<10	<10	<10
2-chloronaphthalene			
2-chlorophenol			
2-hexanone (mbk)	<5	<5	<5
2-methylnaphthalene			
2-methylphenol (o-cresol)			
2-naphthylamine			
2-nitroaniline			
2-nitrophenol			
3,3´-dichlorobenzidine			
3,3'-dimethylbenzidine			
3-methylcholanthrene			
3-nitroaniline			
4,4´-ddd			
4,4´-dde			
4,4´-ddt			
4,6-dinitro-2-methylphenol			
4-aminobiphenyl			
4-bromophenyl phenyl ether			
4-chloro-3-methylphenol			
4-chloroaniline			
4-chlorophenyl phenyl ether			
4-methyl-2-pentanone (mibk)	<5	<5	<5
4-nitroaniline			
4-nitrophenol			
5-nitro-o-toluidine			
7,12-dimethylbenz(a)anthracene			
Acenaphthene			
Acenaphthylene			
Acetone	<10.0	<10.0	<10.0
Acetonitrile			
Acetophenone			
Acrolein			
Acrylonitrile	<5	<5	<5
Aldrin			
Allyl chloride			
Alpha-bhc			
Anthracene			

* - The displayed value is the arithmetic mean of multiple database matches.

Table 9

Analytical Data Summary for MW-7

Constituents	Units	3/31/2010	9/16/2010	4/11/2011	9/26/2011	4/1/2012	8/23/2012	4/12/2013	9/14/2013	4/11/2014
Antimony, total	ug/L	<2	<2	<2	<2	<2	<2	<2	<2	<2
Arochlor 1016	ug/L			<.1		<.1				
Arochlor 1221	ug/L			<.2		<.2				
Arochlor 1232	ug/L			<.2		<.2				
Arochlor 1242	ug/L			<.2		<.2				
Arochlor 1248	ug/L			<.2		<.2				
Arochlor 1254	ug/L			<.1		<.1				
Arochlor 1260	ug/L			<.1		<.1				
Arsenic, total	ug/L	<4.0	<4.0	<4.0	<4.0	6.2	7.6	<4.0	<4.0	<4.0
Azobenzene	ug/L			<8		<8				
Barium, total	ug/L	278	132	228	435	324	171	151	125	121
Benzene	ug/L	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Benzo(a)anthracene	ug/L			<8		<8				
Benzo(a)pyrene	ug/L			<8		<8				
Benzo(b)fluoranthene	ug/L			<8		<8				
Benzo(g,h,i)perylene	ug/L			<8		<8				
Benzo(k)fluoranthene	ug/L			<8		<8				
Benzyl alcohol	ug/L			<8		<8				
Beryllium, total	ug/L	<4	<4	<4	<4	<4	<4	<4	<4	<4
Beta-bhc	ug/L			<.05		<.05				
Bis (2-chloroethoxy) methane	ug/L			<8		<8				
Bis(2-chloroethyl) ether	ug/L			<8		<8				
Bis(2-ethylhexyl) phthalate	ug/L			<8		<8				
Bis[2-chloroisopropyl]ether	ug/L			<8		<8				
Bromochloromethane	ug/L	<1	<1	<1	<1	<1	<1	<1	<1	<1
Bromodichloromethane	ug/L	<1	<1	<1	<1	<1	<1	<1	<1	<1
Bromoform	ug/L	<1	<1	<1	<1	<1	<1	<1	<1	<1
Bromomethane	ug/L	<1	<1	<1	<1	<1	<1	<1	<1	<1
Butyl benzyl phthalate	ug/L			<8		<8				
Cadmium, total	ug/L	<1.0	<1.0	<.8	.8	<.8	<.8	<.8	<.8	<.8
Carbon disulfide	ug/L	<1	<1	<1	<1	<1	<1	<1	<1	<1
Carbon tetrachloride	ug/L	<1	<1	<1	<1	<1	<1	<1	<1	<1
Chlordane	ug/L			<.1		<.1				
Chlorobenzene	ug/L	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Chlorobenzilate	ug/L			<8		<8				
Chloroethane	ug/L	1.5	<1.0	<1.0	1.0	1.6	1.5	1.8	1.3	2.3
Chloroform	ug/L	<1	<1	<1	<1	<1	<1	<1	<1	<1
Chloromethane	ug/L	<1	<1	<1	<1	<1	<1	<1	<1	<1
Chloroprene	ug/L			<1		<1				
Chromium, total	ug/L	<10	<10	<8	<8	<8	<8	<8	<8	<8
Chrysene	ug/L			<8		<8				
Cis-1,2-dichloroethylene	ug/L	36.4	1.3	4.8	19.2	69.1	124.0	17.7	95.0	92.3
Cis-1,3-dichloropropene	ug/L	<1	<1	<1	<1	<1	<1	<1	<1	<1
Cobalt, total	ug/L	<4.0	<4.0	<4.0	<4.0	<4.0	<4.0	<4.0	<4.0	<4.0
Copper, total	ug/L	6.1	<4.0	<4.0	<4.0	5.5	<4.0	<4.0	4.1	<4.0
Cyanide, total	mg/L			<.007		<.007				
Delta-bhc	ug/L			<.05		<.05				
Diallate	ug/L			<8		<8				
Dibenzo(a,h)anthracene	ug/L			<8		<8				
Dibenzofuran	ug/L			<8		<8				
Dibromochloromethane	ug/L	<1	<1	<1	<1	<1	<1	<1	<1	<1
Dibromomethane	ug/L	<1	<1	<1	<1	<1	<1	<1	<1	<1
Dichlorodifluoromethane	ug/L			<1.0		1.4	2.3	3.5	3.0	2.1
Dieldrin	ug/L			<.05		<.05				
Diethyl phthalate	ug/L			<8		<8				
Dimethoate	ug/L			<.4		<.4				
Dimethylphthalate	ug/L			<8		<8				
Di-n-butyl phthalate	ug/L			<8		<8				
Di-n-octyl phthalate	ug/L			<8		<8				
Dinoseb	ug/L			<.5		<.5				
Diphenylamine	ug/L			<8		<8				
Disulfoton	ug/L			<.4		<.4				
Endosulfan i	ug/L			<.05		<.05				
Endosulfan ii	ug/L			<.05		<.05				
Endosulfan sulfate	ug/L			<.05		<.05				
Endrin	ug/L			<.05		<.05				
Endrin aldehyde	ug/L			<.05		<.05				
Ethyl methacrylate	ug/L			<10		<10				
Ethyl methanesulfonate	ug/L			<8		<8				
Ethylbenzene	ug/L	<1	<1	<1	<1	<1	<1	<1	<1	<1
Famphur	ug/L			<.4		<.4				
Fluoranthene	ug/L			<8		<8				
Fluorene	ug/L			<8		<8				
Gamma-bhc (lindane)	ug/L			<.05		<.05				
Heptachlor	ug/L			<.05		<.05				
Heptachlor epoxide	ug/L			<.05		<.05				
Hexachlorobenzene	ug/L			<4.03 *		<4.03 *				

* - The displayed value is the arithmetic mean of multiple database matches.

Table 9

Analytical Data Summary for MW-7

Constituents	9/27/2014	3/16/2015	9/28/2015	3/14/2016	9/3/2016	4/10/2017	9/1/2017	4/23/2018	9/14/2018
Antimony, total	<2	<2	<2	<2	<2	<2	<2	<2	<2
Arochlor 1016						<.1			
Arochlor 1221						<.2			
Arochlor 1232						<.2			
Arochlor 1242						<.2			
Arochlor 1248						<.2			
Arochlor 1254						<.1			
Arochlor 1260						<.1			
Arsenic, total	<4.0	5.0	<4.0	<4.0	<4.0	<4.0	<4.0	<4.0	<4.0
Azobenzene						<8			
Barium, total	143	202	197	118	163	144	259	138	209
Benzene	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Benzo(a)anthracene						<8			
Benzo(a)pyrene						<8			
Benzo(b)fluoranthene						<8			
Benzo(g,h,i)perylene						<8			
Benzo(k)fluoranthene						<8			
Benzyl alcohol						<8			
Beryllium, total	<4	<4	<4	<4	<4	<4	<4	<4	<4
Beta-bhc						<.05			
Bis (2-chloroethoxy) methane						<8			
Bis(2-chloroethyl) ether						<8			
Bis(2-ethylhexyl) phthalate						<8			
Bis[2-chloroisopropyl]ether						<8			
Bromochloromethane	<1	<1	<1	<1	<1	<1	<1	<1	<1
Bromodichloromethane	<1	<1	<1	<1	<1	<1	<1	<1	<1
Bromoform	<1	<1	<1	<1	<1	<1	<1	<1	<1
Bromomethane	<1	<1	<1	<1	<1	<1	<1	<1	<1
Butyl benzyl phthalate						<8			
Cadmium, total	<.8	<.8	1.1	1.0	.9	1.0	.8	1.0	.8
Carbon disulfide	<1	<1	<1	<1	<1	<1	<1	<1	<1
Carbon tetrachloride	<1	<1	<1	<1	<1	<1	<1	<1	<1
Chlordane						<.1			
Chlorobenzene	<1.0	<1.0	1.0	<1.0	<1.0	1.0	1.5	1.7	1.2
Chlorobenzilate						<8			
Chloroethane	2.6	<1.0	1.4	1.6	<1.0	1.2	1.7	1.7	1.2
Chloroform	<1	<1	<1	<1	<1	<1	<1	<1	<1
Chloromethane	<1	<1	<1	3	<1	<1	<1	<1	<1
Chloroprene						<1			
Chromium, total	<8	<8	<8	<8	<8	<8	<8	<8	<8
Chrysene						<8			
Cis-1,2-dichloroethylene	24.4	58.2	62.8	20.8	3.4	4.8	18.3	10.2	10.4
Cis-1,3-dichloropropene	<1	<1	<1	<1	<1	<1	<1	<1	<1
Cobalt, total	1.6	2.6	<.8	<.8	<.8	<.8	2.0	1.7	3.6
Copper, total	4.3	8.6	<4.0	<4.0	<4.0	<4.0	<4.0	<4.0	<4.0
Cyanide, total						<.005			
Delta-bhc						<.05			
Diallate						<8			
Dibenzo(a,h)anthracene						<8			
Dibenzofuran						<8			
Dibromochloromethane	<1	<1	<1	<1	<1	<1	<1	<1	<1
Dibromomethane	<1	<1	<1	<1	<1	<1	<1	<1	<1
Dichlorodifluoromethane	2.6	<1.0	<1.0	<1.0	<1.0	1.4		1.4	1.2
Dieldrin						<.05			
Diethyl phthalate						<8			
Dimethoate						<.4			
Dimethylphthalate						<8			
Di-n-butyl phthalate						<8			
Di-n-octyl phthalate						<8			
Dinoseb						<.5			
Diphenylamine						<8			
Disulfoton						<.4			
Endosulfan i						<.05			
Endosulfan ii						<.05			
Endosulfan sulfate						<.05			
Endrin						<.05			
Endrin aldehyde						<.05			
Ethyl methacrylate						<10			
Ethyl methanesulfonate						<8			
Ethylbenzene	<1	<1	<1	<1	<1	<1	<1	<1	<1
Famphur						<.4			
Fluoranthene						<8			
Fluorene						<8			
Gamma-bhc (lindane)						<.05			
Heptachlor						<.05			
Heptachlor epoxide						<.05			
Hexachlorobenzene						<.05			

* - The displayed value is the arithmetic mean of multiple database matches.

Table 9

Analytical Data Summary for MW-7

Constituents	4/15/2019	9/17/2019	4/8/2020	10/2/2020	4/12/2021	10/26/2021	4/4/2022	10/7/2022	4/19/2023
Antimony, total	<2	<2	<2	<2	<2	<2	<2	<2	<2
Arochlor 1016								<.1	
Arochlor 1221								<.2	
Arochlor 1232								<.2	
Arochlor 1242								<.2	
Arochlor 1248								<.2	
Arochlor 1254								<.1	
Arochlor 1260								<.1	
Arsenic, total	<4.0	<4.0	<4.0	<4.0	<4.0	<4.0	<4.0	<4.0	<4.0
Azobenzene								<8	
Barium, total	126	229	123	203	120	189	107	308	118
Benzene	<1.0	<1.0	<1.0	<1.0	<1.0	1.6	<1.0	<1.0	<1.0
Benzo(a)anthracene								<8	
Benzo(a)pyrene								<8	
Benzo(b)fluoranthene								<8	
Benzo(g,h,i)perylene								<8	
Benzo(k)fluoranthene								<8	
Benzyl alcohol								<8	
Beryllium, total	<4	<4	<4	<4	<4	<4	<4	<4	<4
Beta-bhc								<.05	
Bis (2-chloroethoxy) methane								<8	
Bis(2-chloroethyl) ether								<8	
Bis(2-ethylhexyl) phthalate								<6	
Bis[2-chloroisopropyl]ether								<8	
Bromochloromethane	<1	<1	<1	<1	<1	<1	<1	<1	<1
Bromodichloromethane	<1	<1	<1	<1	<1	<1	<1	<1	<1
Bromoform	<1	<1	<1	<1	<1	<1	<1	<1	<1
Bromomethane	<1	<1	<1	<1	<1	<1	<1	<1	<1
Butyl benzyl phthalate								<8	
Cadmium, total	.8	<.8	<.8	<.8	<.8	<.8	<.8	<.8	<.8
Carbon disulfide	<1	<1	<1	<1	<1	<1	<1	<1	<1
Carbon tetrachloride	<1	<1	<1	<1	<1	<1	<1	<1	<1
Chlordane								<.1	
Chlorobenzene	1.6	2.4	2.0	2.8	1.7	2.4	1.1	1.8	<1.0
Chlorobenzilate								<8	
Chloroethane	1.6	1.1	1.5	1.3	<1.0	1.2	1.7	1.9	<1.0
Chloroform	<1	<1	<1	<1	<1	<1	<1	<1	<1
Chloromethane	<1	<1	<1	<1	<1	<1	<1	<1	<1
Chloroprene								<1	
Chromium, total	<8	<8	<8	<8	<8	<8	<8	<8	<8
Chrysene								<8	
Cis-1,2-dichloroethylene	5.9	7.7	6.6	22.5	14.9	5.9	<1.0	1.0	1.4
Cis-1,3-dichloropropene	<1	<1	<1	<1	<1	<1	<1	<1	<1
Cobalt, total	2.8	6.1	4.3	8.5	2.7	8.6	1.1	9.4	.7
Copper, total	<4.0	<4.0	<4.0	<4.0	<4.0	<4.0	4.7	<4.0	5.1
Cyanide, total								<.005	
Delta-bhc								<.05	
Diallate								<8	
Dibenzo(a,h)anthracene								<8	
Dibenzofuran								<8	
Dibromochloromethane	<1	<1	<1	<1	<1	<1	<1	<1	<1
Dibromomethane	<1	<1	<1	<1	<1	<1	<1	<1	<1
Dichlorodifluoromethane	1.4	<1.0	1.6	1.0	<1.0	1.4	<1.0	1.3	<1.0
Dieldrin								<.05	
Diethyl phthalate								<8	
Dimethoate								<.4	
Dimethylphthalate								<8	
Di-n-butyl phthalate								<8	
Di-n-octyl phthalate								<8	
Dinoseb								<.5	
Diphenylamine								<8	
Disulfoton								<.4	
Endosulfan i								<.05	
Endosulfan ii								<.05	
Endosulfan sulfate								<.05	
Endrin								<.05	
Endrin aldehyde								<.05	
Ethyl methacrylate								<10	
Ethyl methanesulfonate								<8	
Ethylbenzene	<1	<1	<1	<1	<1	<1	<1	<1	<1
Famphur								<.4	
Fluoranthene								<8	
Fluorene								<8	
Gamma-bhc (lindane)								<.05	
Heptachlor								<.05	
Heptachlor epoxide								<.05	
Hexachlorobenzene								<.05	

* - The displayed value is the arithmetic mean of multiple database matches.

Table 9

Analytical Data Summary for MW-7

Constituents	10/25/2023	4/17/2024	10/17/2024
Antimony, total	<2	<2	<2
Arochlor 1016			
Arochlor 1221			
Arochlor 1232			
Arochlor 1242			
Arochlor 1248			
Arochlor 1254			
Arochlor 1260			
Arsenic, total	<4.0	<4.0	<4.0
Azobenzene			
Barium, total	216	139	249
Benzene	<1.0	<1.0	<1.0
Benzo(a)anthracene			
Benzo(a)pyrene			
Benzo(b)fluoranthene			
Benzo(g,h,i)perylene			
Benzo(k)fluoranthene			
Benzyl alcohol			
Beryllium, total	<4	<4	<4
Beta-bhc			
Bis (2-chloroethoxy) methane			
Bis(2-chloroethyl) ether			
Bis(2-ethylhexyl) phthalate			
Bis[2-chloroisopropyl]ether			
Bromochloromethane	<1	<1	<1
Bromodichloromethane	<1	<1	<1
Bromoform	<1	<1	<1
Bromomethane	<1	<1	<1
Butyl benzyl phthalate			
Cadmium, total	<.8	<.8	<.8
Carbon disulfide	<1	<1	<1
Carbon tetrachloride	<1	<1	<1
Chlordane			
Chlorobenzene	<1.0	<1.0	1.2
Chlorobenzilate			
Chloroethane	1.3	<1.0	<1.0
Chloroform	<1	<1	<1
Chloromethane	<1	<1	<1
Chloroprene			
Chromium, total	<8	<8	<8
Chrysene			
Cis-1,2-dichloroethylene	5.0	2.3	6.1
Cis-1,3-dichloropropene	<1	<1	<1
Cobalt, total	1.9	1.0	2.8
Copper, total	5.4	<4.0	6.4
Cyanide, total			
Delta-bhc			
Diallate			
Dibenzo(a,h)anthracene			
Dibenzofuran			
Dibromochloromethane	<1	<1	<1
Dibromomethane	<1	<1	<1
Dichlorodifluoromethane	1.0	1.0	<1.0
Dieldrin			
Diethyl phthalate			
Dimethoate			
Dimethylphthalate			
Di-n-butyl phthalate			
Di-n-octyl phthalate			
Dinoseb			
Diphenylamine			
Disulfoton			
Endosulfan i			
Endosulfan ii			
Endosulfan sulfate			
Endrin			
Endrin aldehyde			
Ethyl methacrylate			
Ethyl methanesulfonate			
Ethylbenzene	<1	<1	<1
Famphur			
Fluoranthene			
Fluorene			
Gamma-bhc (lindane)			
Heptachlor			
Heptachlor epoxide			
Hexachlorobenzene			

* - The displayed value is the arithmetic mean of multiple database matches.

Table 9

Analytical Data Summary for MW-7

Constituents	Units	3/31/2010	9/16/2010	4/11/2011	9/26/2011	4/1/2012	8/23/2012	4/12/2013	9/14/2013	4/11/2014
Hexachlorobutadiene	ug/L			<8		<8				
Hexachlorocyclopentadiene	ug/L			<8		<8				
Hexachloroethane	ug/L			<8		<8				
Hexachloropropene	ug/L			<8		<8				
Indeno(1,2,3-cd)pyrene	ug/L			<8		<8				
Isobutanol	mg/L			<1		<1				
Isodrin	ug/L			<8		<8				
Isophorone	ug/L			<8		<8				
Isosafrole	ug/L			<8		<8				
Kepone	ug/L			<8		<8				
Lead, total	ug/L	4.3	<4.0	<4.0	<4.0	4.5	<4.0	<4.0	<4.0	<4.0
Mercury, total	ug/L			<.5		<.5				
Methacrylonitrile	ug/L			<1		<1				
Methapyrilene	ug/L			<8		<8				
Methoxychlor	ug/L			<.05		<.05				
Methyl iodide	ug/L	<1	<1	<1	<1	<1	<1	<1	<1	<1
Methyl methacrylate	ug/L			<1		<1				
Methyl methanesulfonate	ug/L			<8		<8				
Methyl parathion	ug/L			<.4		<.4				
Methylene chloride	ug/L	<5	<5	<5	<5	<5	<5	<5	<5	<5
Naphthalene	ug/L			<8		<8				
Nickel, total	ug/L	21.3	8.6	20.4	24.2	32.6	26.8	26.9	19.6	21.8
Nitrobenzene	ug/L			<8		<8				
N-nitrosodiethylamine	ug/L			<8		<8				
N-nitrosodimethylamine	ug/L			<8		<8				
N-nitrosodi-n-butylamine	ug/L			<8		<8				
N-nitroso-di-n-propylamine	ug/L			<8		<8				
N-nitrosodiphenylamine	ug/L			<8		<8				
N-nitrosomethylethylamine	ug/L									
N-nitrosopiperidine	ug/L			<8		<8				
N-nitrosopyrrolidine	ug/L			<8		<8				
O,o,o-triethyl phosphorothioate	ug/L			<.4		<.4				
O-toluidine	ug/L			<8		<8				
Parathion	ug/L			<.4		<.4				
P-dimethylaminoazobenzene	ug/L			<8		<8				
Pentachlorobenzene	ug/L			<8		<8				
Pentachloronitrobenzene (pcnb)	ug/L			<8		<8				
Pentachlorophenol	ug/L			<8		<8				
Phenacetin	ug/L			<8		<8				
Phenanthrene	ug/L			<8		<8				
Phenol	ug/L			<8		<8				
Phorate	ug/L			<.4		<.4				
Pronamide	ug/L			<8		<8				
Propionitrile	ug/L			<10		<10				
Pyrene	ug/L			<8		<8				
Safrole	ug/L			<8		<8				
Selenium, total	ug/L	<4.0	<4.0	<4.0	<4.0	<4.0	4.6	<4.0	<4.0	<4.0
Silver, total	ug/L	<4	<4	<4	<4	<4	<4	<4	<4	<4
Solids, total suspended	mg/L									
Styrene	ug/L	<1	<1	<1	<1	<1	<1	<1	<1	<1
Sulfide, total	mg/L			<.1		<.1				
Tetrachloroethylene	ug/L	<1	<1	<1	<1	<1	<1	<1	<1	<1
Thallium, total	ug/L	<4	<4	<4	<4	<2	<2	<2	<4	<4
Thionazin	ug/L			<.4		<.4				
Tin, total	ug/L			<20		<20				
Toluene	ug/L	<1	<1	<1	<1	<1	<1	<1	<1	<1
Toxaphene	ug/L			<.2		<.2				
Trans-1,2-dichloroethylene	ug/L	1.0	<1.0	<1.0	<1.0	1.8	3.6	<1.0	2.8	2.5
Trans-1,3-dichloropropene	ug/L	<1	<1	<1	<1	<1	<1	<1	<1	<1
Trans-1,4-dichloro-2-butene	ug/L	<5	<5	<5	<5	<5	<5	<5	<5	<5
Trichloroethylene	ug/L	<1	<1	<1	<1	<1	<1	<1	<1	<1
Trichlorofluoromethane	ug/L	<1	<1	<1	<1	<1	<1	<1	<1	<1
Vanadium, total	ug/L	21.3	<10.0	<20.0	<20.0	<20.0	<20.0	<20.0	<20.0	<20.0
Vinyl acetate	ug/L	<5	<5	<5	<5	<5	<5	<5	<5	<5
Vinyl chloride	ug/L	1.3	<1.0	<1.0	<1.0	2.4	6.2	3.6	6.4	4.4
Xylenes, total	ug/L	<2	<2	<2	<2	<2	<2	<2	<2	<2
Zinc, total	ug/L	16.6	<10.0	<8.0	10.1	20.1	9.0	<8.0	<20.0	<20.0

* - The displayed value is the arithmetic mean of multiple database matches.

Table 9

Analytical Data Summary for MW-7

Constituents	9/27/2014	3/16/2015	9/28/2015	3/14/2016	9/3/2016	4/10/2017	9/1/2017	4/23/2018	9/14/2018
Hexachlorobutadiene						<8			
Hexachlorocyclopentadiene						<8			
Hexachloroethane						<8			
Hexachloropropene						<8			
Indeno(1,2,3-cd)pyrene						<8			
Isobutanol						<1			
Isodrin						<8			
Isophorone						<8			
Isosafrole						<8			
Kepone						<8			
Lead, total	<4.0	4.0	<4.0	<4.0	<4.0	<4.0	<4.0	<4.0	<4.0
Mercury, total						<.5			
Methacrylonitrile						<1			
Methapyrilene						<8			
Methoxychlor						<.05			
Methyl iodide	<1	<1	<1	<1	<1	<1	<1	<1	<1
Methyl methacrylate						<1			
Methyl methanesulfonate						<8			
Methyl parathion						<.4			
Methylene chloride	<5	<5	<5	<5	<5	<5	<5	<5	<5
Naphthalene						<8			
Nickel, total	25.3	26.4	32.9	34.4	30.0	56.3	64.8	68.7	65.6
Nitrobenzene						<8			
N-nitrosodiethylamine						<8			
N-nitrosodimethylamine						<8			
N-nitrosodi-n-butylamine						<8			
N-nitroso-di-n-propylamine						<8			
N-nitrosodiphenylamine						<8			
N-nitrosomethylethylamine						<8			
N-nitrosopiperidine						<8			
N-nitrosopyrrolidine						<8			
O,o,o-triethyl phosphorothioate						<.4			
O-toluidine						<8			
Parathion						<.4			
P-dimethylaminoazobenzene						<8			
Pentachlorobenzene						<8			
Pentachloronitrobenzene (pcnb)						<8			
Pentachlorophenol						<8			
Phenacetin						<8			
Phenanthrene						<8			
Phenol						<8			
Phorate						<.4			
Pronamide						<8			
Propionitrile						<10			
Pyrene						<8			
Safrole						<8			
Selenium, total	<4.0	<4.0	<4.0	<4.0	<4.0	<4.0	<4.0	<4.0	<4.0
Silver, total	<4	<4	<4	<4	<4	<4	<4	<4	<4
Solids, total suspended	154	158	28	12	35	508	34	15	82
Styrene	<1	<1	<1	<1	<1	<1	<1	<1	<1
Sulfide, total						<.1			
Tetrachloroethylene	<1	<1	<1	<1	<1	<1	<1	<1	<1
Thallium, total	<4	<4	<1	<4	<4	<4	<4	<4	<4
Thionazin						<.4			
Tin, total						<20			
Toluene	<1	<1	<1	<1	<1	<1	<1	<1	<1
Toxaphene						<.2			
Trans-1,2-dichloroethylene	<1.0	<1.0	2.1	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Trans-1,3-dichloropropene	<1	<1	<1	<1	<1	<1	<1	<1	<1
Trans-1,4-dichloro-2-butene	<5	<5	<5	<5	<5	<5	<5	<5	<5
Trichloroethylene	<1	<1	<1	<1	<1	<1	<1	<1	<1
Trichlorofluoromethane	<1	<1	<1	<1	<1	<1	<1	<1	<1
Vanadium, total	<20.0	<20.0	<20.0	<20.0	<20.0	<20.0	<20.0	<20.0	<20.0
Vinyl acetate	<5	<5	<5	<5	<5	<5	<5	<5	<5
Vinyl chloride	3.1	<1.0	3.0	1.2	<1.0	1.7	3.2	2.1	2.1
Xylenes, total	<2	<2	<2	<2	<2	<2	<2	<2	<2
Zinc, total	13.8	19.9	8.2	<20.0	8.7	<8.0	10.4	<8.0	<20.0

* - The displayed value is the arithmetic mean of multiple database matches.

Table 9

Analytical Data Summary for MW-7

Constituents	4/15/2019	9/17/2019	4/8/2020	10/2/2020	4/12/2021	10/26/2021	4/4/2022	10/7/2022	4/19/2023
Hexachlorobutadiene								<8	
Hexachlorocyclopentadiene								<8	
Hexachloroethane								<8	
Hexachloropropene								<8	
Indeno(1,2,3-cd)pyrene								<8	
Isobutanol								<1	
Isodrin								<8	
Isophorone								<8	
Isosafrole								<8	
Kepone								<8	
Lead, total	<4.0	<4.0	<4.0	<4.0	<4.0	<4.0	<4.0	<4.0	<4.0
Mercury, total								<.5	
Methacrylonitrile								<1	
Methapyrilene								<8	
Methoxychlor								<.05	
Methyl iodide	<1	<1	<1	<1	<1	<1	<1	<2	<1
Methyl methacrylate								<1	
Methyl methanesulfonate								<8	
Methyl parathion								<.4	
Methylene chloride	<5	<5	<5	<5	<5	<5	<5	<5	<5
Naphthalene								<8	
Nickel, total	57.2	94.9	73.4	77.6	65.5	57.5	39.1	68.3	14.2
Nitrobenzene								<8	
N-nitrosodiethylamine								<8	
N-nitrosodimethylamine								<8	
N-nitrosodi-n-butylamine								<8	
N-nitroso-di-n-propylamine								<8	
N-nitrosodiphenylamine								<8	
N-nitrosomethylethylamine								<8	
N-nitrosopiperidine								<8	
N-nitrosopyrrolidine								<8	
O,o,o-triethyl phosphorothioate								<.4	
O-toluidine								<8	
Parathion								<.4	
P-dimethylaminoazobenzene								<8	
Pentachlorobenzene								<8	
Pentachloronitrobenzene (pcnb)								<8	
Pentachlorophenol								<8	
Phenacetin								<8	
Phenanthrene								<8	
Phenol								<8	
Phorate								<.4	
Pronamide								<8	
Propionitrile								<10	
Pyrene								<8	
Safrole								<8	
Selenium, total	<4.0	<4.0	<4.0	<4.0	<4.0	<4.0	<4.0	<4.0	<4.0
Silver, total	<4	<4	<4	<4	<4	<4	<4	<4	<4
Solids, total suspended	33	58	62	64					
Styrene	<1	<1	<1	<1	<1	<1	<1	<1	<1
Sulfide, total								<.1	
Tetrachloroethylene	<1	<1	<1	<1	<1	<1	<1	<1	<1
Thallium, total	<2	<2	<2	<2	<2	<2	<2	<2	<2
Thionazin								<.4	
Tin, total								<20	
Toluene	<1	<1	<1	<1	<1	<1	<1	<1	<1
Toxaphene								<.2	
Trans-1,2-dichloroethylene	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Trans-1,3-dichloropropene	<1	<1	<1	<1	<1	<1	<1	<1	<1
Trans-1,4-dichloro-2-butene	<5	<5	<5	<5	<5	<5	<5	<5	<5
Trichloroethylene	<1	<1	<1	<1	<1	<1	<1	<1	<1
Trichlorofluoromethane	<1	<1	<1	<1	<1	<1	<1	<1	<1
Vanadium, total	<20.0	<20.0	<20.0	<20.0	<20.0	<20.0	<20.0	<20.0	<20.0
Vinyl acetate	<5	<5	<5	<5	<5	<5	<5	<5	<5
Vinyl chloride	1.1	1.0	1.7	2.5	<1.0	<1.0	<1.0	<1.0	<1.0
Xylenes, total	<2	<2	<2	<2	<2	<2	<2	<2	<2
Zinc, total	9.0	<20.0	<20.0	<20.0	<20.0	<20.0	<20.0	<20.0	<20.0

* - The displayed value is the arithmetic mean of multiple database matches.

Table 9

Analytical Data Summary for MW-7

Constituents	10/25/2023	4/17/2024	10/17/2024
Hexachlorobutadiene			
Hexachlorocyclopentadiene			
Hexachloroethane			
Hexachloropropene			
Indeno(1,2,3-cd)pyrene			
Isobutanol			
Isodrin			
Isophorone			
Isosafrole			
Kepone			
Lead, total	<4.0	<4.0	<4.0
Mercury, total			
Methacrylonitrile			
Methapyrilene			
Methoxychlor			
Methyl iodide	<1	<1	<1
Methyl methacrylate			
Methyl methanesulfonate			
Methyl parathion			
Methylene chloride	<5	<5	<5
Naphthalene			
Nickel, total	43.8	9.1	49.6
Nitrobenzene			
N-nitrosodiethylamine			
N-nitrosodimethylamine			
N-nitrosodi-n-butylamine			
N-nitroso-di-n-propylamine			
N-nitrosodiphenylamine			
N-nitrosomethylethylamine			
N-nitrosopiperidine			
N-nitrosopyrrolidine			
O,o,o-triethyl phosphorothioate			
O-toluidine			
Parathion			
P-dimethylaminoazobenzene			
Pentachlorobenzene			
Pentachloronitrobenzene (pcnb)			
Pentachlorophenol			
Phenacetin			
Phenanthrene			
Phenol			
Phorate			
Pronamide			
Propionitrile			
Pyrene			
Safrole			
Selenium, total	<4.0	<4.0	<4.0
Silver, total	<4	<4	<4
Solids, total suspended			
Styrene	<1	<1	<1
Sulfide, total			
Tetrachloroethylene	<1	<1	<1
Thallium, total	<2	<2	<2
Thionazin			
Tin, total			
Toluene	<1	<1	<1
Toxaphene			
Trans-1,2-dichloroethylene	<1.0	<1.0	<1.0
Trans-1,3-dichloropropene	<1	<1	<1
Trans-1,4-dichloro-2-butene	<5	<5	<5
Trichloroethylene	<1	<1	<1
Trichlorofluoromethane	<1	<1	<1
Vanadium, total	<20.0	<20.0	<20.0
Vinyl acetate	<5	<5	<5
Vinyl chloride	<1.0	<1.0	<1.0
Xylenes, total	<2	<2	<2
Zinc, total	<20.0	<20.0	<20.0

* - The displayed value is the arithmetic mean of multiple database matches.

Table 9

Analytical Data Summary for PZ-11

Constituents	Units	3/31/2010	9/16/2010	4/11/2011	9/26/2011	4/1/2012	8/23/2012	4/13/2013	9/14/2013	4/11/2014
(3 4)-methylphenol	ug/L							<8		
1,1,1,2-tetrachloroethane	ug/L	<1	<1	<1	<1	<1	<1	<1	<1	<1
1,1,1-trichloroethane	ug/L	<1	<1	<1	<1	<1	<1	<1	<1	<1
1,1,2,2-tetrachloroethane	ug/L	<1	<1	<1	<1	<1	<1	<1	<1	<1
1,1,2-trichloroethane	ug/L	<1	<1	<1	<1	<1	<1	<1	<1	<1
1,1-dichloroethane	ug/L	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
1,1-dichloroethylene	ug/L	<1	<1	<1	<1	<1	<1	<1	<1	<1
1,1-dichloropropene	ug/L							<1		
1,2,3-trichloropropane	ug/L	<1	<1	<1	<1	<1	<1	<1	<1	<1
1,2,4,5-tetrachlorobenzene	ug/L							<8		
1,2,4-trichlorobenzene	ug/L							<1		
1,2-dibromo-3-chloropropane	ug/L	<1	<1	<1	<1	<1	<1	<1	<1	<1
1,2-dibromoethane	ug/L	<1	<1	<1	<1	<1	<1	<1	<1	<1
1,2-dichlorobenzene	ug/L	<1	<1	<1	<1	<1	<1	<1	<1	<1
1,2-dichloroethane	ug/L	<1	<1	<1	<1	<1	<1	<1	<1	<1
1,2-dichloropropane	ug/L	<1	<1	<1	<1	<1	<1	<1	<1	<1
1,2-dinitrobenzene	ug/L							<8		
1,3,5-trinitrobenzene	ug/L							<8		
1,3-dichlorobenzene	ug/L							<1		
1,3-dichloropropane	ug/L							<1		
1,3-dinitrobenzene	ug/L							<8		
1,4-dichlorobenzene	ug/L	<1	<1	<1	<1	<1	<1	<1	<1	<1
1,4-naphthoquinone	ug/L							<8		
1,4-phenylenediamine	ug/L							<8		
1-naphthylamine	ug/L							<8		
2,2-dichloropropane	ug/L							<1		
2,3,4,6-tetrachlorophenol	ug/L							<8		
2,4,5-t	ug/L							<.5		
2,4,5-tp (silvex)	ug/L							<.5		
2,4,5-trichlorophenol	ug/L							<8		
2,4,6-trichlorophenol	ug/L							<8		
2,4-d	ug/L							<2		
2,4-dichlorophenol	ug/L							<8		
2,4-dimethylphenol	ug/L							<8		
2,4-dinitrophenol	ug/L							<8		
2,4-dinitrotoluene	ug/L							<8		
2,6-dichlorophenol	ug/L							<8		
2,6-dinitrotoluene	ug/L							<8		
2-acetylaminofluorene	ug/L							<8		
2-butanone (mek)	ug/L	<5	<5	<5	<5	<5	<5	<5	<5	<5
2-chloronaphthalene	ug/L							<8		
2-chlorophenol	ug/L							<8		
2-hexanone (mbk)	ug/L	<5	<5	<5	<5	<5	<5	<5	<5	<5
2-methylnaphthalene	ug/L							<8		
2-methylphenol (o-cresol)	ug/L							<8		
2-naphthylamine	ug/L							<8		
2-nitroaniline	ug/L							<8		
2-nitrophenol	ug/L							<8		
3,3´-dichlorobenzidine	ug/L							<8		
3,3'-dimethylbenzidine	ug/L							<8		
3-methylcholanthrene	ug/L							<8		
3-nitroaniline	ug/L							<8		
4,4´-ddd	ug/L							<.05		
4,4´-dde	ug/L							<.05		
4,4´-ddt	ug/L							<.05		
4,6-dinitro-2-methylphenol	ug/L							<8		
4-aminobiphenyl	ug/L							<8		
4-bromophenyl phenyl ether	ug/L							<8		
4-chloro-3-methylphenol	ug/L							<8		
4-chloroaniline	ug/L							<8		
4-chlorophenyl phenyl ether	ug/L							<8		
4-methyl-2-pentanone (mibk)	ug/L	<5	<5	<5	<5	<5	<5	<5	<5	<5
4-nitroaniline	ug/L							<8		
4-nitrophenol	ug/L							<8		
5-nitro-o-toluidine	ug/L							<8		
7,12-dimethylbenz(a)anthracene	ug/L							<8		
Acenaphthene	ug/L							<8		
Acenaphthylene	ug/L							<8		
Acetone	ug/L	<10	<10	<10	<10	<10	<10	<10	<10	<10
Acetonitrile	ug/L							<10		
Acetophenone	ug/L							<8		
Acrolein	ug/L							<10		
Acrylonitrile	ug/L	<5	<5	<5	<5	<5	<5	<5	<5	<5
Aldrin	ug/L							<.05		
Allyl chloride	ug/L							<1		
Alpha-bhc	ug/L							<.05		
Anthracene	ug/L							<8		

* - The displayed value is the arithmetic mean of multiple database matches.

Table 9

Analytical Data Summary for PZ-11

Constituents	9/27/2014	3/16/2015	9/28/2015	3/14/2016	9/3/2016	4/10/2017	7/14/2017	9/1/2017	11/15/2017
(3 4)-methylphenol									
1,1,1,2-tetrachloroethane	<1	<1	<1	<1	<1	<1		<1	
1,1,1-trichloroethane	<1	<1	<1	<1	<1	<1		<1	
1,1,2,2-tetrachloroethane	<1	<1	<1	<1	<1	<1		<1	
1,1,2-trichloroethane	<1	<1	<1	<1	<1	<1		<1	
1,1-dichloroethane	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0		<1.0	
1,1-dichloroethylene	<1	<1	<1	<1	<1	<1		<1	
1,1-dichloropropene									
1,2,3-trichloropropane	<1	<1	<1	<1	<1	<1		<1	
1,2,4,5-tetrachlorobenzene									
1,2,4-trichlorobenzene									
1,2-dibromo-3-chloropropane	<1	<1	<1	<1	<1	<1		<1	
1,2-dibromoethane	<1	<1	<1	<1	<1	<1		<1	
1,2-dichlorobenzene	<1	<1	<1	<1	<1	<1		<1	
1,2-dichloroethane	<1	<1	<1	<1	<1	<1		<1	
1,2-dichloropropane	<1	<1	<1	<1	<1	<1		<1	
1,2-dinitrobenzene									
1,3,5-trinitrobenzene									
1,3-dichlorobenzene									
1,3-dichloropropane									
1,3-dinitrobenzene									
1,4-dichlorobenzene	<1	<1	<1	<1	<1	<1		<1	
1,4-naphthoquinone									
1,4-phenylenediamine									
1-naphthylamine									
2,2-dichloropropane									
2,3,4,6-tetrachlorophenol									
2,4,5-t									
2,4,5-tp (silvex)									
2,4,5-trichlorophenol									
2,4,6-trichlorophenol									
2,4-d									
2,4-dichlorophenol									
2,4-dimethylphenol									
2,4-dinitrophenol									
2,4-dinitrotoluene									
2,6-dichlorophenol									
2,6-dinitrotoluene									
2-acetylaminofluorene									
2-butanone (mek)	<5	<5	<5	<5	<5	<5		<5	
2-chloronaphthalene									
2-chlorophenol									
2-hexanone (mbk)	<5	<5	<5	<5	<5	<5		<5	
2-methylnaphthalene									
2-methylphenol (o-cresol)									
2-naphthylamine									
2-nitroaniline									
2-nitrophenol									
3,3´-dichlorobenzidine									
3,3'-dimethylbenzidine									
3-methylcholanthrene									
3-nitroaniline									
4,4´-ddd									
4,4´-dde									
4,4´-ddt									
4,6-dinitro-2-methylphenol									
4-aminobiphenyl									
4-bromophenyl phenyl ether									
4-chloro-3-methylphenol									
4-chloroaniline									
4-chlorophenyl phenyl ether									
4-methyl-2-pentanone (mibk)	<5	<5	<5	<5	<5	<5		<5	
4-nitroaniline									
4-nitrophenol									
5-nitro-o-toluidine									
7,12-dimethylbenz(a)anthracene									
Acenaphthene									
Acenaphthylene									
Acetone	<10	<10	<10	<10	<10	<10		<10	
Acetonitrile									
Acetophenone									
Acrolein									
Acrylonitrile	<5	<5	<5	<5	<5	<5		<5	
Aldrin									
Allyl chloride									
Alpha-bhc									
Anthracene									

* - The displayed value is the arithmetic mean of multiple database matches.

Table 9

Analytical Data Summary for PZ-11

Constituents	4/23/2018	9/14/2018	4/15/2019	9/17/2019	4/8/2020	10/2/2020	4/12/2021	10/26/2021	4/4/2022
(3 4)-methylphenol					<8		<8		
1,1,1,2-tetrachloroethane	<1	<1	<1	<1	<1	<1	<1	<1	<1
1,1,1-trichloroethane	<1	<1	<1	<1	<1	<1	<1	<1	<1
1,1,2,2-tetrachloroethane	<1	<1	<1	<1	<1	<1	<1	<1	<1
1,1,2-trichloroethane	<1	<1	<1	<1	<1	<1	<1	<1	<1
1,1-dichloroethane	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
1,1-dichloroethylene	<1	<1	<1	<1	<1	<1	<1	<1	<1
1,1-dichloropropene					<1		<1		
1,2,3-trichloropropane	<1	<1	<1	<1	<1	<1	<1	<1	<1
1,2,4,5-tetrachlorobenzene					<8		<8		
1,2,4-trichlorobenzene					<1		<1		
1,2-dibromo-3-chloropropane	<1	<1	<1	<1	<1	<5	<1	<5	<5
1,2-dibromoethane	<1	<1	<1	<1	<1	<1	<1	<1	<1
1,2-dichlorobenzene	<1	<1	<1	<1	<1	<1	<1	<1	<1
1,2-dichloroethane	<1	<1	<1	<1	<1	<1	<1	<1	<1
1,2-dichloropropane	<1	<1	<1	<1	<1	<1	<1	<1	<1
1,2-dinitrobenzene					<8		<8		
1,3,5-trinitrobenzene					<8		<8		
1,3-dichlorobenzene					<1		<1		
1,3-dichloropropane					<1		<1		
1,3-dinitrobenzene					<8		<8		
1,4-dichlorobenzene	<1	<1	<1	<1	<1	<1	<1	<1	<1
1,4-naphthoquinone					<8		<8		
1,4-phenylenediamine					<8		<8		
1-naphthylamine					<8		<8		
2,2-dichloropropane					<1		<1		
2,3,4,6-tetrachlorophenol					<8		<8		
2,4,5-t					<.5		<.5		
2,4,5-tp (silvex)					<.5		<.5		
2,4,5-trichlorophenol					<8		<8		
2,4,6-trichlorophenol					<8		<8		
2,4-d					<2		<2		
2,4-dichlorophenol					<8		<8		
2,4-dimethylphenol					<8		<8		
2,4-dinitrophenol					<8		<8		
2,4-dinitrotoluene					<8		<8		
2,6-dichlorophenol					<8		<8		
2,6-dinitrotoluene					<8		<8		
2-acetylaminofluorene					<8		<8		
2-butanone (mek)	<5	<5	<5	<5	<5	<5	<5	<5	<10
2-chloronaphthalene					<8		<8		
2-chlorophenol					<8		<8		
2-hexanone (mbk)	<5	<5	<5	<5	<5	<5	<5	<5	<5
2-methylnaphthalene					<8		<8		
2-methylphenol (o-cresol)					<8		<8		
2-naphthylamine					<8		<8		
2-nitroaniline					<8		<8		
2-nitrophenol					<8		<8		
3,3´-dichlorobenzidine					<8		<8		
3,3'-dimethylbenzidine					<8		<8		
3-methylcholanthrene					<8		<8		
3-nitroaniline					<8		<8		
4,4´-ddd					<.05		<.05		
4,4´-dde					<.05		<.05		
4,4´-ddt					<.05		<.05		
4,6-dinitro-2-methylphenol					<8		<8		
4-aminobiphenyl					<8		<8		
4-bromophenyl phenyl ether					<8		<8		
4-chloro-3-methylphenol					<8		<8		
4-chloroaniline					<8		<8		
4-chlorophenyl phenyl ether					<8		<8		
4-methyl-2-pentanone (mibk)	<5	<5	<5	<5	<5	<5	<5	<5	<5
4-nitroaniline					<8		<8		
4-nitrophenol					<8		<8		
5-nitro-o-toluidine					<8		<8		
7,12-dimethylbenz(a)anthracene					<8		<8		
Acenaphthene					<8		<8		
Acenaphthylene					<8		<8		
Acetone	<10	<10	<10	<10	<10	<10	<10	<10	<10
Acetonitrile					<10		<10		
Acetophenone					<8		<8		
Acrolein					<10		<10		
Acrylonitrile	<5	<5	<5	<5	<5	<5	<5	<5	<5
Aldrin					<.05		<.05		
Allyl chloride					<1		<1		
Alpha-bhc					<.05		<.05		
Anthracene					<8		<8		

* - The displayed value is the arithmetic mean of multiple database matches.

Table 9

Analytical Data Summary for PZ-11

Constituents	10/7/2022	4/19/2023	10/25/2023	4/17/2024	10/17/2024
(3 4)-methylphenol					
1,1,1,2-tetrachloroethane	<1	<1	<1	<1	<1
1,1,1-trichloroethane	<1	<1	<1	<1	<1
1,1,2,2-tetrachloroethane	<1	<1	<1	<1	<1
1,1,2-trichloroethane	<1	<1	<1	<1	<1
1,1-dichloroethane	<1.0	1.2	1.2	1.3	1.0
1,1-dichloroethylene	<1	<1	<1	<1	<1
1,1-dichloropropene					
1,2,3-trichloropropane	<1	<1	<1	<1	<1
1,2,4,5-tetrachlorobenzene					
1,2,4-trichlorobenzene					
1,2-dibromo-3-chloropropane	<5	<5	<5	<5	<5
1,2-dibromoethane	<1	<1	<1	<1	<1
1,2-dichlorobenzene	<1	<1	<1	<1	<1
1,2-dichloroethane	<1	<1	<1	<1	<1
1,2-dichloropropane	<1	<1	<1	<1	<1
1,2-dinitrobenzene					
1,3,5-trinitrobenzene					
1,3-dichlorobenzene					
1,3-dichloropropane					
1,3-dinitrobenzene					
1,4-dichlorobenzene	<1	<1	<1	<1	<1
1,4-naphthoquinone					
1,4-phenylenediamine					
1-naphthylamine					
2,2-dichloropropane					
2,3,4,6-tetrachlorophenol					
2,4,5-t					
2,4,5-tp (silvex)					
2,4,5-trichlorophenol					
2,4,6-trichlorophenol					
2,4-d					
2,4-dichlorophenol					
2,4-dimethylphenol					
2,4-dinitrophenol					
2,4-dinitrotoluene					
2,6-dichlorophenol					
2,6-dinitrotoluene					
2-acetylaminofluorene					
2-butanone (mek)	<10	<10	<10	<10	<10
2-chloronaphthalene					
2-chlorophenol					
2-hexanone (mbk)	<5	<5	<5	<5	<5
2-methylnaphthalene					
2-methylphenol (o-cresol)					
2-naphthylamine					
2-nitroaniline					
2-nitrophenol					
3,3´-dichlorobenzidine					
3,3'-dimethylbenzidine					
3-methylcholanthrene					
3-nitroaniline					
4,4´-ddd					
4,4´-dde					
4,4´-ddt					
4,6-dinitro-2-methylphenol					
4-aminobiphenyl					
4-bromophenyl phenyl ether					
4-chloro-3-methylphenol					
4-chloroaniline					
4-chlorophenyl phenyl ether					
4-methyl-2-pentanone (mibk)	<5	<5	<5	<5	<5
4-nitroaniline					
4-nitrophenol					
5-nitro-o-toluidine					
7,12-dimethylbenz(a)anthracene					
Acenaphthene					
Acenaphthylene					
Acetone	<10	<10	<10	<10	<10
Acetonitrile					
Acetophenone					
Acrolein					
Acrylonitrile	<5	<5	<5	<5	<5
Aldrin					
Allyl chloride					
Alpha-bhc					
Anthracene					

* - The displayed value is the arithmetic mean of multiple database matches.

Table 9

Analytical Data Summary for PZ-11

Constituents	Units	3/31/2010	9/16/2010	4/11/2011	9/26/2011	4/1/2012	8/23/2012	4/13/2013	9/14/2013	4/11/2014
Antimony, dissolved	ug/L							<2.0		1.0
Antimony, total	ug/L	<2	<2	<2	<2	<2	<2	<2	<2	<2
Arochlor 1016	ug/L							<.1		
Arochlor 1221	ug/L							<.2		
Arochlor 1232	ug/L							<.2		
Arochlor 1242	ug/L							<.2		
Arochlor 1248	ug/L							<.2		
Arochlor 1254	ug/L							<.1		
Arochlor 1260	ug/L							<.1		
Arsenic, dissolved	ug/L							<4		<2
Arsenic, total	ug/L	7.2	7.2	6.9	6.6	12.6	9.8	<4.0	6.0	11.7
Azobenzene	ug/L							<8		
Barium, dissolved	ug/L							123		140
Barium, total	ug/L	280.0	273.0	233.0	318.0	404.0	135.0	203.0	206.0	404.0
Benzene	ug/L	<1	<1	<1	<1	<1	<1	<1	<1	<1
Benzo(a)anthracene	ug/L							<8		
Benzo(a)pyrene	ug/L							<8		
Benzo(b)fluoranthene	ug/L							<8		
Benzo(g,h,i)perylene	ug/L							<8		
Benzo(k)fluoranthene	ug/L							<8		
Benzyl alcohol	ug/L							<8		
Beryllium, dissolved	ug/L							<4		<4
Beryllium, total	ug/L	<4	<4	<4	<4	<4	<4	<4	<4	<4
Beta-bhc	ug/L							<.05		
Bis (2-chloroethoxy) methane	ug/L							<8		
Bis(2-chloroethyl) ether	ug/L							<8		
Bis(2-ethylhexyl) phthalate	ug/L							<8		
Bis[2-chloroisopropyl]ether	ug/L							<8		
Bromochloromethane	ug/L	<1	<1	<1	<1	<1	<1	<1	<1	<1
Bromodichloromethane	ug/L	<1	<1	<1	<1	<1	<1	<1	<1	<1
Bromoform	ug/L	<1	<1	<1	<1	<1	<1	<1	<1	<1
Bromomethane	ug/L	<1	<1	<1	<1	<1	<1	<1	<1	<1
Butyl benzyl phthalate	ug/L							<8		
Cadmium, dissolved	ug/L							<.8		<.8
Cadmium, total	ug/L	<1.0	<1.0	<.8	1.1	.9	<.8	<.8	<.8	<.8
Carbon disulfide	ug/L	<1	<1	<1	<1	<1	<1	<1	<1	<1
Carbon tetrachloride	ug/L	<1	<1	<1	<1	<1	<1	<1	<1	<1
Chlordane	ug/L							<.1		
Chlorobenzene	ug/L	<1	<1	<1	<1	<1	<1	<1	<1	<1
Chlorobenzilate	ug/L							<8		
Chloroethane	ug/L	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Chloroform	ug/L	<1	<1	<1	<1	<1	<1	<1	<1	<1
Chloromethane	ug/L	<1	<1	<1	<1	<1	<1	<1	<1	<1
Chloroprene	ug/L							<1		
Chromium, dissolved	ug/L							<8		<2
Chromium, total	ug/L	<10.0	<10.0	<8.0	<8.0	10.4	<8.0	<8.0	<8.0	<8.0
Chrysene	ug/L							<8		
Cis-1,2-dichloroethylene	ug/L	<1	<1	<1	<1	<1	<1	<1	<1	<1
Cis-1,3-dichloropropene	ug/L	<1	<1	<1	<1	<1	<1	<1	<1	<1
Cobalt, dissolved	ug/L							<4		<2
Cobalt, total	ug/L	7.4	6.8	5.9	8.0	16.6	<4.0	<4.0	<4.0	12.0
Copper, dissolved	ug/L							<4		<4
Copper, total	ug/L	7.5	7.0	6.2	5.5	9.2	<4.0	5.3	5.3	12.0
Cyanide, total	mg/L							<.007		
Delta-bhc	ug/L							<.05		
Diallate	ug/L							<8		
Dibenzo(a,h)anthracene	ug/L							<8		
Dibenzofuran	ug/L							<8		
Dibromochloromethane	ug/L	<1	<1	<1	<1	<1	<1	<1	<1	<1
Dibromomethane	ug/L	<1	<1	<1	<1	<1	<1	<1	<1	<1
Dichlorodifluoromethane	ug/L							<1		
Dieldrin	ug/L							<.05		
Diethyl phthalate	ug/L							<8		
Dimethoate	ug/L							<.4		
Dimethylphthalate	ug/L							<8		
Di-n-butyl phthalate	ug/L							<8		
Di-n-octyl phthalate	ug/L							<8		
Dinoseb	ug/L							<.5		
Diphenylamine	ug/L							<8		
Disulfoton	ug/L							<.4		
Endosulfan i	ug/L							<.05		
Endosulfan ii	ug/L							<.05		
Endosulfan sulfate	ug/L							<.05		
Endrin	ug/L							<.05		
Endrin aldehyde	ug/L							<.05		
Ethyl methacrylate	ug/L							<10		
Ethyl methanesulfonate	ug/L							<8		

* - The displayed value is the arithmetic mean of multiple database matches.

Table 9

Analytical Data Summary for PZ-11

Constituents	9/27/2014	3/16/2015	9/28/2015	3/14/2016	9/3/2016	4/10/2017	7/14/2017	9/1/2017	11/15/2017
Antimony, dissolved		<.8							
Antimony, total	<2	<2	<2	<2	<2	<2		<2	
Arochlor 1016									
Arochlor 1221									
Arochlor 1232									
Arochlor 1242									
Arochlor 1248									
Arochlor 1254									
Arochlor 1260									
Arsenic, dissolved		<2							
Arsenic, total	9.2	<4.0	<4.0	<4.0	<4.0	4.6	<4.0	<4.0	
Azobenzene									
Barium, dissolved		124							
Barium, total	312.0	188.0	52.5	65.6	49.1	146.0		32.7	
Benzene	<1	<1	<1	<1	<1	<1		<1	
Benzo(a)anthracene									
Benzo(a)pyrene									
Benzo(b)fluoranthene									
Benzo(g,h,i)perylene									
Benzo(k)fluoranthene									
Benzyl alcohol									
Beryllium, dissolved		<4							
Beryllium, total	<4	<4	<4	<4	<4	<4		<4	
Beta-bhc									
Bis (2-chloroethoxy) methane									
Bis(2-chloroethyl) ether									
Bis(2-ethylhexyl) phthalate									
Bis[2-chloroisopropyl]ether									
Bromochloromethane	<1	<1	<1	<1	<1	<1		<1	
Bromodichloromethane	<1	<1	<1	<1	<1	<1		<1	
Bromoform	<1	<1	<1	<1	<1	<1		<1	
Bromomethane	<1	<1	<1	<1	<1	<1		<1	
Butyl benzyl phthalate									
Cadmium, dissolved		<.8							
Cadmium, total	<.8	<.8	<.8	<.8	<.8	<.8		<.8	
Carbon disulfide	<1	<1	<1	<1	<1	<1		<1	
Carbon tetrachloride	<1	<1	<1	<1	<1	<1		<1	
Chlordane									
Chlorobenzene	<1	<1	<1	<1	<1	<1		<1	
Chlorobenzilate									
Chloroethane	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0		<1.0	
Chloroform	<1	<1	<1	<1	<1	<1		<1	
Chloromethane	<1	<1	<1	<1	<1	<1		<1	
Chloroprene									
Chromium, dissolved		<2							
Chromium, total	<8.0	<8.0	<8.0	<8.0	<8.0	<8.0		<8.0	
Chrysene									
Cis-1,2-dichloroethylene	<1	<1	<1	<1	<1	<1		<1	
Cis-1,3-dichloropropene	<1	<1	<1	<1	<1	<1		<1	
Cobalt, dissolved		<2							
Cobalt, total	9.3	8.1	<.8	<.8	<.8	5.2	2.4	<.8	
Copper, dissolved		<4							
Copper, total	8.7	<4.0	<4.0	<4.0	<4.0	<4.0		<4.0	
Cyanide, total									
Delta-bhc									
Diallate									
Dibenzo(a,h)anthracene									
Dibenzofuran									
Dibromochloromethane	<1	<1	<1	<1	<1	<1		<1	
Dibromomethane	<1	<1	<1	<1	<1	<1		<1	
Dichlorodifluoromethane									
Dieldrin									
Diethyl phthalate									
Dimethoate									
Dimethylphthalate									
Di-n-butyl phthalate									
Di-n-octyl phthalate									
Dinoseb									
Diphenylamine									
Disulfoton									
Endosulfan i									
Endosulfan ii									
Endosulfan sulfate									
Endrin									
Endrin aldehyde									
Ethyl methacrylate									
Ethyl methanesulfonate									

* - The displayed value is the arithmetic mean of multiple database matches.

Table 9

Analytical Data Summary for PZ-11

Constituents	4/23/2018	9/14/2018	4/15/2019	9/17/2019	4/8/2020	10/2/2020	4/12/2021	10/26/2021	4/4/2022
Antimony, dissolved									
Antimony, total	<2	<2	<2	<2	<2	<2	<2	<2	<2
Arochlor 1016					<.1		<.1		
Arochlor 1221					<.2		<.2		
Arochlor 1232					<.2		<.2		
Arochlor 1242					<.2		<.2		
Arochlor 1248					<.2		<.2		
Arochlor 1254					<.1		<.1		
Arochlor 1260					<.1		<.1		
Arsenic, dissolved									
Arsenic, total	<4.0	<4.0	<4.0	<4.0	<4.0	<4.0	<4.0	<4.0	<4.0
Azobenzene					<8		<8		
Barium, dissolved									
Barium, total	68.5	70.8	61.8	55.4	59.8	65.9	64.4	70.3	122.0
Benzene	<1	<1	<1	<1	<1	<1	<1	<1	<1
Benzo(a)anthracene					<8		<8		
Benzo(a)pyrene					<8		<8		
Benzo(b)fluoranthene					<8		<8		
Benzo(g,h,i)perylene					<8		<8		
Benzo(k)fluoranthene					<8		<8		
Benzyl alcohol					<8		<8		
Beryllium, dissolved									
Beryllium, total	<4	<4	<4	<4	<4	<4	<4	<4	<4
Beta-bhc					<.05		<.05		
Bis (2-chloroethoxy) methane					<8		<8		
Bis(2-chloroethyl) ether					<8		<8		
Bis(2-ethylhexyl) phthalate					6		8	7	<6
Bis[2-chloroisopropyl]ether					<8		<8		
Bromochloromethane	<1	<1	<1	<1	<1	<1	<1	<1	<1
Bromodichloromethane	<1	<1	<1	<1	<1	<1	<1	<1	<1
Bromoform	<1	<1	<1	<1	<1	<1	<1	<1	<1
Bromomethane	<1	<1	<1	<1	<1	<1	<1	<1	<1
Butyl benzyl phthalate					<8		<8		
Cadmium, dissolved									
Cadmium, total	<.8	<.8	<.8	<.8	<.8	<.8	<.8	<.8	<.8
Carbon disulfide	<1	<1	<1	<1	<1	<1	<1	<1	<1
Carbon tetrachloride	<1	<1	<1	<1	<1	<1	<1	<1	<1
Chlordane					<.1		<.1		
Chlorobenzene	<1	<1	<1	<1	<1	<1	<1	<1	<1
Chlorobenzilate					<8		<8		
Chloroethane	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Chloroform	<1	<1	<1	<1	<1	<1	<1	<1	<1
Chloromethane	<1	<1	<1	<1	<1	<1	<1	<1	<1
Chloroprene					<1		<1		
Chromium, dissolved									
Chromium, total	<8.0	<8.0	<8.0	<8.0	<8.0	<8.0	<8.0	<8.0	<8.0
Chrysene					<8		<8		
Cis-1,2-dichloroethylene	<1	<1	<1	<1	<1	<1	<1	<1	<1
Cis-1,3-dichloropropene	<1	<1	<1	<1	<1	<1	<1	<1	<1
Cobalt, dissolved									
Cobalt, total	1.6	3.2	1.2	1.3	.7	.4	.9	<.4	1.0
Copper, dissolved									
Copper, total	<4.0	<4.0	<4.0	<4.0	<4.0	<4.0	<4.0	<4.0	<4.0
Cyanide, total					<.005		<.005		
Delta-bhc					<.05		<.05		
Diallate					<8		<8		
Dibenzo(a,h)anthracene					<8		<8		
Dibenzofuran					<8		<8		
Dibromochloromethane	<1	<1	<1	<1	<1	<1	<1	<1	<1
Dibromomethane	<1	<1	<1	<1	<1	<1	<1	<1	<1
Dichlorodifluoromethane					<1		<1		
Dieldrin					<.05		<.05		
Diethyl phthalate					<8		<8		
Dimethoate					<.4		<.4		
Dimethylphthalate					<8		<8		
Di-n-butyl phthalate					<8		<8		
Di-n-octyl phthalate					<8		<8		
Dinoseb					<.5		<.5		
Diphenylamine					<8		<8		
Disulfoton					<.4		<.4		
Endosulfan i					<.05		<.05		
Endosulfan ii					<.05		<.05		
Endosulfan sulfate					<.05		<.05		
Endrin					<.05		<.05		
Endrin aldehyde					<.05		<.05		
Ethyl methacrylate					<10		<10		
Ethyl methanesulfonate					<8		<8		

* - The displayed value is the arithmetic mean of multiple database matches.

Table 9

Analytical Data Summary for PZ-11

Constituents	10/7/2022	4/19/2023	10/25/2023	4/17/2024	10/17/2024
Antimony, dissolved					
Antimony, total	<2	<2	<2	<2	<2
Arochlor 1016					
Arochlor 1221					
Arochlor 1232					
Arochlor 1242					
Arochlor 1248					
Arochlor 1254					
Arochlor 1260					
Arsenic, dissolved					
Arsenic, total	<4.0	<4.0	<4.0	<4.0	<4.0
Azobenzene					
Barium, dissolved					
Barium, total	87.5	70.7	68.6	77.3	48.0
Benzene	<1	<1	<1	<1	<1
Benzo(a)anthracene					
Benzo(a)pyrene					
Benzo(b)fluoranthene					
Benzo(g,h,i)perylene					
Benzo(k)fluoranthene					
Benzyl alcohol					
Beryllium, dissolved					
Beryllium, total	<4	<4	<4	<4	<4
Beta-bhc					
Bis (2-chloroethoxy) methane					
Bis(2-chloroethyl) ether					
Bis(2-ethylhexyl) phthalate	<6	<6			
Bis[2-chloroisopropyl]ether					
Bromochloromethane	<1	<1	<1	<1	<1
Bromodichloromethane	<1	<1	<1	<1	<1
Bromoform	<1	<1	<1	<1	<1
Bromomethane	<1	<1	<1	<1	<1
Butyl benzyl phthalate					
Cadmium, dissolved					
Cadmium, total	<.8	<.8	<.8	<.8	<.8
Carbon disulfide	<1	<1	<1	<1	<1
Carbon tetrachloride	<1	<1	<1	<1	<1
Chlordane					
Chlorobenzene	<1	<1	<1	<1	<1
Chlorobenzilate					
Chloroethane	<1.0	<1.0	1.6	<1.0	<1.0
Chloroform	<1	<1	<1	<1	<1
Chloromethane	<1	<1	<1	<1	<1
Chloroprene					
Chromium, dissolved					
Chromium, total	<8.0	<8.0	<8.0	<8.0	<8.0
Chrysene					
Cis-1,2-dichloroethylene	<1	<1	<1	<1	<1
Cis-1,3-dichloropropene	<1	<1	<1	<1	<1
Cobalt, dissolved					
Cobalt, total	2.2	.4	.5	<.4	.5
Copper, dissolved					
Copper, total	<4.0	<4.0	<4.0	<4.0	<4.0
Cyanide, total					
Delta-bhc					
Diallate					
Dibenzo(a,h)anthracene					
Dibenzofuran					
Dibromochloromethane	<1	<1	<1	<1	<1
Dibromomethane	<1	<1	<1	<1	<1
Dichlorodifluoromethane					
Dieldrin					
Diethyl phthalate					
Dimethoate					
Dimethylphthalate					
Di-n-butyl phthalate					
Di-n-octyl phthalate					
Dinoseb					
Diphenylamine					
Disulfoton					
Endosulfan i					
Endosulfan ii					
Endosulfan sulfate					
Endrin					
Endrin aldehyde					
Ethyl methacrylate					
Ethyl methanesulfonate					

* - The displayed value is the arithmetic mean of multiple database matches.

Table 9

Analytical Data Summary for PZ-11

Constituents	Units	3/31/2010	9/16/2010	4/11/2011	9/26/2011	4/1/2012	8/23/2012	4/13/2013	9/14/2013	4/11/2014
Ethylbenzene	ug/L	<1	<1	<1	<1	<1	<1	<1	<1	<1
Famphur	ug/L							<.4		
Fluoranthene	ug/L							<8		
Fluorene	ug/L							<8		
Gamma-bhc (lindane)	ug/L							<.05		
Heptachlor	ug/L							<.05		
Heptachlor epoxide	ug/L							<.05		
Hexachlorobenzene	ug/L							<4.03 *		
Hexachlorobutadiene	ug/L							<8		
Hexachlorocyclopentadiene	ug/L							<8		
Hexachloroethane	ug/L							<8		
Hexachloropropene	ug/L							<8		
Indeno(1,2,3-cd)pyrene	ug/L							<8		
Isobutanol	mg/L							<1		
Isodrin	ug/L							<8		
Isophorone	ug/L							<8		
Isosafrole	ug/L							<8		
Kepone	ug/L							<8		
Lead, dissolved	ug/L							<2.0		<.8
Lead, total	ug/L	5.1	4.8	<4.0	4.4	6.3	<4.0	<4.0	<4.0	4.2
Mercury, dissolved	ug/L							<.5		<.5
Mercury, total	ug/L							<.5		
Methacrylonitrile	ug/L							<1		
Methapyrilene	ug/L							<8		
Methoxychlor	ug/L							<.05		
Methyl iodide	ug/L	<1	<1	<1	<1	<1	<1	<1	<1	<1
Methyl methacrylate	ug/L							<1		
Methyl methanesulfonate	ug/L							<8		
Methyl parathion	ug/L							<.4		
Methylene chloride	ug/L	<5	<5	<5	<5	<5	<5	<5	<5	<5
Naphthalene	ug/L							<8		
Nickel, dissolved	ug/L							15.8		11.1
Nickel, total	ug/L	26.1	23.0	23.2	31.3	40.9	17.7	20.5	21.0	42.7
Nitrobenzene	ug/L							<8		
N-nitrosodiethylamine	ug/L							<8		
N-nitrosodimethylamine	ug/L							<8		
N-nitrosodi-n-butylamine	ug/L							<8		
N-nitroso-di-n-propylamine	ug/L							<8		
N-nitrosodiphenylamine	ug/L							<8		
N-nitrosomethylethylamine	ug/L									
N-nitrosopiperidine	ug/L							<8		
N-nitrosopyrrolidine	ug/L							<8		
O,o,o-triethyl phosphorothioate	ug/L							<.4		
O-toluidine	ug/L							<8		
Parathion	ug/L							<.4		
P-dimethylaminoazobenzene	ug/L							<8		
Pentachlorobenzene	ug/L							<8		
Pentachloronitrobenzene (pcnb)	ug/L							<8		
Pentachlorophenol	ug/L							<8		
Phenacetin	ug/L							<8		
Phenanthrene	ug/L							<8		
Phenol	ug/L							<8		
Phorate	ug/L							<.4		
Pronamide	ug/L							<8		
Propionitrile	ug/L							<10		
Pyrene	ug/L							<8		
Safrole	ug/L							<8		
Selenium, dissolved	ug/L							<4		<4
Selenium, total	ug/L	<4	<4	<4	<4	<4	<4	<4	<4	<4
Silver, dissolved	ug/L							<4		<2
Silver, total	ug/L	<4	<4	<4	<4	<4	<4	<4	<4	<4
Solids, total suspended	mg/L									
Styrene	ug/L	<1	<1	<1	<1	<1	<1	<1	<1	<1
Sulfide, total	mg/L							<.1		
Tetrachloroethylene	ug/L	<1	<1	<1	<1	<1	<1	<1	<1	<1
Thallium, dissolved	ug/L							<2.0		<.8
Thallium, total	ug/L	<4	<4	<4	<4	<2	<2	<2	<4	<4
Thionazin	ug/L							<.4		
Tin, dissolved	ug/L							<20		<8
Tin, total	ug/L							<20		
Toluene	ug/L	<1	<1	<1	<1	<1	<1	<1	<1	<1
Toxaphene	ug/L							<.2		
Trans-1,2-dichloroethylene	ug/L	<1	<1	<1	<1	<1	<1	<1	<1	<1
Trans-1,3-dichloropropene	ug/L	<1	<1	<1	<1	<1	<1	<1	<1	<1
Trans-1,4-dichloro-2-butene	ug/L	<5	<5	<5	<5	<5	<5	<5	<5	<5
Trichloroethylene	ug/L	<1	<1	<1	<1	<1	<1	<1	<1	<1
Trichlorofluoromethane	ug/L	<1	<1	<1	<1	<1	<1	<1	<1	<1

* - The displayed value is the arithmetic mean of multiple database matches.

Table 9

Analytical Data Summary for PZ-11

Constituents	9/27/2014	3/16/2015	9/28/2015	3/14/2016	9/3/2016	4/10/2017	7/14/2017	9/1/2017	11/15/2017
Ethylbenzene	<1	<1	<1	<1	<1	<1		<1	
Famphur									
Fluoranthene									
Fluorene									
Gamma-bhc (lindane)									
Heptachlor									
Heptachlor epoxide									
Hexachlorobenzene									
Hexachlorobutadiene									
Hexachlorocyclopentadiene									
Hexachloroethane									
Hexachloropropene									
Indeno(1,2,3-cd)pyrene									
Isobutanol									
Isodrin									
Isophorone									
Isosafrole									
Kepone									
Lead, dissolved		<.8							
Lead, total	<4.0	<4.0	<4.0	<4.0	<4.0	<4.0		<4.0	
Mercury, dissolved									
Mercury, total									
Methacrylonitrile									
Methapyrilene									
Methoxychlor									
Methyl iodide	<1	<1	<1	<1	<1	<1		<1	
Methyl methacrylate									
Methyl methanesulfonate									
Methyl parathion									
Methylene chloride	<5	<5	<5	<5	<5	<5		<5	
Naphthalene									
Nickel, dissolved		7.2							
Nickel, total	32.1	16.7	<4.0	<4.0	<4.0	12.9		16.5	<4.0
Nitrobenzene									
N-nitrosodiethylamine									
N-nitrosodimethylamine									
N-nitrosodi-n-butylamine									
N-nitroso-di-n-propylamine									
N-nitrosodiphenylamine									
N-nitrosomethylethylamine									
N-nitrosopiperidine									
N-nitrosopyrrolidine									
O,o,o-triethyl phosphorothioate									
O-toluidine									
Parathion									
P-dimethylaminoazobenzene									
Pentachlorobenzene									
Pentachloronitrobenzene (pcnb)									
Pentachlorophenol									
Phenacetin									
Phenanthrene									
Phenol									
Phorate									
Pronamide									
Propionitrile									
Pyrene									
Safrole									
Selenium, dissolved		<4							
Selenium, total	<4	<4	<4	<4	<4	<4		<4	
Silver, dissolved		<2							
Silver, total	<4	<4	<4	<4	<4	<4		<4	
Solids, total suspended	292	115	9	3	12	86		2	
Styrene	<1	<1	<1	<1	<1	<1		<1	
Sulfide, total									
Tetrachloroethylene	<1	<1	<1	<1	<1	<1		<1	
Thallium, dissolved		<.8							
Thallium, total	<4	<4	<1	<4	<4	<4		<4	
Thionazin									
Tin, dissolved		<8							
Tin, total									
Toluene	<1	<1	<1	<1	<1	<1		<1	
Toxaphene									
Trans-1,2-dichloroethylene	<1	<1	<1	<1	<1	<1		<1	
Trans-1,3-dichloropropene	<1	<1	<1	<1	<1	<1		<1	
Trans-1,4-dichloro-2-butene	<5	<5	<5	<5	<5	<5		<5	
Trichloroethylene	<1	<1	<1	<1	<1	<1		<1	
Trichlorofluoromethane	<1	<1	<1	<1	<1	<1		<1	

* - The displayed value is the arithmetic mean of multiple database matches.

Table 9

Analytical Data Summary for PZ-11

Constituents	4/23/2018	9/14/2018	4/15/2019	9/17/2019	4/8/2020	10/2/2020	4/12/2021	10/26/2021	4/4/2022
Ethylbenzene	<1	<1	<1	<1	<1	<1	<1	<1	<1
Famphur					<.4		<.4		
Fluoranthene					<8		<8		
Fluorene					<8		<8		
Gamma-bhc (lindane)					<.05		<.05		
Heptachlor					<.05		<.05		
Heptachlor epoxide					<.05		<.05		
Hexachlorobenzene					<.05		<.05		
Hexachlorobutadiene					<8		<8		
Hexachlorocyclopentadiene					<8		<8		
Hexachloroethane					<8		<8		
Hexachloropropene					<8		<8		
Indeno(1,2,3-cd)pyrene					<8		<8		
Isobutanol					<1		<1		
Isodrin					<8		<8		
Isophorone					<8		<8		
Isosafrole					<8		<8		
Kepone					<8		<8		
Lead, dissolved									
Lead, total	<4.0	<4.0	<4.0	<4.0	<4.0	<4.0	<4.0	<4.0	<4.0
Mercury, dissolved									
Mercury, total					<.5		<.5		
Methacrylonitrile					<1		<1		
Methapyrilene					<8		<8		
Methoxychlor					<.05		<.05		
Methyl iodide	<1	<1	<1	<1	<2	<1	<2	<1	<1
Methyl methacrylate					<1		<1		
Methyl methanesulfonate					<8		<8		
Methyl parathion					<.4		<.4		
Methylene chloride	<5	<5	<5	<5	<5	<5	<5	<5	<5
Naphthalene					<8		<8		
Nickel, dissolved									
Nickel, total	<20.0	8.2	<4.0	<4.0	<4.0	4.4	10.6	20.9	14.5
Nitrobenzene					<8		<8		
N-nitrosodiethylamine					<8		<8		
N-nitrosodimethylamine					<8		<8		
N-nitrosodi-n-butylamine					<8		<8		
N-nitroso-di-n-propylamine					<8		<8		
N-nitrosodiphenylamine					<8		<8		
N-nitrosomethylethylamine					<8		<8		
N-nitrosopiperidine					<8		<8		
N-nitrosopyrrolidine					<8		<8		
O,o,o-triethyl phosphorothioate					<.4		<.4		
O-toluidine					<8		<8		
Parathion					<.4		<.4		
P-dimethylaminoazobenzene					<8		<8		
Pentachlorobenzene					<8		<8		
Pentachloronitrobenzene (pcnb)					<8		<8		
Pentachlorophenol					<8		<8		
Phenacetin					<8		<8		
Phenanthrene					<8		<8		
Phenol					<8		<8		
Phorate					<.4		<.4		
Pronamide					<8		<8		
Propionitrile					<10		<10		
Pyrene					<8		<8		
Safrole					<8		<8		
Selenium, dissolved									
Selenium, total	<4	<4	<4	<4	<4	<4	<4	<4	<4
Silver, dissolved									
Silver, total	<4	<4	<4	<4	<4	<4	<4	<4	<4
Solids, total suspended	6	38	9	11	237	67			
Styrene	<1	<1	<1	<1	<1	<1	<1	<1	<1
Sulfide, total					<.1		<.1		
Tetrachloroethylene	<1	<1	<1	<1	<1	<1	<1	<1	<1
Thallium, dissolved									
Thallium, total	<4	<4	<2	<2	<2	<2	<2	<2	<2
Thionazin					<.4		<.4		
Tin, dissolved									
Tin, total					<20		<20		
Toluene	<1	<1	<1	<1	<1	<1	<1	<1	<1
Toxaphene					<.2		<.2		
Trans-1,2-dichloroethylene	<1	<1	<1	<1	<1	<1	<1	<1	<1
Trans-1,3-dichloropropene	<1	<1	<1	<1	<1	<1	<1	<1	<1
Trans-1,4-dichloro-2-butene	<5	<5	<5	<5	<5	<5	<5	<5	<5
Trichloroethylene	<1	<1	<1	<1	<1	<1	<1	<1	<1
Trichlorofluoromethane	<1	<1	<1	<1	<1	<1	<1	<1	<1

* - The displayed value is the arithmetic mean of multiple database matches.

Table 9

Analytical Data Summary for PZ-11

Constituents	10/7/2022	4/19/2023	10/25/2023	4/17/2024	10/17/2024
Ethylbenzene	<1	<1	<1	<1	<1
Famphur					
Fluoranthene					
Fluorene					
Gamma-bhc (lindane)					
Heptachlor					
Heptachlor epoxide					
Hexachlorobenzene					
Hexachlorobutadiene					
Hexachlorocyclopentadiene					
Hexachloroethane					
Hexachloropropene					
Indeno(1,2,3-cd)pyrene					
Isobutanol					
Isodrin					
Isophorone					
Isosafrole					
Kepone					
Lead, dissolved					
Lead, total	<4.0	<4.0	<4.0	<4.0	<4.0
Mercury, dissolved					
Mercury, total					
Methacrylonitrile					
Methapyrilene					
Methoxychlor					
Methyl iodide	<1	<1	<1	<1	<1
Methyl methacrylate					
Methyl methanesulfonate					
Methyl parathion					
Methylene chloride	<5	<5	<5	<5	<5
Naphthalene					
Nickel, dissolved					
Nickel, total	22.7	10.9	10.5	8.8	31.1
Nitrobenzene					
N-nitrosodiethylamine					
N-nitrosodimethylamine					
N-nitrosodi-n-butylamine					
N-nitroso-di-n-propylamine					
N-nitrosodiphenylamine					
N-nitrosomethylethylamine					
N-nitrosopiperidine					
N-nitrosopyrrolidine					
O,o,o-triethyl phosphorothioate					
O-toluidine					
Parathion					
P-dimethylaminoazobenzene					
Pentachlorobenzene					
Pentachloronitrobenzene (pcnb)					
Pentachlorophenol					
Phenacetin					
Phenanthrene					
Phenol					
Phorate					
Pronamide					
Propionitrile					
Pyrene					
Safrole					
Selenium, dissolved					
Selenium, total	<4	<4	<4	<4	<4
Silver, dissolved					
Silver, total	<4	<4	<4	<4	<4
Solids, total suspended					
Styrene	<1	<1	<1	<1	<1
Sulfide, total					
Tetrachloroethylene	<1	<1	<1	<1	<1
Thallium, dissolved					
Thallium, total	<2	<2	<2	<2	<2
Thionazin					
Tin, dissolved					
Tin, total					
Toluene	<1	<1	<1	<1	<1
Toxaphene					
Trans-1,2-dichloroethylene	<1	<1	<1	<1	<1
Trans-1,3-dichloropropene	<1	<1	<1	<1	<1
Trans-1,4-dichloro-2-butene	<5	<5	<5	<5	<5
Trichloroethylene	<1	<1	<1	<1	<1
Trichlorofluoromethane	<1	<1	<1	<1	<1

* - The displayed value is the arithmetic mean of multiple database matches.

Table 9

Analytical Data Summary for PZ-11

Constituents	Units	3/31/2010	9/16/2010	4/11/2011	9/26/2011	4/1/2012	8/23/2012	4/13/2013	9/14/2013	4/11/2014
Vanadium, dissolved	ug/L							<20		<4
Vanadium, total	ug/L	31.0	14.0	30.1	<20.0	21.8	<20.0	<20.0	<20.0	21.0
Vinyl acetate	ug/L	<5	<5	<5	<5	<5	<5	<5	<5	<5
Vinyl chloride	ug/L	<1	<1	<1	<1	<1	<1	<1	<1	<1
Xylenes, total	ug/L	<2	<2	<2	<2	<2	<2	<2	<2	<2
Zinc, dissolved	ug/L							<8		<8
Zinc, total	ug/L	24.9	19.5	19.8	22.2	30.1	8.9	15.7	<20.0	37.8

* - The displayed value is the arithmetic mean of multiple database matches.

Table 9

Analytical Data Summary for PZ-11

Constituents	9/27/2014	3/16/2015	9/28/2015	3/14/2016	9/3/2016	4/10/2017	7/14/2017	9/1/2017	11/15/2017
Vanadium, dissolved		<4							
Vanadium, total	<20.0	<20.0	<20.0	<20.0	<20.0	<20.0		<20.0	
Vinyl acetate	<5	<5	<5	<5	<5	<5		<5	
Vinyl chloride	<1	<1	<1	<1	<1	<1		<1	
Xylenes, total	<2	<2	<2	<2	<2	<2		<2	
Zinc, dissolved		<8							
Zinc, total	22.7	9.5	<8.0	<20.0	<8.0	11.0		10.0	

* - The displayed value is the arithmetic mean of multiple database matches.

Table 9

Analytical Data Summary for PZ-11

Constituents	4/23/2018	9/14/2018	4/15/2019	9/17/2019	4/8/2020	10/2/2020	4/12/2021	10/26/2021	4/4/2022
Vanadium, dissolved									
Vanadium, total	<20.0	<20.0	<20.0	<20.0	<20.0	<20.0	<20.0	<20.0	<20.0
Vinyl acetate	<5	<5	<5	<5	<5	<5	<5	<5	<5
Vinyl chloride	<1	<1	<1	<1	<1	<1	<1	<1	<1
Xylenes, total	<2	<2	<2	<2	<2	<2	<2	<2	<2
Zinc, dissolved									
Zinc, total	<8.0	<20.0	<8.0	<20.0	<20.0	<20.0	<20.0	<20.0	<20.0

* - The displayed value is the arithmetic mean of multiple database matches.

Table 9

Analytical Data Summary for PZ-11

Constituents	10/7/2022	4/19/2023	10/25/2023	4/17/2024	10/17/2024
Vanadium, dissolved					
Vanadium, total	<20.0	<20.0	<20.0	<20.0	<20.0
Vinyl acetate	<5	<5	<5	<5	<5
Vinyl chloride	<1	<1	<1	<1	<1
Xylenes, total	<2	<2	<2	<2	<2
Zinc, dissolved					
Zinc, total	<20.0	<20.0	<20.0	<20.0	<20.0

* - The displayed value is the arithmetic mean of multiple database matches.

Table 10 – Historic SSI and SSL

Table 10
Historic SSI & SSL
Annual Water Quality Report
Ida County Sanitary Landfill
Permit No. 47-SDP-01-76C

KEY:	SSI	SSL LCL>GWPS	SSL UCL>GWPS

Note: The absence of shading indicates that the condition does not exist.

Monitoring Well	Compound	Sample Date	Each Result (ug/L)	95% LCL (ug/L)	95% UCL (ug/L)	GWPS Limit (ug/L)
MW-7	vinyl chloride	3/31/2010	**1.3**	---	---	2
MW-7	vinyl chloride	9/16/2010	<1	---	---	2
MW-7	vinyl chloride	4/11/2011	<1	---	---	2
MW-7	vinyl chloride	9/26/2011	<1	0.354	1.046	2
MW-7	vinyl chloride	4/1/2012	**2.4**	0.152	1.800	2
MW-7	vinyl chloride	8/23/2012	**6.2**	0.073	4.727	2
MW-7	vinyl chloride	4/13/2013	**3.6**	1.108	5.242	2
MW-7	vinyl chloride	9/14/2013	**6.4**	2.945	6.355	2
MW-7	vinyl chloride	4/11/2014	**4.4**	3.964	6.336	2
MW-7	vinyl chloride	9/27/2014	**3.1**	3.117	5.633	2
MW-7	vinyl chloride	3/16/2015	<1	1.459	5.741	2
MW-7	vinyl chloride	9/28/2015	**3.0**	1.338	4.160	2
MW-7	vinyl chloride	3/14/2016	**1.2**	0.822	3.078	2
MW-7	vinyl chloride	9/3/2016	<1	0.278	2.322	2
MW-7	vinyl chloride	4/10/2017	**1.7**	0.686	2.514	2
MW-7	vinyl chloride	9/1/2017	**3.2**	0.659	2.641	2
MW-7	vinyl chloride	4/23/2018	**2.1**	0.910	2.840	2
MW-7	vinyl chloride	9/14/2018	**2.1**	1.717	2.833	2
MW-7	vinyl chloride	4/15/2019	**1.1**	1.382	2.868	2
MW-7	vinyl chloride	9/17/2019	**1.0**	1.049	2.101	2
MW-7	vinyl chloride	4/8/2020	**1.7**	1.026	1.924	2
MW-7	vinyl chloride	10/2/2020	**2.5**	0.978	2.172	2
MW-7	vinyl chloride	4/12/2021	<1	0.672	2.178	2
MW-7	vinyl chloride	10/26/2021	<1	0.451	2.149	2
MW-7	vinyl chloride	4/4/2022	<1	0.000	2.176	2
MW-7	vinyl chloride	10/7/2022	<1	0.500	0.500	2
MW-7	vinyl chloride	4/19/2023	<1	0.500	0.500	2
MW-7	vinyl chloride	10/25/2023	<1	0.500	0.500	2
MW-7	vinyl chloride	4/17/2024	<1	0.500	0.500	2
MW-7	vinyl chloride	10/17/2024	<1	0.500	0.500	2

Table 11 – Corrective Action Trend Analysis

Table 11
Corrective Action Trend Analysis
Annual Water Quality Report
Ida County Sanitary Landfill
Permit No. 47-SDP-01-76C

Monitoring Well	Compound	Sample Date	Current Condition	Trend	N	Projected Year to Completion (IAC 113.10(9)"e"
MW-7	vinyl chloride	3/31/2010	SSI	N/A	N/A	N/A
MW-7	vinyl chloride	9/16/2010	No-SSI	N/A	N/A	N/A
MW-7	vinyl chloride	4/11/2011	No-SSI	N/A	N/A	N/A
MW-7	vinyl chloride	9/26/2011	No-SSI	N/A	N/A	N/A
MW-7	vinyl chloride	4/1/2012	SSI	N/A	N/A	N/A
MW-7	vinyl chloride	8/23/2012	SSI	N/A	N/A	N/A
MW-7	vinyl chloride	4/13/2013	SSI	N/A	N/A	N/A
MW-7	vinyl chloride	9/14/2013	**SSL**	decreasing	1	2020
MW-7	vinyl chloride	4/11/2014	**SSL**	decreasing	2	2020
MW-7	vinyl chloride	9/27/2014	**SSL**	decreasing	3	2020
MW-7	vinyl chloride	3/16/2015	**SSL**	decreasing	4	2020
MW-7	vinyl chloride	9/28/2015	**SSL**	decreasing	5	2020
MW-7	vinyl chloride	3/14/2016	**SSL**	decreasing	6	2020
MW-7	vinyl chloride	9/3/2016	**SSL**	decreasing	7	2020
MW-7	vinyl chloride	4/10/2017	**SSL**	decreasing	8	2020
MW-7	vinyl chloride	9/1/2017	**SSL**	decreasing	9	2020
MW-7	vinyl chloride	4/23/2018	**SSL**	decreasing	10	2020
MW-7	vinyl chloride	9/14/2018	**SSL**	decreasing	11	2020
MW-7	vinyl chloride	4/15/2019	**SSL**	decreasing	12	2020
MW-7	vinyl chloride	9/17/2019	**SSL**	decreasing	13	2020
MW-7	vinyl chloride	4/8/2020	SSI	N/A	N/A	N/A
MW-7	vinyl chloride	10/2/2020	SSI	N/A	N/A	N/A
MW-7	vinyl chloride	4/12/2021	No-SSI	N/A	N/A	N/A
MW-7	vinyl chloride	10/26/2021	No-SSI	N/A	N/A	N/A
MW-7	vinyl chloride	4/4/2022	No-SSI	N/A	N/A	N/A
MW-7	vinyl chloride	10/7/2022	No-SSI	N/A	N/A	N/A
MW-7	vinyl chloride	4/19/2023	No-SSI	N/A	N/A	N/A
MW-7	vinyl chloride	10/25/2023	No-SSI	N/A	N/A	N/A
MW-7	vinyl chloride	4/17/2024	No-SSI	N/A	N/A	N/A
MW-7	vinyl chloride	10/17/2024	No-SSI	N/A	N/A	N/A

Table 12 – Leachate Levels – Current Year

Table 12

Leachate Elevations

Annual Water Quality Report

Ida County Sanitary Landfill

Permit No. 49-SDP-01-76C

Ida County Landfill Leachate Piezometer Readings 2024

Well #	TOC Elev.	Bottom Elev	4/17/2024 Field Reading (ft)	Elev.	Depth of Leachate
PZ-1	1446.44	1406.06	2.250	1408.31	2.25
PZ-2	1444.05	1404.13	0.000	1404.13	0.00
PZ-3	1447.62	1395.86	0.000	1395.86	0.00
PZ-4	1431.52	1390.89	0.000	1390.89	0.00
PZ-5	1416.76	1379.78	3.000	1382.78	3.00
PZ-6	1412.13	1375.77	2.080	1377.85	2.08
PZ-7	1415.87	1378.74	0.583	1379.32	0.58

10/17/2024 Field Reading (ft)	Elev.	Depth of Leachate
0.00	1406.06	0.00
0.000	1404.13	0.00
0.000	1395.86	0.00
0.000	1390.89	0.00
5.330	1385.11	5.33
0.333	1376.10	0.33
0.650	1379.39	0.65

Top and Bottom elevations per Green Environmental report August 12, 1991
New elevations per survey following installation of final cover in August 2008

DNR approved the reduction of leachate piezometer level measurments from quarterly to semi-annually on 3/5/2020 (Doc # 97158)

Table 12A – Leachate Levels – Over Time

TABLE 12A
Ida County Landfill
Historical Leachate Head Measurements - 2008 through Present

Date	LPZ-1	LPZ-2	LPZ-3	LPZ-4	LPZ-5	LPZ-6	LPZ-7
9/16/2008	-0.81	0.00	0.00	0.00	14.38	9.44	0.41
1/6/2009	-0.91	0.00	0.00	0.00	14.18	9.38	0.35
3/21/2009	-0.75	0.00	0.00	0.00	23.50	0.00	0.39
6/10/2009	-0.76	0.00	0.00	0.00	13.07	8.98	0.44
9/10/2009	0.16	0.00	0.00	0.00	12.71	8.70	0.44
2/17/2010	na	0.00	0.00	0.00	na	na	0.43
3/31/2010	1.63	0.00	0.00	0.00	12.52	9.31	0.45
7/14/2010	2.03	0.00	0.00	0.00	12.34	8.53	0.00
9/16/2010	2.04	0.00	0.00	0.00	0.00	0.00	0.00
1/6/2011	2.10	0.00	0.00	0.00	0.00	8.29	0.00
4/11/2011	0.99	0.00	0.00	0.00	11.38	8.06	0.44
7/14/2011	2.02	0.00	0.00	0.00	11.33	8.55	0.00
9/23/2011	1.94	0.00	0.00	0.00	11.33	8.55	0.00
1/5/2012	2.12	0.00	0.00	0.00	11.78	8.20	0.40
4/1/2012	1.83	0.00	0.00	0.00	7.50	7.50	0.17
7/11/2012	0.83	0.00	0.00	0.00	10.92	8.33	0.50
8/23/2012	0.92	0.00	0.00	0.00	11.00	8.17	0.17
1/9/2013	0.30	0.00	0.00	0.00	10.15	8.50	0.60
4/13/2013	0.83	0.00	0.00	0.00	9.16	8.83	0.83
7/27/2013	1.00	0.00	0.00	0.00	10.67	9.42	0.83
9/14/2013	0.92	0.00	0.00	0.00	11.00	9.08	0.50
1/12/2014	na	0.00	0.00	0.33	11.16	9.00	0.50
4/11/2014	1.17	0.00	0.00	0.00	10.08	8.17	0.17
7/17/2014	0.67	0.00	0.00	0.00	9.83	9.50	0.25
9/27/2014	1.17	0.00	0.00	0.00	10.00	9.67	0.25
1/16/2015	1.00	0.00	0.00	0.00	10.00	8.30	0.00
3/16/2015	1.25	0.00	0.00	0.00	10.17	8.42	0.00
7/14/2015	1.41	0.00	0.00	0.00	9.83	NA	0.00
9/28/2015	2.33	0.00	0.00	0.00	11.17	10.25	0.25
1/24/2016	2.67	0.00	0.00	0.00	frozen	7.17	0.00
3/14/2016	3.58	0.00	0.00	0.00	11.00	10.67	0.33
6/21/2016	4.33	0.00	0.00	0.00	12.17*	11.67	1.50
9/3/2016	4.25	0.00	0.00	0.00	11.83	11.50	0.58
12/30/2016	4.42	0.00	0.00	0.00	12.33	11.67	0.50
4/10/2017	5.17	0.00	0.00	0.00	11.42	11.42	0.46
7/14/2017	4.67	0.00	0.00	0.00	11.17	11.42	0.33
9/1/2017	4.67	0.00	0.00	0.00	11.17	10.50	0.33
1/9/2018	5.58	0.00	0.00	0.00	11.67	10.92	0.50
4/23/2018	5.50	0.00	0.00	0.00	11.42	12.83	0.33
7/17/2018	5.33	0.00	0.00	0.00	11.67	11.75	0.67
9/14/2018	5.07	0.00	0.00	0.17	11.50	11.33	0.33
1/8/2019	4.83	0.00	0.00	0.00	11.33	11.08	0.00
4/15/2019	5.83	0.00	0.00	0.00	13.00	13.92	0.83
6/25/2019	7.33	0.00	0.00	0.00	13.00	11.67	1.42
9/17/2019	6.92	0.00	0.00	0.00	13.50	11.58	0.83
4/8/2020	1.92	0.08	0.00	0.00	6.83	1.67	0.50
10/2/2020	1.67	0.00	0.42	0.00	1.42	1.67	0.83
4/12/2021	2.17	0.17	0.00	0.17	2.33	2.08	0.83
10/26/2021	NA	0.00	0.00	0.00	2.00	0.17	0.25
4/4/2022	1.25	0.00	0.00	0.00	2.67	2.25	0.92
10/7/2022	1.67	0.00	0.42	0.25	2.92	1.92	0.83
4/19/2023	1.83	0.00	0.00	0.00	4.83	2.17	0.5
10/25/2023	0.00	0.00	0.00	0.00	3.83	0.50	0.75
4/17/2024	2.25	0.00	0.00	0.00	3.00	2.08	0.58
10/17/2024	0.00	0.00	0.00	0.00	5.33	0.33	0.65

Table 13 – Gas Monitoring Summary

Table 13
Gas Monitoring
Annual Water Quality Report
Ida County Sanitary Landfill
Permit No. 49-SDP-01-76C

4/17/2024

MONITORING POINT	LOCATION	EQUIPMENT READING	STRESSED VEGETATION?	ACTION REQUIRED?
Recycling Building		<1.0 %	NA	None
Office		<1.0 %	NA	None
Storage Building		<1.0 %	NA	None
Equipment Building		<1.0 %	NA	None
MW-3	Southwest	<1.0 %	No	None
MW-7	Northeast	<1.0 %	No	None
MW-10	East	<1.0 %	No	None
PZ-11	East	<1.0 %	No	None
MW-13	Southeast	<1.0 %	No	None
Glenn Hunter - Weather: sunny, windy, 57 degrees				

10/17/2024

MONITORING POINT	LOCATION	EQUIPMENT READING	STRESSED VEGETATION?	ACTION REQUIRED?
Recycling Building		<1.0 %	NA	None
Office		<1.0 %	NA	None
Storage Building		<1.0 %	NA	None
Equipment Building		<1.0 %	NA	None
MW-3	Southwest	<1.0 %	No	None
MW-7	Northeast	<1.0 %	No	None
MW-10	East	<1.0 %	No	None
PZ-11	East	<1.0 %	No	None
MW-13	Southeast	<1.0 %	No	None
Todd Whipple - Weather: sunny, windy 64 degrees				

COMMENTS: The intermittent detection of methane gas in the office has been previously reported to IDNR and occurs periodically during the winter when the sewer system drains dry out and/or the lift station pump is not operated or vented, resulting in the backup of sewer gas.

NM = Not Monitored

APPENDIX A

Hydraulic Conductivity Data

Groundwater levels were measured in March, 1991, six weeks after installation and one week after development of the new wells and piezometers. Development was delayed due to cold weather which caused the equipment to freeze up. Water levels have been measured in the deeper piezometers since their installation, and they appear to be stabilized. The shallow wells stabilized within a few weeks, so bail or slug tests were then conducted on each well and piezometer. The data was analyzed by the method found in Hvorslev (1951) for unconfined aquifers and in Cooper et al. (1967) for confined aquifers using a computer program by Thompson (1987). Results of these tests can be found in Table 1.

TABLE 1: IN-SITU PERMEABILITY RESULTS

Corrected Values

Well No.	Depth (ft.)	Geologic Interval	Aquifer Type	Hydraulic Conductivity (cm/sec)
MW-4	25 - 35	Loess - Till Contact	Unconfined	1×10^{-5}
MW-5	55 - 65	Glacial Till	Confined	7×10^{-5}
PZ-6	40 - 50	Glacial Till	Confined	2×10^{-6}
MW-7	15 - 25	Loess - Sand Seam Contact	Unconfined	3×10^{-4}
MW-8	50 - 60	Glacial Till	Confined	1×10^{-6}
MW-9	87 - 97	Sand Lens in Till	Confined	6×10^{-7}
MW-10	20 - 30	Weathered Till	Unconfined	1×10^{-6}
PZ-11	10 - 20	Loess	Unconfined	1×10^{-4}
PZ-12	50 - 60	Glacial Till	Confined	7×10^{-7}
MW-13	15 - 25	Loess - Till Contact	Unconfined	4×10^{-5}
PZ-14	15 - 25	Loess	Unconfined	Dry
PZ-15	45 - 50	Glacial Till	Confined	3×10^{-7}
PZ-16	70 - 75	Glacial Till	Confined	2×10^{-7}

Revised

APPENDIX B

Field Sampling Forms

IDA COUNTY SANITARY LANDFILL
PERMIT # 47-SDP-01-76C

4/17/2024 Sampled by: Glenn Hunter Weather Conditions: Sunny, windy, 57 degrees

IDNR Form 542-1322

Monitoring Well: MW-3 (ug)

Primary Sampling Method: No-Purge for Appendix I
Secondary Sampling Method: Purge & Sample for all analytes beyond Appendix I

GENERAL INFORMATION

TOC	1419.29
Well Depth	39.10
Capped	YES
Standing Water	NO
Litter	NO
Level Tape	Solinst 101
NTU Meter	Hach 2100P
No-Purge Equipment -	Solinst 429
Purge Equipment -	Waterra

confirm

NO PURGE METHOD

TOC	1419.29
Well Depth	39.10
Top Screen	1385.19
Bottom Screen	1380.19
Bottom Well	1380.19
Sampler Length (ft)	4.00
Sampler Volume (mL)	440.00
Feet cordage	33.00
Top sample	1386.29
Bottom sample	1382.29
Turbidity(NTU)	2.29

Date	Time	Water Level	Water Elevation	Notes
4/17/2024	12:57	32.00	1387.29	

ANALYTES, CONTAINERS, AND VOLUMES

Analyte		Required Volume (mL)	Volume Collected No-Purge (mL)	Volume Collected Purge & Sample (mL)	Turbidity this Container (NTU)
All	Field NTU	10	10		2.29
Appendix I	Metals	150	150		2.29
Appendix I	VOC	240	240		2.29
Full Appendix II	10 more containers	5620			
Sulfide	Sulfide	250			
Supplemental	Minerals	750			
Total			400	0	

PURGE & SAMPLE METHOD - Purge by Waterra Inertial Lift Pump, then well rest, then sample collection

TOC	1419.29	2" dia.	Date	Time	Depth	Elevation	Gallons	# of Vol.	Purged Dry?
Well Depth	39.10	Before purging	4/17/2024	12:57	32.00	1387.29	2.5	2.2	no
		After purging				1419.29			
		Top of Screen January 1990				1385.19			
						2.10	feet above (+) or below (-) top screen		
		Bottom of Well January 1990				1380.19			
		Bottom of Well	4/17/2024		39.05	1380.24			
						0.05	feet sedimentation		
		Before Sampling				1419.29			
		Recovery	4/17/2024	12:59	37.60	1381.69			
		Recovery	4/17/2024	14:45	36.95	1382.34			
		Recovery				1419.29			
		Recovery				1419.29			

IDNR Form 542-1322

Monitoring Well: MW-90-7 (dg)

Primary Sampling Method: No-Purge for Appendix I
Secondary Sampling Method: Purge & Sample for all analytes beyond Appendix I

GENERAL INFORMATION

TOC	1367.8
Well Depth	25.40
Capped	YES
Standing Water	NO
Litter	NO
Level Tape	Solinst 101
NTU Meter	Hach 2100P
No-Purge Equipment -	Solinst 429
Purge Equipment -	Waterra

NO PURGE METHOD

TOC	1367.8
Well Depth	25.40
Top Screen	1352.40
Bottom Screen	1342.40
Bottom Well	1342.40
Sampler Length (ft)	4.00
Sampler Volume (mL)	440.00
Feet cordage	19.00
Top sample	1348.80
Bottom sample	1344.80
Turbidity(NTU)	1.16

Date	Time	Water Level	Water Elevation	Notes
4/17/2024	14:11	9.49	1358.31	

ANALYTES, CONTAINERS, AND VOLUMES

Analyte		Required Volume (mL)	Volume Collected No-Purge (mL)	Volume Collected Purge & Sample (mL)	Turbidity this Container (NTU)
All	Field NTU	10	10		1.16
Appendix I	Metals	150	150		1.16
Appendix I	VOC	240	240		1.16
Full Appendix II	10 more containers	5620			
Sulfide	Sulfide	250			
Supplemental	Minerals	750			
Total			400	0	

PURGE & SAMPLE METHOD - Purge by Waterra Inertial Lift Pump, then well rest, then sample collection

TOC	1367.8	2" dia.	Date	Time	Depth	Elevation	Gallons	# of Vol.	Purged Dry?
Well Depth	25.40	Before purging	4/17/2024	14:11	9.49	1358.31	4	1.5	no
		After purging				1367.80			
		Top of Screen January 1990				1352.40			
						5.91	feet above (+) or below (-) top screen		
		Bottom of Well January 1990				1342.40			
		Bottom of Well	4/17/2024		25.40	1342.40			
						0.00	feet sedimentation		
		Before Sampling				1367.80			
		Recovery	4/17/2024	14:15	20.05	1347.75			
		Recovery	4/17/2024	14:57	9.51	1358.29			
		Recovery				1367.80			
		Recovery				1367.80			

IDNR Form 542-1322

Monitoring Well:	MW-10 (dg)
Primary Sampling Method:	No-Purge for Appendix I
Secondary Sampling Method:	Purge & Sample for all analytes beyond Appendix I

GENERAL INFORMATION

TOC	1377.05
Well Depth	32.45
Capped	YES
Standing Water	NO
Litter	NO
Level Tape	Solinst 101
NTU Meter	Hach 2100P
No-Purge Equipment -	Solinst 429
Purge Equipment -	Waterra

NO PURGE METHOD

TOC	1377.05
Well Depth	32.45
Top Screen	1354.60
Bottom Screen	1344.60
Bottom Well	1344.60
Sampler Length (ft)	4.00
Sampler Volume (mL)	440.00
Feet cordage	26.00
Top sample	1351.05
Bottom sample	1347.05
Turbidity(NTU)	0.95

Date	Time	Water Level	Water Elevation	Notes
4/17/2024	13:52	14.58	1362.47	

ANALYTES, CONTAINERS, AND VOLUMES

Analyte		Required Volume (mL)	Volume Collected No-Purge (mL)	Volume Collected Purge & Sample (mL)	Turbidity this Container (NTU)
All	Field NTU	10	10		0.95
Appendix I	Metals	150	150		0.95
Appendix I	VOC	240	240		0.95
Full Appendix II	10 more containers	5620			
Sulfide	Sulfide	250			
Supplemental	Minerals	750			
Total			400	0	

PURGE & SAMPLE METHOD - Purge by Waterra Inertial Lift Pump, then well rest, then sample collection

TOC	1377.05	2" dia.	Date	Time	Depth	Elevation	Gallons	# of Vol.	Purged Dry?
Well Depth	32.45	Before purging	4/17/2024	13:52	14.58	1362.47	3	1.0	no
		After purging				1377.05			
		Top of Screen January 1990				1354.60			
						7.87	feet above (+) or below (-) top screen		
		Bottom of Well January 1990				1344.60			
		Bottom of Well	4/17/2024		32.45	1344.60			
						0.00	feet sedimentation		
		Before Sampling				1377.05			
		Recovery	4/17/2024	13:56	28.62	1348.43			
		Recovery	4/17/2024	14:55	23.60	1353.45			
		Recovery				1377.05			
		Recovery				1377.05			

IDNR Form 542-1322

Monitoring Well: PZ-11 (dg)

Primary Sampling Method: No-Purge for Appendix I
Secondary Sampling Method: Purge & Sample for all analytes beyond Appendix I

GENERAL INFORMATION

TOC	1366.7
Well Depth	22.65
Capped	YES
Standing Water	NO
Litter	NO
Level Tape	Solinst 101
NTU Meter	Hach 2100P
No-Purge Equipment -	Solinst 429
Purge Equipment -	Waterra

NO PURGE METHOD

TOC	1366.7
Well Depth	22.65
Top Screen	1354.05
Bottom Screen	1344.05
Bottom Well	1344.05
Sampler Length (ft)	4.00
Sampler Volume (mL)	440.00
Feet cordage	16.00
Top sample	1350.70
Bottom sample	1346.70
Turbidity(NTU)	1.37

Date	Time	Water Level	Water Elevation	Notes
4/17/2024	13:36	6.98	1359.72	

ANALYTES, CONTAINERS, AND VOLUMES

Analyte		Required Volume (mL)	Volume Collected No-Purge (mL)	Volume Collected Purge & Sample (mL)	Turbidity this Container (NTU)
All	Field NTU	10	10		1.37
Appendix I	Metals	150	150		1.37
Appendix I	VOC	240	240		1.37
Full Appendix II	10 more containers	5620			
Sulfide	Sulfide	250			
Supplemental	Minerals	750			
Total			400	0	

PURGE & SAMPLE METHOD - Purge by Waterra Inertial Lift Pump, then well rest, then sample collection

TOC	1366.7	2" dia.	Date	Time	Depth	Elevation	Gallons	# of Vol.	Purged Dry?
Well Depth	22.65	Before purging	4/17/2024	13:36	6.98	1359.72	5	2.0	no
		After purging				1366.70			
		Top of Screen January 1990				1354.05			
						5.67	feet above (+) or below (-) top screen		
		Bottom of Well January 1990				1344.05			
		Bottom of Well	4/17/2024		22.65	1344.05			
						0.00	feet sedimentation		
		Before Sampling				1366.70			
		Recovery	4/17/2024	13:42	7.75	1358.95			
		Recovery	4/17/2024	14:53	7.01	1359.69			
		Recovery				1366.70			
		Recovery				1366.70			

IDNR Form 542-1322

Monitoring Well: MW-13 (dg)

Primary Sampling Method: No-Purge for Appendix I
Secondary Sampling Method: Purge & Sample for all analytes beyond Appendix I

GENERAL INFORMATION

TOC	1381.39
Well Depth	27.67
Capped	YES
Standing Water	NO
Litter	NO
Level Tape	Solinst 101
NTU Meter	Hach 2100P
No-Purge Equipment -	Solinst 429
Purge Equipment -	Waterra

NO PURGE METHOD

TOC	1381.39
Well Depth	27.67
Top Screen	1363.72
Bottom Screen	1353.72
Bottom Well	1353.72
Sampler Length (ft)	4.00
Sampler Volume (mL)	440.00
Feet cordage	21.00
Top sample	1360.39
Bottom sample	1356.39
Turbidity(NTU)	1.92

Date	Time	Water Level	Water Elevation	Notes
4/17/2024	13:14	15.33	1366.06	

ANALYTES, CONTAINERS, AND VOLUMES

Analyte		Required Volume (mL)	Volume Collected No-Purge (mL)	Volume Collected Purge & Sample (mL)	Turbidity this Container (NTU)
All	Field NTU	10	10		1.92
Appendix I	Metals	150	150		1.92
Appendix I	VOC	240	240		1.92
Full Appendix II	10 more containers	5620			
Sulfide	Sulfide	250			
Supplemental	Minerals	750			
Total			400	0	

PURGE & SAMPLE METHOD - Purge by Waterra Inertial Lift Pump, then well rest, then sample collection

TOC	1381.39	2" dia.	Date	Time	Depth	Elevation	Gallons	# of Vol.	Purged Dry?
Well Depth	27.67	Before purging	4/17/2024	13:14	15.33	1366.06	4	2.0	no
		After purging				1381.39			
		Top of Screen January 1990				1363.72			
						2.34	feet above (+) or below (-) top screen		
		Bottom of Well January 1990				1353.72			
		Bottom of Well	4/17/2024		27.67	1353.72			
						0.00	feet sedimentation		
		Before Sampling				1381.39			
		Recovery	4/17/2024	13:19	17.80	1363.59			
		Recovery	4/17/2024	14:51	15.30	1366.09			
		Recovery				1381.39			
		Recovery				1381.39			

IDNR Form 542-1322

Monitoring Well: PZ-6

Primary Sampling Method: No-Purge for Appendix I
Secondary Sampling Method: Purge & Sample for all analytes beyond Appendix I

GENERAL INFORMATION

TOC	1412.45
Well Depth	
Capped	YES
Standing Water	NO
Litter	NO
Level Tape	Solinst 101
NTU Meter	Hach 2100P
No-Purge Equipment -	Solinst 429
Purge Equipment -	Waterra

NO PURGE METHOD

TOC	1412.45
Well Depth	
Top Screen	
Bottom Screen	
Bottom Well	
Sampler Length (ft)	
Sampler Volume (mL)	
Feet cordage	
Top sample	
Bottom sample	
Turbidity(NTU)	

Date	Time	Water Level	Water Elevation	Notes
4/17/2024		26.10	1386.35	Water Level Only

IDA COUNTY SANITARY LANDFILL
PERMIT # 47-SDP-01-76C

10/17/2024 Sampled by: Todd Whipple Weather Conditions: Sunny, windy, 64 degrees

IDNR Form 542-1322

Monitoring Well: MW-3 (ug)

Primary Sampling Method: No-Purge for Appendix I
Secondary Sampling Method: Purge & Sample for all analytes beyond Appendix I

GENERAL INFORMATION

TOC	1419.29
Well Depth	39.10
Capped	YES
Standing Water	NO
Litter	NO
Level Tape	Solinst 101
NTU Meter	Hach 2100P
No-Purge Equipment -	Solinst 429
Purge Equipment -	Waterra

confirm

NO PURGE METHOD

TOC	1419.29
Well Depth	39.10
Top Screen	1385.19
Bottom Screen	1380.19
Bottom Well	1380.19
Sampler Length (ft)	4.00
Sampler Volume (mL)	440.00
Feet cordage	34.00
Top sample	1385.29
Bottom sample	1381.29
Turbidity(NTU)	2.01

Date	Time	Water Level	Water Elevation	Notes
10/17/2024	13:05	30.36	1388.93	

ANALYTES, CONTAINERS, AND VOLUMES

Analyte		Required Volume (mL)	Volume Collected No-Purge (mL)	Volume Collected Purge & Sample (mL)	Turbidity this Container (NTU)
All	Field NTU	10	10		2.01
Appendix I	Metals	150	150		2.01
Appendix I	VOC	240	240		2.01
Full Appendix II	10 more containers	5620			
Sulfide	Sulfide	250			
Supplemental	Minerals	750			
Total			400	0	

PURGE & SAMPLE METHOD - Purge by Waterra Inertial Lift Pump, then well rest, then sample collection

TOC	1419.29
Well Depth	39.10

2" dia.	Date	Time	Depth	Elevation	Gallons	# of Vol.	Purged Dry?
Before purging	10/17/2024	13:05	30.36	1388.93		0.0	
After purging				1419.29			
Top of Screen January 1990				1385.19			
				3.74	feet above (+) or below (-) top screen		
Bottom of Well January 1990				1380.19			
Bottom of Well	10/17/2024		39.05	1380.24			
				0.05	feet sedimentation		
Before Sampling				1419.29			
Recovery				1419.29			
Recovery				1419.29			
Recovery				1419.29			
Recovery				1419.29			

IDNR Form 542-1322

Monitoring Well: MW-90-7 (dg)

Primary Sampling Method: No-Purge for Appendix I
Secondary Sampling Method: Purge & Sample for all analytes beyond Appendix I

GENERAL INFORMATION

TOC	1367.8
Well Depth	25.40
Capped	YES
Standing Water	NO
Litter	NO
Level Tape	Solinst 101
NTU Meter	Hach 2100P
No-Purge Equipment -	Solinst 429
Purge Equipment -	Waterra

NO PURGE METHOD

TOC	1367.8
Well Depth	25.40
Top Screen	1352.40
Bottom Screen	1342.40
Bottom Well	1342.40
Sampler Length (ft)	4.00
Sampler Volume (mL)	440.00
Feet cordage	20.00
Top sample	1347.80
Bottom sample	1343.80
Turbidity(NTU)	6.00

Date	Time	Water Level	Water Elevation	Notes
10/17/2024	13:27	11.81	1355.99	

ANALYTES, CONTAINERS, AND VOLUMES

Analyte		Required Volume (mL)	Volume Collected No-Purge (mL)	Volume Collected Purge & Sample (mL)	Turbidity this Container (NTU)
All	Field NTU	10	10		6.00
Appendix I	Metals	150	150		6.00
Appendix I	VOC	240	240		6.00
Full Appendix II	10 more containers	5620			
Sulfide	Sulfide	250			
Supplemental	Minerals	750			
Total			400	0	

PURGE & SAMPLE METHOD - Purge by Waterra Inertial Lift Pump, then well rest, then sample collection

TOC	1367.8
Well Depth	25.40

2" dia.	Date	Time	Depth	Elevation	Gallons	# of Vol.	Purged Dry?
Before purging	10/17/2024	13:27	11.81	1355.99		0.0	
After purging				1367.80			
Top of Screen January 1990				1352.40			
				3.59	feet above (+) or below (-) top screen		
Bottom of Well January 1990				1342.40			
Bottom of Well	10/17/2024		25.40	1342.40			
				0.00	feet sedimentation		
Before Sampling				1367.80			
Recovery				1367.80			
Recovery				1367.80			
Recovery				1367.80			
Recovery				1367.80			

IDNR Form 542-1322

Monitoring Well: MW-10 (dg)

Primary Sampling Method: No-Purge for Appendix I
Secondary Sampling Method: Purge & Sample for all analytes beyond Appendix I

GENERAL INFORMATION

TOC	1377.05
Well Depth	32.45
Capped	YES
Standing Water	NO
Litter	NO
Level Tape	Solinst 101
NTU Meter	Hach 2100P
No-Purge Equipment -	Solinst 429
Purge Equipment -	Waterra

NO PURGE METHOD

TOC	1377.05
Well Depth	32.45
Top Screen	1354.60
Bottom Screen	1344.60
Bottom Well	1344.60
Sampler Length (ft)	4.00
Sampler Volume (mL)	440.00
Feet cordage	26.00
Top sample	1351.05
Bottom sample	1347.05
Turbidity(NTU)	2.88

Date	Time	Water Level	Water Elevation	Notes
10/17/2024	13:43	18.24	1358.81	

ANALYTES, CONTAINERS, AND VOLUMES

Analyte		Required Volume (mL)	Volume Collected No-Purge (mL)	Volume Collected Purge & Sample (mL)	Turbidity this Container (NTU)
All	Field NTU	10	10		2.88
Appendix I	Metals	150	150		2.88
Appendix I	VOC	240	240		2.88
Full Appendix II	10 more containers	5620			
Sulfide	Sulfide	250			
Supplemental	Minerals	750			
Total			400	0	

PURGE & SAMPLE METHOD - Purge by Waterra Inertial Lift Pump, then well rest, then sample collection

TOC	1377.05	2" dia.	Date	Time	Depth	Elevation	Gallons	# of Vol.	Purged Dry?
Well Depth	32.45	Before purging	10/17/2024	13:43	18.24	1358.81		0.0	
		After purging				1377.05			
		Top of Screen January 1990				1354.60			
						4.21	feet above (+) or below (-) top screen		
		Bottom of Well January 1990				1344.60			
		Bottom of Well	10/17/2024		32.45	1344.60			
						0.00	feet sedimentation		
		Before Sampling				1377.05			
		Recovery				1377.05			
		Recovery				1377.05			
		Recovery				1377.05			
		Recovery				1377.05			

IDNR Form 542-1322

Primary Sampling Method:	No-Purge for Appendix I
Secondary Sampling Method:	Purge & Sample for all analytes beyond Appendix I

Monitoring Well: PZ-11 (dg)

GENERAL INFORMATION

TOC	1366.7
Well Depth	22.65
Capped	YES
Standing Water	NO
Litter	NO
Level Tape	Solinst 101
NTU Meter	Hach 2100P
No-Purge Equipment -	Solinst 429
Purge Equipment -	Waterra

NO PURGE METHOD

TOC	1366.7
Well Depth	22.65
Top Screen	1354.05
Bottom Screen	1344.05
Bottom Well	1344.05
Sampler Length (ft)	4.00
Sampler Volume (mL)	440.00
Feet cordage	17.00
Top sample	1349.70
Bottom sample	1345.70
Turbidity(NTU)	2.36

Date	Time	Water Level	Water Elevation	Notes
10/17/2024	13:57	9.90	1356.8	

ANALYTES, CONTAINERS, AND VOLUMES

Analyte		Required Volume (mL)	Volume Collected No-Purge (mL)	Volume Collected Purge & Sample (mL)	Turbidity this Container (NTU)
All	Field NTU	10	10		2.36
Appendix I	Metals	150	150		2.36
Appendix I	VOC	240	240		2.36
Full Appendix II	10 more containers	5620			
Sulfide	Sulfide	250			
Supplemental	Minerals	750			
Total			400	0	

PURGE & SAMPLE METHOD - Purge by Waterra Inertial Lift Pump, then well rest, then sample collection

TOC	1366.7
Well Depth	22.65

2" dia.	Date	Time	Depth	Elevation	Gallons	# of Vol.	Purged Dry?
Before purging	10/17/2024	13:57	9.90	1356.80		0.0	
After purging				1366.70			
Top of Screen January 1990				1354.05			
				2.75	feet above (+) or below (-) top screen		
Bottom of Well January 1990				1344.05			
Bottom of Well	10/17/2024		22.65	1344.05			
				0.00	feet sedimentation		
Before Sampling				1366.70			
Recovery				1366.70			
Recovery				1366.70			
Recovery				1366.70			
Recovery				1366.70			

IDNR Form 542-1322

Monitoring Well:	MW-13 (dg)
Primary Sampling Method:	No-Purge for Appendix I
Secondary Sampling Method:	Purge & Sample for all analytes beyond Appendix I

GENERAL INFORMATION

TOC	1381.39
Well Depth	27.67
Capped	YES
Standing Water	NO
Litter	NO
Level Tape	Solinst 101
NTU Meter	Hach 2100P
No-Purge Equipment -	Solinst 429
Purge Equipment -	Waterra

NO PURGE METHOD

TOC	1381.39
Well Depth	27.67
Top Screen	1363.72
Bottom Screen	1353.72
Bottom Well	1353.72
Sampler Length (ft)	4.00
Sampler Volume (mL)	440.00
Feet cordage	21.00
Top sample	1360.39
Bottom sample	1356.39
Turbidity(NTU)	2.03

Date	Time	Water Level	Water Elevation	Notes
10/17/2024	14:08	17.28	1364.11	

ANALYTES, CONTAINERS, AND VOLUMES

Analyte		Required Volume (mL)	Volume Collected No-Purge (mL)	Volume Collected Purge & Sample (mL)	Turbidity this Container (NTU)
All	Field NTU	10	10		2.03
Appendix I	Metals	150	150		2.03
Appendix I	VOC	240	240		2.03
Full Appendix II	10 more containers	5620			
Sulfide	Sulfide	250			
Supplemental	Minerals	750			
Total			400	0	

PURGE & SAMPLE METHOD - Purge by Waterra Inertial Lift Pump, then well rest, then sample collection

TOC	1381.39	2" dia.	Date	Time	Depth	Elevation	Gallons	# of Vol.	Purged Dry?
Well Depth	27.67	Before purging	10/17/2024	14:08	17.28	1364.11		0.0	
		After purging				1381.39			
		Top of Screen January 1990				1363.72			
						0.39	feet above (+) or below (-) top screen		
		Bottom of Well January 1990				1353.72			
		Bottom of Well	10/17/2024		27.67	1353.72			
						0.00	feet sedimentation		
		Before Sampling				1381.39			
		Recovery				1381.39			
		Recovery				1381.39			
		Recovery				1381.39			
		Recovery				1381.39			

IDNR Form 542-1322

Monitoring Well: PZ-6

Primary Sampling Method: No-Purge for Appendix I
Secondary Sampling Method: Purge & Sample for all analytes beyond Appendix I

GENERAL INFORMATION

TOC	1412.45
Well Depth	
Capped	YES
Standing Water	NO
Litter	NO
Level Tape	Solinst 101
NTU Meter	Hach 2100P
No-Purge Equipment -	Solinst 429
Purge Equipment -	Waterra

NO PURGE METHOD

TOC	1412.45
Well Depth	
Top Screen	
Bottom Screen	
Bottom Well	
Sampler Length (ft)	
Sampler Volume (mL)	
Feet cordage	
Top sample	
Bottom sample	
Turbidity(NTU)	

Date	Time	Water Level	Water Elevation	Notes
10/17/2024		24.37	1388.08	Water Level Only

IDNR Form 542-1322

Monitoring Well: MW-10 (dg)

Primary Sampling Method: No-Purge for Appendix I
Secondary Sampling Method: Purge & Sample for all analytes beyond Appendix I

GENERAL INFORMATION

TOC	1377.05
Well Depth	32.45
Capped	YES
Standing Water	NO
Litter	NO
Level Tape	Solinst 101
NTU Meter	Hach 2100P
No-Purge Equipment -	Solinst 429
Purge Equipment -	Waterra

NO PURGE METHOD

TOC	1377.05
Well Depth	32.45
Top Screen	1354.60
Bottom Screen	1344.60
Bottom Well	1344.60
Sampler Length (ft)	4.00
Sampler Volume (mL)	440.00
Feet cordage	26.00
Top sample	1351.05
Bottom sample	1347.05
Turbidity(NTU)	1.05

Date	Time	Water Level	Water Elevation	Notes
12/10/2024	10:33	16.73	1360.32	Cadmium Re-sample

ANALYTES, CONTAINERS, AND VOLUMES

Analyte		Required Volume (mL)	Volume Collected No-Purge (mL)	Volume Collected Purge & Sample (mL)	Turbidity this Container (NTU)
All	Field NTU	10	10		1.05
Appendix I	Metals	150	250		1.05
Appendix I	VOC	240			
Full Appendix II	10 more containers	5620			
Sulfide	Sulfide	250			
Supplemental	Minerals	750			
Total			260	0	

PURGE & SAMPLE METHOD - Purge by Waterra Inertial Lift Pump, then well rest, then sample collection

TOC	1377.05	2" dia.	Date	Time	Depth	Elevation	Gallons	# of Vol.	Purged Dry?
Well Depth	32.45	Before purging	12/10/2024	10:33	16.73	1360.32		0.0	
		After purging				1377.05			
		Top of Screen January 1990				1354.60			
						5.72	feet above (+) or below (-) top screen		
		Bottom of Well January 1990				1344.60			
		Bottom of Well	12/10/2024		32.45	1344.60			
						0.00	feet sedimentation		
		Before Sampling				1377.05			
		Recovery				1377.05			
		Recovery				1377.05			
		Recovery				1377.05			
		Recovery				1377.05			

APPENDIX C

Laboratory Analytical Data

Microbac Laboratories, Inc., Newton

CERTIFICATE OF ANALYSIS

1HD1510

Project Description

Appendix 1

For:

Todd Whipple

HLW Engineering

PO Box 314

Story City, IA 50248

Heather Murphy

Customer Relationship Specialist

Thursday, May 9, 2024

Please find enclosed the analytical results for the samples you submitted to Microbac Laboratories. Review and compilation of your report was completed by Microbac Laboratories, Inc., Newton. If you have any questions, comments, or require further assistance regarding this report, please contact your service representative listed above.

I certify that all test results meet all of the requirements of the accrediting authority listed within this report. Analytical results are reported on a 'as received' basis unless specified otherwise. Analytical results for solids with units ending in (dry) are reported on a dry weight basis. A statement of uncertainty for each analysis is available upon request. This laboratory report shall not be reproduced, except in full, without the written approval of Microbac Laboratories. The reported results are related only to the samples analyzed as received.

Microbac Laboratories, Inc., Newton

CERTIFICATE OF ANALYSIS

1HD1510

HLW Engineering

Todd Whipple
PO Box 314
Story City, IA 50248

Project Name: Appendix 1

Project / PO Number: N/A
Received: 04/18/2024
Reported: 05/09/2024

Sample Summary Report

Sample Name	Laboratory ID	Client Matrix	Sample Type	Sample Begin	Sample Taken	Lab Received
MW-3	1HD1510-01	Aqueous	GRAB		04/17/24 12:57	04/18/24 09:39
MW-7	1HD1510-02	Aqueous	GRAB		04/17/24 14:11	04/18/24 09:39
MW-10	1HD1510-03	Aqueous	GRAB		04/17/24 13:52	04/18/24 09:39
PZ-11	1HD1510-04	Aqueous	GRAB		04/17/24 13:36	04/18/24 09:39
MW-13	1HD1510-05	Aqueous	GRAB		04/17/24 13:14	04/18/24 09:39
Duplicate	1HD1510-06	Aqueous	GRAB		04/17/24 13:36	04/18/24 09:39

Analytical Testing Parameters

Client Sample ID:	MW-3		
Sample Matrix:	Aqueous	**Collected By:**	JGH
Lab Sample ID:	1HD1510-01	**Collection Date:**	04/17/2024 12:57

Determination of Volatile Organic Compounds	Result	RL	Units	DF	Note	Prepared	Analyzed	Analyst
EPA 5030B/EPA 8260B								
Chloromethane	<1.0	1.0	ug/L	1		04/22/24 0000	04/22/24 1913	LJS
Vinyl Chloride	<1.0	1.0	ug/L	1		04/22/24 0000	04/22/24 1913	LJS
Bromomethane	<1.0	1.0	ug/L	1		04/22/24 0000	04/22/24 1913	LJS
Chloroethane	<1.0	1.0	ug/L	1		04/22/24 0000	04/22/24 1913	LJS
Trichlorofluoromethane	<1.0	1.0	ug/L	1		04/22/24 0000	04/22/24 1913	LJS
1,1-Dichloroethylene	<1.0	1.0	ug/L	1		04/22/24 0000	04/22/24 1913	LJS
Acetone	<10.0	10.0	ug/L	1		04/22/24 0000	04/22/24 1913	LJS
Methyl Iodide	<1.0	1.0	ug/L	1		04/22/24 0000	04/22/24 1913	LJS
Carbon Disulfide	<1.0	1.0	ug/L	1		04/22/24 0000	04/22/24 1913	LJS
Methylene Chloride	<5.0	5.0	ug/L	1		04/22/24 0000	04/22/24 1913	LJS
Acrylonitrile	<5.0	5.0	ug/L	1		04/22/24 0000	04/22/24 1913	LJS
trans-1,2-Dichloroethylene	<1.0	1.0	ug/L	1		04/22/24 0000	04/22/24 1913	LJS
1,1-Dichloroethane	<1.0	1.0	ug/L	1		04/22/24 0000	04/22/24 1913	LJS
Vinyl Acetate	<5.0	5.0	ug/L	1		04/22/24 0000	04/22/24 1913	LJS
cis-1,2-Dichloroethylene	<1.0	1.0	ug/L	1		04/22/24 0000	04/22/24 1913	LJS
2-Butanone (MEK)	<10.0	10.0	ug/L	1		04/22/24 0000	04/22/24 1913	LJS
Bromochloromethane	<1.0	1.0	ug/L	1		04/22/24 0000	04/22/24 1913	LJS
Chloroform	<1.0	1.0	ug/L	1		04/22/24 0000	04/22/24 1913	LJS
1,1,1-Trichloroethane	<1.0	1.0	ug/L	1		04/22/24 0000	04/22/24 1913	LJS
Carbon Tetrachloride	<1.0	1.0	ug/L	1		04/22/24 0000	04/22/24 1913	LJS
Benzene	<1.0	1.0	ug/L	1		04/22/24 0000	04/22/24 1913	LJS
1,2-Dichloroethane	<1.0	1.0	ug/L	1		04/22/24 0000	04/22/24 1913	LJS
Trichloroethylene	<1.0	1.0	ug/L	1		04/22/24 0000	04/22/24 1913	LJS
1,2-Dichloropropane	<1.0	1.0	ug/L	1		04/22/24 0000	04/22/24 1913	LJS
Dibromomethane	<1.0	1.0	ug/L	1		04/22/24 0000	04/22/24 1913	LJS
Bromodichloromethane	<1.0	1.0	ug/L	1		04/22/24 0000	04/22/24 1913	LJS
cis-1,3-Dichloropropene	<1.0	1.0	ug/L	1		04/22/24 0000	04/22/24 1913	LJS
4-Methyl-2-pentanone (MIBK)	<5.0	5.0	ug/L	1		04/22/24 0000	04/22/24 1913	LJS
Toluene	<1.0	1.0	ug/L	1		04/22/24 0000	04/22/24 1913	LJS
trans-1,3-Dichloropropene	<1.0	1.0	ug/L	1		04/22/24 0000	04/22/24 1913	LJS
1,1,2-Trichloroethane	<1.0	1.0	ug/L	1		04/22/24 0000	04/22/24 1913	LJS
Tetrachloroethylene	<1.0	1.0	ug/L	1		04/22/24 0000	04/22/24 1913	LJS
2-Hexanone (MBK)	<5.0	5.0	ug/L	1		04/22/24 0000	04/22/24 1913	LJS
Dibromochloromethane	<1.0	1.0	ug/L	1		04/22/24 0000	04/22/24 1913	LJS
1,2-Dibromoethane	<1.0	1.0	ug/L	1		04/22/24 0000	04/22/24 1913	LJS
Chlorobenzene	<1.0	1.0	ug/L	1		04/22/24 0000	04/22/24 1913	LJS
1,1,1,2-Tetrachloroethane	<1.0	1.0	ug/L	1		04/22/24 0000	04/22/24 1913	LJS
Ethylbenzene	<1.0	1.0	ug/L	1		04/22/24 0000	04/22/24 1913	LJS
Xylenes, total	<2.0	2.0	ug/L	1		04/22/24 0000	04/22/24 1913	LJS
Styrene	<1.0	1.0	ug/L	1		04/22/24 0000	04/22/24 1913	LJS

Client Sample ID:	MW-3		
Sample Matrix:	Aqueous	**Collected By:**	JGH
Lab Sample ID:	1HD1510-01	**Collection Date:**	04/17/2024 12:57

Determination of Volatile Organic Compounds	Result	RL	Units	DF	Note	Prepared	Analyzed	Analyst
Bromoform	<1.0	1.0	ug/L	1		04/22/24 0000	04/22/24 1913	LJS
1,2,3-Trichloropropane	<1.0	1.0	ug/L	1		04/22/24 0000	04/22/24 1913	LJS
trans-1,4-Dichloro-2-butene	<5.0	5.0	ug/L	1		04/22/24 0000	04/22/24 1913	LJS
1,1,2,2-Tetrachloroethane	<1.0	1.0	ug/L	1		04/22/24 0000	04/22/24 1913	LJS
1,4-Dichlorobenzene	<1.0	1.0	ug/L	1		04/22/24 0000	04/22/24 1913	LJS
1,2-Dichlorobenzene	<1.0	1.0	ug/L	1		04/22/24 0000	04/22/24 1913	LJS
1,2-Dibromo-3-chloropropane	<5.0	5.0	ug/L	1		04/22/24 0000	04/22/24 1913	LJS
Surrogate: Dibromofluoromethane	105	Limit: 80-126	% Rec	1		04/22/24 0000	04/22/24 1913	LJS
Surrogate: Dibromofluoromethane	105	Limit: 75-136	% Rec	1		04/22/24 0000	04/22/24 1913	LJS
Surrogate: 1,2-Dichloroethane-d4	109	Limit: 61-142	% Rec	1		04/22/24 0000	04/22/24 1913	LJS
Surrogate: 1,2-Dichloroethane-d4	109	Limit: 63-138	% Rec	1		04/22/24 0000	04/22/24 1913	LJS
Surrogate: Toluene-d8	99.0	Limit: 87-116	% Rec	1		04/22/24 0000	04/22/24 1913	LJS
Surrogate: Toluene-d8	99.0	Limit: 82-121	% Rec	1		04/22/24 0000	04/22/24 1913	LJS
Surrogate: 4-Bromofluorobenzene	97.0	Limit: 85-111	% Rec	1		04/22/24 0000	04/22/24 1913	LJS
Surrogate: 4-Bromofluorobenzene	97.0	Limit: 80-116	% Rec	1		04/22/24 0000	04/22/24 1913	LJS

Determination of Total Metals	Result	RL	Units	DF	Note	Prepared	Analyzed	Analyst
EPA 3005A/EPA 6020A								
Antimony, total	<0.0020	0.0020	mg/L	4		04/19/24 1716	04/23/24 1007	JAR
Arsenic, total	<0.0040	0.0040	mg/L	4		04/19/24 1716	04/23/24 1007	JAR
Barium, total	**0.360**	0.0040	mg/L	4		04/19/24 1716	04/23/24 1007	JAR
Beryllium, total	<0.0040	0.0040	mg/L	4		04/19/24 1716	04/23/24 1007	JAR
Cadmium, total	<0.0008	0.0008	mg/L	4		04/19/24 1716	04/23/24 1007	JAR
Chromium, total	<0.0080	0.0080	mg/L	4		04/19/24 1716	04/23/24 1007	JAR
Cobalt, total	**0.0009**	0.0004	mg/L	4		04/19/24 1716	04/23/24 1007	JAR
Copper, total	<0.0040	0.0040	mg/L	4		04/19/24 1716	04/23/24 1007	JAR
Lead, total	<0.0040	0.0040	mg/L	4		04/19/24 1716	04/23/24 1007	JAR
Nickel, total	<0.0040	0.0040	mg/L	4		04/19/24 1716	04/23/24 1007	JAR
Selenium, total	<0.0040	0.0040	mg/L	4		04/19/24 1716	04/23/24 1007	JAR
Silver, total	<0.0040	0.0040	mg/L	4		04/19/24 1716	04/23/24 1007	JAR
Thallium, total	<0.0020	0.0020	mg/L	4		04/19/24 1716	04/23/24 1007	JAR
Vanadium, total	<0.0200	0.0200	mg/L	4		04/19/24 1716	04/23/24 1007	JAR
Zinc, total	<0.0200	0.0200	mg/L	4		04/19/24 1716	04/23/24 1007	JAR

Client Sample ID:	MW-7			
Sample Matrix:	Aqueous		**Collected By:**	JGH
Lab Sample ID:	1HD1510-02		**Collection Date:**	04/17/2024 14:11

Determination of Volatile Organic Compounds	Result	RL	Units	DF	Note	Prepared	Analyzed	Analyst
EPA 5030B/EPA 8260B								
Dichlorodifluoromethane	**1.0**	1.0	ug/L	1		04/22/24 0000	04/22/24 1936	LNH
Chloromethane	<1.0	1.0	ug/L	1		04/22/24 0000	04/22/24 1936	LJS
Vinyl Chloride	<1.0	1.0	ug/L	1		04/22/24 0000	04/22/24 1936	LJS
Bromomethane	<1.0	1.0	ug/L	1		04/22/24 0000	04/22/24 1936	LJS
Chloroethane	<1.0	1.0	ug/L	1		04/22/24 0000	04/22/24 1936	LJS
Trichlorofluoromethane	<1.0	1.0	ug/L	1		04/22/24 0000	04/22/24 1936	LJS
1,1-Dichloroethylene	<1.0	1.0	ug/L	1		04/22/24 0000	04/22/24 1936	LJS
Acetone	<10.0	10.0	ug/L	1		04/22/24 0000	04/22/24 1936	LJS
Methyl Iodide	<1.0	1.0	ug/L	1		04/22/24 0000	04/22/24 1936	LJS
Carbon Disulfide	<1.0	1.0	ug/L	1		04/22/24 0000	04/22/24 1936	LJS
Methylene Chloride	<5.0	5.0	ug/L	1		04/22/24 0000	04/22/24 1936	LJS
Acrylonitrile	<5.0	5.0	ug/L	1		04/22/24 0000	04/22/24 1936	LJS
trans-1,2-Dichloroethylene	<1.0	1.0	ug/L	1		04/22/24 0000	04/22/24 1936	LJS
1,1-Dichloroethane	<1.0	1.0	ug/L	1		04/22/24 0000	04/22/24 1936	LJS
Vinyl Acetate	<5.0	5.0	ug/L	1		04/22/24 0000	04/22/24 1936	LJS
cis-1,2-Dichloroethylene	**2.3**	1.0	ug/L	1		04/22/24 0000	04/22/24 1936	LJS
2-Butanone (MEK)	<10.0	10.0	ug/L	1		04/22/24 0000	04/22/24 1936	LJS
Bromochloromethane	<1.0	1.0	ug/L	1		04/22/24 0000	04/22/24 1936	LJS
Chloroform	<1.0	1.0	ug/L	1		04/22/24 0000	04/22/24 1936	LJS
1,1,1-Trichloroethane	<1.0	1.0	ug/L	1		04/22/24 0000	04/22/24 1936	LJS
Carbon Tetrachloride	<1.0	1.0	ug/L	1		04/22/24 0000	04/22/24 1936	LJS
Benzene	<1.0	1.0	ug/L	1		04/22/24 0000	04/22/24 1936	LJS
1,2-Dichloroethane	<1.0	1.0	ug/L	1		04/22/24 0000	04/22/24 1936	LJS
Trichloroethylene	<1.0	1.0	ug/L	1		04/22/24 0000	04/22/24 1936	LJS
1,2-Dichloropropane	<1.0	1.0	ug/L	1		04/22/24 0000	04/22/24 1936	LJS
Dibromomethane	<1.0	1.0	ug/L	1		04/22/24 0000	04/22/24 1936	LJS
Bromodichloromethane	<1.0	1.0	ug/L	1		04/22/24 0000	04/22/24 1936	LJS
cis-1,3-Dichloropropene	<1.0	1.0	ug/L	1		04/22/24 0000	04/22/24 1936	LJS
4-Methyl-2-pentanone (MIBK)	<5.0	5.0	ug/L	1		04/22/24 0000	04/22/24 1936	LJS
Toluene	<1.0	1.0	ug/L	1		04/22/24 0000	04/22/24 1936	LJS
trans-1,3-Dichloropropene	<1.0	1.0	ug/L	1		04/22/24 0000	04/22/24 1936	LJS
1,1,2-Trichloroethane	<1.0	1.0	ug/L	1		04/22/24 0000	04/22/24 1936	LJS
Tetrachloroethylene	<1.0	1.0	ug/L	1		04/22/24 0000	04/22/24 1936	LJS
2-Hexanone (MBK)	<5.0	5.0	ug/L	1		04/22/24 0000	04/22/24 1936	LJS
Dibromochloromethane	<1.0	1.0	ug/L	1		04/22/24 0000	04/22/24 1936	LJS
1,2-Dibromoethane	<1.0	1.0	ug/L	1		04/22/24 0000	04/22/24 1936	LJS
Chlorobenzene	<1.0	1.0	ug/L	1		04/22/24 0000	04/22/24 1936	LJS
1,1,1,2-Tetrachloroethane	<1.0	1.0	ug/L	1		04/22/24 0000	04/22/24 1936	LJS
Ethylbenzene	<1.0	1.0	ug/L	1		04/22/24 0000	04/22/24 1936	LJS
Xylenes, total	<2.0	2.0	ug/L	1		04/22/24 0000	04/22/24 1936	LJS
Styrene	<1.0	1.0	ug/L	1		04/22/24 0000	04/22/24 1936	LJS
Bromoform	<1.0	1.0	ug/L	1		04/22/24 0000	04/22/24 1936	LJS

Microbac Laboratories, Inc., Newton

CERTIFICATE OF ANALYSIS

1HD1510

Client Sample ID:	MW-7			
Sample Matrix:	Aqueous		**Collected By:**	JGH
Lab Sample ID:	1HD1510-02		**Collection Date:**	04/17/2024 14:11

Determination of Volatile Organic Compounds	**Result**	**RL**	**Units**	**DF**	**Note**	**Prepared**	**Analyzed**	**Analyst**
1,2,3-Trichloropropane	<1.0	1.0	ug/L	1		04/22/24 0000	04/22/24 1936	LJS
trans-1,4-Dichloro-2-butene	<5.0	5.0	ug/L	1		04/22/24 0000	04/22/24 1936	LJS
1,1,2,2-Tetrachloroethane	<1.0	1.0	ug/L	1		04/22/24 0000	04/22/24 1936	LJS
1,4-Dichlorobenzene	<1.0	1.0	ug/L	1		04/22/24 0000	04/22/24 1936	LJS
1,2-Dichlorobenzene	<1.0	1.0	ug/L	1		04/22/24 0000	04/22/24 1936	LJS
1,2-Dibromo-3-chloropropane	<5.0	5.0	ug/L	1		04/22/24 0000	04/22/24 1936	LJS
Surrogate: Dibromofluoromethane	105	Limit: 80-126	% Rec	1		04/22/24 0000	04/22/24 1936	LJS
Surrogate: Dibromofluoromethane	105	Limit: 75-136	% Rec	1		04/22/24 0000	04/22/24 1936	LJS
Surrogate: 1,2-Dichloroethane-d4	109	Limit: 63-138	% Rec	1		04/22/24 0000	04/22/24 1936	LJS
Surrogate: 1,2-Dichloroethane-d4	109	Limit: 61-142	% Rec	1		04/22/24 0000	04/22/24 1936	LJS
Surrogate: Toluene-d8	98.5	Limit: 87-116	% Rec	1		04/22/24 0000	04/22/24 1936	LJS
Surrogate: Toluene-d8	98.5	Limit: 82-121	% Rec	1		04/22/24 0000	04/22/24 1936	LJS
Surrogate: 4-Bromofluorobenzene	97.1	Limit: 80-116	% Rec	1		04/22/24 0000	04/22/24 1936	LJS
Surrogate: 4-Bromofluorobenzene	97.1	Limit: 85-111	% Rec	1		04/22/24 0000	04/22/24 1936	LJS

Determination of Total Metals	**Result**	**RL**	**Units**	**DF**	**Note**	**Prepared**	**Analyzed**	**Analyst**
EPA 3005A/EPA 6020A								
Antimony, total	<0.0020	0.0020	mg/L	4		04/19/24 1716	04/23/24 1026	JAR
Arsenic, total	<0.0040	0.0040	mg/L	4		04/19/24 1716	04/23/24 1026	JAR
Barium, total	**0.139**	0.0040	mg/L	4		04/19/24 1716	04/23/24 1026	JAR
Beryllium, total	<0.0040	0.0040	mg/L	4		04/19/24 1716	04/23/24 1026	JAR
Cadmium, total	<0.0008	0.0008	mg/L	4		04/19/24 1716	04/23/24 1026	JAR
Chromium, total	<0.0080	0.0080	mg/L	4		04/19/24 1716	04/23/24 1026	JAR
Cobalt, total	**0.0010**	0.0004	mg/L	4		04/19/24 1716	04/23/24 1026	JAR
Copper, total	<0.0040	0.0040	mg/L	4		04/19/24 1716	04/23/24 1026	JAR
Lead, total	<0.0040	0.0040	mg/L	4		04/19/24 1716	04/23/24 1026	JAR
Nickel, total	**0.0091**	0.0040	mg/L	4		04/19/24 1716	04/23/24 1026	JAR
Selenium, total	<0.0040	0.0040	mg/L	4		04/19/24 1716	04/23/24 1026	JAR
Silver, total	<0.0040	0.0040	mg/L	4		04/19/24 1716	04/23/24 1026	JAR
Thallium, total	<0.0020	0.0020	mg/L	4		04/19/24 1716	04/23/24 1026	JAR
Vanadium, total	<0.0200	0.0200	mg/L	4		04/19/24 1716	04/23/24 1026	JAR
Zinc, total	<0.0200	0.0200	mg/L	4		04/19/24 1716	04/23/24 1026	JAR

Client Sample ID:	MW-10			
Sample Matrix:	Aqueous		**Collected By:**	JGH
Lab Sample ID:	1HD1510-03		**Collection Date:**	04/17/2024 13:52

Determination of Volatile Organic Compounds	Result	RL	Units	DF	Note	Prepared	Analyzed	Analyst
EPA 5030B/EPA 8260B								
Chloromethane	<1.0	1.0	ug/L	1		04/22/24 0000	04/22/24 1959	LJS
Vinyl Chloride	<1.0	1.0	ug/L	1		04/22/24 0000	04/22/24 1959	LJS
Bromomethane	<1.0	1.0	ug/L	1		04/22/24 0000	04/22/24 1959	LJS
Chloroethane	<1.0	1.0	ug/L	1		04/22/24 0000	04/22/24 1959	LJS
Trichlorofluoromethane	<1.0	1.0	ug/L	1		04/22/24 0000	04/22/24 1959	LJS
1,1-Dichloroethylene	<1.0	1.0	ug/L	1		04/22/24 0000	04/22/24 1959	LJS
Acetone	<10.0	10.0	ug/L	1		04/22/24 0000	04/22/24 1959	LJS
Methyl Iodide	<1.0	1.0	ug/L	1		04/22/24 0000	04/22/24 1959	LJS
Carbon Disulfide	<1.0	1.0	ug/L	1		04/22/24 0000	04/22/24 1959	LJS
Methylene Chloride	<5.0	5.0	ug/L	1		04/22/24 0000	04/22/24 1959	LJS
Acrylonitrile	<5.0	5.0	ug/L	1		04/22/24 0000	04/22/24 1959	LJS
trans-1,2-Dichloroethylene	<1.0	1.0	ug/L	1		04/22/24 0000	04/22/24 1959	LJS
1,1-Dichloroethane	<1.0	1.0	ug/L	1		04/22/24 0000	04/22/24 1959	LJS
Vinyl Acetate	<5.0	5.0	ug/L	1		04/22/24 0000	04/22/24 1959	LJS
cis-1,2-Dichloroethylene	<1.0	1.0	ug/L	1		04/22/24 0000	04/22/24 1959	LJS
2-Butanone (MEK)	<10.0	10.0	ug/L	1		04/22/24 0000	04/22/24 1959	LJS
Bromochloromethane	<1.0	1.0	ug/L	1		04/22/24 0000	04/22/24 1959	LJS
Chloroform	<1.0	1.0	ug/L	1		04/22/24 0000	04/22/24 1959	LJS
1,1,1-Trichloroethane	<1.0	1.0	ug/L	1		04/22/24 0000	04/22/24 1959	LJS
Carbon Tetrachloride	<1.0	1.0	ug/L	1		04/22/24 0000	04/22/24 1959	LJS
Benzene	<1.0	1.0	ug/L	1		04/22/24 0000	04/22/24 1959	LJS
1,2-Dichloroethane	<1.0	1.0	ug/L	1		04/22/24 0000	04/22/24 1959	LJS
Trichloroethylene	<1.0	1.0	ug/L	1		04/22/24 0000	04/22/24 1959	LJS
1,2-Dichloropropane	<1.0	1.0	ug/L	1		04/22/24 0000	04/22/24 1959	LJS
Dibromomethane	<1.0	1.0	ug/L	1		04/22/24 0000	04/22/24 1959	LJS
Bromodichloromethane	<1.0	1.0	ug/L	1		04/22/24 0000	04/22/24 1959	LJS
cis-1,3-Dichloropropene	<1.0	1.0	ug/L	1		04/22/24 0000	04/22/24 1959	LJS
4-Methyl-2-pentanone (MIBK)	<5.0	5.0	ug/L	1		04/22/24 0000	04/22/24 1959	LJS
Toluene	<1.0	1.0	ug/L	1		04/22/24 0000	04/22/24 1959	LJS
trans-1,3-Dichloropropene	<1.0	1.0	ug/L	1		04/22/24 0000	04/22/24 1959	LJS
1,1,2-Trichloroethane	<1.0	1.0	ug/L	1		04/22/24 0000	04/22/24 1959	LJS
Tetrachloroethylene	<1.0	1.0	ug/L	1		04/22/24 0000	04/22/24 1959	LJS
2-Hexanone (MBK)	<5.0	5.0	ug/L	1		04/22/24 0000	04/22/24 1959	LJS
Dibromochloromethane	<1.0	1.0	ug/L	1		04/22/24 0000	04/22/24 1959	LJS
1,2-Dibromoethane	<1.0	1.0	ug/L	1		04/22/24 0000	04/22/24 1959	LJS
Chlorobenzene	<1.0	1.0	ug/L	1		04/22/24 0000	04/22/24 1959	LJS
1,1,1,2-Tetrachloroethane	<1.0	1.0	ug/L	1		04/22/24 0000	04/22/24 1959	LJS
Ethylbenzene	<1.0	1.0	ug/L	1		04/22/24 0000	04/22/24 1959	LJS
Xylenes, total	<2.0	2.0	ug/L	1		04/22/24 0000	04/22/24 1959	LJS
Styrene	<1.0	1.0	ug/L	1		04/22/24 0000	04/22/24 1959	LJS
Bromoform	<1.0	1.0	ug/L	1		04/22/24 0000	04/22/24 1959	LJS
1,2,3-Trichloropropane	<1.0	1.0	ug/L	1		04/22/24 0000	04/22/24 1959	LJS

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CERTIFICATE OF ANALYSIS

1HD1510

Client Sample ID:	MW-10			
Sample Matrix:	Aqueous		**Collected By:**	JGH
Lab Sample ID:	1HD1510-03		**Collection Date:**	04/17/2024 13:52

Determination of Volatile Organic Compounds	**Result**	**RL**	**Units**	**DF**	**Note**	**Prepared**	**Analyzed**	**Analyst**
trans-1,4-Dichloro-2-butene	<5.0	5.0	ug/L	1		04/22/24 0000	04/22/24 1959	LJS
1,1,2,2-Tetrachloroethane	<1.0	1.0	ug/L	1		04/22/24 0000	04/22/24 1959	LJS
1,4-Dichlorobenzene	<1.0	1.0	ug/L	1		04/22/24 0000	04/22/24 1959	LJS
1,2-Dichlorobenzene	<1.0	1.0	ug/L	1		04/22/24 0000	04/22/24 1959	LJS
1,2-Dibromo-3-chloropropane	<5.0	5.0	ug/L	1		04/22/24 0000	04/22/24 1959	LJS
Surrogate: Dibromofluoromethane	106	Limit: 80-126	% Rec	1		04/22/24 0000	04/22/24 1959	LJS
Surrogate: Dibromofluoromethane	106	Limit: 75-136	% Rec	1		04/22/24 0000	04/22/24 1959	LJS
Surrogate: 1,2-Dichloroethane-d4	109	Limit: 63-138	% Rec	1		04/22/24 0000	04/22/24 1959	LJS
Surrogate: 1,2-Dichloroethane-d4	109	Limit: 61-142	% Rec	1		04/22/24 0000	04/22/24 1959	LJS
Surrogate: Toluene-d8	98.7	Limit: 87-116	% Rec	1		04/22/24 0000	04/22/24 1959	LJS
Surrogate: Toluene-d8	98.7	Limit: 82-121	% Rec	1		04/22/24 0000	04/22/24 1959	LJS
Surrogate: 4-Bromofluorobenzene	97.4	Limit: 85-111	% Rec	1		04/22/24 0000	04/22/24 1959	LJS
Surrogate: 4-Bromofluorobenzene	97.4	Limit: 80-116	% Rec	1		04/22/24 0000	04/22/24 1959	LJS

Determination of Total Metals	**Result**	**RL**	**Units**	**DF**	**Note**	**Prepared**	**Analyzed**	**Analyst**
EPA 3005A/EPA 6020A								
Antimony, total	<0.0020	0.0020	mg/L	4		04/19/24 1716	04/23/24 1032	JAR
Arsenic, total	<0.0040	0.0040	mg/L	4		04/19/24 1716	04/23/24 1032	JAR
Barium, total	**0.146**	0.0040	mg/L	4		04/19/24 1716	04/23/24 1032	JAR
Beryllium, total	<0.0040	0.0040	mg/L	4		04/19/24 1716	04/23/24 1032	JAR
Cadmium, total	**0.0008**	0.0008	mg/L	4		04/19/24 1716	04/23/24 1032	JAR
Chromium, total	<0.0080	0.0080	mg/L	4		04/19/24 1716	04/23/24 1032	JAR
Cobalt, total	<0.0004	0.0004	mg/L	4		04/19/24 1716	04/23/24 1032	JAR
Copper, total	<0.0040	0.0040	mg/L	4		04/19/24 1716	04/23/24 1032	JAR
Lead, total	<0.0040	0.0040	mg/L	4		04/19/24 1716	04/23/24 1032	JAR
Nickel, total	**0.0084**	0.0040	mg/L	4		04/24/24 1610	04/26/24 0224	JAR
Selenium, total	<0.0040	0.0040	mg/L	4		04/19/24 1716	04/23/24 1032	JAR
Silver, total	<0.0040	0.0040	mg/L	4		04/19/24 1716	04/23/24 1032	JAR
Thallium, total	<0.0020	0.0020	mg/L	4		04/19/24 1716	04/23/24 1032	JAR
Vanadium, total	<0.0200	0.0200	mg/L	4		04/19/24 1716	04/23/24 1032	JAR
Zinc, total	<0.0200	0.0200	mg/L	4		04/19/24 1716	04/23/24 1032	JAR

Client Sample ID:	PZ-11			
Sample Matrix:	Aqueous		**Collected By:**	JGH
Lab Sample ID:	1HD1510-04		**Collection Date:**	04/17/2024 13:36

Determination of Volatile Organic Compounds	Result	RL	Units	DF	Note	Prepared	Analyzed	Analyst
EPA 5030B/EPA 8260B								
Chloromethane	<1.0	1.0	ug/L	1		04/22/24 0000	04/22/24 2021	LJS
Vinyl Chloride	<1.0	1.0	ug/L	1		04/22/24 0000	04/22/24 2021	LJS
Bromomethane	<1.0	1.0	ug/L	1		04/22/24 0000	04/22/24 2021	LJS
Chloroethane	<1.0	1.0	ug/L	1		04/22/24 0000	04/22/24 2021	LJS
Trichlorofluoromethane	<1.0	1.0	ug/L	1		04/22/24 0000	04/22/24 2021	LJS
1,1-Dichloroethylene	<1.0	1.0	ug/L	1		04/22/24 0000	04/22/24 2021	LJS
Acetone	<10.0	10.0	ug/L	1		04/22/24 0000	04/22/24 2021	LJS
Methyl Iodide	<1.0	1.0	ug/L	1		04/22/24 0000	04/22/24 2021	LJS
Carbon Disulfide	<1.0	1.0	ug/L	1		04/22/24 0000	04/22/24 2021	LJS
Methylene Chloride	<5.0	5.0	ug/L	1		04/22/24 0000	04/22/24 2021	LJS
Acrylonitrile	<5.0	5.0	ug/L	1		04/22/24 0000	04/22/24 2021	LJS
trans-1,2-Dichloroethylene	<1.0	1.0	ug/L	1		04/22/24 0000	04/22/24 2021	LJS
1,1-Dichloroethane	**1.3**	1.0	ug/L	1		04/22/24 0000	04/22/24 2021	LJS
Vinyl Acetate	<5.0	5.0	ug/L	1		04/22/24 0000	04/22/24 2021	LJS
cis-1,2-Dichloroethylene	<1.0	1.0	ug/L	1		04/22/24 0000	04/22/24 2021	LJS
2-Butanone (MEK)	<10.0	10.0	ug/L	1		04/22/24 0000	04/22/24 2021	LJS
Bromochloromethane	<1.0	1.0	ug/L	1		04/22/24 0000	04/22/24 2021	LJS
Chloroform	<1.0	1.0	ug/L	1		04/22/24 0000	04/22/24 2021	LJS
1,1,1-Trichloroethane	<1.0	1.0	ug/L	1		04/22/24 0000	04/22/24 2021	LJS
Carbon Tetrachloride	<1.0	1.0	ug/L	1		04/22/24 0000	04/22/24 2021	LJS
Benzene	<1.0	1.0	ug/L	1		04/22/24 0000	04/22/24 2021	LJS
1,2-Dichloroethane	<1.0	1.0	ug/L	1		04/22/24 0000	04/22/24 2021	LJS
Trichloroethylene	<1.0	1.0	ug/L	1		04/22/24 0000	04/22/24 2021	LJS
1,2-Dichloropropane	<1.0	1.0	ug/L	1		04/22/24 0000	04/22/24 2021	LJS
Dibromomethane	<1.0	1.0	ug/L	1		04/22/24 0000	04/22/24 2021	LJS
Bromodichloromethane	<1.0	1.0	ug/L	1		04/22/24 0000	04/22/24 2021	LJS
cis-1,3-Dichloropropene	<1.0	1.0	ug/L	1		04/22/24 0000	04/22/24 2021	LJS
4-Methyl-2-pentanone (MIBK)	<5.0	5.0	ug/L	1		04/22/24 0000	04/22/24 2021	LJS
Toluene	<1.0	1.0	ug/L	1		04/22/24 0000	04/22/24 2021	LJS
trans-1,3-Dichloropropene	<1.0	1.0	ug/L	1		04/22/24 0000	04/22/24 2021	LJS
1,1,2-Trichloroethane	<1.0	1.0	ug/L	1		04/22/24 0000	04/22/24 2021	LJS
Tetrachloroethylene	<1.0	1.0	ug/L	1		04/22/24 0000	04/22/24 2021	LJS
2-Hexanone (MBK)	<5.0	5.0	ug/L	1		04/22/24 0000	04/22/24 2021	LJS
Dibromochloromethane	<1.0	1.0	ug/L	1		04/22/24 0000	04/22/24 2021	LJS
1,2-Dibromoethane	<1.0	1.0	ug/L	1		04/22/24 0000	04/22/24 2021	LJS
Chlorobenzene	<1.0	1.0	ug/L	1		04/22/24 0000	04/22/24 2021	LJS
1,1,1,2-Tetrachloroethane	<1.0	1.0	ug/L	1		04/22/24 0000	04/22/24 2021	LJS
Ethylbenzene	<1.0	1.0	ug/L	1		04/22/24 0000	04/22/24 2021	LJS
Xylenes, total	<2.0	2.0	ug/L	1		04/22/24 0000	04/22/24 2021	LJS
Styrene	<1.0	1.0	ug/L	1		04/22/24 0000	04/22/24 2021	LJS
Bromoform	<1.0	1.0	ug/L	1		04/22/24 0000	04/22/24 2021	LJS
1,2,3-Trichloropropane	<1.0	1.0	ug/L	1		04/22/24 0000	04/22/24 2021	LJS

Client Sample ID:	PZ-11		
Sample Matrix:	Aqueous	**Collected By:**	JGH
Lab Sample ID:	1HD1510-04	**Collection Date:**	04/17/2024 13:36

Determination of Volatile Organic Compounds	Result	RL	Units	DF	Note	Prepared	Analyzed	Analyst
trans-1,4-Dichloro-2-butene	<5.0	5.0	ug/L	1		04/22/24 0000	04/22/24 2021	LJS
1,1,2,2-Tetrachloroethane	<1.0	1.0	ug/L	1		04/22/24 0000	04/22/24 2021	LJS
1,4-Dichlorobenzene	<1.0	1.0	ug/L	1		04/22/24 0000	04/22/24 2021	LJS
1,2-Dichlorobenzene	<1.0	1.0	ug/L	1		04/22/24 0000	04/22/24 2021	LJS
1,2-Dibromo-3-chloropropane	<5.0	5.0	ug/L	1		04/22/24 0000	04/22/24 2021	LJS
Surrogate: Dibromofluoromethane	106	Limit: 80-126	% Rec	1		04/22/24 0000	04/22/24 2021	LJS
Surrogate: Dibromofluoromethane	106	Limit: 75-136	% Rec	1		04/22/24 0000	04/22/24 2021	LJS
Surrogate: 1,2-Dichloroethane-d4	109	Limit: 61-142	% Rec	1		04/22/24 0000	04/22/24 2021	LJS
Surrogate: 1,2-Dichloroethane-d4	109	Limit: 63-138	% Rec	1		04/22/24 0000	04/22/24 2021	LJS
Surrogate: Toluene-d8	99.1	Limit: 82-121	% Rec	1		04/22/24 0000	04/22/24 2021	LJS
Surrogate: Toluene-d8	99.1	Limit: 87-116	% Rec	1		04/22/24 0000	04/22/24 2021	LJS
Surrogate: 4-Bromofluorobenzene	96.7	Limit: 85-111	% Rec	1		04/22/24 0000	04/22/24 2021	LJS
Surrogate: 4-Bromofluorobenzene	96.7	Limit: 80-116	% Rec	1		04/22/24 0000	04/22/24 2021	LJS

Determination of Total Metals	Result	RL	Units	DF	Note	Prepared	Analyzed	Analyst
EPA 3005A/EPA 6020A								
Antimony, total	<0.0020	0.0020	mg/L	4		04/19/24 1716	04/23/24 1038	JAR
Arsenic, total	<0.0040	0.0040	mg/L	4		04/19/24 1716	04/23/24 1038	JAR
Barium, total	**0.0773**	0.0040	mg/L	4		04/19/24 1716	04/23/24 1038	JAR
Beryllium, total	<0.0040	0.0040	mg/L	4		04/19/24 1716	04/23/24 1038	JAR
Cadmium, total	<0.0008	0.0008	mg/L	4		04/19/24 1716	04/23/24 1038	JAR
Chromium, total	<0.0080	0.0080	mg/L	4		04/19/24 1716	04/23/24 1038	JAR
Cobalt, total	<0.0004	0.0004	mg/L	4		04/19/24 1716	04/23/24 1038	JAR
Copper, total	<0.0040	0.0040	mg/L	4		04/19/24 1716	04/23/24 1038	JAR
Lead, total	<0.0040	0.0040	mg/L	4		04/19/24 1716	04/23/24 1038	JAR
Nickel, total	**0.0088**	0.0040	mg/L	4		04/19/24 1716	04/23/24 1038	JAR
Selenium, total	<0.0040	0.0040	mg/L	4		04/19/24 1716	04/23/24 1038	JAR
Silver, total	<0.0040	0.0040	mg/L	4		04/19/24 1716	04/23/24 1038	JAR
Thallium, total	<0.0020	0.0020	mg/L	4		04/19/24 1716	04/23/24 1038	JAR
Vanadium, total	<0.0200	0.0200	mg/L	4		04/19/24 1716	04/23/24 1038	JAR
Zinc, total	<0.0200	0.0200	mg/L	4		04/19/24 1716	04/23/24 1038	JAR

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CERTIFICATE OF ANALYSIS

1HD1510

Client Sample ID:	MW-13		
Sample Matrix:	Aqueous	**Collected By:**	JGH
Lab Sample ID:	1HD1510-05	**Collection Date:**	04/17/2024 13:14

Determination of Volatile Organic Compounds	Result	RL	Units	DF	Note	Prepared	Analyzed	Analyst
EPA 5030B/EPA 8260B								
Chloromethane	<1.0	1.0	ug/L	1		04/22/24 0000	04/22/24 2044	LJS
Vinyl Chloride	<1.0	1.0	ug/L	1		04/22/24 0000	04/22/24 2044	LJS
Bromomethane	<1.0	1.0	ug/L	1		04/22/24 0000	04/22/24 2044	LJS
Chloroethane	<1.0	1.0	ug/L	1		04/22/24 0000	04/22/24 2044	LJS
Trichlorofluoromethane	<1.0	1.0	ug/L	1		04/22/24 0000	04/22/24 2044	LJS
1,1-Dichloroethylene	<1.0	1.0	ug/L	1		04/22/24 0000	04/22/24 2044	LJS
Acetone	<10.0	10.0	ug/L	1		04/22/24 0000	04/22/24 2044	LJS
Methyl Iodide	<1.0	1.0	ug/L	1		04/22/24 0000	04/22/24 2044	LJS
Carbon Disulfide	<1.0	1.0	ug/L	1		04/22/24 0000	04/22/24 2044	LJS
Methylene Chloride	<5.0	5.0	ug/L	1		04/22/24 0000	04/22/24 2044	LJS
Acrylonitrile	<5.0	5.0	ug/L	1		04/22/24 0000	04/22/24 2044	LJS
trans-1,2-Dichloroethylene	<1.0	1.0	ug/L	1		04/22/24 0000	04/22/24 2044	LJS
1,1-Dichloroethane	<1.0	1.0	ug/L	1		04/22/24 0000	04/22/24 2044	LJS
Vinyl Acetate	<5.0	5.0	ug/L	1		04/22/24 0000	04/22/24 2044	LJS
cis-1,2-Dichloroethylene	<1.0	1.0	ug/L	1		04/22/24 0000	04/22/24 2044	LJS
2-Butanone (MEK)	<10.0	10.0	ug/L	1		04/22/24 0000	04/22/24 2044	LJS
Bromochloromethane	<1.0	1.0	ug/L	1		04/22/24 0000	04/22/24 2044	LJS
Chloroform	<1.0	1.0	ug/L	1		04/22/24 0000	04/22/24 2044	LJS
1,1,1-Trichloroethane	<1.0	1.0	ug/L	1		04/22/24 0000	04/22/24 2044	LJS
Carbon Tetrachloride	<1.0	1.0	ug/L	1		04/22/24 0000	04/22/24 2044	LJS
Benzene	<1.0	1.0	ug/L	1		04/22/24 0000	04/22/24 2044	LJS
1,2-Dichloroethane	<1.0	1.0	ug/L	1		04/22/24 0000	04/22/24 2044	LJS
Trichloroethylene	<1.0	1.0	ug/L	1		04/22/24 0000	04/22/24 2044	LJS
1,2-Dichloropropane	<1.0	1.0	ug/L	1		04/22/24 0000	04/22/24 2044	LJS
Dibromomethane	<1.0	1.0	ug/L	1		04/22/24 0000	04/22/24 2044	LJS
Bromodichloromethane	<1.0	1.0	ug/L	1		04/22/24 0000	04/22/24 2044	LJS
cis-1,3-Dichloropropene	<1.0	1.0	ug/L	1		04/22/24 0000	04/22/24 2044	LJS
4-Methyl-2-pentanone (MIBK)	<5.0	5.0	ug/L	1		04/22/24 0000	04/22/24 2044	LJS
Toluene	<1.0	1.0	ug/L	1		04/22/24 0000	04/22/24 2044	LJS
trans-1,3-Dichloropropene	<1.0	1.0	ug/L	1		04/22/24 0000	04/22/24 2044	LJS
1,1,2-Trichloroethane	<1.0	1.0	ug/L	1		04/22/24 0000	04/22/24 2044	LJS
Tetrachloroethylene	<1.0	1.0	ug/L	1		04/22/24 0000	04/22/24 2044	LJS
2-Hexanone (MBK)	<5.0	5.0	ug/L	1		04/22/24 0000	04/22/24 2044	LJS
Dibromochloromethane	<1.0	1.0	ug/L	1		04/22/24 0000	04/22/24 2044	LJS
1,2-Dibromoethane	<1.0	1.0	ug/L	1		04/22/24 0000	04/22/24 2044	LJS
Chlorobenzene	<1.0	1.0	ug/L	1		04/22/24 0000	04/22/24 2044	LJS
1,1,1,2-Tetrachloroethane	<1.0	1.0	ug/L	1		04/22/24 0000	04/22/24 2044	LJS
Ethylbenzene	<1.0	1.0	ug/L	1		04/22/24 0000	04/22/24 2044	LJS
Xylenes, total	<2.0	2.0	ug/L	1		04/22/24 0000	04/22/24 2044	LJS
Styrene	<1.0	1.0	ug/L	1		04/22/24 0000	04/22/24 2044	LJS
Bromoform	<1.0	1.0	ug/L	1		04/22/24 0000	04/22/24 2044	LJS
1,2,3-Trichloropropane	<1.0	1.0	ug/L	1		04/22/24 0000	04/22/24 2044	LJS

CERTIFICATE OF ANALYSIS

1HD1510

Client Sample ID:	MW-13		
Sample Matrix:	Aqueous	**Collected By:**	JGH
Lab Sample ID:	1HD1510-05	**Collection Date:**	04/17/2024 13:14

Determination of Volatile Organic Compounds	Result	RL	Units	DF	Note	Prepared	Analyzed	Analyst
trans-1,4-Dichloro-2-butene	<5.0	5.0	ug/L	1		04/22/24 0000	04/22/24 2044	LJS
1,1,2,2-Tetrachloroethane	<1.0	1.0	ug/L	1		04/22/24 0000	04/22/24 2044	LJS
1,4-Dichlorobenzene	<1.0	1.0	ug/L	1		04/22/24 0000	04/22/24 2044	LJS
1,2-Dichlorobenzene	<1.0	1.0	ug/L	1		04/22/24 0000	04/22/24 2044	LJS
1,2-Dibromo-3-chloropropane	<5.0	5.0	ug/L	1		04/22/24 0000	04/22/24 2044	LJS
Surrogate: Dibromofluoromethane	105	Limit: 80-126	% Rec	1		04/22/24 0000	04/22/24 2044	LJS
Surrogate: Dibromofluoromethane	105	Limit: 75-136	% Rec	1		04/22/24 0000	04/22/24 2044	LJS
Surrogate: 1,2-Dichloroethane-d4	108	Limit: 61-142	% Rec	1		04/22/24 0000	04/22/24 2044	LJS
Surrogate: 1,2-Dichloroethane-d4	108	Limit: 63-138	% Rec	1		04/22/24 0000	04/22/24 2044	LJS
Surrogate: Toluene-d8	98.7	Limit: 82-121	% Rec	1		04/22/24 0000	04/22/24 2044	LJS
Surrogate: Toluene-d8	98.7	Limit: 87-116	% Rec	1		04/22/24 0000	04/22/24 2044	LJS
Surrogate: 4-Bromofluorobenzene	96.8	Limit: 80-116	% Rec	1		04/22/24 0000	04/22/24 2044	LJS
Surrogate: 4-Bromofluorobenzene	96.8	Limit: 85-111	% Rec	1		04/22/24 0000	04/22/24 2044	LJS

Determination of Total Metals	Result	RL	Units	DF	Note	Prepared	Analyzed	Analyst
EPA 3005A/EPA 6020A								
Antimony, total	<0.0020	0.0020	mg/L	4		04/19/24 1716	04/23/24 1044	JAR
Arsenic, total	<0.0040	0.0040	mg/L	4		04/19/24 1716	04/23/24 1044	JAR
Barium, total	**0.0645**	0.0040	mg/L	4		04/19/24 1716	04/23/24 1044	JAR
Beryllium, total	<0.0040	0.0040	mg/L	4		04/19/24 1716	04/23/24 1044	JAR
Cadmium, total	<0.0008	0.0008	mg/L	4		04/19/24 1716	04/23/24 1044	JAR
Chromium, total	<0.0080	0.0080	mg/L	4		04/19/24 1716	04/23/24 1044	JAR
Cobalt, total	<0.0004	0.0004	mg/L	4		04/19/24 1716	04/23/24 1044	JAR
Copper, total	<0.0040	0.0040	mg/L	4		04/19/24 1716	04/23/24 1044	JAR
Lead, total	<0.0040	0.0040	mg/L	4		04/19/24 1716	04/23/24 1044	JAR
Nickel, total	<0.0040	0.0040	mg/L	4		04/19/24 1716	04/23/24 1044	JAR
Selenium, total	<0.0040	0.0040	mg/L	4		04/19/24 1716	04/23/24 1044	JAR
Silver, total	<0.0040	0.0040	mg/L	4		04/19/24 1716	04/23/24 1044	JAR
Thallium, total	<0.0020	0.0020	mg/L	4		04/19/24 1716	04/23/24 1044	JAR
Vanadium, total	<0.0200	0.0200	mg/L	4		04/19/24 1716	04/23/24 1044	JAR
Zinc, total	<0.0200	0.0200	mg/L	4		04/19/24 1716	04/23/24 1044	JAR

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CERTIFICATE OF ANALYSIS

1HD1510

Client Sample ID:	Duplicate			
Sample Matrix:	Aqueous		**Collected By:**	JGH
Lab Sample ID:	1HD1510-06		**Collection Date:**	04/17/2024 13:36

Determination of Volatile Organic Compounds	**Result**	**RL**	**Units**	**DF**	**Note**	**Prepared**	**Analyzed**	**Analyst**
EPA 5030B/EPA 8260B								
Chloromethane	<1.0	1.0	ug/L	1		04/22/24 0000	04/22/24 2107	LJS
Vinyl Chloride	<1.0	1.0	ug/L	1		04/22/24 0000	04/22/24 2107	LJS
Bromomethane	<1.0	1.0	ug/L	1		04/22/24 0000	04/22/24 2107	LJS
Chloroethane	<1.0	1.0	ug/L	1		04/22/24 0000	04/22/24 2107	LJS
Trichlorofluoromethane	<1.0	1.0	ug/L	1		04/22/24 0000	04/22/24 2107	LJS
1,1-Dichloroethylene	<1.0	1.0	ug/L	1		04/22/24 0000	04/22/24 2107	LJS
Acetone	<10.0	10.0	ug/L	1		04/22/24 0000	04/22/24 2107	LJS
Methyl Iodide	<1.0	1.0	ug/L	1		04/22/24 0000	04/22/24 2107	LJS
Carbon Disulfide	<1.0	1.0	ug/L	1		04/22/24 0000	04/22/24 2107	LJS
Methylene Chloride	<5.0	5.0	ug/L	1		04/22/24 0000	04/22/24 2107	LJS
Acrylonitrile	<5.0	5.0	ug/L	1		04/22/24 0000	04/22/24 2107	LJS
trans-1,2-Dichloroethylene	<1.0	1.0	ug/L	1		04/22/24 0000	04/22/24 2107	LJS
1,1-Dichloroethane	**1.2**	1.0	ug/L	1		04/22/24 0000	04/22/24 2107	LJS
Vinyl Acetate	<5.0	5.0	ug/L	1		04/22/24 0000	04/22/24 2107	LJS
cis-1,2-Dichloroethylene	<1.0	1.0	ug/L	1		04/22/24 0000	04/22/24 2107	LJS
2-Butanone (MEK)	<10.0	10.0	ug/L	1		04/22/24 0000	04/22/24 2107	LJS
Bromochloromethane	<1.0	1.0	ug/L	1		04/22/24 0000	04/22/24 2107	LJS
Chloroform	<1.0	1.0	ug/L	1		04/22/24 0000	04/22/24 2107	LJS
1,1,1-Trichloroethane	<1.0	1.0	ug/L	1		04/22/24 0000	04/22/24 2107	LJS
Carbon Tetrachloride	<1.0	1.0	ug/L	1		04/22/24 0000	04/22/24 2107	LJS
Benzene	<1.0	1.0	ug/L	1		04/22/24 0000	04/22/24 2107	LJS
1,2-Dichloroethane	<1.0	1.0	ug/L	1		04/22/24 0000	04/22/24 2107	LJS
Trichloroethylene	<1.0	1.0	ug/L	1		04/22/24 0000	04/22/24 2107	LJS
1,2-Dichloropropane	<1.0	1.0	ug/L	1		04/22/24 0000	04/22/24 2107	LJS
Dibromomethane	<1.0	1.0	ug/L	1		04/22/24 0000	04/22/24 2107	LJS
Bromodichloromethane	<1.0	1.0	ug/L	1		04/22/24 0000	04/22/24 2107	LJS
cis-1,3-Dichloropropene	<1.0	1.0	ug/L	1		04/22/24 0000	04/22/24 2107	LJS
4-Methyl-2-pentanone (MIBK)	<5.0	5.0	ug/L	1		04/22/24 0000	04/22/24 2107	LJS
Toluene	<1.0	1.0	ug/L	1		04/22/24 0000	04/22/24 2107	LJS
trans-1,3-Dichloropropene	<1.0	1.0	ug/L	1		04/22/24 0000	04/22/24 2107	LJS
1,1,2-Trichloroethane	<1.0	1.0	ug/L	1		04/22/24 0000	04/22/24 2107	LJS
Tetrachloroethylene	<1.0	1.0	ug/L	1		04/22/24 0000	04/22/24 2107	LJS
2-Hexanone (MBK)	<5.0	5.0	ug/L	1		04/22/24 0000	04/22/24 2107	LJS
Dibromochloromethane	<1.0	1.0	ug/L	1		04/22/24 0000	04/22/24 2107	LJS
1,2-Dibromoethane	<1.0	1.0	ug/L	1		04/22/24 0000	04/22/24 2107	LJS
Chlorobenzene	<1.0	1.0	ug/L	1		04/22/24 0000	04/22/24 2107	LJS
1,1,1,2-Tetrachloroethane	<1.0	1.0	ug/L	1		04/22/24 0000	04/22/24 2107	LJS
Ethylbenzene	<1.0	1.0	ug/L	1		04/22/24 0000	04/22/24 2107	LJS
Xylenes, total	<2.0	2.0	ug/L	1		04/22/24 0000	04/22/24 2107	LJS
Styrene	<1.0	1.0	ug/L	1		04/22/24 0000	04/22/24 2107	LJS
Bromoform	<1.0	1.0	ug/L	1		04/22/24 0000	04/22/24 2107	LJS
1,2,3-Trichloropropane	<1.0	1.0	ug/L	1		04/22/24 0000	04/22/24 2107	LJS

Client Sample ID:	Duplicate		
Sample Matrix:	Aqueous	**Collected By:**	JGH
Lab Sample ID:	1HD1510-06	**Collection Date:**	04/17/2024 13:36

Determination of Volatile Organic Compounds	**Result**	**RL**	**Units**	**DF**	**Note**	**Prepared**	**Analyzed**	**Analyst**
trans-1,4-Dichloro-2-butene	<5.0	5.0	ug/L	1		04/22/24 0000	04/22/24 2107	LJS
1,1,2,2-Tetrachloroethane	<1.0	1.0	ug/L	1		04/22/24 0000	04/22/24 2107	LJS
1,4-Dichlorobenzene	<1.0	1.0	ug/L	1		04/22/24 0000	04/22/24 2107	LJS
1,2-Dichlorobenzene	<1.0	1.0	ug/L	1		04/22/24 0000	04/22/24 2107	LJS
1,2-Dibromo-3-chloropropane	<5.0	5.0	ug/L	1		04/22/24 0000	04/22/24 2107	LJS
Surrogate: Dibromofluoromethane	104	Limit: 75-136	% Rec	1		04/22/24 0000	04/22/24 2107	LJS
Surrogate: Dibromofluoromethane	104	Limit: 80-126	% Rec	1		04/22/24 0000	04/22/24 2107	LJS
Surrogate: 1,2-Dichloroethane-d4	108	Limit: 61-142	% Rec	1		04/22/24 0000	04/22/24 2107	LJS
Surrogate: 1,2-Dichloroethane-d4	108	Limit: 63-138	% Rec	1		04/22/24 0000	04/22/24 2107	LJS
Surrogate: Toluene-d8	98.8	Limit: 82-121	% Rec	1		04/22/24 0000	04/22/24 2107	LJS
Surrogate: Toluene-d8	98.8	Limit: 87-116	% Rec	1		04/22/24 0000	04/22/24 2107	LJS
Surrogate: 4-Bromofluorobenzene	95.8	Limit: 85-111	% Rec	1		04/22/24 0000	04/22/24 2107	LJS
Surrogate: 4-Bromofluorobenzene	95.8	Limit: 80-116	% Rec	1		04/22/24 0000	04/22/24 2107	LJS

Determination of Total Metals	**Result**	**RL**	**Units**	**DF**	**Note**	**Prepared**	**Analyzed**	**Analyst**
EPA 3005A/EPA 6020A								
Antimony, total	<0.0020	0.0020	mg/L	4		04/19/24 1716	04/23/24 1050	JAR
Arsenic, total	<0.0040	0.0040	mg/L	4		04/19/24 1716	04/23/24 1050	JAR
Barium, total	**0.0866**	0.0040	mg/L	4		04/19/24 1716	04/23/24 1050	JAR
Beryllium, total	<0.0040	0.0040	mg/L	4		04/19/24 1716	04/23/24 1050	JAR
Cadmium, total	<0.0008	0.0008	mg/L	4		04/19/24 1716	04/23/24 1050	JAR
Chromium, total	<0.0080	0.0080	mg/L	4		04/19/24 1716	04/23/24 1050	JAR
Cobalt, total	**0.0010**	0.0004	mg/L	4		04/19/24 1716	04/23/24 1050	JAR
Copper, total	<0.0040	0.0040	mg/L	4		04/19/24 1716	04/23/24 1050	JAR
Lead, total	<0.0040	0.0040	mg/L	4		04/19/24 1716	04/23/24 1050	JAR
Nickel, total	**0.0099**	0.0040	mg/L	4		04/19/24 1716	04/23/24 1050	JAR
Selenium, total	<0.0040	0.0040	mg/L	4		04/19/24 1716	04/23/24 1050	JAR
Silver, total	<0.0040	0.0040	mg/L	4		04/19/24 1716	04/23/24 1050	JAR
Thallium, total	<0.0020	0.0020	mg/L	4		04/19/24 1716	04/23/24 1050	JAR
Vanadium, total	<0.0200	0.0200	mg/L	4		04/19/24 1716	04/23/24 1050	JAR
Zinc, total	<0.0200	0.0200	mg/L	4		04/19/24 1716	04/23/24 1050	JAR

Batch Log Summary

Method	Batch	Laboratory ID	Client / Source ID
EPA 6020A	1HD1266	1HD1266-BLK1	
		1HD1266-BS1	
		1HD1266-MS1	1HD1048-01
		1HD1266-MSD1	1HD1048-01
		1HD1510-01	MW-3
		1HD1510-02	MW-7
		1HD1510-03	MW-10
		1HD1510-04	PZ-11
		1HD1510-05	MW-13
		1HD1510-06	Duplicate
		1HD1266-PS1	1HD1048-01

Method	Batch	Laboratory ID	Client / Source ID
EPA 8260B	1HD1347	1HD1347-BS1	
		1HD1347-BSD1	
		1HD1347-BLK1	
		1HD1510-01	MW-3
		1HD1510-02	MW-7
		1HD1510-03	MW-10
		1HD1510-04	PZ-11
		1HD1510-05	MW-13
		1HD1510-06	Duplicate
		1HD1347-MS1	1HD1532-07
		1HD1347-MSD1	1HD1532-07

Method	Batch	Laboratory ID	Client / Source ID
EPA 6020A	1HD1478	1HD1478-BLK1	
		1HD1478-BS1	
		1HD1478-MS1	1HD0315-03RE3
		1HD1478-MSD1	1HD0315-03RE3
		1HD1478-PS1	1HD0315-03RE3
		1HD1510-03RE1	MW-10

Batch Quality Control Summary: Microbac Laboratories, Inc., Newton

Determination of Volatile Organic Compounds	Result	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 1HD1347 - EPA 5030B - EPA 8260B										
Blank (1HD1347-BLK1)			Prepared: 04/22/24 00:00 Analyzed: 04/22/24 13:28							
Dichlorodifluoromethane	<1.0	1.0	ug/L							

Determination of Volatile Organic Compounds	Result	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 1HD1347 - EPA 5030B - EPA 8260B										
Blank (1HD1347-BLK1)			Prepared: 04/22/24 00:00 Analyzed: 04/22/24 13:28							
Chloromethane	<1.0	1.0	ug/L							
Vinyl Chloride	<1.0	1.0	ug/L							
Bromomethane	<1.0	1.0	ug/L							
Chloroethane	<1.0	1.0	ug/L							
Trichlorofluoromethane	<1.0	1.0	ug/L							
1,1-Dichloroethylene	<1.0	1.0	ug/L							
Acetone	<10.0	10.0	ug/L							
Methyl Iodide	<1.0	1.0	ug/L							
Carbon Disulfide	<1.0	1.0	ug/L							
Methylene Chloride	<5.0	5.0	ug/L							
Acrylonitrile	<5.0	5.0	ug/L							
trans-1,2-Dichloroethylene	<1.0	1.0	ug/L							
1,1-Dichloroethane	<1.0	1.0	ug/L							
Vinyl Acetate	<5.0	5.0	ug/L							
cis-1,2-Dichloroethylene	<1.0	1.0	ug/L							
2-Butanone (MEK)	<10.0	10.0	ug/L							
Bromochloromethane	<1.0	1.0	ug/L							
Chloroform	<1.0	1.0	ug/L							
1,1,1-Trichloroethane	<1.0	1.0	ug/L							
Carbon Tetrachloride	<1.0	1.0	ug/L							
Benzene	<1.0	1.0	ug/L							
1,2-Dichloroethane	<1.0	1.0	ug/L							
Trichloroethylene	<1.0	1.0	ug/L							
1,2-Dichloropropane	<1.0	1.0	ug/L							
Dibromomethane	<1.0	1.0	ug/L							
Bromodichloromethane	<1.0	1.0	ug/L							
cis-1,3-Dichloropropene	<1.0	1.0	ug/L							
4-Methyl-2-pentanone (MIBK)	<5.0	5.0	ug/L							
Toluene	<1.0	1.0	ug/L							
trans-1,3-Dichloropropene	<1.0	1.0	ug/L							
1,1,2-Trichloroethane	<1.0	1.0	ug/L							
Tetrachloroethylene	<1.0	1.0	ug/L							
2-Hexanone (MBK)	<5.0	5.0	ug/L							
Dibromochloromethane	<1.0	1.0	ug/L							
1,2-Dibromoethane	<1.0	1.0	ug/L							
Chlorobenzene	<1.0	1.0	ug/L							
1,1,1,2-Tetrachloroethane	<1.0	1.0	ug/L							
Ethylbenzene	<1.0	1.0	ug/L							
Xylenes, total	<2.0	2.0	ug/L							
Styrene	<1.0	1.0	ug/L							
Bromoform	<1.0	1.0	ug/L							
1,2,3-Trichloropropane	<1.0	1.0	ug/L							
trans-1,4-Dichloro-2-butene	<5.0	5.0	ug/L							

Microbac Laboratories, Inc., Newton

CERTIFICATE OF ANALYSIS

1HD1510

Determination of Volatile Organic Compounds	Result	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 1HD1347 - EPA 5030B - EPA 8260B										
Blank (1HD1347-BLK1)				Prepared: 04/22/24 00:00 Analyzed: 04/22/24 13:28						
1,1,2,2-Tetrachloroethane	<1.0	1.0	ug/L							
1,4-Dichlorobenzene	<1.0	1.0	ug/L							
1,2-Dichlorobenzene	<1.0	1.0	ug/L							
1,2-Dibromo-3-chloropropane	<5.0	5.0	ug/L							
Surrogate: Dibromofluoromethane	*48.8*		ug/L	*50.2*		*97.3*	*80-126*			
Surrogate: Dibromofluoromethane	*48.8*		ug/L	*50.2*		*97.3*	*75-136*			
Surrogate: 1,2-Dichloroethane-d4	*50.2*		ug/L	*50.1*		*100*	*63-138*			
Surrogate: 1,2-Dichloroethane-d4	*50.2*		ug/L	*50.1*		*100*	*61-142*			
Surrogate: Toluene-d8	*49.2*		ug/L	*50.4*		*97.7*	*87-116*			
Surrogate: Toluene-d8	*49.2*		ug/L	*50.4*		*97.7*	*82-121*			
Surrogate: 4-Bromofluorobenzene	*49.7*		ug/L	*50.1*		*99.1*	*85-111*			
Surrogate: 4-Bromofluorobenzene	*49.7*		ug/L	*50.1*		*99.1*	*80-116*			
LCS (1HD1347-BS1)				Prepared: 04/22/24 00:00 Analyzed: 04/22/24 12:20						
Dichlorodifluoromethane	30.03	1.0	ug/L	30.0		100	44-139			
Chloromethane	28.57	1.0	ug/L	30.0		95.1	63-155			
Vinyl Chloride	30.89	1.0	ug/L	30.0		103	70-154			
Bromomethane	22.26	1.0	ug/L	30.1		74.0	52-176			
Chloroethane	31.35	1.0	ug/L	30.0		104	72-148			
Trichlorofluoromethane	29.88	1.0	ug/L	30.0		99.6	70-152			
1,1-Dichloroethylene	49.24	1.0	ug/L	50.1		98.2	70-148			
Acetone	81.46	10.0	ug/L	100		81.4	43-172			
Methyl Iodide	94.04	1.0	ug/L	100		93.9	69-170			
Carbon Disulfide	97.23	1.0	ug/L	100		97.1	72-162			
Methylene Chloride	47.77	5.0	ug/L	50.2		95.2	68-142			
Acrylonitrile	48.44	5.0	ug/L	50.0		96.9	67-144			
trans-1,2-Dichloroethylene	48.72	1.0	ug/L	50.3		96.9	66-148			
1,1-Dichloroethane	47.66	1.0	ug/L	50.3		94.8	66-143			
Vinyl Acetate	156.9	5.0	ug/L	162		97.2	43-153			
cis-1,2-Dichloroethylene	47.39	1.0	ug/L	50.5		93.8	71-149			
2-Butanone (MEK)	104.7	10.0	ug/L	100		105	52-159			
Bromochloromethane	48.03	1.0	ug/L	50.4		95.2	69-143			
Chloroform	46.73	1.0	ug/L	50.2		93.1	69-144			
1,1,1-Trichloroethane	47.51	1.0	ug/L	50.3		94.4	62-129			
Carbon Tetrachloride	49.48	1.0	ug/L	50.2		98.5	63-141			
Benzene	48.51	1.0	ug/L	50.4		96.2	71-134			
1,2-Dichloroethane	46.99	1.0	ug/L	50.2		93.6	72-132			
Trichloroethylene	48.85	1.0	ug/L	50.3		97.0	71-135			
1,2-Dichloropropane	48.30	1.0	ug/L	50.2		96.2	69-136			
Dibromomethane	49.33	1.0	ug/L	50.5		97.7	73-147			
Bromodichloromethane	48.80	1.0	ug/L	50.3		97.1	68-129			
cis-1,3-Dichloropropene	49.55	1.0	ug/L	50.2		98.7	65-134			
4-Methyl-2-pentanone (MIBK)	104.2	5.0	ug/L	100		104	58-147			
Toluene	47.32	1.0	ug/L	50.5		93.7	72-133			

Determination of Volatile Organic Compounds	Result	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 1HD1347 - EPA 5030B - EPA 8260B										
LCS (1HD1347-BS1)				Prepared: 04/22/24 00:00 Analyzed: 04/22/24 12:20						
trans-1,3-Dichloropropene	49.84	1.0	ug/L	50.3		99.1	67-130			
1,1,2-Trichloroethane	48.86	1.0	ug/L	50.2		97.3	69-135			
Tetrachloroethylene	48.97	1.0	ug/L	50.2		97.5	69-130			
2-Hexanone (MBK)	109.4	5.0	ug/L	100		109	55-144			
Dibromochloromethane	50.52	1.0	ug/L	50.3		100	73-127			
1,2-Dibromoethane	49.61	1.0	ug/L	50.4		98.3	67-132			
Chlorobenzene	49.00	1.0	ug/L	50.2		97.5	72-123			
1,1,1,2-Tetrachloroethane	49.70	1.0	ug/L	50.4		98.5	73-127			
Ethylbenzene	50.21	1.0	ug/L	50.5		99.5	71-127			
Xylenes, total	153.1	2.0	ug/L	151		101	74-127			
Styrene	51.90	1.0	ug/L	50.4		103	66-126			
Bromoform	49.89	1.0	ug/L	50.2		99.3	68-130			
1,2,3-Trichloropropane	49.45	1.0	ug/L	50.4		98.0	63-136			
trans-1,4-Dichloro-2-butene	104.2	5.0	ug/L	100		104	54-134			
1,1,2,2-Tetrachloroethane	49.30	1.0	ug/L	50.2		98.2	61-131			
1,4-Dichlorobenzene	48.57	1.0	ug/L	50.2		96.8	70-129			
1,2-Dichlorobenzene	48.80	1.0	ug/L	50.2		97.3	69-126			
1,2-Dibromo-3-chloropropane	51.81	5.0	ug/L	50.5		103	50-143			
Surrogate: Dibromofluoromethane	*48.4*		ug/L	*50.2*		*96.5*	*80-126*			
Surrogate: Dibromofluoromethane	*48.4*		ug/L	*50.2*		*96.5*	*75-136*			
Surrogate: 1,2-Dichloroethane-d4	*48.4*		ug/L	*50.1*		*96.6*	*63-138*			
Surrogate: 1,2-Dichloroethane-d4	*48.4*		ug/L	*50.1*		*96.6*	*61-142*			
Surrogate: Toluene-d8	*49.4*		ug/L	*50.4*		*98.0*	*87-116*			
Surrogate: Toluene-d8	*49.4*		ug/L	*50.4*		*98.0*	*82-121*			
Surrogate: 4-Bromofluorobenzene	*50.2*		ug/L	*50.1*		*100*	*85-111*			
Surrogate: 4-Bromofluorobenzene	*50.2*		ug/L	*50.1*		*100*	*80-116*			
LCS Dup (1HD1347-BSD1)				Prepared: 04/22/24 00:00 Analyzed: 04/22/24 12:42						
Dichlorodifluoromethane	29.46	1.0	ug/L	30.0		98.1	44-139	1.92	30	
Chloromethane	28.16	1.0	ug/L	30.0		93.8	63-155	1.45	24	
Vinyl Chloride	30.36	1.0	ug/L	30.0		101	70-154	1.73	25	
Bromomethane	23.59	1.0	ug/L	30.1		78.4	52-176	5.80	27	
Chloroethane	30.71	1.0	ug/L	30.0		102	72-148	2.06	25	
Trichlorofluoromethane	30.06	1.0	ug/L	30.0		100	70-152	0.601	26	
1,1-Dichloroethylene	47.54	1.0	ug/L	50.1		94.8	70-148	3.51	24	
Acetone	89.77	10.0	ug/L	100		89.7	43-172	9.71	30	
Methyl Iodide	93.11	1.0	ug/L	100		92.9	69-170	0.994	30	
Carbon Disulfide	95.11	1.0	ug/L	100		95.0	72-162	2.20	24	
Methylene Chloride	48.52	5.0	ug/L	50.2		96.7	68-142	1.56	21	
Acrylonitrile	51.37	5.0	ug/L	50.0		103	67-144	5.87	24	
trans-1,2-Dichloroethylene	47.81	1.0	ug/L	50.3		95.1	66-148	1.89	27	
1,1-Dichloroethane	47.44	1.0	ug/L	50.3		94.4	66-143	0.463	24	
Vinyl Acetate	155.4	5.0	ug/L	162		96.2	43-153	0.993	30	
cis-1,2-Dichloroethylene	56.58	1.0	ug/L	50.5		112	71-149	17.7	26	

Determination of Volatile Organic Compounds	Result	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 1HD1347 - EPA 5030B - EPA 8260B										
LCS Dup (1HD1347-BSD1)			Prepared: 04/22/24 00:00 Analyzed: 04/22/24 12:42							
2-Butanone (MEK)	114.8	10.0	ug/L	100		115	52-159	9.17	27	
Bromochloromethane	48.52	1.0	ug/L	50.4		96.2	69-143	1.02	23	
Chloroform	46.70	1.0	ug/L	50.2		93.1	69-144	0.0642	23	
1,1,1-Trichloroethane	46.90	1.0	ug/L	50.3		93.2	62-129	1.29	24	
Carbon Tetrachloride	48.67	1.0	ug/L	50.2		96.9	63-141	1.65	25	
Benzene	48.30	1.0	ug/L	50.4		95.7	71-134	0.434	24	
1,2-Dichloroethane	47.62	1.0	ug/L	50.2		94.9	72-132	1.33	24	
Trichloroethylene	48.14	1.0	ug/L	50.3		95.6	71-135	1.46	24	
1,2-Dichloropropane	49.17	1.0	ug/L	50.2		97.9	69-136	1.79	24	
Dibromomethane	49.60	1.0	ug/L	50.5		98.3	73-147	0.546	25	
Bromodichloromethane	48.87	1.0	ug/L	50.3		97.2	68-129	0.143	22	
cis-1,3-Dichloropropene	50.06	1.0	ug/L	50.2		99.7	65-134	1.02	23	
4-Methyl-2-pentanone (MIBK)	109.8	5.0	ug/L	100		110	58-147	5.19	27	
Toluene	47.56	1.0	ug/L	50.5		94.2	72-133	0.506	24	
trans-1,3-Dichloropropene	50.90	1.0	ug/L	50.3		101	67-130	2.10	24	
1,1,2-Trichloroethane	49.28	1.0	ug/L	50.2		98.1	69-135	0.856	23	
Tetrachloroethylene	47.89	1.0	ug/L	50.2		95.4	69-130	2.23	25	
2-Hexanone (MBK)	112.9	5.0	ug/L	100		113	55-144	3.20	25	
Dibromochloromethane	50.84	1.0	ug/L	50.3		101	73-127	0.631	22	
1,2-Dibromoethane	49.79	1.0	ug/L	50.4		98.7	67-132	0.362	24	
Chlorobenzene	48.95	1.0	ug/L	50.2		97.4	72-123	0.102	23	
1,1,1,2-Tetrachloroethane	49.82	1.0	ug/L	50.4		98.8	73-127	0.241	24	
Ethylbenzene	50.17	1.0	ug/L	50.5		99.4	71-127	0.0797	26	
Xylenes, total	152.4	2.0	ug/L	151		101	74-127	0.504	25	
Styrene	51.79	1.0	ug/L	50.4		103	66-126	0.212	23	
Bromoform	50.35	1.0	ug/L	50.2		100	68-130	0.918	23	
1,2,3-Trichloropropane	50.79	1.0	ug/L	50.4		101	63-136	2.67	24	
trans-1,4-Dichloro-2-butene	107.0	5.0	ug/L	100		107	54-134	2.65	27	
1,1,2,2-Tetrachloroethane	50.15	1.0	ug/L	50.2		99.9	61-131	1.71	29	
1,4-Dichlorobenzene	48.31	1.0	ug/L	50.2		96.3	70-129	0.537	24	
1,2-Dichlorobenzene	48.50	1.0	ug/L	50.2		96.7	69-126	0.617	26	
1,2-Dibromo-3-chloropropane	53.28	5.0	ug/L	50.5		106	50-143	2.80	30	
Surrogate: Dibromofluoromethane	*48.7*		ug/L	*50.2*		*97.1*	*80-126*			
Surrogate: Dibromofluoromethane	*48.7*		ug/L	*50.2*		*97.1*	*75-136*			
Surrogate: 1,2-Dichloroethane-d4	*48.7*		ug/L	*50.1*		*97.2*	*63-138*			
Surrogate: 1,2-Dichloroethane-d4	*48.7*		ug/L	*50.1*		*97.2*	*61-142*			
Surrogate: Toluene-d8	*50.0*		ug/L	*50.4*		*99.3*	*87-116*			
Surrogate: Toluene-d8	*50.0*		ug/L	*50.4*		*99.3*	*82-121*			
Surrogate: 4-Bromofluorobenzene	*51.0*		ug/L	*50.1*		*102*	*85-111*			
Surrogate: 4-Bromofluorobenzene	*51.0*		ug/L	*50.1*		*102*	*80-116*			
Matrix Spike (1HD1347-MS1)	**Source: 1HD1532-07**		Prepared: 04/22/24 00:00 Analyzed: 04/22/24 21:30							
Dichlorodifluoromethane	302.5	10.0	ug/L	300	ND	101	47-137			
Chloromethane	299.4	10.0	ug/L	300	ND	99.7	61-152			

Determination of Volatile Organic Compounds	Result	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 1HD1347 - EPA 5030B - EPA 8260B										
Matrix Spike (1HD1347-MS1)	**Source: 1HD1532-07**		Prepared: 04/22/24 00:00 Analyzed: 04/22/24 21:30							
Vinyl Chloride	337.5	10.0	ug/L	300	6.82	110	66-149			
Bromomethane	257.6	10.0	ug/L	301	ND	85.6	43-171			
Chloroethane	342.4	10.0	ug/L	300	6.83	112	69-148			
Trichlorofluoromethane	316.6	10.0	ug/L	300	ND	106	62-163			
1,1-Dichloroethylene	523.9	10.0	ug/L	501	ND	104	70-148			
Acetone	860.2	100	ug/L	1000	ND	85.9	45-173			
Methyl Iodide	682.6	10.0	ug/L	1000	ND	68.1	62-167			
Carbon Disulfide	1053	10.0	ug/L	1000	ND	105	71-163			
Methylene Chloride	522.5	50.0	ug/L	502	ND	104	69-140			
Acrylonitrile	482.2	50.0	ug/L	500	ND	96.4	58-151			
trans-1,2-Dichloroethylene	510.4	10.0	ug/L	503	ND	102	69-144			
1,1-Dichloroethane	527.0	10.0	ug/L	503	28.18	99.2	70-138			
Vinyl Acetate	1506	50.0	ug/L	1620	ND	93.3	58-142			
cis-1,2-Dichloroethylene	640.6	10.0	ug/L	505	164.2	94.3	68-151			
2-Butanone (MEK)	1013	100	ug/L	1000	ND	101	50-160			
Bromochloromethane	500.1	10.0	ug/L	504	ND	99.2	65-143			
Chloroform	490.2	10.0	ug/L	502	ND	97.7	71-143			
1,1,1-Trichloroethane	495.5	10.0	ug/L	503	ND	98.5	63-133			
Carbon Tetrachloride	511.0	10.0	ug/L	502	ND	102	63-142			
Benzene	485.9	10.0	ug/L	504	ND	96.3	69-133			
1,2-Dichloroethane	472.1	10.0	ug/L	502	12.26	91.6	63-138			
Trichloroethylene	488.4	10.0	ug/L	503	ND	97.0	71-133			
1,2-Dichloropropane	485.1	10.0	ug/L	502	6.53	95.3	69-132			
Dibromomethane	485.4	10.0	ug/L	505	ND	96.2	70-147			
Bromodichloromethane	477.7	10.0	ug/L	503	ND	95.0	67-130			
cis-1,3-Dichloropropene	465.3	10.0	ug/L	502	ND	92.7	61-126			
4-Methyl-2-pentanone (MIBK)	989.2	50.0	ug/L	1000	ND	98.7	55-147			
Toluene	477.5	10.0	ug/L	505	ND	94.6	71-133			
trans-1,3-Dichloropropene	466.5	10.0	ug/L	503	ND	92.8	63-124			
1,1,2-Trichloroethane	484.5	10.0	ug/L	502	ND	96.5	69-133			
Tetrachloroethylene	479.2	10.0	ug/L	502	ND	95.4	70-124			
2-Hexanone (MBK)	1003	50.0	ug/L	1000	ND	100	53-141			
Dibromochloromethane	483.9	10.0	ug/L	503	ND	96.1	74-122			
1,2-Dibromoethane	481.2	10.0	ug/L	504	ND	95.4	66-127			
Chlorobenzene	486.5	10.0	ug/L	502	ND	96.8	76-116			
1,1,1,2-Tetrachloroethane	481.5	10.0	ug/L	504	ND	95.5	77-121			
Ethylbenzene	498.2	10.0	ug/L	505	ND	98.7	73-124			
Xylenes, total	1512	20.0	ug/L	1510	ND	99.9	75-123			
Styrene	510.7	10.0	ug/L	504	ND	101	70-120			
Bromoform	462.1	10.0	ug/L	502	ND	92.0	70-124			
1,2,3-Trichloropropane	483.9	10.0	ug/L	504	ND	95.9	62-135			
trans-1,4-Dichloro-2-butene	945.3	50.0	ug/L	1000	ND	94.3	50-120			
1,1,2,2-Tetrachloroethane	471.1	10.0	ug/L	502	ND	93.8	63-126			

Determination of Volatile Organic Compounds	Result	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 1HD1347 - EPA 5030B - EPA 8260B										
Matrix Spike (1HD1347-MS1)	**Source: 1HD1532-07**	Prepared: 04/22/24 00:00 Analyzed: 04/22/24 21:30								
1,4-Dichlorobenzene	474.8	10.0	ug/L	502	ND	94.6	72-119			
1,2-Dichlorobenzene	477.5	10.0	ug/L	502	ND	95.2	71-117			
1,2-Dibromo-3-chloropropane	466.1	50.0	ug/L	505	ND	92.3	49-134			
Surrogate: Dibromofluoromethane	*524*		ug/L	*502*		*104*	*80-126*			
Surrogate: Dibromofluoromethane	*524*		ug/L	*502*		*104*	*75-136*			
Surrogate: 1,2-Dichloroethane-d4	*518*		ug/L	*501*		*103*	*63-138*			
Surrogate: 1,2-Dichloroethane-d4	*518*		ug/L	*501*		*103*	*61-142*			
Surrogate: Toluene-d8	*506*		ug/L	*504*		*100*	*87-116*			
Surrogate: Toluene-d8	*506*		ug/L	*504*		*100*	*82-121*			
Surrogate: 4-Bromofluorobenzene	*498*		ug/L	*501*		*99.4*	*85-111*			
Surrogate: 4-Bromofluorobenzene	*498*		ug/L	*501*		*99.4*	*80-116*			
Matrix Spike Dup (1HD1347-MSD1)	**Source: 1HD1532-07**	Prepared: 04/22/24 00:00 Analyzed: 04/22/24 21:53								
Dichlorodifluoromethane	288.4	10.0	ug/L	300	ND	96.1	47-137	4.77	20	
Chloromethane	284.9	10.0	ug/L	300	ND	94.9	61-152	4.96	26	
Vinyl Chloride	315.8	10.0	ug/L	300	6.82	103	66-149	6.64	23	
Bromomethane	242.2	10.0	ug/L	301	ND	80.5	43-171	6.16	29	
Chloroethane	320.5	10.0	ug/L	300	6.83	105	69-148	6.61	25	
Trichlorofluoromethane	298.9	10.0	ug/L	300	ND	99.7	62-163	5.75	25	
1,1-Dichloroethylene	497.8	10.0	ug/L	501	ND	99.3	70-148	5.11	22	
Acetone	873.2	100	ug/L	1000	ND	87.2	45-173	1.50	30	
Methyl Iodide	777.0	10.0	ug/L	1000	ND	77.5	62-167	12.9	24	
Carbon Disulfide	991.7	10.0	ug/L	1000	ND	99.1	71-163	6.01	22	
Methylene Chloride	496.7	50.0	ug/L	502	ND	99.0	69-140	5.06	19	
Acrylonitrile	475.1	50.0	ug/L	500	ND	95.0	58-151	1.48	15	
trans-1,2-Dichloroethylene	481.0	10.0	ug/L	503	ND	95.7	69-144	5.93	22	
1,1-Dichloroethane	505.2	10.0	ug/L	503	28.18	94.9	70-138	4.22	20	
Vinyl Acetate	1487	50.0	ug/L	1620	ND	92.1	58-142	1.32	24	
cis-1,2-Dichloroethylene	611.6	10.0	ug/L	505	164.2	88.6	68-151	4.63	22	
2-Butanone (MEK)	991.4	100	ug/L	1000	ND	99.0	50-160	2.16	23	
Bromochloromethane	485.6	10.0	ug/L	504	ND	96.3	65-143	2.94	22	
Chloroform	473.8	10.0	ug/L	502	ND	94.4	71-143	3.40	21	
1,1,1-Trichloroethane	472.5	10.0	ug/L	503	ND	93.9	63-133	4.75	23	
Carbon Tetrachloride	487.6	10.0	ug/L	502	ND	97.1	63-142	4.69	22	
Benzene	467.8	10.0	ug/L	504	ND	92.7	69-133	3.80	18	
1,2-Dichloroethane	460.9	10.0	ug/L	502	12.26	89.4	63-138	2.40	20	
Trichloroethylene	468.7	10.0	ug/L	503	ND	93.1	71-133	4.12	23	
1,2-Dichloropropane	471.1	10.0	ug/L	502	6.53	92.5	69-132	2.93	20	
Dibromomethane	474.5	10.0	ug/L	505	ND	94.0	70-147	2.27	22	
Bromodichloromethane	465.3	10.0	ug/L	503	ND	92.6	67-130	2.63	21	
cis-1,3-Dichloropropene	458.7	10.0	ug/L	502	ND	91.4	61-126	1.43	21	
4-Methyl-2-pentanone (MIBK)	985.0	50.0	ug/L	1000	ND	98.3	55-147	0.425	23	
Toluene	458.4	10.0	ug/L	505	ND	90.8	71-133	4.08	19	
trans-1,3-Dichloropropene	458.5	10.0	ug/L	503	ND	91.2	63-124	1.73	21	

Determination of Volatile Organic Compounds	Result	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 1HD1347 - EPA 5030B - EPA 8260B										
Matrix Spike Dup (1HD1347-MSD1)	**Source: 1HD1532-07**		Prepared: 04/22/24 00:00 Analyzed: 04/22/24 21:53							
1,1,2-Trichloroethane	477.0	10.0	ug/L	502	ND	95.0	69-133	1.56	19	
Tetrachloroethylene	458.6	10.0	ug/L	502	ND	91.3	70-124	4.39	24	
2-Hexanone (MBK)	1010	50.0	ug/L	1000	ND	101	53-141	0.735	24	
Dibromochloromethane	479.4	10.0	ug/L	503	ND	95.2	74-122	0.934	21	
1,2-Dibromoethane	471.0	10.0	ug/L	504	ND	93.4	66-127	2.14	23	
Chlorobenzene	468.8	10.0	ug/L	502	ND	93.3	76-116	3.71	21	
1,1,1,2-Tetrachloroethane	472.6	10.0	ug/L	504	ND	93.7	77-121	1.87	25	
Ethylbenzene	479.5	10.0	ug/L	505	ND	95.0	73-124	3.83	20	
Xylenes, total	1455	20.0	ug/L	1510	ND	96.1	75-123	3.89	20	
Styrene	494.5	10.0	ug/L	504	ND	98.1	70-120	3.22	23	
Bromoform	459.7	10.0	ug/L	502	ND	91.5	70-124	0.521	22	
1,2,3-Trichloropropane	479.1	10.0	ug/L	504	ND	95.0	62-135	0.997	28	
trans-1,4-Dichloro-2-butene	937.3	50.0	ug/L	1000	ND	93.5	50-120	0.850	26	
1,1,2,2-Tetrachloroethane	472.0	10.0	ug/L	502	ND	94.0	63-126	0.191	24	
1,4-Dichlorobenzene	464.6	10.0	ug/L	502	ND	92.6	72-119	2.17	24	
1,2-Dichlorobenzene	465.4	10.0	ug/L	502	ND	92.8	71-117	2.57	24	
1,2-Dibromo-3-chloropropane	476.2	50.0	ug/L	505	ND	94.3	49-134	2.14	28	
Surrogate: Dibromofluoromethane	*514*		ug/L	*502*		*102*	*80-126*			
Surrogate: Dibromofluoromethane	*514*		ug/L	*502*		*102*	*75-136*			
Surrogate: 1,2-Dichloroethane-d4	*510*		ug/L	*501*		*102*	*63-138*			
Surrogate: 1,2-Dichloroethane-d4	*510*		ug/L	*501*		*102*	*61-142*			
Surrogate: Toluene-d8	*504*		ug/L	*504*		*99.9*	*87-116*			
Surrogate: Toluene-d8	*504*		ug/L	*504*		*99.9*	*82-121*			
Surrogate: 4-Bromofluorobenzene	*500*		ug/L	*501*		*99.6*	*85-111*			
Surrogate: 4-Bromofluorobenzene	*500*		ug/L	*501*		*99.6*	*80-116*			

Determination of Total Metals	Result	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 1HD1266 - EPA 3005A Total Recoverable Metals - EPA 6020A										
Blank (1HD1266-BLK1)			Prepared: 04/19/24 17:16 Analyzed: 04/23/24 07:58							
Antimony, total	<0.0020	0.0020	mg/L							
Arsenic, total	<0.0040	0.0040	mg/L							
Barium, total	<0.0040	0.0040	mg/L							
Beryllium, total	<0.0040	0.0040	mg/L							
Cadmium, total	<0.0008	0.0008	mg/L							
Chromium, total	<0.0080	0.0080	mg/L							
Cobalt, total	<0.0004	0.0004	mg/L							
Copper, total	<0.0040	0.0040	mg/L							
Lead, total	<0.0040	0.0040	mg/L							
Nickel, total	<0.0040	0.0040	mg/L							
Selenium, total	<0.0040	0.0040	mg/L							
Silver, total	<0.0040	0.0040	mg/L							
Thallium, total	<0.0020	0.0020	mg/L							

Determination of Total Metals	Result	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 1HD1266 - EPA 3005A Total Recoverable Metals - EPA 6020A										
Blank (1HD1266-BLK1)			Prepared: 04/19/24 17:16 Analyzed: 04/23/24 07:58							
Vanadium, total	<0.0200	0.0200	mg/L							
Zinc, total	<0.0200	0.0200	mg/L							
LCS (1HD1266-BS1)			Prepared: 04/19/24 17:16 Analyzed: 04/23/24 08:04							
Antimony, total	0.0962	0.0020	mg/L	0.100		96.2	80-120			
Arsenic, total	0.0977	0.0040	mg/L	0.100		97.7	80-120			
Barium, total	0.107	0.0040	mg/L	0.100		107	80-120			
Beryllium, total	0.102	0.0040	mg/L	0.100		102	80-120			
Cadmium, total	0.0997	0.0008	mg/L	0.100		99.7	80-120			
Chromium, total	0.0998	0.0080	mg/L	0.100		99.8	80-120			
Cobalt, total	0.106	0.0004	mg/L	0.100		106	80-120			
Copper, total	0.108	0.0040	mg/L	0.100		108	80-120			
Lead, total	0.0998	0.0040	mg/L	0.100		99.8	80-120			
Nickel, total	0.107	0.0040	mg/L	0.100		107	80-120			
Selenium, total	0.0966	0.0040	mg/L	0.100		96.6	80-120			
Silver, total	0.102	0.0040	mg/L	0.100		102	80-120			
Thallium, total	0.100	0.0020	mg/L	0.100		100	80-120			
Vanadium, total	0.105	0.0200	mg/L	0.100		105	80-120			
Zinc, total	0.107	0.0200	mg/L	0.100		107	80-120			
Matrix Spike (1HD1266-MS1)	**Source: 1HD1048-01**		Prepared: 04/19/24 17:16 Analyzed: 04/23/24 08:16							
Antimony, total	0.100	0.0020	mg/L	0.100	ND	100	75-125			
Arsenic, total	0.102	0.0040	mg/L	0.100	0.0011	101	75-125			
Barium, total	0.211	0.0040	mg/L	0.100	0.0955	115	75-125			
Beryllium, total	0.0987	0.0040	mg/L	0.100	ND	98.7	75-125			
Cadmium, total	0.101	0.0008	mg/L	0.100	ND	101	75-125			
Chromium, total	0.0995	0.0080	mg/L	0.100	0.0006	98.9	75-125			
Cobalt, total	0.109	0.0004	mg/L	0.100	ND	109	75-125			
Copper, total	0.104	0.0040	mg/L	0.100	ND	104	75-125			
Lead, total	0.0989	0.0040	mg/L	0.100	ND	98.9	75-125			
Nickel, total	0.107	0.0040	mg/L	0.100	ND	107	75-125			
Selenium, total	0.0984	0.0040	mg/L	0.100	ND	98.4	75-125			
Silver, total	0.102	0.0040	mg/L	0.100	ND	102	75-125			
Thallium, total	0.100	0.0020	mg/L	0.100	0.0002	100	75-125			
Vanadium, total	0.105	0.0200	mg/L	0.100	ND	105	75-125			
Zinc, total	0.108	0.0200	mg/L	0.100	ND	108	75-125			
Matrix Spike Dup (1HD1266-MSD1)	**Source: 1HD1048-01**		Prepared: 04/19/24 17:16 Analyzed: 04/23/24 08:23							
Antimony, total	0.0991	0.0020	mg/L	0.100	ND	99.1	75-125	1.32	20	
Arsenic, total	0.100	0.0040	mg/L	0.100	0.0011	99.2	75-125	1.85	20	
Barium, total	0.207	0.0040	mg/L	0.100	0.0955	112	75-125	1.78	20	
Beryllium, total	0.0968	0.0040	mg/L	0.100	ND	96.8	75-125	1.87	20	
Cadmium, total	0.0999	0.0008	mg/L	0.100	ND	99.9	75-125	0.678	20	
Chromium, total	0.0982	0.0080	mg/L	0.100	0.0006	97.6	75-125	1.32	20	
Cobalt, total	0.106	0.0004	mg/L	0.100	ND	106	75-125	2.78	20	
Copper, total	0.104	0.0040	mg/L	0.100	ND	104	75-125	0.627	20	

Determination of Total Metals	Result	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 1HD1266 - EPA 3005A Total Recoverable Metals - EPA 6020A										
Matrix Spike Dup (1HD1266-MSD1)	**Source: 1HD1048-01**	Prepared: 04/19/24 17:16 Analyzed: 04/23/24 08:23								
Lead, total	0.0975	0.0040	mg/L	0.100	ND	97.5	75-125	1.48	20	
Nickel, total	0.105	0.0040	mg/L	0.100	ND	105	75-125	2.21	20	
Selenium, total	0.0982	0.0040	mg/L	0.100	ND	98.2	75-125	0.237	20	
Silver, total	0.102	0.0040	mg/L	0.100	ND	102	75-125	0.396	20	
Thallium, total	0.0999	0.0020	mg/L	0.100	0.0002	99.7	75-125	0.309	20	
Vanadium, total	0.103	0.0200	mg/L	0.100	ND	103	75-125	1.31	20	
Zinc, total	0.107	0.0200	mg/L	0.100	ND	107	75-125	1.15	20	
Post Spike (1HD1266-PS1)	**Source: 1HD1048-01**	Prepared: 04/19/24 17:16 Analyzed: 04/24/24 10:51								
Antimony, total	0.0766		mg/L	0.100	0.0001	76.4	80-120			PS-01
Arsenic, total	0.0758		mg/L	0.100	0.0011	74.8	80-120			PS-01
Barium, total	0.170		mg/L	0.100	0.0955	74.8	80-120			PS-01
Beryllium, total	0.0721		mg/L	0.100	0.000004	72.1	80-120			PS-01
Cadmium, total	0.0736		mg/L	0.100	0.00004	73.5	80-120			PS-01
Chromium, total	0.0759		mg/L	0.100	0.0006	75.2	80-120			PS-01
Cobalt, total	0.0759		mg/L	0.100	0.00007	75.8	80-120			PS-01
Copper, total	0.0747		mg/L	0.100	-0.0005	74.7	80-120			PS-01
Lead, total	0.0742		mg/L	0.100	0.00002	74.2	80-120			PS-01
Nickel, total	0.0851		mg/L	0.100	-0.0013	85.1	80-120			
Selenium, total	0.0714		mg/L	0.100	0.0004	71.0	80-120			PS-01
Silver, total	0.0759		mg/L	0.100	0.0002	75.8	80-120			PS-01
Thallium, total	0.0743		mg/L	0.100	0.0002	74.1	80-120			PS-01
Vanadium, total	0.0840		mg/L	0.100	0.0054	78.6	80-120			PS-01
Zinc, total	0.0827		mg/L	0.100	0.0119	70.8	80-120			PS-01
Batch 1HD1478 - EPA 3005A Total Recoverable Metals - EPA 6020A										
Blank (1HD1478-BLK1)		Prepared: 04/24/24 16:10 Analyzed: 04/26/24 01:29								
Nickel, total	<0.0040	0.0040	mg/L							
LCS (1HD1478-BS1)		Prepared: 04/24/24 16:10 Analyzed: 04/26/24 01:47								
Nickel, total	0.102	0.0040	mg/L	0.100		102	80-120			
Matrix Spike (1HD1478-MS1)	**Source: 1HD0315-03RE3**	Prepared: 04/24/24 16:10 Analyzed: 04/26/24 02:00								
Nickel, total	0.0998	0.0040	mg/L	0.100	ND	99.8	75-125			
Matrix Spike Dup (1HD1478-MSD1)	**Source: 1HD0315-03RE3**	Prepared: 04/24/24 16:10 Analyzed: 04/26/24 02:06								
Nickel, total	0.102	0.0040	mg/L	0.100	ND	102	75-125	2.55	20	
Post Spike (1HD1478-PS1)	**Source: 1HD0315-03RE3**	Prepared: 04/24/24 16:10 Analyzed: 04/26/24 02:12								
Nickel, total	0.0816		mg/L	0.0800	0.0006	101	80-120			

Definitions

PS-01: The post spike recovery was below acceptance limits. However, all other QC was acceptable.

RL: Reporting Limit

RPD: Relative Percent Difference

Microbac Laboratories, Inc., Newton

CERTIFICATE OF ANALYSIS

1HD1510

Cooler Receipt Log

Cooler ID: Default Cooler   Temp: 0.3ºC

Cooler Inspection Checklist

Custody Seals	No	Containers Intact	Yes
COC/Labels Agree	Yes	Preservation Confirmed	No
Received On Ice	Yes		

Report Comments

The data and information on this, and other accompanying documents, represents only the sample(s) analyzed. This report is incomplete unless all pages indicated in the footnote are present and an authorized signature is included. ***The services were provided under and subject to Microbac's standard terms and conditions which can be located and reviewed at <https://www.microbac.com/standard-terms-conditions>.***

Reviewed and Approved By:

Heather Murphy

Customer Relationship Specialist

heather.murphy@microbac.com

05/09/24 11:56

CHAIN OF CUSTODY RECORD

Keystone LABORATORIES A Microbac Company

600 East 17th Stre
Newton, IA 50208
641-792-8451

1 H D 1 5 1 0
HLW Engineering
PM: Heather Murphy

Printed: 3/4/2024 10:30:57A
www.keystonelabs.com

SITE INFORMATION

Sampler: JGH

Project: IDA
Ida Co. - New Regs
Appendix 1

REPORT TO

Todd Whipple
HLW Engineering
PO Box 314
Story City, IA 50248

INVOICE TO

County Auditor
Ida County Court House
401 Moorehead
Ida Grove, IA 51445

SPECIAL INSTRUCTIONS

None

Turn Around Time

☒ Standard ☐ RUSH, need by ___/___/___

LAB USE ONLY

Work Order: 1HD1510
Temperature: 0.3
Turn-Cooler: No

☐ Custody Seal
☒ Containers Intact
☒ COC/Labels Agree
☐ Preservation Confirmed
☑ Received on Ice

Number	Sample Identification / Client ID	Matrix	Sample Type	Date	Time	Number of Containers	Analyses		Lab Sample Number
-001	MW-3	Water	GRAB	4/17/24	12:57	7	lndfill-app1-voc-group	lndfill-app1-metals-6020	01
-001	MW-7	Water	GRAB	4/17/24	14:11	7	8260@dcdfm lndfll-app1-metals-6020	lndfill-app1-voc-group	02
-001	MW-10	Water	GRAB	4/17/24	13:52	7	lndfill-app1-voc-group	lndfill-app1-metals-6020	03
-001	PZ-11	Water	GRAB	4/17/24	13:36	7	lndfill-app1-voc-group	lndfill-app1-metals-6020	04
-001	MW-13	Water	GRAB	4/17/24	13:14	7	lndfill-app1-voc-group	lndfill-app1-metals-6020	05
-001	Duplicate	Water	GRAB	4/17/24	13:36	7	lndfill-app1-voc-group	lndfill-app1-metals-6020	06

Relinquished By: [signature] Date/Time: 4/17/24

Received By: Date/Time:

Relinquished By: Date/Time:

Received for Lab By: Maker Date/Time: 4/18/24 9:39

Remarks:

Original - Lab Copy Yellow - Sampler Copy

Microbac Laboratories, Inc., Newton

CERTIFICATE OF ANALYSIS

1HJ1633

Project Description

Appendix 1

For:

Todd Whipple

HLW Engineering

204 West Broad St

Story City, IA 50248

Heather Murphy

Customer Relationship Specialist

Monday, November 4, 2024

Please find enclosed the analytical results for the samples you submitted to Microbac Laboratories. Review and compilation of your report was completed by Microbac Laboratories, Inc., Newton. If you have any questions, comments, or require further assistance regarding this report, please contact your service representative listed above.

I certify that all test results meet all of the requirements of the accrediting authority listed within this report. Analytical results are reported on a 'as received' basis unless specified otherwise. Analytical results for solids with units ending in (dry) are reported on a dry weight basis. A statement of uncertainty for each analysis is available upon request. This laboratory report shall not be reproduced, except in full, without the written approval of Microbac Laboratories. The reported results are related only to the samples analyzed as received.

Microbac Laboratories, Inc., Newton

CERTIFICATE OF ANALYSIS

1HJ1633

HLW Engineering

Todd Whipple
204 West Broad St
Story City, IA 50248

Project Name: Appendix 1

Project / PO Number: N/A
Received: 10/18/2024
Reported: 11/04/2024

Sample Summary Report

Sample Name	Laboratory ID	Client Matrix	Sample Type	Sample Begin	Sample Taken	Lab Received
MW-3	1HJ1633-01	Aqueous	GRAB		10/17/24 13:05	10/18/24 10:40
MW-7	1HJ1633-02	Aqueous	GRAB		10/17/24 13:27	10/18/24 10:40
MW-10	1HJ1633-03	Aqueous	GRAB		10/17/24 13:43	10/18/24 10:40
PZ-11	1HJ1633-04	Aqueous	GRAB		10/17/24 13:57	10/18/24 10:40
MW-13	1HJ1633-05	Aqueous	GRAB		10/17/24 14:08	10/18/24 10:40
Duplicate	1HJ1633-06	Aqueous	GRAB		10/17/24 00:00	10/18/24 10:40

Analytical Testing Parameters

Client Sample ID:	MW-3		
Sample Matrix:	Aqueous	**Collected By:**	Whipple, Todd
Lab Sample ID:	1HJ1633-01	**Collection Date:**	10/17/2024 13:05

Determination of Volatile Organic Compounds	Result	RL	Units	DF	Note	Prepared	Analyzed	Analyst
EPA 5030B/EPA 8260B								
Chloromethane	<1.0	1.0	ug/L	1		10/22/24 0000	10/23/24 0741	CSM
Vinyl Chloride	<1.0	1.0	ug/L	1		10/22/24 0000	10/23/24 0741	CSM
Bromomethane	<1.0	1.0	ug/L	1		10/22/24 0000	10/23/24 0741	CSM
Chloroethane	<1.0	1.0	ug/L	1		10/22/24 0000	10/23/24 0741	CSM
Trichlorofluoromethane	<1.0	1.0	ug/L	1		10/22/24 0000	10/23/24 0741	CSM
1,1-Dichloroethylene	<1.0	1.0	ug/L	1		10/22/24 0000	10/23/24 0741	CSM
Acetone	<10.0	10.0	ug/L	1		10/22/24 0000	10/23/24 0741	CSM
Methyl Iodide	<1.0	1.0	ug/L	1		10/22/24 0000	10/23/24 0741	CSM
Carbon Disulfide	<1.0	1.0	ug/L	1		10/29/24 0000	10/30/24 0607	CSM
Methylene Chloride	<5.0	5.0	ug/L	1		10/22/24 0000	10/23/24 0741	CSM
Acrylonitrile	<5.0	5.0	ug/L	1		10/22/24 0000	10/23/24 0741	CSM
trans-1,2-Dichloroethylene	<1.0	1.0	ug/L	1		10/22/24 0000	10/23/24 0741	CSM
1,1-Dichloroethane	<1.0	1.0	ug/L	1		10/22/24 0000	10/23/24 0741	CSM
Vinyl Acetate	<5.0	5.0	ug/L	1		10/22/24 0000	10/23/24 0741	CSM
cis-1,2-Dichloroethylene	<1.0	1.0	ug/L	1		10/22/24 0000	10/23/24 0741	CSM
2-Butanone (MEK)	<10.0	10.0	ug/L	1		10/22/24 0000	10/23/24 0741	CSM
Bromochloromethane	<1.0	1.0	ug/L	1		10/22/24 0000	10/23/24 0741	CSM
Chloroform	<1.0	1.0	ug/L	1		10/22/24 0000	10/23/24 0741	CSM
1,1,1-Trichloroethane	<1.0	1.0	ug/L	1		10/22/24 0000	10/23/24 0741	CSM
Carbon Tetrachloride	<1.0	1.0	ug/L	1		10/22/24 0000	10/23/24 0741	CSM
Benzene	<1.0	1.0	ug/L	1		10/22/24 0000	10/23/24 0741	CSM
1,2-Dichloroethane	<1.0	1.0	ug/L	1		10/22/24 0000	10/23/24 0741	CSM
Trichloroethylene	<1.0	1.0	ug/L	1		10/22/24 0000	10/23/24 0741	CSM
1,2-Dichloropropane	<1.0	1.0	ug/L	1		10/22/24 0000	10/23/24 0741	CSM
Dibromomethane	<1.0	1.0	ug/L	1		10/22/24 0000	10/23/24 0741	CSM
Bromodichloromethane	<1.0	1.0	ug/L	1		10/22/24 0000	10/23/24 0741	CSM
cis-1,3-Dichloropropene	<1.0	1.0	ug/L	1		10/22/24 0000	10/23/24 0741	CSM
4-Methyl-2-pentanone (MIBK)	<5.0	5.0	ug/L	1		10/22/24 0000	10/23/24 0741	CSM
Toluene	<1.0	1.0	ug/L	1		10/22/24 0000	10/23/24 0741	CSM
trans-1,3-Dichloropropene	<1.0	1.0	ug/L	1		10/22/24 0000	10/23/24 0741	CSM
1,1,2-Trichloroethane	<1.0	1.0	ug/L	1		10/22/24 0000	10/23/24 0741	CSM
Tetrachloroethylene	<1.0	1.0	ug/L	1		10/22/24 0000	10/23/24 0741	CSM
2-Hexanone (MBK)	<5.0	5.0	ug/L	1		10/22/24 0000	10/23/24 0741	CSM
Dibromochloromethane	<1.0	1.0	ug/L	1		10/22/24 0000	10/23/24 0741	CSM
1,2-Dibromoethane	<1.0	1.0	ug/L	1		10/22/24 0000	10/23/24 0741	CSM
Chlorobenzene	<1.0	1.0	ug/L	1		10/22/24 0000	10/23/24 0741	CSM
1,1,1,2-Tetrachloroethane	<1.0	1.0	ug/L	1		10/22/24 0000	10/23/24 0741	CSM
Ethylbenzene	<1.0	1.0	ug/L	1		10/22/24 0000	10/23/24 0741	CSM
Xylenes, total	<2.0	2.0	ug/L	1		10/22/24 0000	10/23/24 0741	CSM
Styrene	<1.0	1.0	ug/L	1		10/22/24 0000	10/23/24 0741	CSM

Client Sample ID:	MW-3			
Sample Matrix:	Aqueous		**Collected By:**	Whipple, Todd
Lab Sample ID:	1HJ1633-01		**Collection Date:**	10/17/2024 13:05

Determination of Volatile Organic Compounds	**Result**	**RL**	**Units**	**DF**	**Note**	**Prepared**	**Analyzed**	**Analyst**
Bromoform	<1.0	1.0	ug/L	1		10/22/24 0000	10/23/24 0741	CSM
1,2,3-Trichloropropane	<1.0	1.0	ug/L	1		10/22/24 0000	10/23/24 0741	CSM
trans-1,4-Dichloro-2-butene	<5.0	5.0	ug/L	1		10/22/24 0000	10/23/24 0741	CSM
1,1,2,2-Tetrachloroethane	<1.0	1.0	ug/L	1		10/22/24 0000	10/23/24 0741	CSM
1,4-Dichlorobenzene	<1.0	1.0	ug/L	1		10/22/24 0000	10/23/24 0741	CSM
1,2-Dichlorobenzene	<1.0	1.0	ug/L	1		10/22/24 0000	10/23/24 0741	CSM
1,2-Dibromo-3-chloropropane	<5.0	5.0	ug/L	1		10/22/24 0000	10/23/24 0741	CSM
Surrogate: Dibromofluoromethane	97.4	Limit: 57-134	% Rec	1		10/22/24 0000	10/23/24 0741	CSM
Surrogate: Dibromofluoromethane	98.1	Limit: 75-136	% Rec	1		10/29/24 0000	10/30/24 0607	CSM
Surrogate: Dibromofluoromethane	97.4	Limit: 75-136	% Rec	1		10/22/24 0000	10/23/24 0741	CSM
Surrogate: 1,2-Dichloroethane-d4	104	Limit: 53-140	% Rec	1		10/22/24 0000	10/23/24 0741	CSM
Surrogate: 1,2-Dichloroethane-d4	104	Limit: 61-142	% Rec	1		10/22/24 0000	10/23/24 0741	CSM
Surrogate: 1,2-Dichloroethane-d4	105	Limit: 61-142	% Rec	1		10/29/24 0000	10/30/24 0607	CSM
Surrogate: Toluene-d8	94.9	Limit: 82-121	% Rec	1		10/29/24 0000	10/30/24 0607	CSM
Surrogate: Toluene-d8	95.2	Limit: 86-114	% Rec	1		10/22/24 0000	10/23/24 0741	CSM
Surrogate: Toluene-d8	95.2	Limit: 82-121	% Rec	1		10/22/24 0000	10/23/24 0741	CSM
Surrogate: 4-Bromofluorobenzene	97.9	Limit: 78-121	% Rec	1		10/22/24 0000	10/23/24 0741	CSM
Surrogate: 4-Bromofluorobenzene	97.9	Limit: 80-116	% Rec	1		10/22/24 0000	10/23/24 0741	CSM
Surrogate: 4-Bromofluorobenzene	98.8	Limit: 80-116	% Rec	1		10/29/24 0000	10/30/24 0607	CSM

Determination of Total Metals	**Result**	**RL**	**Units**	**DF**	**Note**	**Prepared**	**Analyzed**	**Analyst**
EPA 3005A/EPA 6020A								
Antimony, total	<0.0020	0.0020	mg/L	4		10/25/24 1606	10/28/24 2054	RVV
Arsenic, total	<0.0040	0.0040	mg/L	4		10/25/24 1606	10/28/24 2054	RVV
Barium, total	**0.325**	0.0040	mg/L	4		10/25/24 1606	10/28/24 2054	RVV
Beryllium, total	<0.0040	0.0040	mg/L	4		10/25/24 1606	10/28/24 2054	RVV
Cadmium, total	<0.0008	0.0008	mg/L	4		10/25/24 1606	10/28/24 2054	RVV
Chromium, total	<0.0080	0.0080	mg/L	4		10/25/24 1606	10/28/24 2054	RVV
Cobalt, total	<0.0004	0.0004	mg/L	4		10/25/24 1606	10/28/24 2054	RVV
Copper, total	<0.0040	0.0040	mg/L	4		10/25/24 1606	10/28/24 2054	RVV
Lead, total	<0.0040	0.0040	mg/L	4		10/25/24 1606	10/28/24 2054	RVV
Nickel, total	<0.0040	0.0040	mg/L	4		10/25/24 1606	10/28/24 2054	RVV
Selenium, total	<0.0040	0.0040	mg/L	4		10/25/24 1606	10/28/24 2054	RVV
Silver, total	<0.0040	0.0040	mg/L	4		10/25/24 1606	10/28/24 2054	RVV
Thallium, total	<0.0020	0.0020	mg/L	4		10/25/24 1606	10/28/24 2054	RVV
Vanadium, total	<0.0200	0.0200	mg/L	4		10/25/24 1606	10/28/24 2054	RVV
Zinc, total	<0.0200	0.0200	mg/L	4		10/25/24 1606	10/28/24 2054	RVV

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Microbac Laboratories, Inc., Newton

CERTIFICATE OF ANALYSIS

1HJ1633

Client Sample ID:	MW-7			
Sample Matrix:	Aqueous		**Collected By:**	Whipple, Todd
Lab Sample ID:	1HJ1633-02		**Collection Date:**	10/17/2024 13:27

Determination of Volatile Organic Compounds	**Result**	**RL**	**Units**	**DF**	**Note**	**Prepared**	**Analyzed**	**Analyst**
EPA 5030B/EPA 8260B								
Dichlorodifluoromethane	<1.0	1.0	ug/L	1		10/23/24 0000	10/23/24 1921	CSM
Chloromethane	<1.0	1.0	ug/L	1		10/23/24 0000	10/23/24 1921	CSM
Vinyl Chloride	<1.0	1.0	ug/L	1		10/23/24 0000	10/23/24 1921	CSM
Bromomethane	<1.0	1.0	ug/L	1		10/23/24 0000	10/23/24 1921	CSM
Chloroethane	<1.0	1.0	ug/L	1		10/23/24 0000	10/23/24 1921	CSM
Trichlorofluoromethane	<1.0	1.0	ug/L	1		10/23/24 0000	10/23/24 1921	CSM
1,1-Dichloroethylene	<1.0	1.0	ug/L	1		10/23/24 0000	10/23/24 1921	CSM
Acetone	<10.0	10.0	ug/L	1		10/23/24 0000	10/23/24 1921	CSM
Methyl Iodide	<1.0	1.0	ug/L	1		10/23/24 0000	10/23/24 1921	CSM
Carbon Disulfide	<1.0	1.0	ug/L	1		10/23/24 0000	10/23/24 1921	CSM
Methylene Chloride	<5.0	5.0	ug/L	1		10/23/24 0000	10/23/24 1921	CSM
Acrylonitrile	<5.0	5.0	ug/L	1		10/23/24 0000	10/23/24 1921	CSM
trans-1,2-Dichloroethylene	<1.0	1.0	ug/L	1		10/23/24 0000	10/23/24 1921	CSM
1,1-Dichloroethane	<1.0	1.0	ug/L	1		10/23/24 0000	10/23/24 1921	CSM
Vinyl Acetate	<5.0	5.0	ug/L	1		10/23/24 0000	10/23/24 1921	CSM
cis-1,2-Dichloroethylene	**6.1**	1.0	ug/L	1		10/23/24 0000	10/23/24 1921	CSM
2-Butanone (MEK)	<10.0	10.0	ug/L	1		10/23/24 0000	10/23/24 1921	CSM
Bromochloromethane	<1.0	1.0	ug/L	1		10/23/24 0000	10/23/24 1921	CSM
Chloroform	<1.0	1.0	ug/L	1		10/23/24 0000	10/23/24 1921	CSM
1,1,1-Trichloroethane	<1.0	1.0	ug/L	1		10/23/24 0000	10/23/24 1921	CSM
Carbon Tetrachloride	<1.0	1.0	ug/L	1		10/23/24 0000	10/23/24 1921	CSM
Benzene	<1.0	1.0	ug/L	1		10/23/24 0000	10/23/24 1921	CSM
1,2-Dichloroethane	<1.0	1.0	ug/L	1		10/23/24 0000	10/23/24 1921	CSM
Trichloroethylene	<1.0	1.0	ug/L	1		10/23/24 0000	10/23/24 1921	CSM
1,2-Dichloropropane	<1.0	1.0	ug/L	1		10/23/24 0000	10/23/24 1921	CSM
Dibromomethane	<1.0	1.0	ug/L	1		10/23/24 0000	10/23/24 1921	CSM
Bromodichloromethane	<1.0	1.0	ug/L	1		10/23/24 0000	10/23/24 1921	CSM
cis-1,3-Dichloropropene	<1.0	1.0	ug/L	1		10/23/24 0000	10/23/24 1921	CSM
4-Methyl-2-pentanone (MIBK)	<5.0	5.0	ug/L	1		10/23/24 0000	10/23/24 1921	CSM
Toluene	<1.0	1.0	ug/L	1		10/23/24 0000	10/23/24 1921	CSM
trans-1,3-Dichloropropene	<1.0	1.0	ug/L	1		10/23/24 0000	10/23/24 1921	CSM
1,1,2-Trichloroethane	<1.0	1.0	ug/L	1		10/23/24 0000	10/23/24 1921	CSM
Tetrachloroethylene	<1.0	1.0	ug/L	1		10/23/24 0000	10/23/24 1921	CSM
2-Hexanone (MBK)	<5.0	5.0	ug/L	1		10/23/24 0000	10/23/24 1921	CSM
Dibromochloromethane	<1.0	1.0	ug/L	1		10/23/24 0000	10/23/24 1921	CSM
1,2-Dibromoethane	<1.0	1.0	ug/L	1		10/23/24 0000	10/23/24 1921	CSM
Chlorobenzene	**1.2**	1.0	ug/L	1		10/23/24 0000	10/23/24 1921	CSM
1,1,1,2-Tetrachloroethane	<1.0	1.0	ug/L	1		10/23/24 0000	10/23/24 1921	CSM
Ethylbenzene	<1.0	1.0	ug/L	1		10/23/24 0000	10/23/24 1921	CSM
Xylenes, total	<2.0	2.0	ug/L	1		10/23/24 0000	10/23/24 1921	CSM
Styrene	<1.0	1.0	ug/L	1		10/23/24 0000	10/23/24 1921	CSM
Bromoform	<1.0	1.0	ug/L	1		10/23/24 0000	10/23/24 1921	CSM

Client Sample ID:	MW-7		
Sample Matrix:	Aqueous	**Collected By:**	Whipple, Todd
Lab Sample ID:	1HJ1633-02	**Collection Date:**	10/17/2024 13:27

Determination of Volatile Organic Compounds	Result	RL	Units	DF	Note	Prepared	Analyzed	Analyst
1,2,3-Trichloropropane	<1.0	1.0	ug/L	1		10/23/24 0000	10/23/24 1921	CSM
trans-1,4-Dichloro-2-butene	<5.0	5.0	ug/L	1		10/23/24 0000	10/23/24 1921	CSM
1,1,2,2-Tetrachloroethane	<1.0	1.0	ug/L	1		10/23/24 0000	10/23/24 1921	CSM
1,4-Dichlorobenzene	<1.0	1.0	ug/L	1		10/23/24 0000	10/23/24 1921	CSM
1,2-Dichlorobenzene	<1.0	1.0	ug/L	1		10/23/24 0000	10/23/24 1921	CSM
1,2-Dibromo-3-chloropropane	<5.0	5.0	ug/L	1		10/23/24 0000	10/23/24 1921	CSM
Surrogate: Dibromofluoromethane	95.7	Limit: 57-134	% Rec	1		10/23/24 0000	10/23/24 1921	CSM
Surrogate: Dibromofluoromethane	95.7	Limit: 75-136	% Rec	1		10/23/24 0000	10/23/24 1921	CSM
Surrogate: 1,2-Dichloroethane-d4	103	Limit: 61-142	% Rec	1		10/23/24 0000	10/23/24 1921	CSM
Surrogate: 1,2-Dichloroethane-d4	103	Limit: 53-140	% Rec	1		10/23/24 0000	10/23/24 1921	CSM
Surrogate: Toluene-d8	95.5	Limit: 82-121	% Rec	1		10/23/24 0000	10/23/24 1921	CSM
Surrogate: Toluene-d8	95.5	Limit: 86-114	% Rec	1		10/23/24 0000	10/23/24 1921	CSM
Surrogate: 4-Bromofluorobenzene	99.4	Limit: 80-116	% Rec	1		10/23/24 0000	10/23/24 1921	CSM
Surrogate: 4-Bromofluorobenzene	99.4	Limit: 78-121	% Rec	1		10/23/24 0000	10/23/24 1921	CSM

Determination of Total Metals	Result	RL	Units	DF	Note	Prepared	Analyzed	Analyst
EPA 3005A/EPA 6020A								
Antimony, total	<0.0020	0.0020	mg/L	4		10/25/24 1606	10/28/24 2130	RVV
Arsenic, total	<0.0040	0.0040	mg/L	4		10/25/24 1606	10/28/24 2130	RVV
Barium, total	**0.249**	0.0040	mg/L	4		10/25/24 1606	10/28/24 2130	RVV
Beryllium, total	<0.0040	0.0040	mg/L	4		10/25/24 1606	10/28/24 2130	RVV
Cadmium, total	<0.0008	0.0008	mg/L	4		10/25/24 1606	10/28/24 2130	RVV
Chromium, total	<0.0080	0.0080	mg/L	4		10/25/24 1606	10/28/24 2130	RVV
Cobalt, total	**0.0028**	0.0004	mg/L	4		10/25/24 1606	10/28/24 2130	RVV
Copper, total	**0.0064**	0.0040	mg/L	4		10/25/24 1606	10/28/24 2130	RVV
Lead, total	<0.0040	0.0040	mg/L	4		10/25/24 1606	10/28/24 2130	RVV
Nickel, total	**0.0496**	0.0040	mg/L	4		10/25/24 1606	10/28/24 2130	RVV
Selenium, total	<0.0040	0.0040	mg/L	4		10/25/24 1606	10/28/24 2130	RVV
Silver, total	<0.0040	0.0040	mg/L	4		10/25/24 1606	10/28/24 2130	RVV
Thallium, total	<0.0020	0.0020	mg/L	4		10/25/24 1606	10/28/24 2130	RVV
Vanadium, total	<0.0200	0.0200	mg/L	4		10/25/24 1606	10/28/24 2130	RVV
Zinc, total	<0.0200	0.0200	mg/L	4		10/25/24 1606	10/28/24 2130	RVV

Microbac Laboratories, Inc., Newton

CERTIFICATE OF ANALYSIS

1HJ1633

Client Sample ID:	MW-10		
Sample Matrix:	Aqueous	**Collected By:**	Whipple, Todd
Lab Sample ID:	1HJ1633-03	**Collection Date:**	10/17/2024 13:43

Determination of Volatile Organic Compounds	Result	RL	Units	DF	Note	Prepared	Analyzed	Analyst
EPA 5030B/EPA 8260B								
Chloromethane	<1.0	1.0	ug/L	1		10/23/24 0000	10/23/24 1943	CSM
Vinyl Chloride	<1.0	1.0	ug/L	1		10/23/24 0000	10/23/24 1943	CSM
Bromomethane	<1.0	1.0	ug/L	1		10/23/24 0000	10/23/24 1943	CSM
Chloroethane	<1.0	1.0	ug/L	1		10/23/24 0000	10/23/24 1943	CSM
Trichlorofluoromethane	<1.0	1.0	ug/L	1		10/23/24 0000	10/23/24 1943	CSM
1,1-Dichloroethylene	<1.0	1.0	ug/L	1		10/23/24 0000	10/23/24 1943	CSM
Acetone	<10.0	10.0	ug/L	1		10/23/24 0000	10/23/24 1943	CSM
Methyl Iodide	<1.0	1.0	ug/L	1		10/23/24 0000	10/23/24 1943	CSM
Carbon Disulfide	<1.0	1.0	ug/L	1	**M2**	10/23/24 0000	10/23/24 1943	CSM
Methylene Chloride	<5.0	5.0	ug/L	1		10/23/24 0000	10/23/24 1943	CSM
Acrylonitrile	<5.0	5.0	ug/L	1		10/23/24 0000	10/23/24 1943	CSM
trans-1,2-Dichloroethylene	<1.0	1.0	ug/L	1		10/23/24 0000	10/23/24 1943	CSM
1,1-Dichloroethane	<1.0	1.0	ug/L	1		10/23/24 0000	10/23/24 1943	CSM
Vinyl Acetate	<5.0	5.0	ug/L	1		10/23/24 0000	10/23/24 1943	CSM
cis-1,2-Dichloroethylene	<1.0	1.0	ug/L	1		10/23/24 0000	10/23/24 1943	CSM
2-Butanone (MEK)	<10.0	10.0	ug/L	1		10/23/24 0000	10/23/24 1943	CSM
Bromochloromethane	<1.0	1.0	ug/L	1		10/23/24 0000	10/23/24 1943	CSM
Chloroform	<1.0	1.0	ug/L	1		10/23/24 0000	10/23/24 1943	CSM
1,1,1-Trichloroethane	<1.0	1.0	ug/L	1		10/23/24 0000	10/23/24 1943	CSM
Carbon Tetrachloride	<1.0	1.0	ug/L	1		10/23/24 0000	10/23/24 1943	CSM
Benzene	<1.0	1.0	ug/L	1		10/23/24 0000	10/23/24 1943	CSM
1,2-Dichloroethane	<1.0	1.0	ug/L	1		10/23/24 0000	10/23/24 1943	CSM
Trichloroethylene	<1.0	1.0	ug/L	1		10/23/24 0000	10/23/24 1943	CSM
1,2-Dichloropropane	<1.0	1.0	ug/L	1		10/23/24 0000	10/23/24 1943	CSM
Dibromomethane	<1.0	1.0	ug/L	1		10/23/24 0000	10/23/24 1943	CSM
Bromodichloromethane	<1.0	1.0	ug/L	1		10/23/24 0000	10/23/24 1943	CSM
cis-1,3-Dichloropropene	<1.0	1.0	ug/L	1		10/23/24 0000	10/23/24 1943	CSM
4-Methyl-2-pentanone (MIBK)	<5.0	5.0	ug/L	1		10/23/24 0000	10/23/24 1943	CSM
Toluene	<1.0	1.0	ug/L	1		10/23/24 0000	10/23/24 1943	CSM
trans-1,3-Dichloropropene	<1.0	1.0	ug/L	1		10/23/24 0000	10/23/24 1943	CSM
1,1,2-Trichloroethane	<1.0	1.0	ug/L	1		10/23/24 0000	10/23/24 1943	CSM
Tetrachloroethylene	<1.0	1.0	ug/L	1		10/23/24 0000	10/23/24 1943	CSM
2-Hexanone (MBK)	<5.0	5.0	ug/L	1		10/23/24 0000	10/23/24 1943	CSM
Dibromochloromethane	<1.0	1.0	ug/L	1		10/23/24 0000	10/23/24 1943	CSM
1,2-Dibromoethane	<1.0	1.0	ug/L	1		10/23/24 0000	10/23/24 1943	CSM
Chlorobenzene	<1.0	1.0	ug/L	1		10/23/24 0000	10/23/24 1943	CSM
1,1,1,2-Tetrachloroethane	<1.0	1.0	ug/L	1		10/23/24 0000	10/23/24 1943	CSM
Ethylbenzene	<1.0	1.0	ug/L	1		10/23/24 0000	10/23/24 1943	CSM
Xylenes, total	<2.0	2.0	ug/L	1		10/23/24 0000	10/23/24 1943	CSM
Styrene	<1.0	1.0	ug/L	1		10/23/24 0000	10/23/24 1943	CSM
Bromoform	<1.0	1.0	ug/L	1		10/23/24 0000	10/23/24 1943	CSM
1,2,3-Trichloropropane	<1.0	1.0	ug/L	1		10/23/24 0000	10/23/24 1943	CSM

Client Sample ID:	MW-10		
Sample Matrix:	Aqueous	**Collected By:**	Whipple, Todd
Lab Sample ID:	1HJ1633-03	**Collection Date:**	10/17/2024 13:43

Determination of Volatile Organic Compounds	Result	RL	Units	DF	Note	Prepared	Analyzed	Analyst
trans-1,4-Dichloro-2-butene	<5.0	5.0	ug/L	1		10/23/24 0000	10/23/24 1943	CSM
1,1,2,2-Tetrachloroethane	<1.0	1.0	ug/L	1		10/23/24 0000	10/23/24 1943	CSM
1,4-Dichlorobenzene	<1.0	1.0	ug/L	1		10/23/24 0000	10/23/24 1943	CSM
1,2-Dichlorobenzene	<1.0	1.0	ug/L	1		10/23/24 0000	10/23/24 1943	CSM
1,2-Dibromo-3-chloropropane	<5.0	5.0	ug/L	1		10/23/24 0000	10/23/24 1943	CSM
Surrogate: Dibromofluoromethane	96.1	Limit: 75-136	% Rec	1		10/23/24 0000	10/23/24 1943	CSM
Surrogate: Dibromofluoromethane	96.1	Limit: 57-134	% Rec	1		10/23/24 0000	10/23/24 1943	CSM
Surrogate: 1,2-Dichloroethane-d4	104	Limit: 53-140	% Rec	1		10/23/24 0000	10/23/24 1943	CSM
Surrogate: 1,2-Dichloroethane-d4	104	Limit: 61-142	% Rec	1		10/23/24 0000	10/23/24 1943	CSM
Surrogate: Toluene-d8	95.1	Limit: 86-114	% Rec	1		10/23/24 0000	10/23/24 1943	CSM
Surrogate: Toluene-d8	95.1	Limit: 82-121	% Rec	1		10/23/24 0000	10/23/24 1943	CSM
Surrogate: 4-Bromofluorobenzene	99.6	Limit: 80-116	% Rec	1		10/23/24 0000	10/23/24 1943	CSM
Surrogate: 4-Bromofluorobenzene	99.6	Limit: 78-121	% Rec	1		10/23/24 0000	10/23/24 1943	CSM

Determination of Total Metals	Result	RL	Units	DF	Note	Prepared	Analyzed	Analyst
EPA 3005A/EPA 6020A								
Antimony, total	<0.0020	0.0020	mg/L	4		10/25/24 1606	10/28/24 2136	RVV
Arsenic, total	<0.0040	0.0040	mg/L	4		10/25/24 1606	10/28/24 2136	RVV
Barium, total	**0.141**	0.0040	mg/L	4		10/25/24 1606	10/28/24 2136	RVV
Beryllium, total	<0.0040	0.0040	mg/L	4		10/25/24 1606	10/28/24 2136	RVV
Cadmium, total	**0.0024**	0.0008	mg/L	4		10/25/24 1606	10/28/24 2136	RVV
Chromium, total	<0.0080	0.0080	mg/L	4		10/25/24 1606	10/28/24 2136	RVV
Cobalt, total	<0.0004	0.0004	mg/L	4		10/25/24 1606	10/28/24 2136	RVV
Copper, total	<0.0040	0.0040	mg/L	4		10/25/24 1606	10/28/24 2136	RVV
Lead, total	<0.0040	0.0040	mg/L	4		10/25/24 1606	10/28/24 2136	RVV
Nickel, total	**0.0102**	0.0040	mg/L	4		10/25/24 1606	10/28/24 2136	RVV
Selenium, total	<0.0040	0.0040	mg/L	4		10/25/24 1606	10/28/24 2136	RVV
Silver, total	<0.0040	0.0040	mg/L	4		10/25/24 1606	10/28/24 2136	RVV
Thallium, total	<0.0020	0.0020	mg/L	4		10/25/24 1606	10/28/24 2136	RVV
Vanadium, total	<0.0200	0.0200	mg/L	4		10/25/24 1606	10/28/24 2136	RVV
Zinc, total	<0.0200	0.0200	mg/L	4		10/25/24 1606	10/28/24 2136	RVV

Client Sample ID:	PZ-11		
Sample Matrix:	Aqueous	**Collected By:**	Whipple, Todd
Lab Sample ID:	1HJ1633-04	**Collection Date:**	10/17/2024 13:57

Determination of Volatile Organic Compounds	Result	RL	Units	DF	Note	Prepared	Analyzed	Analyst
EPA 5030B/EPA 8260B								
Chloromethane	<1.0	1.0	ug/L	1		10/23/24 0000	10/23/24 2006	CSM
Vinyl Chloride	<1.0	1.0	ug/L	1		10/23/24 0000	10/23/24 2006	CSM
Bromomethane	<1.0	1.0	ug/L	1		10/23/24 0000	10/23/24 2006	CSM
Chloroethane	<1.0	1.0	ug/L	1		10/23/24 0000	10/23/24 2006	CSM
Trichlorofluoromethane	<1.0	1.0	ug/L	1		10/23/24 0000	10/23/24 2006	CSM
1,1-Dichloroethylene	<1.0	1.0	ug/L	1		10/23/24 0000	10/23/24 2006	CSM
Acetone	<10.0	10.0	ug/L	1		10/23/24 0000	10/23/24 2006	CSM
Methyl Iodide	<1.0	1.0	ug/L	1		10/23/24 0000	10/23/24 2006	CSM
Carbon Disulfide	<1.0	1.0	ug/L	1		10/23/24 0000	10/23/24 2006	CSM
Methylene Chloride	<5.0	5.0	ug/L	1		10/23/24 0000	10/23/24 2006	CSM
Acrylonitrile	<5.0	5.0	ug/L	1		10/23/24 0000	10/23/24 2006	CSM
trans-1,2-Dichloroethylene	<1.0	1.0	ug/L	1		10/23/24 0000	10/23/24 2006	CSM
1,1-Dichloroethane	**1.0**	1.0	ug/L	1		10/23/24 0000	10/23/24 2006	CSM
Vinyl Acetate	<5.0	5.0	ug/L	1		10/23/24 0000	10/23/24 2006	CSM
cis-1,2-Dichloroethylene	<1.0	1.0	ug/L	1		10/23/24 0000	10/23/24 2006	CSM
2-Butanone (MEK)	<10.0	10.0	ug/L	1		10/23/24 0000	10/23/24 2006	CSM
Bromochloromethane	<1.0	1.0	ug/L	1		10/23/24 0000	10/23/24 2006	CSM
Chloroform	<1.0	1.0	ug/L	1		10/23/24 0000	10/23/24 2006	CSM
1,1,1-Trichloroethane	<1.0	1.0	ug/L	1		10/23/24 0000	10/23/24 2006	CSM
Carbon Tetrachloride	<1.0	1.0	ug/L	1		10/23/24 0000	10/23/24 2006	CSM
Benzene	<1.0	1.0	ug/L	1		10/23/24 0000	10/23/24 2006	CSM
1,2-Dichloroethane	<1.0	1.0	ug/L	1		10/23/24 0000	10/23/24 2006	CSM
Trichloroethylene	<1.0	1.0	ug/L	1		10/23/24 0000	10/23/24 2006	CSM
1,2-Dichloropropane	<1.0	1.0	ug/L	1		10/23/24 0000	10/23/24 2006	CSM
Dibromomethane	<1.0	1.0	ug/L	1		10/23/24 0000	10/23/24 2006	CSM
Bromodichloromethane	<1.0	1.0	ug/L	1		10/23/24 0000	10/23/24 2006	CSM
cis-1,3-Dichloropropene	<1.0	1.0	ug/L	1		10/23/24 0000	10/23/24 2006	CSM
4-Methyl-2-pentanone (MIBK)	<5.0	5.0	ug/L	1		10/23/24 0000	10/23/24 2006	CSM
Toluene	<1.0	1.0	ug/L	1		10/23/24 0000	10/23/24 2006	CSM
trans-1,3-Dichloropropene	<1.0	1.0	ug/L	1		10/23/24 0000	10/23/24 2006	CSM
1,1,2-Trichloroethane	<1.0	1.0	ug/L	1		10/23/24 0000	10/23/24 2006	CSM
Tetrachloroethylene	<1.0	1.0	ug/L	1		10/23/24 0000	10/23/24 2006	CSM
2-Hexanone (MBK)	<5.0	5.0	ug/L	1		10/23/24 0000	10/23/24 2006	CSM
Dibromochloromethane	<1.0	1.0	ug/L	1		10/23/24 0000	10/23/24 2006	CSM
1,2-Dibromoethane	<1.0	1.0	ug/L	1		10/23/24 0000	10/23/24 2006	CSM
Chlorobenzene	<1.0	1.0	ug/L	1		10/23/24 0000	10/23/24 2006	CSM
1,1,1,2-Tetrachloroethane	<1.0	1.0	ug/L	1		10/23/24 0000	10/23/24 2006	CSM
Ethylbenzene	<1.0	1.0	ug/L	1		10/23/24 0000	10/23/24 2006	CSM
Xylenes, total	<2.0	2.0	ug/L	1		10/23/24 0000	10/23/24 2006	CSM
Styrene	<1.0	1.0	ug/L	1		10/23/24 0000	10/23/24 2006	CSM
Bromoform	<1.0	1.0	ug/L	1		10/23/24 0000	10/23/24 2006	CSM
1,2,3-Trichloropropane	<1.0	1.0	ug/L	1		10/23/24 0000	10/23/24 2006	CSM

Client Sample ID:	PZ-11		
Sample Matrix:	Aqueous	**Collected By:**	Whipple, Todd
Lab Sample ID:	1HJ1633-04	**Collection Date:**	10/17/2024 13:57

Determination of Volatile Organic Compounds	Result	RL	Units	DF	Note	Prepared	Analyzed	Analyst
trans-1,4-Dichloro-2-butene	<5.0	5.0	ug/L	1		10/23/24 0000	10/23/24 2006	CSM
1,1,2,2-Tetrachloroethane	<1.0	1.0	ug/L	1		10/23/24 0000	10/23/24 2006	CSM
1,4-Dichlorobenzene	<1.0	1.0	ug/L	1		10/23/24 0000	10/23/24 2006	CSM
1,2-Dichlorobenzene	<1.0	1.0	ug/L	1		10/23/24 0000	10/23/24 2006	CSM
1,2-Dibromo-3-chloropropane	<5.0	5.0	ug/L	1		10/23/24 0000	10/23/24 2006	CSM
Surrogate: Dibromofluoromethane	97.5	Limit: 57-134	% Rec	1		10/23/24 0000	10/23/24 2006	CSM
Surrogate: Dibromofluoromethane	97.5	Limit: 75-136	% Rec	1		10/23/24 0000	10/23/24 2006	CSM
Surrogate: 1,2-Dichloroethane-d4	105	Limit: 61-142	% Rec	1		10/23/24 0000	10/23/24 2006	CSM
Surrogate: 1,2-Dichloroethane-d4	105	Limit: 53-140	% Rec	1		10/23/24 0000	10/23/24 2006	CSM
Surrogate: Toluene-d8	95.3	Limit: 86-114	% Rec	1		10/23/24 0000	10/23/24 2006	CSM
Surrogate: Toluene-d8	95.3	Limit: 82-121	% Rec	1		10/23/24 0000	10/23/24 2006	CSM
Surrogate: 4-Bromofluorobenzene	98.2	Limit: 80-116	% Rec	1		10/23/24 0000	10/23/24 2006	CSM
Surrogate: 4-Bromofluorobenzene	98.2	Limit: 78-121	% Rec	1		10/23/24 0000	10/23/24 2006	CSM

Determination of Total Metals	Result	RL	Units	DF	Note	Prepared	Analyzed	Analyst
EPA 3005A/EPA 6020A								
Antimony, total	<0.0020	0.0020	mg/L	4		10/25/24 1606	10/28/24 2143	RVV
Arsenic, total	<0.0040	0.0040	mg/L	4		10/25/24 1606	10/28/24 2143	RVV
Barium, total	**0.0480**	0.0040	mg/L	4		10/25/24 1606	10/28/24 2143	RVV
Beryllium, total	<0.0040	0.0040	mg/L	4		10/25/24 1606	10/28/24 2143	RVV
Cadmium, total	<0.0008	0.0008	mg/L	4		10/25/24 1606	10/28/24 2143	RVV
Chromium, total	<0.0080	0.0080	mg/L	4		10/25/24 1606	10/28/24 2143	RVV
Cobalt, total	**0.0005**	0.0004	mg/L	4		10/25/24 1606	10/28/24 2143	RVV
Copper, total	<0.0040	0.0040	mg/L	4		10/25/24 1606	10/28/24 2143	RVV
Lead, total	<0.0040	0.0040	mg/L	4		10/25/24 1606	10/28/24 2143	RVV
Nickel, total	**0.0311**	0.0040	mg/L	4		10/25/24 1606	10/28/24 2143	RVV
Selenium, total	<0.0040	0.0040	mg/L	4		10/25/24 1606	10/28/24 2143	RVV
Silver, total	<0.0040	0.0040	mg/L	4		10/25/24 1606	10/28/24 2143	RVV
Thallium, total	<0.0020	0.0020	mg/L	4		10/25/24 1606	10/28/24 2143	RVV
Vanadium, total	<0.0200	0.0200	mg/L	4		10/25/24 1606	10/28/24 2143	RVV
Zinc, total	<0.0200	0.0200	mg/L	4		10/25/24 1606	10/28/24 2143	RVV

Microbac Laboratories, Inc., Newton

CERTIFICATE OF ANALYSIS

1HJ1633

Client Sample ID:	MW-13		
Sample Matrix:	Aqueous	**Collected By:**	Whipple, Todd
Lab Sample ID:	1HJ1633-05	**Collection Date:**	10/17/2024 14:08

Determination of Volatile Organic Compounds	Result	RL	Units	DF	Note	Prepared	Analyzed	Analyst
EPA 5030B/EPA 8260B								
Chloromethane	<1.0	1.0	ug/L	1		10/23/24 0000	10/23/24 2028	CSM
Vinyl Chloride	<1.0	1.0	ug/L	1		10/23/24 0000	10/23/24 2028	CSM
Bromomethane	<1.0	1.0	ug/L	1		10/23/24 0000	10/23/24 2028	CSM
Chloroethane	<1.0	1.0	ug/L	1		10/23/24 0000	10/23/24 2028	CSM
Trichlorofluoromethane	<1.0	1.0	ug/L	1		10/23/24 0000	10/23/24 2028	CSM
1,1-Dichloroethylene	<1.0	1.0	ug/L	1		10/23/24 0000	10/23/24 2028	CSM
Acetone	<10.0	10.0	ug/L	1		10/23/24 0000	10/23/24 2028	CSM
Methyl Iodide	<1.0	1.0	ug/L	1		10/23/24 0000	10/23/24 2028	CSM
Carbon Disulfide	<1.0	1.0	ug/L	1		10/23/24 0000	10/23/24 2028	CSM
Methylene Chloride	<5.0	5.0	ug/L	1		10/23/24 0000	10/23/24 2028	CSM
Acrylonitrile	<5.0	5.0	ug/L	1		10/23/24 0000	10/23/24 2028	CSM
trans-1,2-Dichloroethylene	<1.0	1.0	ug/L	1		10/23/24 0000	10/23/24 2028	CSM
1,1-Dichloroethane	<1.0	1.0	ug/L	1		10/23/24 0000	10/23/24 2028	CSM
Vinyl Acetate	<5.0	5.0	ug/L	1		10/23/24 0000	10/23/24 2028	CSM
cis-1,2-Dichloroethylene	<1.0	1.0	ug/L	1		10/23/24 0000	10/23/24 2028	CSM
2-Butanone (MEK)	<10.0	10.0	ug/L	1		10/23/24 0000	10/23/24 2028	CSM
Bromochloromethane	<1.0	1.0	ug/L	1		10/23/24 0000	10/23/24 2028	CSM
Chloroform	<1.0	1.0	ug/L	1		10/23/24 0000	10/23/24 2028	CSM
1,1,1-Trichloroethane	<1.0	1.0	ug/L	1		10/23/24 0000	10/23/24 2028	CSM
Carbon Tetrachloride	<1.0	1.0	ug/L	1		10/23/24 0000	10/23/24 2028	CSM
Benzene	<1.0	1.0	ug/L	1		10/23/24 0000	10/23/24 2028	CSM
1,2-Dichloroethane	<1.0	1.0	ug/L	1		10/23/24 0000	10/23/24 2028	CSM
Trichloroethylene	<1.0	1.0	ug/L	1		10/23/24 0000	10/23/24 2028	CSM
1,2-Dichloropropane	<1.0	1.0	ug/L	1		10/23/24 0000	10/23/24 2028	CSM
Dibromomethane	<1.0	1.0	ug/L	1		10/23/24 0000	10/23/24 2028	CSM
Bromodichloromethane	<1.0	1.0	ug/L	1		10/23/24 0000	10/23/24 2028	CSM
cis-1,3-Dichloropropene	<1.0	1.0	ug/L	1		10/23/24 0000	10/23/24 2028	CSM
4-Methyl-2-pentanone (MIBK)	<5.0	5.0	ug/L	1		10/23/24 0000	10/23/24 2028	CSM
Toluene	<1.0	1.0	ug/L	1		10/23/24 0000	10/23/24 2028	CSM
trans-1,3-Dichloropropene	<1.0	1.0	ug/L	1		10/23/24 0000	10/23/24 2028	CSM
1,1,2-Trichloroethane	<1.0	1.0	ug/L	1		10/23/24 0000	10/23/24 2028	CSM
Tetrachloroethylene	<1.0	1.0	ug/L	1		10/23/24 0000	10/23/24 2028	CSM
2-Hexanone (MBK)	<5.0	5.0	ug/L	1		10/23/24 0000	10/23/24 2028	CSM
Dibromochloromethane	<1.0	1.0	ug/L	1		10/23/24 0000	10/23/24 2028	CSM
1,2-Dibromoethane	<1.0	1.0	ug/L	1		10/23/24 0000	10/23/24 2028	CSM
Chlorobenzene	<1.0	1.0	ug/L	1		10/23/24 0000	10/23/24 2028	CSM
1,1,1,2-Tetrachloroethane	<1.0	1.0	ug/L	1		10/23/24 0000	10/23/24 2028	CSM
Ethylbenzene	<1.0	1.0	ug/L	1		10/23/24 0000	10/23/24 2028	CSM
Xylenes, total	<2.0	2.0	ug/L	1		10/23/24 0000	10/23/24 2028	CSM
Styrene	<1.0	1.0	ug/L	1		10/23/24 0000	10/23/24 2028	CSM
Bromoform	<1.0	1.0	ug/L	1		10/23/24 0000	10/23/24 2028	CSM
1,2,3-Trichloropropane	<1.0	1.0	ug/L	1		10/23/24 0000	10/23/24 2028	CSM

Client Sample ID:	MW-13		
Sample Matrix:	Aqueous	**Collected By:**	Whipple, Todd
Lab Sample ID:	1HJ1633-05	**Collection Date:**	10/17/2024 14:08

Determination of Volatile Organic Compounds	Result	RL	Units	DF	Note	Prepared	Analyzed	Analyst
trans-1,4-Dichloro-2-butene	<5.0	5.0	ug/L	1		10/23/24 0000	10/23/24 2028	CSM
1,1,2,2-Tetrachloroethane	<1.0	1.0	ug/L	1		10/23/24 0000	10/23/24 2028	CSM
1,4-Dichlorobenzene	<1.0	1.0	ug/L	1		10/23/24 0000	10/23/24 2028	CSM
1,2-Dichlorobenzene	<1.0	1.0	ug/L	1		10/23/24 0000	10/23/24 2028	CSM
1,2-Dibromo-3-chloropropane	<5.0	5.0	ug/L	1		10/23/24 0000	10/23/24 2028	CSM
Surrogate: Dibromofluoromethane	95.7	Limit: 75-136	% Rec	1		10/23/24 0000	10/23/24 2028	CSM
Surrogate: Dibromofluoromethane	95.7	Limit: 57-134	% Rec	1		10/23/24 0000	10/23/24 2028	CSM
Surrogate: 1,2-Dichloroethane-d4	103	Limit: 61-142	% Rec	1		10/23/24 0000	10/23/24 2028	CSM
Surrogate: 1,2-Dichloroethane-d4	103	Limit: 53-140	% Rec	1		10/23/24 0000	10/23/24 2028	CSM
Surrogate: Toluene-d8	94.4	Limit: 82-121	% Rec	1		10/23/24 0000	10/23/24 2028	CSM
Surrogate: Toluene-d8	94.4	Limit: 86-114	% Rec	1		10/23/24 0000	10/23/24 2028	CSM
Surrogate: 4-Bromofluorobenzene	98.8	Limit: 80-116	% Rec	1		10/23/24 0000	10/23/24 2028	CSM
Surrogate: 4-Bromofluorobenzene	98.8	Limit: 78-121	% Rec	1		10/23/24 0000	10/23/24 2028	CSM

Determination of Total Metals	Result	RL	Units	DF	Note	Prepared	Analyzed	Analyst
EPA 3005A/EPA 6020A								
Antimony, total	<0.0020	0.0020	mg/L	4		10/25/24 1606	10/28/24 2149	RVV
Arsenic, total	<0.0040	0.0040	mg/L	4		10/25/24 1606	10/28/24 2149	RVV
Barium, total	**0.0482**	0.0040	mg/L	4		10/25/24 1606	10/28/24 2149	RVV
Beryllium, total	<0.0040	0.0040	mg/L	4		10/25/24 1606	10/28/24 2149	RVV
Cadmium, total	<0.0008	0.0008	mg/L	4		10/25/24 1606	10/28/24 2149	RVV
Chromium, total	<0.0080	0.0080	mg/L	4		10/25/24 1606	10/28/24 2149	RVV
Cobalt, total	<0.0004	0.0004	mg/L	4		10/25/24 1606	10/28/24 2149	RVV
Copper, total	<0.0040	0.0040	mg/L	4		10/25/24 1606	10/28/24 2149	RVV
Lead, total	<0.0040	0.0040	mg/L	4		10/25/24 1606	10/28/24 2149	RVV
Nickel, total	<0.0040	0.0040	mg/L	4		10/25/24 1606	10/28/24 2149	RVV
Selenium, total	<0.0040	0.0040	mg/L	4		10/25/24 1606	10/28/24 2149	RVV
Silver, total	<0.0040	0.0040	mg/L	4		10/25/24 1606	10/28/24 2149	RVV
Thallium, total	<0.0020	0.0020	mg/L	4		10/25/24 1606	10/28/24 2149	RVV
Vanadium, total	<0.0200	0.0200	mg/L	4		10/25/24 1606	10/28/24 2149	RVV
Zinc, total	<0.0200	0.0200	mg/L	4		10/25/24 1606	10/28/24 2149	RVV

Client Sample ID:	Duplicate		
Sample Matrix:	Aqueous	**Collected By:**	Whipple, Todd
Lab Sample ID:	1HJ1633-06	**Collection Date:**	10/17/2024

Determination of Total Metals	Result	RL	Units	DF	Note	Prepared	Analyzed	Analyst
EPA 3005A/EPA 6020A								
Antimony, total	<0.0020	0.0020	mg/L	4		10/25/24 1606	10/28/24 2155	RVV
Arsenic, total	<0.0040	0.0040	mg/L	4		10/25/24 1606	10/28/24 2155	RVV
Barium, total	**0.311**	0.0040	mg/L	4		10/25/24 1606	10/28/24 2155	RVV
Beryllium, total	<0.0040	0.0040	mg/L	4		10/25/24 1606	10/28/24 2155	RVV
Cadmium, total	<0.0008	0.0008	mg/L	4		10/25/24 1606	10/28/24 2155	RVV
Chromium, total	<0.0080	0.0080	mg/L	4		10/25/24 1606	10/28/24 2155	RVV
Cobalt, total	<0.0004	0.0004	mg/L	4		10/25/24 1606	10/28/24 2155	RVV
Copper, total	<0.0040	0.0040	mg/L	4		10/25/24 1606	10/28/24 2155	RVV
Lead, total	<0.0040	0.0040	mg/L	4		10/25/24 1606	10/28/24 2155	RVV
Nickel, total	<0.0040	0.0040	mg/L	4		10/25/24 1606	10/28/24 2155	RVV
Selenium, total	<0.0040	0.0040	mg/L	4		10/25/24 1606	10/28/24 2155	RVV
Silver, total	<0.0040	0.0040	mg/L	4		10/25/24 1606	10/28/24 2155	RVV
Thallium, total	<0.0020	0.0020	mg/L	4		10/25/24 1606	10/28/24 2155	RVV
Vanadium, total	<0.0200	0.0200	mg/L	4		10/25/24 1606	10/28/24 2155	RVV
Zinc, total	<0.0200	0.0200	mg/L	4		10/25/24 1606	10/28/24 2155	RVV

Batch Log Summary

Method	Batch	Laboratory ID	Client / Source ID
EPA 8260B	1HJ1355	1HJ1355-BS1	
		1HJ1355-BSD1	
		1HJ1355-BLK1	
		1HJ1355-MS1	1HJ1617-04
		1HJ1355-MSD1	1HJ1617-04
		1HJ1355-BS2	
		1HJ1355-BSD2	
		1HJ1355-BLK2	
		1HJ1633-01	MW-3
		1HJ1355-MS2	1HJ1633-01
		1HJ1355-MSD2	1HJ1633-01

Method	Batch	Laboratory ID	Client / Source ID
EPA 8260B	1HJ1517	1HJ1517-BS1	
		1HJ1517-BSD1	
		1HJ1517-BLK1	
		1HJ1633-02	MW-7
		1HJ1633-03	MW-10
		1HJ1633-04	PZ-11
		1HJ1633-05	MW-13
		1HJ1517-MS1	1HJ1633-03
		1HJ1517-MSD1	1HJ1633-03

Method	Batch	Laboratory ID	Client / Source ID
EPA 6020A	1HJ1611	1HJ1611-BLK1	
		1HJ1611-BS1	
		1HJ1633-01	MW-3
		1HJ1611-MS1	1HJ1633-01
		1HJ1611-MSD1	1HJ1633-01
		1HJ1611-PS1	1HJ1633-01
		1HJ1633-02	MW-7
		1HJ1633-03	MW-10
		1HJ1633-04	PZ-11
		1HJ1633-05	MW-13
		1HJ1633-06	Duplicate

Method	Batch	Laboratory ID	Client / Source ID
EPA 8260B	1HJ1776	1HJ1776-BS1	
		1HJ1776-BSD1	
		1HJ1776-BLK1	

EPA 8260B	1HJ1776	1HJ1776-BS2	
		1HJ1776-BSD2	
		1HJ1776-BLK2	
		1HJ1633-01RE1	MW-3
		1HJ1776-MS1	1HJ1549-02RE1
		1HJ1776-MSD1	1HJ1549-02RE1
		1HJ1776-MS2	1HJ1617-12RE1
		1HJ1776-MSD2	1HJ1617-12RE1

Batch Quality Control Summary: Microbac Laboratories, Inc., Newton

Determination of Volatile Organic Compounds	Result	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 1HJ1355 - EPA 5030B - EPA 8260B										
Blank (1HJ1355-BLK1)			Prepared: 10/22/24 00:00 Analyzed: 10/22/24 11:05							
Chloromethane	<1.0	1.0	ug/L							
Vinyl Chloride	<1.0	1.0	ug/L							
Bromomethane	<1.0	1.0	ug/L							
Chloroethane	<1.0	1.0	ug/L							
Trichlorofluoromethane	<1.0	1.0	ug/L							
1,1-Dichloroethylene	<1.0	1.0	ug/L							
Acetone	<10.0	10.0	ug/L							
Methyl Iodide	<1.0	1.0	ug/L							
Carbon Disulfide	<1.0	1.0	ug/L							
Methylene Chloride	<5.0	5.0	ug/L							
Acrylonitrile	<5.0	5.0	ug/L							
trans-1,2-Dichloroethylene	<1.0	1.0	ug/L							
1,1-Dichloroethane	<1.0	1.0	ug/L							
Vinyl Acetate	<5.0	5.0	ug/L							
cis-1,2-Dichloroethylene	<1.0	1.0	ug/L							
2-Butanone (MEK)	<10.0	10.0	ug/L							
Bromochloromethane	<1.0	1.0	ug/L							
Chloroform	<1.0	1.0	ug/L							
1,1,1-Trichloroethane	<1.0	1.0	ug/L							
Carbon Tetrachloride	<1.0	1.0	ug/L							
Benzene	<1.0	1.0	ug/L							
1,2-Dichloroethane	<1.0	1.0	ug/L							
Trichloroethylene	<1.0	1.0	ug/L							
1,2-Dichloropropane	<1.0	1.0	ug/L							
Dibromomethane	<1.0	1.0	ug/L							
Bromodichloromethane	<1.0	1.0	ug/L							
cis-1,3-Dichloropropene	<1.0	1.0	ug/L							
4-Methyl-2-pentanone (MIBK)	<5.0	5.0	ug/L							
Toluene	<1.0	1.0	ug/L							
trans-1,3-Dichloropropene	<1.0	1.0	ug/L							
1,1,2-Trichloroethane	<1.0	1.0	ug/L							
Tetrachloroethylene	<1.0	1.0	ug/L							

Determination of Volatile Organic Compounds	Result	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes

Batch 1HJ1355 - EPA 5030B - EPA 8260B

Blank (1HJ1355-BLK1) Prepared: 10/22/24 00:00 Analyzed: 10/22/24 11:05

Analyte	Result	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
2-Hexanone (MBK)	<5.0	5.0	ug/L							
Dibromochloromethane	<1.0	1.0	ug/L							
1,2-Dibromoethane	<1.0	1.0	ug/L							
Chlorobenzene	<1.0	1.0	ug/L							
1,1,1,2-Tetrachloroethane	<1.0	1.0	ug/L							
Ethylbenzene	<1.0	1.0	ug/L							
Xylenes, total	<2.0	2.0	ug/L							
Styrene	<1.0	1.0	ug/L							
Bromoform	<1.0	1.0	ug/L							
1,2,3-Trichloropropane	<1.0	1.0	ug/L							
trans-1,4-Dichloro-2-butene	<5.0	5.0	ug/L							
1,1,2,2-Tetrachloroethane	<1.0	1.0	ug/L							
1,4-Dichlorobenzene	<1.0	1.0	ug/L							
1,2-Dichlorobenzene	<1.0	1.0	ug/L							
1,2-Dibromo-3-chloropropane	<5.0	5.0	ug/L							
Surrogate: Dibromofluoromethane	*49.7*		ug/L	*50.2*		*99.0*	*57-134*			
Surrogate: Dibromofluoromethane	*49.7*		ug/L	*50.2*		*99.0*	*75-136*			
Surrogate: 1,2-Dichloroethane-d4	*53.4*		ug/L	*50.4*		*106*	*53-140*			
Surrogate: 1,2-Dichloroethane-d4	*53.4*		ug/L	*50.4*		*106*	*61-142*			
Surrogate: Toluene-d8	*47.5*		ug/L	*50.5*		*94.2*	*86-114*			
Surrogate: Toluene-d8	*47.5*		ug/L	*50.5*		*94.2*	*82-121*			
Surrogate: 4-Bromofluorobenzene	*49.8*		ug/L	*50.2*		*99.2*	*78-121*			
Surrogate: 4-Bromofluorobenzene	*49.8*		ug/L	*50.2*		*99.2*	*80-116*			

Blank (1HJ1355-BLK2) Prepared: 10/22/24 00:00 Analyzed: 10/23/24 00:08

Analyte	Result	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Chloromethane	<1.0	1.0	ug/L							
Vinyl Chloride	<1.0	1.0	ug/L							
Bromomethane	<1.0	1.0	ug/L							
Chloroethane	<1.0	1.0	ug/L							
Trichlorofluoromethane	<1.0	1.0	ug/L							
1,1-Dichloroethylene	<1.0	1.0	ug/L							
Acetone	<10.0	10.0	ug/L							
Methyl Iodide	<1.0	1.0	ug/L							
Carbon Disulfide	<1.0	1.0	ug/L							
Methylene Chloride	<5.0	5.0	ug/L							
Acrylonitrile	<5.0	5.0	ug/L							
trans-1,2-Dichloroethylene	<1.0	1.0	ug/L							
1,1-Dichloroethane	<1.0	1.0	ug/L							
Vinyl Acetate	<5.0	5.0	ug/L							
cis-1,2-Dichloroethylene	<1.0	1.0	ug/L							
2-Butanone (MEK)	<10.0	10.0	ug/L							
Bromochloromethane	<1.0	1.0	ug/L							
Chloroform	<1.0	1.0	ug/L							
1,1,1-Trichloroethane	<1.0	1.0	ug/L							

Determination of Volatile Organic Compounds	Result	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 1HJ1355 - EPA 5030B - EPA 8260B										
Blank (1HJ1355-BLK2)			Prepared: 10/22/24 00:00 Analyzed: 10/23/24 00:08							
Carbon Tetrachloride	<1.0	1.0	ug/L							
Benzene	<1.0	1.0	ug/L							
1,2-Dichloroethane	<1.0	1.0	ug/L							
Trichloroethylene	<1.0	1.0	ug/L							
1,2-Dichloropropane	<1.0	1.0	ug/L							
Dibromomethane	<1.0	1.0	ug/L							
Bromodichloromethane	<1.0	1.0	ug/L							
cis-1,3-Dichloropropene	<1.0	1.0	ug/L							
4-Methyl-2-pentanone (MIBK)	<5.0	5.0	ug/L							
Toluene	<1.0	1.0	ug/L							
trans-1,3-Dichloropropene	<1.0	1.0	ug/L							
1,1,2-Trichloroethane	<1.0	1.0	ug/L							
Tetrachloroethylene	<1.0	1.0	ug/L							
2-Hexanone (MBK)	<5.0	5.0	ug/L							
Dibromochloromethane	<1.0	1.0	ug/L							
1,2-Dibromoethane	<1.0	1.0	ug/L							
Chlorobenzene	<1.0	1.0	ug/L							
1,1,1,2-Tetrachloroethane	<1.0	1.0	ug/L							
Ethylbenzene	<1.0	1.0	ug/L							
Xylenes, total	<2.0	2.0	ug/L							
Styrene	<1.0	1.0	ug/L							
Bromoform	<1.0	1.0	ug/L							
1,2,3-Trichloropropane	<1.0	1.0	ug/L							
trans-1,4-Dichloro-2-butene	<5.0	5.0	ug/L							
1,1,2,2-Tetrachloroethane	<1.0	1.0	ug/L							
1,4-Dichlorobenzene	<1.0	1.0	ug/L							
1,2-Dichlorobenzene	<1.0	1.0	ug/L							
1,2-Dibromo-3-chloropropane	<5.0	5.0	ug/L							
Surrogate: Dibromofluoromethane	*47.7*		ug/L	*50.2*		*95.0*	*57-134*			
Surrogate: Dibromofluoromethane	*47.7*		ug/L	*50.2*		*95.0*	*75-136*			
Surrogate: 1,2-Dichloroethane-d4	*51.7*		ug/L	*50.4*		*103*	*53-140*			
Surrogate: 1,2-Dichloroethane-d4	*51.7*		ug/L	*50.4*		*103*	*61-142*			
Surrogate: Toluene-d8	*47.4*		ug/L	*50.5*		*93.8*	*86-114*			
Surrogate: Toluene-d8	*47.4*		ug/L	*50.5*		*93.8*	*82-121*			
Surrogate: 4-Bromofluorobenzene	*49.6*		ug/L	*50.2*		*98.8*	*78-121*			
Surrogate: 4-Bromofluorobenzene	*49.6*		ug/L	*50.2*		*98.8*	*80-116*			
LCS (1HJ1355-BS1)			Prepared: 10/22/24 00:00 Analyzed: 10/22/24 09:57							
Chloromethane	33.57	1.0	ug/L	30.3		111	63-155			
Vinyl Chloride	31.86	1.0	ug/L	30.2		105	70-154			
Bromomethane	37.63	1.0	ug/L	30.1		125	52-176			
Chloroethane	28.28	1.0	ug/L	30.3		93.3	72-148			
Trichlorofluoromethane	26.16	1.0	ug/L	30.3		86.3	70-152			
1,1-Dichloroethylene	51.06	1.0	ug/L	50.1		102	70-148			

Determination of Volatile Organic Compounds	Result	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 1HJ1355 - EPA 5030B - EPA 8260B										
LCS (1HJ1355-BS1)				Prepared: 10/22/24 00:00 Analyzed: 10/22/24 09:57						
Acetone	114.7	10.0	ug/L	100		115	43-172			
Methyl Iodide	109.1	1.0	ug/L	100		109	69-170			
Carbon Disulfide	76.66	1.0	ug/L	100		76.7	72-162			
Methylene Chloride	52.22	5.0	ug/L	50.1		104	68-142			
Acrylonitrile	90.68	5.0	ug/L	50.2		181	56-135			Q2
trans-1,2-Dichloroethylene	52.85	1.0	ug/L	50.1		106	66-148			
1,1-Dichloroethane	52.98	1.0	ug/L	50.1		106	66-143			
Vinyl Acetate	104.3	5.0	ug/L	156		67.0	43-153			
cis-1,2-Dichloroethylene	52.78	1.0	ug/L	50.4		105	71-149			
2-Butanone (MEK)	109.4	10.0	ug/L	100		109	52-159			
Bromochloromethane	53.71	1.0	ug/L	50.4		107	69-143			
Chloroform	52.28	1.0	ug/L	50.1		104	69-144			
1,1,1-Trichloroethane	51.21	1.0	ug/L	50.1		102	62-129			
Carbon Tetrachloride	52.02	1.0	ug/L	50.1		104	63-141			
Benzene	52.98	1.0	ug/L	50.4		105	71-134			
1,2-Dichloroethane	57.23	1.0	ug/L	50.1		114	72-132			
Trichloroethylene	51.21	1.0	ug/L	50.1		102	71-135			
1,2-Dichloropropane	52.16	1.0	ug/L	50.1		104	69-136			
Dibromomethane	54.27	1.0	ug/L	50.4		108	73-147			
Bromodichloromethane	52.75	1.0	ug/L	50.1		105	68-129			
cis-1,3-Dichloropropene	50.66	1.0	ug/L	50.1		101	65-134			
4-Methyl-2-pentanone (MIBK)	111.6	5.0	ug/L	100		112	58-147			
Toluene	51.15	1.0	ug/L	50.5		101	72-133			
trans-1,3-Dichloropropene	51.90	1.0	ug/L	50.1		104	67-130			
1,1,2-Trichloroethane	51.52	1.0	ug/L	50.1		103	69-135			
Tetrachloroethylene	52.63	1.0	ug/L	50.1		105	69-130			
2-Hexanone (MBK)	109.3	5.0	ug/L	100		109	55-144			
Dibromochloromethane	53.17	1.0	ug/L	50.1		106	73-127			
1,2-Dibromoethane	53.07	1.0	ug/L	50.2		106	67-132			
Chlorobenzene	52.05	1.0	ug/L	50.1		104	72-123			
1,1,1,2-Tetrachloroethane	54.73	1.0	ug/L	50.3		109	73-127			
Ethylbenzene	54.58	1.0	ug/L	50.2		109	71-127			
Xylenes, total	160.4	2.0	ug/L	151		106	74-127			
Styrene	54.79	1.0	ug/L	50.4		109	66-126			
Bromoform	51.81	1.0	ug/L	50.1		103	68-130			
1,2,3-Trichloropropane	51.78	1.0	ug/L	50.3		103	63-136			
trans-1,4-Dichloro-2-butene	102.6	5.0	ug/L	100		103	54-134			
1,1,2,2-Tetrachloroethane	53.02	1.0	ug/L	50.1		106	61-131			
1,4-Dichlorobenzene	50.94	1.0	ug/L	50.1		102	70-129			
1,2-Dichlorobenzene	52.10	1.0	ug/L	50.1		104	69-126			
1,2-Dibromo-3-chloropropane	44.67	5.0	ug/L	50.1		89.1	50-143			
Surrogate: Dibromofluoromethane	*49.9*		ug/L	*50.2*		*99.4*	*57-134*			

Determination of Volatile Organic Compounds	Result	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 1HJ1355 - EPA 5030B - EPA 8260B										
LCS (1HJ1355-BS1)	Prepared: 10/22/24 00:00 Analyzed: 10/22/24 09:57									
Surrogate: Dibromofluoromethane	*49.9*		ug/L	*50.2*		*99.4*	*75-136*			
Surrogate: 1,2-Dichloroethane-d4	*52.1*		ug/L	*50.4*		*103*	*53-140*			
Surrogate: 1,2-Dichloroethane-d4	*52.1*		ug/L	*50.4*		*103*	*61-142*			
Surrogate: Toluene-d8	*49.8*		ug/L	*50.5*		*98.8*	*86-114*			
Surrogate: Toluene-d8	*49.8*		ug/L	*50.5*		*98.8*	*82-121*			
Surrogate: 4-Bromofluorobenzene	*49.4*		ug/L	*50.2*		*98.4*	*78-121*			
Surrogate: 4-Bromofluorobenzene	*49.4*		ug/L	*50.2*		*98.4*	*80-116*			
LCS (1HJ1355-BS2)	Prepared: 10/22/24 00:00 Analyzed: 10/22/24 23:01									
Chloromethane	29.08	1.0	ug/L	30.3		95.9	63-155			
Vinyl Chloride	27.21	1.0	ug/L	30.2		90.0	70-154			
Bromomethane	31.91	1.0	ug/L	30.1		106	52-176			
Chloroethane	24.50	1.0	ug/L	30.3		80.8	72-148			
Trichlorofluoromethane	22.69	1.0	ug/L	30.3		74.9	70-152			
1,1-Dichloroethylene	44.10	1.0	ug/L	50.1		88.0	70-148			
Acetone	116.6	10.0	ug/L	100		117	43-172			
Methyl Iodide	94.09	1.0	ug/L	100		94.1	69-170			
Methylene Chloride	45.89	5.0	ug/L	50.1		91.6	68-142			
Acrylonitrile	85.78	5.0	ug/L	50.2		171	56-135			Q2
trans-1,2-Dichloroethylene	47.04	1.0	ug/L	50.1		93.9	66-148			
1,1-Dichloroethane	47.44	1.0	ug/L	50.1		94.7	66-143			
Vinyl Acetate	94.40	5.0	ug/L	156		60.6	43-153			
cis-1,2-Dichloroethylene	47.40	1.0	ug/L	50.4		94.1	71-149			
2-Butanone (MEK)	104.5	10.0	ug/L	100		104	52-159			
Bromochloromethane	48.94	1.0	ug/L	50.4		97.1	69-143			
Chloroform	47.13	1.0	ug/L	50.1		94.1	69-144			
1,1,1-Trichloroethane	45.49	1.0	ug/L	50.1		90.8	62-129			
Carbon Tetrachloride	45.94	1.0	ug/L	50.1		91.7	63-141			
Benzene	50.43	1.0	ug/L	50.4		100	71-134			
1,2-Dichloroethane	55.60	1.0	ug/L	50.1		111	72-132			
Trichloroethylene	48.69	1.0	ug/L	50.1		97.2	71-135			
1,2-Dichloropropane	50.84	1.0	ug/L	50.1		101	69-136			
Dibromomethane	52.43	1.0	ug/L	50.4		104	73-147			
Bromodichloromethane	50.34	1.0	ug/L	50.1		101	68-129			
cis-1,3-Dichloropropene	48.04	1.0	ug/L	50.1		95.9	65-134			
4-Methyl-2-pentanone (MIBK)	114.6	5.0	ug/L	100		115	58-147			
Toluene	48.88	1.0	ug/L	50.5		96.8	72-133			
trans-1,3-Dichloropropene	49.81	1.0	ug/L	50.1		99.5	67-130			
1,1,2-Trichloroethane	49.95	1.0	ug/L	50.1		99.7	69-135			
Tetrachloroethylene	49.35	1.0	ug/L	50.1		98.5	69-130			
2-Hexanone (MBK)	113.9	5.0	ug/L	100		114	55-144			
Dibromochloromethane	51.11	1.0	ug/L	50.1		102	73-127			
1,2-Dibromoethane	52.32	1.0	ug/L	50.2		104	67-132			
Chlorobenzene	49.79	1.0	ug/L	50.1		99.4	72-123			

Determination of Volatile Organic Compounds	Result	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 1HJ1355 - EPA 5030B - EPA 8260B										
LCS (1HJ1355-BS2)				Prepared: 10/22/24 00:00 Analyzed: 10/22/24 23:01						
1,1,1,2-Tetrachloroethane	52.40	1.0	ug/L	50.3		104	73-127			
Ethylbenzene	52.33	1.0	ug/L	50.2		104	71-127			
Xylenes, total	152.5	2.0	ug/L	151		101	74-127			
Styrene	52.43	1.0	ug/L	50.4		104	66-126			
Bromoform	50.61	1.0	ug/L	50.1		101	68-130			
1,2,3-Trichloropropane	52.68	1.0	ug/L	50.3		105	63-136			
trans-1,4-Dichloro-2-butene	100.9	5.0	ug/L	100		101	54-134			
1,1,2,2-Tetrachloroethane	53.13	1.0	ug/L	50.1		106	61-131			
1,4-Dichlorobenzene	48.61	1.0	ug/L	50.1		97.0	70-129			
1,2-Dichlorobenzene	49.77	1.0	ug/L	50.1		99.4	69-126			
1,2-Dibromo-3-chloropropane	46.69	5.0	ug/L	50.1		93.1	50-143			
Surrogate: Dibromofluoromethane	*47.2*		ug/L	*50.2*		*94.0*	*57-134*			
Surrogate: Dibromofluoromethane	*47.2*		ug/L	*50.2*		*94.0*	*75-136*			
Surrogate: 1,2-Dichloroethane-d4	*49.5*		ug/L	*50.4*		*98.3*	*53-140*			
Surrogate: 1,2-Dichloroethane-d4	*49.5*		ug/L	*50.4*		*98.3*	*61-142*			
Surrogate: Toluene-d8	*49.8*		ug/L	*50.5*		*98.7*	*86-114*			
Surrogate: Toluene-d8	*49.8*		ug/L	*50.5*		*98.7*	*82-121*			
Surrogate: 4-Bromofluorobenzene	*50.1*		ug/L	*50.2*		*99.9*	*78-121*			
Surrogate: 4-Bromofluorobenzene	*50.1*		ug/L	*50.2*		*99.9*	*80-116*			
LCS Dup (1HJ1355-BSD1)				Prepared: 10/22/24 00:00 Analyzed: 10/22/24 10:20						
Chloromethane	31.48	1.0	ug/L	30.3		104	63-155	6.43	24	
Vinyl Chloride	29.84	1.0	ug/L	30.2		98.6	70-154	6.55	25	
Bromomethane	34.68	1.0	ug/L	30.1		115	52-176	8.16	27	
Chloroethane	26.57	1.0	ug/L	30.3		87.6	72-148	6.24	25	
Trichlorofluoromethane	24.32	1.0	ug/L	30.3		80.2	70-152	7.29	26	
1,1-Dichloroethylene	47.51	1.0	ug/L	50.1		94.8	70-148	7.20	24	
Acetone	111.6	10.0	ug/L	100		112	43-172	2.69	30	
Methyl Iodide	104.9	1.0	ug/L	100		105	69-170	3.95	30	
Carbon Disulfide	71.74	1.0	ug/L	100		71.7	72-162	6.63	24	S
Methylene Chloride	49.68	5.0	ug/L	50.1		99.2	68-142	4.99	21	
Acrylonitrile	88.06	5.0	ug/L	50.2		175	56-135	2.93	16	Q2
trans-1,2-Dichloroethylene	49.89	1.0	ug/L	50.1		99.6	66-148	5.76	27	
1,1-Dichloroethane	50.16	1.0	ug/L	50.1		100	66-143	5.47	24	
Vinyl Acetate	101.0	5.0	ug/L	156		64.9	43-153	3.16	30	
cis-1,2-Dichloroethylene	50.08	1.0	ug/L	50.4		99.5	71-149	5.25	26	
2-Butanone (MEK)	102.7	10.0	ug/L	100		103	52-159	6.31	27	
Bromochloromethane	51.18	1.0	ug/L	50.4		102	69-143	4.82	23	
Chloroform	49.86	1.0	ug/L	50.1		99.6	69-144	4.74	23	
1,1,1-Trichloroethane	48.43	1.0	ug/L	50.1		96.6	62-129	5.58	24	
Carbon Tetrachloride	49.02	1.0	ug/L	50.1		97.9	63-141	5.94	25	
Benzene	50.72	1.0	ug/L	50.4		101	71-134	4.36	24	
1,2-Dichloroethane	55.65	1.0	ug/L	50.1		111	72-132	2.80	24	
Trichloroethylene	49.14	1.0	ug/L	50.1		98.1	71-135	4.13	24	

Determination of Volatile Organic Compounds	Result	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 1HJ1355 - EPA 5030B - EPA 8260B										
LCS Dup (1HJ1355-BSD1)				Prepared: 10/22/24 00:00 Analyzed: 10/22/24 10:20						
1,2-Dichloropropane	50.25	1.0	ug/L	50.1		100	69-136	3.73	24	
Dibromomethane	52.42	1.0	ug/L	50.4		104	73-147	3.47	25	
Bromodichloromethane	50.53	1.0	ug/L	50.1		101	68-129	4.30	22	
cis-1,3-Dichloropropene	49.03	1.0	ug/L	50.1		97.9	65-134	3.27	23	
4-Methyl-2-pentanone (MIBK)	109.9	5.0	ug/L	100		110	58-147	1.48	27	
Toluene	48.80	1.0	ug/L	50.5		96.7	72-133	4.70	24	
trans-1,3-Dichloropropene	50.55	1.0	ug/L	50.1		101	67-130	2.64	24	
1,1,2-Trichloroethane	50.13	1.0	ug/L	50.1		100	69-135	2.73	23	
Tetrachloroethylene	49.92	1.0	ug/L	50.1		99.6	69-130	5.29	25	
2-Hexanone (MBK)	106.0	5.0	ug/L	100		106	55-144	3.02	25	
Dibromochloromethane	50.87	1.0	ug/L	50.1		102	73-127	4.42	22	
1,2-Dibromoethane	51.52	1.0	ug/L	50.2		103	67-132	2.96	24	
Chlorobenzene	49.91	1.0	ug/L	50.1		99.7	72-123	4.20	23	
1,1,1,2-Tetrachloroethane	52.38	1.0	ug/L	50.3		104	73-127	4.39	24	
Ethylbenzene	52.00	1.0	ug/L	50.2		104	71-127	4.84	26	
Xylenes, total	153.2	2.0	ug/L	151		101	74-127	4.59	25	
Styrene	52.46	1.0	ug/L	50.4		104	66-126	4.34	23	
Bromoform	50.15	1.0	ug/L	50.1		100	68-130	3.26	23	
1,2,3-Trichloropropane	50.73	1.0	ug/L	50.3		101	63-136	2.05	24	
trans-1,4-Dichloro-2-butene	99.63	5.0	ug/L	100		99.6	54-134	2.95	27	
1,1,2,2-Tetrachloroethane	51.28	1.0	ug/L	50.1		102	61-131	3.34	29	
1,4-Dichlorobenzene	49.53	1.0	ug/L	50.1		98.8	70-129	2.81	24	
1,2-Dichlorobenzene	50.64	1.0	ug/L	50.1		101	69-126	2.84	26	
1,2-Dibromo-3-chloropropane	45.00	5.0	ug/L	50.1		89.8	50-143	0.736	30	
Surrogate: Dibromofluoromethane	*50.2*		ug/L	*50.2*		*100*	*57-134*			
Surrogate: Dibromofluoromethane	*50.2*		ug/L	*50.2*		*100*	*75-136*			
Surrogate: 1,2-Dichloroethane-d4	*52.2*		ug/L	*50.4*		*104*	*53-140*			
Surrogate: 1,2-Dichloroethane-d4	*52.2*		ug/L	*50.4*		*104*	*61-142*			
Surrogate: Toluene-d8	*50.0*		ug/L	*50.5*		*99.0*	*86-114*			
Surrogate: Toluene-d8	*50.0*		ug/L	*50.5*		*99.0*	*82-121*			
Surrogate: 4-Bromofluorobenzene	*49.9*		ug/L	*50.2*		*99.4*	*78-121*			
Surrogate: 4-Bromofluorobenzene	*49.9*		ug/L	*50.2*		*99.4*	*80-116*			
LCS Dup (1HJ1355-BSD2)				Prepared: 10/22/24 00:00 Analyzed: 10/22/24 23:23						
Chloromethane	30.71	1.0	ug/L	30.3		101	63-155	5.45	24	
Vinyl Chloride	28.82	1.0	ug/L	30.2		95.3	70-154	5.75	25	
Bromomethane	32.93	1.0	ug/L	30.1		109	52-176	3.15	27	
Chloroethane	26.09	1.0	ug/L	30.3		86.1	72-148	6.29	25	
Trichlorofluoromethane	24.13	1.0	ug/L	30.3		79.6	70-152	6.15	26	
1,1-Dichloroethylene	46.79	1.0	ug/L	50.1		93.3	70-148	5.92	24	
Acetone	114.9	10.0	ug/L	100		115	43-172	1.43	30	
Methyl Iodide	99.97	1.0	ug/L	100		100	69-170	6.06	30	
Methylene Chloride	47.98	5.0	ug/L	50.1		95.8	68-142	4.45	21	
Acrylonitrile	85.67	5.0	ug/L	50.2		171	56-135	0.128	16	Q2

Determination of Volatile Organic Compounds	Result	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 1HJ1355 - EPA 5030B - EPA 8260B										
LCS Dup (1HJ1355-BSD2)				Prepared: 10/22/24 00:00 Analyzed: 10/22/24 23:23						
trans-1,2-Dichloroethylene	49.63	1.0	ug/L	50.1		99.1	66-148	5.36	27	
1,1-Dichloroethane	49.54	1.0	ug/L	50.1		98.9	66-143	4.33	24	
Vinyl Acetate	96.42	5.0	ug/L	156		61.9	43-153	2.12	30	
cis-1,2-Dichloroethylene	49.70	1.0	ug/L	50.4		98.7	71-149	4.74	26	
2-Butanone (MEK)	102.5	10.0	ug/L	100		103	52-159	1.90	27	
Bromochloromethane	50.70	1.0	ug/L	50.4		101	69-143	3.53	23	
Chloroform	49.23	1.0	ug/L	50.1		98.3	69-144	4.36	23	
1,1,1-Trichloroethane	47.79	1.0	ug/L	50.1		95.4	62-129	4.93	24	
Carbon Tetrachloride	48.48	1.0	ug/L	50.1		96.8	63-141	5.38	25	
Benzene	53.03	1.0	ug/L	50.4		105	71-134	5.03	24	
1,2-Dichloroethane	58.60	1.0	ug/L	50.1		117	72-132	5.25	24	
Trichloroethylene	50.92	1.0	ug/L	50.1		102	71-135	4.48	24	
1,2-Dichloropropane	52.85	1.0	ug/L	50.1		106	69-136	3.88	24	
Dibromomethane	53.93	1.0	ug/L	50.4		107	73-147	2.82	25	
Bromodichloromethane	52.53	1.0	ug/L	50.1		105	68-129	4.26	22	
cis-1,3-Dichloropropene	49.95	1.0	ug/L	50.1		99.7	65-134	3.90	23	
4-Methyl-2-pentanone (MIBK)	113.3	5.0	ug/L	100		113	58-147	1.14	27	
Toluene	51.29	1.0	ug/L	50.5		102	72-133	4.81	24	
trans-1,3-Dichloropropene	51.27	1.0	ug/L	50.1		102	67-130	2.89	24	
1,1,2-Trichloroethane	51.40	1.0	ug/L	50.1		103	69-135	2.86	23	
Tetrachloroethylene	51.29	1.0	ug/L	50.1		102	69-130	3.86	25	
2-Hexanone (MBK)	108.9	5.0	ug/L	100		109	55-144	4.52	25	
Dibromochloromethane	52.05	1.0	ug/L	50.1		104	73-127	1.82	22	
1,2-Dibromoethane	52.70	1.0	ug/L	50.2		105	67-132	0.724	24	
Chlorobenzene	51.95	1.0	ug/L	50.1		104	72-123	4.25	23	
1,1,1,2-Tetrachloroethane	53.49	1.0	ug/L	50.3		106	73-127	2.06	24	
Ethylbenzene	54.56	1.0	ug/L	50.2		109	71-127	4.17	26	
Xylenes, total	158.8	2.0	ug/L	151		105	74-127	4.02	25	
Styrene	54.10	1.0	ug/L	50.4		107	66-126	3.14	23	
Bromoform	50.66	1.0	ug/L	50.1		101	68-130	0.0987	23	
1,2,3-Trichloropropane	52.37	1.0	ug/L	50.3		104	63-136	0.590	24	
trans-1,4-Dichloro-2-butene	100.2	5.0	ug/L	100		100	54-134	0.676	27	
1,1,2,2-Tetrachloroethane	53.17	1.0	ug/L	50.1		106	61-131	0.0753	29	
1,4-Dichlorobenzene	50.24	1.0	ug/L	50.1		100	70-129	3.30	24	
1,2-Dichlorobenzene	51.54	1.0	ug/L	50.1		103	69-126	3.49	26	
1,2-Dibromo-3-chloropropane	45.39	5.0	ug/L	50.1		90.5	50-143	2.82	30	
Surrogate: Dibromofluoromethane	*47.1*		ug/L	*50.2*		*93.7*	*57-134*			
Surrogate: Dibromofluoromethane	*47.1*		ug/L	*50.2*		*93.7*	*75-136*			
Surrogate: 1,2-Dichloroethane-d4	*49.9*		ug/L	*50.4*		*99.0*	*53-140*			
Surrogate: 1,2-Dichloroethane-d4	*49.9*		ug/L	*50.4*		*99.0*	*61-142*			
Surrogate: Toluene-d8	*50.3*		ug/L	*50.5*		*99.6*	*86-114*			
Surrogate: Toluene-d8	*50.3*		ug/L	*50.5*		*99.6*	*82-121*			
Surrogate: 4-Bromofluorobenzene	*50.0*		ug/L	*50.2*		*99.7*	*78-121*			

Determination of Volatile Organic Compounds	Result	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 1HJ1355 - EPA 5030B - EPA 8260B										
LCS Dup (1HJ1355-BSD2)			Prepared: 10/22/24 00:00 Analyzed: 10/22/24 23:23							
Surrogate: 4-Bromofluorobenzene	*50.0*		ug/L	*50.2*		*99.7*	*80-116*			
Matrix Spike (1HJ1355-MS1)	**Source: 1HJ1617-04**		Prepared: 10/22/24 00:00 Analyzed: 10/22/24 21:30							
Chloromethane	324.6	10.0	ug/L	303	ND	107	61-152			
Vinyl Chloride	301.7	10.0	ug/L	302	ND	99.7	66-149			
Bromomethane	309.7	10.0	ug/L	301	ND	103	43-171			
Chloroethane	258.7	10.0	ug/L	303	ND	85.3	69-148			
Trichlorofluoromethane	247.4	10.0	ug/L	303	ND	81.6	62-163			
1,1-Dichloroethylene	462.5	10.0	ug/L	501	ND	92.3	70-148			
Acetone	1159	100	ug/L	1000	ND	116	45-173			
Methyl Iodide	924.2	10.0	ug/L	1000	ND	92.4	62-167			
Carbon Disulfide	695.9	10.0	ug/L	1000	ND	69.6	71-163			M2
Methylene Chloride	462.2	50.0	ug/L	501	ND	92.2	69-140			
Acrylonitrile	851.1	50.0	ug/L	502	ND	170	38-147			M1
trans-1,2-Dichloroethylene	480.0	10.0	ug/L	501	ND	95.8	69-144			
1,1-Dichloroethane	471.5	10.0	ug/L	501	ND	94.1	70-138			
Vinyl Acetate	942.3	50.0	ug/L	1560	ND	60.5	58-142			
cis-1,2-Dichloroethylene	473.8	10.0	ug/L	504	ND	94.1	68-151			
2-Butanone (MEK)	1008	100	ug/L	1000	ND	101	50-160			
Bromochloromethane	480.3	10.0	ug/L	504	ND	95.3	65-143			
Chloroform	465.8	10.0	ug/L	501	ND	93.0	71-143			
1,1,1-Trichloroethane	461.2	10.0	ug/L	501	ND	92.0	63-133			
Carbon Tetrachloride	467.1	10.0	ug/L	501	ND	93.3	63-142			
Benzene	500.9	10.0	ug/L	504	ND	99.3	69-133			
1,2-Dichloroethane	545.7	10.0	ug/L	501	ND	109	63-138			
Trichloroethylene	481.7	10.0	ug/L	501	ND	96.2	71-133			
1,2-Dichloropropane	493.0	10.0	ug/L	501	ND	98.4	69-132			
Dibromomethane	513.5	10.0	ug/L	504	ND	102	70-147			
Bromodichloromethane	495.7	10.0	ug/L	501	ND	99.0	67-130			
cis-1,3-Dichloropropene	467.2	10.0	ug/L	501	ND	93.3	61-126			
4-Methyl-2-pentanone (MIBK)	1094	50.0	ug/L	1000	ND	109	55-147			
Toluene	477.2	10.0	ug/L	505	ND	94.5	71-133			
trans-1,3-Dichloropropene	479.1	10.0	ug/L	501	ND	95.7	63-124			
1,1,2-Trichloroethane	496.8	10.0	ug/L	501	ND	99.2	69-133			
Tetrachloroethylene	496.4	10.0	ug/L	501	ND	99.1	70-124			
2-Hexanone (MBK)	1076	50.0	ug/L	1000	ND	108	53-141			
Dibromochloromethane	493.7	10.0	ug/L	501	ND	98.6	74-122			
1,2-Dibromoethane	506.1	10.0	ug/L	502	ND	101	66-127			
Chlorobenzene	488.0	10.0	ug/L	501	ND	97.4	76-116			
1,1,1,2-Tetrachloroethane	510.3	10.0	ug/L	503	ND	101	77-121			
Ethylbenzene	515.0	10.0	ug/L	502	ND	103	73-124			
Xylenes, total	1500	20.0	ug/L	1510	ND	99.3	75-123			
Styrene	512.2	10.0	ug/L	504	ND	102	70-120			

Determination of Volatile Organic Compounds	Result	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 1HJ1355 - EPA 5030B - EPA 8260B										
Matrix Spike (1HJ1355-MS1)	**Source: 1HJ1617-04**	Prepared: 10/22/24 00:00 Analyzed: 10/22/24 21:30								
Bromoform	486.4	10.0	ug/L	501	ND	97.1	70-124			
1,2,3-Trichloropropane	505.2	10.0	ug/L	503	ND	100	62-135			
trans-1,4-Dichloro-2-butene	980.9	50.0	ug/L	1000	ND	98.1	50-120			
1,1,2,2-Tetrachloroethane	503.5	10.0	ug/L	501	ND	100	63-126			
1,4-Dichlorobenzene	468.5	10.0	ug/L	501	ND	93.5	72-119			
1,2-Dichlorobenzene	484.2	10.0	ug/L	501	ND	96.7	71-117			
1,2-Dibromo-3-chloropropane	431.1	50.0	ug/L	501	ND	86.0	49-134			
Surrogate: Dibromofluoromethane	*469*		ug/L	*502*		*93.3*	*57-134*			
Surrogate: Dibromofluoromethane	*469*		ug/L	*502*		*93.3*	*75-136*			
Surrogate: 1,2-Dichloroethane-d4	*492*		ug/L	*504*		*97.7*	*53-140*			
Surrogate: 1,2-Dichloroethane-d4	*492*		ug/L	*504*		*97.7*	*61-142*			
Surrogate: Toluene-d8	*498*		ug/L	*505*		*98.7*	*86-114*			
Surrogate: Toluene-d8	*498*		ug/L	*505*		*98.7*	*82-121*			
Surrogate: 4-Bromofluorobenzene	*500*		ug/L	*502*		*99.7*	*78-121*			
Surrogate: 4-Bromofluorobenzene	*500*		ug/L	*502*		*99.7*	*80-116*			
Matrix Spike (1HJ1355-MS2)	**Source: 1HJ1633-01**	Prepared: 10/22/24 00:00 Analyzed: 10/23/24 08:04								
Chloromethane	343.5	10.0	ug/L	303	ND	113	61-152			
Vinyl Chloride	324.7	10.0	ug/L	302	ND	107	66-149			
Bromomethane	302.5	10.0	ug/L	301	ND	100	43-171			
Chloroethane	276.1	10.0	ug/L	303	ND	91.1	69-148			
Trichlorofluoromethane	265.2	10.0	ug/L	303	ND	87.5	62-163			
1,1-Dichloroethylene	497.4	10.0	ug/L	501	ND	99.2	70-148			
Acetone	1254	100	ug/L	1000	ND	125	45-173			
Methyl Iodide	884.6	10.0	ug/L	1000	ND	88.5	62-167			
Methylene Chloride	483.5	50.0	ug/L	501	ND	96.5	69-140			
Acrylonitrile	917.8	50.0	ug/L	502	ND	183	38-147			M1
trans-1,2-Dichloroethylene	512.1	10.0	ug/L	501	ND	102	69-144			
1,1-Dichloroethane	500.1	10.0	ug/L	501	ND	99.8	70-138			
Vinyl Acetate	947.6	50.0	ug/L	1560	ND	60.8	58-142			
cis-1,2-Dichloroethylene	478.9	10.0	ug/L	504	ND	95.1	68-151			
2-Butanone (MEK)	1062	100	ug/L	1000	ND	106	50-160			
Bromochloromethane	501.9	10.0	ug/L	504	ND	99.6	65-143			
Chloroform	488.7	10.0	ug/L	501	ND	97.6	71-143			
1,1,1-Trichloroethane	483.0	10.0	ug/L	501	ND	96.4	63-133			
Carbon Tetrachloride	495.1	10.0	ug/L	501	ND	98.8	63-142			
Benzene	533.9	10.0	ug/L	504	ND	106	69-133			
1,2-Dichloroethane	568.6	10.0	ug/L	501	ND	114	63-138			
Trichloroethylene	509.8	10.0	ug/L	501	ND	102	71-133			
1,2-Dichloropropane	518.2	10.0	ug/L	501	ND	103	69-132			
Dibromomethane	531.1	10.0	ug/L	504	ND	105	70-147			
Bromodichloromethane	518.8	10.0	ug/L	501	ND	104	67-130			
cis-1,3-Dichloropropene	467.6	10.0	ug/L	501	ND	93.4	61-126			
4-Methyl-2-pentanone (MIBK)	1175	50.0	ug/L	1000	ND	118	55-147			

Determination of Volatile Organic Compounds	Result	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 1HJ1355 - EPA 5030B - EPA 8260B										
Matrix Spike (1HJ1355-MS2)	**Source: 1HJ1633-01**	Prepared: 10/22/24 00:00 Analyzed: 10/23/24 08:04								
Toluene	508.7	10.0	ug/L	505	ND	101	71-133			
trans-1,3-Dichloropropene	478.6	10.0	ug/L	501	ND	95.6	63-124			
1,1,2-Trichloroethane	509.2	10.0	ug/L	501	ND	102	69-133			
Tetrachloroethylene	516.7	10.0	ug/L	501	ND	103	70-124			
2-Hexanone (MBK)	1149	50.0	ug/L	1000	ND	115	53-141			
Dibromochloromethane	514.5	10.0	ug/L	501	ND	103	74-122			
1,2-Dibromoethane	524.5	10.0	ug/L	502	ND	104	66-127			
Chlorobenzene	511.2	10.0	ug/L	501	ND	102	76-116			
1,1,1,2-Tetrachloroethane	528.1	10.0	ug/L	503	ND	105	77-121			
Ethylbenzene	543.3	10.0	ug/L	502	ND	108	73-124			
Xylenes, total	1584	20.0	ug/L	1510	ND	105	75-123			
Styrene	537.3	10.0	ug/L	504	ND	107	70-120			
Bromoform	502.3	10.0	ug/L	501	ND	100	70-124			
1,2,3-Trichloropropane	542.0	10.0	ug/L	503	ND	108	62-135			
trans-1,4-Dichloro-2-butene	961.2	50.0	ug/L	1000	ND	96.1	50-120			
1,1,2,2-Tetrachloroethane	540.0	10.0	ug/L	501	ND	108	63-126			
1,4-Dichlorobenzene	491.4	10.0	ug/L	501	ND	98.0	72-119			
1,2-Dichlorobenzene	507.4	10.0	ug/L	501	ND	101	71-117			
1,2-Dibromo-3-chloropropane	467.9	50.0	ug/L	501	ND	93.3	49-134			
Surrogate: Dibromofluoromethane	*468*		ug/L	*502*		*93.3*	*57-134*			
Surrogate: Dibromofluoromethane	*468*		ug/L	*502*		*93.3*	*75-136*			
Surrogate: 1,2-Dichloroethane-d4	*499*		ug/L	*504*		*99.1*	*53-140*			
Surrogate: 1,2-Dichloroethane-d4	*499*		ug/L	*504*		*99.1*	*61-142*			
Surrogate: Toluene-d8	*502*		ug/L	*505*		*99.4*	*86-114*			
Surrogate: Toluene-d8	*502*		ug/L	*505*		*99.4*	*82-121*			
Surrogate: 4-Bromofluorobenzene	*500*		ug/L	*502*		*99.6*	*78-121*			
Surrogate: 4-Bromofluorobenzene	*500*		ug/L	*502*		*99.6*	*80-116*			
Matrix Spike Dup (1HJ1355-MSD1)	**Source: 1HJ1617-04**	Prepared: 10/22/24 00:00 Analyzed: 10/22/24 21:53								
Chloromethane	324.4	10.0	ug/L	303	ND	107	61-152	0.0616	26	
Vinyl Chloride	309.5	10.0	ug/L	302	ND	102	66-149	2.55	23	
Bromomethane	331.1	10.0	ug/L	301	ND	110	43-171	6.68	29	
Chloroethane	264.9	10.0	ug/L	303	ND	87.4	69-148	2.37	25	
Trichlorofluoromethane	253.9	10.0	ug/L	303	ND	83.8	62-163	2.59	25	
1,1-Dichloroethylene	477.1	10.0	ug/L	501	ND	95.2	70-148	3.11	22	
Acetone	1142	100	ug/L	1000	ND	114	45-173	1.46	30	
Methyl Iodide	988.7	10.0	ug/L	1000	ND	98.9	62-167	6.74	24	
Carbon Disulfide	710.0	10.0	ug/L	1000	ND	71.0	71-163	2.01	22	
Methylene Chloride	462.7	50.0	ug/L	501	ND	92.3	69-140	0.108	19	
Acrylonitrile	857.2	50.0	ug/L	502	ND	171	38-147	0.714	30	M1
trans-1,2-Dichloroethylene	489.0	10.0	ug/L	501	ND	97.6	69-144	1.86	22	
1,1-Dichloroethane	483.6	10.0	ug/L	501	ND	96.5	70-138	2.53	20	
Vinyl Acetate	954.5	50.0	ug/L	1560	ND	61.3	58-142	1.29	24	
cis-1,2-Dichloroethylene	487.0	10.0	ug/L	504	ND	96.7	68-151	2.75	22	

Determination of Volatile Organic Compounds	Result	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 1HJ1355 - EPA 5030B - EPA 8260B										
Matrix Spike Dup (1HJ1355-MSD1)	**Source: 1HJ1617-04**	Prepared: 10/22/24 00:00 Analyzed: 10/22/24 21:53								
2-Butanone (MEK)	1020	100	ug/L	1000	ND	102	50-160	1.24	23	
Bromochloromethane	486.8	10.0	ug/L	504	ND	96.6	65-143	1.34	22	
Chloroform	476.3	10.0	ug/L	501	ND	95.1	71-143	2.23	21	
1,1,1-Trichloroethane	477.9	10.0	ug/L	501	ND	95.4	63-133	3.56	23	
Carbon Tetrachloride	489.4	10.0	ug/L	501	ND	97.7	63-142	4.66	22	
Benzene	516.3	10.0	ug/L	504	ND	102	69-133	3.03	18	
1,2-Dichloroethane	545.3	10.0	ug/L	501	ND	109	63-138	0.0733	20	
Trichloroethylene	497.0	10.0	ug/L	501	ND	99.2	71-133	3.13	23	
1,2-Dichloropropane	501.2	10.0	ug/L	501	ND	100	69-132	1.65	20	
Dibromomethane	514.0	10.0	ug/L	504	ND	102	70-147	0.0973	22	
Bromodichloromethane	501.3	10.0	ug/L	501	ND	100	67-130	1.12	21	
cis-1,3-Dichloropropene	477.0	10.0	ug/L	501	ND	95.2	61-126	2.08	21	
4-Methyl-2-pentanone (MIBK)	1107	50.0	ug/L	1000	ND	111	55-147	1.15	23	
Toluene	494.7	10.0	ug/L	505	ND	98.0	71-133	3.60	19	
trans-1,3-Dichloropropene	486.4	10.0	ug/L	501	ND	97.1	63-124	1.51	21	
1,1,2-Trichloroethane	491.7	10.0	ug/L	501	ND	98.2	69-133	1.03	19	
Tetrachloroethylene	507.2	10.0	ug/L	501	ND	101	70-124	2.15	24	
2-Hexanone (MBK)	1078	50.0	ug/L	1000	ND	108	53-141	0.204	24	
Dibromochloromethane	495.2	10.0	ug/L	501	ND	98.9	74-122	0.303	21	
1,2-Dibromoethane	505.5	10.0	ug/L	502	ND	101	66-127	0.119	23	
Chlorobenzene	496.0	10.0	ug/L	501	ND	99.0	76-116	1.63	21	
1,1,1,2-Tetrachloroethane	516.0	10.0	ug/L	503	ND	102	77-121	1.11	25	
Ethylbenzene	531.7	10.0	ug/L	502	ND	106	73-124	3.19	20	
Xylenes, total	1540	20.0	ug/L	1510	ND	102	75-123	2.64	20	
Styrene	518.9	10.0	ug/L	504	ND	103	70-120	1.30	23	
Bromoform	487.0	10.0	ug/L	501	ND	97.2	70-124	0.123	22	
1,2,3-Trichloropropane	505.8	10.0	ug/L	503	ND	100	62-135	0.119	28	
trans-1,4-Dichloro-2-butene	978.5	50.0	ug/L	1000	ND	97.8	50-120	0.245	26	
1,1,2,2-Tetrachloroethane	515.7	10.0	ug/L	501	ND	103	63-126	2.39	24	
1,4-Dichlorobenzene	483.9	10.0	ug/L	501	ND	96.5	72-119	3.23	24	
1,2-Dichlorobenzene	495.3	10.0	ug/L	501	ND	98.9	71-117	2.27	24	
1,2-Dibromo-3-chloropropane	440.1	50.0	ug/L	501	ND	87.8	49-134	2.07	28	
Surrogate: Dibromofluoromethane	*472*		ug/L	*502*		*94.0*	*57-134*			
Surrogate: Dibromofluoromethane	*472*		ug/L	*502*		*94.0*	*75-136*			
Surrogate: 1,2-Dichloroethane-d4	*500*		ug/L	*504*		*99.4*	*53-140*			
Surrogate: 1,2-Dichloroethane-d4	*500*		ug/L	*504*		*99.4*	*61-142*			
Surrogate: Toluene-d8	*501*		ug/L	*505*		*99.3*	*86-114*			
Surrogate: Toluene-d8	*501*		ug/L	*505*		*99.3*	*82-121*			
Surrogate: 4-Bromofluorobenzene	*496*		ug/L	*502*		*98.9*	*78-121*			
Surrogate: 4-Bromofluorobenzene	*496*		ug/L	*502*		*98.9*	*80-116*			
Matrix Spike Dup (1HJ1355-MSD2)	**Source: 1HJ1633-01**	Prepared: 10/22/24 00:00 Analyzed: 10/23/24 08:26								
Chloromethane	327.6	10.0	ug/L	303	ND	108	61-152	4.74	26	
Vinyl Chloride	307.4	10.0	ug/L	302	ND	102	66-149	5.47	23	

Determination of Volatile Organic Compounds	Result	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 1HJ1355 - EPA 5030B - EPA 8260B										
Matrix Spike Dup (1HJ1355-MSD2)	**Source: 1HJ1633-01**	Prepared: 10/22/24 00:00 Analyzed: 10/23/24 08:26								
Bromomethane	317.8	10.0	ug/L	301	ND	106	43-171	4.93	29	
Chloroethane	268.4	10.0	ug/L	303	ND	88.5	69-148	2.83	25	
Trichlorofluoromethane	251.4	10.0	ug/L	303	ND	83.0	62-163	5.34	25	
1,1-Dichloroethylene	477.4	10.0	ug/L	501	ND	95.2	70-148	4.10	22	
Acetone	1207	100	ug/L	1000	ND	121	45-173	3.84	30	
Methyl Iodide	967.6	10.0	ug/L	1000	ND	96.8	62-167	8.96	24	
Methylene Chloride	472.5	50.0	ug/L	501	ND	94.3	69-140	2.30	19	
Acrylonitrile	880.4	50.0	ug/L	502	ND	175	38-147	4.16	30	M1
trans-1,2-Dichloroethylene	492.2	10.0	ug/L	501	ND	98.3	69-144	3.96	22	
1,1-Dichloroethane	493.4	10.0	ug/L	501	ND	98.5	70-138	1.35	20	
Vinyl Acetate	946.7	50.0	ug/L	1560	ND	60.8	58-142	0.0950	24	
cis-1,2-Dichloroethylene	475.5	10.0	ug/L	504	ND	94.4	68-151	0.712	22	
2-Butanone (MEK)	1046	100	ug/L	1000	ND	105	50-160	1.51	23	
Bromochloromethane	502.8	10.0	ug/L	504	ND	99.8	65-143	0.179	22	
Chloroform	484.2	10.0	ug/L	501	ND	96.7	71-143	0.925	21	
1,1,1-Trichloroethane	477.8	10.0	ug/L	501	ND	95.3	63-133	1.08	23	
Carbon Tetrachloride	486.6	10.0	ug/L	501	ND	97.1	63-142	1.73	22	
Benzene	525.0	10.0	ug/L	504	ND	104	69-133	1.68	18	
1,2-Dichloroethane	571.8	10.0	ug/L	501	ND	114	63-138	0.561	20	
Trichloroethylene	506.5	10.0	ug/L	501	ND	101	71-133	0.649	23	
1,2-Dichloropropane	519.4	10.0	ug/L	501	ND	104	69-132	0.231	20	
Dibromomethane	538.6	10.0	ug/L	504	ND	107	70-147	1.40	22	
Bromodichloromethane	518.9	10.0	ug/L	501	ND	104	67-130	0.0193	21	
cis-1,3-Dichloropropene	473.7	10.0	ug/L	501	ND	94.6	61-126	1.30	21	
4-Methyl-2-pentanone (MIBK)	1165	50.0	ug/L	1000	ND	117	55-147	0.854	23	
Toluene	503.6	10.0	ug/L	505	ND	99.8	71-133	1.01	19	
trans-1,3-Dichloropropene	488.9	10.0	ug/L	501	ND	97.6	63-124	2.13	21	
1,1,2-Trichloroethane	513.7	10.0	ug/L	501	ND	103	69-133	0.880	19	
Tetrachloroethylene	509.7	10.0	ug/L	501	ND	102	70-124	1.36	24	
2-Hexanone (MBK)	1132	50.0	ug/L	1000	ND	113	53-141	1.53	24	
Dibromochloromethane	516.0	10.0	ug/L	501	ND	103	74-122	0.291	21	
1,2-Dibromoethane	523.5	10.0	ug/L	502	ND	104	66-127	0.191	23	
Chlorobenzene	510.9	10.0	ug/L	501	ND	102	76-116	0.0587	21	
1,1,1,2-Tetrachloroethane	525.7	10.0	ug/L	503	ND	104	77-121	0.455	25	
Ethylbenzene	540.3	10.0	ug/L	502	ND	108	73-124	0.554	20	
Xylenes, total	1583	20.0	ug/L	1510	ND	105	75-123	0.0316	20	
Styrene	540.7	10.0	ug/L	504	ND	107	70-120	0.631	23	
Bromoform	506.4	10.0	ug/L	501	ND	101	70-124	0.813	22	
1,2,3-Trichloropropane	535.8	10.0	ug/L	503	ND	106	62-135	1.15	28	
trans-1,4-Dichloro-2-butene	955.3	50.0	ug/L	1000	ND	95.5	50-120	0.616	26	
1,1,2,2-Tetrachloroethane	542.7	10.0	ug/L	501	ND	108	63-126	0.499	24	
1,4-Dichlorobenzene	489.8	10.0	ug/L	501	ND	97.7	72-119	0.326	24	
1,2-Dichlorobenzene	505.3	10.0	ug/L	501	ND	101	71-117	0.415	24	

Determination of Volatile Organic Compounds	Result	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 1HJ1355 - EPA 5030B - EPA 8260B										
Matrix Spike Dup (1HJ1355-MSD2)	**Source: 1HJ1633-01**		Prepared: 10/22/24 00:00 Analyzed: 10/23/24 08:26							
1,2-Dibromo-3-chloropropane	462.9	50.0	ug/L	501	ND	92.3	49-134	1.07	28	
Surrogate: Dibromofluoromethane	*467*		ug/L	*502*		*93.1*	*57-134*			
Surrogate: Dibromofluoromethane	*467*		ug/L	*502*		*93.1*	*75-136*			
Surrogate: 1,2-Dichloroethane-d4	*500*		ug/L	*504*		*99.2*	*53-140*			
Surrogate: 1,2-Dichloroethane-d4	*500*		ug/L	*504*		*99.2*	*61-142*			
Surrogate: Toluene-d8	*498*		ug/L	*505*		*98.7*	*86-114*			
Surrogate: Toluene-d8	*498*		ug/L	*505*		*98.7*	*82-121*			
Surrogate: 4-Bromofluorobenzene	*504*		ug/L	*502*		*100*	*78-121*			
Surrogate: 4-Bromofluorobenzene	*504*		ug/L	*502*		*100*	*80-116*			
Batch 1HJ1517 - EPA 5030B - EPA 8260B										
Blank (1HJ1517-BLK1)			Prepared: 10/23/24 00:00 Analyzed: 10/23/24 15:48							
Dichlorodifluoromethane	<1.0	1.0	ug/L							
Chloromethane	<1.0	1.0	ug/L							
Vinyl Chloride	<1.0	1.0	ug/L							
Bromomethane	<1.0	1.0	ug/L							
Chloroethane	<1.0	1.0	ug/L							
Trichlorofluoromethane	<1.0	1.0	ug/L							
1,1-Dichloroethylene	<1.0	1.0	ug/L							
Acetone	<10.0	10.0	ug/L							
Methyl Iodide	<1.0	1.0	ug/L							
Carbon Disulfide	<1.0	1.0	ug/L							
Methylene Chloride	<5.0	5.0	ug/L							
Acrylonitrile	<5.0	5.0	ug/L							
trans-1,2-Dichloroethylene	<1.0	1.0	ug/L							
1,1-Dichloroethane	<1.0	1.0	ug/L							
Vinyl Acetate	<5.0	5.0	ug/L							
cis-1,2-Dichloroethylene	<1.0	1.0	ug/L							
2-Butanone (MEK)	<10.0	10.0	ug/L							
Bromochloromethane	<1.0	1.0	ug/L							
Chloroform	<1.0	1.0	ug/L							
1,1,1-Trichloroethane	<1.0	1.0	ug/L							
Carbon Tetrachloride	<1.0	1.0	ug/L							
Benzene	<1.0	1.0	ug/L							
1,2-Dichloroethane	<1.0	1.0	ug/L							
Trichloroethylene	<1.0	1.0	ug/L							
1,2-Dichloropropane	<1.0	1.0	ug/L							
Dibromomethane	<1.0	1.0	ug/L							
Bromodichloromethane	<1.0	1.0	ug/L							
cis-1,3-Dichloropropene	<1.0	1.0	ug/L							
4-Methyl-2-pentanone (MIBK)	<5.0	5.0	ug/L							
Toluene	<1.0	1.0	ug/L							
trans-1,3-Dichloropropene	<1.0	1.0	ug/L							

Determination of Volatile Organic Compounds	Result	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 1HJ1517 - EPA 5030B - EPA 8260B										
Blank (1HJ1517-BLK1)			Prepared: 10/23/24 00:00 Analyzed: 10/23/24 15:48							
1,1,2-Trichloroethane	<1.0	1.0	ug/L							
Tetrachloroethylene	<1.0	1.0	ug/L							
2-Hexanone (MBK)	<5.0	5.0	ug/L							
Dibromochloromethane	<1.0	1.0	ug/L							
1,2-Dibromoethane	<1.0	1.0	ug/L							
Chlorobenzene	<1.0	1.0	ug/L							
1,1,1,2-Tetrachloroethane	<1.0	1.0	ug/L							
Ethylbenzene	<1.0	1.0	ug/L							
Xylenes, total	<2.0	2.0	ug/L							
Styrene	<1.0	1.0	ug/L							
Bromoform	<1.0	1.0	ug/L							
1,2,3-Trichloropropane	<1.0	1.0	ug/L							
trans-1,4-Dichloro-2-butene	<5.0	5.0	ug/L							
1,1,2,2-Tetrachloroethane	<1.0	1.0	ug/L							
1,4-Dichlorobenzene	<1.0	1.0	ug/L							
1,2-Dichlorobenzene	<1.0	1.0	ug/L							
1,2-Dibromo-3-chloropropane	<5.0	5.0	ug/L							
Surrogate: Dibromofluoromethane	*47.5*		ug/L	*50.2*		*94.6*	*57-134*			
Surrogate: Dibromofluoromethane	*47.5*		ug/L	*50.2*		*94.6*	*75-136*			
Surrogate: 1,2-Dichloroethane-d4	*50.8*		ug/L	*50.4*		*101*	*53-140*			
Surrogate: 1,2-Dichloroethane-d4	*50.8*		ug/L	*50.4*		*101*	*61-142*			
Surrogate: Toluene-d8	*47.8*		ug/L	*50.5*		*94.7*	*86-114*			
Surrogate: Toluene-d8	*47.8*		ug/L	*50.5*		*94.7*	*82-121*			
Surrogate: 4-Bromofluorobenzene	*49.9*		ug/L	*50.2*		*99.4*	*78-121*			
Surrogate: 4-Bromofluorobenzene	*49.9*		ug/L	*50.2*		*99.4*	*80-116*			
LCS (1HJ1517-BS1)			Prepared: 10/23/24 00:00 Analyzed: 10/23/24 14:41							
Dichlorodifluoromethane	26.38	1.0	ug/L	30.3		87.1	49-138			
Chloromethane	35.40	1.0	ug/L	30.3		117	63-155			
Vinyl Chloride	35.61	1.0	ug/L	30.2		118	70-154			
Bromomethane	38.05	1.0	ug/L	30.1		126	52-176			
Chloroethane	28.14	1.0	ug/L	30.3		92.8	72-148			
Trichlorofluoromethane	27.24	1.0	ug/L	30.3		89.9	70-152			
1,1-Dichloroethylene	46.21	1.0	ug/L	50.1		92.2	70-148			
Acetone	89.83	10.0	ug/L	100		89.8	43-172			
Methyl Iodide	87.27	1.0	ug/L	100		87.3	69-170			
Carbon Disulfide	83.54	1.0	ug/L	100		83.5	72-162			
Methylene Chloride	44.70	5.0	ug/L	50.1		89.2	68-142			
Acrylonitrile	36.52	5.0	ug/L	50.2		72.7	56-135			
trans-1,2-Dichloroethylene	47.38	1.0	ug/L	50.1		94.6	66-148			
1,1-Dichloroethane	46.66	1.0	ug/L	50.1		93.1	66-143			
Vinyl Acetate	134.3	5.0	ug/L	156		86.2	43-153			
cis-1,2-Dichloroethylene	47.08	1.0	ug/L	50.4		93.5	71-149			
2-Butanone (MEK)	76.94	10.0	ug/L	100		76.9	52-159			

Determination of Volatile Organic Compounds	Result	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 1HJ1517 - EPA 5030B - EPA 8260B										
LCS (1HJ1517-BS1)				Prepared: 10/23/24 00:00 Analyzed: 10/23/24 14:41						
Bromochloromethane	46.35	1.0	ug/L	50.4		92.0	69-143			
Chloroform	45.57	1.0	ug/L	50.1		91.0	69-144			
1,1,1-Trichloroethane	45.87	1.0	ug/L	50.1		91.5	62-129			
Carbon Tetrachloride	46.22	1.0	ug/L	50.1		92.3	63-141			
Benzene	49.62	1.0	ug/L	50.4		98.4	71-134			
1,2-Dichloroethane	50.74	1.0	ug/L	50.1		101	72-132			
Trichloroethylene	48.04	1.0	ug/L	50.1		95.9	71-135			
1,2-Dichloropropane	48.22	1.0	ug/L	50.1		96.3	69-136			
Dibromomethane	45.88	1.0	ug/L	50.4		91.1	73-147			
Bromodichloromethane	47.45	1.0	ug/L	50.1		94.7	68-129			
cis-1,3-Dichloropropene	46.32	1.0	ug/L	50.1		92.5	65-134			
4-Methyl-2-pentanone (MIBK)	88.52	5.0	ug/L	100		88.5	58-147			
Toluene	47.79	1.0	ug/L	50.5		94.7	72-133			
trans-1,3-Dichloropropene	45.61	1.0	ug/L	50.1		91.1	67-130			
1,1,2-Trichloroethane	45.10	1.0	ug/L	50.1		90.0	69-135			
Tetrachloroethylene	49.26	1.0	ug/L	50.1		98.3	69-130			
2-Hexanone (MBK)	86.67	5.0	ug/L	100		86.7	55-144			
Dibromochloromethane	47.51	1.0	ug/L	50.1		94.9	73-127			
1,2-Dibromoethane	46.14	1.0	ug/L	50.2		91.9	67-132			
Chlorobenzene	48.53	1.0	ug/L	50.1		96.9	72-123			
1,1,1,2-Tetrachloroethane	49.21	1.0	ug/L	50.3		97.7	73-127			
Ethylbenzene	51.30	1.0	ug/L	50.2		102	71-127			
Xylenes, total	148.1	2.0	ug/L	151		98.0	74-127			
Styrene	50.16	1.0	ug/L	50.4		99.6	66-126			
Bromoform	45.02	1.0	ug/L	50.1		89.8	68-130			
1,2,3-Trichloropropane	44.34	1.0	ug/L	50.3		88.1	63-136			
trans-1,4-Dichloro-2-butene	93.16	5.0	ug/L	100		93.2	54-134			
1,1,2,2-Tetrachloroethane	43.80	1.0	ug/L	50.1		87.4	61-131			
1,4-Dichlorobenzene	47.15	1.0	ug/L	50.1		94.1	70-129			
1,2-Dichlorobenzene	46.26	1.0	ug/L	50.1		92.3	69-126			
1,2-Dibromo-3-chloropropane	35.99	5.0	ug/L	50.1		71.8	50-143			
Surrogate: Dibromofluoromethane	*46.5*		ug/L	*50.2*		*92.7*	*57-134*			
Surrogate: Dibromofluoromethane	*46.5*		ug/L	*50.2*		*92.7*	*75-136*			
Surrogate: 1,2-Dichloroethane-d4	*48.2*		ug/L	*50.4*		*95.7*	*53-140*			
Surrogate: 1,2-Dichloroethane-d4	*48.2*		ug/L	*50.4*		*95.7*	*61-142*			
Surrogate: Toluene-d8	*49.3*		ug/L	*50.5*		*97.7*	*86-114*			
Surrogate: Toluene-d8	*49.3*		ug/L	*50.5*		*97.7*	*82-121*			
Surrogate: 4-Bromofluorobenzene	*50.1*		ug/L	*50.2*		*99.9*	*78-121*			
Surrogate: 4-Bromofluorobenzene	*50.1*		ug/L	*50.2*		*99.9*	*80-116*			
LCS Dup (1HJ1517-BSD1)				Prepared: 10/23/24 00:00 Analyzed: 10/23/24 15:03						
Dichlorodifluoromethane	25.38	1.0	ug/L	30.3		83.8	49-138	3.86	22	
Chloromethane	34.61	1.0	ug/L	30.3		114	63-155	2.26	24	
Vinyl Chloride	34.44	1.0	ug/L	30.2		114	70-154	3.34	25	

Determination of Volatile Organic Compounds	Result	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 1HJ1517 - EPA 5030B - EPA 8260B										
LCS Dup (1HJ1517-BSD1)				Prepared: 10/23/24 00:00 Analyzed: 10/23/24 15:03						
Bromomethane	37.51	1.0	ug/L	30.1		125	52-176	1.43	27	
Chloroethane	27.84	1.0	ug/L	30.3		91.8	72-148	1.07	25	
Trichlorofluoromethane	26.64	1.0	ug/L	30.3		87.9	70-152	2.23	26	
1,1-Dichloroethylene	45.54	1.0	ug/L	50.1		90.9	70-148	1.46	24	
Acetone	108.4	10.0	ug/L	100		108	43-172	18.8	30	
Methyl Iodide	86.62	1.0	ug/L	100		86.6	69-170	0.748	30	
Carbon Disulfide	82.34	1.0	ug/L	100		82.3	72-162	1.45	24	
Methylene Chloride	45.42	5.0	ug/L	50.1		90.6	68-142	1.60	21	
Acrylonitrile	42.39	5.0	ug/L	50.2		84.4	56-135	14.9	16	
trans-1,2-Dichloroethylene	47.64	1.0	ug/L	50.1		95.1	66-148	0.547	27	
1,1-Dichloroethane	47.82	1.0	ug/L	50.1		95.4	66-143	2.46	24	
Vinyl Acetate	147.8	5.0	ug/L	156		94.9	43-153	9.59	30	
cis-1,2-Dichloroethylene	48.41	1.0	ug/L	50.4		96.1	71-149	2.79	26	
2-Butanone (MEK)	98.33	10.0	ug/L	100		98.3	52-159	24.4	27	
Bromochloromethane	48.44	1.0	ug/L	50.4		96.1	69-143	4.41	23	
Chloroform	47.10	1.0	ug/L	50.1		94.0	69-144	3.30	23	
1,1,1-Trichloroethane	46.78	1.0	ug/L	50.1		93.3	62-129	1.96	24	
Carbon Tetrachloride	47.34	1.0	ug/L	50.1		94.5	63-141	2.39	25	
Benzene	51.27	1.0	ug/L	50.4		102	71-134	3.27	24	
1,2-Dichloroethane	53.94	1.0	ug/L	50.1		108	72-132	6.11	24	
Trichloroethylene	49.62	1.0	ug/L	50.1		99.1	71-135	3.24	24	
1,2-Dichloropropane	50.64	1.0	ug/L	50.1		101	69-136	4.90	24	
Dibromomethane	50.19	1.0	ug/L	50.4		99.6	73-147	8.97	25	
Bromodichloromethane	50.12	1.0	ug/L	50.1		100	68-129	5.47	22	
cis-1,3-Dichloropropene	49.34	1.0	ug/L	50.1		98.5	65-134	6.31	23	
4-Methyl-2-pentanone (MIBK)	112.2	5.0	ug/L	100		112	58-147	23.6	27	
Toluene	50.31	1.0	ug/L	50.5		99.7	72-133	5.14	24	
trans-1,3-Dichloropropene	49.33	1.0	ug/L	50.1		98.5	67-130	7.84	24	
1,1,2-Trichloroethane	49.31	1.0	ug/L	50.1		98.4	69-135	8.92	23	
Tetrachloroethylene	51.13	1.0	ug/L	50.1		102	69-130	3.73	25	
2-Hexanone (MBK)	113.5	5.0	ug/L	100		113	55-144	26.8	25	R1
Dibromochloromethane	50.88	1.0	ug/L	50.1		102	73-127	6.85	22	
1,2-Dibromoethane	51.43	1.0	ug/L	50.2		102	67-132	10.8	24	
Chlorobenzene	50.73	1.0	ug/L	50.1		101	72-123	4.43	23	
1,1,1,2-Tetrachloroethane	51.92	1.0	ug/L	50.3		103	73-127	5.36	24	
Ethylbenzene	53.34	1.0	ug/L	50.2		106	71-127	3.90	26	
Xylenes, total	155.5	2.0	ug/L	151		103	74-127	4.88	25	
Styrene	52.91	1.0	ug/L	50.4		105	66-126	5.34	23	
Bromoform	50.65	1.0	ug/L	50.1		101	68-130	11.8	23	
1,2,3-Trichloropropane	52.86	1.0	ug/L	50.3		105	63-136	17.5	24	
trans-1,4-Dichloro-2-butene	113.7	5.0	ug/L	100		114	54-134	19.8	27	
1,1,2,2-Tetrachloroethane	52.77	1.0	ug/L	50.1		105	61-131	18.6	29	
1,4-Dichlorobenzene	49.79	1.0	ug/L	50.1		99.3	70-129	5.45	24	

Determination of Volatile Organic Compounds	Result	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 1HJ1517 - EPA 5030B - EPA 8260B										
LCS Dup (1HJ1517-BSD1)				Prepared: 10/23/24 00:00 Analyzed: 10/23/24 15:03						
1,2-Dichlorobenzene	49.59	1.0	ug/L	50.1		99.0	69-126	6.95	26	
1,2-Dibromo-3-chloropropane	47.36	5.0	ug/L	50.1		94.5	50-143	27.3	30	
Surrogate: Dibromofluoromethane	*45.8*		ug/L	*50.2*		*91.2*	*57-134*			
Surrogate: Dibromofluoromethane	*45.8*		ug/L	*50.2*		*91.2*	*75-136*			
Surrogate: 1,2-Dichloroethane-d4	*48.7*		ug/L	*50.4*		*96.8*	*53-140*			
Surrogate: 1,2-Dichloroethane-d4	*48.7*		ug/L	*50.4*		*96.8*	*61-142*			
Surrogate: Toluene-d8	*49.7*		ug/L	*50.5*		*98.5*	*86-114*			
Surrogate: Toluene-d8	*49.7*		ug/L	*50.5*		*98.5*	*82-121*			
Surrogate: 4-Bromofluorobenzene	*50.1*		ug/L	*50.2*		*99.9*	*78-121*			
Surrogate: 4-Bromofluorobenzene	*50.1*		ug/L	*50.2*		*99.9*	*80-116*			
Matrix Spike (1HJ1517-MS1)	**Source: 1HJ1633-03**			Prepared: 10/23/24 00:00 Analyzed: 10/23/24 21:36						
Dichlorodifluoromethane	253.5	10.0	ug/L	300	ND	84.5	37-140			
Chloromethane	344.0	10.0	ug/L	300	ND	115	61-152			
Vinyl Chloride	317.5	10.0	ug/L	300	ND	106	66-149			
Bromomethane	337.7	10.0	ug/L	300	ND	113	43-171			
Chloroethane	276.1	10.0	ug/L	300	ND	92.0	69-148			
Trichlorofluoromethane	254.2	10.0	ug/L	300	ND	84.7	62-163			
1,1-Dichloroethylene	480.2	10.0	ug/L	500	ND	96.0	70-148			
Acetone	1140	100	ug/L	1010	ND	113	45-173			
Methyl Iodide	898.9	10.0	ug/L	1020	ND	88.2	62-167			
Carbon Disulfide	712.2	10.0	ug/L	1030	ND	69.3	71-163			M2
Methylene Chloride	470.9	50.0	ug/L	500	ND	94.2	69-140			
Acrylonitrile	867.3	50.0	ug/L	1000	ND	86.4	38-147			
trans-1,2-Dichloroethylene	494.0	10.0	ug/L	500	ND	98.8	69-144			
1,1-Dichloroethane	486.4	10.0	ug/L	500	ND	97.3	70-138			
Vinyl Acetate	948.7	50.0	ug/L	1000	ND	94.9	58-142			
cis-1,2-Dichloroethylene	482.5	10.0	ug/L	500	ND	96.5	68-151			
2-Butanone (MEK)	1028	100	ug/L	1020	ND	101	50-160			
Bromochloromethane	490.8	10.0	ug/L	500	ND	98.2	65-143			
Chloroform	474.4	10.0	ug/L	500	ND	94.9	71-143			
1,1,1-Trichloroethane	464.3	10.0	ug/L	500	ND	92.9	63-133			
Carbon Tetrachloride	472.0	10.0	ug/L	500	ND	94.4	63-142			
Benzene	514.0	10.0	ug/L	500	ND	103	69-133			
1,2-Dichloroethane	544.0	10.0	ug/L	500	ND	109	63-138			
Trichloroethylene	487.6	10.0	ug/L	500	ND	97.5	71-133			
1,2-Dichloropropane	500.1	10.0	ug/L	500	ND	100	69-132			
Dibromomethane	509.7	10.0	ug/L	500	ND	102	70-147			
Bromodichloromethane	494.3	10.0	ug/L	500	ND	98.9	67-130			
cis-1,3-Dichloropropene	469.6	10.0	ug/L	500	ND	93.9	61-126			
4-Methyl-2-pentanone (MIBK)	1106	50.0	ug/L	1000	ND	110	55-147			
Toluene	489.8	10.0	ug/L	500	ND	98.0	71-133			
trans-1,3-Dichloropropene	479.2	10.0	ug/L	500	ND	95.8	63-124			
1,1,2-Trichloroethane	491.8	10.0	ug/L	500	ND	98.4	69-133			

Determination of Volatile Organic Compounds	Result	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 1HJ1517 - EPA 5030B - EPA 8260B										
Matrix Spike (1HJ1517-MS1)	**Source: 1HJ1633-03**	Prepared: 10/23/24 00:00 Analyzed: 10/23/24 21:36								
Tetrachloroethylene	491.3	10.0	ug/L	500	ND	98.3	70-124			
2-Hexanone (MBK)	1073	50.0	ug/L	993	ND	108	53-141			
Dibromochloromethane	492.7	10.0	ug/L	500	ND	98.5	74-122			
1,2-Dibromoethane	499.1	10.0	ug/L	500	ND	99.8	66-127			
Chlorobenzene	490.1	10.0	ug/L	500	ND	98.0	76-116			
1,1,1,2-Tetrachloroethane	507.5	10.0	ug/L	500	ND	102	77-121			
Ethylbenzene	521.5	10.0	ug/L	500	ND	104	73-124			
Xylenes, total	1514	20.0	ug/L	1500	ND	101	75-123			
Styrene	514.9	10.0	ug/L	500	ND	103	70-120			
Bromoform	483.1	10.0	ug/L	500	ND	96.6	70-124			
1,2,3-Trichloropropane	502.4	10.0	ug/L	500	ND	100	62-135			
trans-1,4-Dichloro-2-butene	974.4	50.0	ug/L	1030	ND	94.8	50-120			
1,1,2,2-Tetrachloroethane	514.4	10.0	ug/L	500	ND	103	63-126			
1,4-Dichlorobenzene	469.4	10.0	ug/L	500	ND	93.9	72-119			
1,2-Dichlorobenzene	482.1	10.0	ug/L	500	ND	96.4	71-117			
1,2-Dibromo-3-chloropropane	435.3	50.0	ug/L	500	ND	87.1	49-134			
Surrogate: Dibromofluoromethane	*474*		ug/L	*502*		*94.4*	*57-134*			
Surrogate: Dibromofluoromethane	*474*		ug/L	*502*		*94.4*	*75-136*			
Surrogate: 1,2-Dichloroethane-d4	*502*		ug/L	*504*		*99.6*	*53-140*			
Surrogate: 1,2-Dichloroethane-d4	*502*		ug/L	*504*		*99.6*	*61-142*			
Surrogate: Toluene-d8	*504*		ug/L	*505*		*99.9*	*86-114*			
Surrogate: Toluene-d8	*504*		ug/L	*505*		*99.9*	*82-121*			
Surrogate: 4-Bromofluorobenzene	*500*		ug/L	*502*		*99.6*	*78-121*			
Surrogate: 4-Bromofluorobenzene	*500*		ug/L	*502*		*99.6*	*80-116*			
Matrix Spike Dup (1HJ1517-MSD1)	**Source: 1HJ1633-03**	Prepared: 10/23/24 00:00 Analyzed: 10/23/24 21:59								
Dichlorodifluoromethane	222.9	10.0	ug/L	300	ND	74.3	37-140	12.8	18	
Chloromethane	305.0	10.0	ug/L	300	ND	102	61-152	12.0	26	
Vinyl Chloride	285.2	10.0	ug/L	300	ND	95.1	66-149	10.7	23	
Bromomethane	307.4	10.0	ug/L	300	ND	102	43-171	9.39	29	
Chloroethane	249.6	10.0	ug/L	300	ND	83.2	69-148	10.1	25	
Trichlorofluoromethane	230.1	10.0	ug/L	300	ND	76.7	62-163	9.95	25	
1,1-Dichloroethylene	438.0	10.0	ug/L	500	ND	87.6	70-148	9.19	22	
Acetone	1089	100	ug/L	1010	ND	108	45-173	4.50	30	
Methyl Iodide	902.1	10.0	ug/L	1020	ND	88.6	62-167	0.355	24	
Carbon Disulfide	650.5	10.0	ug/L	1030	ND	63.3	71-163	9.06	22	M2
Methylene Chloride	440.1	50.0	ug/L	500	ND	88.0	69-140	6.76	19	
Acrylonitrile	843.4	50.0	ug/L	1000	ND	84.0	38-147	2.79	30	
trans-1,2-Dichloroethylene	458.1	10.0	ug/L	500	ND	91.6	69-144	7.54	22	
1,1-Dichloroethane	458.2	10.0	ug/L	500	ND	91.6	70-138	5.97	20	
Vinyl Acetate	916.2	50.0	ug/L	1000	ND	91.6	58-142	3.49	24	
cis-1,2-Dichloroethylene	452.1	10.0	ug/L	500	ND	90.4	68-151	6.51	22	
2-Butanone (MEK)	1034	100	ug/L	1020	ND	102	50-160	0.534	23	
Bromochloromethane	470.0	10.0	ug/L	500	ND	94.0	65-143	4.33	22	

Determination of Volatile Organic Compounds	Result	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 1HJ1517 - EPA 5030B - EPA 8260B										
Matrix Spike Dup (1HJ1517-MSD1)	**Source: 1HJ1633-03**	Prepared: 10/23/24 00:00 Analyzed: 10/23/24 21:59								
Chloroform	449.6	10.0	ug/L	500	ND	89.9	71-143	5.37	21	
1,1,1-Trichloroethane	440.7	10.0	ug/L	500	ND	88.1	63-133	5.22	23	
Carbon Tetrachloride	447.2	10.0	ug/L	500	ND	89.4	63-142	5.40	22	
Benzene	484.4	10.0	ug/L	500	ND	96.9	69-133	5.93	18	
1,2-Dichloroethane	525.1	10.0	ug/L	500	ND	105	63-138	3.54	20	
Trichloroethylene	460.6	10.0	ug/L	500	ND	92.1	71-133	5.70	23	
1,2-Dichloropropane	481.0	10.0	ug/L	500	ND	96.2	69-132	3.89	20	
Dibromomethane	493.2	10.0	ug/L	500	ND	98.6	70-147	3.29	22	
Bromodichloromethane	477.7	10.0	ug/L	500	ND	95.5	67-130	3.42	21	
cis-1,3-Dichloropropene	449.9	10.0	ug/L	500	ND	90.0	61-126	4.28	21	
4-Methyl-2-pentanone (MIBK)	1090	50.0	ug/L	1000	ND	109	55-147	1.40	23	
Toluene	461.6	10.0	ug/L	500	ND	92.3	71-133	5.93	19	
trans-1,3-Dichloropropene	460.2	10.0	ug/L	500	ND	92.0	63-124	4.05	21	
1,1,2-Trichloroethane	473.4	10.0	ug/L	500	ND	94.7	69-133	3.81	19	
Tetrachloroethylene	461.4	10.0	ug/L	500	ND	92.3	70-124	6.28	24	
2-Hexanone (MBK)	1057	50.0	ug/L	993	ND	106	53-141	1.51	24	
Dibromochloromethane	472.5	10.0	ug/L	500	ND	94.5	74-122	4.19	21	
1,2-Dibromoethane	482.7	10.0	ug/L	500	ND	96.5	66-127	3.34	23	
Chlorobenzene	463.3	10.0	ug/L	500	ND	92.7	76-116	5.62	21	
1,1,1,2-Tetrachloroethane	480.7	10.0	ug/L	500	ND	96.1	77-121	5.42	25	
Ethylbenzene	490.7	10.0	ug/L	500	ND	98.1	73-124	6.09	20	
Xylenes, total	1432	20.0	ug/L	1500	ND	95.5	75-123	5.57	20	
Styrene	492.7	10.0	ug/L	500	ND	98.5	70-120	4.41	23	
Bromoform	465.7	10.0	ug/L	500	ND	93.1	70-124	3.67	22	
1,2,3-Trichloropropane	493.1	10.0	ug/L	500	ND	98.6	62-135	1.87	28	
trans-1,4-Dichloro-2-butene	952.3	50.0	ug/L	1030	ND	92.6	50-120	2.29	26	
1,1,2,2-Tetrachloroethane	505.3	10.0	ug/L	500	ND	101	63-126	1.78	24	
1,4-Dichlorobenzene	455.5	10.0	ug/L	500	ND	91.1	72-119	3.01	24	
1,2-Dichlorobenzene	464.7	10.0	ug/L	500	ND	92.9	71-117	3.68	24	
1,2-Dibromo-3-chloropropane	437.6	50.0	ug/L	500	ND	87.5	49-134	0.527	28	
Surrogate: Dibromofluoromethane	*472*		ug/L	*502*		*94.1*	*57-134*			
Surrogate: Dibromofluoromethane	*472*		ug/L	*502*		*94.1*	*75-136*			
Surrogate: 1,2-Dichloroethane-d4	*500*		ug/L	*504*		*99.3*	*53-140*			
Surrogate: 1,2-Dichloroethane-d4	*500*		ug/L	*504*		*99.3*	*61-142*			
Surrogate: Toluene-d8	*504*		ug/L	*505*		*99.9*	*86-114*			
Surrogate: Toluene-d8	*504*		ug/L	*505*		*99.9*	*82-121*			
Surrogate: 4-Bromofluorobenzene	*500*		ug/L	*502*		*99.7*	*78-121*			
Surrogate: 4-Bromofluorobenzene	*500*		ug/L	*502*		*99.7*	*80-116*			
Batch 1HJ1776 - EPA 5030B - EPA 8260B										
Blank (1HJ1776-BLK1)		Prepared: 10/29/24 00:00 Analyzed: 10/29/24 11:40								
Carbon Disulfide	<1.0	1.0	ug/L							

Determination of Volatile Organic Compounds	Result	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 1HJ1776 - EPA 5030B - EPA 8260B										
Blank (1HJ1776-BLK1)			Prepared: 10/29/24 00:00 Analyzed: 10/29/24 11:40							
Surrogate: Dibromofluoromethane	*51.4*		ug/L	*50.2*		*102*	*75-136*			
Surrogate: 1,2-Dichloroethane-d4	*53.5*		ug/L	*50.4*		*106*	*61-142*			
Surrogate: Toluene-d8	*47.7*		ug/L	*50.5*		*94.6*	*82-121*			
Surrogate: 4-Bromofluorobenzene	*50.7*		ug/L	*50.2*		*101*	*80-116*			
Blank (1HJ1776-BLK2)			Prepared: 10/29/24 00:00 Analyzed: 10/29/24 22:51							
Carbon Disulfide	<1.0	1.0	ug/L							
Surrogate: Dibromofluoromethane	*49.0*		ug/L	*50.2*		*97.7*	*75-136*			
Surrogate: 1,2-Dichloroethane-d4	*52.6*		ug/L	*50.4*		*104*	*61-142*			
Surrogate: Toluene-d8	*48.1*		ug/L	*50.5*		*95.4*	*82-121*			
Surrogate: 4-Bromofluorobenzene	*50.2*		ug/L	*50.2*		*100*	*80-116*			
LCS (1HJ1776-BS1)			Prepared: 10/29/24 00:00 Analyzed: 10/29/24 10:31							
Carbon Disulfide	93.38	1.0	ug/L	100		93.4	72-162			
Surrogate: Dibromofluoromethane	*50.8*		ug/L	*50.2*		*101*	*75-136*			
Surrogate: 1,2-Dichloroethane-d4	*50.9*		ug/L	*50.4*		*101*	*61-142*			
Surrogate: Toluene-d8	*49.4*		ug/L	*50.5*		*97.8*	*82-121*			
Surrogate: 4-Bromofluorobenzene	*49.5*		ug/L	*50.2*		*98.6*	*80-116*			
LCS (1HJ1776-BS2)			Prepared: 10/29/24 00:00 Analyzed: 10/29/24 21:42							
Carbon Disulfide	89.88	1.0	ug/L	100		89.9	72-162			
Surrogate: Dibromofluoromethane	*48.6*		ug/L	*50.2*		*96.8*	*75-136*			
Surrogate: 1,2-Dichloroethane-d4	*50.5*		ug/L	*50.4*		*100*	*61-142*			
Surrogate: Toluene-d8	*50.2*		ug/L	*50.5*		*99.4*	*82-121*			
Surrogate: 4-Bromofluorobenzene	*49.9*		ug/L	*50.2*		*99.5*	*80-116*			
LCS Dup (1HJ1776-BSD1)			Prepared: 10/29/24 00:00 Analyzed: 10/29/24 10:54							
Carbon Disulfide	87.66	1.0	ug/L	100		87.7	72-162	6.32	24	
Surrogate: Dibromofluoromethane	*50.4*		ug/L	*50.2*		*100*	*75-136*			
Surrogate: 1,2-Dichloroethane-d4	*52.0*		ug/L	*50.4*		*103*	*61-142*			
Surrogate: Toluene-d8	*49.4*		ug/L	*50.5*		*97.9*	*82-121*			
Surrogate: 4-Bromofluorobenzene	*50.4*		ug/L	*50.2*		*100*	*80-116*			
LCS Dup (1HJ1776-BSD2)			Prepared: 10/29/24 00:00 Analyzed: 10/29/24 22:05							
Carbon Disulfide	82.70	1.0	ug/L	100		82.7	72-162	8.32	24	
Surrogate: Dibromofluoromethane	*47.4*		ug/L	*50.2*		*94.4*	*75-136*			
Surrogate: 1,2-Dichloroethane-d4	*50.8*		ug/L	*50.4*		*101*	*61-142*			
Surrogate: Toluene-d8	*50.5*		ug/L	*50.5*		*100*	*82-121*			
Surrogate: 4-Bromofluorobenzene	*50.3*		ug/L	*50.2*		*100*	*80-116*			
Matrix Spike (1HJ1776-MS1)	**Source: 1HJ1549-02RE1**		Prepared: 10/29/24 00:00 Analyzed: 10/30/24 06:53							
Carbon Disulfide	879.6	10.0	ug/L	1000	ND	88.0	71-163			
Surrogate: Dibromofluoromethane	*474*		ug/L	*502*		*94.3*	*75-136*			
Surrogate: 1,2-Dichloroethane-d4	*499*		ug/L	*504*		*99.2*	*61-142*			
Surrogate: Toluene-d8	*505*		ug/L	*505*		*100*	*82-121*			

Determination of Volatile Organic Compounds	Result	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 1HJ1776 - EPA 5030B - EPA 8260B										
Matrix Spike (1HJ1776-MS1)	**Source: 1HJ1549-02RE1**	Prepared: 10/29/24 00:00 Analyzed: 10/30/24 06:53								
Surrogate: 4-Bromofluorobenzene	*499*		ug/L	*502*		*99.4*	*80-116*			
Matrix Spike (1HJ1776-MS2)	**Source: 1HJ1617-12RE1**	Prepared: 10/29/24 00:00 Analyzed: 10/30/24 07:38								
Carbon Disulfide	831.9	10.0	ug/L	1000	ND	83.2	71-163			
Surrogate: Dibromofluoromethane	*470*		ug/L	*502*		*93.7*	*75-136*			
Surrogate: 1,2-Dichloroethane-d4	*491*		ug/L	*504*		*97.5*	*61-142*			
Surrogate: Toluene-d8	*503*		ug/L	*505*		*99.6*	*82-121*			
Surrogate: 4-Bromofluorobenzene	*507*		ug/L	*502*		*101*	*80-116*			
Matrix Spike Dup (1HJ1776-MSD1)	**Source: 1HJ1549-02RE1**	Prepared: 10/29/24 00:00 Analyzed: 10/30/24 07:16								
Carbon Disulfide	814.3	10.0	ug/L	1000	ND	81.4	71-163	7.71	22	
Surrogate: Dibromofluoromethane	*468*		ug/L	*502*		*93.2*	*75-136*			
Surrogate: 1,2-Dichloroethane-d4	*494*		ug/L	*504*		*98.1*	*61-142*			
Surrogate: Toluene-d8	*503*		ug/L	*505*		*99.6*	*82-121*			
Surrogate: 4-Bromofluorobenzene	*506*		ug/L	*502*		*101*	*80-116*			
Matrix Spike Dup (1HJ1776-MSD2)	**Source: 1HJ1617-12RE1**	Prepared: 10/29/24 00:00 Analyzed: 10/30/24 08:01								
Carbon Disulfide	810.8	10.0	ug/L	1000	ND	81.1	71-163	2.57	22	
Surrogate: Dibromofluoromethane	*474*		ug/L	*502*		*94.3*	*75-136*			
Surrogate: 1,2-Dichloroethane-d4	*498*		ug/L	*504*		*98.9*	*61-142*			
Surrogate: Toluene-d8	*501*		ug/L	*505*		*99.2*	*82-121*			
Surrogate: 4-Bromofluorobenzene	*512*		ug/L	*502*		*102*	*80-116*			

Determination of Total Metals	Result	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 1HJ1611 - EPA 3005A Total Recoverable Metals - EPA 6020A										
Blank (1HJ1611-BLK1)		Prepared: 10/25/24 16:06 Analyzed: 10/28/24 20:41								
Antimony, total	<0.0020	0.0020	mg/L							
Arsenic, total	<0.0040	0.0040	mg/L							
Barium, total	<0.0040	0.0040	mg/L							
Beryllium, total	<0.0040	0.0040	mg/L							
Cadmium, total	<0.0008	0.0008	mg/L							
Chromium, total	<0.0080	0.0080	mg/L							
Cobalt, total	<0.0004	0.0004	mg/L							
Copper, total	<0.0040	0.0040	mg/L							
Lead, total	<0.0040	0.0040	mg/L							
Nickel, total	<0.0040	0.0040	mg/L							
Selenium, total	<0.0040	0.0040	mg/L							
Silver, total	<0.0040	0.0040	mg/L							
Thallium, total	<0.0020	0.0020	mg/L							
Vanadium, total	<0.0200	0.0200	mg/L							
Zinc, total	<0.0200	0.0200	mg/L							
LCS (1HJ1611-BS1)		Prepared: 10/25/24 16:06 Analyzed: 10/28/24 20:47								

Determination of Total Metals	Result	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 1HJ1611 - EPA 3005A Total Recoverable Metals - EPA 6020A										
Antimony, total	0.0963	0.0020	mg/L	0.100		96.3	80-120			
Arsenic, total	0.0963	0.0040	mg/L	0.100		96.3	80-120			
Barium, total	0.107	0.0040	mg/L	0.100		107	80-120			
Beryllium, total	0.103	0.0040	mg/L	0.100		103	80-120			
Cadmium, total	0.0976	0.0008	mg/L	0.100		97.6	80-120			
Chromium, total	0.0981	0.0080	mg/L	0.100		98.1	80-120			
Cobalt, total	0.103	0.0004	mg/L	0.100		103	80-120			
Copper, total	0.101	0.0040	mg/L	0.100		101	80-120			
Lead, total	0.101	0.0040	mg/L	0.100		101	80-120			
Nickel, total	0.102	0.0040	mg/L	0.100		102	80-120			
Selenium, total	0.0907	0.0040	mg/L	0.100		90.7	80-120			
Silver, total	0.102	0.0040	mg/L	0.100		102	80-120			
Thallium, total	0.100	0.0020	mg/L	0.100		100	80-120			
Vanadium, total	0.103	0.0200	mg/L	0.100		103	80-120			
Zinc, total	0.0964	0.0200	mg/L	0.100		96.4	80-120			
Matrix Spike (1HJ1611-MS1)	**Source: 1HJ1633-01**	Prepared: 10/25/24 16:06 Analyzed: 10/28/24 21:00								
Antimony, total	0.0965	0.0020	mg/L	0.100	ND	96.5	75-125			
Arsenic, total	0.101	0.0040	mg/L	0.100	0.0015	99.3	75-125			
Barium, total	0.431	0.0040	mg/L	0.100	0.325	107	75-125			
Beryllium, total	0.101	0.0040	mg/L	0.100	ND	101	75-125			
Cadmium, total	0.0954	0.0008	mg/L	0.100	ND	95.4	75-125			
Chromium, total	0.0958	0.0080	mg/L	0.100	0.0006	95.8	75-125			
Cobalt, total	0.104	0.0004	mg/L	0.100	ND	104	75-125			
Copper, total	0.0969	0.0040	mg/L	0.100	0.0011	95.8	75-125			
Lead, total	0.0952	0.0040	mg/L	0.100	ND	95.2	75-125			
Nickel, total	0.101	0.0040	mg/L	0.100	ND	101	75-125			
Selenium, total	0.0951	0.0040	mg/L	0.100	ND	95.1	75-125			
Silver, total	0.100	0.0040	mg/L	0.100	ND	100	75-125			
Thallium, total	0.0956	0.0020	mg/L	0.100	0.0002	95.3	75-125			
Vanadium, total	0.103	0.0200	mg/L	0.100	ND	103	75-125			
Zinc, total	0.0941	0.0200	mg/L	0.100	ND	94.1	75-125			
Matrix Spike Dup (1HJ1611-MSD1)	**Source: 1HJ1633-01**	Prepared: 10/25/24 16:06 Analyzed: 10/28/24 21:18								
Antimony, total	0.0956	0.0020	mg/L	0.100	ND	95.6	75-125	0.970	20	
Arsenic, total	0.100	0.0040	mg/L	0.100	0.0015	98.5	75-125	0.754	20	
Barium, total	0.425	0.0040	mg/L	0.100	0.325	101	75-125	1.34	20	
Beryllium, total	0.100	0.0040	mg/L	0.100	ND	100	75-125	0.490	20	
Cadmium, total	0.0945	0.0008	mg/L	0.100	ND	94.5	75-125	0.885	20	
Chromium, total	0.0948	0.0080	mg/L	0.100	0.0006	94.8	75-125	1.02	20	
Cobalt, total	0.103	0.0004	mg/L	0.100	ND	103	75-125	0.760	20	
Copper, total	0.0952	0.0040	mg/L	0.100	0.0011	94.2	75-125	1.71	20	
Lead, total	0.0937	0.0040	mg/L	0.100	ND	93.7	75-125	1.53	20	
Nickel, total	0.0987	0.0040	mg/L	0.100	ND	98.7	75-125	2.29	20	
Selenium, total	0.0928	0.0040	mg/L	0.100	ND	92.8	75-125	2.41	20	
Silver, total	0.0979	0.0040	mg/L	0.100	ND	97.9	75-125	2.10	20	
Thallium, total	0.0946	0.0020	mg/L	0.100	0.0002	94.4	75-125	0.987	20	

Determination of Total Metals	Result	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 1HJ1611 - EPA 3005A Total Recoverable Metals - EPA 6020A										
Matrix Spike Dup (1HJ1611-MSD1)	**Source: 1HJ1633-01**		Prepared: 10/25/24 16:06 Analyzed: 10/28/24 21:18							
Vanadium, total	0.100	0.0200	mg/L	0.100	ND	100	75-125	2.39	20	
Zinc, total	0.0944	0.0200	mg/L	0.100	ND	94.4	75-125	0.254	20	
Post Spike (1HJ1611-PS1)	**Source: 1HJ1633-01**		Prepared: 10/25/24 16:06 Analyzed: 10/28/24 21:24							
Antimony, total	0.0752		mg/L	0.0800	0.0002	93.8	80-120			
Arsenic, total	0.0773		mg/L	0.0800	0.0015	94.7	80-120			
Barium, total	0.396		mg/L	0.0800	0.318	97.9	80-120			
Beryllium, total	0.0798		mg/L	0.0800	-0.00002	99.7	80-120			
Cadmium, total	0.0742		mg/L	0.0800	0.00006	92.7	80-120			
Chromium, total	0.0754		mg/L	0.0800	0.0006	93.5	80-120			
Cobalt, total	0.0818		mg/L	0.0800	0.00002	102	80-120			
Copper, total	0.0761		mg/L	0.0800	0.0011	93.8	80-120			
Lead, total	0.0746		mg/L	0.0800	-0.000004	93.2	80-120			
Nickel, total	0.0797		mg/L	0.0800	0.0007	98.7	80-120			
Selenium, total	0.0713		mg/L	0.0800	0.0004	88.6	80-120			
Silver, total	0.0785		mg/L	0.0800	0.00003	98.1	80-120			
Thallium, total	0.0754		mg/L	0.0800	0.0002	94.0	80-120			
Vanadium, total	0.0826		mg/L	0.0800	0.0052	96.8	80-120			
Zinc, total	0.0729		mg/L	0.0800	0.0044	85.6	80-120			

Definitions

M1:	Matrix spike recovery is above acceptance limits.
M2:	Matrix spike recovery is below acceptance limits.
Q2:	LCS recovery is above acceptance limits.
R1:	Duplicate RPD is outside acceptance criteria.
RL:	Reporting Limit
RPD:	Relative Percent Difference
S:	Spike recovery outside of acceptance limits.

Cooler Receipt Log

Cooler ID: Default Cooler Temp: 1.1°C

Cooler Inspection Checklist

Custody Seals	No	Containers Intact	Yes
COC/Labels Agree	Yes	Preservation Confirmed	No
Received On Ice	Yes		

Report Comments

Reviewed and Approved By:

Heather Murphy
Customer Relationship Specialist
heather.murphy@microbac.com
11/04/24 16:56

CHAIN OF CUSTODY RECORD

MICROBAC®

600 East 17th Street
Newton, IA 50208
641-792-8451

1 H J 1 6 3 3
HLW Engineering
PM: Heather Murphy

Printed: 10/3/2024 2:31:20P

www.keystonelabs.com

SITE INFORMATION

Sampler: TODD WHIPPLE

Project: Ida Co. - New Regs
Appendix 1

REPORT TO

Todd Whipple
HLW Engineering
204 West Broad St
Story City, IA 50248

INVOICE TO

County Auditor
Ida County Court House
401 Moorehead
Ida Grove, IA 51445

SPECIAL INSTRUCTIONS

None

Turn Around Time
☐ Standard ☐ RUSH, need by __/__/__

LAB USE ONLY

Work Order: 1HJ1633
Temperature: 1.1
Turn-Cooler: No

☐ Custody Seal
☑ Containers Intact
☑ COC/Labels Agree
☐ Preservation Confirmed
☒ Received on Ice

Number	Sample Identification / Client ID	Matrix	Sample Type	Date	Time	Number of Containers	Analyses		Lab Sample Number
-001	MW-3	Aqueous	GRAB	10/17/24	13:05	7	lndfill-app1-voc-group	lndfll-app1-metals-6020	01
-001	MW-7	Aqueous	GRAB	10/17/24	13:27	7	8260@dedfin lndfll-app1-metals-6020	lndfill-app1-voc-group	02
-001	MW-10	Aqueous	GRAB	10/17/24	13:43	7	lndfill-app1-voc-group	lndfll-app1-metals-6020	03
-001	PZ-11	Aqueous	GRAB	10/17/24	13:57	7	lndfill-app1-voc-group	lndfll-app1-metals-6020	04
-001	MW-13	Aqueous	GRAB	10/17/24	14:08	7	lndfill-app1-voc-group	lndfll-app1-metals-6020	05
-001	Duplicate	Aqueous	GRAB	10/17/24	✓	1	~~lndfill-app1-voc-group~~	lndfll-app1-metals-6020	06

Relinquished By: [signature] Date/Time: 10/18/24

Relinquished By Date/Time

Received By Date/Time

Received for Lab By: [signature] Date/Time: 10/18/24 10:40

Remarks:

Original - Lab Copy Yellow - Sampler Copy

Microbac Laboratories, Inc., Newton

CERTIFICATE OF ANALYSIS

1HL0899

Project Description

Appendix 1

For:

Todd Whipple

HLW Engineering

204 West Broad St

Story City, IA 50248

Heather Murphy

Customer Relationship Specialist

Friday, December 27, 2024

Please find enclosed the analytical results for the samples you submitted to Microbac Laboratories. Review and compilation of your report was completed by Microbac Laboratories, Inc., Newton. If you have any questions, comments, or require further assistance regarding this report, please contact your service representative listed above.

I certify that all test results meet all of the requirements of the accrediting authority listed within this report. Analytical results are reported on a 'as received' basis unless specified otherwise. Analytical results for solids with units ending in (dry) are reported on a dry weight basis. A statement of uncertainty for each analysis is available upon request. This laboratory report shall not be reproduced, except in full, without the written approval of Microbac Laboratories. The reported results are related only to the samples analyzed as received.

Microbac Laboratories, Inc., Newton

CERTIFICATE OF ANALYSIS

1HL0899

HLW Engineering

Todd Whipple
204 West Broad St
Story City, IA 50248

Project Name: Appendix 1

Project / PO Number: N/A
Received: 12/11/2024
Reported: 12/27/2024

Case Narrative

Amended Report, December 27, 2024: The Cadmium result originally reported for sample 1HL0899-01 was analyzed by the incorrect method which had too high a reporting limit, that result has been removed from the report. The sample was re-analyzed by the correct method that has a lower reporting limit and that result is included in this report.

James Eggers
Quality Assurance Officer

Sample Summary Report

Sample Name	Laboratory ID	Client Matrix	Sample Type	Sample Begin	Sample Taken	Lab Received
MW-10	1HL0899-01	Aqueous	GRAB		12/10/24 10:33	12/11/24 09:50

Analytical Testing Parameters

Client Sample ID:	MW-10		
Sample Matrix:	Aqueous	**Collected By:**	JGH
Lab Sample ID:	1HL0899-01	**Collection Date:**	12/10/2024 10:33

Determination of Total Metals	Result	RL	Units	DF	Note	Prepared	Analyzed	Analyst
EPA 3005A/EPA 6020A								
Cadmium, total	<0.0008	0.0008	mg/L	4		12/26/24 0834	12/26/24 1730	RVV

Batch Log Summary

Method	Batch	Laboratory ID	Client / Source ID
EPA 200.7, Rv. 4.4 (1994)	1HL0902	1HL0902-BLK1	
		1HL0902-BS1	
		1HL0902-MS1	1HL0899-01
		1HL0902-MSD1	1HL0899-01
		1HL0902-PS1	1HL0899-01

Method	Batch	Laboratory ID	Client / Source ID
EPA 6020A	1HL1366	1HL1366-BLK1	
		1HL1366-BS1	
		1HL0899-01	MW-10
		1HL1366-MS1	1HL0899-01
		1HL1366-MSD1	1HL0899-01
		1HL1366-PS1	1HL0899-01

Batch Quality Control Summary: Microbac Laboratories, Inc., Newton

Determination of Total Metals	Result		RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 1HL0902 - EPA 200.2 Total ICP-OES (200.7) - EPA 200.7, Rv. 4.4 (1994)											
Blank (1HL0902-BLK1)				Prepared: 12/16/24 15:38 Analyzed: 12/17/24 21:56							
Cadmium, total	<0.005		0.005	mg/L							
LCS (1HL0902-BS1)				Prepared: 12/16/24 15:38 Analyzed: 12/17/24 22:13							
Cadmium, total	0.189		0.005	mg/L	0.200		94.3	85-115			
Matrix Spike (1HL0902-MS1)		**Source: 1HL0899-01**		Prepared: 12/16/24 15:38 Analyzed: 12/17/24 22:25							
Cadmium, total	0.200		0.005	mg/L	0.200	ND	100	70-130			
Matrix Spike Dup (1HL0902-MSD1)		**Source: 1HL0899-01**		Prepared: 12/16/24 15:38 Analyzed: 12/17/24 22:33							
Cadmium, total	0.193		0.005	mg/L	0.200	ND	96.4	70-130	3.72	20	
Post Spike (1HL0902-PS1)		**Source: 1HL0899-01**		Prepared: 12/16/24 15:38 Analyzed: 12/17/24 22:39							
Cadmium, total	0.801			mg/L	0.800	-0.000590	100	85-115			
Batch 1HL1366 - EPA 3005A Total Recoverable Metals - EPA 6020A											
Blank (1HL1366-BLK1)				Prepared: 12/26/24 08:34 Analyzed: 12/26/24 17:18							
Cadmium, total	<0.0008		0.0008	mg/L							
LCS (1HL1366-BS1)				Prepared: 12/26/24 08:34 Analyzed: 12/26/24 17:24							
Cadmium, total	0.100		0.0008	mg/L	0.100		100	80-120			
Matrix Spike (1HL1366-MS1)		**Source: 1HL0899-01**		Prepared: 12/26/24 08:34 Analyzed: 12/26/24 17:37							
Cadmium, total	0.0931		0.0008	mg/L	0.100	0.0002	92.9	75-125			
Matrix Spike Dup (1HL1366-MSD1)		**Source: 1HL0899-01**		Prepared: 12/26/24 08:34 Analyzed: 12/26/24 17:43							
Cadmium, total	0.0952		0.0008	mg/L	0.100	0.0002	94.9	75-125	2.15	20	
Post Spike (1HL1366-PS1)		**Source: 1HL0899-01**		Prepared: 12/26/24 08:34 Analyzed: 12/26/24 17:49							
Cadmium, total	0.0762			mg/L	0.0800	0.0002	94.9	80-120			

Definitions

RL:	Reporting Limit
RPD:	Relative Percent Difference

Cooler Receipt Log

Cooler ID: Default Cooler Temp: 0.0ºC

Cooler Inspection Checklist

Custody Seals	No	Containers Intact	Yes
COC/Labels Agree	Yes	Preservation Confirmed	No
Received On Ice	Yes		

Report Comments

The data and information on this, and other accompanying documents, represents only the sample(s) analyzed. This report is incomplete unless all pages indicated in the footnote are present and an authorized signature is included. ***The services were provided under and subject to Microbac's standard terms and conditions which can be located and reviewed at <https://www.microbac.com/standard-terms-conditions>.***

Reviewed and Approved By:

Heather Murphy

Heather Murphy
Customer Relationship Specialist
heather.murphy@microbac.com
12/27/24 15:10

Keystone LABORATORIES, INC.

CHA[...]

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Phone: 641-437-7023
Fax: 641-437-7040

1 H L 0 8 9 9
HLW Engineering
PM: Heather Murphy

PAGE 1 OF 1

PRINT OR TYPE INFORMATION BELOW	REPORT TO:	BILL TO:
SAMPLER: JGH	NAME: TODD WHIPPLE	NAME: CHARLYS FOLF
SITE NAME: IDA CO SLF	COMPANY NAME: HLW ENGINEERING	COMPANY NAME: IDA CO AUDITOR
ADDRESS:	ADDRESS: PO BOX 314	ADDRESS: 401 MOOREHEAD ST.
CITY/ST/ZIP:	CITY/ST/ZIP: STORY CITY IA 50248	CITY/ST/ZIP: IDA GROVE, IA 51445
PHONE:	PHONE: 515-733-4144	PHONE:
	FAX: 515-733-4146	Keystone Quote No: (If Applicable)

LAB USE ONLY
LABORATORY WORK ORDER NO. 1HL0899
SAMPLE TEMPERATURE UPON RECEIPT: 0.0 ice ✓ °C

CLIENT SAMPLE NUMBER	DATE	TIME	SAMPLE LOCATION	NO. OF CONTAINERS	MATRIX	GRAB/COMPOSITE	ANALYSES REQUIRED: CADMIUM, TOT								SAMPLE CONDITION/COMMENTS	LABORATORY SAMPLE NUMBER
MW 10	12/10/24	10:33		1	WATER	G	X									01

Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Date / Time	Turn-Around:
[signature]	Date 12/11/24 Time		Date Time	☒ Standard ☐ Rush ____ Contact Lab Prior to Submission
Relinquished by: (Signature)	Date Time	Received for Lab by: (Signature) [signature]	Date 12-11-24 Time 9:50	Remarks:

APPENDIX D

Statistical Reports – Spring & Fall

STATISTICAL ANALYSIS

FOR THE

IDA COUNTY SANITARY LANDFILL

First Semi-Annual Monitoring Event in 2024

Prepared for:
Ida County Sanitary Landfill
Ida County, IA

Prepared by:
Jeffrey A. Holmgren
Otter Creek Environmental Services, LLC
40W565 Foxwick Court
Elgin, IL 60124
(847) 464-1355

May 2024

INTRODUCTION

This report summarizes the statistical analysis plan for evaluating the groundwater quality data at the Ida County Sanitary Landfill in Ida County, Iowa. The plan is designed to detect a release from the facility at the earliest indication so that it is protective of human health and the environment. Both interwell and intrawell methodologies are described and then applied to the Ida County Landfill data. Based on the data available, the most appropriate methodology will be implemented for comparing future ground water data. The statistical plan conforms with IAC 567, Chapter 113.10, USEPA Guidance document ("*Statistical Analysis of Ground-Water Monitoring Data at RCRA Facilities, Unified Guidance*", March 2009), and the American Society for Testing and Materials (ASTM) standard D6312-98, *Developing Appropriate Statistical Approaches for Ground-Water Detection Monitoring Programs*.

Ground Water Monitoring Program

The groundwater monitoring network for Ida County Sanitary Landfill includes upgradient well MW-3 and downgradient detection sample points MW-10, MW-13, MW-7, and PZ-11. Each of the groundwater monitoring wells is to be sampled at least semiannually and analyzed for the detection monitoring parameters listed in 113.10(5), which includes 15 inorganic constituents and 47 organic compounds, summarized in Table 1 below.

Table 1: Detection monitoring constituents listed in Appendix I of IAC 567, Chapter 113.

Organic Compounds:

Acetone	*trans*-1,4-Dichloro-2-butene	Iodomethane
Acrylonitrile	1,1-Dichloroethane	4-Methyl-2-pentanone
Benzene	1,2-Dichloroethane	Styrene
Bromochloromethane	1,1-Dichloroethene	1,1,1,2-Tetrachloroethane
Bromodichloromethane	*cis*-1,2-Dichloroethene	1,1,2,2-Tetrachloroethane
Bromoform	*trans*-1,2-Dichloroethene	Tetrachloroethene
Carbon disulfide	1,2-Dichloropropane	Toluene
Carbon tetrachloride	*cis*-1,3-Dichloropropene	1,1,1-Trichloroethane
Chlorobenzene	*trans*-1,3-Dichloropropene	1,1,2-Trichloroethane
Chloroethane	Ethylbenzene	Trichloroethene
Chloroform	2-Hexanone	Trichlorofluoromethane
Dibromochloromethane	Bromomethane	1,2,3-Trichloropropane
1,2-Dibromo-3-chloropropane	Chloromethane	Vinyl acetate
1,2-Dibromoethane	Dibromomethane	Vinyl chloride
1,2-Dichlorobenzene	Methylene chloride	Xylenes (Total)
1,4-Dichlorobenzene	2-Butanone	

Inorganic constituents:

Antimony, Total	Chromium, Total	Selenium, Total
Arsenic, Total	Cobalt, Total	Silver, Total
Barium, Total	Copper, Total	Thallium, Total
Beryllium, Total	Lead, Total	Vanadium, Total
Cadmium, Total	Nickel, Total	Zinc, Total

The data obtained during the first semi-annual monitoring event in 2024 are summarized in Attachment A.

STATISTICAL METHODOLOGIES FOR DETECTION MONITORING

IAC 567, Chapter 113.10(4) provides several options for statistically evaluating the ground water data at those wells that monitor the open cells or contiguous MSWLF units. The preferred methods for comparing ground water data are using either prediction limits or using control charts. Both of these methods will be applied to the Ida County Landfill data using the DUMPStat® statistical program (version 3.1 or higher). DUMPStat® (Discerning Systems, Inc., Burnaby, BC) is a program for the statistical analysis of groundwater monitoring data using methods described in "Statistical Methods for Groundwater Monitoring" by Dr. Robert D. Gibbons. The DUMPStat program is completely consistent with all USEPA regulations and guidance and the ASTM D6312-98 guidance.

Ground water statistics are to be done on the inorganic constituents listed. The organic constituents are compared to maximum contaminant levels (MCLs) or practical quantitation limits (PQLs), in lieu of statistical comparisons to historical concentrations.

Interwell Statistics: Upgradient versus Downgradient Comparisons

Interwell statistics are appropriate when the upgradient and downgradient wells monitor the same ground water formation and there is similar variability in the upgradient and downgradient zones. Site prediction limits are determined by pooling the historical ground water data from hydraulically upgradient wells. This statistical method compares the current downgradient determinations to site prediction limits and checks for exceedances. The type of prediction limit utilized (e.g., parametric or nonparametric) is based on the detection frequency and the data distribution of each parameter in the background data. The distribution of the background data is tested for normality using the Shapiro-Wilk test (Gibbons, 1994 and USEPA 1992). If the constituent is normally distributed, a normal prediction limit is used. If normality is rejected by the Shapiro-Wilk test, the background data is transformed by taking the natural logarithm. The Shapiro-Wilk test is then reapplied on the transformed data. If it is not rejected, lognormal prediction limits are used. If after transforming the data, normality is still rejected, nonparametric prediction limits are used for that analyte. The nonparametric prediction limit is the largest determination in the background measurements. For constituents where the background detection frequency is greater than 0% but less than 50%, nonparametric prediction limits will be used. If the detection frequency is 0% after thirteen samples have been collected, the practical quantitation limit (PQL) becomes the nonparametric prediction limit.

<u>**Results of the Interwell Statistics**</u>

The background data used in this statistical analysis includes the ground water data collected from ground water well MW-3 during the period from March 2010 through the present data. A summary of the background data from monitoring well MW-3, used to determine the site prediction limits, is listed in Attachment B, Table 1 "Upgradient Data". This statistical method compares the current downgradient determinations to site prediction limits and checks for exceedances.

Table 2 "Most Current Downgradient Monitoring Data", summarizes the current data from downgradient wells MW-10, MW-13, MW-7, and PZ-11 compared to the site prediction limits. Prediction limit exceedances are flagged with asterisks. For the most current data, there were no site prediction limit exceedances detected.

The detection frequencies of the parameters in the up and down gradient monitoring wells are summarized in Table 3. Barium is detected at a frequency greater than or equal to 50% in the upgradient well so only this metal will be tested for normality. The remainder of the metals are rarely detected (less than 50%) in the upgradient well so nonparametric prediction limits were used in those cases.

Table 4 summarizes the results of the Shapiro-Wilk test. Table 5 is a summary of the statistics and prediction limits determined for the metals. Time series graphs of each of the parameters at each well with the corresponding prediction limits are attached.

A statistical power curve indicates the expected false assessments for the site as a whole. The false positive rate for interwell analyses is the percentage of failures when the upgradient versus downgradient true mean difference equals zero. False negative rate indicates the chance of missing contamination at a single well for a single constituent. The statistical power is a function of the number of wells included, the number of constituents compared, the detection frequencies, and the data distributions involved. For interwell analysis, the site-wide false positive rate is 3% and the test becomes sensitive to 3 standard deviation unit increases over background.

The past and current verified trace metal exceedances were evaluated against the ground water protection standards (GWPS) using confidence limits calculated in accordance with the Statistical Analysis of Groundwater Monitoring Data at RCRA Facilities – Unified Guidance, USEPA, March 2009. The analysis was conducted to evaluate whether verified concentrations are significantly above the water quality standard. The 95% lower confidence limit (LCL) for the mean of the historical data was used to evaluate whether the regulated unit is in compliance with the ground-water protection standards under 40 CFR 264 (e.g. whether the verified constituent is detected at a significant level above the GWPS). An exceedance is verified if the LCL is above the Regulatory GWPS. The results of these analyses are in Attachment C.

The calculated 95% LCLs for the verified trace metals are all below the respective ground water standards.

Intrawell statistics

Intrawell statistics are appropriate for facilities where the upgradient wells do not accurately characterize the natural ground water conditions downgradient from the facility. This may be due to different hydrogeological conditions where the wells are screened, having too few upgradient wells to account for the spatial variability, or the site exhibiting no definable hydraulic gradient. Intrawell statistics compare new measurements to the historical data at each ground water monitoring well independently. It is recommended that at least eight background samples be obtained prior to performing the statistics.

The most useful technique for intrawell comparisons is the combined Shewhart-CUSUM control chart. This control chart procedure is useful because it will detect releases both in terms of the constituent concentration and cumulative increases. This method is also extremely sensitive to sudden and gradual releases. A requirement for constructing these control charts is that the parameter is detected at a frequency greater than or equal to 25%, otherwise the data variance is not properly defined.

The combined Shewhart-CUSUM control chart assumes that the data are independent and normally distributed with a fixed mean and a constant variance. Independent data is much more critical than the normality assumption. To achieve independence, it is recommended that data are collected no more frequently than quarterly to account for seasonal variation. The combined Shewhart-CUSUM control chart is extremely robust to deviations from normality. Because the control charts do not use a specific multiplier based on a normal distribution, it is more conservative to assume normality.

It is recommended that at least eight rounds of data be available to provide a reliable estimate of the mean and standard deviation of the parameter concentration, although the control charts will be generated with as few as four data points. Having only four data points may produce greater uncertainty in the mean and standard deviation of the background data, leading to higher control limits, thus having a potentially high false negative rate.

Many groundwater monitoring parameters are not detected at a frequency great enough to generate the combined Shewhart-CUSUM control charts. For constituents that are detected less than 25% of the time at a particular well, the data should be plotted as a time series until a sufficient number of data points are available to provide a 99% confidence nonparametric prediction limit. Thirteen independent measurements (with 1 resample) are necessary to achieve a 99% confidence (1% false positive rate) nonparametric prediction limit. Eight independent measurements (for pass 1 of 2 resamples) are necessary to achieve a 99% confidence nonparametric prediction limit. The nonparametric prediction limit is the largest determination out of the data set collected for that well and parameter. If the detection frequency is 0% after thirteen samples have been collected, the practical quantitation limit (PQL) becomes the nonparametric prediction limit. As an alternative to nonparametric prediction limits, Poisson prediction limits can be used for small data sets where the detection frequency is less than 25%.

In developing the statistical background, the historical data must be thoroughly screened for anomalous data due to sampling error, analytical error, or simply by chance alone. An erroneous data point, if not removed prior to the mean and variance computations, would yield a larger control limit thus increasing the false negative rate. The DUMPStat® program screens for outliers using the Dixon test. If the Dixon test indicates an outlier, the value is compared to three times the median value for intrawell analyses. If the value fails both criteria of the two-stage screening, the value is considered a statistical outlier and will not be used in the mean and variance determinations. Anomalous data will still be plotted on the graphs (with a unique symbol) but will not be included in the calculations.

The verification resample plan is an integral function of the statistical plan to reduce the probability that anomalous data obtained after the background has been established, is indicative of a landfill release.

The background data for each well and constituent is tested for existing trends using Sen's nonparametric estimate of trend. If contamination exists prior to completing the background, the control limits could be potentially high and this control chart method would not be able to detect an increasing trend unless the increase is severe.

<u>Results of the Intrawell Statistics</u>

The Appendix I trace metals data from wells MW-10, MW-13, MW-3, MW-7, and PZ-11 were evaluated using the combined Shewhart-CUSUM control chart method. The previous background included the groundwater data obtained from March 2010 through 2020. As ground water monitoring at a municipal solid waste facility proceeds, it is recommended to update background data sets periodically with valid detection monitoring results that are representative of background groundwater quality not affected by leakage from a monitored unit. Failure to update background will exclude factors such as natural temporal variation, changes in field or laboratory methodologies, and changes in the water table due to meteorological conditions or other influences. Since there have been no exceedances attributed to the landfill, the background was updated to include data obtained from March 2010 through April 2023.

A summary of the intrawell statistics is included in Attachment D, Table 1 "Summary Statistics and Intermediate Computations for Combined Shewhart-CUSUM Control Charts." The control charts or time series graphs follow the summary table. For the parameters evaluated, there were no statistical limit exceedances identified. An increasing trend was detected in the background data for nickel at MW-7.

A control chart factor was selected to provide a balance of the site-wide false positive and false negative rates. A statistical power curve indicates the expected false assessments for the site as a whole. Given an accepted resample verification plan of "pass one of one" resamples, the number of statistical comparisons, and the number of background data points, the optimal factor h = SCL = 6.5 for $N \leq 12$ and $N > 12$. Using this factor for intrawell analysis, the site-wide false positive rate is 4% and the test becomes sensitive to 3 standard deviation units over background.

Volatile Organic Compounds

Volatile Organic Compounds (VOCs) are generally man-made compounds not present in ambient ground water. If VOCs are detected above their statistical limit (i.e., the laboratory PQL or reporting limit), a verification resample will be conducted at the next scheduled sampling event. A statistical exceedance will be indicated if the VOC detection is confirmed by the subsequent monitoring.

VOCs detected in the ground water at Ida County Landfill during the first semi-annual monitoring event in 2024 are summarized below.

VOCs Detected during the First Semi-Annual Monitoring Event in 2024

Sample Point	VOC	Result	Reporting Limit	Verified/Awaiting Verification	GWPS
MW-7	*cis*-1,2-Dichloroethene	2.3	1	Verified	70[a]
	Dichlorodifluoromethane	1.0	1	Verified	1000[b]
PZ-11	1,1-Dichloroethane	1.3	1	Verified	140[b]

a - USEPA MCL
b – Iowa Statewide Standard

Historical VOC detections are summarized in Attachment E. The verified VOC detections were evaluated against the ground water protection standards (GWPS) using confidence limits. The 95% LCL for each of these VOCs is below the respective USEPA MCL or Iowa Statewide Standard.

Attachment A

Summary of Ground Water Data – First Semi-Annual Monitoring Event in 2024

Table 1

Analytical Data Summary for 4/17/2024

Constituents	Units	MW-10	MW-13	MW-3	MW-7	PZ-11
1,1,1,2-tetrachloroethane	ug/L	<1	<1	<1	<1	<1
1,1,1-trichloroethane	ug/L	<1	<1	<1	<1	<1
1,1,2,2-tetrachloroethane	ug/L	<1	<1	<1	<1	<1
1,1,2-trichloroethane	ug/L	<1	<1	<1	<1	<1
1,1-dichloroethane	ug/L	<1.0	<1.0	<1.0	<1.0	1.3
1,1-dichloroethylene	ug/L	<1	<1	<1	<1	<1
1,2,3-trichloropropane	ug/L	<1	<1	<1	<1	<1
1,2-dibromo-3-chloropropane	ug/L	<5	<5	<5	<5	<5
1,2-dibromoethane	ug/L	<1	<1	<1	<1	<1
1,2-dichlorobenzene	ug/L	<1	<1	<1	<1	<1
1,2-dichloroethane	ug/L	<1	<1	<1	<1	<1
1,2-dichloropropane	ug/L	<1	<1	<1	<1	<1
1,4-dichlorobenzene	ug/L	<1	<1	<1	<1	<1
2-butanone (mek)	ug/L	<10	<10	<10	<10	<10
2-hexanone (mbk)	ug/L	<5	<5	<5	<5	<5
4-methyl-2-pentanone (mibk)	ug/L	<5	<5	<5	<5	<5
Acetone	ug/L	<10	<10	<10	<10	<10
Acrylonitrile	ug/L	<5	<5	<5	<5	<5
Antimony, total	ug/L	<2	<2	<2	<2	<2
Arsenic, total	ug/L	<4	<4	<4	<4	<4
Barium, total	ug/L	146.0	64.5	360.0	139.0	77.3
Benzene	ug/L	<1	<1	<1	<1	<1
Beryllium, total	ug/L	<4	<4	<4	<4	<4
Bromochloromethane	ug/L	<1	<1	<1	<1	<1
Bromodichloromethane	ug/L	<1	<1	<1	<1	<1
Bromoform	ug/L	<1	<1	<1	<1	<1
Bromomethane	ug/L	<1	<1	<1	<1	<1
Cadmium, total	ug/L	.8	<.8	<.8	<.8	<.8
Carbon disulfide	ug/L	<1	<1	<1	<1	<1
Carbon tetrachloride	ug/L	<1	<1	<1	<1	<1
Chlorobenzene	ug/L	<1	<1	<1	<1	<1
Chloroethane	ug/L	<1	<1	<1	<1	<1
Chloroform	ug/L	<1	<1	<1	<1	<1
Chloromethane	ug/L	<1	<1	<1	<1	<1
Chromium, total	ug/L	<8	<8	<8	<8	<8
Cis-1,2-dichloroethylene	ug/L	<1.0	<1.0	<1.0	2.3	<1.0
Cis-1,3-dichloropropene	ug/L	<1	<1	<1	<1	<1
Cobalt, total	ug/L	<.4	<.4	.9	1.0	<.4
Copper, total	ug/L	<4	<4	<4	<4	<4
Dibromochloromethane	ug/L	<1	<1	<1	<1	<1
Dibromomethane	ug/L	<1	<1	<1	<1	<1
Dichlorodifluoromethane	ug/L				1	
Ethylbenzene	ug/L	<1	<1	<1	<1	<1
Lead, total	ug/L	<4	<4	<4	<4	<4
Methyl iodide	ug/L	<1	<1	<1	<1	<1
Methylene chloride	ug/L	<5	<5	<5	<5	<5
Nickel, total	ug/L	8.4	<4.0	<4.0	9.1	8.8
Selenium, total	ug/L	<4	<4	<4	<4	<4
Silver, total	ug/L	<4	<4	<4	<4	<4
Styrene	ug/L	<1	<1	<1	<1	<1
Tetrachloroethylene	ug/L	<1	<1	<1	<1	<1
Thallium, total	ug/L	<2	<2	<2	<2	<2
Toluene	ug/L	<1	<1	<1	<1	<1
Trans-1,2-dichloroethylene	ug/L	<1	<1	<1	<1	<1
Trans-1,3-dichloropropene	ug/L	<1	<1	<1	<1	<1
Trans-1,4-dichloro-2-butene	ug/L	<5	<5	<5	<5	<5
Trichloroethylene	ug/L	<1	<1	<1	<1	<1
Trichlorofluoromethane	ug/L	<1	<1	<1	<1	<1
Vanadium, total	ug/L	<20	<20	<20	<20	<20
Vinyl acetate	ug/L	<5	<5	<5	<5	<5
Vinyl chloride	ug/L	<1	<1	<1	<1	<1
Xylenes, total	ug/L	<2	<2	<2	<2	<2
Zinc, total	ug/L	<20	<20	<20	<20	<20

* - The displayed value is the arithmetic mean of multiple database matches.

Attachment B

Summary Tables and Graphs for the Interwell Comparisons

Table 1

Upgradient Data

Constituent	Units	Well	Date		Result	Adjusted	
Antimony, total	ug/L	MW-3	03/31/2010	ND	2.0000		
Antimony, total	ug/L	MW-3	09/16/2010	ND	2.0000		
Antimony, total	ug/L	MW-3	04/11/2011	ND	2.0000		
Antimony, total	ug/L	MW-3	09/26/2011	ND	2.0000		
Antimony, total	ug/L	MW-3	04/01/2012	ND	2.0000		
Antimony, total	ug/L	MW-3	08/23/2012	ND	2.0000		
Antimony, total	ug/L	MW-3	04/13/2013	ND	2.0000		
Antimony, total	ug/L	MW-3	09/14/2013	ND	2.0000		
Antimony, total	ug/L	MW-3	04/11/2014	ND	2.0000		
Antimony, total	ug/L	MW-3	09/27/2014	ND	2.0000		
Antimony, total	ug/L	MW-3	03/16/2015	ND	2.0000		
Antimony, total	ug/L	MW-3	09/28/2015	ND	2.0000		
Antimony, total	ug/L	MW-3	03/14/2016	ND	2.0000		
Antimony, total	ug/L	MW-3	09/03/2016	ND	2.0000		
Antimony, total	ug/L	MW-3	04/10/2017	ND	2.0000		
Antimony, total	ug/L	MW-3	09/01/2017	ND	2.0000		
Antimony, total	ug/L	MW-3	04/23/2018	ND	2.0000		
Antimony, total	ug/L	MW-3	09/14/2018	ND	2.0000		
Antimony, total	ug/L	MW-3	04/15/2019	ND	2.0000		
Antimony, total	ug/L	MW-3	09/17/2019	ND	2.0000		
Antimony, total	ug/L	MW-3	04/08/2020	ND	2.0000		
Antimony, total	ug/L	MW-3	10/02/2020	ND	2.0000		
Antimony, total	ug/L	MW-3	04/12/2021	ND	2.0000		
Antimony, total	ug/L	MW-3	10/26/2021	ND	2.0000		
Antimony, total	ug/L	MW-3	04/04/2022	ND	2.0000		
Antimony, total	ug/L	MW-3	10/07/2022	ND	2.0000		
Antimony, total	ug/L	MW-3	04/19/2023	ND	2.0000		
Antimony, total	ug/L	MW-3	10/25/2023	ND	2.0000		
Antimony, total	ug/L	MW-3	04/17/2024	ND	2.0000		
Arsenic, total	ug/L	MW-3	03/31/2010	ND	4.0000		
Arsenic, total	ug/L	MW-3	09/16/2010	ND	4.0000		
Arsenic, total	ug/L	MW-3	04/11/2011	ND	4.0000		
Arsenic, total	ug/L	MW-3	09/26/2011	ND	4.0000		
Arsenic, total	ug/L	MW-3	04/01/2012	ND	4.0000		
Arsenic, total	ug/L	MW-3	08/23/2012		4.1000		
Arsenic, total	ug/L	MW-3	04/13/2013	ND	4.0000		
Arsenic, total	ug/L	MW-3	09/14/2013	ND	4.0000		
Arsenic, total	ug/L	MW-3	04/11/2014	ND	4.0000		
Arsenic, total	ug/L	MW-3	09/27/2014	ND	4.0000		
Arsenic, total	ug/L	MW-3	03/16/2015	ND	4.0000		
Arsenic, total	ug/L	MW-3	09/28/2015	ND	4.0000		
Arsenic, total	ug/L	MW-3	03/14/2016	ND	4.0000		
Arsenic, total	ug/L	MW-3	09/03/2016	ND	4.0000		
Arsenic, total	ug/L	MW-3	04/10/2017	ND	4.0000		
Arsenic, total	ug/L	MW-3	09/01/2017	ND	4.0000		
Arsenic, total	ug/L	MW-3	04/23/2018	ND	4.0000		
Arsenic, total	ug/L	MW-3	09/14/2018	ND	4.0000		
Arsenic, total	ug/L	MW-3	04/15/2019	ND	4.0000		
Arsenic, total	ug/L	MW-3	09/17/2019	ND	4.0000		
Arsenic, total	ug/L	MW-3	04/08/2020	ND	4.0000		
Arsenic, total	ug/L	MW-3	10/02/2020	ND	4.0000		
Arsenic, total	ug/L	MW-3	04/12/2021	ND	4.0000		
Arsenic, total	ug/L	MW-3	10/26/2021	ND	4.0000		
Arsenic, total	ug/L	MW-3	04/04/2022	ND	4.0000		
Arsenic, total	ug/L	MW-3	10/07/2022	ND	4.0000		
Arsenic, total	ug/L	MW-3	04/19/2023	ND	4.0000		
Arsenic, total	ug/L	MW-3	10/25/2023	ND	4.0000		
Arsenic, total	ug/L	MW-3	04/17/2024	ND	4.0000		
Barium, total	ug/L	MW-3	03/31/2010		459.0000		
Barium, total	ug/L	MW-3	09/16/2010		414.0000		
Barium, total	ug/L	MW-3	04/11/2011		407.0000		
Barium, total	ug/L	MW-3	09/26/2011		336.0000		
Barium, total	ug/L	MW-3	04/01/2012		265.0000		
Barium, total	ug/L	MW-3	08/23/2012		294.0000		
Barium, total	ug/L	MW-3	04/13/2013		395.0000		
Barium, total	ug/L	MW-3	09/14/2013		442.0000		
Barium, total	ug/L	MW-3	04/11/2014		517.0000		
Barium, total	ug/L	MW-3	09/27/2014		467.0000		
Barium, total	ug/L	MW-3	03/16/2015		426.0000		
Barium, total	ug/L	MW-3	09/28/2015		336.0000		
Barium, total	ug/L	MW-3	03/14/2016		323.0000		
Barium, total	ug/L	MW-3	09/03/2016		354.0000		
Barium, total	ug/L	MW-3	04/10/2017		321.0000		
Barium, total	ug/L	MW-3	09/01/2017		271.0000		

* - Outlier for that well and constituent.
** - ND value replaced with median RL.
*** - ND value replaced with manual RL.
ND = Not detected, Result = detection limit.

Table 1

Upgradient Data

Constituent	Units	Well	Date		Result	Adjusted	
Barium, total	ug/L	MW-3	04/23/2018		202.0000		
Barium, total	ug/L	MW-3	09/14/2018		170.0000		
Barium, total	ug/L	MW-3	04/15/2019		191.0000		
Barium, total	ug/L	MW-3	09/17/2019		197.0000		
Barium, total	ug/L	MW-3	04/08/2020		407.0000		
Barium, total	ug/L	MW-3	10/02/2020		157.0000		
Barium, total	ug/L	MW-3	04/12/2021		117.0000		
Barium, total	ug/L	MW-3	10/26/2021		157.0000		
Barium, total	ug/L	MW-3	04/04/2022		269.0000		
Barium, total	ug/L	MW-3	10/07/2022		292.0000		
Barium, total	ug/L	MW-3	04/19/2023		317.0000		
Barium, total	ug/L	MW-3	10/25/2023		269.0000		
Barium, total	ug/L	MW-3	04/17/2024		360.0000		
Beryllium, total	ug/L	MW-3	03/31/2010	ND	4.0000		
Beryllium, total	ug/L	MW-3	09/16/2010	ND	4.0000		
Beryllium, total	ug/L	MW-3	04/11/2011	ND	4.0000		
Beryllium, total	ug/L	MW-3	09/26/2011	ND	4.0000		
Beryllium, total	ug/L	MW-3	04/01/2012	ND	4.0000		
Beryllium, total	ug/L	MW-3	08/23/2012	ND	4.0000		
Beryllium, total	ug/L	MW-3	04/13/2013	ND	4.0000		
Beryllium, total	ug/L	MW-3	09/14/2013	ND	4.0000		
Beryllium, total	ug/L	MW-3	04/11/2014	ND	4.0000		
Beryllium, total	ug/L	MW-3	09/27/2014	ND	4.0000		
Beryllium, total	ug/L	MW-3	03/16/2015	ND	4.0000		
Beryllium, total	ug/L	MW-3	09/28/2015	ND	4.0000		
Beryllium, total	ug/L	MW-3	03/14/2016	ND	4.0000		
Beryllium, total	ug/L	MW-3	09/03/2016	ND	4.0000		
Beryllium, total	ug/L	MW-3	04/10/2017	ND	4.0000		
Beryllium, total	ug/L	MW-3	09/01/2017	ND	4.0000		
Beryllium, total	ug/L	MW-3	04/23/2018	ND	4.0000		
Beryllium, total	ug/L	MW-3	09/14/2018	ND	4.0000		
Beryllium, total	ug/L	MW-3	04/15/2019	ND	4.0000		
Beryllium, total	ug/L	MW-3	09/17/2019	ND	4.0000		
Beryllium, total	ug/L	MW-3	04/08/2020	ND	4.0000		
Beryllium, total	ug/L	MW-3	10/02/2020	ND	4.0000		
Beryllium, total	ug/L	MW-3	04/12/2021	ND	4.0000		
Beryllium, total	ug/L	MW-3	10/26/2021	ND	4.0000		
Beryllium, total	ug/L	MW-3	04/04/2022	ND	4.0000		
Beryllium, total	ug/L	MW-3	10/07/2022	ND	4.0000		
Beryllium, total	ug/L	MW-3	04/19/2023	ND	4.0000		
Beryllium, total	ug/L	MW-3	10/25/2023	ND	4.0000		
Beryllium, total	ug/L	MW-3	04/17/2024	ND	4.0000		
Cadmium, total	ug/L	MW-3	03/31/2010	ND	1.0000	0.8000	**
Cadmium, total	ug/L	MW-3	09/16/2010	ND	1.0000	0.8000	**
Cadmium, total	ug/L	MW-3	04/11/2011	ND	0.8000		
Cadmium, total	ug/L	MW-3	09/26/2011	ND	0.8000		
Cadmium, total	ug/L	MW-3	04/01/2012	ND	0.8000		
Cadmium, total	ug/L	MW-3	08/23/2012	ND	0.8000		
Cadmium, total	ug/L	MW-3	04/13/2013	ND	0.8000		
Cadmium, total	ug/L	MW-3	09/14/2013	ND	0.8000		
Cadmium, total	ug/L	MW-3	04/11/2014	ND	0.8000		
Cadmium, total	ug/L	MW-3	09/27/2014	ND	0.8000		
Cadmium, total	ug/L	MW-3	03/16/2015	ND	0.8000		
Cadmium, total	ug/L	MW-3	09/28/2015	ND	0.8000		
Cadmium, total	ug/L	MW-3	03/14/2016		0.8000		
Cadmium, total	ug/L	MW-3	09/03/2016	ND	0.8000		
Cadmium, total	ug/L	MW-3	04/10/2017	ND	0.8000		
Cadmium, total	ug/L	MW-3	09/01/2017	ND	0.8000		
Cadmium, total	ug/L	MW-3	04/23/2018	ND	0.8000		
Cadmium, total	ug/L	MW-3	09/14/2018		0.9000		
Cadmium, total	ug/L	MW-3	04/15/2019		1.0000		
Cadmium, total	ug/L	MW-3	09/17/2019	ND	0.8000		
Cadmium, total	ug/L	MW-3	04/08/2020		1.5000		
Cadmium, total	ug/L	MW-3	10/02/2020	ND	0.8000		
Cadmium, total	ug/L	MW-3	04/12/2021	ND	0.8000		
Cadmium, total	ug/L	MW-3	10/26/2021	ND	0.8000		
Cadmium, total	ug/L	MW-3	04/04/2022	ND	0.8000		
Cadmium, total	ug/L	MW-3	10/07/2022	ND	0.8000		
Cadmium, total	ug/L	MW-3	04/19/2023	ND	0.8000		
Cadmium, total	ug/L	MW-3	10/25/2023	ND	0.8000		
Cadmium, total	ug/L	MW-3	04/17/2024	ND	0.8000		
Chromium, total	ug/L	MW-3	03/31/2010	ND	10.0000	8.0000	**
Chromium, total	ug/L	MW-3	09/16/2010	ND	10.0000	8.0000	**
Chromium, total	ug/L	MW-3	04/11/2011	ND	8.0000		

*   - Outlier for that well and constituent.
** - ND value replaced with median RL.
*** - ND value replaced with manual RL.
ND = Not detected, Result = detection limit.

Table 1

Upgradient Data

Constituent	Units	Well	Date		Result	Adjusted	
Chromium, total	ug/L	MW-3	09/26/2011	ND	8.0000		
Chromium, total	ug/L	MW-3	04/01/2012	ND	8.0000		
Chromium, total	ug/L	MW-3	08/23/2012	ND	8.0000		
Chromium, total	ug/L	MW-3	04/13/2013	ND	8.0000		
Chromium, total	ug/L	MW-3	09/14/2013	ND	8.0000		
Chromium, total	ug/L	MW-3	04/11/2014	ND	8.0000		
Chromium, total	ug/L	MW-3	09/27/2014	ND	8.0000		
Chromium, total	ug/L	MW-3	03/16/2015	ND	8.0000		
Chromium, total	ug/L	MW-3	09/28/2015	ND	8.0000		
Chromium, total	ug/L	MW-3	03/14/2016	ND	8.0000		
Chromium, total	ug/L	MW-3	09/03/2016	ND	8.0000		
Chromium, total	ug/L	MW-3	04/10/2017	ND	8.0000		
Chromium, total	ug/L	MW-3	09/01/2017	ND	8.0000		
Chromium, total	ug/L	MW-3	04/23/2018	ND	8.0000		
Chromium, total	ug/L	MW-3	09/14/2018	ND	8.0000		
Chromium, total	ug/L	MW-3	04/15/2019	ND	8.0000		
Chromium, total	ug/L	MW-3	09/17/2019	ND	8.0000		
Chromium, total	ug/L	MW-3	04/08/2020	ND	8.0000		
Chromium, total	ug/L	MW-3	10/02/2020	ND	8.0000		
Chromium, total	ug/L	MW-3	04/12/2021	ND	8.0000		
Chromium, total	ug/L	MW-3	10/26/2021	ND	8.0000		
Chromium, total	ug/L	MW-3	04/04/2022	ND	8.0000		
Chromium, total	ug/L	MW-3	10/07/2022	ND	8.0000		
Chromium, total	ug/L	MW-3	04/19/2023	ND	8.0000		
Chromium, total	ug/L	MW-3	10/25/2023	ND	8.0000		
Chromium, total	ug/L	MW-3	04/17/2024	ND	8.0000		
Cobalt, total	ug/L	MW-3	03/31/2010	ND	4.0000	0.8000	**
Cobalt, total	ug/L	MW-3	09/16/2010	ND	4.0000	0.8000	**
Cobalt, total	ug/L	MW-3	04/11/2011	ND	4.0000	0.8000	**
Cobalt, total	ug/L	MW-3	09/26/2011	ND	4.0000	0.8000	**
Cobalt, total	ug/L	MW-3	04/01/2012	ND	4.0000	0.8000	**
Cobalt, total	ug/L	MW-3	08/23/2012	ND	4.0000	0.8000	**
Cobalt, total	ug/L	MW-3	04/13/2013	ND	4.0000	0.8000	**
Cobalt, total	ug/L	MW-3	09/14/2013	ND	4.0000	0.8000	**
Cobalt, total	ug/L	MW-3	04/11/2014	ND	4.0000	0.8000	**
Cobalt, total	ug/L	MW-3	09/27/2014		0.9000		
Cobalt, total	ug/L	MW-3	03/16/2015	ND	0.8000		
Cobalt, total	ug/L	MW-3	09/28/2015	ND	0.8000		
Cobalt, total	ug/L	MW-3	03/14/2016	ND	0.8000		
Cobalt, total	ug/L	MW-3	09/03/2016	ND	0.8000		
Cobalt, total	ug/L	MW-3	04/10/2017	ND	0.8000		
Cobalt, total	ug/L	MW-3	09/01/2017	ND	0.8000		
Cobalt, total	ug/L	MW-3	04/23/2018	ND	0.8000		
Cobalt, total	ug/L	MW-3	09/14/2018	ND	0.8000		
Cobalt, total	ug/L	MW-3	04/15/2019	ND	0.8000		
Cobalt, total	ug/L	MW-3	09/17/2019	ND	0.8000		
Cobalt, total	ug/L	MW-3	04/08/2020		1.6000		
Cobalt, total	ug/L	MW-3	10/02/2020	ND	0.4000	0.8000	**
Cobalt, total	ug/L	MW-3	04/12/2021		0.7000		
Cobalt, total	ug/L	MW-3	10/26/2021		3.6000		
Cobalt, total	ug/L	MW-3	04/04/2022		0.9000		
Cobalt, total	ug/L	MW-3	10/07/2022		2.4000		
Cobalt, total	ug/L	MW-3	04/19/2023		0.6000		
Cobalt, total	ug/L	MW-3	10/25/2023		0.9000		
Cobalt, total	ug/L	MW-3	04/17/2024		0.9000		
Copper, total	ug/L	MW-3	03/31/2010	ND	4.0000		
Copper, total	ug/L	MW-3	09/16/2010	ND	4.0000		
Copper, total	ug/L	MW-3	04/11/2011	ND	4.0000		
Copper, total	ug/L	MW-3	09/26/2011	ND	4.0000		
Copper, total	ug/L	MW-3	04/01/2012		4.5000		
Copper, total	ug/L	MW-3	08/23/2012	ND	4.0000		
Copper, total	ug/L	MW-3	04/13/2013	ND	4.0000		
Copper, total	ug/L	MW-3	09/14/2013	ND	4.0000		
Copper, total	ug/L	MW-3	04/11/2014		4.1000		
Copper, total	ug/L	MW-3	09/27/2014	ND	4.0000		
Copper, total	ug/L	MW-3	03/16/2015	ND	4.0000		
Copper, total	ug/L	MW-3	09/28/2015	ND	4.0000		
Copper, total	ug/L	MW-3	03/14/2016	ND	4.0000		
Copper, total	ug/L	MW-3	09/03/2016	ND	4.0000		
Copper, total	ug/L	MW-3	04/10/2017	ND	4.0000		
Copper, total	ug/L	MW-3	09/01/2017	ND	4.0000		
Copper, total	ug/L	MW-3	04/23/2018	ND	4.0000		
Copper, total	ug/L	MW-3	09/14/2018	ND	4.0000		
Copper, total	ug/L	MW-3	04/15/2019	ND	4.0000		

*   - Outlier for that well and constituent.
** - ND value replaced with median RL.
*** - ND value replaced with manual RL.
ND = Not detected, Result = detection limit.

Table 1

Upgradient Data

Constituent	Units	Well	Date		Result	Adjusted	
Copper, total	ug/L	MW-3	09/17/2019	ND	4.0000		
Copper, total	ug/L	MW-3	04/08/2020		5.5000		
Copper, total	ug/L	MW-3	10/02/2020	ND	4.0000		
Copper, total	ug/L	MW-3	04/12/2021	ND	4.0000		
Copper, total	ug/L	MW-3	10/26/2021	ND	4.0000		
Copper, total	ug/L	MW-3	04/04/2022	ND	4.0000		
Copper, total	ug/L	MW-3	10/07/2022	ND	4.0000		
Copper, total	ug/L	MW-3	04/19/2023	ND	4.0000		
Copper, total	ug/L	MW-3	10/25/2023	ND	4.0000		
Copper, total	ug/L	MW-3	04/17/2024	ND	4.0000		
Lead, total	ug/L	MW-3	03/31/2010	ND	4.0000		
Lead, total	ug/L	MW-3	09/16/2010	ND	4.0000		
Lead, total	ug/L	MW-3	04/11/2011	ND	4.0000		
Lead, total	ug/L	MW-3	09/26/2011	ND	4.0000		
Lead, total	ug/L	MW-3	04/01/2012	ND	4.0000		
Lead, total	ug/L	MW-3	08/23/2012	ND	4.0000		
Lead, total	ug/L	MW-3	04/13/2013	ND	4.0000		
Lead, total	ug/L	MW-3	09/14/2013	ND	4.0000		
Lead, total	ug/L	MW-3	04/11/2014	ND	4.0000		
Lead, total	ug/L	MW-3	09/27/2014	ND	4.0000		
Lead, total	ug/L	MW-3	03/16/2015	ND	4.0000		
Lead, total	ug/L	MW-3	09/28/2015	ND	4.0000		
Lead, total	ug/L	MW-3	03/14/2016	ND	4.0000		
Lead, total	ug/L	MW-3	09/03/2016	ND	4.0000		
Lead, total	ug/L	MW-3	04/10/2017	ND	4.0000		
Lead, total	ug/L	MW-3	09/01/2017	ND	4.0000		
Lead, total	ug/L	MW-3	04/23/2018	ND	4.0000		
Lead, total	ug/L	MW-3	09/14/2018	ND	4.0000		
Lead, total	ug/L	MW-3	04/15/2019	ND	4.0000		
Lead, total	ug/L	MW-3	09/17/2019	ND	4.0000		
Lead, total	ug/L	MW-3	04/08/2020	ND	4.0000		
Lead, total	ug/L	MW-3	10/02/2020	ND	4.0000		
Lead, total	ug/L	MW-3	04/12/2021	ND	4.0000		
Lead, total	ug/L	MW-3	10/26/2021	ND	4.0000		
Lead, total	ug/L	MW-3	04/04/2022	ND	4.0000		
Lead, total	ug/L	MW-3	10/07/2022	ND	4.0000		
Lead, total	ug/L	MW-3	04/19/2023	ND	4.0000		
Lead, total	ug/L	MW-3	10/25/2023	ND	4.0000		
Lead, total	ug/L	MW-3	04/17/2024	ND	4.0000		
Nickel, total	ug/L	MW-3	03/31/2010		6.4000		
Nickel, total	ug/L	MW-3	09/16/2010		6.4000		
Nickel, total	ug/L	MW-3	04/11/2011		10.5000		
Nickel, total	ug/L	MW-3	09/26/2011		7.8000		
Nickel, total	ug/L	MW-3	04/01/2012		11.1000		
Nickel, total	ug/L	MW-3	08/23/2012		6.5000		
Nickel, total	ug/L	MW-3	04/13/2013		7.3000		
Nickel, total	ug/L	MW-3	09/14/2013	ND	4.0000		
Nickel, total	ug/L	MW-3	04/11/2014		4.2000		
Nickel, total	ug/L	MW-3	09/27/2014	ND	4.0000		
Nickel, total	ug/L	MW-3	03/16/2015	ND	4.0000		
Nickel, total	ug/L	MW-3	09/28/2015	ND	4.0000		
Nickel, total	ug/L	MW-3	03/14/2016	ND	4.0000		
Nickel, total	ug/L	MW-3	09/03/2016	ND	4.0000		
Nickel, total	ug/L	MW-3	04/10/2017	ND	4.0000		
Nickel, total	ug/L	MW-3	09/01/2017	ND	4.0000		
Nickel, total	ug/L	MW-3	04/23/2018	ND	20.0000	4.0000	**
Nickel, total	ug/L	MW-3	09/14/2018	ND	4.0000		
Nickel, total	ug/L	MW-3	04/15/2019	ND	4.0000		
Nickel, total	ug/L	MW-3	09/17/2019	ND	4.0000		
Nickel, total	ug/L	MW-3	04/08/2020		15.6000		
Nickel, total	ug/L	MW-3	10/02/2020	ND	4.0000		
Nickel, total	ug/L	MW-3	04/12/2021		5.6000		
Nickel, total	ug/L	MW-3	10/26/2021		5.0000		
Nickel, total	ug/L	MW-3	04/04/2022	ND	4.0000		
Nickel, total	ug/L	MW-3	10/07/2022	ND	4.0000		
Nickel, total	ug/L	MW-3	04/19/2023	ND	4.0000		
Nickel, total	ug/L	MW-3	10/25/2023	ND	4.0000		
Nickel, total	ug/L	MW-3	04/17/2024	ND	4.0000		
Selenium, total	ug/L	MW-3	03/31/2010	ND	4.0000		
Selenium, total	ug/L	MW-3	09/16/2010	ND	4.0000		
Selenium, total	ug/L	MW-3	04/11/2011	ND	4.0000		
Selenium, total	ug/L	MW-3	09/26/2011	ND	4.0000		
Selenium, total	ug/L	MW-3	04/01/2012	ND	4.0000		
Selenium, total	ug/L	MW-3	08/23/2012	ND	4.0000		

* - Outlier for that well and constituent.
** - ND value replaced with median RL.
*** - ND value replaced with manual RL.
ND = Not detected, Result = detection limit.

Table 1

Upgradient Data

Constituent	Units	Well	Date		Result	Adjusted	
Selenium, total	ug/L	MW-3	04/13/2013	ND	4.0000		
Selenium, total	ug/L	MW-3	09/14/2013	ND	4.0000		
Selenium, total	ug/L	MW-3	04/11/2014	ND	4.0000		
Selenium, total	ug/L	MW-3	09/27/2014	ND	4.0000		
Selenium, total	ug/L	MW-3	03/16/2015	ND	4.0000		
Selenium, total	ug/L	MW-3	09/28/2015	ND	4.0000		
Selenium, total	ug/L	MW-3	03/14/2016	ND	4.0000		
Selenium, total	ug/L	MW-3	09/03/2016	ND	4.0000		
Selenium, total	ug/L	MW-3	04/10/2017	ND	4.0000		
Selenium, total	ug/L	MW-3	09/01/2017	ND	4.0000		
Selenium, total	ug/L	MW-3	04/23/2018	ND	4.0000		
Selenium, total	ug/L	MW-3	09/14/2018	ND	4.0000		
Selenium, total	ug/L	MW-3	04/15/2019	ND	4.0000		
Selenium, total	ug/L	MW-3	09/17/2019	ND	4.0000		
Selenium, total	ug/L	MW-3	04/08/2020	ND	4.0000		
Selenium, total	ug/L	MW-3	10/02/2020	ND	4.0000		
Selenium, total	ug/L	MW-3	04/12/2021	ND	4.0000		
Selenium, total	ug/L	MW-3	10/26/2021	ND	4.0000		
Selenium, total	ug/L	MW-3	04/04/2022	ND	4.0000		
Selenium, total	ug/L	MW-3	10/07/2022	ND	4.0000		
Selenium, total	ug/L	MW-3	04/19/2023	ND	4.0000		
Selenium, total	ug/L	MW-3	10/25/2023	ND	4.0000		
Selenium, total	ug/L	MW-3	04/17/2024	ND	4.0000		
Silver, total	ug/L	MW-3	03/31/2010	ND	4.0000		
Silver, total	ug/L	MW-3	09/16/2010	ND	4.0000		
Silver, total	ug/L	MW-3	04/11/2011	ND	4.0000		
Silver, total	ug/L	MW-3	09/26/2011	ND	4.0000		
Silver, total	ug/L	MW-3	04/01/2012	ND	4.0000		
Silver, total	ug/L	MW-3	08/23/2012	ND	4.0000		
Silver, total	ug/L	MW-3	04/13/2013	ND	4.0000		
Silver, total	ug/L	MW-3	09/14/2013	ND	4.0000		
Silver, total	ug/L	MW-3	04/11/2014	ND	4.0000		
Silver, total	ug/L	MW-3	09/27/2014	ND	4.0000		
Silver, total	ug/L	MW-3	03/16/2015	ND	4.0000		
Silver, total	ug/L	MW-3	09/28/2015	ND	4.0000		
Silver, total	ug/L	MW-3	03/14/2016	ND	4.0000		
Silver, total	ug/L	MW-3	09/03/2016	ND	4.0000		
Silver, total	ug/L	MW-3	04/10/2017	ND	4.0000		
Silver, total	ug/L	MW-3	09/01/2017	ND	4.0000		
Silver, total	ug/L	MW-3	04/23/2018	ND	4.0000		
Silver, total	ug/L	MW-3	09/14/2018	ND	4.0000		
Silver, total	ug/L	MW-3	04/15/2019	ND	4.0000		
Silver, total	ug/L	MW-3	09/17/2019	ND	4.0000		
Silver, total	ug/L	MW-3	04/08/2020	ND	4.0000		
Silver, total	ug/L	MW-3	10/02/2020	ND	4.0000		
Silver, total	ug/L	MW-3	04/12/2021	ND	4.0000		
Silver, total	ug/L	MW-3	10/26/2021	ND	4.0000		
Silver, total	ug/L	MW-3	04/04/2022	ND	4.0000		
Silver, total	ug/L	MW-3	10/07/2022	ND	4.0000		
Silver, total	ug/L	MW-3	04/19/2023	ND	4.0000		
Silver, total	ug/L	MW-3	10/25/2023	ND	4.0000		
Silver, total	ug/L	MW-3	04/17/2024	ND	4.0000		
Thallium, total	ug/L	MW-3	03/31/2010	ND	4.0000	2.0000	**
Thallium, total	ug/L	MW-3	09/16/2010	ND	4.0000	2.0000	**
Thallium, total	ug/L	MW-3	04/11/2011	ND	4.0000	2.0000	**
Thallium, total	ug/L	MW-3	09/26/2011	ND	4.0000	2.0000	**
Thallium, total	ug/L	MW-3	04/01/2012	ND	2.0000		
Thallium, total	ug/L	MW-3	08/23/2012	ND	2.0000		
Thallium, total	ug/L	MW-3	04/13/2013	ND	2.0000		
Thallium, total	ug/L	MW-3	09/14/2013	ND	4.0000	2.0000	**
Thallium, total	ug/L	MW-3	04/11/2014	ND	4.0000	2.0000	**
Thallium, total	ug/L	MW-3	09/27/2014	ND	4.0000	2.0000	**
Thallium, total	ug/L	MW-3	03/16/2015	ND	4.0000	2.0000	**
Thallium, total	ug/L	MW-3	09/28/2015	ND	1.0000	2.0000	**
Thallium, total	ug/L	MW-3	03/14/2016	ND	4.0000	2.0000	**
Thallium, total	ug/L	MW-3	09/03/2016	ND	4.0000	2.0000	**
Thallium, total	ug/L	MW-3	04/10/2017	ND	4.0000	2.0000	**
Thallium, total	ug/L	MW-3	09/01/2017	ND	4.0000	2.0000	**
Thallium, total	ug/L	MW-3	04/23/2018	ND	4.0000	2.0000	**
Thallium, total	ug/L	MW-3	09/14/2018	ND	4.0000	2.0000	**
Thallium, total	ug/L	MW-3	04/15/2019	ND	2.0000		
Thallium, total	ug/L	MW-3	09/17/2019	ND	2.0000		
Thallium, total	ug/L	MW-3	04/08/2020	ND	2.0000		
Thallium, total	ug/L	MW-3	10/02/2020	ND	2.0000		

* - Outlier for that well and constituent.
** - ND value replaced with median RL.
*** - ND value replaced with manual RL.
ND = Not detected, Result = detection limit.

Table 1

Upgradient Data

Constituent	Units	Well	Date		Result	Adjusted	
Thallium, total	ug/L	MW-3	04/12/2021	ND	2.0000		
Thallium, total	ug/L	MW-3	10/26/2021	ND	2.0000		
Thallium, total	ug/L	MW-3	04/04/2022	ND	2.0000		
Thallium, total	ug/L	MW-3	10/07/2022	ND	2.0000		
Thallium, total	ug/L	MW-3	04/19/2023	ND	2.0000		
Thallium, total	ug/L	MW-3	10/25/2023	ND	2.0000		
Thallium, total	ug/L	MW-3	04/17/2024	ND	2.0000		
Vanadium, total	ug/L	MW-3	03/31/2010		10.6000		
Vanadium, total	ug/L	MW-3	09/16/2010	ND	10.0000	20.0000	**
Vanadium, total	ug/L	MW-3	04/11/2011		21.8000		
Vanadium, total	ug/L	MW-3	09/26/2011	ND	20.0000		
Vanadium, total	ug/L	MW-3	04/01/2012	ND	20.0000		
Vanadium, total	ug/L	MW-3	08/23/2012	ND	20.0000		
Vanadium, total	ug/L	MW-3	04/13/2013	ND	20.0000		
Vanadium, total	ug/L	MW-3	09/14/2013	ND	20.0000		
Vanadium, total	ug/L	MW-3	04/11/2014	ND	20.0000		
Vanadium, total	ug/L	MW-3	09/27/2014	ND	20.0000		
Vanadium, total	ug/L	MW-3	03/16/2015	ND	20.0000		
Vanadium, total	ug/L	MW-3	09/28/2015	ND	20.0000		
Vanadium, total	ug/L	MW-3	03/14/2016	ND	20.0000		
Vanadium, total	ug/L	MW-3	09/03/2016	ND	20.0000		
Vanadium, total	ug/L	MW-3	04/10/2017	ND	20.0000		
Vanadium, total	ug/L	MW-3	09/01/2017	ND	20.0000		
Vanadium, total	ug/L	MW-3	04/23/2018	ND	20.0000		
Vanadium, total	ug/L	MW-3	09/14/2018	ND	20.0000		
Vanadium, total	ug/L	MW-3	04/15/2019	ND	20.0000		
Vanadium, total	ug/L	MW-3	09/17/2019	ND	20.0000		
Vanadium, total	ug/L	MW-3	04/08/2020	ND	20.0000		
Vanadium, total	ug/L	MW-3	10/02/2020	ND	20.0000		
Vanadium, total	ug/L	MW-3	04/12/2021	ND	20.0000		
Vanadium, total	ug/L	MW-3	10/26/2021	ND	20.0000		
Vanadium, total	ug/L	MW-3	04/04/2022	ND	20.0000		
Vanadium, total	ug/L	MW-3	10/07/2022	ND	20.0000		
Vanadium, total	ug/L	MW-3	04/19/2023	ND	20.0000		
Vanadium, total	ug/L	MW-3	10/25/2023	ND	20.0000		
Vanadium, total	ug/L	MW-3	04/17/2024	ND	20.0000		
Zinc, total	ug/L	MW-3	03/31/2010	ND	10.0000	20.0000	**
Zinc, total	ug/L	MW-3	09/16/2010	ND	10.0000	20.0000	**
Zinc, total	ug/L	MW-3	04/11/2011	ND	8.0000	20.0000	**
Zinc, total	ug/L	MW-3	09/26/2011		11.0000		
Zinc, total	ug/L	MW-3	04/01/2012		25.0000		
Zinc, total	ug/L	MW-3	08/23/2012		9.7000		
Zinc, total	ug/L	MW-3	04/13/2013		9.6000		
Zinc, total	ug/L	MW-3	09/14/2013	ND	20.0000		
Zinc, total	ug/L	MW-3	04/11/2014	ND	20.0000		
Zinc, total	ug/L	MW-3	09/27/2014		8.9000		
Zinc, total	ug/L	MW-3	03/16/2015	ND	8.0000	20.0000	**
Zinc, total	ug/L	MW-3	09/28/2015		8.8000		
Zinc, total	ug/L	MW-3	03/14/2016	ND	20.0000		
Zinc, total	ug/L	MW-3	09/03/2016	ND	8.0000	20.0000	**
Zinc, total	ug/L	MW-3	04/10/2017	ND	8.0000	20.0000	**
Zinc, total	ug/L	MW-3	09/01/2017	ND	8.0000	20.0000	**
Zinc, total	ug/L	MW-3	04/23/2018	ND	8.0000	20.0000	**
Zinc, total	ug/L	MW-3	09/14/2018	ND	20.0000		
Zinc, total	ug/L	MW-3	04/15/2019		14.0000		
Zinc, total	ug/L	MW-3	09/17/2019	ND	20.0000		
Zinc, total	ug/L	MW-3	04/08/2020		30.3000		
Zinc, total	ug/L	MW-3	10/02/2020	ND	20.0000		
Zinc, total	ug/L	MW-3	04/12/2021	ND	20.0000		
Zinc, total	ug/L	MW-3	10/26/2021	ND	20.0000		
Zinc, total	ug/L	MW-3	04/04/2022	ND	20.0000		
Zinc, total	ug/L	MW-3	10/07/2022	ND	20.0000		
Zinc, total	ug/L	MW-3	04/19/2023	ND	20.0000		
Zinc, total	ug/L	MW-3	10/25/2023	ND	20.0000		
Zinc, total	ug/L	MW-3	04/17/2024	ND	20.0000		

* - Outlier for that well and constituent.
** - ND value replaced with median RL.
*** - ND value replaced with manual RL.
ND = Not detected, Result = detection limit.

Table 2

Most Current Downgradient Monitoring Data

Constituent	Units	Well	Date		Result		Pred. Limit
Antimony, total	ug/L	MW-10	04/17/2024	ND	2.0000		2.0000
Arsenic, total	ug/L	MW-10	04/17/2024	ND	4.0000		4.1000
Barium, total	ug/L	MW-10	04/17/2024		146.0000		580.0079
Beryllium, total	ug/L	MW-10	04/17/2024	ND	4.0000		4.0000
Cadmium, total	ug/L	MW-10	04/17/2024		0.8000		1.5000
Chromium, total	ug/L	MW-10	04/17/2024	ND	8.0000		8.0000
Cobalt, total	ug/L	MW-10	04/17/2024	ND	0.4000		3.6000
Copper, total	ug/L	MW-10	04/17/2024	ND	4.0000		5.5000
Lead, total	ug/L	MW-10	04/17/2024	ND	4.0000		4.0000
Nickel, total	ug/L	MW-10	04/17/2024		8.4000		15.6000
Selenium, total	ug/L	MW-10	04/17/2024	ND	4.0000		4.0000
Silver, total	ug/L	MW-10	04/17/2024	ND	4.0000		4.0000
Thallium, total	ug/L	MW-10	04/17/2024	ND	2.0000		2.0000
Vanadium, total	ug/L	MW-10	04/17/2024	ND	20.0000		21.8000
Zinc, total	ug/L	MW-10	04/17/2024	ND	20.0000		30.3000
Antimony, total	ug/L	MW-13	04/17/2024	ND	2.0000		2.0000
Arsenic, total	ug/L	MW-13	04/17/2024	ND	4.0000		4.1000
Barium, total	ug/L	MW-13	04/17/2024		64.5000		580.0079
Beryllium, total	ug/L	MW-13	04/17/2024	ND	4.0000		4.0000
Cadmium, total	ug/L	MW-13	04/17/2024	ND	0.8000		1.5000
Chromium, total	ug/L	MW-13	04/17/2024	ND	8.0000		8.0000
Cobalt, total	ug/L	MW-13	04/17/2024	ND	0.4000		3.6000
Copper, total	ug/L	MW-13	04/17/2024	ND	4.0000		5.5000
Lead, total	ug/L	MW-13	04/17/2024	ND	4.0000		4.0000
Nickel, total	ug/L	MW-13	04/17/2024	ND	4.0000		15.6000
Selenium, total	ug/L	MW-13	04/17/2024	ND	4.0000		4.0000
Silver, total	ug/L	MW-13	04/17/2024	ND	4.0000		4.0000
Thallium, total	ug/L	MW-13	04/17/2024	ND	2.0000		2.0000
Vanadium, total	ug/L	MW-13	04/17/2024	ND	20.0000		21.8000
Zinc, total	ug/L	MW-13	04/17/2024	ND	20.0000		30.3000
Antimony, total	ug/L	MW-7	04/17/2024	ND	2.0000		2.0000
Arsenic, total	ug/L	MW-7	04/17/2024	ND	4.0000		4.1000
Barium, total	ug/L	MW-7	04/17/2024		139.0000		580.0079
Beryllium, total	ug/L	MW-7	04/17/2024	ND	4.0000		4.0000
Cadmium, total	ug/L	MW-7	04/17/2024	ND	0.8000		1.5000
Chromium, total	ug/L	MW-7	04/17/2024	ND	8.0000		8.0000
Cobalt, total	ug/L	MW-7	04/17/2024		1.0000		3.6000
Copper, total	ug/L	MW-7	04/17/2024	ND	4.0000		5.5000
Lead, total	ug/L	MW-7	04/17/2024	ND	4.0000		4.0000
Nickel, total	ug/L	MW-7	04/17/2024		9.1000	**	15.6000
Selenium, total	ug/L	MW-7	04/17/2024	ND	4.0000		4.0000
Silver, total	ug/L	MW-7	04/17/2024	ND	4.0000		4.0000
Thallium, total	ug/L	MW-7	04/17/2024	ND	2.0000		2.0000
Vanadium, total	ug/L	MW-7	04/17/2024	ND	20.0000		21.8000
Zinc, total	ug/L	MW-7	04/17/2024	ND	20.0000		30.3000
Antimony, total	ug/L	PZ-11	04/17/2024	ND	2.0000		2.0000
Arsenic, total	ug/L	PZ-11	04/17/2024	ND	4.0000		4.1000
Barium, total	ug/L	PZ-11	04/17/2024		77.3000		580.0079
Beryllium, total	ug/L	PZ-11	04/17/2024	ND	4.0000		4.0000
Cadmium, total	ug/L	PZ-11	04/17/2024	ND	0.8000		1.5000
Chromium, total	ug/L	PZ-11	04/17/2024	ND	8.0000		8.0000
Cobalt, total	ug/L	PZ-11	04/17/2024	ND	0.4000		3.6000
Copper, total	ug/L	PZ-11	04/17/2024	ND	4.0000		5.5000
Lead, total	ug/L	PZ-11	04/17/2024	ND	4.0000		4.0000
Nickel, total	ug/L	PZ-11	04/17/2024		8.8000		15.6000
Selenium, total	ug/L	PZ-11	04/17/2024	ND	4.0000		4.0000
Silver, total	ug/L	PZ-11	04/17/2024	ND	4.0000		4.0000
Thallium, total	ug/L	PZ-11	04/17/2024	ND	2.0000		2.0000
Vanadium, total	ug/L	PZ-11	04/17/2024	ND	20.0000		21.8000
Zinc, total	ug/L	PZ-11	04/17/2024	ND	20.0000		30.3000

* - Current value failed - awaiting verification.
** - Current value passed - previous exceedance not verified.
*** - Current value failed - exceedance verified.
**** - Current value passed - awaiting one more verification.
***** - Insufficient background data to compute prediction limit.
ND = Not Detected, Result = detection limit.

Table 3

Detection Frequencies in Upgradient and Downgradient Wells

Constituent	Upgradient Detect	Upgradient N	Upgradient Proportion	Downgradient Detect	Downgradient N	Downgradient Proportion
Antimony, total	0	29	0.000	0	116	0.000
Arsenic, total	1	29	0.034	19	117	0.162
Barium, total	29	29	1.000	116	116	1.000
Beryllium, total	0	29	0.000	0	116	0.000
Cadmium, total	4	29	0.138	14	117	0.120
Chromium, total	0	29	0.000	5	116	0.043
Cobalt, total	9	29	0.310	41	117	0.350
Copper, total	3	29	0.103	24	116	0.207
Lead, total	0	29	0.000	11	116	0.095
Nickel, total	11	29	0.379	73	117	0.624
Selenium, total	0	29	0.000	2	116	0.017
Silver, total	0	29	0.000	0	116	0.000
Thallium, total	0	29	0.000	0	116	0.000
Vanadium, total	2	29	0.069	10	116	0.086
Zinc, total	8	29	0.276	36	117	0.308

N = Total number of measurements in all wells.
Detect = Total number of detections in all wells.
Proportion = Detect/N.

Table 4

Shapiro-Wilk Multiple Group Test of Normality

Constituent	Detect	N	Detect Freq	G raw	G log	G cbrt	G sqrt	G sqr	G cub	Crit Value	Dist Form	Model Type
Antimony, total	0	29	0.000									nonpar
Arsenic, total	1	29	0.034									nonpar
Barium, total	29	29	1.000	0.318	1.339					2.326	normal	normal
Beryllium, total	0	29	0.000									nonpar
Cadmium, total	4	29	0.138	0.722	0.155					2.326	normal	nonpar
Chromium, total	0	29	0.000									nonpar
Cobalt, total	9	29	0.310	2.426	1.279					2.326	lognor	nonpar
Copper, total	3	29	0.103	0.092	0.255					2.326	normal	nonpar
Lead, total	0	29	0.000									nonpar
Nickel, total	11	29	0.379	1.439	0.444					2.326	normal	nonpar
Selenium, total	0	29	0.000									nonpar
Silver, total	0	29	0.000									nonpar
Thallium, total	0	29	0.000									nonpar
Vanadium, total	2	29	0.069									nonpar
Zinc, total	8	29	0.276	2.385	1.852					2.326	lognor	nonpar

* - Distribution override for that constituent.
Fit to distribution is confirmed if G <= critical value.
Model type may not match distributional form when detection frequency < 50%.

Table 5

Summary Statistics and Prediction Limits

Constituent	Units	Detect	N	Mean	SD	alpha	Factor	Pred Limit	Type		Conf
Antimony, total	ug/L	0	29					2.0000	nonpar	***	0.99
Arsenic, total	ug/L	1	29					4.1000	nonpar		0.99
Barium, total	ug/L	29	29	314.8966	105.6643	0.0100	2.5090	580.0079	normal		
Beryllium, total	ug/L	0	29					4.0000	nonpar	***	0.99
Cadmium, total	ug/L	4	29					1.5000	nonpar		0.99
Chromium, total	ug/L	0	29					8.0000	nonpar	***	0.99
Cobalt, total	ug/L	9	29					3.6000	nonpar		0.99
Copper, total	ug/L	3	29					5.5000	nonpar		0.99
Lead, total	ug/L	0	29					4.0000	nonpar	***	0.99
Nickel, total	ug/L	11	29					15.6000	nonpar		0.99
Selenium, total	ug/L	0	29					4.0000	nonpar	***	0.99
Silver, total	ug/L	0	29					4.0000	nonpar	***	0.99
Thallium, total	ug/L	0	29					2.0000	nonpar	***	0.99
Vanadium, total	ug/L	2	29					21.8000	nonpar		0.99
Zinc, total	ug/L	8	29					30.3000	nonpar		0.99

Conf = confidence level for passing initial test or one verification resample at all downgradient wells for a single constituent (nonparametric test only).
* - Insufficient Data.
** - Calculated limit raised to Manual Reporting Limit.
*** - Nonparametric limit based on ND value.
For transformed data, mean and SD in transformed units and prediction limit in original units.
All sample sizes and statistics are based on outlier free data.
For nonparametric limits, median reporting limits are substituted for extreme reporting limit values.

Table 6

Dixon's Test Outliers
1% Significance Level

Constituent	Units	Well	Date	Result	ND Qualifier	Date Range	N	Critical Value

N = Total number of independent measurements in background at each well.
Date Range = Dates of the first and last measurements included in background at each well.
Critical Value depends on the significance level and on N-1 when the two most extreme values are tested or N for the most extreme value.

Table 8

Historical Downgradient Data for Constituent-Well Combinations that Failed the Current Statistical Evaluation or are in Verification Resampling Mode

Constituent	Units	Well	Date	Result		Pred. Limit
Nickel, total	ug/L	MW-7	03/31/2010	21.3000	*	15.6000
Nickel, total	ug/L	MW-7	09/16/2010	8.6000		15.6000
Nickel, total	ug/L	MW-7	04/11/2011	20.4000	*	15.6000
Nickel, total	ug/L	MW-7	09/26/2011	24.2000	*	15.6000
Nickel, total	ug/L	MW-7	04/01/2012	32.6000	*	15.6000
Nickel, total	ug/L	MW-7	08/23/2012	26.8000	*	15.6000
Nickel, total	ug/L	MW-7	04/12/2013	26.9000	*	15.6000
Nickel, total	ug/L	MW-7	09/14/2013	19.6000	*	15.6000
Nickel, total	ug/L	MW-7	04/11/2014	21.8000	*	15.6000
Nickel, total	ug/L	MW-7	09/27/2014	25.3000	*	15.6000
Nickel, total	ug/L	MW-7	03/16/2015	26.4000	*	15.6000
Nickel, total	ug/L	MW-7	09/28/2015	32.9000	*	15.6000
Nickel, total	ug/L	MW-7	03/14/2016	34.4000	*	15.6000
Nickel, total	ug/L	MW-7	09/03/2016	30.0000	*	15.6000
Nickel, total	ug/L	MW-7	04/10/2017	56.3000	*	15.6000
Nickel, total	ug/L	MW-7	09/01/2017	64.8000	*	15.6000
Nickel, total	ug/L	MW-7	04/23/2018	68.7000	*	15.6000
Nickel, total	ug/L	MW-7	09/14/2018	65.6000	*	15.6000
Nickel, total	ug/L	MW-7	04/15/2019	57.2000	*	15.6000
Nickel, total	ug/L	MW-7	09/17/2019	94.9000	*	15.6000
Nickel, total	ug/L	MW-7	04/08/2020	73.4000	*	15.6000
Nickel, total	ug/L	MW-7	10/02/2020	77.6000	*	15.6000
Nickel, total	ug/L	MW-7	04/12/2021	65.5000	*	15.6000
Nickel, total	ug/L	MW-7	10/26/2021	57.5000	*	15.6000
Nickel, total	ug/L	MW-7	04/04/2022	39.1000	*	15.6000
Nickel, total	ug/L	MW-7	10/07/2022	68.3000	*	15.6000
Nickel, total	ug/L	MW-7	04/19/2023	14.2000		15.6000
Nickel, total	ug/L	MW-7	10/25/2023	43.8000	*	15.6000
Nickel, total	ug/L	MW-7	04/17/2024	9.1000		15.6000

* - Significantly increased over background.
** - Detect at limit for 100% NDs in background (NPPL only).
*** - Manual exclusion.
ND = Not Detected, Result = detection limit.

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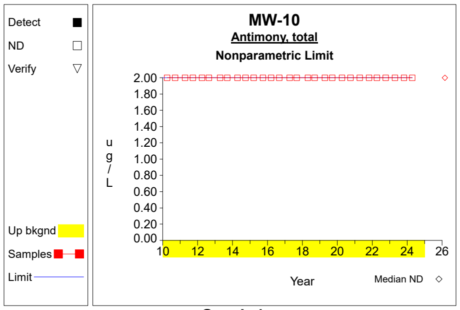
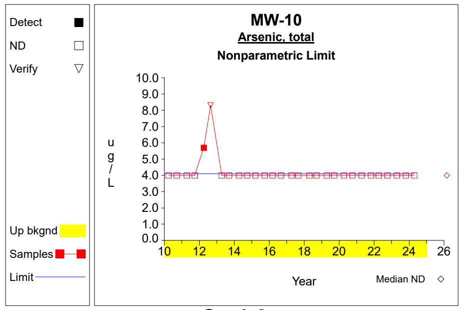
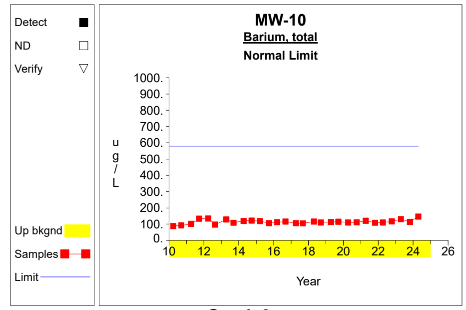
Up vs. Down Prediction Limits



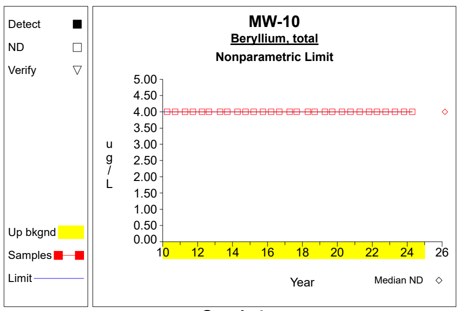
Graph 1



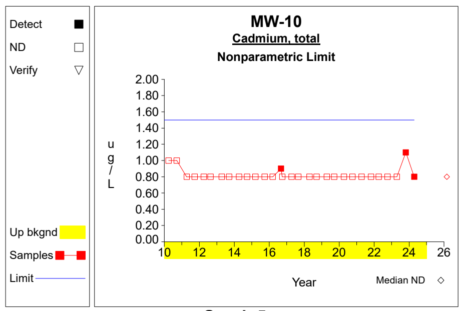
Graph 2



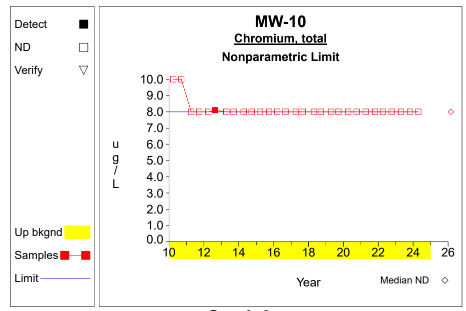
Graph 3



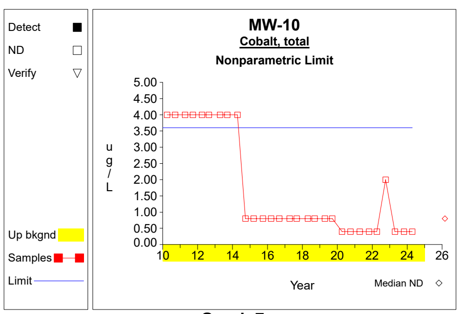
Graph 4



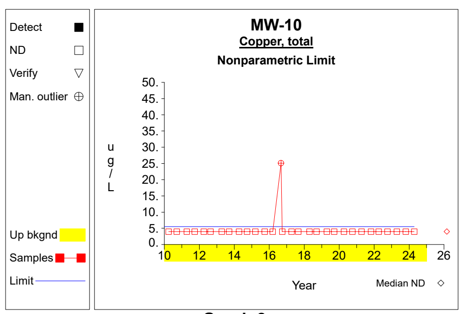
Graph 5



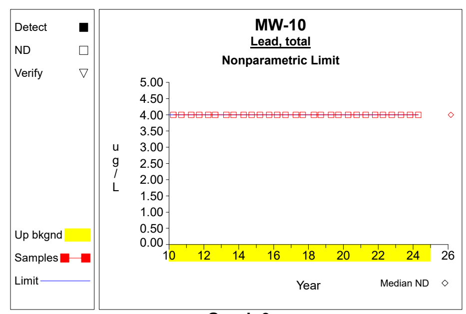
Graph 6



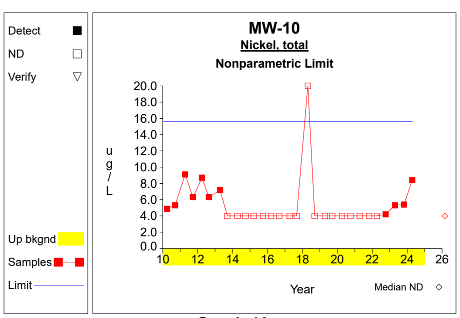
Graph 7



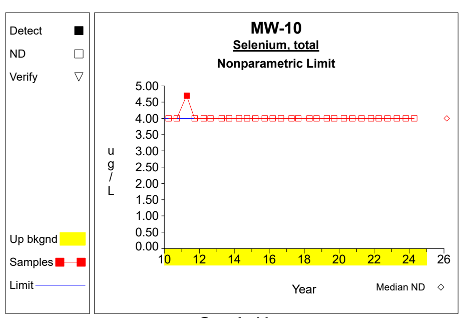
Graph 8



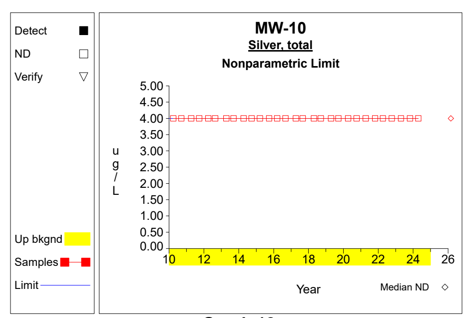
Graph 9



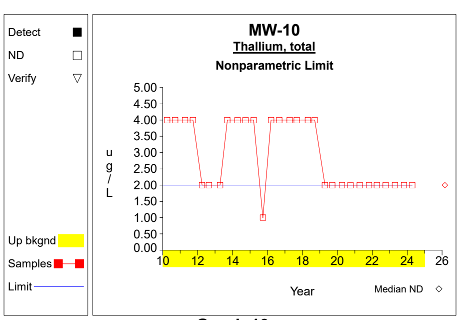
Graph 10



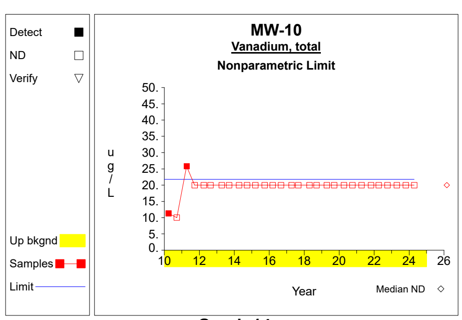
Graph 11



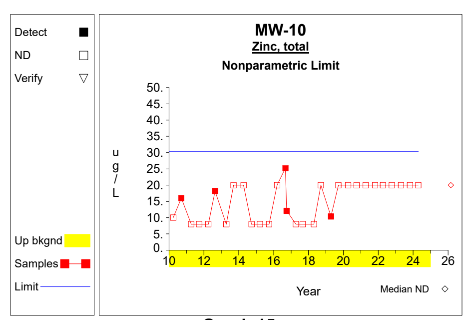
Graph 12



Graph 13



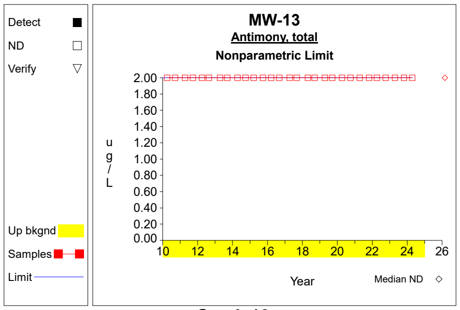
Graph 14



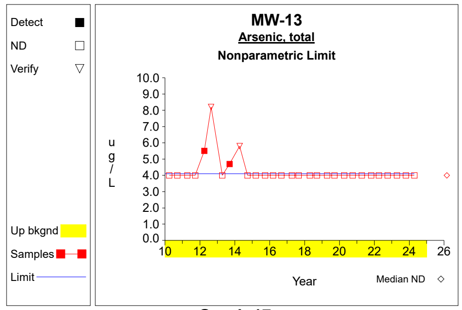
Graph 15

Prepared by: Otter Creek Environmental

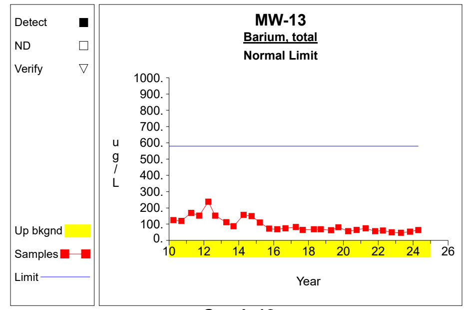
Up vs. Down Prediction Limits



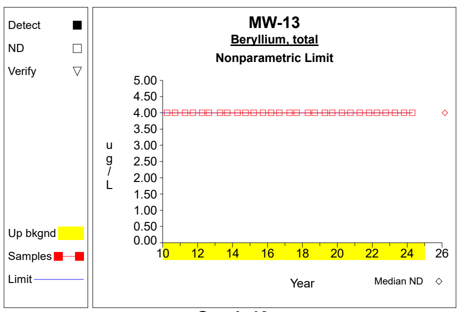
Graph 16



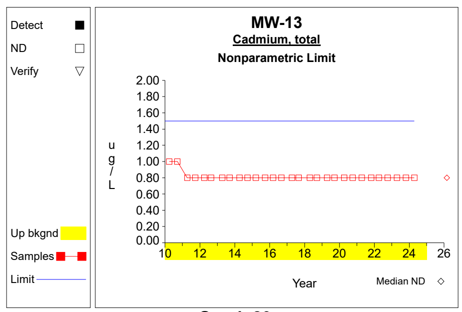
Graph 17



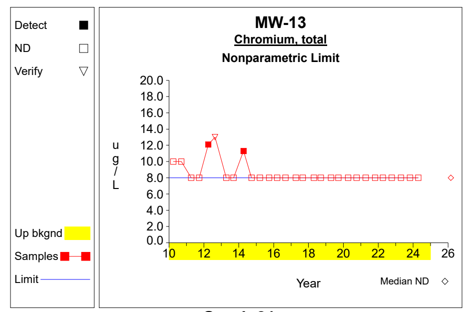
Graph 18



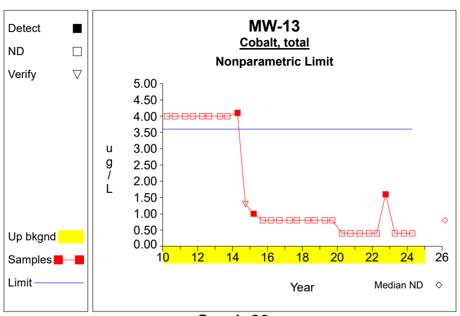
Graph 19



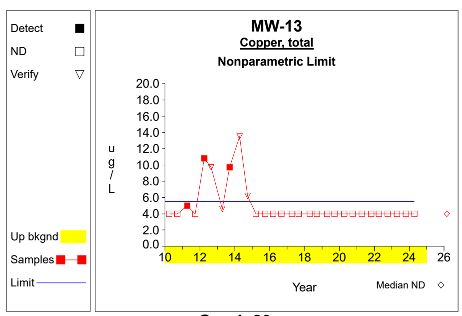
Graph 20



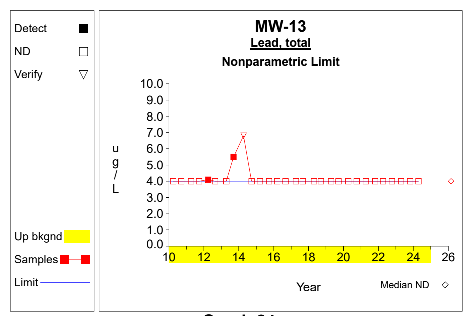
Graph 21



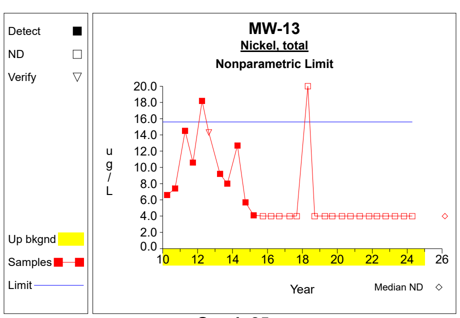
Graph 22



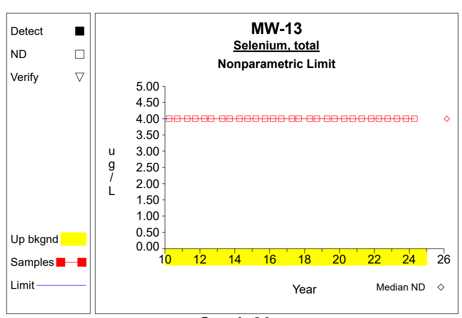
Graph 23



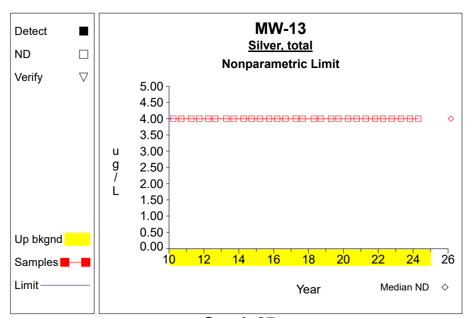
Graph 24



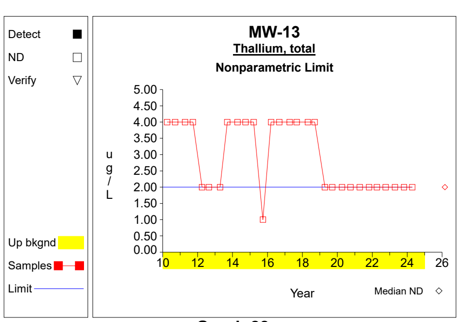
Graph 25



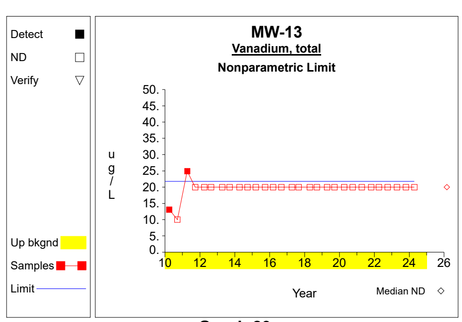
Graph 26



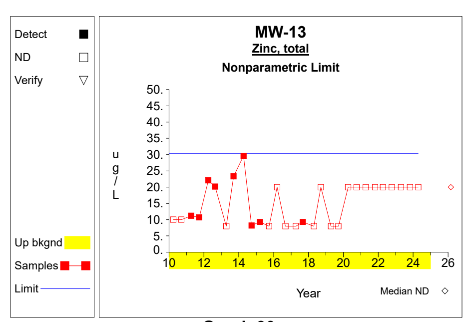
Graph 27



Graph 28

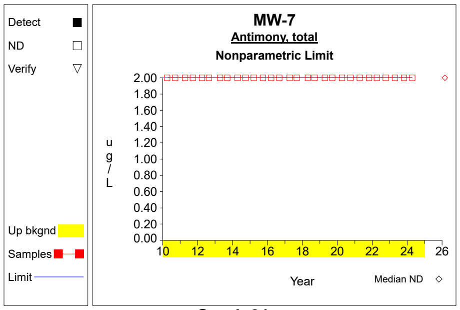


Graph 29

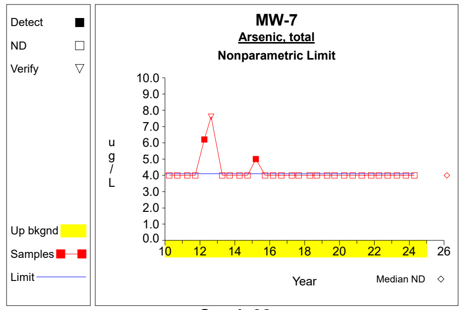


Graph 30

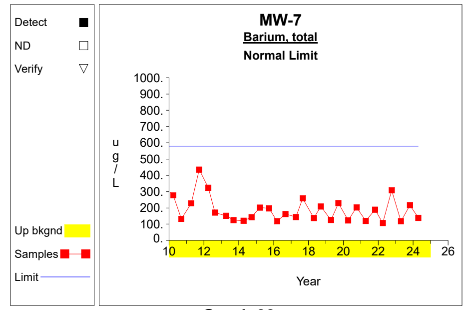
Up vs. Down Prediction Limits



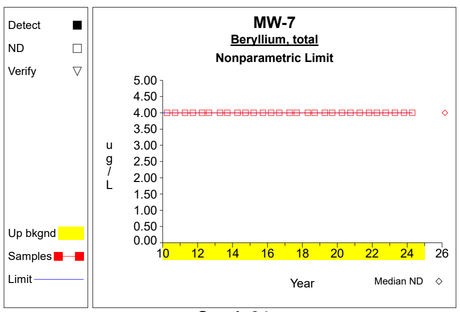
Graph 31



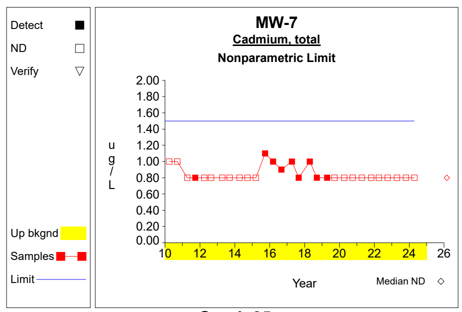
Graph 32



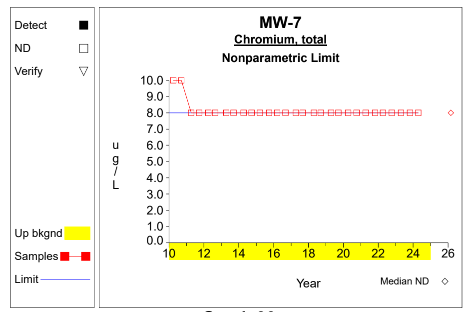
Graph 33



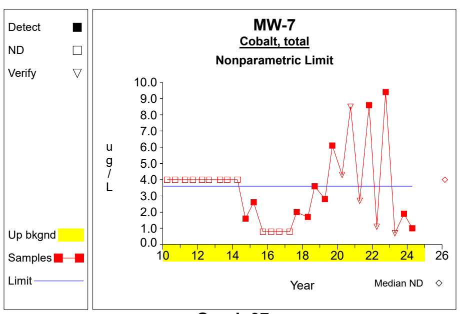
Graph 34



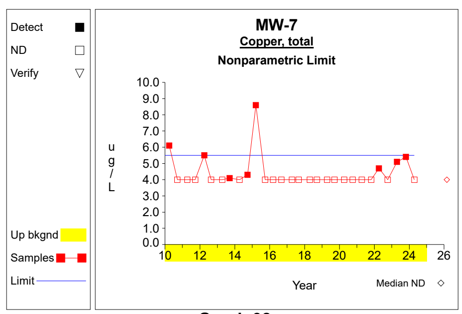
Graph 35



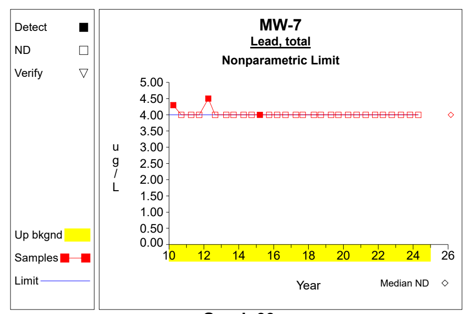
Graph 36



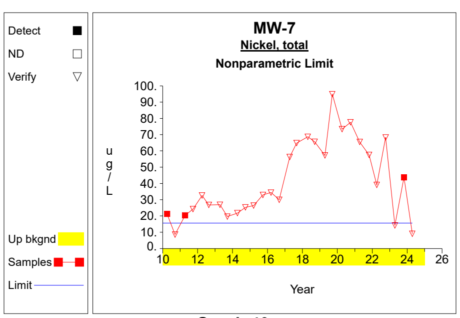
Graph 37



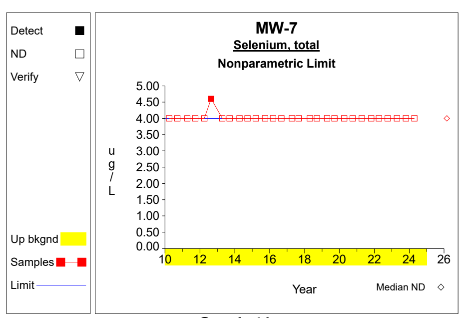
Graph 38



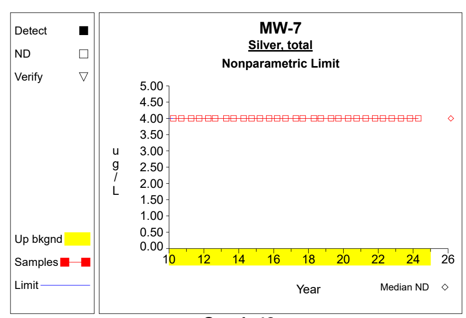
Graph 39



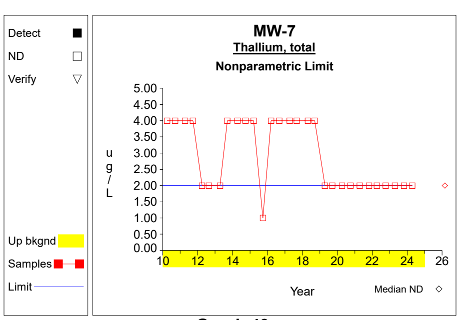
Graph 40



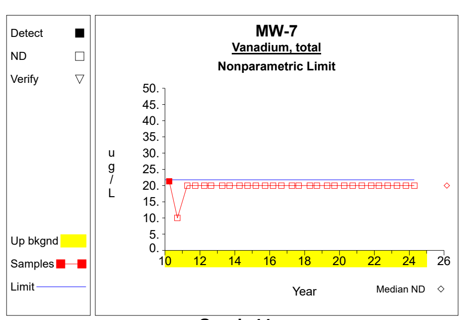
Graph 41



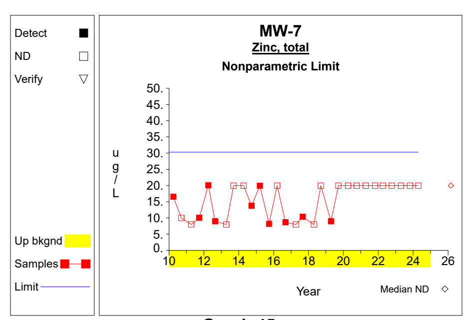
Graph 42



Graph 43



Graph 44



Graph 45

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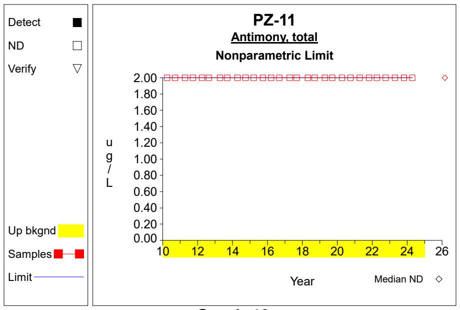
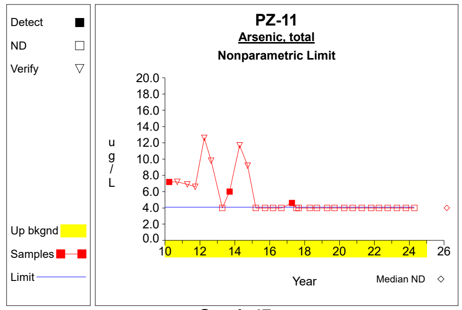
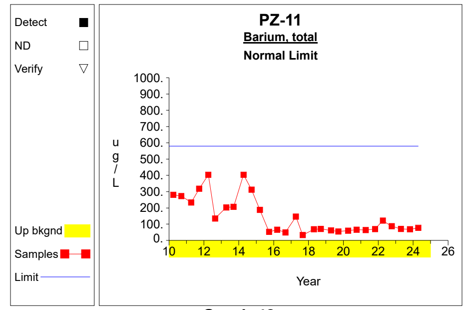
Up vs. Down Prediction Limits



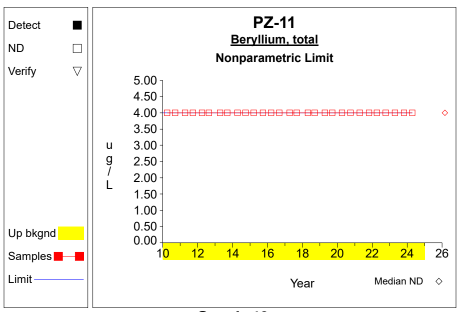
Graph 46



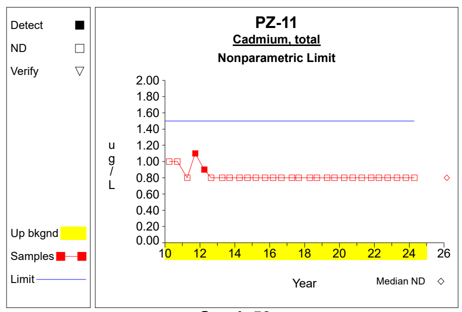
Graph 47



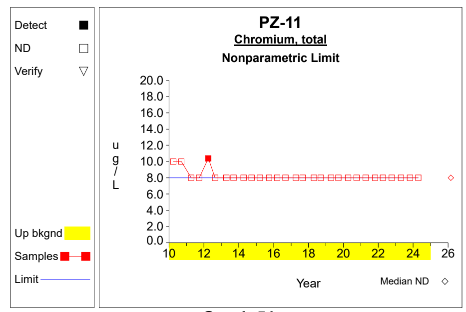
Graph 48



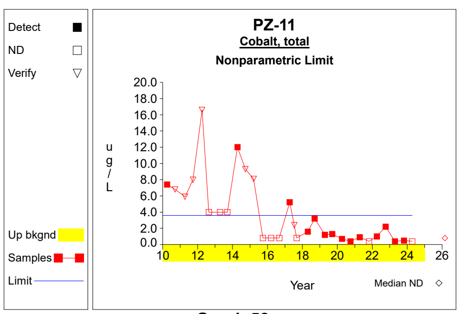
Graph 49



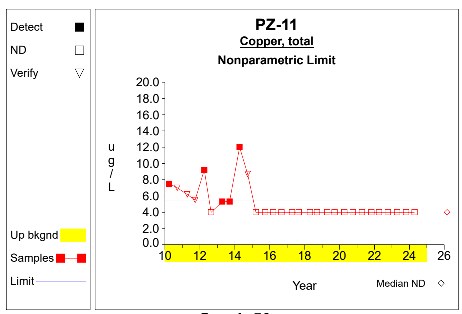
Graph 50



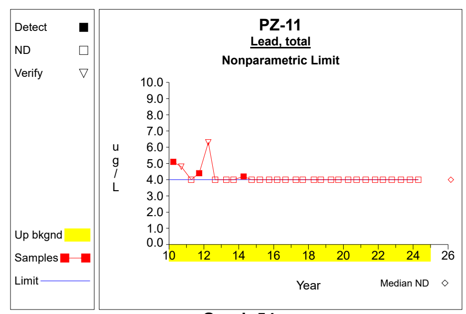
Graph 51



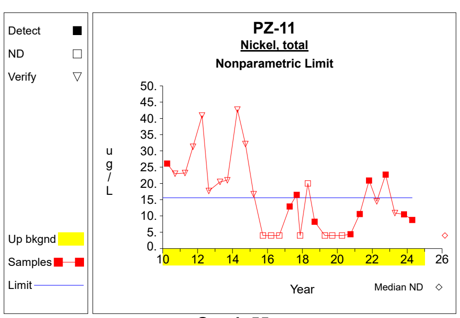
Graph 52



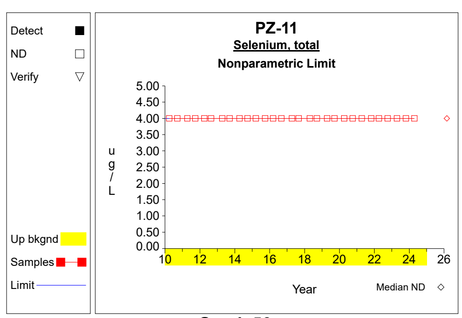
Graph 53



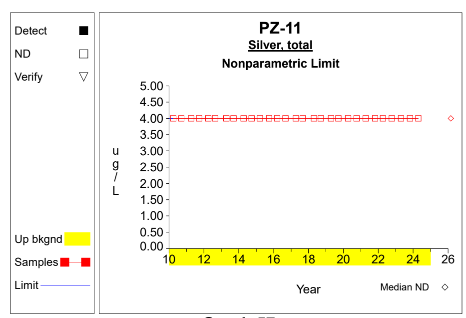
Graph 54



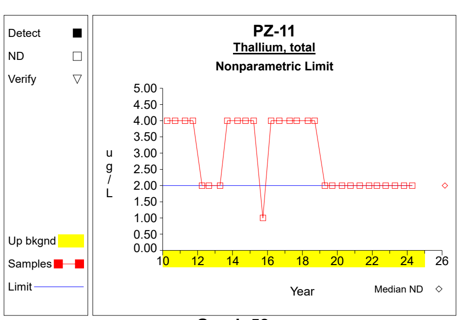
Graph 55



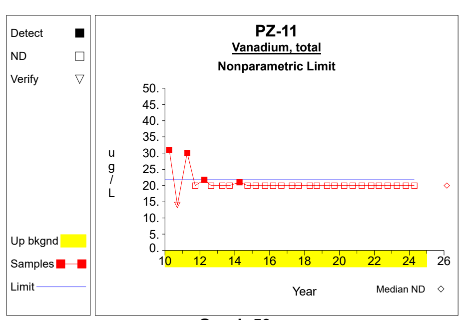
Graph 56



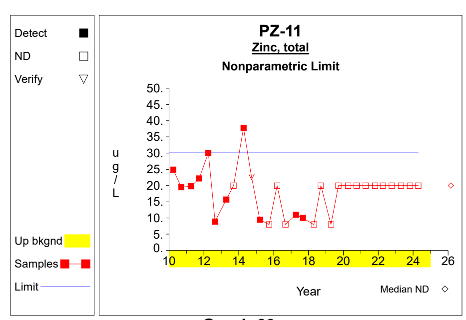
Graph 57



Graph 58



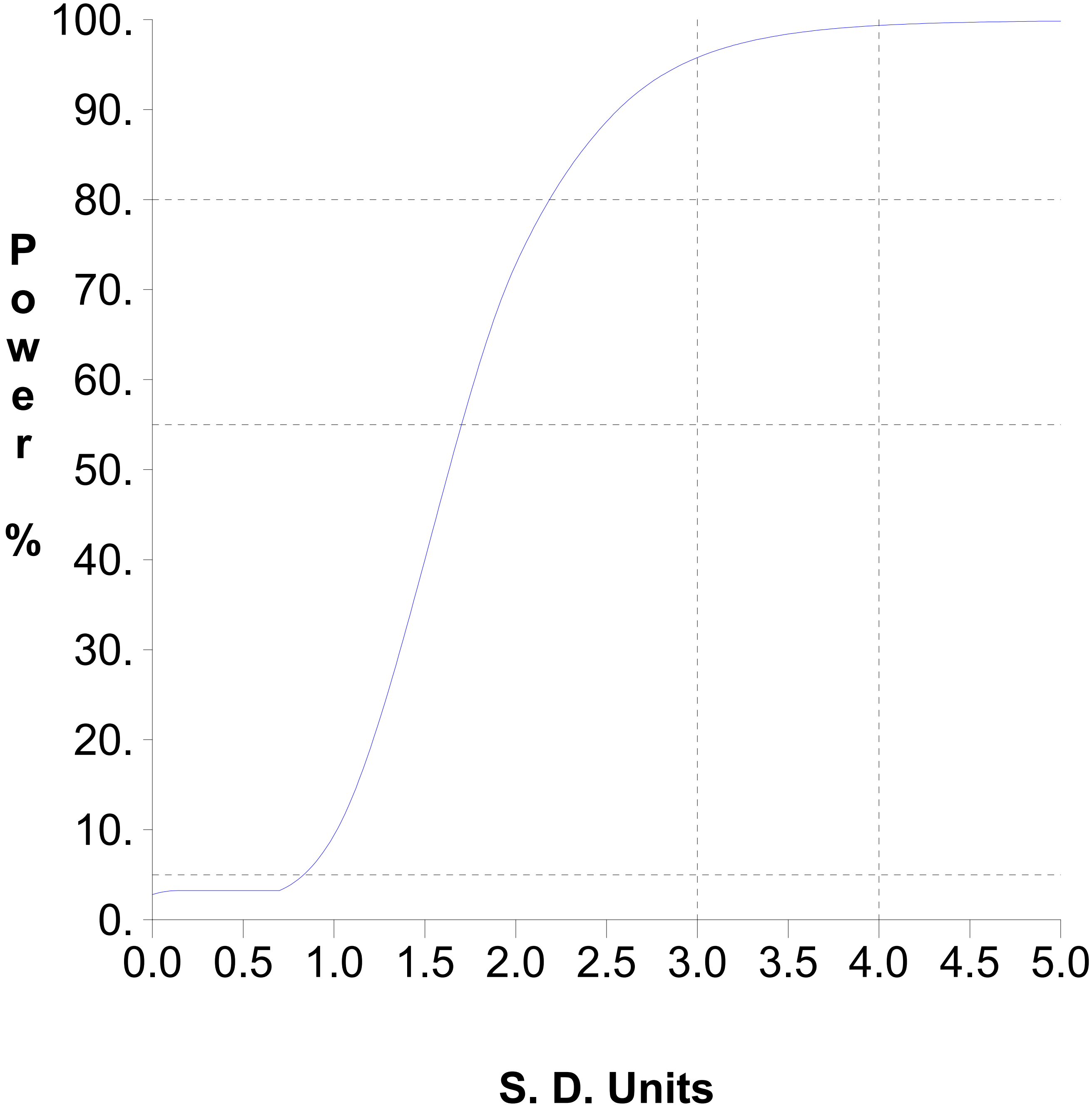
Graph 59



Graph 60

Prepared by: Otter Creek Environmental

False Positive and False Negative Rates for Current Upgradient vs. Downgradient Monitoring Program



Attachment C

Assessment Statistics for Trace Metals

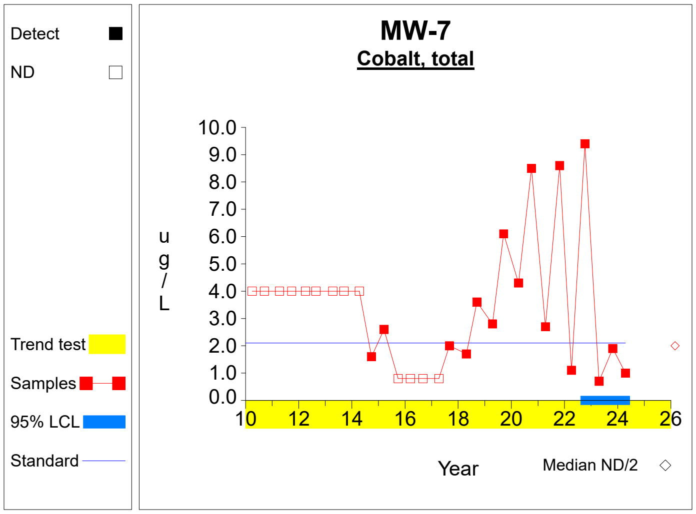
Table 1

Confidence Intervals for Comparing the Mean of the Last 4 Measurements to an Assessment Monitoring Standard

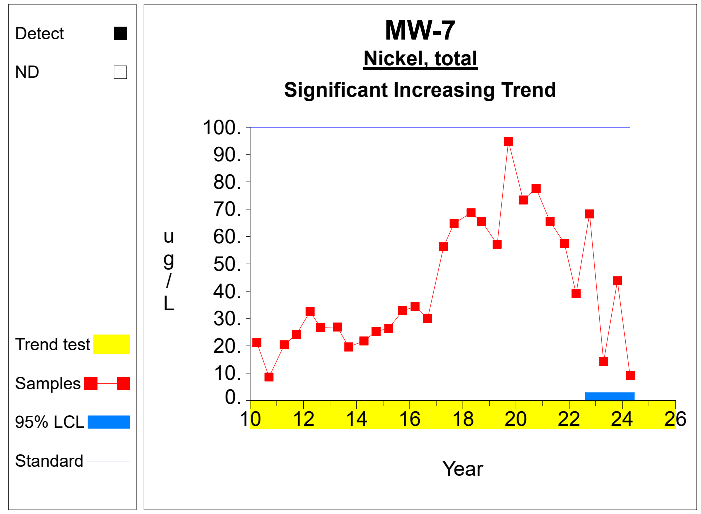
Constituent	Units	Well	N	Mean	SD	Factor	95% LCL	95% UCL	Standard	Trend
Cobalt, total	ug/L	MW-7	4	3.250	4.132	1.176	0.000	8.110	2.100	
Nickel, total	ug/L	MW-7	4	33.850	27.595	1.176	1.390	66.310	100.000	inc
Cobalt, total	ug/L	PZ-11	4	0.875	0.885	1.176	0.000	1.916	2.100	
Nickel, total	ug/L	PZ-11	4	13.225	6.382	1.176	5.718	20.732	100.000	

*   - Insufficient Data
** - Significant Exceedance
LCL = Lower Confidence Limit
UCL = Upper Confidence Limit

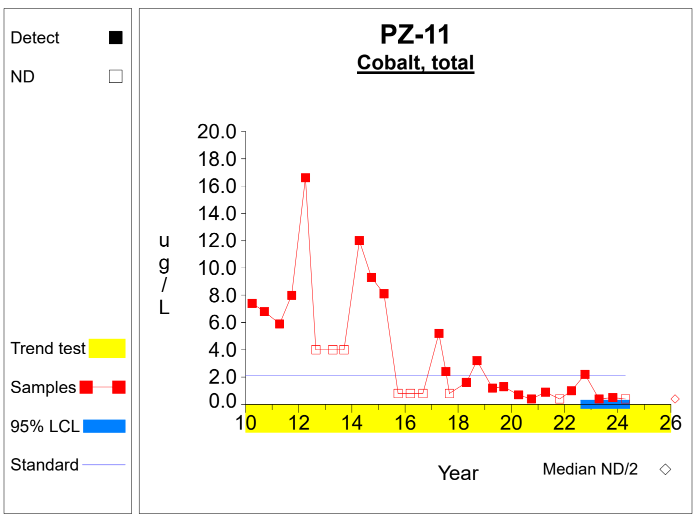
Confidence Limits (Assessment)



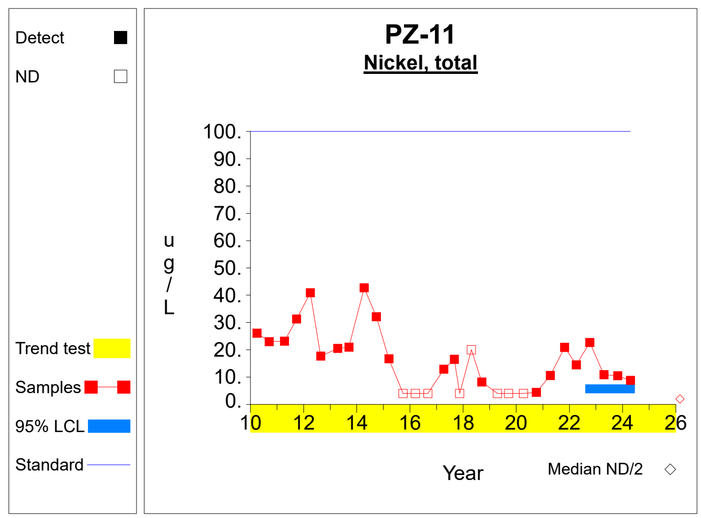
Graph 1



Graph 2



Graph 3



Graph 4

Attachment D

Summary Tables and Graphs for the Intrawell Comparisons

Table 1

Summary Statistics and Intermediate Computations for Combined Shewhart-CUSUM Control Charts

Constituent	Units	Well	N(back)	N(mon)	N(tot)	Mean	SD	R(i-1)	R(i)	S(i-1)	S(i)	Limit	Type	Conf	
Antimony, total	ug/L	MW-10	27	2	29			2.0000	2.0000			2.0000	nonpar	.99	**
Arsenic, total	ug/L	MW-10	27	2	29			4.0000	4.0000			8.3000	nonpar	.99	**
Barium, total	ug/L	MW-10	27	2	29	113.1815	11.4353	114.0000	146.0000	113.1815	137.4235	187.5110	normal		
Beryllium, total	ug/L	MW-10	27	2	29			4.0000	4.0000			4.0000	nonpar	.99	**
Cadmium, total	ug/L	MW-10	28	2	30			1.1000	0.8000			0.9000	nonpar	.99	**
Chromium, total	ug/L	MW-10	27	2	29			8.0000	8.0000			8.1000	nonpar	.99	**
Cobalt, total	ug/L	MW-10	27	2	29			0.4000	0.4000			0.8000	nonpar	.99	**
Copper, total	ug/L	MW-10	27	2	30			4.0000	4.0000			4.0000	nonpar	.99	**
Lead, total	ug/L	MW-10	27	2	29			4.0000	4.0000			4.0000	nonpar	.99	**
Nickel, total	ug/L	MW-10	26	2	29	4.8192	1.4927	5.4000	8.4000	4.8192	7.2805	14.5215	normal		
Selenium, total	ug/L	MW-10	27	2	29			4.0000	4.0000			4.7000	nonpar	.99	**
Silver, total	ug/L	MW-10	27	2	29			4.0000	4.0000			4.0000	nonpar	.99	**
Thallium, total	ug/L	MW-10	26	2	29			2.0000	2.0000			4.0000	nonpar	.99	**
Vanadium, total	ug/L	MW-10	27	2	29			20.0000	20.0000			25.8000	nonpar	.99	**
Zinc, total	ug/L	MW-10	28	2	30			20.0000	20.0000			25.2000	nonpar	.99	**
Antimony, total	ug/L	MW-13	27	2	29			2.0000	2.0000			2.0000	nonpar	.99	**
Arsenic, total	ug/L	MW-13	27	2	29			4.0000	4.0000			8.2000	nonpar	.99	**
Barium, total	ug/L	MW-13	27	2	29	97.4259	46.5836	54.4000	64.5000	97.4259	97.4259	400.2195	normal		
Beryllium, total	ug/L	MW-13	27	2	29			4.0000	4.0000			4.0000	nonpar	.99	**
Cadmium, total	ug/L	MW-13	27	2	29			0.8000	0.8000			0.8000	nonpar	.99	**
Chromium, total	ug/L	MW-13	27	2	29			8.0000	8.0000			13.0000	nonpar	.99	**
Cobalt, total	ug/L	MW-13	27	2	29			0.4000	0.4000			4.1000	nonpar	.99	**
Copper, total	ug/L	MW-13	27	2	29	5.1667	2.5640	4.0000	4.0000	5.1667	5.1667	21.8323	normal		
Lead, total	ug/L	MW-13	27	2	29			4.0000	4.0000			6.8000	nonpar	.99	**
Nickel, total	ug/L	MW-13	27	2	29	6.4926	4.0844	4.0000	4.0000	6.4926	6.4926	33.0411	normal		
Selenium, total	ug/L	MW-13	27	2	29			4.0000	4.0000			4.0000	nonpar	.99	**
Silver, total	ug/L	MW-13	27	2	29			4.0000	4.0000			4.0000	nonpar	.99	**
Thallium, total	ug/L	MW-13	26	2	29			2.0000	2.0000			4.0000	nonpar	.99	**
Vanadium, total	ug/L	MW-13	27	2	29			20.0000	20.0000			24.9000	nonpar	.99	**
Zinc, total	ug/L	MW-13	27	2	29	11.9963	5.2259	20.0000	20.0000	11.9963	11.9963	45.9644	normal		
Antimony, total	ug/L	MW-3	27	2	29			2.0000	2.0000			2.0000	nonpar	.99	**
Arsenic, total	ug/L	MW-3	27	2	29			4.0000	4.0000			4.1000	nonpar	.99	**
Barium, total	ug/L	MW-3	27	2	29	314.9259	108.9244	269.0000	360.0000	314.9259	314.9259	1022.9348	normal		
Beryllium, total	ug/L	MW-3	27	2	29			4.0000	4.0000			4.0000	nonpar	.99	**
Cadmium, total	ug/L	MW-3	27	2	29			0.8000	0.8000			1.5000	nonpar	.99	**
Chromium, total	ug/L	MW-3	27	2	29			8.0000	8.0000			8.0000	nonpar	.99	**
Cobalt, total	ug/L	MW-3	27	2	29	0.9889	0.6247	0.9000	0.9000	0.9889	0.9889	5.0495	normal		
Copper, total	ug/L	MW-3	27	2	29			4.0000	4.0000			5.5000	nonpar	.99	**
Lead, total	ug/L	MW-3	27	2	29			4.0000	4.0000			4.0000	nonpar	.99	**
Nickel, total	ug/L	MW-3	27	2	29	5.5704	2.8239	4.0000	4.0000	5.5704	5.5704	23.9258	normal		
Selenium, total	ug/L	MW-3	27	2	29			4.0000	4.0000			4.0000	nonpar	.99	**
Silver, total	ug/L	MW-3	27	2	29			4.0000	4.0000			4.0000	nonpar	.99	**
Thallium, total	ug/L	MW-3	26	2	29			2.0000	2.0000			4.0000	nonpar	.99	**
Vanadium, total	ug/L	MW-3	27	2	29			20.0000	20.0000			21.8000	nonpar	.99	**
Zinc, total	ug/L	MW-3	27	2	29	18.4185	4.9748	20.0000	20.0000	18.4185	18.4185	50.7546	normal		
Antimony, total	ug/L	MW-7	27	2	29			2.0000	2.0000			2.0000	nonpar	.99	**

N(back) and N(mon) = Non-outlier measurements in the background and monitoring periods.
N(tot) = All independent measurements for that constituent and well.
For transformed data, mean and SD in transformed units and control limit in original units.
Conf = confidence level for passing initial test or one verification resample (nonparametric test only).
*   - Insufficient Data.
** - Detection Frequency < 25%.
*** - Zero Variance.

Table 1

Summary Statistics and Intermediate Computations for Combined Shewhart-CUSUM Control Charts

Constituent	Units	Well	N(back)	N(mon)	N(tot)	Mean	SD	R(i-1)	R(i)	S(i-1)	S(i)	Limit	Type	Conf	
Arsenic, total	ug/L	MW-7	27	2	29			4.0000	4.0000			7.6000	nonpar	.99	**
Barium, total	ug/L	MW-7	27	2	29	187.4444	78.6068	216.0000	139.0000	187.4444	187.4444	698.3885	normal		
Beryllium, total	ug/L	MW-7	27	2	29			4.0000	4.0000			4.0000	nonpar	.99	**
Cadmium, total	ug/L	MW-7	27	2	29	0.8370	0.0839	0.8000	0.8000	0.8370	0.8370	1.3823	normal		
Chromium, total	ug/L	MW-7	27	2	29			8.0000	8.0000			8.0000	nonpar	.99	**
Cobalt, total	ug/L	MW-7	27	2	29	3.9889	2.1001	1.9000	1.0000	3.9889	3.9889	17.6393	normal		
Copper, total	ug/L	MW-7	27	2	29	4.3852	0.9926	5.4000	4.0000	4.6556	4.3852	10.8368	normal		
Lead, total	ug/L	MW-7	27	2	29			4.0000	4.0000			4.5000	nonpar	.99	**
Nickel, total	ug/L	MW-7	27	2	29	42.7519	23.3029	43.8000	9.1000	42.7519	42.7519	194.2205	normal		
Selenium, total	ug/L	MW-7	27	2	29			4.0000	4.0000			4.6000	nonpar	.99	**
Silver, total	ug/L	MW-7	27	2	29			4.0000	4.0000			4.0000	nonpar	.99	**
Thallium, total	ug/L	MW-7	26	2	29			2.0000	2.0000			4.0000	nonpar	.99	**
Vanadium, total	ug/L	MW-7	27	2	29			20.0000	20.0000			21.3000	nonpar	.99	**
Zinc, total	ug/L	MW-7	27	2	29	17.2519	4.5792	20.0000	20.0000	17.2519	17.2519	47.0170	normal		
Antimony, total	ug/L	PZ-11	27	2	29			2.0000	2.0000			2.0000	nonpar	.99	**
Arsenic, total	ug/L	PZ-11	28	2	30	5.4929	2.5206	4.0000	4.0000	5.4929	5.4929	21.8766	normal		
Barium, total	ug/L	PZ-11	27	2	29	151.8148	114.3610	68.6000	77.3000	151.8148	151.8148	895.1610	normal		
Beryllium, total	ug/L	PZ-11	27	2	29			4.0000	4.0000			4.0000	nonpar	.99	**
Cadmium, total	ug/L	PZ-11	27	2	29			0.8000	0.8000			1.1000	nonpar	.99	**
Chromium, total	ug/L	PZ-11	27	2	29			8.0000	8.0000			10.4000	nonpar	.99	**
Cobalt, total	ug/L	PZ-11	28	2	30	3.6071	4.1654	0.5000	0.4000	3.6071	3.6071	30.6821	normal		
Copper, total	ug/L	PZ-11	27	2	29	5.1370	2.0564	4.0000	4.0000	5.1370	5.1370	18.5033	normal		
Lead, total	ug/L	PZ-11	27	2	29			4.0000	4.0000			6.3000	nonpar	.99	**
Nickel, total	ug/L	PZ-11	28	2	30	16.0286	11.4847	10.5000	8.8000	16.0286	16.0286	90.6789	normal		
Selenium, total	ug/L	PZ-11	27	2	29			4.0000	4.0000			4.0000	nonpar	.99	**
Silver, total	ug/L	PZ-11	27	2	29			4.0000	4.0000			4.0000	nonpar	.99	**
Thallium, total	ug/L	PZ-11	26	2	29			2.0000	2.0000			4.0000	nonpar	.99	**
Vanadium, total	ug/L	PZ-11	27	2	29			20.0000	20.0000			31.0000	nonpar	.99	**
Zinc, total	ug/L	PZ-11	27	2	29	19.7074	5.8373	20.0000	20.0000	19.7074	19.7074	57.6497	normal		

N(back) and N(mon) = Non-outlier measurements in the background and monitoring periods.
N(tot) = All independent measurements for that constituent and well.
For transformed data, mean and SD in transformed units and control limit in original units.
Conf = confidence level for passing initial test or one verification resample (nonparametric test only).
* - Insufficient Data.
** - Detection Frequency < 25%.
*** - Zero Variance.

Table 4

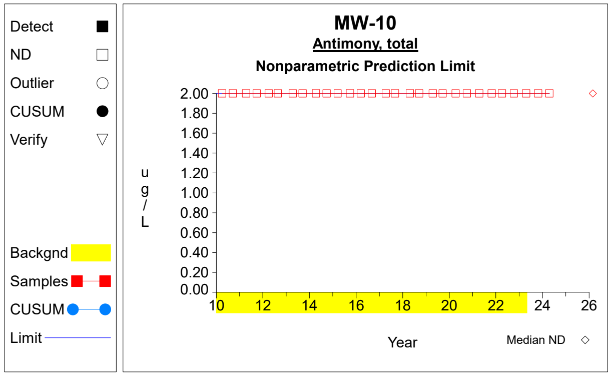
Dixon's Test Outliers
1% Significance Level

Constituent	Units	Well	Date	Result	ND Qualifier	Date Range	N	Critical Value
Nickel, total	ug/L	MW-10	04/23/2018	20.0000	< 20.0000	03/31/2010-04/19/2023	27	0.4744
Thallium, total	ug/L	MW-10	09/28/2015	1.0000	< 1.0000	03/31/2010-04/19/2023	27	0.4744
Thallium, total	ug/L	MW-13	09/28/2015	1.0000	< 1.0000	03/31/2010-04/19/2023	27	0.4744
Thallium, total	ug/L	MW-3	09/28/2015	1.0000	< 1.0000	03/31/2010-04/19/2023	27	0.4744
Thallium, total	ug/L	MW-7	09/28/2015	1.0000	< 1.0000	03/31/2010-04/19/2023	27	0.4744
Thallium, total	ug/L	PZ-11	09/28/2015	1.0000	< 1.0000	03/31/2010-04/19/2023	27	0.4744

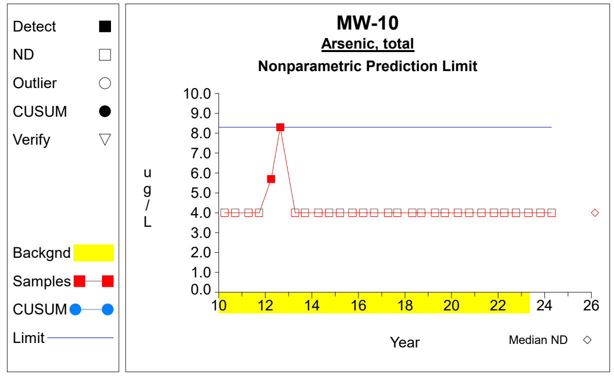
N = Total number of independent measurements in background at each well.
Date Range = Dates of the first and last measurements included in background at each well.
Critical Value depends on the significance level and on N-1 when the two most extreme values are tested or N for the most extreme value.

Ida County [GW] May 2024

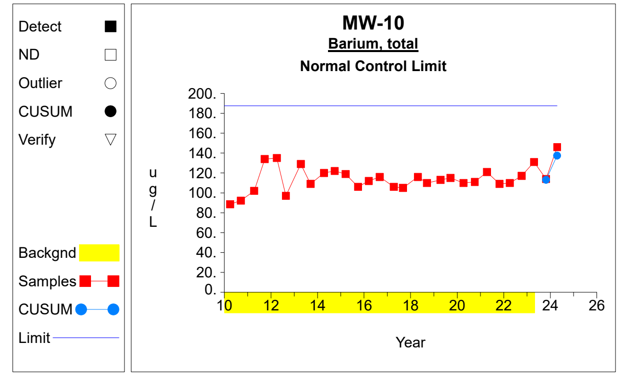
Intra-Well Control Charts / Prediction Limits



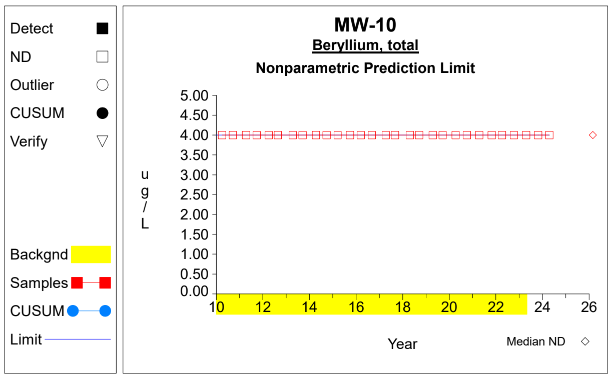
Graph 1



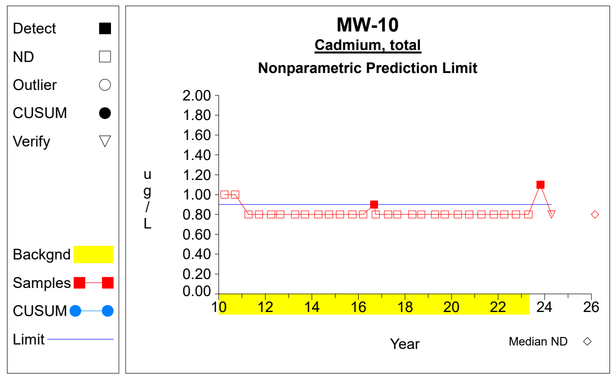
Graph 2



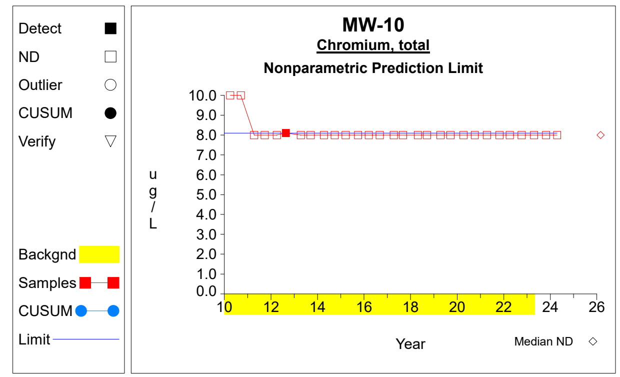
Graph 3



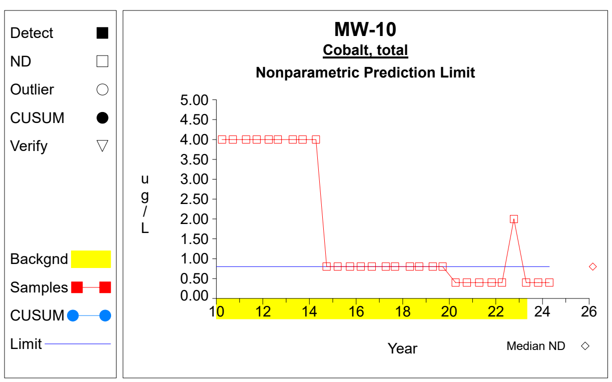
Graph 4



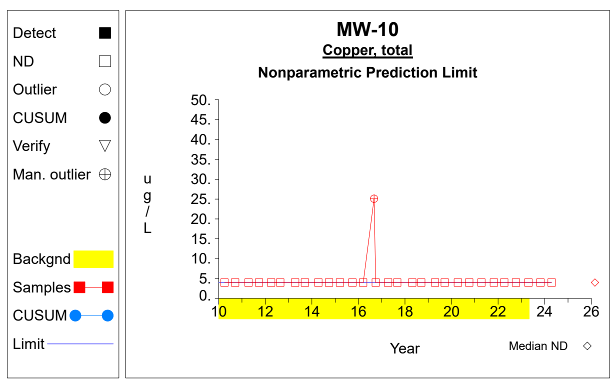
Graph 5



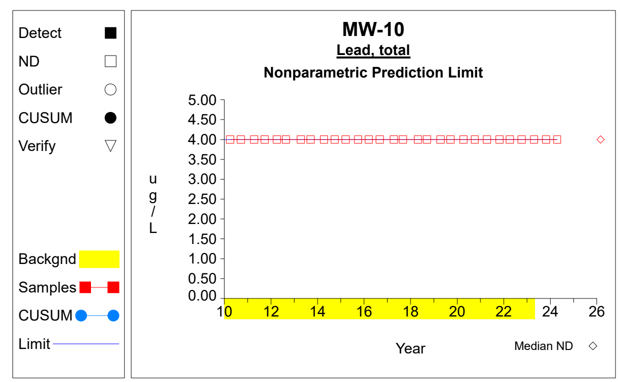
Graph 6



Graph 7



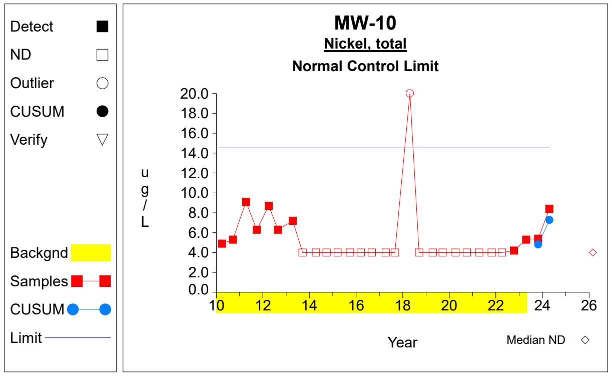
Graph 8



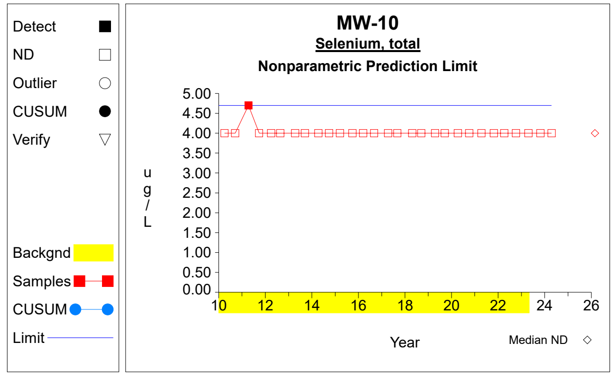
Graph 9

Prepared by: Otter Creek Environmental

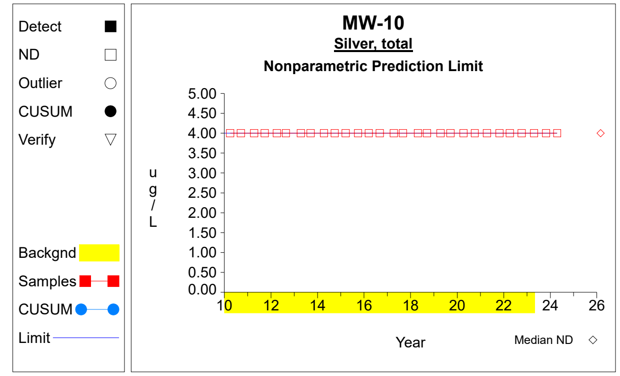
Intra-Well Control Charts / Prediction Limits



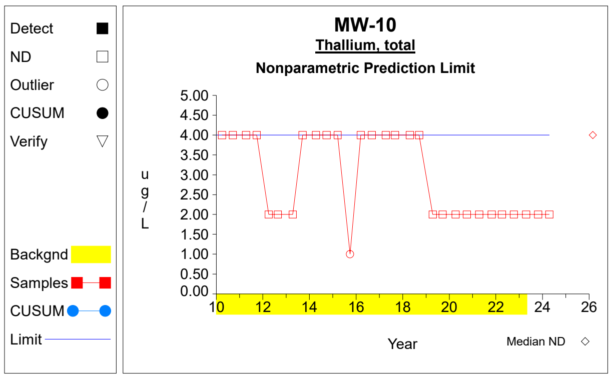
Graph 10



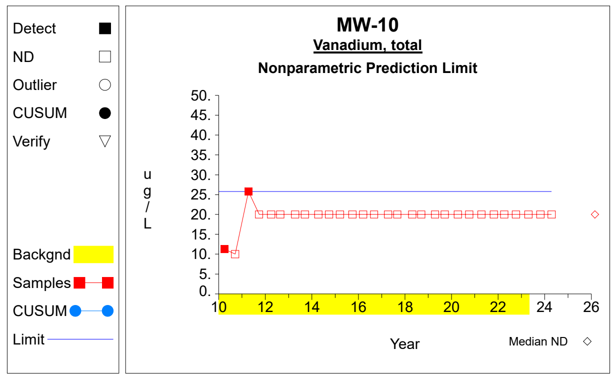
Graph 11



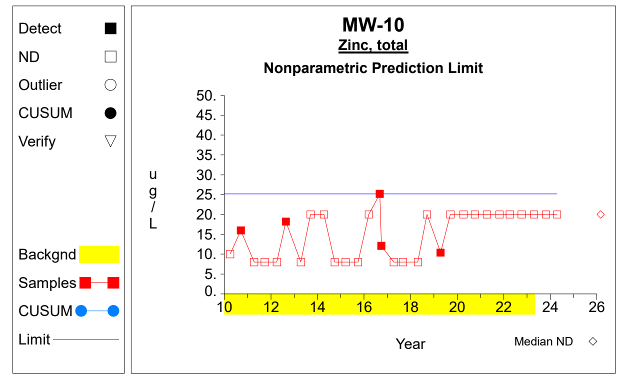
Graph 12



Graph 13



Graph 14

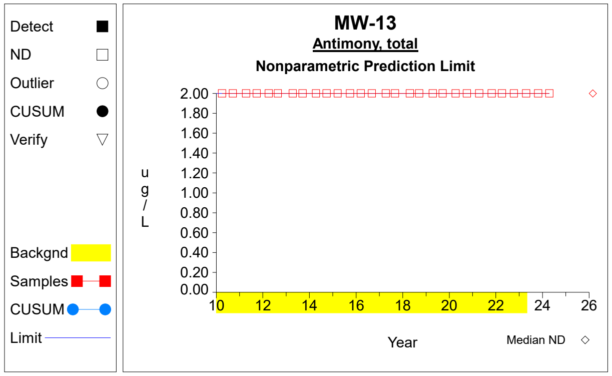


Graph 15

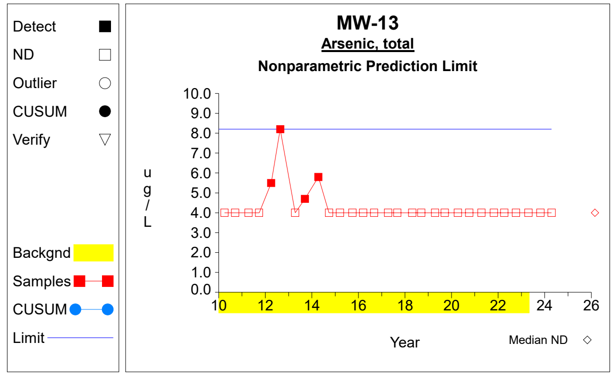
Ida County [GW]

May 2024

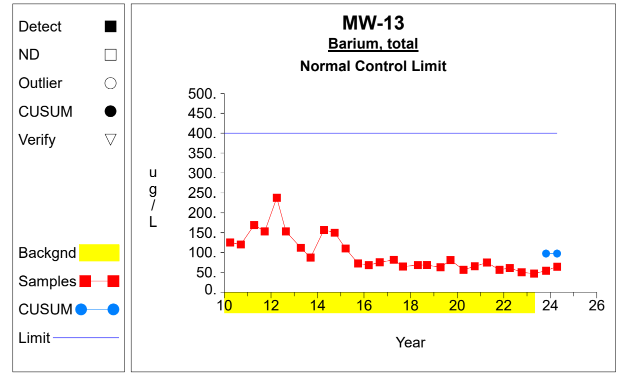
Intra-Well Control Charts / Prediction Limits



Graph 16



Graph 17



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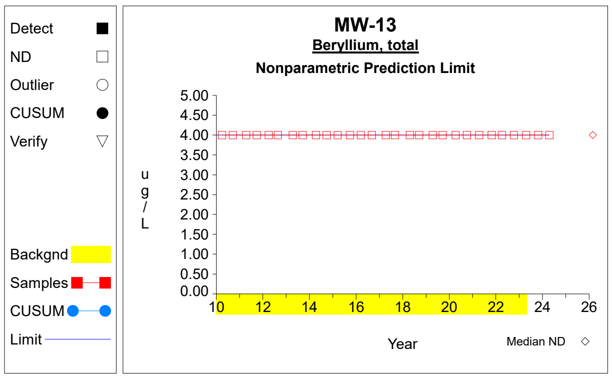

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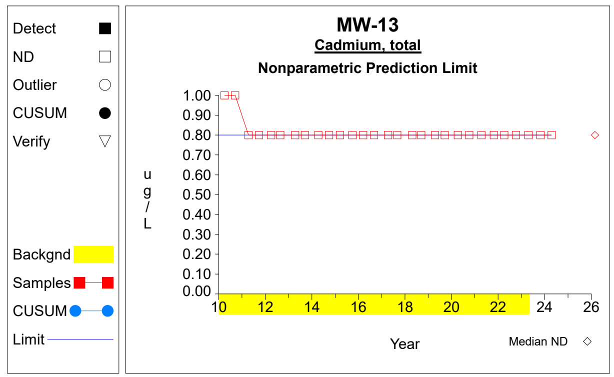

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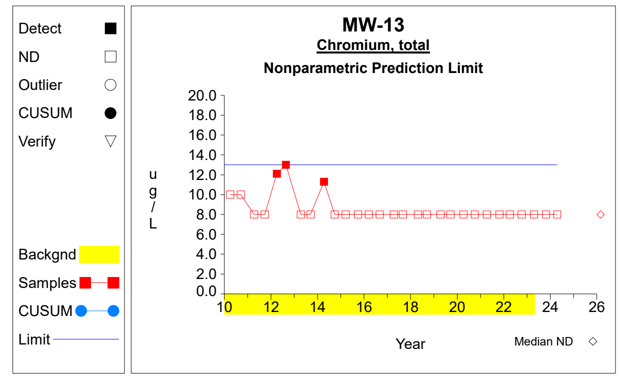

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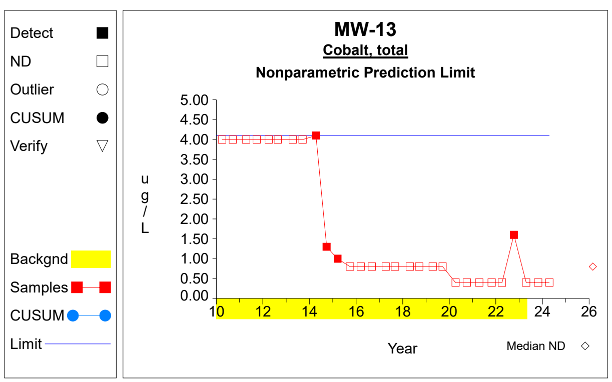

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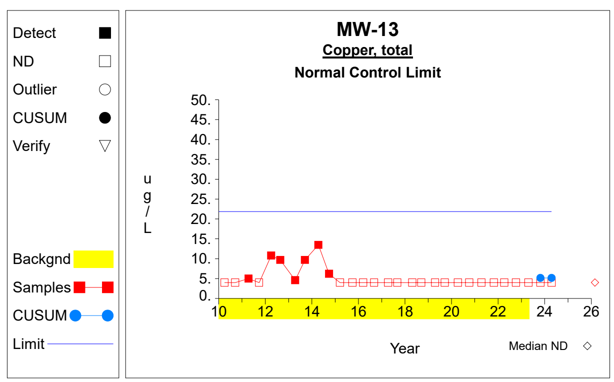

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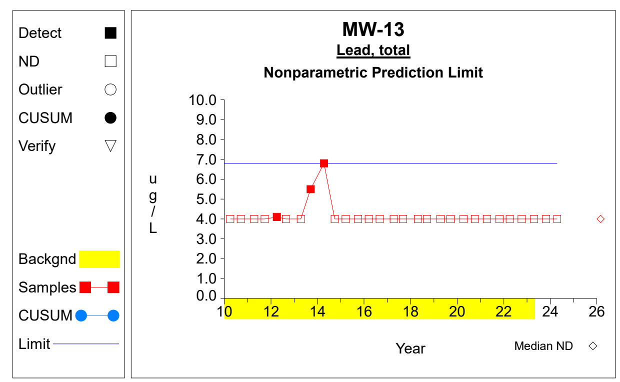

Graph 24

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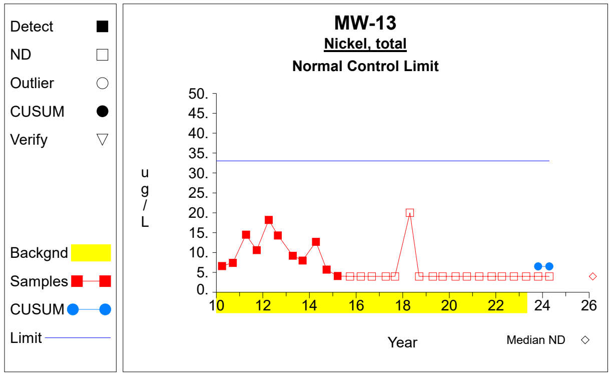
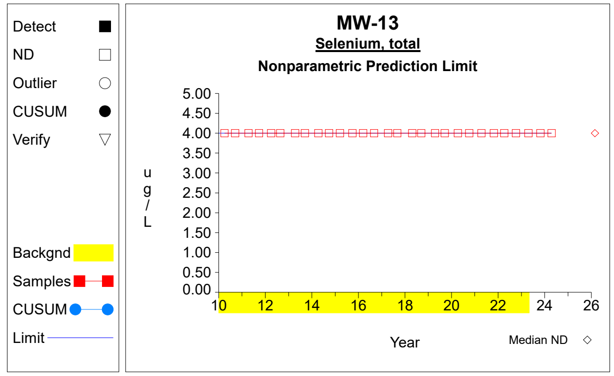
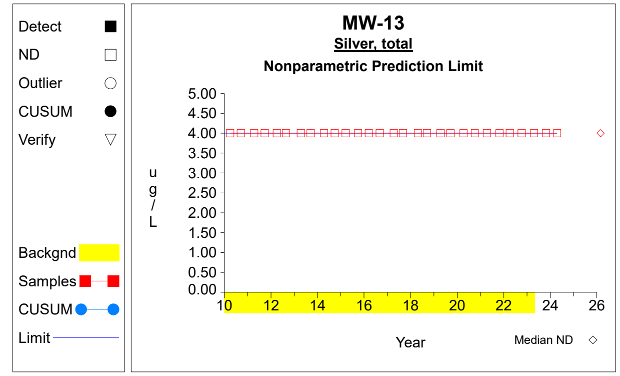
Intra-Well Control Charts / Prediction Limits



Graph 25



Graph 26



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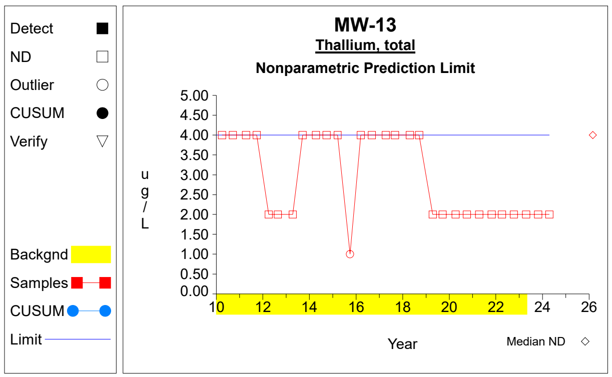

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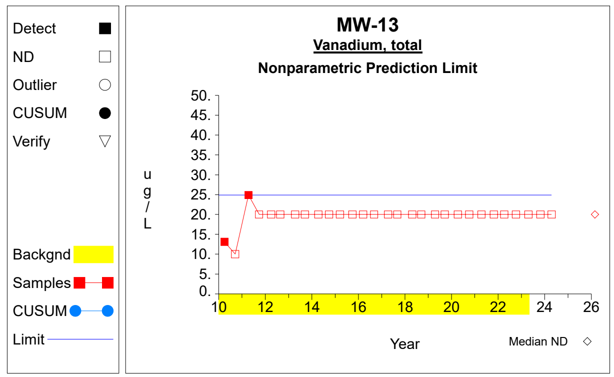

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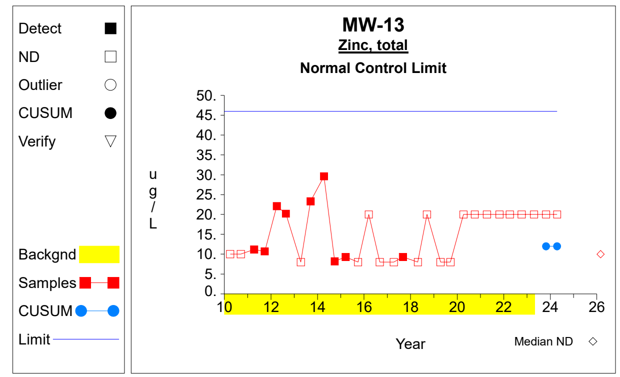

Graph 30

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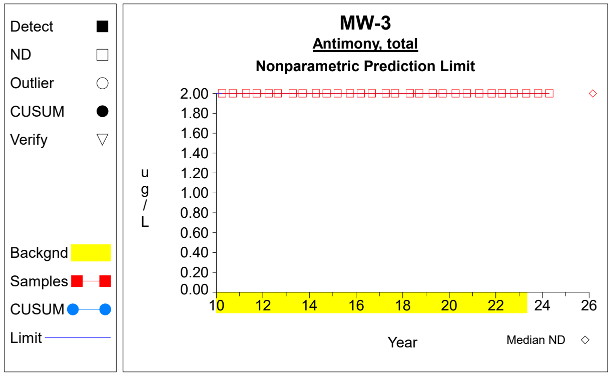
Intra-Well Control Charts / Prediction Limits



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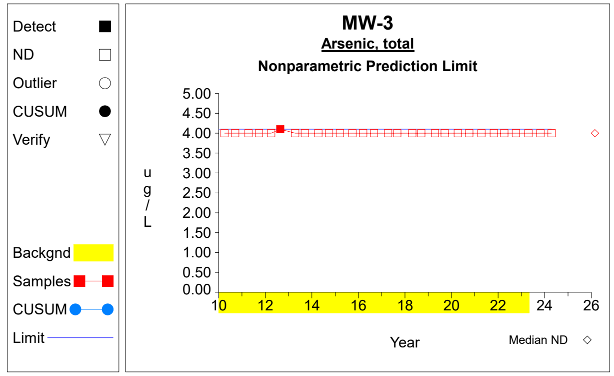
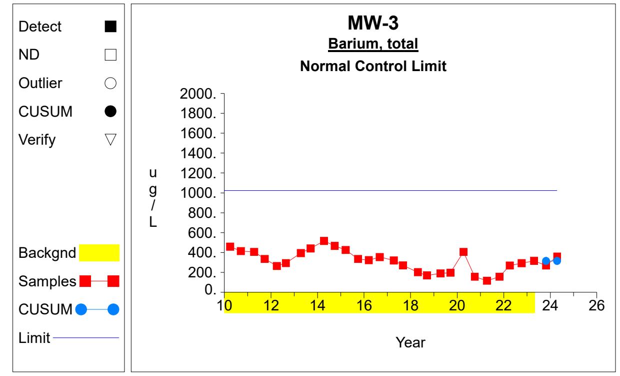


Graph 32



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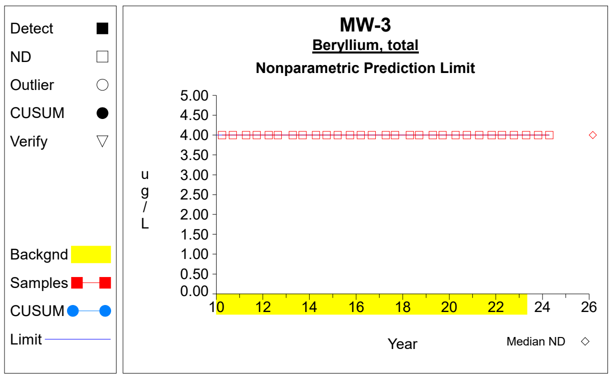

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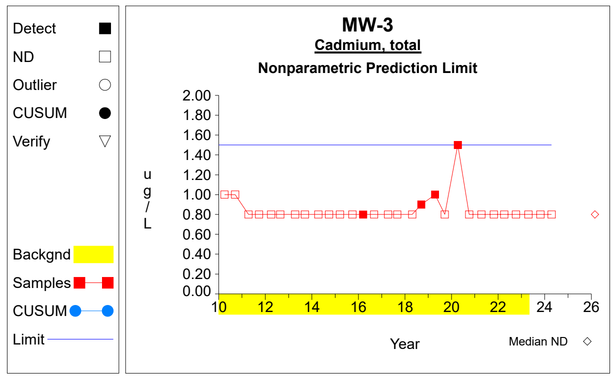

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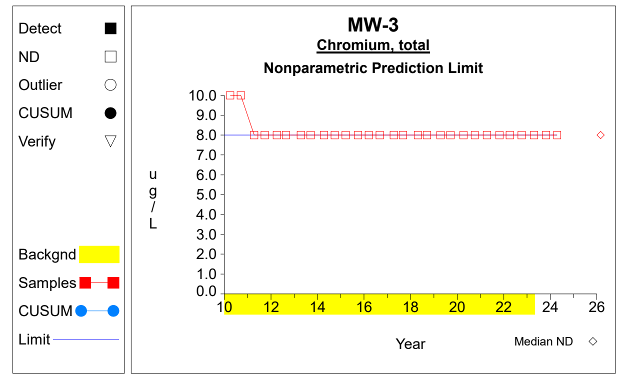

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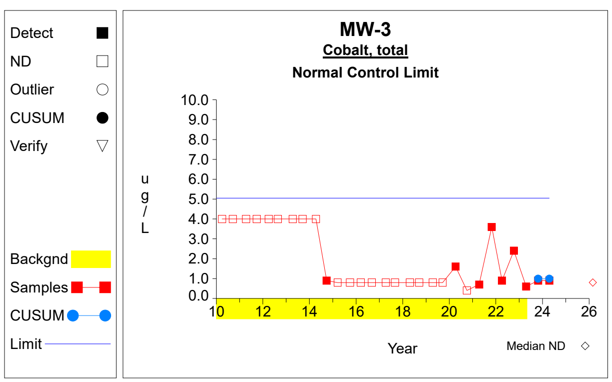

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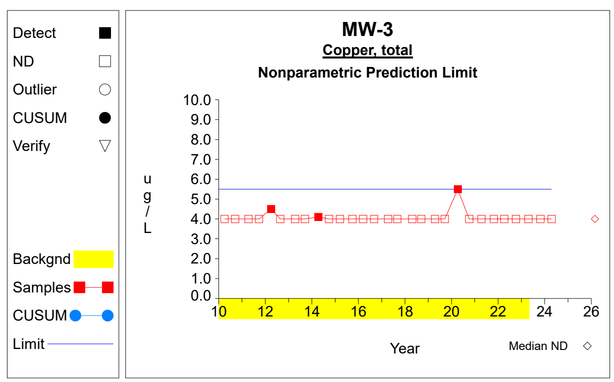
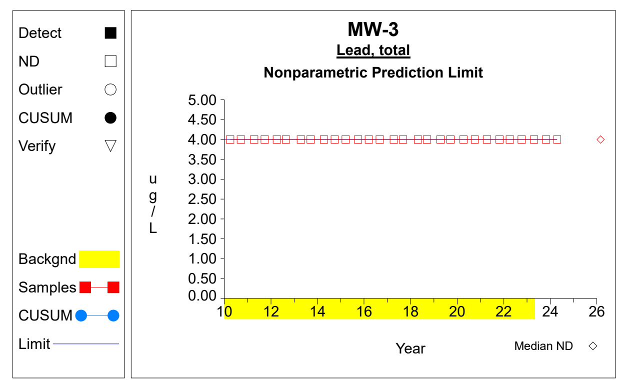


Graph 38



Graph 39

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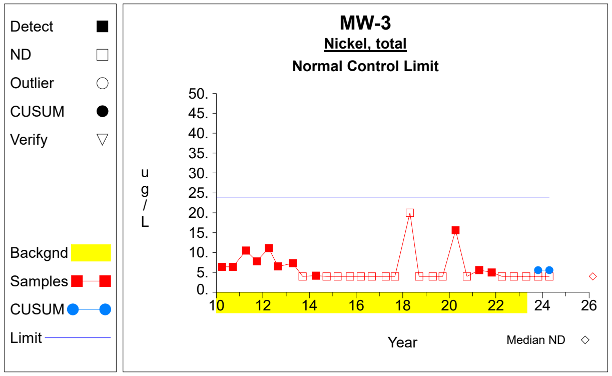
Intra-Well Control Charts / Prediction Limits



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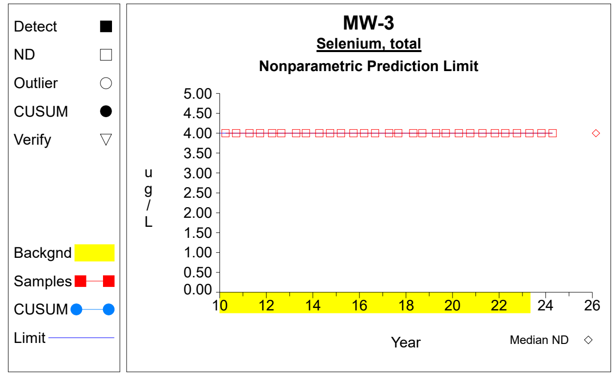

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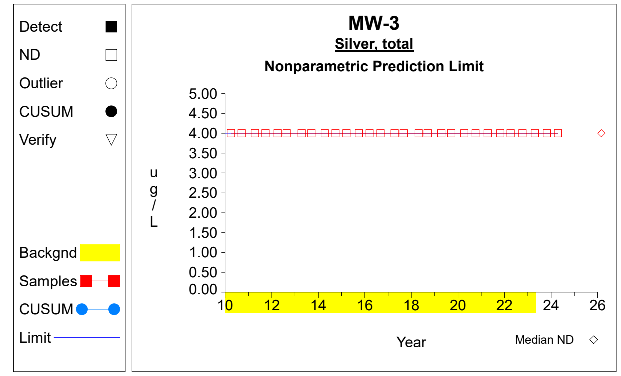

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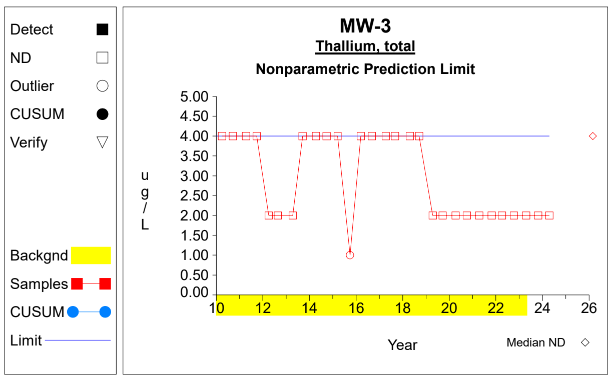

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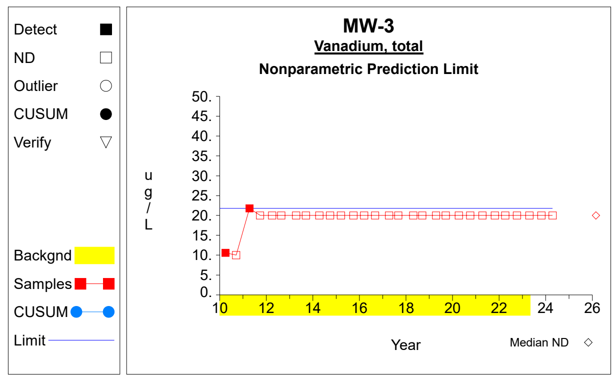

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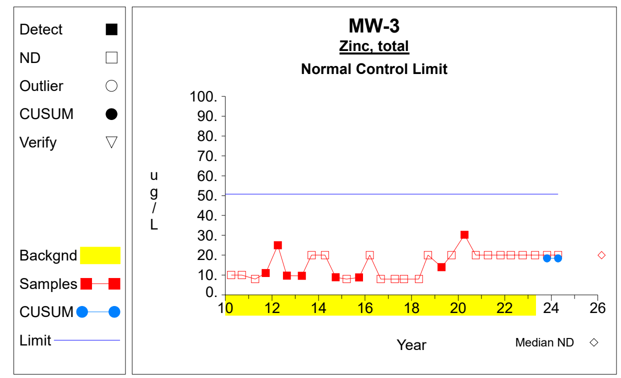
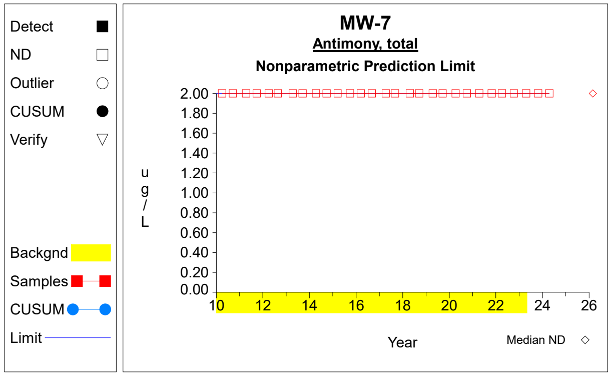


Graph 45

Intra-Well Control Charts / Prediction Limits



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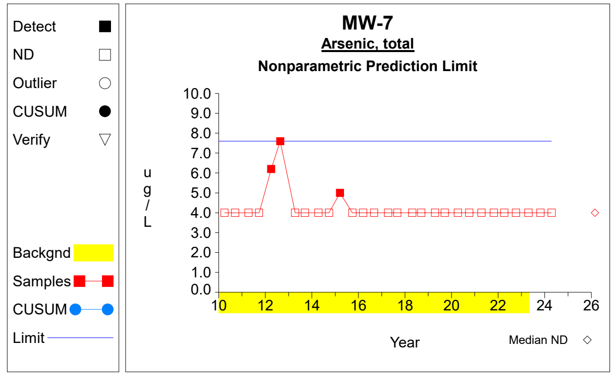

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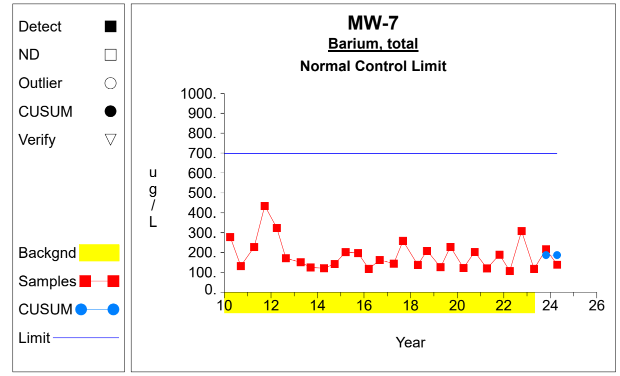

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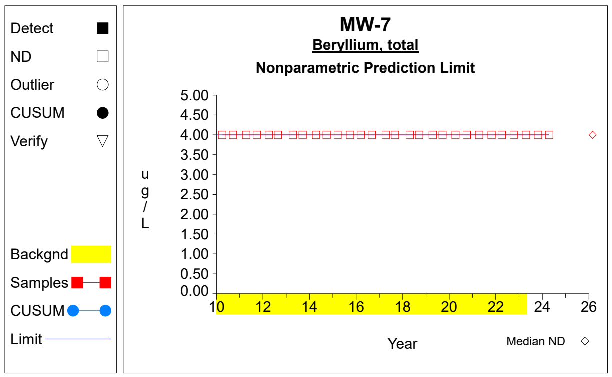

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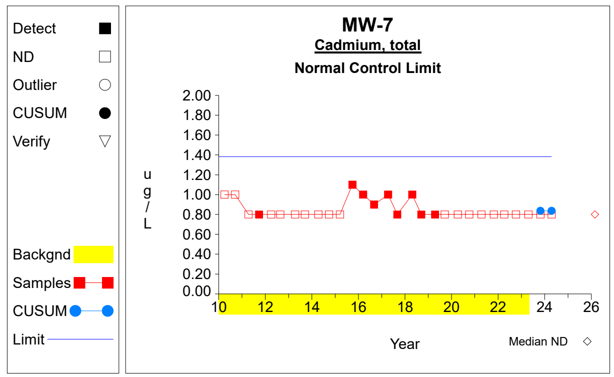
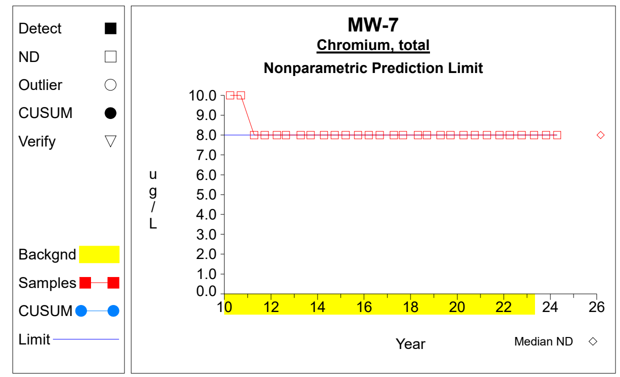


Graph 50



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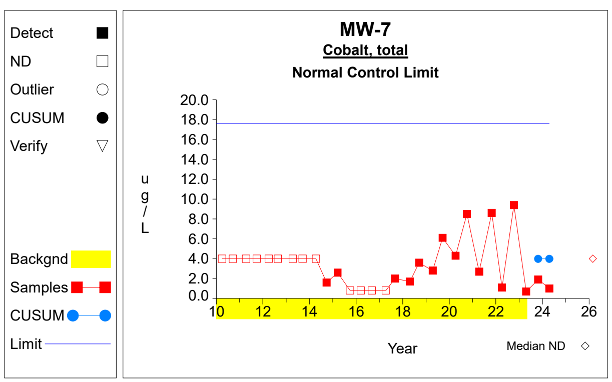
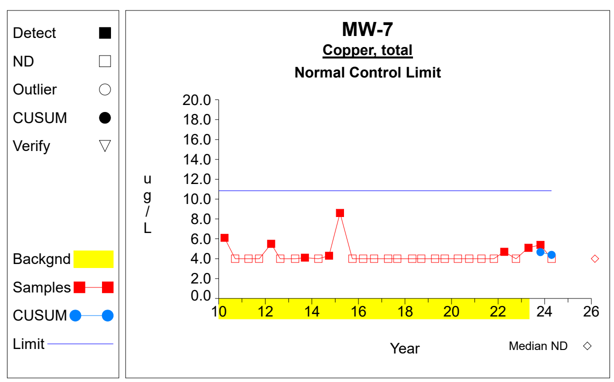


Graph 52



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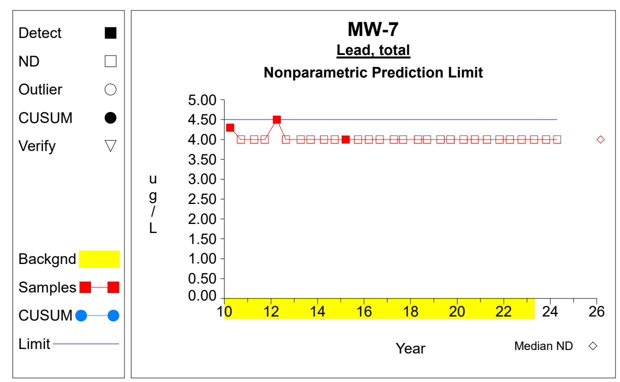

Graph 54

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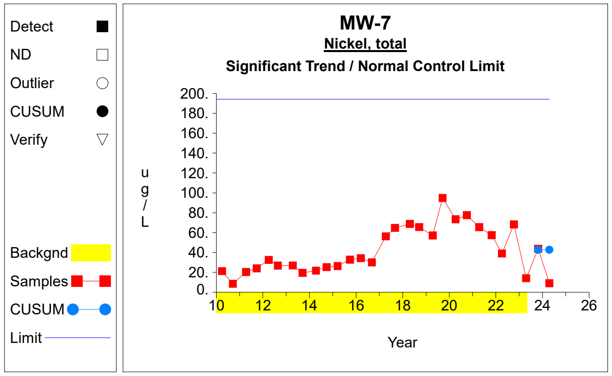
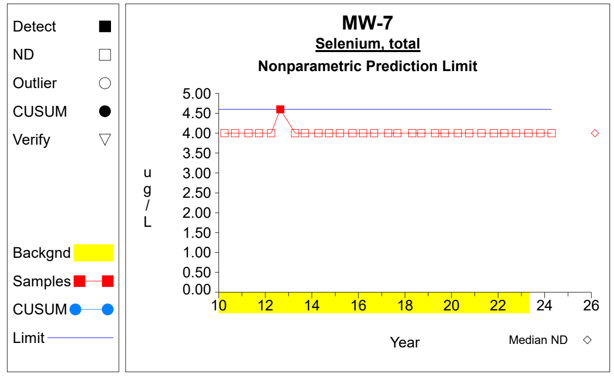
Ida County [GW]

May 2024

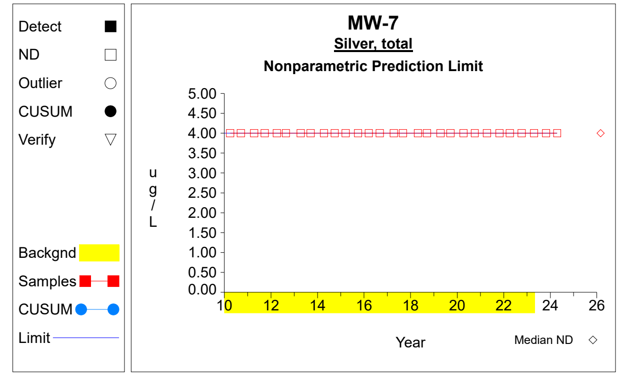
Intra-Well Control Charts / Prediction Limits



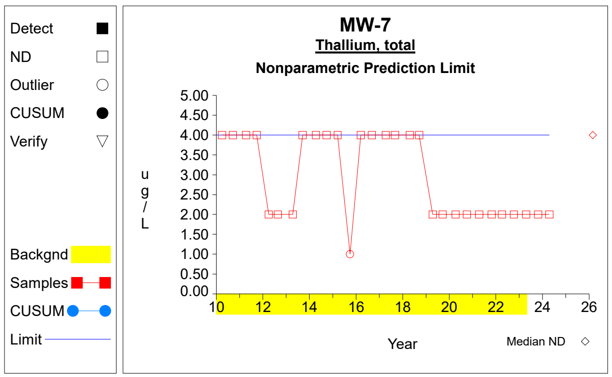
Graph 55



Graph 56



Graph 57



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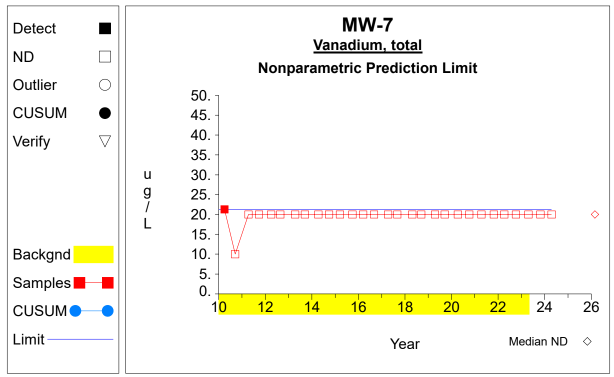
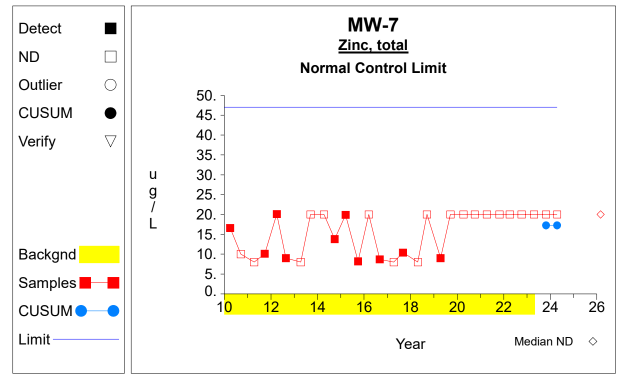


Graph 59



Graph 60

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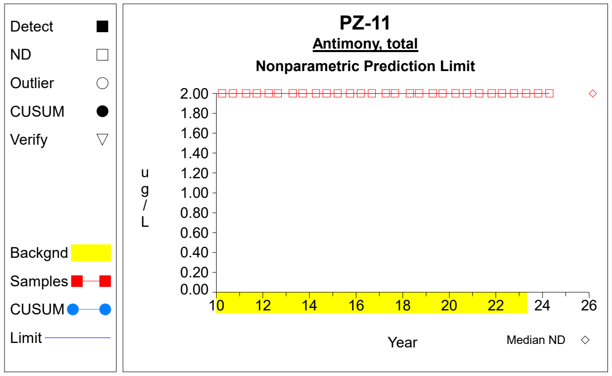
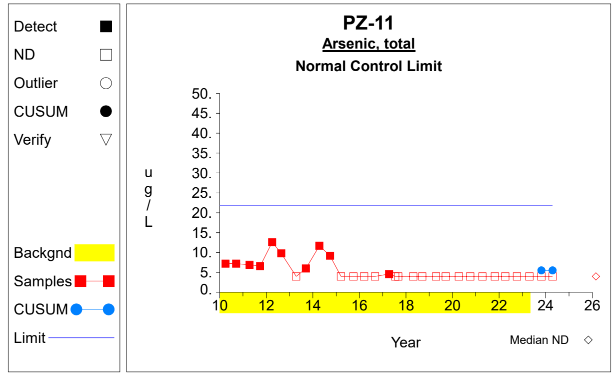
Ida County [GW] May 2024

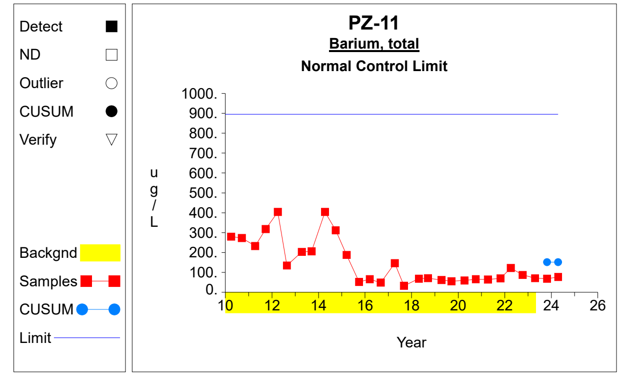
Intra-Well Control Charts / Prediction Limits



Graph 61



Graph 62



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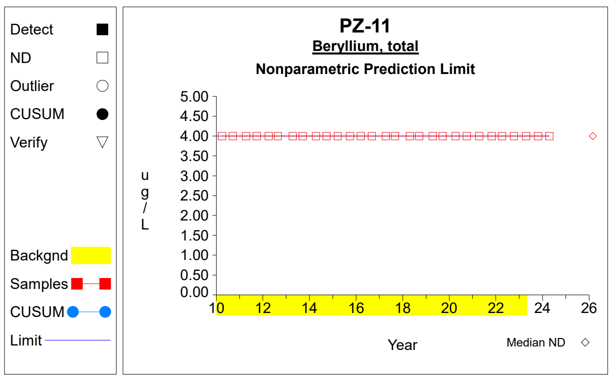

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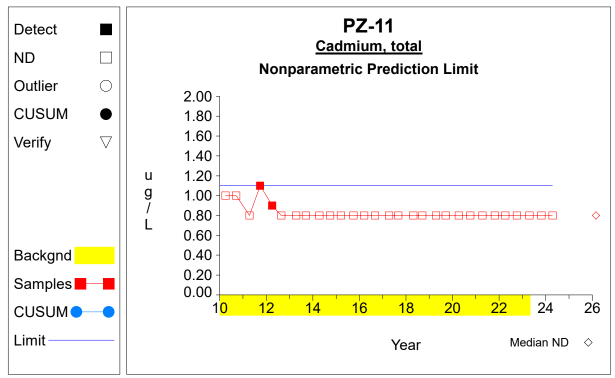

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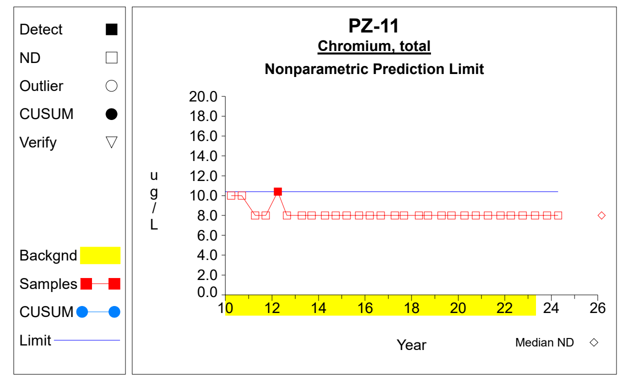
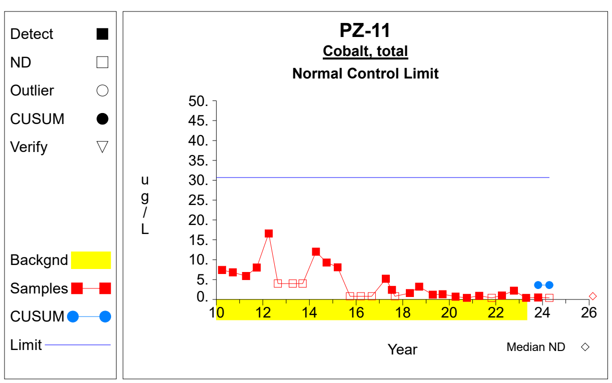
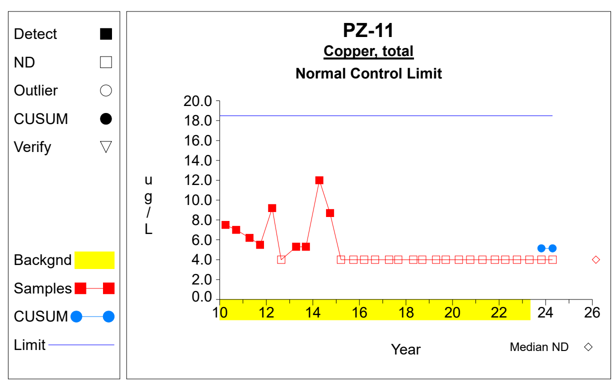


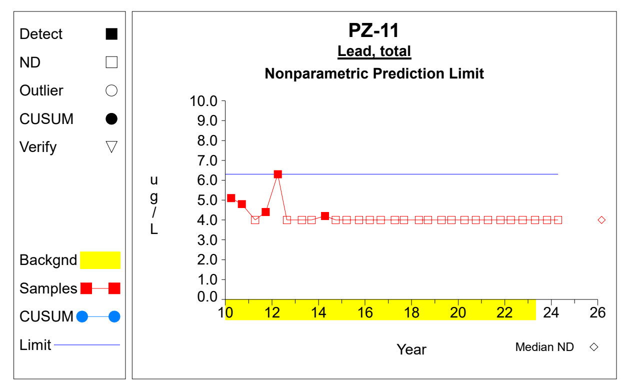
Graph 66



Graph 67



Graph 68



Graph 69

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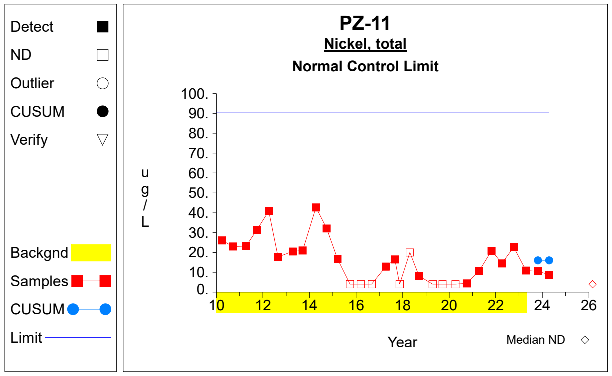
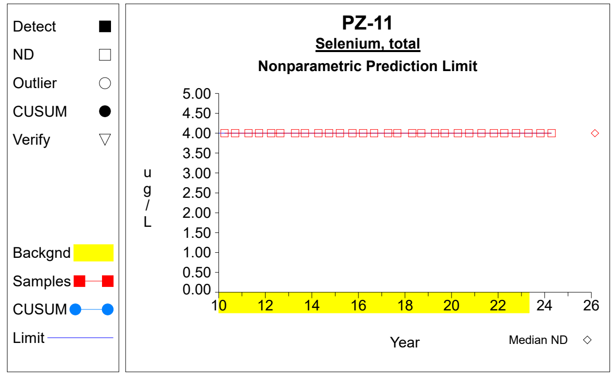
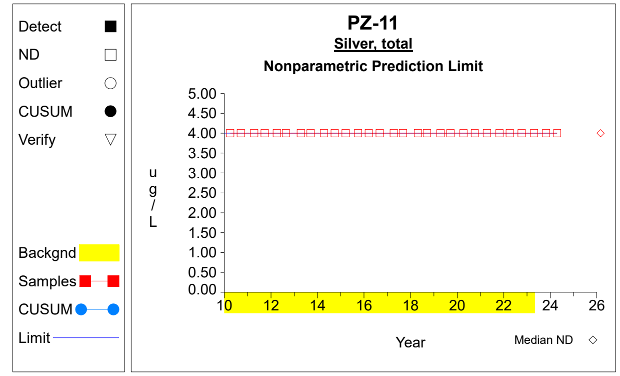
Intra-Well Control Charts / Prediction Limits



Graph 70



Graph 71



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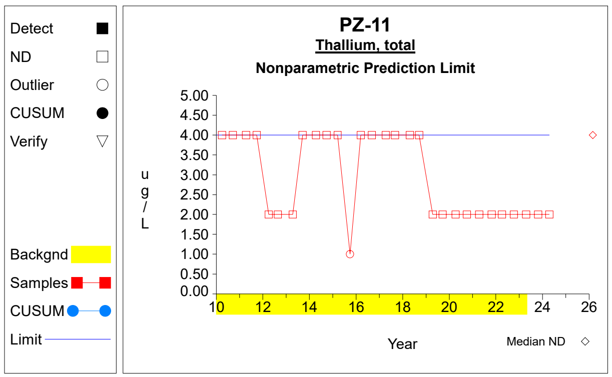
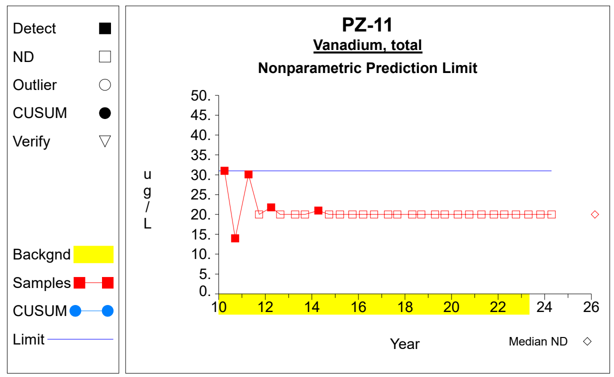
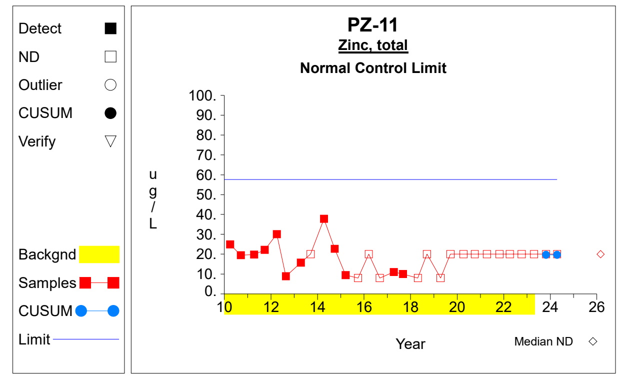


Graph 73

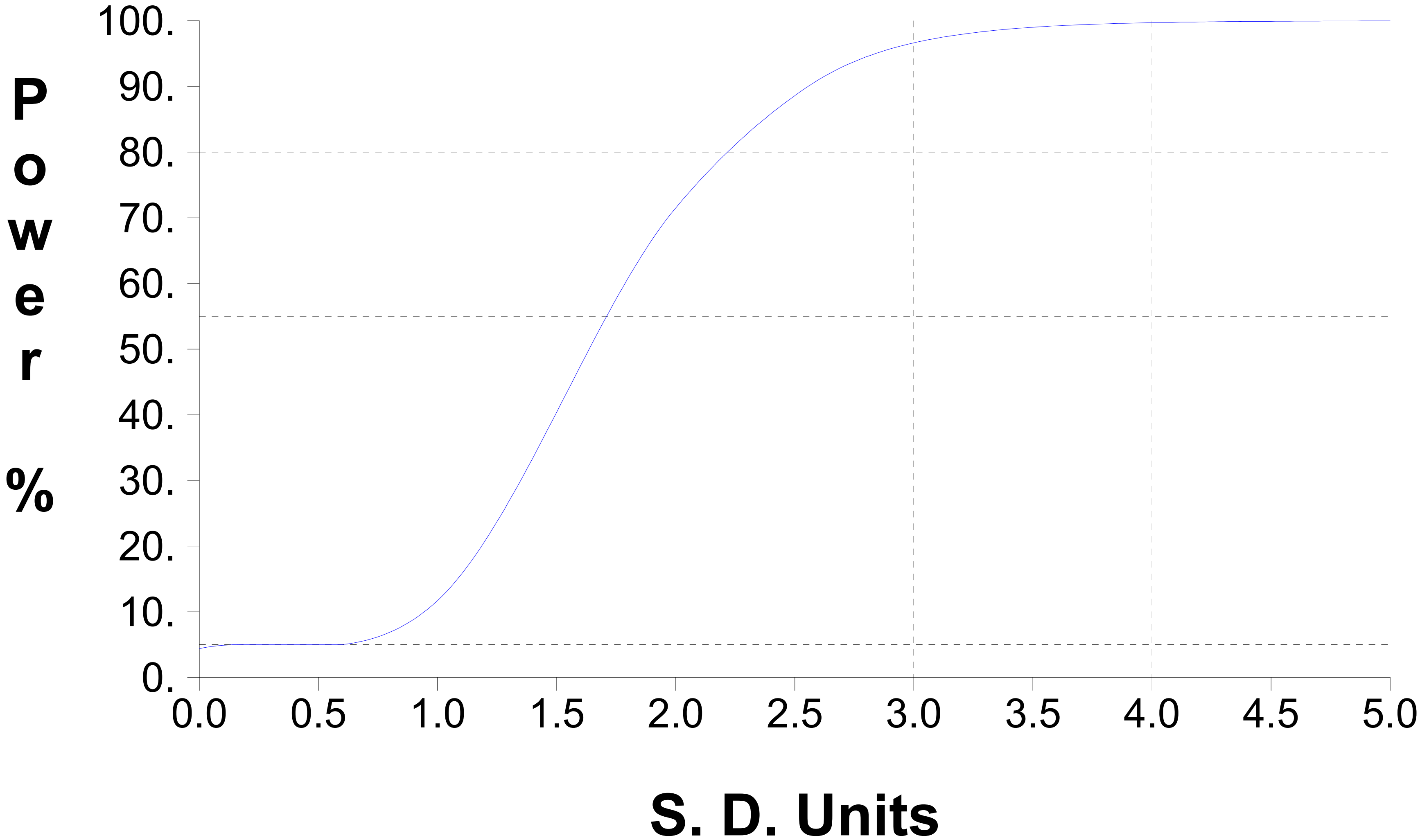


Graph 74



Graph 75

False Positive and False Negative Rates for Current Intra-Well Control Charts Monitoring Program



Attachment E

Summary Table of Historical VOC Detections

Table 1

Historical Volatile Organic Compound Detections

Constituent	Well	Date	Identifier	Result	Limit	Units
Acetone	MW-10	9/01/2017		18.5	10.0	ug/L
Acetone	MW-7	9/01/2017		14.8	10.0	ug/L
Benzene	MW-7	10/26/2021		1.6	1.0	ug/L
Chlorobenzene	MW-7	9/28/2015		1.0	1.0	ug/L
Chlorobenzene	MW-7	4/10/2017		1.0	1.0	ug/L
Chlorobenzene	MW-7	9/01/2017		1.5	1.0	ug/L
Chlorobenzene	MW-7	4/23/2018		1.7	1.0	ug/L
Chlorobenzene	MW-7	9/14/2018		1.2	1.0	ug/L
Chlorobenzene	MW-7	4/15/2019		1.6	1.0	ug/L
Chlorobenzene	MW-7	9/17/2019		2.4	1.0	ug/L
Chlorobenzene	MW-7	4/08/2020		2.0	1.0	ug/L
Chlorobenzene	MW-7	10/02/2020		2.8	1.0	ug/L
Chlorobenzene	MW-7	4/12/2021		1.7	1.0	ug/L
Chlorobenzene	MW-7	10/26/2021		2.4	1.0	ug/L
Chlorobenzene	MW-7	4/04/2022		1.1	1.0	ug/L
Chlorobenzene	MW-7	10/07/2022		1.8	1.0	ug/L
Chloroethane	MW-7	3/31/2010		1.5	1.0	ug/L
Chloroethane	MW-7	9/26/2011		1.0	1.0	ug/L
Chloroethane	MW-7	4/01/2012		1.6	1.0	ug/L
Chloroethane	MW-7	8/23/2012		1.5	1.0	ug/L
Chloroethane	MW-7	4/12/2013		1.8	1.0	ug/L
Chloroethane	MW-7	9/14/2013		1.3	1.0	ug/L
Chloroethane	MW-7	4/11/2014		2.3	1.0	ug/L
Chloroethane	MW-7	9/27/2014		2.6	1.0	ug/L
Chloroethane	MW-7	9/28/2015		1.4	1.0	ug/L
Chloroethane	MW-7	3/14/2016		1.6	1.0	ug/L
Chloroethane	MW-7	4/10/2017		1.2	1.0	ug/L
Chloroethane	MW-7	9/01/2017		1.7	1.0	ug/L
Chloroethane	MW-7	4/23/2018		1.7	1.0	ug/L
Chloroethane	MW-7	9/14/2018		1.2	1.0	ug/L
Chloroethane	MW-7	4/15/2019		1.6	1.0	ug/L
Chloroethane	MW-7	9/17/2019		1.1	1.0	ug/L
Chloroethane	MW-7	4/08/2020		1.5	1.0	ug/L
Chloroethane	MW-7	10/02/2020		1.3	1.0	ug/L
Chloroethane	MW-7	10/26/2021		1.2	1.0	ug/L
Chloroethane	MW-7	4/04/2022		1.7	1.0	ug/L
Chloroethane	MW-7	10/07/2022		1.9	1.0	ug/L
Chloroethane	MW-7	10/25/2023		1.3	1.0	ug/L
Chloromethane	MW-7	3/14/2016		3	1	ug/L
Cis-1,2-dichloroethylene	MW-7	3/31/2010		36.4	1.0	ug/L
Cis-1,2-dichloroethylene	MW-7	9/16/2010		1.3	1.0	ug/L
Cis-1,2-dichloroethylene	MW-7	4/11/2011		4.8	1.0	ug/L
Cis-1,2-dichloroethylene	MW-7	9/26/2011		19.2	1.0	ug/L
Cis-1,2-dichloroethylene	MW-7	4/01/2012		69.1	1.0	ug/L
Cis-1,2-dichloroethylene	MW-7	8/23/2012		124.0	1.0	ug/L
Cis-1,2-dichloroethylene	MW-7	4/12/2013		17.7	1.0	ug/L
Cis-1,2-dichloroethylene	MW-7	9/14/2013		95.0	1.0	ug/L
Cis-1,2-dichloroethylene	MW-7	4/11/2014		92.3	1.0	ug/L
Cis-1,2-dichloroethylene	MW-7	9/27/2014		24.4	1.0	ug/L
Cis-1,2-dichloroethylene	MW-7	3/16/2015		58.2	1.0	ug/L
Cis-1,2-dichloroethylene	MW-7	9/28/2015		62.8	1.0	ug/L
Cis-1,2-dichloroethylene	MW-7	3/14/2016		20.8	1.0	ug/L
Cis-1,2-dichloroethylene	MW-7	9/03/2016		3.4	1.0	ug/L
Cis-1,2-dichloroethylene	MW-7	4/10/2017		4.8	1.0	ug/L
Cis-1,2-dichloroethylene	MW-7	9/01/2017		18.3	1.0	ug/L
Cis-1,2-dichloroethylene	MW-7	4/23/2018		10.2	1.0	ug/L
Cis-1,2-dichloroethylene	MW-7	9/14/2018		10.4	1.0	ug/L
Cis-1,2-dichloroethylene	MW-7	4/15/2019		5.9	1.0	ug/L
Cis-1,2-dichloroethylene	MW-7	9/17/2019		7.7	1.0	ug/L
Cis-1,2-dichloroethylene	MW-7	4/08/2020		6.6	1.0	ug/L
Cis-1,2-dichloroethylene	MW-7	10/02/2020		22.5	1.0	ug/L
Cis-1,2-dichloroethylene	MW-7	4/12/2021		14.9	1.0	ug/L
Cis-1,2-dichloroethylene	MW-7	10/26/2021		5.9	1.0	ug/L
Cis-1,2-dichloroethylene	MW-7	10/07/2022		1.0	1.0	ug/L
Cis-1,2-dichloroethylene	MW-7	4/19/2023		1.4	1.0	ug/L
Cis-1,2-dichloroethylene	MW-7	10/25/2023		5.0	1.0	ug/L
Cis-1,2-dichloroethylene	MW-7	4/17/2024		2.3	1.0	ug/L
Dichlorodifluoromethane	MW-7	4/01/2012		1.4	1.0	ug/L
Dichlorodifluoromethane	MW-7	8/23/2012		2.3	1.0	ug/L
Dichlorodifluoromethane	MW-7	4/12/2013		3.5	1.0	ug/L
Dichlorodifluoromethane	MW-7	9/14/2013		3.0	1.0	ug/L
Dichlorodifluoromethane	MW-7	4/11/2014		2.1	1.0	ug/L
Dichlorodifluoromethane	MW-7	9/27/2014		2.6	1.0	ug/L
Dichlorodifluoromethane	MW-7	4/10/2017		1.4	1.0	ug/L
Dichlorodifluoromethane	MW-7	4/23/2018		1.4	1.0	ug/L
Dichlorodifluoromethane	MW-7	9/14/2018		1.2	1.0	ug/L

Detections are shown for the constituents and sample points selected for the analysis
The Limit column refers to the laboratory reporting limit

Table 1

Historical Volatile Organic Compound Detections

Constituent	Well	Date	Identifier	Result	Limit	Units
Dichlorodifluoromethane	MW-7	4/15/2019		1.4	1.0	ug/L
Dichlorodifluoromethane	MW-7	4/08/2020		1.6	1.0	ug/L
Dichlorodifluoromethane	MW-7	10/02/2020		1.0	1.0	ug/L
Dichlorodifluoromethane	MW-7	10/26/2021		1.4	1.0	ug/L
Dichlorodifluoromethane	MW-7	10/07/2022		1.3	1.0	ug/L
Dichlorodifluoromethane	MW-7	10/25/2023		1.0	1.0	ug/L
Dichlorodifluoromethane	MW-7	4/17/2024		1.0	1.0	ug/L
Trans-1,2-dichloroethylene	MW-7	3/31/2010		1.0	1.0	ug/L
Trans-1,2-dichloroethylene	MW-7	4/01/2012		1.8	1.0	ug/L
Trans-1,2-dichloroethylene	MW-7	8/23/2012		3.6	1.0	ug/L
Trans-1,2-dichloroethylene	MW-7	9/14/2013		2.8	1.0	ug/L
Trans-1,2-dichloroethylene	MW-7	4/11/2014		2.5	1.0	ug/L
Trans-1,2-dichloroethylene	MW-7	9/28/2015		2.1	1.0	ug/L
Vinyl chloride	MW-7	3/31/2010		1.3	1.0	ug/L
Vinyl chloride	MW-7	4/01/2012		2.4	1.0	ug/L
Vinyl chloride	MW-7	8/23/2012		6.2	1.0	ug/L
Vinyl chloride	MW-7	4/12/2013		3.6	1.0	ug/L
Vinyl chloride	MW-7	9/14/2013		6.4	1.0	ug/L
Vinyl chloride	MW-7	4/11/2014		4.4	1.0	ug/L
Vinyl chloride	MW-7	9/27/2014		3.1	1.0	ug/L
Vinyl chloride	MW-7	9/28/2015		3.0	1.0	ug/L
Vinyl chloride	MW-7	3/14/2016		1.2	1.0	ug/L
Vinyl chloride	MW-7	4/10/2017		1.7	1.0	ug/L
Vinyl chloride	MW-7	9/01/2017		3.2	1.0	ug/L
Vinyl chloride	MW-7	4/23/2018		2.1	1.0	ug/L
Vinyl chloride	MW-7	9/14/2018		2.1	1.0	ug/L
Vinyl chloride	MW-7	4/15/2019		1.1	1.0	ug/L
Vinyl chloride	MW-7	9/17/2019		1.0	1.0	ug/L
Vinyl chloride	MW-7	4/08/2020		1.7	1.0	ug/L
Vinyl chloride	MW-7	10/02/2020		2.5	1.0	ug/L
1,1-dichloroethane	PZ-11	4/19/2023		1.2	1.0	ug/L
1,1-dichloroethane	PZ-11	10/25/2023		1.2	1.0	ug/L
1,1-dichloroethane	PZ-11	4/17/2024		1.3	1.0	ug/L
Bis(2-ethylhexyl) phthalate	PZ-11	4/08/2020		6	6	ug/L
Bis(2-ethylhexyl) phthalate	PZ-11	4/12/2021		8	6	ug/L
Bis(2-ethylhexyl) phthalate	PZ-11	10/26/2021		7	6	ug/L
Chloroethane	PZ-11	10/25/2023		1.6	1.0	ug/L

Detections are shown for the constituents and sample points selected for the analysis
The Limit column refers to the laboratory reporting limit

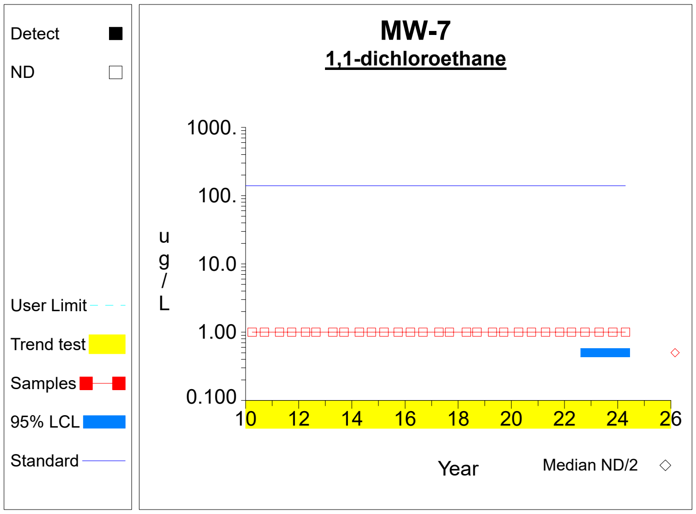
Table 1

Confidence Intervals for Comparing the Mean of the Last 4 Measurements to an Assessment Monitoring Standard

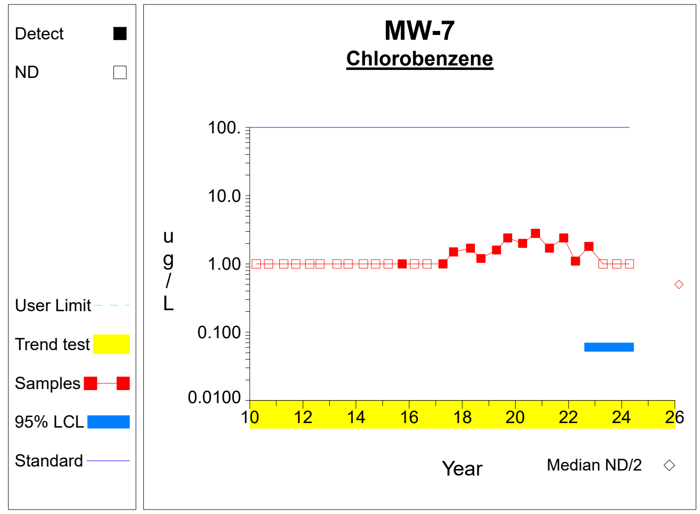
Constituent	Units	Well	N	Mean	SD	Factor	95% LCL	95% UCL	Standard	Trend	
1,1-dichloroethane	ug/L	MW-7	4	0.500	0.000	1.176	0.500	0.500	140.000		
Chlorobenzene	ug/L	MW-7	4	0.825	0.650	1.176	0.060	1.590	100.000		
Chloroethane	ug/L	MW-7	4	1.050	0.681	1.176	0.249	1.851	2800.000		
Cis-1,2-dichloroethylene	ug/L	MW-7	4	2.425	1.801	1.176	0.307	4.543	70.000	dec	
Dichlorodifluoromethane	ug/L	MW-7	4	0.950	0.332	1.176	0.560	1.340	1000.000		
Vinyl chloride	ug/L	MW-7	4	0.500	0.000	1.176	0.500	0.500	2.000		
1,1-dichloroethane	ug/L	PZ-11	4	1.050	0.370	1.176	0.615	1.485	140.000		
Chlorobenzene	ug/L	PZ-11	4	0.500	0.000	1.176	0.500	0.500	100.000		
Chloroethane	ug/L	PZ-11	4	0.775	0.550	1.176	0.128	1.422	2800.000		
Cis-1,2-dichloroethylene	ug/L	PZ-11	4	0.500	0.000	1.176	0.500	0.500	70.000		
Dichlorodifluoromethane	ug/L	PZ-11	3								*
Vinyl chloride	ug/L	PZ-11	4	0.500	0.000	1.176	0.500	0.500	2.000		

* - Insufficient Data
** - Significant Exceedance
LCL = Lower Confidence Limit
UCL = Upper Confidence Limit

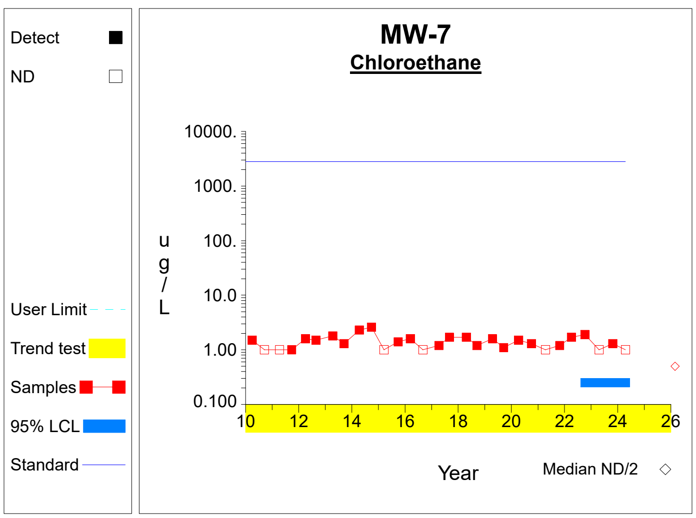
Confidence Limits (Assessment)



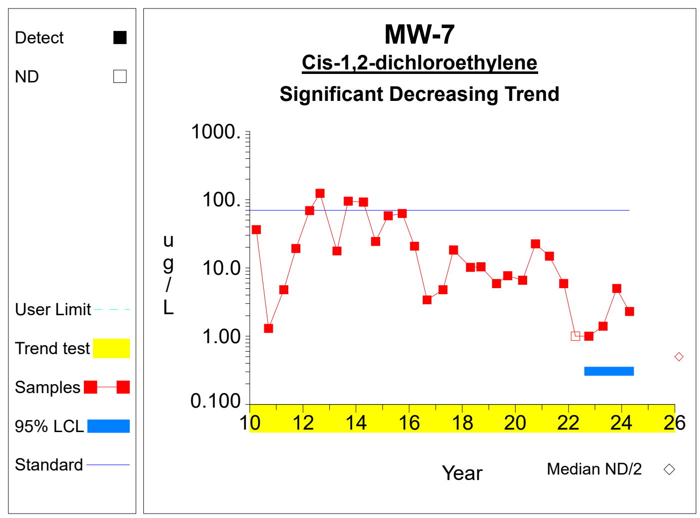
Graph 1



Graph 2



Graph 3



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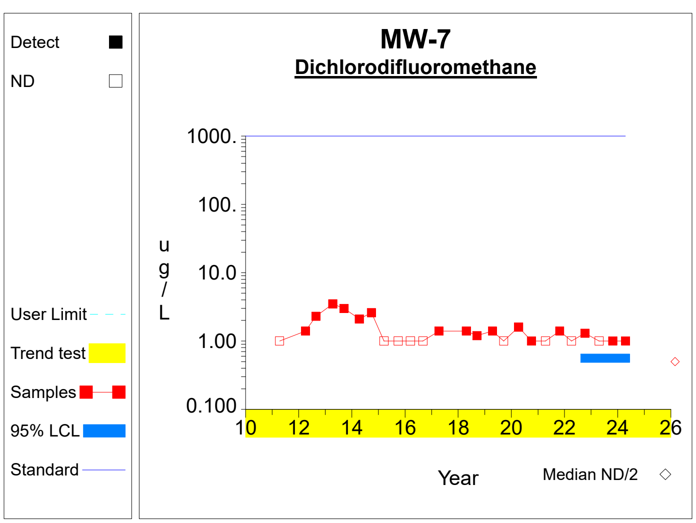

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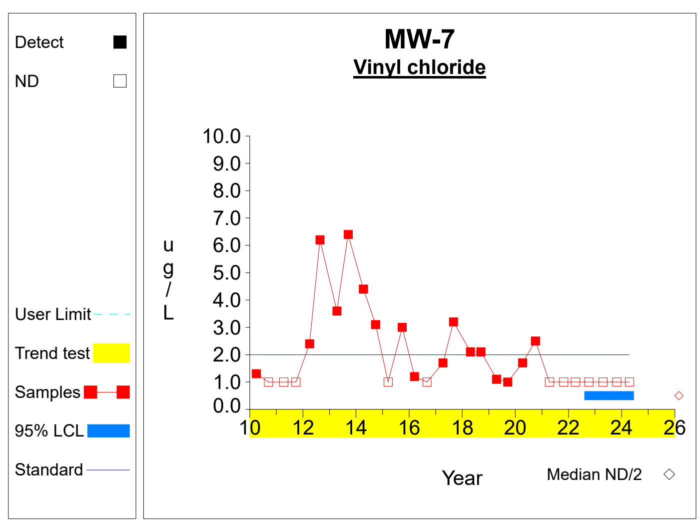
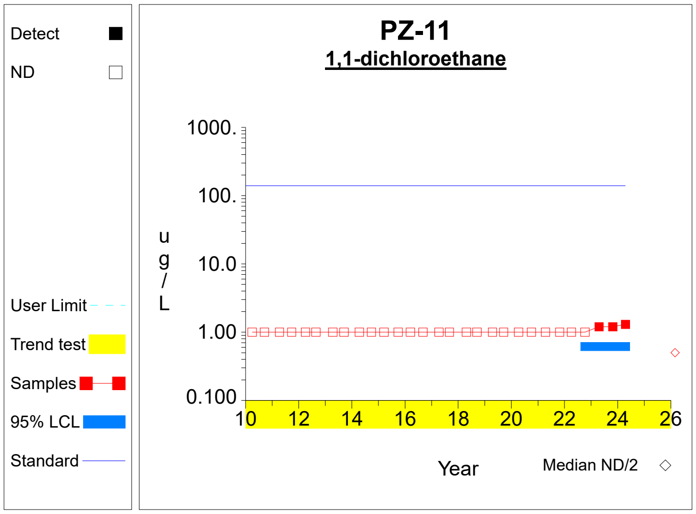
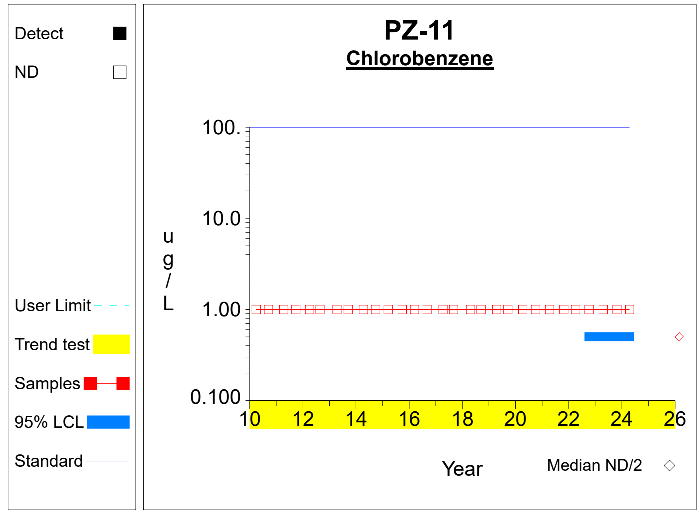


Graph 6

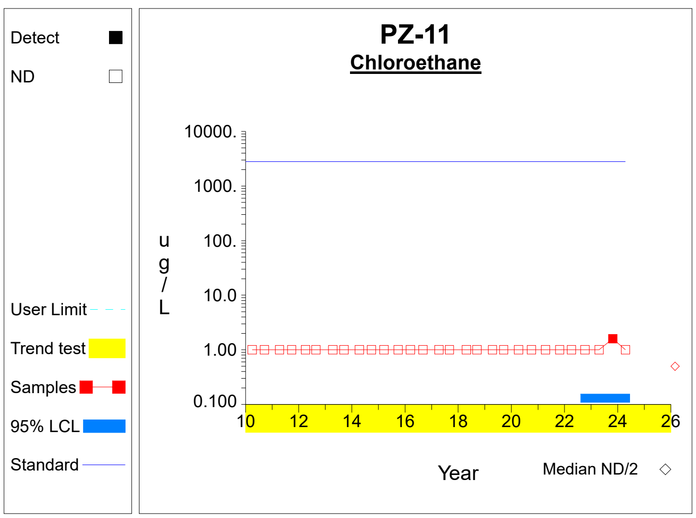
Confidence Limits (Assessment)



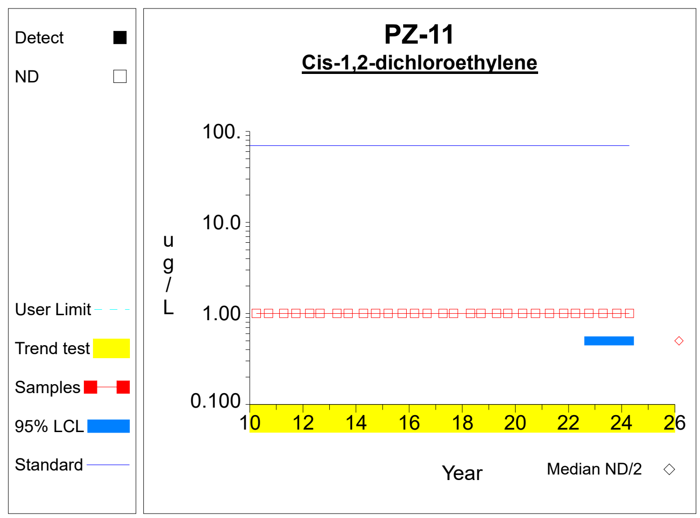
Graph 7



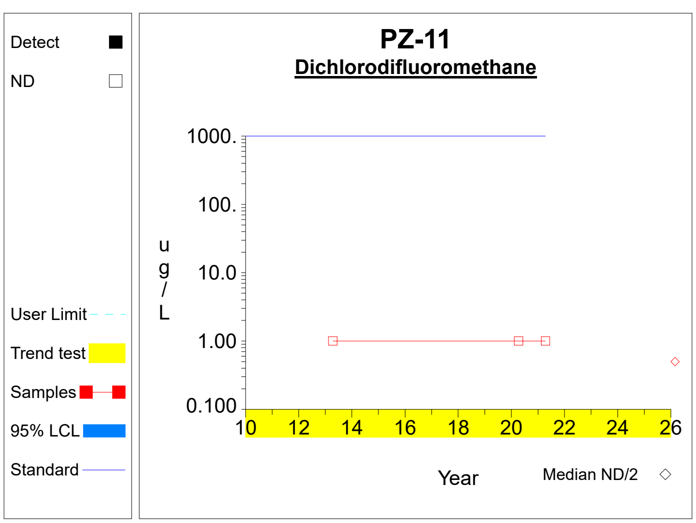
Graph 8



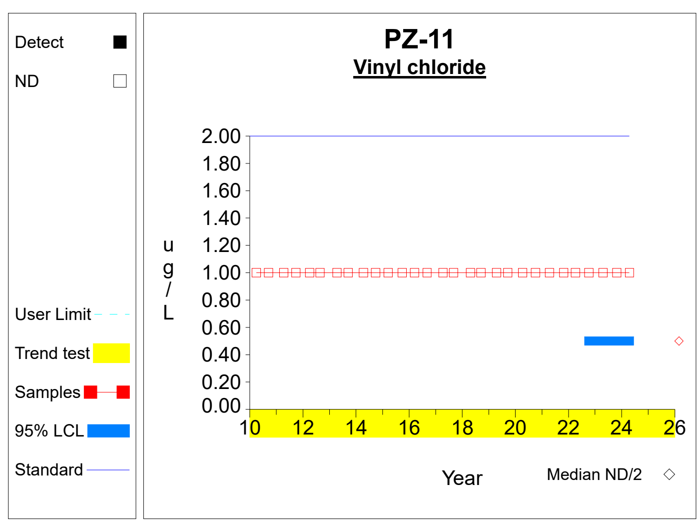
Graph 9



Graph 10



Graph 11



Graph 12

STATISTICAL ANALYSIS

FOR THE

IDA COUNTY SANITARY LANDFILL

Second Semi-Annual Monitoring Event in 2024

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INTRODUCTION

This report summarizes the statistical analysis plan for evaluating the groundwater quality data at the Ida County Sanitary Landfill in Ida County, Iowa. The plan is designed to detect a release from the facility at the earliest indication so that it is protective of human health and the environment. Both interwell and intrawell methodologies are described and then applied to the Ida County Landfill data. Based on the data available, the most appropriate methodology will be implemented for comparing future ground water data. The statistical plan conforms with IAC 567, Chapter 113.10, USEPA Guidance document ("*Statistical Analysis of Ground-Water Monitoring Data at RCRA Facilities, Unified Guidance*", March 2009), and the American Society for Testing and Materials (ASTM) standard D6312-98, *Developing Appropriate Statistical Approaches for Ground-Water Detection Monitoring Programs*.

Ground Water Monitoring Program

The groundwater monitoring network for Ida County Sanitary Landfill includes upgradient well MW-3 and downgradient detection sample points MW-10, MW-13, MW-7, and PZ-11. Each of the groundwater monitoring wells is to be sampled at least semiannually and analyzed for the detection monitoring parameters listed in 113.10(5), which includes 15 inorganic constituents and 47 organic compounds, summarized in Table 1 below.

Table 1: Detection monitoring constituents listed in Appendix I of IAC 567, Chapter 113.

Organic Compounds:

Acetone	*trans*-1,4-Dichloro-2-butene	Iodomethane
Acrylonitrile	1,1-Dichloroethane	4-Methyl-2-pentanone
Benzene	1,2-Dichloroethane	Styrene
Bromochloromethane	1,1-Dichloroethene	1,1,1,2-Tetrachloroethane
Bromodichloromethane	*cis*-1,2-Dichloroethene	1,1,2,2-Tetrachloroethane
Bromoform	*trans*-1,2-Dichloroethene	Tetrachloroethene
Carbon disulfide	1,2-Dichloropropane	Toluene
Carbon tetrachloride	*cis*-1,3-Dichloropropene	1,1,1-Trichloroethane
Chlorobenzene	*trans*-1,3-Dichloropropene	1,1,2-Trichloroethane
Chloroethane	Ethylbenzene	Trichloroethene
Chloroform	2-Hexanone	Trichlorofluoromethane
Dibromochloromethane	Bromomethane	1,2,3-Trichloropropane
1,2-Dibromo-3-chloropropane	Chloromethane	Vinyl acetate
1,2-Dibromoethane	Dibromomethane	Vinyl chloride
1,2-Dichlorobenzene	Methylene chloride	Xylenes (Total)
1,4-Dichlorobenzene	2-Butanone	

Inorganic constituents:

Antimony, Total	Chromium, Total	Selenium, Total
Arsenic, Total	Cobalt, Total	Silver, Total
Barium, Total	Copper, Total	Thallium, Total
Beryllium, Total	Lead, Total	Vanadium, Total
Cadmium, Total	Nickel, Total	Zinc, Total

The data obtained during the second semi-annual monitoring event in 2024 are summarized in Attachment A.

STATISTICAL METHODOLOGIES FOR DETECTION MONITORING

IAC 567, Chapter 113.10(4) provides several options for statistically evaluating the ground water data at those wells that monitor the open cells or contiguous MSWLF units. The preferred methods for comparing ground water data are using either prediction limits or using control charts. Both of these methods will be applied to the Ida County Landfill data using the DUMPStat® statistical program (version 3.1 or higher). DUMPStat® (Discerning Systems, Inc., Burnaby, BC) is a program for the statistical analysis of groundwater monitoring data using methods described in "Statistical Methods for Groundwater Monitoring" by Dr. Robert D. Gibbons. The DUMPStat program is completely consistent with all USEPA regulations and guidance and the ASTM D6312-98 guidance.

Ground water statistics are to be done on the inorganic constituents listed. The organic constituents are compared to maximum contaminant levels (MCLs) or practical quantitation limits (PQLs), in lieu of statistical comparisons to historical concentrations.

Interwell Statistics: Upgradient versus Downgradient Comparisons

Interwell statistics are appropriate when the upgradient and downgradient wells monitor the same ground water formation and there is similar variability in the upgradient and downgradient zones. Site prediction limits are determined by pooling the historical ground water data from hydraulically upgradient wells. This statistical method compares the current downgradient determinations to site prediction limits and checks for exceedances. The type of prediction limit utilized (e.g., parametric or nonparametric) is based on the detection frequency and the data distribution of each parameter in the background data. The distribution of the background data is tested for normality using the Shapiro-Wilk test (Gibbons, 1994 and USEPA 1992). If the constituent is normally distributed, a normal prediction limit is used. If normality is rejected by the Shapiro-Wilk test, the background data is transformed by taking the natural logarithm. The Shapiro-Wilk test is then reapplied on the transformed data. If it is not rejected, lognormal prediction limits are used. If after transforming the data, normality is still rejected, nonparametric prediction limits are used for that analyte. The nonparametric prediction limit is the largest determination in the background measurements. For constituents where the background detection frequency is greater than 0% but less than 50%, nonparametric prediction limits will be used. If the detection frequency is 0% after thirteen samples have been collected, the practical quantitation limit (PQL) becomes the nonparametric prediction limit.

<u>**Results of the Interwell Statistics**</u>

The background data used in this statistical analysis includes the ground water data collected from ground water well MW-3 during the period from March 2010 through the present data. A summary of the background data from monitoring well MW-3, used to determine the site prediction limits, is listed in Attachment B, Table 1 "Upgradient Data". This statistical method compares the current downgradient determinations to site prediction limits and checks for exceedances.

Table 2 "Most Current Downgradient Monitoring Data", summarizes the current data from downgradient wells MW-10, MW-13, MW-7, and PZ-11 compared to the site prediction limits. Prediction limit exceedances are flagged with asterisks. For the most current data, the site prediction limit exceedances detected are summarized in the table below.

Trace Metal Exceedances detected during the Second Semi-Annual Monitoring Event in 2024

Well	Trace Metal	Result, µg/L	Prediction Limit, µg/L	Prediction Limit Type	Verified/ Awaiting Verification
MW-10	Cadmium	2.4	1.5000	Nonparametric	Awaiting Verification
MW-7	Copper	6.4	5.5000	Nonparametric	Awaiting Verification
	Nickel	49.6	15.6000	Nonparametric	Awaiting Verification
MW-11	Nickel	31.1	15.6000	Nonparametric	Awaiting Verification

The detection frequencies of the parameters in the up and down gradient monitoring wells are summarized in Table 3. Barium is detected at a frequency greater than or equal to 50% in the upgradient well so only this metal will be tested for normality. The remainder of the metals are rarely detected (less than 50%) in the upgradient well so nonparametric prediction limits were used in those cases.

Table 4 summarizes the results of the Shapiro-Wilk test. Table 5 is a summary of the statistics and prediction limits determined for the metals. Time series graphs of each of the parameters at each well with the corresponding prediction limits are attached.

A statistical power curve indicates the expected false assessments for the site as a whole. The false positive rate for interwell analyses is the percentage of failures when the upgradient versus downgradient true mean difference equals zero. False negative rate indicates the chance of missing contamination at a single well for a single constituent. The statistical power is a function of the number of wells included, the number of constituents compared, the detection frequencies, and the data distributions involved. For interwell analysis, the site-wide false positive rate is 3% and the test becomes sensitive to 4 standard deviation unit increases over background.

The past and current verified trace metal exceedances were evaluated against the ground water protection standards (GWPS) using confidence limits calculated in accordance with the Statistical Analysis of Groundwater Monitoring Data at RCRA Facilities – Unified Guidance, USEPA, March 2009. The analysis was conducted to evaluate whether verified concentrations are significantly above the water quality standard. The 95% lower confidence limit (LCL) for the mean of the historical data was used to evaluate whether the regulated unit is in compliance with the ground-water protection standards under 40 CFR 264 (e.g. whether the verified constituent is detected at a significant level above the GWPS). An exceedance is verified if the LCL is above the Regulatory GWPS. The results of these analyses are in Attachment C.

The calculated 95% LCLs for the verified trace metals are all below the respective ground water standards.

Intrawell statistics

Intrawell statistics are appropriate for facilities where the upgradient wells do not accurately characterize the natural ground water conditions downgradient from the facility. This may be due to different hydrogeological conditions where the wells are screened, having too few upgradient wells to account for the spatial variability, or the site exhibiting no definable hydraulic gradient. Intrawell statistics compare new measurements to the historical data at each ground water monitoring well independently. It is recommended that at least eight background samples be obtained prior to performing the statistics.

The most useful technique for intrawell comparisons is the combined Shewhart-CUSUM control chart. This control chart procedure is useful because it will detect releases both in terms of the constituent concentration and cumulative increases. This method is also extremely sensitive to sudden and gradual releases. A requirement for constructing these control charts is that the parameter is detected at a frequency greater than or equal to 25%, otherwise the data variance is not properly defined.

The combined Shewhart-CUSUM control chart assumes that the data are independent and normally distributed with a fixed mean and a constant variance. Independent data is much more critical than the normality assumption. To achieve independence, it is recommended that data are collected no more frequently than quarterly to account for seasonal variation. The combined Shewhart-CUSUM control chart is extremely robust to deviations from normality. Because the control charts do not use a specific multiplier based on a normal distribution, it is more conservative to assume normality.

It is recommended that at least eight rounds of data be available to provide a reliable estimate of the mean and standard deviation of the parameter concentration, although the control charts will be generated with as few as four data points. Having only four data points may produce greater uncertainty in the mean and standard deviation of the background data, leading to higher control limits, thus having a potentially high false negative rate.

Many groundwater monitoring parameters are not detected at a frequency great enough to generate the combined Shewhart-CUSUM control charts. For constituents that are detected less than 25% of the time at a particular well, the data should be plotted as a time series until a sufficient number of data points are available to provide a 99% confidence nonparametric prediction limit. Thirteen independent measurements (with 1 resample) are necessary to achieve a 99% confidence (1% false positive rate) nonparametric prediction limit. Eight independent measurements (for pass 1 of 2 resamples) are necessary to achieve a 99% confidence nonparametric prediction limit. The nonparametric prediction limit is the largest determination out of the data set collected for that well and parameter. If the detection frequency is 0% after thirteen samples have been collected, the practical quantitation limit (PQL) becomes the nonparametric prediction limit. As an alternative to nonparametric prediction limits, Poisson prediction limits can be used for small data sets where the detection frequency is less than 25%.

In developing the statistical background, the historical data must be thoroughly screened for anomalous data due to sampling error, analytical error, or simply by chance alone. An erroneous data point, if not removed prior to the mean and variance computations, would yield a larger control limit thus increasing the false negative rate. The DUMPStat® program screens for outliers using the Dixon test. Anomalous data will still be plotted on the graphs (with a unique symbol) but will not be included in the calculations.

The verification resample plan is an integral function of the statistical plan to reduce the probability that anomalous data obtained after the background has been established, is indicative of a landfill release.

The background data for each well and constituent is tested for existing trends using Sen's nonparametric estimate of trend. If contamination exists prior to completing the background, the control limits could be potentially high and this control chart method would not be able to detect an increasing trend unless the increase is severe.

Results of the Intrawell Statistics

The Appendix I trace metals data from wells MW-10, MW-13, MW-3, MW-7, and PZ-11 were evaluated using the combined Shewhart-CUSUM control chart method. The previous background included the groundwater data obtained from March 2010 through 2020. As ground water monitoring at a municipal solid waste facility proceeds, it is recommended to update background data sets periodically with valid detection monitoring results that are representative of background groundwater quality not affected by leakage from a monitored unit. Failure to update background will exclude factors such as natural temporal variation, changes in field or laboratory methodologies, and changes in the water table due to meteorological conditions or other influences. Since there have been no exceedances attributed to the landfill, the background was updated to include data obtained from March 2010 through April 2023.

A summary of the intrawell statistics is included in Attachment D, Table 1 "Summary Statistics and Intermediate Computations for Combined Shewhart-CUSUM Control Charts." The control charts or time series graphs follow the summary table. For the parameters evaluated, the statistical limit exceedances identified are summarized in the table below.

Control Limit Exceedances During the Second Semi-Annual Monitoring Event in 2024

Sample Point	Trace Metal	Result	CUSUM Value	Control Limit	Control Limit Type	Verified/ Awaiting Verification
MW-10	Cadmium	2.4	--	0.9000	Nonparametric	Awaiting Verification

An increasing trend was detected in the background data for nickel at MW-7.

A control chart factor was selected to provide a balance of the site-wide false positive and false negative rates. A statistical power curve indicates the expected false assessments for the site as a whole. Given an accepted resample verification plan of "pass one of one" resamples, the number of statistical comparisons, and the number of background data points, the optimal factor h = SCL = 6.5 for $N \leq 12$ and $N > 12$. Using this factor for intrawell analysis, the site-wide false positive rate is 5% and the test becomes sensitive to 3 standard deviation units over background.

Volatile Organic Compounds

Volatile Organic Compounds (VOCs) are generally man-made compounds not present in ambient ground water. If VOCs are detected above their statistical limit (i.e., the laboratory PQL or reporting limit), a verification resample will be conducted at the next scheduled sampling event. A statistical exceedance will be indicated if the VOC detection is confirmed by the subsequent monitoring.

VOCs detected in the ground water at Ida County Landfill during the second semi-annual monitoring event in 2024 are summarized below.

VOCs Detected during the Second Semi-Annual Monitoring Event in 2024

Sample Point	VOC	Result	Reporting Limit	Verified/Awaiting Verification	GWPS
MW-7	Chlorobenzene	1.2	1	Awaiting Verification	100[a]
	cis-1,2-Dichloroethene	6.1	1	Verified	70[a]
PZ-11	1,1-Dichloroethane	1.0	1	Verified	140[b]

a - USEPA MCL
b – Iowa Statewide Standard

Historical VOC detections are summarized in Attachment E. The verified VOC detections were evaluated against the ground water protection standards (GWPS) using confidence limits. The 95% LCL for each of these VOCs is below the respective USEPA MCL or Iowa Statewide Standard.

Attachment A

Summary of Ground Water Data – Second Semi-Annual Monitoring Event in 2024

Table 1

Analytical Data Summary for 10/17/2024

Constituents	Units	MW-10	MW-13	MW-3	MW-7	PZ-11
1,1,1,2-tetrachloroethane	ug/L	<1	<1	<1	<1	<1
1,1,1-trichloroethane	ug/L	<1	<1	<1	<1	<1
1,1,2,2-tetrachloroethane	ug/L	<1	<1	<1	<1	<1
1,1,2-trichloroethane	ug/L	<1	<1	<1	<1	<1
1,1-dichloroethane	ug/L	<1	<1	<1	<1	1
1,1-dichloroethylene	ug/L	<1	<1	<1	<1	<1
1,2,3-trichloropropane	ug/L	<1	<1	<1	<1	<1
1,2-dibromo-3-chloropropane	ug/L	<5	<5	<5	<5	<5
1,2-dibromoethane	ug/L	<1	<1	<1	<1	<1
1,2-dichlorobenzene	ug/L	<1	<1	<1	<1	<1
1,2-dichloroethane	ug/L	<1	<1	<1	<1	<1
1,2-dichloropropane	ug/L	<1	<1	<1	<1	<1
1,4-dichlorobenzene	ug/L	<1	<1	<1	<1	<1
2-butanone (mek)	ug/L	<10	<10	<10	<10	<10
2-hexanone (mbk)	ug/L	<5	<5	<5	<5	<5
4-methyl-2-pentanone (mibk)	ug/L	<5	<5	<5	<5	<5
Acetone	ug/L	<10	<10	<10	<10	<10
Acrylonitrile	ug/L	<5	<5	<5	<5	<5
Antimony, total	ug/L	<2	<2	<2	<2	<2
Arsenic, total	ug/L	<4	<4	<4	<4	<4
Barium, total	ug/L	141.0	48.2	325.0	249.0	48.0
Benzene	ug/L	<1	<1	<1	<1	<1
Beryllium, total	ug/L	<4	<4	<4	<4	<4
Bromochloromethane	ug/L	<1	<1	<1	<1	<1
Bromodichloromethane	ug/L	<1	<1	<1	<1	<1
Bromoform	ug/L	<1	<1	<1	<1	<1
Bromomethane	ug/L	<1	<1	<1	<1	<1
Cadmium, total	ug/L	2.4	<.8	<.8	<.8	<.8
Carbon disulfide	ug/L	<1	<1	<1	<1	<1
Carbon tetrachloride	ug/L	<1	<1	<1	<1	<1
Chlorobenzene	ug/L	<1.0	<1.0	<1.0	1.2	<1.0
Chloroethane	ug/L	<1	<1	<1	<1	<1
Chloroform	ug/L	<1	<1	<1	<1	<1
Chloromethane	ug/L	<1	<1	<1	<1	<1
Chromium, total	ug/L	<8	<8	<8	<8	<8
Cis-1,2-dichloroethylene	ug/L	<1.0	<1.0	<1.0	6.1	<1.0
Cis-1,3-dichloropropene	ug/L	<1	<1	<1	<1	<1
Cobalt, total	ug/L	<.4	<.4	<.4	2.8	.5
Copper, total	ug/L	<4.0	<4.0	<4.0	6.4	<4.0
Dibromochloromethane	ug/L	<1	<1	<1	<1	<1
Dibromomethane	ug/L	<1	<1	<1	<1	<1
Dichlorodifluoromethane	ug/L				<1	
Ethylbenzene	ug/L	<1	<1	<1	<1	<1
Lead, total	ug/L	<4	<4	<4	<4	<4
Methyl iodide	ug/L	<1	<1	<1	<1	<1
Methylene chloride	ug/L	<5	<5	<5	<5	<5
Nickel, total	ug/L	10.2	<4.0	<4.0	49.6	31.1
Selenium, total	ug/L	<4	<4	<4	<4	<4
Silver, total	ug/L	<4	<4	<4	<4	<4
Styrene	ug/L	<1	<1	<1	<1	<1
Tetrachloroethylene	ug/L	<1	<1	<1	<1	<1
Thallium, total	ug/L	<2	<2	<2	<2	<2
Toluene	ug/L	<1	<1	<1	<1	<1
Trans-1,2-dichloroethylene	ug/L	<1	<1	<1	<1	<1
Trans-1,3-dichloropropene	ug/L	<1	<1	<1	<1	<1
Trans-1,4-dichloro-2-butene	ug/L	<5	<5	<5	<5	<5
Trichloroethylene	ug/L	<1	<1	<1	<1	<1
Trichlorofluoromethane	ug/L	<1	<1	<1	<1	<1
Vanadium, total	ug/L	<20	<20	<20	<20	<20
Vinyl acetate	ug/L	<5	<5	<5	<5	<5
Vinyl chloride	ug/L	<1	<1	<1	<1	<1
Xylenes, total	ug/L	<2	<2	<2	<2	<2
Zinc, total	ug/L	<20	<20	<20	<20	<20

* - The displayed value is the arithmetic mean of multiple database matches.

Attachment B

Summary Tables and Graphs for the Interwell Comparisons

Table 1

Upgradient Data

Constituent	Units	Well	Date		Result	Adjusted	
Antimony, total	ug/L	MW-3	03/31/2010	ND	2.0000		
Antimony, total	ug/L	MW-3	09/16/2010	ND	2.0000		
Antimony, total	ug/L	MW-3	04/11/2011	ND	2.0000		
Antimony, total	ug/L	MW-3	09/26/2011	ND	2.0000		
Antimony, total	ug/L	MW-3	04/01/2012	ND	2.0000		
Antimony, total	ug/L	MW-3	08/23/2012	ND	2.0000		
Antimony, total	ug/L	MW-3	04/13/2013	ND	2.0000		
Antimony, total	ug/L	MW-3	09/14/2013	ND	2.0000		
Antimony, total	ug/L	MW-3	04/11/2014	ND	2.0000		
Antimony, total	ug/L	MW-3	09/27/2014	ND	2.0000		
Antimony, total	ug/L	MW-3	03/16/2015	ND	2.0000		
Antimony, total	ug/L	MW-3	09/28/2015	ND	2.0000		
Antimony, total	ug/L	MW-3	03/14/2016	ND	2.0000		
Antimony, total	ug/L	MW-3	09/03/2016	ND	2.0000		
Antimony, total	ug/L	MW-3	04/10/2017	ND	2.0000		
Antimony, total	ug/L	MW-3	09/01/2017	ND	2.0000		
Antimony, total	ug/L	MW-3	04/23/2018	ND	2.0000		
Antimony, total	ug/L	MW-3	09/14/2018	ND	2.0000		
Antimony, total	ug/L	MW-3	04/15/2019	ND	2.0000		
Antimony, total	ug/L	MW-3	09/17/2019	ND	2.0000		
Antimony, total	ug/L	MW-3	04/08/2020	ND	2.0000		
Antimony, total	ug/L	MW-3	10/02/2020	ND	2.0000		
Antimony, total	ug/L	MW-3	04/12/2021	ND	2.0000		
Antimony, total	ug/L	MW-3	10/26/2021	ND	2.0000		
Antimony, total	ug/L	MW-3	04/04/2022	ND	2.0000		
Antimony, total	ug/L	MW-3	10/07/2022	ND	2.0000		
Antimony, total	ug/L	MW-3	04/19/2023	ND	2.0000		
Antimony, total	ug/L	MW-3	10/25/2023	ND	2.0000		
Antimony, total	ug/L	MW-3	04/17/2024	ND	2.0000		
Antimony, total	ug/L	MW-3	10/17/2024	ND	2.0000		
Arsenic, total	ug/L	MW-3	03/31/2010	ND	4.0000		
Arsenic, total	ug/L	MW-3	09/16/2010	ND	4.0000		
Arsenic, total	ug/L	MW-3	04/11/2011	ND	4.0000		
Arsenic, total	ug/L	MW-3	09/26/2011	ND	4.0000		
Arsenic, total	ug/L	MW-3	04/01/2012	ND	4.0000		
Arsenic, total	ug/L	MW-3	08/23/2012		4.1000		
Arsenic, total	ug/L	MW-3	04/13/2013	ND	4.0000		
Arsenic, total	ug/L	MW-3	09/14/2013	ND	4.0000		
Arsenic, total	ug/L	MW-3	04/11/2014	ND	4.0000		
Arsenic, total	ug/L	MW-3	09/27/2014	ND	4.0000		
Arsenic, total	ug/L	MW-3	03/16/2015	ND	4.0000		
Arsenic, total	ug/L	MW-3	09/28/2015	ND	4.0000		
Arsenic, total	ug/L	MW-3	03/14/2016	ND	4.0000		
Arsenic, total	ug/L	MW-3	09/03/2016	ND	4.0000		
Arsenic, total	ug/L	MW-3	04/10/2017	ND	4.0000		
Arsenic, total	ug/L	MW-3	09/01/2017	ND	4.0000		
Arsenic, total	ug/L	MW-3	04/23/2018	ND	4.0000		
Arsenic, total	ug/L	MW-3	09/14/2018	ND	4.0000		
Arsenic, total	ug/L	MW-3	04/15/2019	ND	4.0000		
Arsenic, total	ug/L	MW-3	09/17/2019	ND	4.0000		
Arsenic, total	ug/L	MW-3	04/08/2020	ND	4.0000		
Arsenic, total	ug/L	MW-3	10/02/2020	ND	4.0000		
Arsenic, total	ug/L	MW-3	04/12/2021	ND	4.0000		
Arsenic, total	ug/L	MW-3	10/26/2021	ND	4.0000		
Arsenic, total	ug/L	MW-3	04/04/2022	ND	4.0000		
Arsenic, total	ug/L	MW-3	10/07/2022	ND	4.0000		
Arsenic, total	ug/L	MW-3	04/19/2023	ND	4.0000		
Arsenic, total	ug/L	MW-3	10/25/2023	ND	4.0000		
Arsenic, total	ug/L	MW-3	04/17/2024	ND	4.0000		
Arsenic, total	ug/L	MW-3	10/17/2024	ND	4.0000		
Barium, total	ug/L	MW-3	03/31/2010		459.0000		
Barium, total	ug/L	MW-3	09/16/2010		414.0000		
Barium, total	ug/L	MW-3	04/11/2011		407.0000		
Barium, total	ug/L	MW-3	09/26/2011		336.0000		
Barium, total	ug/L	MW-3	04/01/2012		265.0000		
Barium, total	ug/L	MW-3	08/23/2012		294.0000		
Barium, total	ug/L	MW-3	04/13/2013		395.0000		
Barium, total	ug/L	MW-3	09/14/2013		442.0000		
Barium, total	ug/L	MW-3	04/11/2014		517.0000		
Barium, total	ug/L	MW-3	09/27/2014		467.0000		
Barium, total	ug/L	MW-3	03/16/2015		426.0000		
Barium, total	ug/L	MW-3	09/28/2015		336.0000		
Barium, total	ug/L	MW-3	03/14/2016		323.0000		
Barium, total	ug/L	MW-3	09/03/2016		354.0000		

* - Outlier for that well and constituent.
** - ND value replaced with median RL.
*** - ND value replaced with manual RL.
ND = Not detected, Result = detection limit.

Table 1

Upgradient Data

Constituent	Units	Well	Date		Result	Adjusted	
Barium, total	ug/L	MW-3	04/10/2017		321.0000		
Barium, total	ug/L	MW-3	09/01/2017		271.0000		
Barium, total	ug/L	MW-3	04/23/2018		202.0000		
Barium, total	ug/L	MW-3	09/14/2018		170.0000		
Barium, total	ug/L	MW-3	04/15/2019		191.0000		
Barium, total	ug/L	MW-3	09/17/2019		197.0000		
Barium, total	ug/L	MW-3	04/08/2020		407.0000		
Barium, total	ug/L	MW-3	10/02/2020		157.0000		
Barium, total	ug/L	MW-3	04/12/2021		117.0000		
Barium, total	ug/L	MW-3	10/26/2021		157.0000		
Barium, total	ug/L	MW-3	04/04/2022		269.0000		
Barium, total	ug/L	MW-3	10/07/2022		292.0000		
Barium, total	ug/L	MW-3	04/19/2023		317.0000		
Barium, total	ug/L	MW-3	10/25/2023		269.0000		
Barium, total	ug/L	MW-3	04/17/2024		360.0000		
Barium, total	ug/L	MW-3	10/17/2024		325.0000		
Beryllium, total	ug/L	MW-3	03/31/2010	ND	4.0000		
Beryllium, total	ug/L	MW-3	09/16/2010	ND	4.0000		
Beryllium, total	ug/L	MW-3	04/11/2011	ND	4.0000		
Beryllium, total	ug/L	MW-3	09/26/2011	ND	4.0000		
Beryllium, total	ug/L	MW-3	04/01/2012	ND	4.0000		
Beryllium, total	ug/L	MW-3	08/23/2012	ND	4.0000		
Beryllium, total	ug/L	MW-3	04/13/2013	ND	4.0000		
Beryllium, total	ug/L	MW-3	09/14/2013	ND	4.0000		
Beryllium, total	ug/L	MW-3	04/11/2014	ND	4.0000		
Beryllium, total	ug/L	MW-3	09/27/2014	ND	4.0000		
Beryllium, total	ug/L	MW-3	03/16/2015	ND	4.0000		
Beryllium, total	ug/L	MW-3	09/28/2015	ND	4.0000		
Beryllium, total	ug/L	MW-3	03/14/2016	ND	4.0000		
Beryllium, total	ug/L	MW-3	09/03/2016	ND	4.0000		
Beryllium, total	ug/L	MW-3	04/10/2017	ND	4.0000		
Beryllium, total	ug/L	MW-3	09/01/2017	ND	4.0000		
Beryllium, total	ug/L	MW-3	04/23/2018	ND	4.0000		
Beryllium, total	ug/L	MW-3	09/14/2018	ND	4.0000		
Beryllium, total	ug/L	MW-3	04/15/2019	ND	4.0000		
Beryllium, total	ug/L	MW-3	09/17/2019	ND	4.0000		
Beryllium, total	ug/L	MW-3	04/08/2020	ND	4.0000		
Beryllium, total	ug/L	MW-3	10/02/2020	ND	4.0000		
Beryllium, total	ug/L	MW-3	04/12/2021	ND	4.0000		
Beryllium, total	ug/L	MW-3	10/26/2021	ND	4.0000		
Beryllium, total	ug/L	MW-3	04/04/2022	ND	4.0000		
Beryllium, total	ug/L	MW-3	10/07/2022	ND	4.0000		
Beryllium, total	ug/L	MW-3	04/19/2023	ND	4.0000		
Beryllium, total	ug/L	MW-3	10/25/2023	ND	4.0000		
Beryllium, total	ug/L	MW-3	04/17/2024	ND	4.0000		
Beryllium, total	ug/L	MW-3	10/17/2024	ND	4.0000		
Cadmium, total	ug/L	MW-3	03/31/2010	ND	1.0000	0.8000	**
Cadmium, total	ug/L	MW-3	09/16/2010	ND	1.0000	0.8000	**
Cadmium, total	ug/L	MW-3	04/11/2011	ND	0.8000		
Cadmium, total	ug/L	MW-3	09/26/2011	ND	0.8000		
Cadmium, total	ug/L	MW-3	04/01/2012	ND	0.8000		
Cadmium, total	ug/L	MW-3	08/23/2012	ND	0.8000		
Cadmium, total	ug/L	MW-3	04/13/2013	ND	0.8000		
Cadmium, total	ug/L	MW-3	09/14/2013	ND	0.8000		
Cadmium, total	ug/L	MW-3	04/11/2014	ND	0.8000		
Cadmium, total	ug/L	MW-3	09/27/2014	ND	0.8000		
Cadmium, total	ug/L	MW-3	03/16/2015	ND	0.8000		
Cadmium, total	ug/L	MW-3	09/28/2015	ND	0.8000		
Cadmium, total	ug/L	MW-3	03/14/2016		0.8000		
Cadmium, total	ug/L	MW-3	09/03/2016	ND	0.8000		
Cadmium, total	ug/L	MW-3	04/10/2017	ND	0.8000		
Cadmium, total	ug/L	MW-3	09/01/2017	ND	0.8000		
Cadmium, total	ug/L	MW-3	04/23/2018	ND	0.8000		
Cadmium, total	ug/L	MW-3	09/14/2018		0.9000		
Cadmium, total	ug/L	MW-3	04/15/2019		1.0000		
Cadmium, total	ug/L	MW-3	09/17/2019	ND	0.8000		
Cadmium, total	ug/L	MW-3	04/08/2020		1.5000		
Cadmium, total	ug/L	MW-3	10/02/2020	ND	0.8000		
Cadmium, total	ug/L	MW-3	04/12/2021	ND	0.8000		
Cadmium, total	ug/L	MW-3	10/26/2021	ND	0.8000		
Cadmium, total	ug/L	MW-3	04/04/2022	ND	0.8000		
Cadmium, total	ug/L	MW-3	10/07/2022	ND	0.8000		
Cadmium, total	ug/L	MW-3	04/19/2023	ND	0.8000		
Cadmium, total	ug/L	MW-3	10/25/2023	ND	0.8000		

* - Outlier for that well and constituent.
** - ND value replaced with median RL.
*** - ND value replaced with manual RL.
ND = Not detected, Result = detection limit.

Table 1

Upgradient Data

Constituent	Units	Well	Date		Result	Adjusted	
Cadmium, total	ug/L	MW-3	04/17/2024	ND	0.8000		
Cadmium, total	ug/L	MW-3	10/17/2024	ND	0.8000		
Chromium, total	ug/L	MW-3	03/31/2010	ND	10.0000	8.0000	**
Chromium, total	ug/L	MW-3	09/16/2010	ND	10.0000	8.0000	**
Chromium, total	ug/L	MW-3	04/11/2011	ND	8.0000		
Chromium, total	ug/L	MW-3	09/26/2011	ND	8.0000		
Chromium, total	ug/L	MW-3	04/01/2012	ND	8.0000		
Chromium, total	ug/L	MW-3	08/23/2012	ND	8.0000		
Chromium, total	ug/L	MW-3	04/13/2013	ND	8.0000		
Chromium, total	ug/L	MW-3	09/14/2013	ND	8.0000		
Chromium, total	ug/L	MW-3	04/11/2014	ND	8.0000		
Chromium, total	ug/L	MW-3	09/27/2014	ND	8.0000		
Chromium, total	ug/L	MW-3	03/16/2015	ND	8.0000		
Chromium, total	ug/L	MW-3	09/28/2015	ND	8.0000		
Chromium, total	ug/L	MW-3	03/14/2016	ND	8.0000		
Chromium, total	ug/L	MW-3	09/03/2016	ND	8.0000		
Chromium, total	ug/L	MW-3	04/10/2017	ND	8.0000		
Chromium, total	ug/L	MW-3	09/01/2017	ND	8.0000		
Chromium, total	ug/L	MW-3	04/23/2018	ND	8.0000		
Chromium, total	ug/L	MW-3	09/14/2018	ND	8.0000		
Chromium, total	ug/L	MW-3	04/15/2019	ND	8.0000		
Chromium, total	ug/L	MW-3	09/17/2019	ND	8.0000		
Chromium, total	ug/L	MW-3	04/08/2020	ND	8.0000		
Chromium, total	ug/L	MW-3	10/02/2020	ND	8.0000		
Chromium, total	ug/L	MW-3	04/12/2021	ND	8.0000		
Chromium, total	ug/L	MW-3	10/26/2021	ND	8.0000		
Chromium, total	ug/L	MW-3	04/04/2022	ND	8.0000		
Chromium, total	ug/L	MW-3	10/07/2022	ND	8.0000		
Chromium, total	ug/L	MW-3	04/19/2023	ND	8.0000		
Chromium, total	ug/L	MW-3	10/25/2023	ND	8.0000		
Chromium, total	ug/L	MW-3	04/17/2024	ND	8.0000		
Chromium, total	ug/L	MW-3	10/17/2024	ND	8.0000		
Cobalt, total	ug/L	MW-3	03/31/2010	ND	4.0000	0.8000	**
Cobalt, total	ug/L	MW-3	09/16/2010	ND	4.0000	0.8000	**
Cobalt, total	ug/L	MW-3	04/11/2011	ND	4.0000	0.8000	**
Cobalt, total	ug/L	MW-3	09/26/2011	ND	4.0000	0.8000	**
Cobalt, total	ug/L	MW-3	04/01/2012	ND	4.0000	0.8000	**
Cobalt, total	ug/L	MW-3	08/23/2012	ND	4.0000	0.8000	**
Cobalt, total	ug/L	MW-3	04/13/2013	ND	4.0000	0.8000	**
Cobalt, total	ug/L	MW-3	09/14/2013	ND	4.0000	0.8000	**
Cobalt, total	ug/L	MW-3	04/11/2014	ND	4.0000	0.8000	**
Cobalt, total	ug/L	MW-3	09/27/2014		0.9000		
Cobalt, total	ug/L	MW-3	03/16/2015	ND	0.8000		
Cobalt, total	ug/L	MW-3	09/28/2015	ND	0.8000		
Cobalt, total	ug/L	MW-3	03/14/2016	ND	0.8000		
Cobalt, total	ug/L	MW-3	09/03/2016	ND	0.8000		
Cobalt, total	ug/L	MW-3	04/10/2017	ND	0.8000		
Cobalt, total	ug/L	MW-3	09/01/2017	ND	0.8000		
Cobalt, total	ug/L	MW-3	04/23/2018	ND	0.8000		
Cobalt, total	ug/L	MW-3	09/14/2018	ND	0.8000		
Cobalt, total	ug/L	MW-3	04/15/2019	ND	0.8000		
Cobalt, total	ug/L	MW-3	09/17/2019	ND	0.8000		
Cobalt, total	ug/L	MW-3	04/08/2020		1.6000		
Cobalt, total	ug/L	MW-3	10/02/2020	ND	0.4000	0.8000	**
Cobalt, total	ug/L	MW-3	04/12/2021		0.7000		
Cobalt, total	ug/L	MW-3	10/26/2021		3.6000		
Cobalt, total	ug/L	MW-3	04/04/2022		0.9000		
Cobalt, total	ug/L	MW-3	10/07/2022		2.4000		
Cobalt, total	ug/L	MW-3	04/19/2023		0.6000		
Cobalt, total	ug/L	MW-3	10/25/2023		0.9000		
Cobalt, total	ug/L	MW-3	04/17/2024		0.9000		
Cobalt, total	ug/L	MW-3	10/17/2024	ND	0.4000	0.8000	**
Copper, total	ug/L	MW-3	03/31/2010	ND	4.0000		
Copper, total	ug/L	MW-3	09/16/2010	ND	4.0000		
Copper, total	ug/L	MW-3	04/11/2011	ND	4.0000		
Copper, total	ug/L	MW-3	09/26/2011	ND	4.0000		
Copper, total	ug/L	MW-3	04/01/2012		4.5000		
Copper, total	ug/L	MW-3	08/23/2012	ND	4.0000		
Copper, total	ug/L	MW-3	04/13/2013	ND	4.0000		
Copper, total	ug/L	MW-3	09/14/2013	ND	4.0000		
Copper, total	ug/L	MW-3	04/11/2014		4.1000		
Copper, total	ug/L	MW-3	09/27/2014	ND	4.0000		
Copper, total	ug/L	MW-3	03/16/2015	ND	4.0000		
Copper, total	ug/L	MW-3	09/28/2015	ND	4.0000		

* - Outlier for that well and constituent.
** - ND value replaced with median RL.
*** - ND value replaced with manual RL.
ND = Not detected, Result = detection limit.

Table 1

Upgradient Data

Constituent	Units	Well	Date		Result	Adjusted	
Copper, total	ug/L	MW-3	03/14/2016	ND	4.0000		
Copper, total	ug/L	MW-3	09/03/2016	ND	4.0000		
Copper, total	ug/L	MW-3	04/10/2017	ND	4.0000		
Copper, total	ug/L	MW-3	09/01/2017	ND	4.0000		
Copper, total	ug/L	MW-3	04/23/2018	ND	4.0000		
Copper, total	ug/L	MW-3	09/14/2018	ND	4.0000		
Copper, total	ug/L	MW-3	04/15/2019	ND	4.0000		
Copper, total	ug/L	MW-3	09/17/2019	ND	4.0000		
Copper, total	ug/L	MW-3	04/08/2020		5.5000		
Copper, total	ug/L	MW-3	10/02/2020	ND	4.0000		
Copper, total	ug/L	MW-3	04/12/2021	ND	4.0000		
Copper, total	ug/L	MW-3	10/26/2021	ND	4.0000		
Copper, total	ug/L	MW-3	04/04/2022	ND	4.0000		
Copper, total	ug/L	MW-3	10/07/2022	ND	4.0000		
Copper, total	ug/L	MW-3	04/19/2023	ND	4.0000		
Copper, total	ug/L	MW-3	10/25/2023	ND	4.0000		
Copper, total	ug/L	MW-3	04/17/2024	ND	4.0000		
Copper, total	ug/L	MW-3	10/17/2024	ND	4.0000		
Lead, total	ug/L	MW-3	03/31/2010	ND	4.0000		
Lead, total	ug/L	MW-3	09/16/2010	ND	4.0000		
Lead, total	ug/L	MW-3	04/11/2011	ND	4.0000		
Lead, total	ug/L	MW-3	09/26/2011	ND	4.0000		
Lead, total	ug/L	MW-3	04/01/2012	ND	4.0000		
Lead, total	ug/L	MW-3	08/23/2012	ND	4.0000		
Lead, total	ug/L	MW-3	04/13/2013	ND	4.0000		
Lead, total	ug/L	MW-3	09/14/2013	ND	4.0000		
Lead, total	ug/L	MW-3	04/11/2014	ND	4.0000		
Lead, total	ug/L	MW-3	09/27/2014	ND	4.0000		
Lead, total	ug/L	MW-3	03/16/2015	ND	4.0000		
Lead, total	ug/L	MW-3	09/28/2015	ND	4.0000		
Lead, total	ug/L	MW-3	03/14/2016	ND	4.0000		
Lead, total	ug/L	MW-3	09/03/2016	ND	4.0000		
Lead, total	ug/L	MW-3	04/10/2017	ND	4.0000		
Lead, total	ug/L	MW-3	09/01/2017	ND	4.0000		
Lead, total	ug/L	MW-3	04/23/2018	ND	4.0000		
Lead, total	ug/L	MW-3	09/14/2018	ND	4.0000		
Lead, total	ug/L	MW-3	04/15/2019	ND	4.0000		
Lead, total	ug/L	MW-3	09/17/2019	ND	4.0000		
Lead, total	ug/L	MW-3	04/08/2020	ND	4.0000		
Lead, total	ug/L	MW-3	10/02/2020	ND	4.0000		
Lead, total	ug/L	MW-3	04/12/2021	ND	4.0000		
Lead, total	ug/L	MW-3	10/26/2021	ND	4.0000		
Lead, total	ug/L	MW-3	04/04/2022	ND	4.0000		
Lead, total	ug/L	MW-3	10/07/2022	ND	4.0000		
Lead, total	ug/L	MW-3	04/19/2023	ND	4.0000		
Lead, total	ug/L	MW-3	10/25/2023	ND	4.0000		
Lead, total	ug/L	MW-3	04/17/2024	ND	4.0000		
Lead, total	ug/L	MW-3	10/17/2024	ND	4.0000		
Nickel, total	ug/L	MW-3	03/31/2010		6.4000		
Nickel, total	ug/L	MW-3	09/16/2010		6.4000		
Nickel, total	ug/L	MW-3	04/11/2011		10.5000		
Nickel, total	ug/L	MW-3	09/26/2011		7.8000		
Nickel, total	ug/L	MW-3	04/01/2012		11.1000		
Nickel, total	ug/L	MW-3	08/23/2012		6.5000		
Nickel, total	ug/L	MW-3	04/13/2013		7.3000		
Nickel, total	ug/L	MW-3	09/14/2013	ND	4.0000		
Nickel, total	ug/L	MW-3	04/11/2014		4.2000		
Nickel, total	ug/L	MW-3	09/27/2014	ND	4.0000		
Nickel, total	ug/L	MW-3	03/16/2015	ND	4.0000		
Nickel, total	ug/L	MW-3	09/28/2015	ND	4.0000		
Nickel, total	ug/L	MW-3	03/14/2016	ND	4.0000		
Nickel, total	ug/L	MW-3	09/03/2016	ND	4.0000		
Nickel, total	ug/L	MW-3	04/10/2017	ND	4.0000		
Nickel, total	ug/L	MW-3	09/01/2017	ND	4.0000		
Nickel, total	ug/L	MW-3	04/23/2018	ND	20.0000	4.0000	**
Nickel, total	ug/L	MW-3	09/14/2018	ND	4.0000		
Nickel, total	ug/L	MW-3	04/15/2019	ND	4.0000		
Nickel, total	ug/L	MW-3	09/17/2019	ND	4.0000		
Nickel, total	ug/L	MW-3	04/08/2020		15.6000		
Nickel, total	ug/L	MW-3	10/02/2020	ND	4.0000		
Nickel, total	ug/L	MW-3	04/12/2021		5.6000		
Nickel, total	ug/L	MW-3	10/26/2021		5.0000		
Nickel, total	ug/L	MW-3	04/04/2022	ND	4.0000		
Nickel, total	ug/L	MW-3	10/07/2022	ND	4.0000		

* - Outlier for that well and constituent.
** - ND value replaced with median RL.
*** - ND value replaced with manual RL.
ND = Not detected, Result = detection limit.

Table 1

Upgradient Data

Constituent	Units	Well	Date		Result	Adjusted	
Nickel, total	ug/L	MW-3	04/19/2023	ND	4.0000		
Nickel, total	ug/L	MW-3	10/25/2023	ND	4.0000		
Nickel, total	ug/L	MW-3	04/17/2024	ND	4.0000		
Nickel, total	ug/L	MW-3	10/17/2024	ND	4.0000		
Selenium, total	ug/L	MW-3	03/31/2010	ND	4.0000		
Selenium, total	ug/L	MW-3	09/16/2010	ND	4.0000		
Selenium, total	ug/L	MW-3	04/11/2011	ND	4.0000		
Selenium, total	ug/L	MW-3	09/26/2011	ND	4.0000		
Selenium, total	ug/L	MW-3	04/01/2012	ND	4.0000		
Selenium, total	ug/L	MW-3	08/23/2012	ND	4.0000		
Selenium, total	ug/L	MW-3	04/13/2013	ND	4.0000		
Selenium, total	ug/L	MW-3	09/14/2013	ND	4.0000		
Selenium, total	ug/L	MW-3	04/11/2014	ND	4.0000		
Selenium, total	ug/L	MW-3	09/27/2014	ND	4.0000		
Selenium, total	ug/L	MW-3	03/16/2015	ND	4.0000		
Selenium, total	ug/L	MW-3	09/28/2015	ND	4.0000		
Selenium, total	ug/L	MW-3	03/14/2016	ND	4.0000		
Selenium, total	ug/L	MW-3	09/03/2016	ND	4.0000		
Selenium, total	ug/L	MW-3	04/10/2017	ND	4.0000		
Selenium, total	ug/L	MW-3	09/01/2017	ND	4.0000		
Selenium, total	ug/L	MW-3	04/23/2018	ND	4.0000		
Selenium, total	ug/L	MW-3	09/14/2018	ND	4.0000		
Selenium, total	ug/L	MW-3	04/15/2019	ND	4.0000		
Selenium, total	ug/L	MW-3	09/17/2019	ND	4.0000		
Selenium, total	ug/L	MW-3	04/08/2020	ND	4.0000		
Selenium, total	ug/L	MW-3	10/02/2020	ND	4.0000		
Selenium, total	ug/L	MW-3	04/12/2021	ND	4.0000		
Selenium, total	ug/L	MW-3	10/26/2021	ND	4.0000		
Selenium, total	ug/L	MW-3	04/04/2022	ND	4.0000		
Selenium, total	ug/L	MW-3	10/07/2022	ND	4.0000		
Selenium, total	ug/L	MW-3	04/19/2023	ND	4.0000		
Selenium, total	ug/L	MW-3	10/25/2023	ND	4.0000		
Selenium, total	ug/L	MW-3	04/17/2024	ND	4.0000		
Selenium, total	ug/L	MW-3	10/17/2024	ND	4.0000		
Silver, total	ug/L	MW-3	03/31/2010	ND	4.0000		
Silver, total	ug/L	MW-3	09/16/2010	ND	4.0000		
Silver, total	ug/L	MW-3	04/11/2011	ND	4.0000		
Silver, total	ug/L	MW-3	09/26/2011	ND	4.0000		
Silver, total	ug/L	MW-3	04/01/2012	ND	4.0000		
Silver, total	ug/L	MW-3	08/23/2012	ND	4.0000		
Silver, total	ug/L	MW-3	04/13/2013	ND	4.0000		
Silver, total	ug/L	MW-3	09/14/2013	ND	4.0000		
Silver, total	ug/L	MW-3	04/11/2014	ND	4.0000		
Silver, total	ug/L	MW-3	09/27/2014	ND	4.0000		
Silver, total	ug/L	MW-3	03/16/2015	ND	4.0000		
Silver, total	ug/L	MW-3	09/28/2015	ND	4.0000		
Silver, total	ug/L	MW-3	03/14/2016	ND	4.0000		
Silver, total	ug/L	MW-3	09/03/2016	ND	4.0000		
Silver, total	ug/L	MW-3	04/10/2017	ND	4.0000		
Silver, total	ug/L	MW-3	09/01/2017	ND	4.0000		
Silver, total	ug/L	MW-3	04/23/2018	ND	4.0000		
Silver, total	ug/L	MW-3	09/14/2018	ND	4.0000		
Silver, total	ug/L	MW-3	04/15/2019	ND	4.0000		
Silver, total	ug/L	MW-3	09/17/2019	ND	4.0000		
Silver, total	ug/L	MW-3	04/08/2020	ND	4.0000		
Silver, total	ug/L	MW-3	10/02/2020	ND	4.0000		
Silver, total	ug/L	MW-3	04/12/2021	ND	4.0000		
Silver, total	ug/L	MW-3	10/26/2021	ND	4.0000		
Silver, total	ug/L	MW-3	04/04/2022	ND	4.0000		
Silver, total	ug/L	MW-3	10/07/2022	ND	4.0000		
Silver, total	ug/L	MW-3	04/19/2023	ND	4.0000		
Silver, total	ug/L	MW-3	10/25/2023	ND	4.0000		
Silver, total	ug/L	MW-3	04/17/2024	ND	4.0000		
Silver, total	ug/L	MW-3	10/17/2024	ND	4.0000		
Thallium, total	ug/L	MW-3	03/31/2010	ND	4.0000	2.0000	**
Thallium, total	ug/L	MW-3	09/16/2010	ND	4.0000	2.0000	**
Thallium, total	ug/L	MW-3	04/11/2011	ND	4.0000	2.0000	**
Thallium, total	ug/L	MW-3	09/26/2011	ND	4.0000	2.0000	**
Thallium, total	ug/L	MW-3	04/01/2012	ND	2.0000		
Thallium, total	ug/L	MW-3	08/23/2012	ND	2.0000		
Thallium, total	ug/L	MW-3	04/13/2013	ND	2.0000		
Thallium, total	ug/L	MW-3	09/14/2013	ND	4.0000	2.0000	**
Thallium, total	ug/L	MW-3	04/11/2014	ND	4.0000	2.0000	**
Thallium, total	ug/L	MW-3	09/27/2014	ND	4.0000	2.0000	**

*   - Outlier for that well and constituent.
** - ND value replaced with median RL.
*** - ND value replaced with manual RL.
ND = Not detected, Result = detection limit.

Table 1

Upgradient Data

Constituent	Units	Well	Date		Result	Adjusted	
Thallium, total	ug/L	MW-3	03/16/2015	ND	4.0000	2.0000	**
Thallium, total	ug/L	MW-3	09/28/2015	ND	1.0000	2.0000	**
Thallium, total	ug/L	MW-3	03/14/2016	ND	4.0000	2.0000	**
Thallium, total	ug/L	MW-3	09/03/2016	ND	4.0000	2.0000	**
Thallium, total	ug/L	MW-3	04/10/2017	ND	4.0000	2.0000	**
Thallium, total	ug/L	MW-3	09/01/2017	ND	4.0000	2.0000	**
Thallium, total	ug/L	MW-3	04/23/2018	ND	4.0000	2.0000	**
Thallium, total	ug/L	MW-3	09/14/2018	ND	4.0000	2.0000	**
Thallium, total	ug/L	MW-3	04/15/2019	ND	2.0000		
Thallium, total	ug/L	MW-3	09/17/2019	ND	2.0000		
Thallium, total	ug/L	MW-3	04/08/2020	ND	2.0000		
Thallium, total	ug/L	MW-3	10/02/2020	ND	2.0000		
Thallium, total	ug/L	MW-3	04/12/2021	ND	2.0000		
Thallium, total	ug/L	MW-3	10/26/2021	ND	2.0000		
Thallium, total	ug/L	MW-3	04/04/2022	ND	2.0000		
Thallium, total	ug/L	MW-3	10/07/2022	ND	2.0000		
Thallium, total	ug/L	MW-3	04/19/2023	ND	2.0000		
Thallium, total	ug/L	MW-3	10/25/2023	ND	2.0000		
Thallium, total	ug/L	MW-3	04/17/2024	ND	2.0000		
Thallium, total	ug/L	MW-3	10/17/2024	ND	2.0000		
Vanadium, total	ug/L	MW-3	03/31/2010		10.6000		
Vanadium, total	ug/L	MW-3	09/16/2010	ND	10.0000	20.0000	**
Vanadium, total	ug/L	MW-3	04/11/2011		21.8000		
Vanadium, total	ug/L	MW-3	09/26/2011	ND	20.0000		
Vanadium, total	ug/L	MW-3	04/01/2012	ND	20.0000		
Vanadium, total	ug/L	MW-3	08/23/2012	ND	20.0000		
Vanadium, total	ug/L	MW-3	04/13/2013	ND	20.0000		
Vanadium, total	ug/L	MW-3	09/14/2013	ND	20.0000		
Vanadium, total	ug/L	MW-3	04/11/2014	ND	20.0000		
Vanadium, total	ug/L	MW-3	09/27/2014	ND	20.0000		
Vanadium, total	ug/L	MW-3	03/16/2015	ND	20.0000		
Vanadium, total	ug/L	MW-3	09/28/2015	ND	20.0000		
Vanadium, total	ug/L	MW-3	03/14/2016	ND	20.0000		
Vanadium, total	ug/L	MW-3	09/03/2016	ND	20.0000		
Vanadium, total	ug/L	MW-3	04/10/2017	ND	20.0000		
Vanadium, total	ug/L	MW-3	09/01/2017	ND	20.0000		
Vanadium, total	ug/L	MW-3	04/23/2018	ND	20.0000		
Vanadium, total	ug/L	MW-3	09/14/2018	ND	20.0000		
Vanadium, total	ug/L	MW-3	04/15/2019	ND	20.0000		
Vanadium, total	ug/L	MW-3	09/17/2019	ND	20.0000		
Vanadium, total	ug/L	MW-3	04/08/2020	ND	20.0000		
Vanadium, total	ug/L	MW-3	10/02/2020	ND	20.0000		
Vanadium, total	ug/L	MW-3	04/12/2021	ND	20.0000		
Vanadium, total	ug/L	MW-3	10/26/2021	ND	20.0000		
Vanadium, total	ug/L	MW-3	04/04/2022	ND	20.0000		
Vanadium, total	ug/L	MW-3	10/07/2022	ND	20.0000		
Vanadium, total	ug/L	MW-3	04/19/2023	ND	20.0000		
Vanadium, total	ug/L	MW-3	10/25/2023	ND	20.0000		
Vanadium, total	ug/L	MW-3	04/17/2024	ND	20.0000		
Vanadium, total	ug/L	MW-3	10/17/2024	ND	20.0000		
Zinc, total	ug/L	MW-3	03/31/2010	ND	10.0000	20.0000	**
Zinc, total	ug/L	MW-3	09/16/2010	ND	10.0000	20.0000	**
Zinc, total	ug/L	MW-3	04/11/2011	ND	8.0000	20.0000	**
Zinc, total	ug/L	MW-3	09/26/2011		11.0000		
Zinc, total	ug/L	MW-3	04/01/2012		25.0000		
Zinc, total	ug/L	MW-3	08/23/2012		9.7000		
Zinc, total	ug/L	MW-3	04/13/2013		9.6000		
Zinc, total	ug/L	MW-3	09/14/2013	ND	20.0000		
Zinc, total	ug/L	MW-3	04/11/2014	ND	20.0000		
Zinc, total	ug/L	MW-3	09/27/2014		8.9000		
Zinc, total	ug/L	MW-3	03/16/2015	ND	8.0000	20.0000	**
Zinc, total	ug/L	MW-3	09/28/2015		8.8000		
Zinc, total	ug/L	MW-3	03/14/2016	ND	20.0000		
Zinc, total	ug/L	MW-3	09/03/2016	ND	8.0000	20.0000	**
Zinc, total	ug/L	MW-3	04/10/2017	ND	8.0000	20.0000	**
Zinc, total	ug/L	MW-3	09/01/2017	ND	8.0000	20.0000	**
Zinc, total	ug/L	MW-3	04/23/2018	ND	8.0000	20.0000	**
Zinc, total	ug/L	MW-3	09/14/2018	ND	20.0000		
Zinc, total	ug/L	MW-3	04/15/2019		14.0000		
Zinc, total	ug/L	MW-3	09/17/2019	ND	20.0000		
Zinc, total	ug/L	MW-3	04/08/2020		30.3000		
Zinc, total	ug/L	MW-3	10/02/2020	ND	20.0000		
Zinc, total	ug/L	MW-3	04/12/2021	ND	20.0000		
Zinc, total	ug/L	MW-3	10/26/2021	ND	20.0000		

* - Outlier for that well and constituent.
** - ND value replaced with median RL.
*** - ND value replaced with manual RL.
ND = Not detected, Result = detection limit.

Table 1

Upgradient Data

Constituent	Units	Well	Date		Result	Adjusted	
Zinc, total	ug/L	MW-3	04/04/2022	ND	20.0000		
Zinc, total	ug/L	MW-3	10/07/2022	ND	20.0000		
Zinc, total	ug/L	MW-3	04/19/2023	ND	20.0000		
Zinc, total	ug/L	MW-3	10/25/2023	ND	20.0000		
Zinc, total	ug/L	MW-3	04/17/2024	ND	20.0000		
Zinc, total	ug/L	MW-3	10/17/2024	ND	20.0000		

* - Outlier for that well and constituent.
** - ND value replaced with median RL.
*** - ND value replaced with manual RL.
ND = Not detected, Result = detection limit.

Table 2

Most Current Downgradient Monitoring Data

Constituent	Units	Well	Date		Result		Pred. Limit
Antimony, total	ug/L	MW-10	10/17/2024	ND	2.0000		2.0000
Arsenic, total	ug/L	MW-10	10/17/2024	ND	4.0000		4.1000
Barium, total	ug/L	MW-10	10/17/2024		141.0000		575.0931
Beryllium, total	ug/L	MW-10	10/17/2024	ND	4.0000		4.0000
Cadmium, total	ug/L	MW-10	10/17/2024		2.4000	*	1.5000
Chromium, total	ug/L	MW-10	10/17/2024	ND	8.0000		8.0000
Cobalt, total	ug/L	MW-10	10/17/2024	ND	0.4000		3.6000
Copper, total	ug/L	MW-10	10/17/2024	ND	4.0000		5.5000
Lead, total	ug/L	MW-10	10/17/2024	ND	4.0000		4.0000
Nickel, total	ug/L	MW-10	10/17/2024		10.2000		15.6000
Selenium, total	ug/L	MW-10	10/17/2024	ND	4.0000		4.0000
Silver, total	ug/L	MW-10	10/17/2024	ND	4.0000		4.0000
Thallium, total	ug/L	MW-10	10/17/2024	ND	2.0000		2.0000
Vanadium, total	ug/L	MW-10	10/17/2024	ND	20.0000		21.8000
Zinc, total	ug/L	MW-10	10/17/2024	ND	20.0000		30.3000
Antimony, total	ug/L	MW-13	10/17/2024	ND	2.0000		2.0000
Arsenic, total	ug/L	MW-13	10/17/2024	ND	4.0000		4.1000
Barium, total	ug/L	MW-13	10/17/2024		48.2000		575.0931
Beryllium, total	ug/L	MW-13	10/17/2024	ND	4.0000		4.0000
Cadmium, total	ug/L	MW-13	10/17/2024	ND	0.8000		1.5000
Chromium, total	ug/L	MW-13	10/17/2024	ND	8.0000		8.0000
Cobalt, total	ug/L	MW-13	10/17/2024	ND	0.4000		3.6000
Copper, total	ug/L	MW-13	10/17/2024	ND	4.0000		5.5000
Lead, total	ug/L	MW-13	10/17/2024	ND	4.0000		4.0000
Nickel, total	ug/L	MW-13	10/17/2024	ND	4.0000		15.6000
Selenium, total	ug/L	MW-13	10/17/2024	ND	4.0000		4.0000
Silver, total	ug/L	MW-13	10/17/2024	ND	4.0000		4.0000
Thallium, total	ug/L	MW-13	10/17/2024	ND	2.0000		2.0000
Vanadium, total	ug/L	MW-13	10/17/2024	ND	20.0000		21.8000
Zinc, total	ug/L	MW-13	10/17/2024	ND	20.0000		30.3000
Antimony, total	ug/L	MW-7	10/17/2024	ND	2.0000		2.0000
Arsenic, total	ug/L	MW-7	10/17/2024	ND	4.0000		4.1000
Barium, total	ug/L	MW-7	10/17/2024		249.0000		575.0931
Beryllium, total	ug/L	MW-7	10/17/2024	ND	4.0000		4.0000
Cadmium, total	ug/L	MW-7	10/17/2024	ND	0.8000		1.5000
Chromium, total	ug/L	MW-7	10/17/2024	ND	8.0000		8.0000
Cobalt, total	ug/L	MW-7	10/17/2024		2.8000		3.6000
Copper, total	ug/L	MW-7	10/17/2024		6.4000	*	5.5000
Lead, total	ug/L	MW-7	10/17/2024	ND	4.0000		4.0000
Nickel, total	ug/L	MW-7	10/17/2024		49.6000	*	15.6000
Selenium, total	ug/L	MW-7	10/17/2024	ND	4.0000		4.0000
Silver, total	ug/L	MW-7	10/17/2024	ND	4.0000		4.0000
Thallium, total	ug/L	MW-7	10/17/2024	ND	2.0000		2.0000
Vanadium, total	ug/L	MW-7	10/17/2024	ND	20.0000		21.8000
Zinc, total	ug/L	MW-7	10/17/2024	ND	20.0000		30.3000
Antimony, total	ug/L	PZ-11	10/17/2024	ND	2.0000		2.0000
Arsenic, total	ug/L	PZ-11	10/17/2024	ND	4.0000		4.1000
Barium, total	ug/L	PZ-11	10/17/2024		48.0000		575.0931
Beryllium, total	ug/L	PZ-11	10/17/2024	ND	4.0000		4.0000
Cadmium, total	ug/L	PZ-11	10/17/2024	ND	0.8000		1.5000
Chromium, total	ug/L	PZ-11	10/17/2024	ND	8.0000		8.0000
Cobalt, total	ug/L	PZ-11	10/17/2024		0.5000		3.6000
Copper, total	ug/L	PZ-11	10/17/2024	ND	4.0000		5.5000
Lead, total	ug/L	PZ-11	10/17/2024	ND	4.0000		4.0000
Nickel, total	ug/L	PZ-11	10/17/2024		31.1000	*	15.6000
Selenium, total	ug/L	PZ-11	10/17/2024	ND	4.0000		4.0000
Silver, total	ug/L	PZ-11	10/17/2024	ND	4.0000		4.0000
Thallium, total	ug/L	PZ-11	10/17/2024	ND	2.0000		2.0000
Vanadium, total	ug/L	PZ-11	10/17/2024	ND	20.0000		21.8000
Zinc, total	ug/L	PZ-11	10/17/2024	ND	20.0000		30.3000

* - Current value failed - awaiting verification.
** - Current value passed - previous exceedance not verified.
*** - Current value failed - exceedance verified.
**** - Current value passed - awaiting one more verification.
***** - Insufficient background data to compute prediction limit.
ND = Not Detected, Result = detection limit.

Table 3

Detection Frequencies in Upgradient and Downgradient Wells

Constituent	Upgradient			Downgradient		
	Detect	N	Proportion	Detect	N	Proportion
Antimony, total	0	30	0.000	0	120	0.000
Arsenic, total	1	30	0.033	19	121	0.157
Barium, total	30	30	1.000	120	120	1.000
Beryllium, total	0	30	0.000	0	120	0.000
Cadmium, total	4	30	0.133	15	121	0.124
Chromium, total	0	30	0.000	5	120	0.042
Cobalt, total	9	30	0.300	43	121	0.355
Copper, total	3	30	0.100	25	120	0.208
Lead, total	0	30	0.000	11	120	0.092
Nickel, total	11	30	0.367	76	121	0.628
Selenium, total	0	30	0.000	2	120	0.017
Silver, total	0	30	0.000	0	120	0.000
Thallium, total	0	30	0.000	0	120	0.000
Vanadium, total	2	30	0.067	10	120	0.083
Zinc, total	8	30	0.267	36	121	0.298

N = Total number of measurements in all wells.
Detect = Total number of detections in all wells.
Proportion = Detect/N.

Table 4

Shapiro-Wilk Multiple Group Test of Normality

Constituent	Detect	N	Detect Freq	G raw	G log	G cbrt	G sqrt	G sqr	G cub	Crit Value	Dist Form	Model Type
Antimony, total	0	30	0.000									nonpar
Arsenic, total	1	30	0.033									nonpar
Barium, total	30	30	1.000	0.374	1.431					2.326	normal	normal
Beryllium, total	0	30	0.000									nonpar
Cadmium, total	4	30	0.133	0.722	0.155					2.326	normal	nonpar
Chromium, total	0	30	0.000									nonpar
Cobalt, total	9	30	0.300	2.426	1.279					2.326	lognor	nonpar
Copper, total	3	30	0.100	0.092	0.255					2.326	normal	nonpar
Lead, total	0	30	0.000									nonpar
Nickel, total	11	30	0.367	1.439	0.444					2.326	normal	nonpar
Selenium, total	0	30	0.000									nonpar
Silver, total	0	30	0.000									nonpar
Thallium, total	0	30	0.000									nonpar
Vanadium, total	2	30	0.067									nonpar
Zinc, total	8	30	0.267	2.385	1.852					2.326	lognor	nonpar

* - Distribution override for that constituent.
Fit to distribution is confirmed if G <= critical value.
Model type may not match distributional form when detection frequency < 50%.

Table 5

Summary Statistics and Prediction Limits

Constituent	Units	Detect	N	Mean	SD	alpha	Factor	Pred Limit	Type		Conf
Antimony, total	ug/L	0	30					2.0000	nonpar	***	0.99
Arsenic, total	ug/L	1	30					4.1000	nonpar		0.99
Barium, total	ug/L	30	30	315.2333	103.8429	0.0100	2.5024	575.0931	normal		
Beryllium, total	ug/L	0	30					4.0000	nonpar	***	0.99
Cadmium, total	ug/L	4	30					1.5000	nonpar		0.99
Chromium, total	ug/L	0	30					8.0000	nonpar	***	0.99
Cobalt, total	ug/L	9	30					3.6000	nonpar		0.99
Copper, total	ug/L	3	30					5.5000	nonpar		0.99
Lead, total	ug/L	0	30					4.0000	nonpar	***	0.99
Nickel, total	ug/L	11	30					15.6000	nonpar		0.99
Selenium, total	ug/L	0	30					4.0000	nonpar	***	0.99
Silver, total	ug/L	0	30					4.0000	nonpar	***	0.99
Thallium, total	ug/L	0	30					2.0000	nonpar	***	0.99
Vanadium, total	ug/L	2	30					21.8000	nonpar		0.99
Zinc, total	ug/L	8	30					30.3000	nonpar		0.99

Conf = confidence level for passing initial test or one verification resample at all downgradient wells for a single constituent (nonparametric test only).
* - Insufficient Data.
** - Calculated limit raised to Manual Reporting Limit.
*** - Nonparametric limit based on ND value.
For transformed data, mean and SD in transformed units and prediction limit in original units.
All sample sizes and statistics are based on outlier free data.
For nonparametric limits, median reporting limits are substituted for extreme reporting limit values.

Table 8

Historical Downgradient Data for Constituent-Well Combinations that Failed the Current Statistical Evaluation or are in Verification Resampling Mode

Constituent	Units	Well	Date		Result		Pred. Limit
Cadmium, total	ug/L	MW-10	03/31/2010	ND	1.0000		1.5000
Cadmium, total	ug/L	MW-10	09/16/2010	ND	1.0000		1.5000
Cadmium, total	ug/L	MW-10	04/11/2011	ND	0.8000		1.5000
Cadmium, total	ug/L	MW-10	09/26/2011	ND	0.8000		1.5000
Cadmium, total	ug/L	MW-10	04/01/2012	ND	0.8000		1.5000
Cadmium, total	ug/L	MW-10	08/23/2012	ND	0.8000		1.5000
Cadmium, total	ug/L	MW-10	04/13/2013	ND	0.8000		1.5000
Cadmium, total	ug/L	MW-10	09/14/2013	ND	0.8000		1.5000
Cadmium, total	ug/L	MW-10	04/11/2014	ND	0.8000		1.5000
Cadmium, total	ug/L	MW-10	09/27/2014	ND	0.8000		1.5000
Cadmium, total	ug/L	MW-10	03/16/2015	ND	0.8000		1.5000
Cadmium, total	ug/L	MW-10	09/28/2015	ND	0.8000		1.5000
Cadmium, total	ug/L	MW-10	03/14/2016	ND	0.8000		1.5000
Cadmium, total	ug/L	MW-10	09/03/2016		0.9000		1.5000
Cadmium, total	ug/L	MW-10	09/29/2016	ND	0.8000		1.5000
Cadmium, total	ug/L	MW-10	04/10/2017	ND	0.8000		1.5000
Cadmium, total	ug/L	MW-10	09/01/2017	ND	0.8000		1.5000
Cadmium, total	ug/L	MW-10	04/23/2018	ND	0.8000		1.5000
Cadmium, total	ug/L	MW-10	09/14/2018	ND	0.8000		1.5000
Cadmium, total	ug/L	MW-10	04/15/2019	ND	0.8000		1.5000
Cadmium, total	ug/L	MW-10	09/17/2019	ND	0.8000		1.5000
Cadmium, total	ug/L	MW-10	04/08/2020	ND	0.8000		1.5000
Cadmium, total	ug/L	MW-10	10/02/2020	ND	0.8000		1.5000
Cadmium, total	ug/L	MW-10	04/12/2021	ND	0.8000		1.5000
Cadmium, total	ug/L	MW-10	10/26/2021	ND	0.8000		1.5000
Cadmium, total	ug/L	MW-10	04/04/2022	ND	0.8000		1.5000
Cadmium, total	ug/L	MW-10	10/07/2022	ND	0.8000		1.5000
Cadmium, total	ug/L	MW-10	04/19/2023	ND	0.8000		1.5000
Cadmium, total	ug/L	MW-10	10/25/2023		1.1000		1.5000
Cadmium, total	ug/L	MW-10	04/17/2024		0.8000		1.5000
Cadmium, total	ug/L	MW-10	10/17/2024		2.4000	*	1.5000
Copper, total	ug/L	MW-7	03/31/2010		6.1000	*	5.5000
Copper, total	ug/L	MW-7	09/16/2010	ND	4.0000		5.5000
Copper, total	ug/L	MW-7	04/11/2011	ND	4.0000		5.5000
Copper, total	ug/L	MW-7	09/26/2011	ND	4.0000		5.5000
Copper, total	ug/L	MW-7	04/01/2012		5.5000		5.5000
Copper, total	ug/L	MW-7	08/23/2012	ND	4.0000		5.5000
Copper, total	ug/L	MW-7	04/12/2013	ND	4.0000		5.5000
Copper, total	ug/L	MW-7	09/14/2013		4.1000		5.5000
Copper, total	ug/L	MW-7	04/11/2014	ND	4.0000		5.5000
Copper, total	ug/L	MW-7	09/27/2014		4.3000		5.5000
Copper, total	ug/L	MW-7	03/16/2015		8.6000	*	5.5000
Copper, total	ug/L	MW-7	09/28/2015	ND	4.0000		5.5000
Copper, total	ug/L	MW-7	03/14/2016	ND	4.0000		5.5000
Copper, total	ug/L	MW-7	09/03/2016	ND	4.0000		5.5000
Copper, total	ug/L	MW-7	04/10/2017	ND	4.0000		5.5000
Copper, total	ug/L	MW-7	09/01/2017	ND	4.0000		5.5000
Copper, total	ug/L	MW-7	04/23/2018	ND	4.0000		5.5000
Copper, total	ug/L	MW-7	09/14/2018	ND	4.0000		5.5000
Copper, total	ug/L	MW-7	04/15/2019	ND	4.0000		5.5000
Copper, total	ug/L	MW-7	09/17/2019	ND	4.0000		5.5000
Copper, total	ug/L	MW-7	04/08/2020	ND	4.0000		5.5000
Copper, total	ug/L	MW-7	10/02/2020	ND	4.0000		5.5000
Copper, total	ug/L	MW-7	04/12/2021	ND	4.0000		5.5000
Copper, total	ug/L	MW-7	10/26/2021	ND	4.0000		5.5000
Copper, total	ug/L	MW-7	04/04/2022		4.7000		5.5000
Copper, total	ug/L	MW-7	10/07/2022	ND	4.0000		5.5000
Copper, total	ug/L	MW-7	04/19/2023		5.1000		5.5000
Copper, total	ug/L	MW-7	10/25/2023		5.4000		5.5000
Copper, total	ug/L	MW-7	04/17/2024	ND	4.0000		5.5000
Copper, total	ug/L	MW-7	10/17/2024		6.4000	*	5.5000
Nickel, total	ug/L	MW-7	03/31/2010		21.3000	*	15.6000
Nickel, total	ug/L	MW-7	09/16/2010		8.6000		15.6000
Nickel, total	ug/L	MW-7	04/11/2011		20.4000	*	15.6000
Nickel, total	ug/L	MW-7	09/26/2011		24.2000	*	15.6000
Nickel, total	ug/L	MW-7	04/01/2012		32.6000	*	15.6000
Nickel, total	ug/L	MW-7	08/23/2012		26.8000	*	15.6000
Nickel, total	ug/L	MW-7	04/12/2013		26.9000	*	15.6000
Nickel, total	ug/L	MW-7	09/14/2013		19.6000	*	15.6000
Nickel, total	ug/L	MW-7	04/11/2014		21.8000	*	15.6000
Nickel, total	ug/L	MW-7	09/27/2014		25.3000	*	15.6000

*   - Significantly increased over background.
** - Detect at limit for 100% NDs in background (NPPL only).
*** - Manual exclusion.
ND = Not Detected, Result = detection limit.

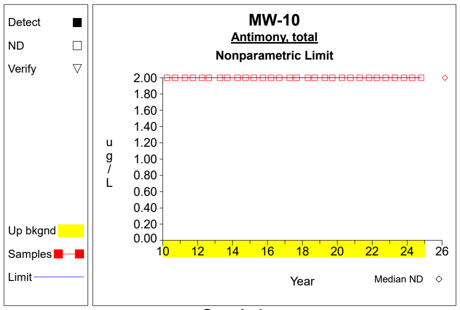
Table 8

Historical Downgradient Data for Constituent-Well Combinations that Failed the Current Statistical Evaluation or are in Verification Resampling Mode

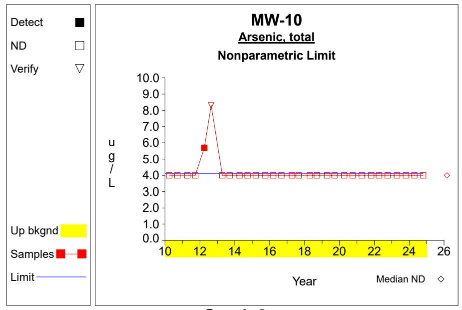
Constituent	Units	Well	Date		Result		Pred. Limit
Nickel, total	ug/L	MW-7	03/16/2015		26.4000	*	15.6000
Nickel, total	ug/L	MW-7	09/28/2015		32.9000	*	15.6000
Nickel, total	ug/L	MW-7	03/14/2016		34.4000	*	15.6000
Nickel, total	ug/L	MW-7	09/03/2016		30.0000	*	15.6000
Nickel, total	ug/L	MW-7	04/10/2017		56.3000	*	15.6000
Nickel, total	ug/L	MW-7	09/01/2017		64.8000	*	15.6000
Nickel, total	ug/L	MW-7	04/23/2018		68.7000	*	15.6000
Nickel, total	ug/L	MW-7	09/14/2018		65.6000	*	15.6000
Nickel, total	ug/L	MW-7	04/15/2019		57.2000	*	15.6000
Nickel, total	ug/L	MW-7	09/17/2019		94.9000	*	15.6000
Nickel, total	ug/L	MW-7	04/08/2020		73.4000	*	15.6000
Nickel, total	ug/L	MW-7	10/02/2020		77.6000	*	15.6000
Nickel, total	ug/L	MW-7	04/12/2021		65.5000	*	15.6000
Nickel, total	ug/L	MW-7	10/26/2021		57.5000	*	15.6000
Nickel, total	ug/L	MW-7	04/04/2022		39.1000	*	15.6000
Nickel, total	ug/L	MW-7	10/07/2022		68.3000	*	15.6000
Nickel, total	ug/L	MW-7	04/19/2023		14.2000		15.6000
Nickel, total	ug/L	MW-7	10/25/2023		43.8000	*	15.6000
Nickel, total	ug/L	MW-7	04/17/2024		9.1000		15.6000
Nickel, total	ug/L	MW-7	10/17/2024		49.6000	*	15.6000
Nickel, total	ug/L	PZ-11	03/31/2010		26.1000	*	15.6000
Nickel, total	ug/L	PZ-11	09/16/2010		23.0000	*	15.6000
Nickel, total	ug/L	PZ-11	04/11/2011		23.2000	*	15.6000
Nickel, total	ug/L	PZ-11	09/26/2011		31.3000	*	15.6000
Nickel, total	ug/L	PZ-11	04/01/2012		40.9000	*	15.6000
Nickel, total	ug/L	PZ-11	08/23/2012		17.7000	*	15.6000
Nickel, total	ug/L	PZ-11	04/13/2013		20.5000	*	15.6000
Nickel, total	ug/L	PZ-11	09/14/2013		21.0000	*	15.6000
Nickel, total	ug/L	PZ-11	04/11/2014		42.7000	*	15.6000
Nickel, total	ug/L	PZ-11	09/27/2014		32.1000	*	15.6000
Nickel, total	ug/L	PZ-11	03/16/2015		16.7000	*	15.6000
Nickel, total	ug/L	PZ-11	09/28/2015	ND	4.0000		15.6000
Nickel, total	ug/L	PZ-11	03/14/2016	ND	4.0000		15.6000
Nickel, total	ug/L	PZ-11	09/03/2016	ND	4.0000		15.6000
Nickel, total	ug/L	PZ-11	04/10/2017		12.9000		15.6000
Nickel, total	ug/L	PZ-11	09/01/2017		16.5000	*	15.6000
Nickel, total	ug/L	PZ-11	11/15/2017	ND	4.0000		15.6000
Nickel, total	ug/L	PZ-11	04/23/2018	ND	20.0000		15.6000
Nickel, total	ug/L	PZ-11	09/14/2018		8.2000		15.6000
Nickel, total	ug/L	PZ-11	04/15/2019	ND	4.0000		15.6000
Nickel, total	ug/L	PZ-11	09/17/2019	ND	4.0000		15.6000
Nickel, total	ug/L	PZ-11	04/08/2020	ND	4.0000		15.6000
Nickel, total	ug/L	PZ-11	10/02/2020		4.4000		15.6000
Nickel, total	ug/L	PZ-11	04/12/2021		10.6000		15.6000
Nickel, total	ug/L	PZ-11	10/26/2021		20.9000	*	15.6000
Nickel, total	ug/L	PZ-11	04/04/2022		14.5000		15.6000
Nickel, total	ug/L	PZ-11	10/07/2022		22.7000	*	15.6000
Nickel, total	ug/L	PZ-11	04/19/2023		10.9000		15.6000
Nickel, total	ug/L	PZ-11	10/25/2023		10.5000		15.6000
Nickel, total	ug/L	PZ-11	04/17/2024		8.8000		15.6000
Nickel, total	ug/L	PZ-11	10/17/2024		31.1000	*	15.6000

* - Significantly increased over background.
** - Detect at limit for 100% NDs in background (NPPL only).
*** - Manual exclusion.
ND = Not Detected, Result = detection limit.

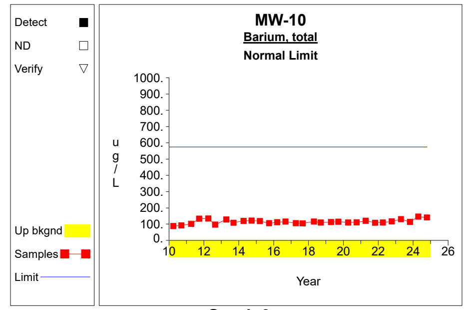
Up vs. Down Prediction Limits



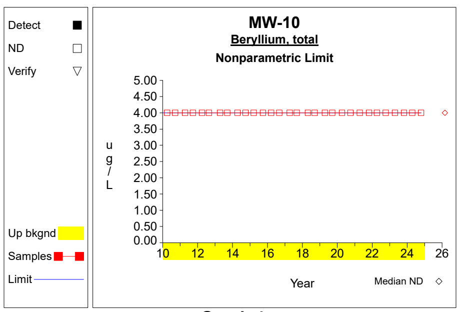
Graph 1



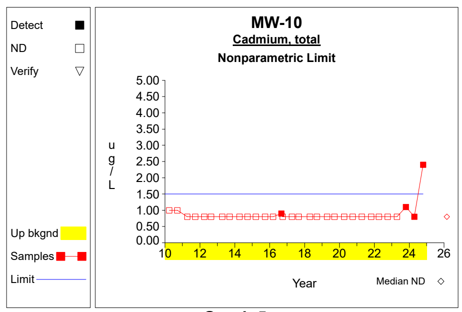
Graph 2



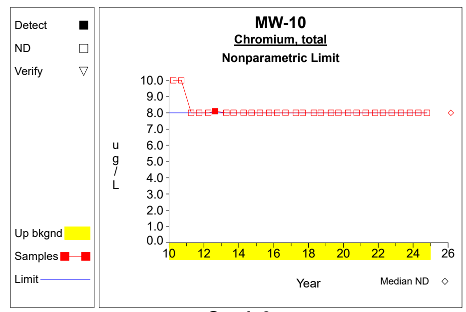
Graph 3



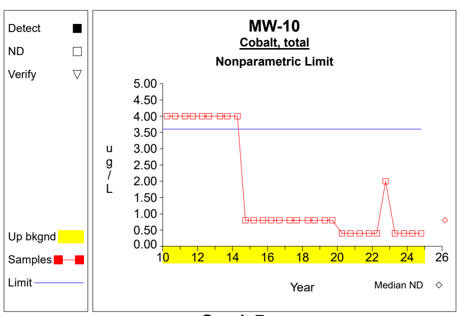
Graph 4



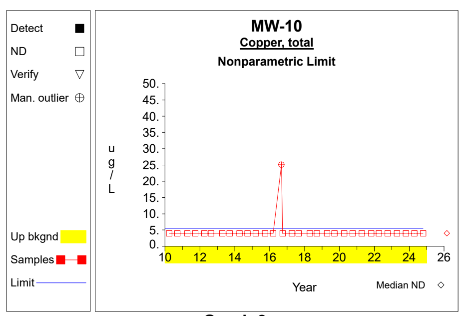
Graph 5



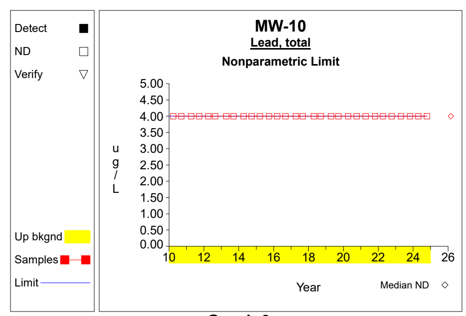
Graph 6



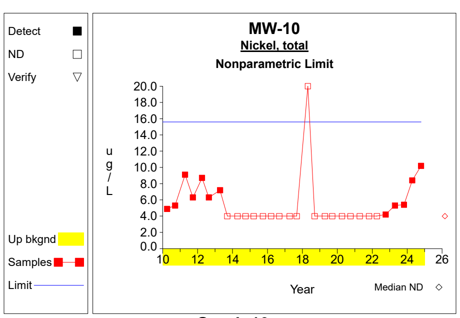
Graph 7



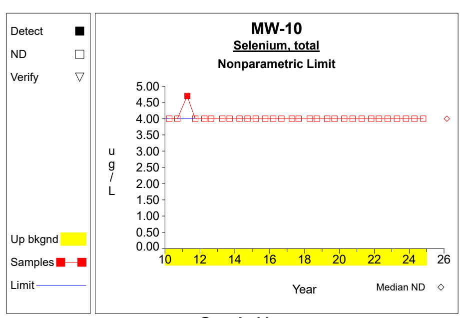
Graph 8



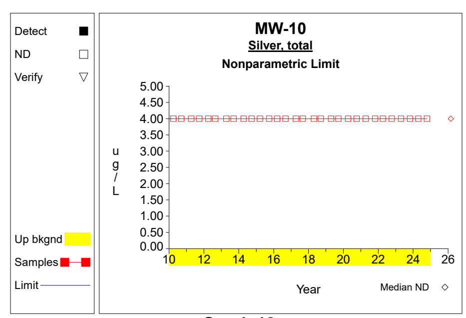
Graph 9



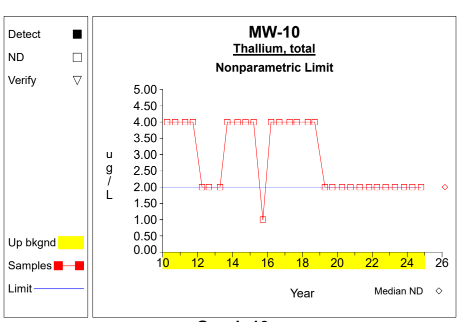
Graph 10



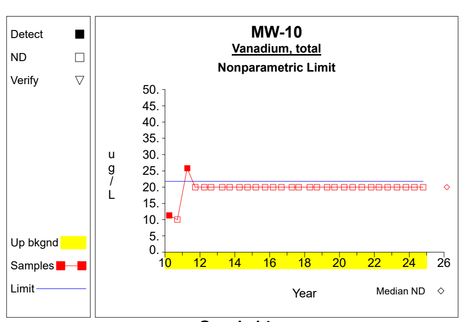
Graph 11



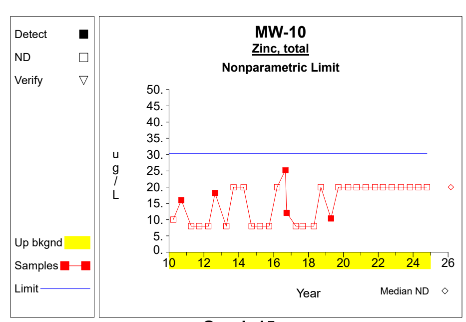
Graph 12



Graph 13

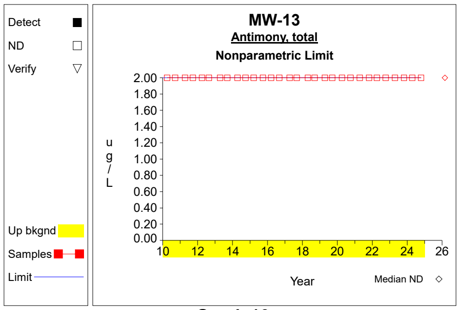


Graph 14

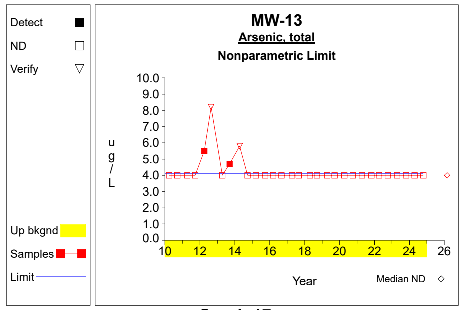


Graph 15

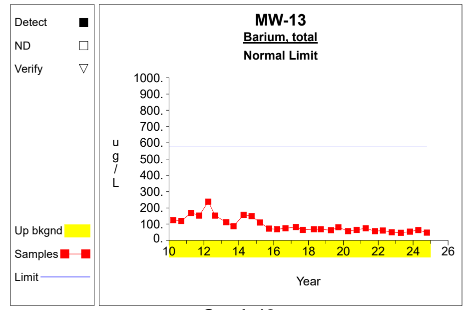
Up vs. Down Prediction Limits



Graph 16



Graph 17



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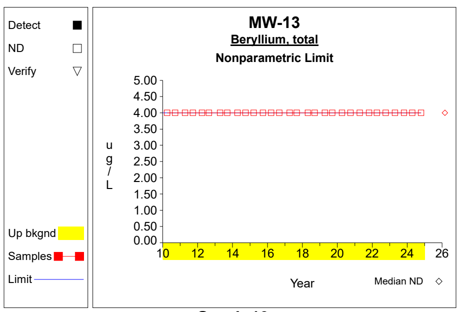
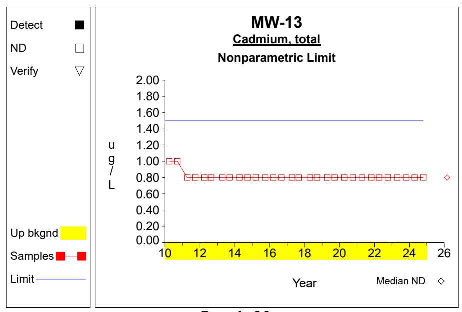
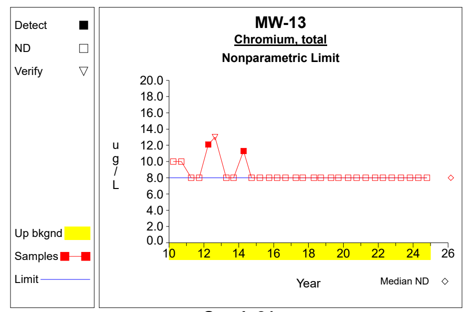


Graph 19



Graph 20



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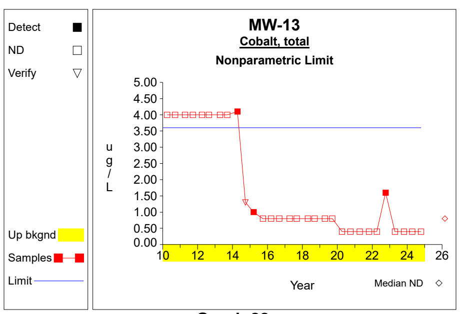
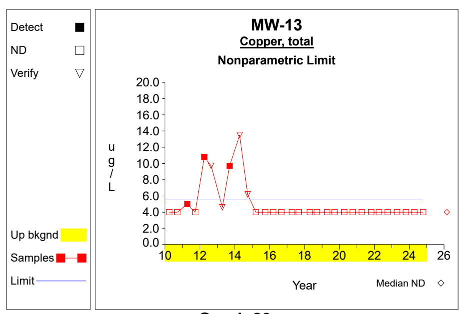


Graph 22



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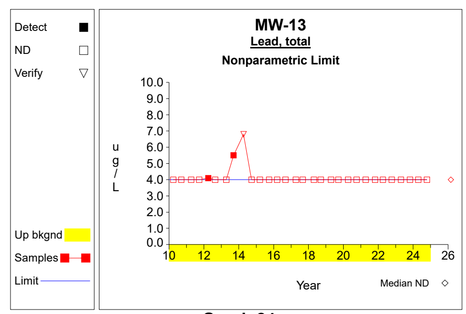

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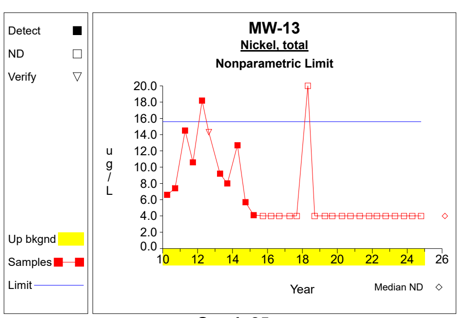

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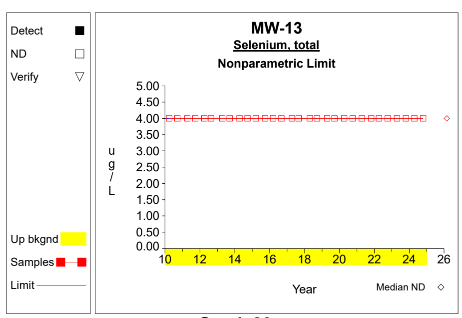
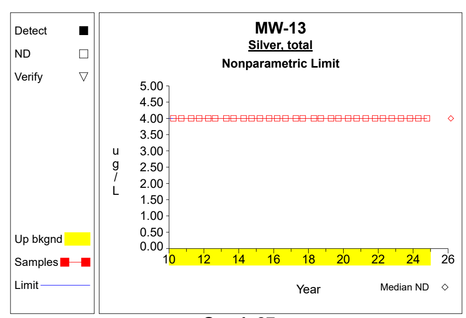


Graph 26



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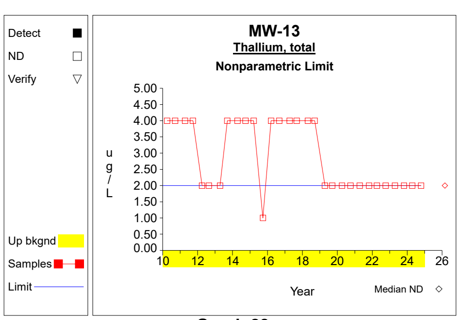

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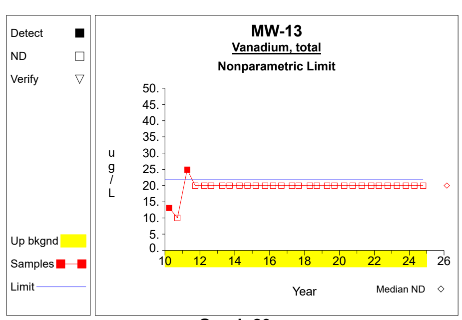
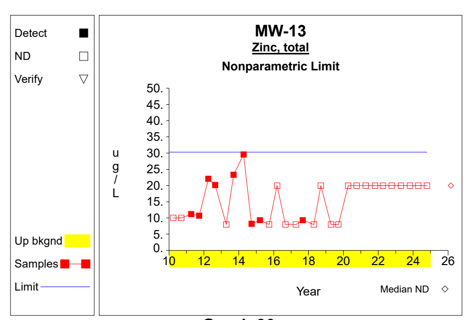
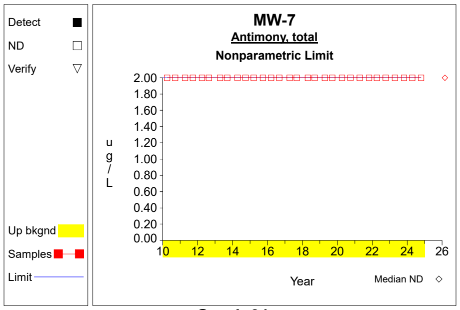


Graph 29

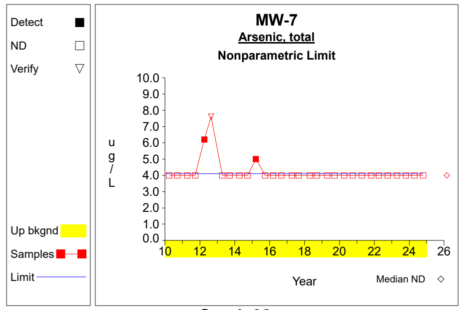


Graph 30

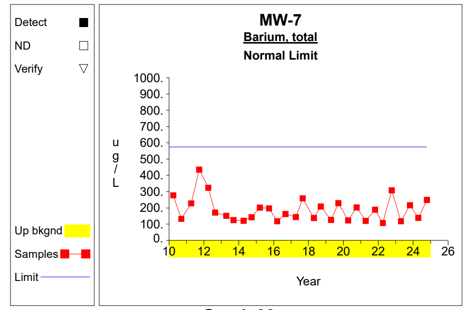
Up vs. Down Prediction Limits



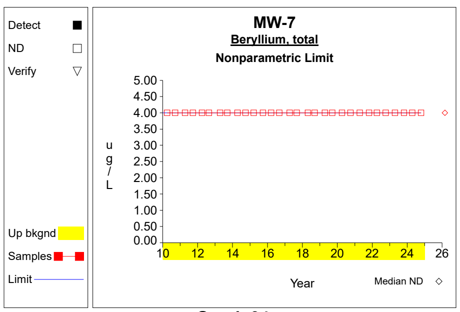
Graph 31



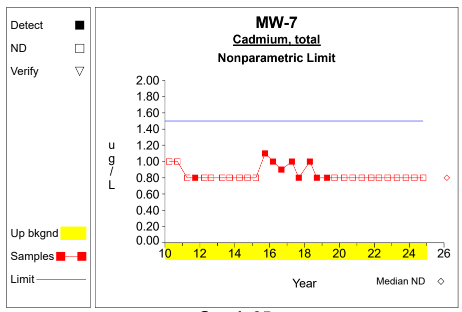
Graph 32



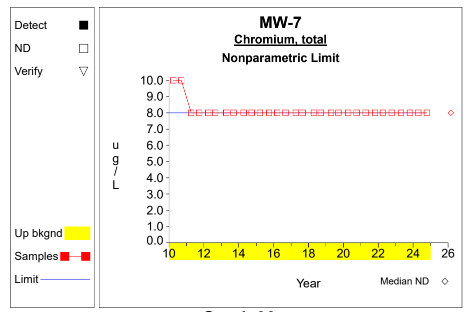
Graph 33



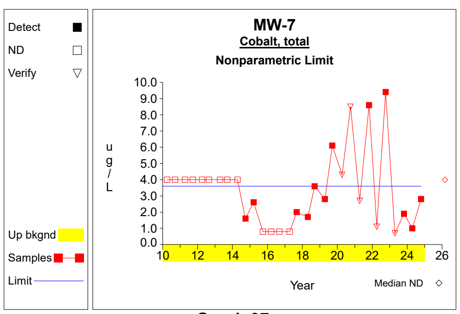
Graph 34



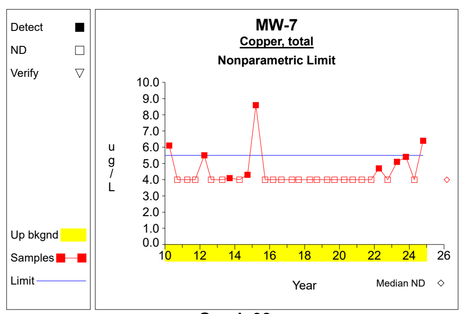
Graph 35



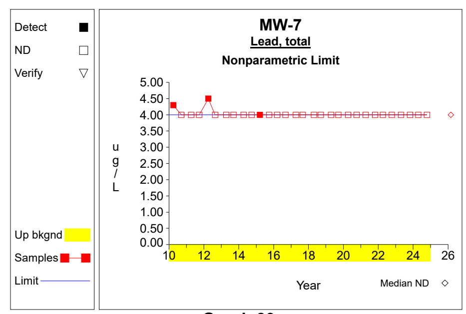
Graph 36



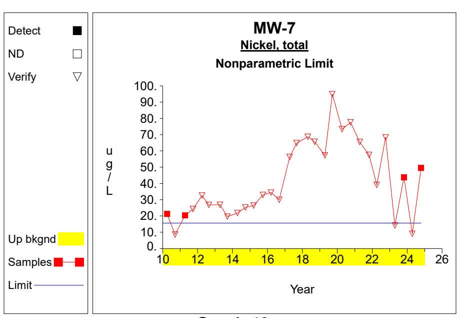
Graph 37



Graph 38



Graph 39



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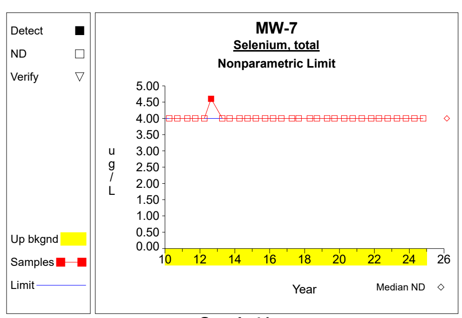
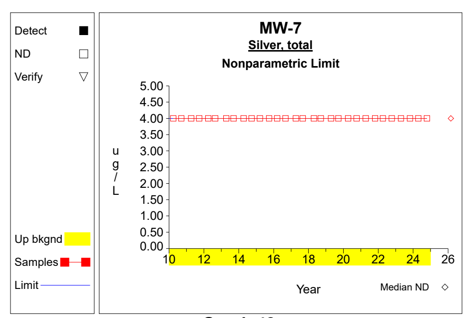
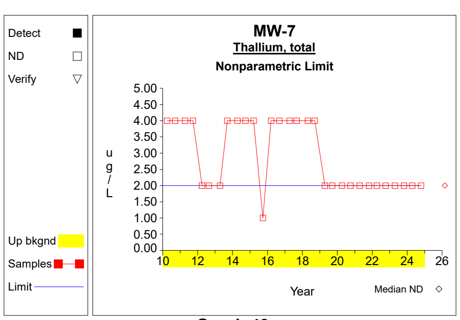


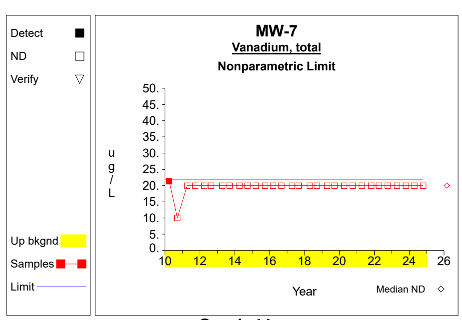
Graph 41



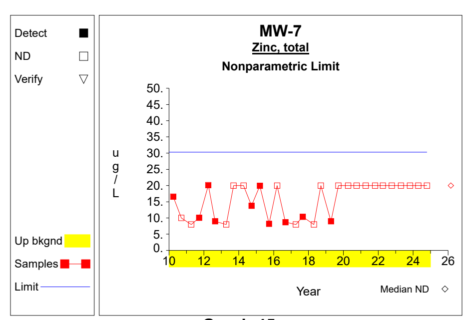
Graph 42



Graph 43

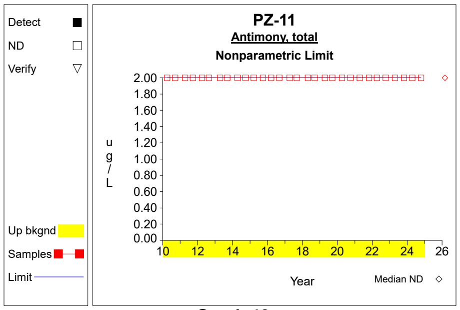


Graph 44

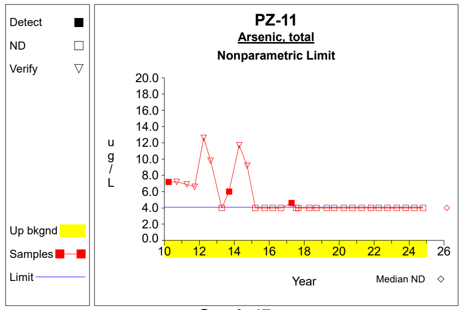


Graph 45

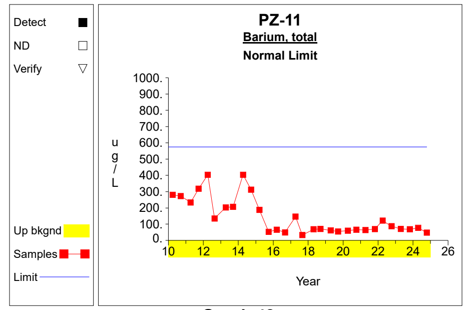
Up vs. Down Prediction Limits



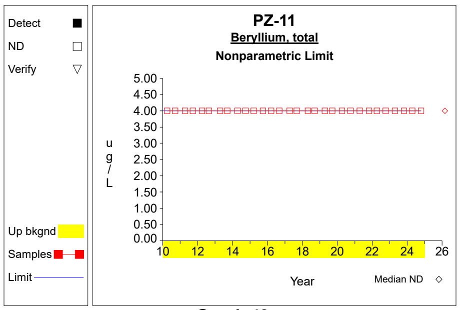
Graph 46



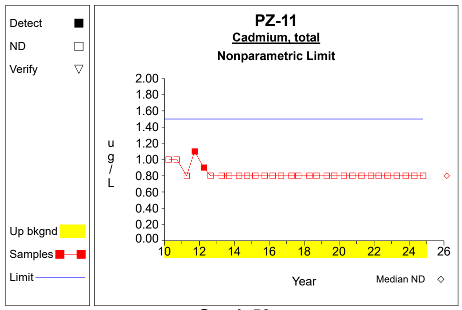
Graph 47



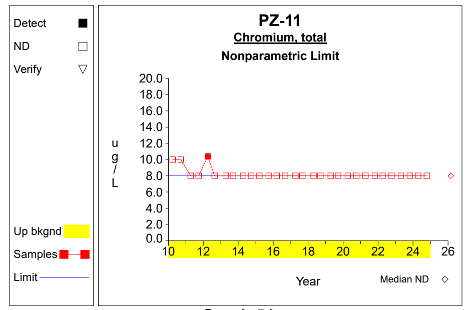
Graph 48



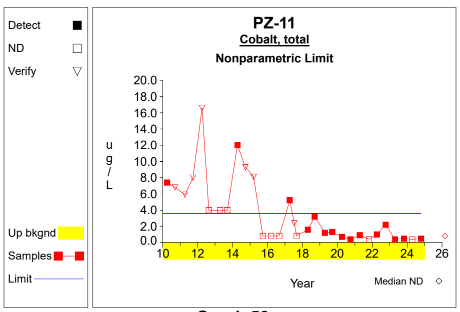
Graph 49



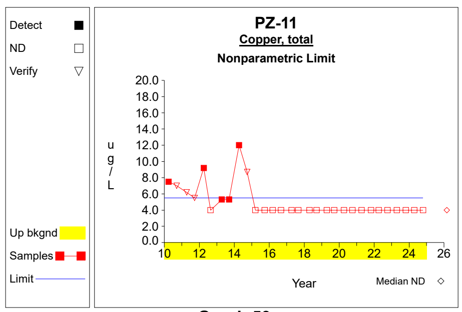
Graph 50



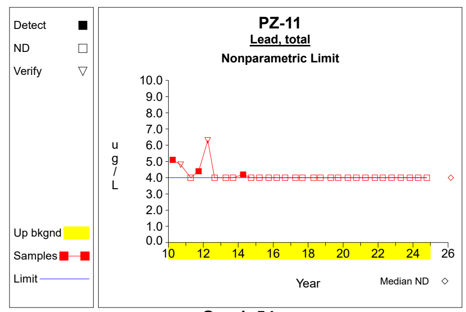
Graph 51



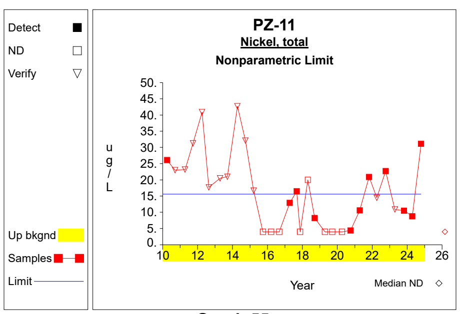
Graph 52



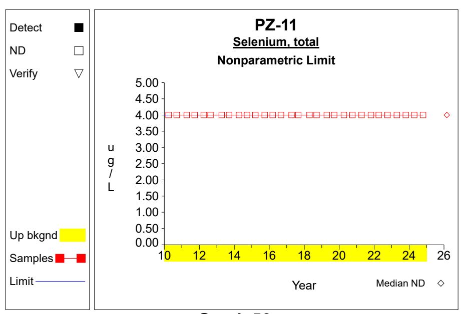
Graph 53



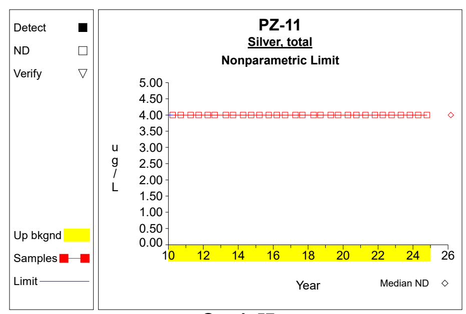
Graph 54



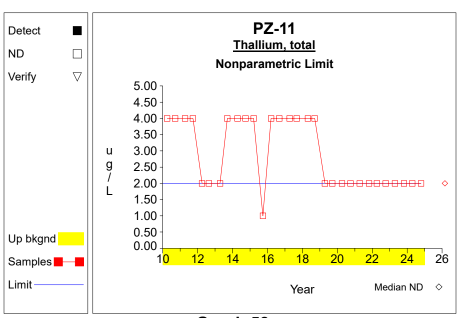
Graph 55



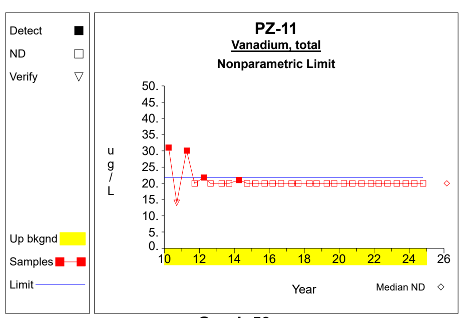
Graph 56



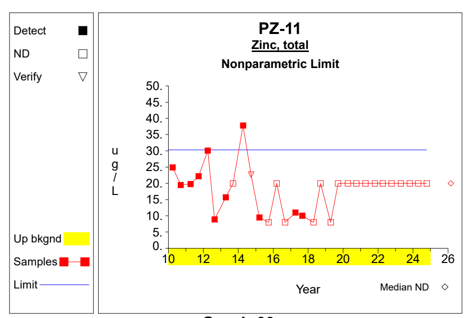
Graph 57



Graph 58

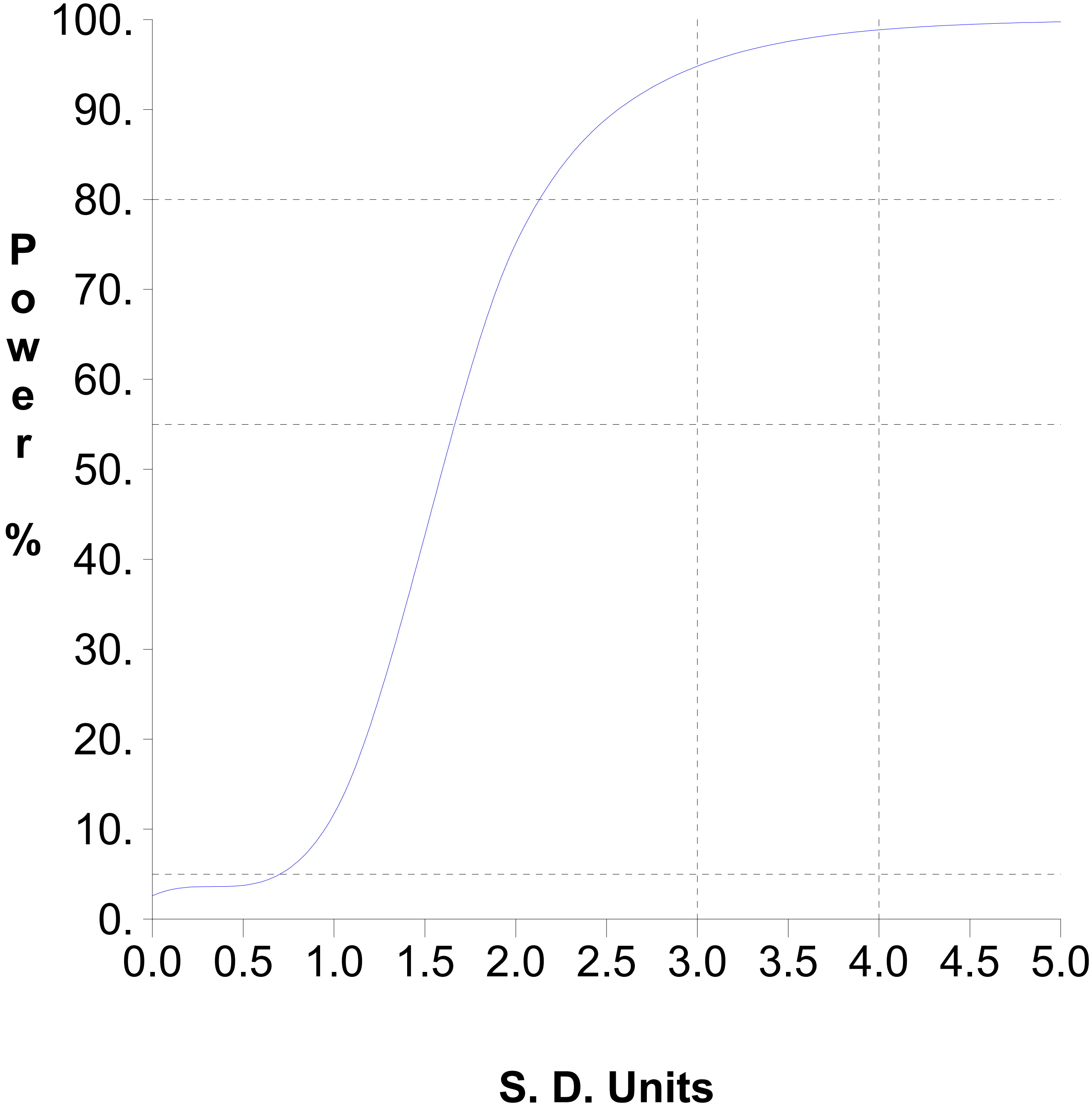


Graph 59



Graph 60

False Positive and False Negative Rates for Current Upgradient vs. Downgradient Monitoring Program



Worksheet 1 - Upgradient vs. Downgradient Comparisons
Antimony, total (ug/L)
Nonparametric Prediction Limit

Step	Equation	Description
1	PL = median(X) = **2.0**	Compute nonparametric prediction limit as median reporting limit in background.
2	Conf = **0.99**	Confidence level is based on N, K and resampling strategy (see Gibbons 1994).

Worksheet 1 - Upgradient vs. Downgradient Comparisons
Arsenic, total (ug/L)
Nonparametric Prediction Limit

Step	Equation	Description
1	PL = max(X) = **4.1**	Compute nonparametric prediction limit as largest background measurement.
2	Conf = **0.99**	Confidence level is based on N, K and resampling strategy (see Gibbons 1994).

Worksheet 1 - Upgradient vs. Downgradient Comparisons
Barium, total (ug/L)
Normal Prediction Limit

Step	Equation	Description
1	$\bar{X} = \mathbf{sum[X]} / \mathbf{N}$ $= \mathbf{9457.0} / \mathbf{30}$ $= \mathbf{315.233}$	Compute upgradient mean.
2	$S = ((\mathbf{sum[X^2]} - \mathbf{sum[X]}^2/\mathbf{N}) / (\mathbf{N}-1))^{1/2}$ $= ((\mathbf{3.29}\times\mathbf{10^6} - \mathbf{8.94}\times\mathbf{10^7}/\mathbf{30}) / (\mathbf{30}-1))^{1/2}$ $= \mathbf{103.843}$	Compute upgradient sd.
3	$alpha = \min[(1-.95^{1/\mathbf{K}})^{1/2}, .01]$ $= \min[(1-.95^{1/\mathbf{60}})^{1/2}, .01]$ $= \mathbf{0.01}$	Adjusted per comparison false positive rate. Pass initial or 1 resample.
4	$PL = \bar{\mathbf{X}} + \mathbf{tS}(1+1/\mathbf{N})^{1/2}$ $= \mathbf{315.233} + (\mathbf{2.462}*\mathbf{103.843})(1+1/\mathbf{30})^{1/2}$ $= \mathbf{575.093}$	One-sided normal prediction limit (t is Student's t on N-1 degrees of freedom and 1-alpha confidence level).

Worksheet 1 - Upgradient vs. Downgradient Comparisons
Beryllium, total (ug/L)
Nonparametric Prediction Limit

Step	Equation	Description
1	PL = median(X) = **4.0**	Compute nonparametric prediction limit as median reporting limit in background.
2	Conf = **0.99**	Confidence level is based on N, K and resampling strategy (see Gibbons 1994).

Worksheet 1 - Upgradient vs. Downgradient Comparisons
Cadmium, total (ug/L)
Nonparametric Prediction Limit

Step	Equation	Description
1	PL = max(X) = **1.5**	Compute nonparametric prediction limit as largest background measurement.
2	Conf = **0.99**	Confidence level is based on N, K and resampling strategy (see Gibbons 1994).

Worksheet 1 - Upgradient vs. Downgradient Comparisons
Chromium, total (ug/L)
Nonparametric Prediction Limit

Step	Equation	Description
1	PL = median(X) = **8.0**	Compute nonparametric prediction limit as median reporting limit in background.
2	Conf = **0.99**	Confidence level is based on N, K and resampling strategy (see Gibbons 1994).

Worksheet 1 - Upgradient vs. Downgradient Comparisons
Cobalt, total (ug/L)
Nonparametric Prediction Limit

Step	Equation	Description
1	PL = max(X) = **3.6**	Compute nonparametric prediction limit as largest background measurement.
2	Conf = **0.99**	Confidence level is based on N, K and resampling strategy (see Gibbons 1994).

Worksheet 1 - Upgradient vs. Downgradient Comparisons
Copper, total (ug/L)
Nonparametric Prediction Limit

Step	Equation	Description
1	PL = max(X) = **5.5**	Compute nonparametric prediction limit as largest background measurement.
2	Conf = **0.99**	Confidence level is based on N, K and resampling strategy (see Gibbons 1994).

Worksheet 1 - Upgradient vs. Downgradient Comparisons
Lead, total (ug/L)
Nonparametric Prediction Limit

Step	Equation	Description
1	PL = median(X) = **4.0**	Compute nonparametric prediction limit as median reporting limit in background.
2	Conf = **0.99**	Confidence level is based on N, K and resampling strategy (see Gibbons 1994).

Worksheet 1 - Upgradient vs. Downgradient Comparisons
Nickel, total (ug/L)
Nonparametric Prediction Limit

Step	Equation	Description
1	PL = max(X) = **15.6**	Compute nonparametric prediction limit as largest background measurement.
2	Conf = **0.99**	Confidence level is based on N, K and resampling strategy (see Gibbons 1994).

Worksheet 1 - Upgradient vs. Downgradient Comparisons
Selenium, total (ug/L)
Nonparametric Prediction Limit

Step	Equation	Description
1	PL = median(X) = **4.0**	Compute nonparametric prediction limit as median reporting limit in background.
2	Conf = **0.99**	Confidence level is based on N, K and resampling strategy (see Gibbons 1994).

Worksheet 1 - Upgradient vs. Downgradient Comparisons
Silver, total (ug/L)
Nonparametric Prediction Limit

Step	Equation	Description
1	PL = median(X) = **4.0**	Compute nonparametric prediction limit as median reporting limit in background.
2	Conf = **0.99**	Confidence level is based on N, K and resampling strategy (see Gibbons 1994).

Worksheet 1 - Upgradient vs. Downgradient Comparisons
Thallium, total (ug/L)
Nonparametric Prediction Limit

Step	Equation	Description
1	PL = median(X) = **2.0**	Compute nonparametric prediction limit as median reporting limit in background.
2	Conf = **0.99**	Confidence level is based on N, K and resampling strategy (see Gibbons 1994).

Worksheet 1 - Upgradient vs. Downgradient Comparisons
Vanadium, total (ug/L)
Nonparametric Prediction Limit

Step	Equation	Description
1	PL = max(X) = **21.8**	Compute nonparametric prediction limit as largest background measurement.
2	Conf = **0.99**	Confidence level is based on N, K and resampling strategy (see Gibbons 1994).

Worksheet 1 - Upgradient vs. Downgradient Comparisons
Zinc, total (ug/L)
Nonparametric Prediction Limit

Step	Equation	Description
1	PL = max(X) = **30.3**	Compute nonparametric prediction limit as largest background measurement.
2	Conf = **0.99**	Confidence level is based on N, K and resampling strategy (see Gibbons 1994).

Attachment C

Assessment Statistics for Trace Metals

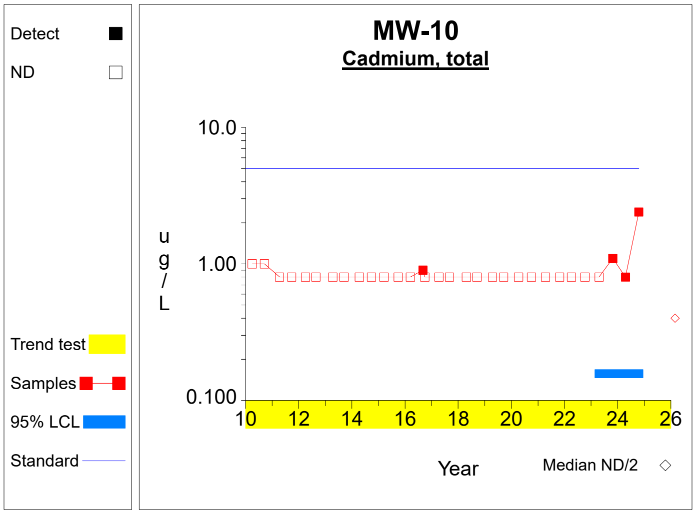
Table 1

Confidence Intervals for Comparing the Mean of the Last 4 Measurements to an Assessment Monitoring Standard

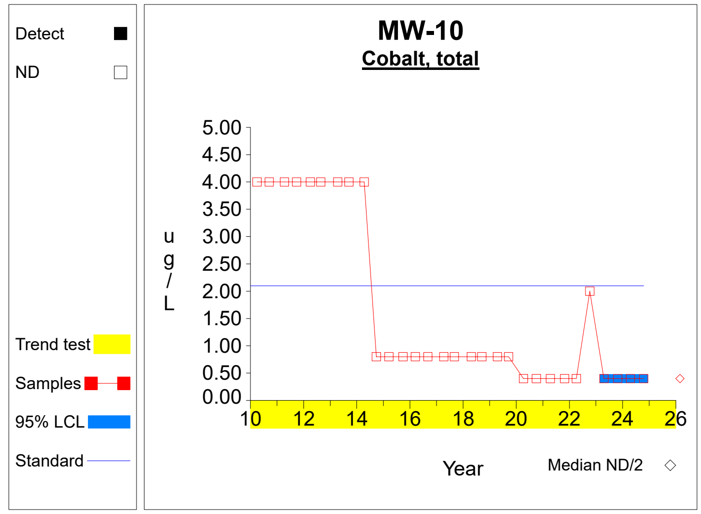
Constituent	Units	Well	N	Mean	SD	Factor	95% LCL	95% UCL	Standard	Trend
Cadmium, total	ug/L	MW-10	4	1.175	0.866	1.176	0.157	2.193	5.000	
Cobalt, total	ug/L	MW-10	4	0.400	0.000	1.176	0.400	0.400	2.100	
Copper, total	ug/L	MW-10	4	2.000	0.000	1.176	2.000	2.000	1300.000	
Nickel, total	ug/L	MW-10	4	7.325	2.396	1.176	4.506	10.144	100.000	
Cadmium, total	ug/L	MW-7	4	0.400	0.000	1.176	0.400	0.400	5.000	
Cobalt, total	ug/L	MW-7	4	1.600	0.949	1.176	0.484	2.716	2.100	
Copper, total	ug/L	MW-7	4	4.725	1.900	1.176	2.490	6.960	1300.000	
Nickel, total	ug/L	MW-7	4	29.175	20.480	1.176	5.084	53.266	100.000	inc
Cadmium, total	ug/L	PZ-11	4	0.400	0.000	1.176	0.400	0.400	5.000	
Cobalt, total	ug/L	PZ-11	4	0.450	0.058	1.176	0.382	0.518	2.100	
Copper, total	ug/L	PZ-11	4	2.000	0.000	1.176	2.000	2.000	1300.000	
Nickel, total	ug/L	PZ-11	4	15.325	10.556	1.176	2.908	27.742	100.000	

* - Insufficient Data
** - Significant Exceedance
LCL = Lower Confidence Limit
UCL = Upper Confidence Limit

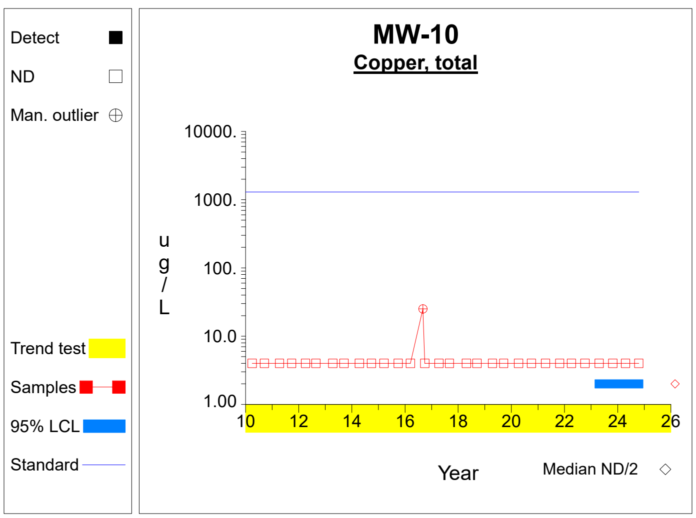
Confidence Limits (Assessment)



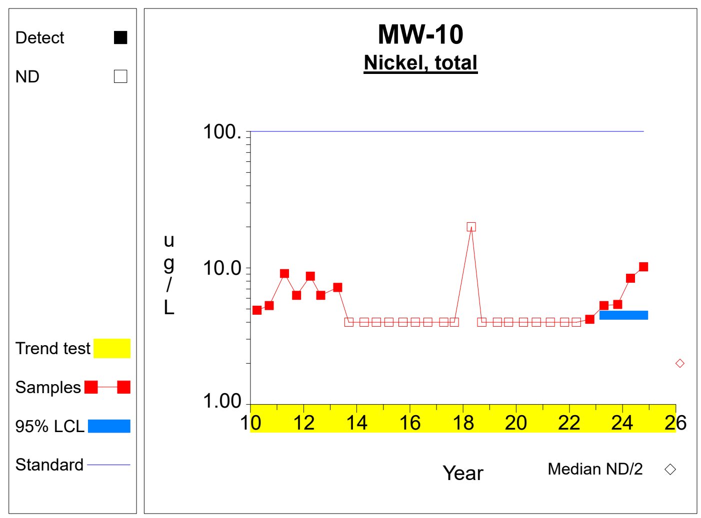
Graph 1



Graph 2

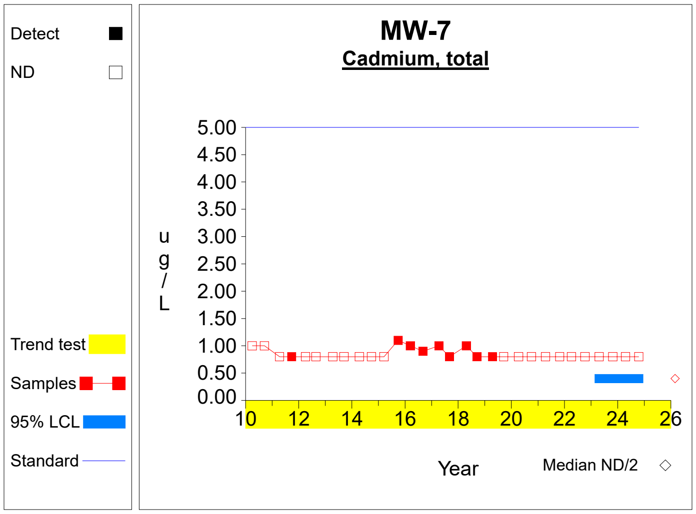


Graph 3

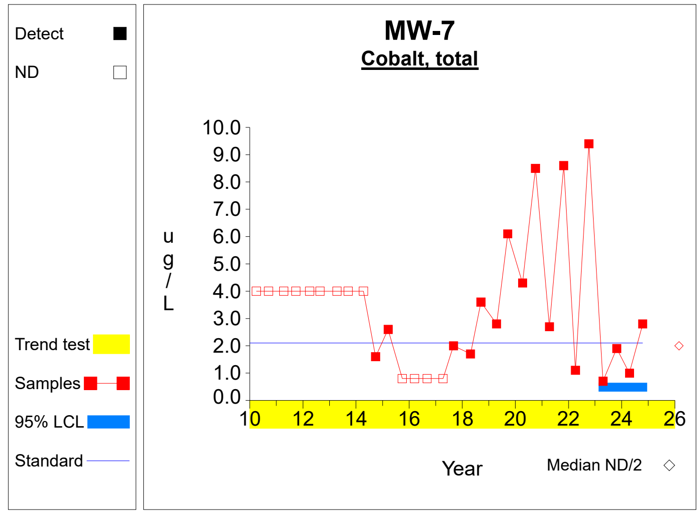


Graph 4

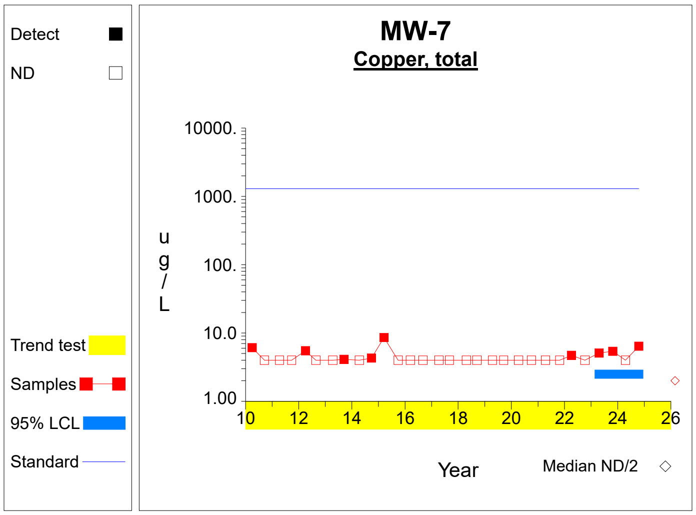
Confidence Limits (Assessment)



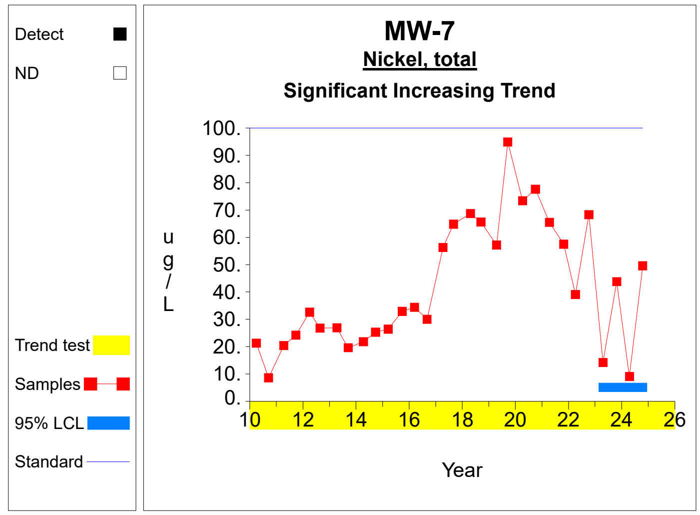
Graph 5



Graph 6

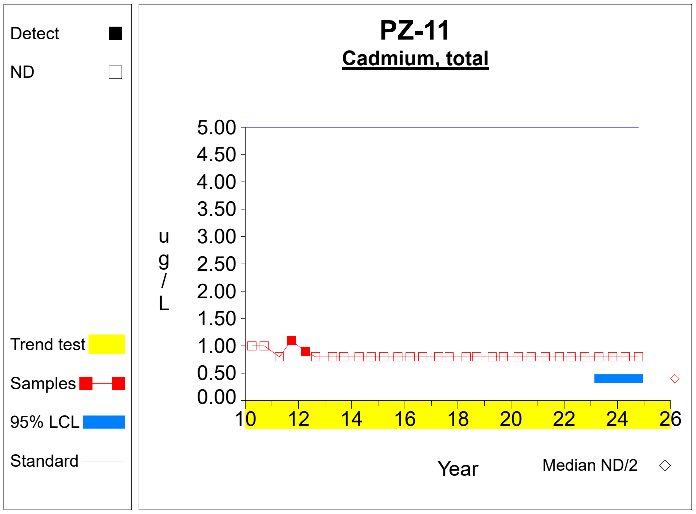


Graph 7

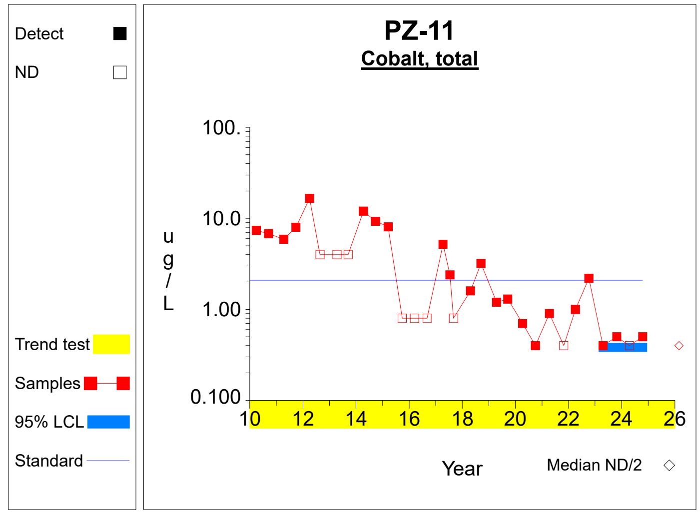


Graph 8

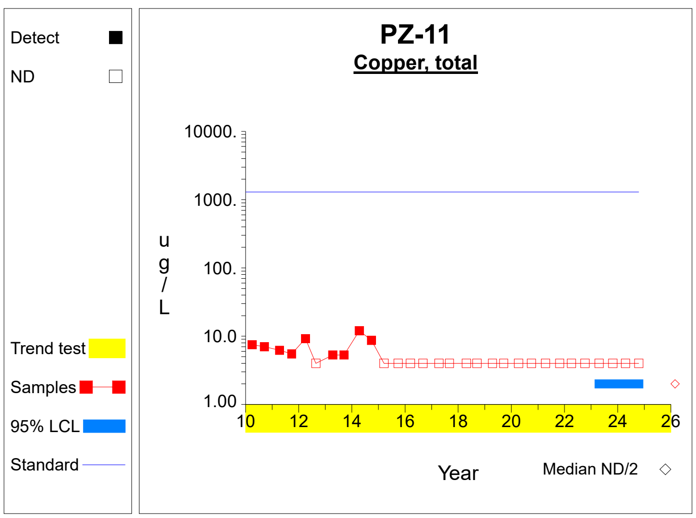
Confidence Limits (Assessment)



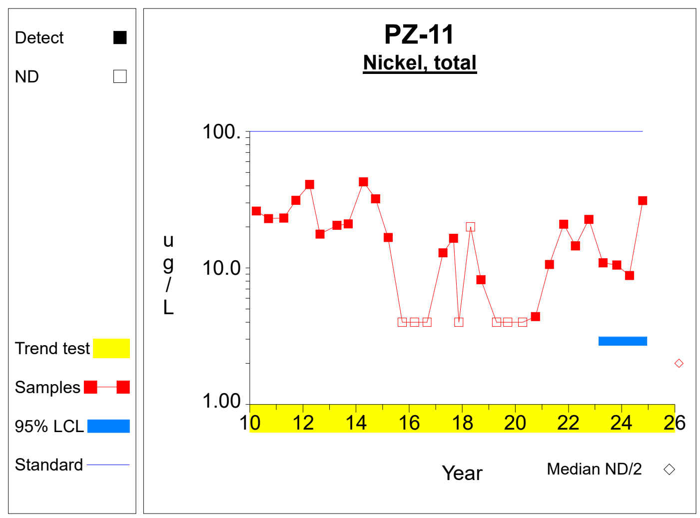
Graph 9



Graph 10



Graph 11



Graph 12

Worksheet 6 - Assessment Monitoring
Cadmium, total (ug/L) at MW-10

Step	Equation	Description
1	$\bar{X} = \mathbf{sum[X]} / \mathbf{N}$ $= \mathbf{4.7} / \mathbf{4}$ $= \mathbf{1.175}$	Compute the mean of the last 4 measurements.
2	$S = ((\mathbf{sum[X^2]} - \mathbf{sum[X]}^2/\mathbf{N}) / (\mathbf{N}-1))^{1/2}$ $= ((\mathbf{7.77} - \mathbf{22.09/4}) / (\mathbf{4}-1))^{1/2}$ $= \mathbf{0.866}$	Compute sd of the last 4 measurements.
3	$LCL = \bar{\mathbf{X}} - \mathbf{tS}/\mathbf{N}^{1/2}$ $= \mathbf{1.175} - \mathbf{2.353} * \mathbf{0.866/4}^{1/2}$ $= \mathbf{0.157}$	Compute lower confidence limit for the mean of the last 4 measurements.
4	$UCL = \bar{\mathbf{X}} + \mathbf{tS}/\mathbf{N}^{1/2}$ $= \mathbf{1.175} + \mathbf{2.353} * \mathbf{0.866/4}^{1/2}$ $= \mathbf{2.193}$	Compute upper confidence limit for the mean of the last 4 measurements.
5	$N' = \mathbf{N} * (\mathbf{N}-1) / 2$ $= \mathbf{31} * (\mathbf{31}-1) / 2$ $= \mathbf{465}$	Number of sample pairs during trend detection period.
6	$S = \mathbf{0.0}$	Sen's estimator of trend.
7	$var(S) = \mathbf{1160.667}$	Variance estimate for slope.
8	$M(S) = (\mathbf{N'} \pm \mathbf{Z}_{.995} * \mathbf{var(S)}^{1/2}) / 2$ $= (\mathbf{465} \pm \mathbf{2.576} * \mathbf{1160.667}^{1/2}) / 2$ $= [\ \mathbf{188.62}, \mathbf{276.38}\ ]$	Ordinal positions for two-sided lower confidence limits for slope. The LCL and UCL are the M^{th} largest slope estimates for the values shown. When the values are not integers, interpolation is used.
9	$CL(S) = [\ \mathbf{0.0}, \mathbf{0.0}\ ]$	Two-sided confidence interval for slope.
10	the interval includes 0	There is no significant trend.

Worksheet 6 - Assessment Monitoring
Cobalt, total (ug/L) at MW-10

Step	Equation	Description
1	$\overline{X}$ = **sum[X]** / **N** = **1.6** / **4** = **0.4**	Compute the mean of the last 4 measurements.
2	S = ((**sum[X^2] - sum[X]^2**/**N**) / (**N**-1))$^{1/2}$ = ((**0.64** - **2.56**/**4**) / (**4**-1))$^{1/2}$ = **4.21**x**10^{-9}**	Compute sd of the last 4 measurements.
3	LCL = **$\overline{X}$** - **tS**/**N**$^{1/2}$ = **0.4** - **2.353** * **4.21**x**10^{-9}**/**4**$^{1/2}$ = **0.4**	Compute lower confidence limit for the mean of the last 4 measurements.
4	UCL = **$\overline{X}$** + **tS**/**N**$^{1/2}$ = **0.4** + **2.353** * **4.21**x**10^{-9}**/**4**$^{1/2}$ = **0.4**	Compute upper confidence limit for the mean of the last 4 measurements.
5	N' = **N** * (**N**-1) / 2 = **30** * (**30**-1) / 2 = **435**	Number of sample pairs during trend detection period.
6	S = **0.0**	Sen's estimator of trend.
7	var(S) = **0.0**	Variance estimate for slope.
8	M(S) = (**N'** ± **Z**$_{.995}$ * **var(S)**$^{1/2}$) / 2 = (**435** ± **2.576** * **0.0**$^{1/2}$) / 2 = [**217.5**, **217.5**]	Ordinal positions for two-sided lower confidence limits for slope. The LCL and UCL are the Mth largest slope estimates for the values shown. When the values are not integers, interpolation is used.
9	CL(S) = [**0.0**, **0.0**]	Two-sided confidence interval for slope.
10	the interval includes 0	There is no significant trend.

Worksheet 6 - Assessment Monitoring
Copper, total (ug/L) at MW-10

Step	Equation	Description
1	$\bar{X}$ = **sum[X]** / **N** = **8.0** / **4** = **2.0**	Compute the mean of the last 4 measurements.
2	S = ((**sum[X^2]** - **sum[X]**^{2}/**N**) / (**N**-1))$^{1/2}$ = ((**16.0** - **64.0**/**4**) / (**4**-1))$^{1/2}$ = **0.0**	Compute sd of the last 4 measurements.
3	LCL = $\bar{X}$ - **tS**/**N**$^{1/2}$ = **2.0** - **2.353** * **0.0**/**4**$^{1/2}$ = **2.0**	Compute lower confidence limit for the mean of the last 4 measurements.
4	UCL = $\bar{X}$ + **tS**/**N**$^{1/2}$ = **2.0** + **2.353** * **0.0**/**4**$^{1/2}$ = **2.0**	Compute upper confidence limit for the mean of the last 4 measurements.
5	N' = **N** * (**N**-1) / 2 = **30** * (**30**-1) / 2 = **435**	Number of sample pairs during trend detection period.
6	S = **0.0**	Sen's estimator of trend.
7	var(S) = **0.0**	Variance estimate for slope.
8	M(S) = (**N'** ± **Z**$_{.995}$ * **var(S)**$^{1/2}$) / 2 = (**435** ± **2.576** * **0.0**$^{1/2}$) / 2 = [**217.5**, **217.5**]	Ordinal positions for two-sided lower confidence limits for slope. The LCL and UCL are the Mth largest slope estimates for the values shown. When the values are not integers, interpolation is used.
9	CL(S) = [**0.0**, **0.0**]	Two-sided confidence interval for slope.
10	the interval includes 0	There is no significant trend.

Worksheet 6 - Assessment Monitoring
Nickel, total (ug/L) at MW-10

Step	Equation	Description
1	$\bar{X}$ = **sum[X]** / **N** = **29.3** / **4** = **7.325**	Compute the mean of the last 4 measurements.
2	S = ((**sum[X^2]** - **sum[X]^2**/**N**) / (**N**-1))^{½} = ((**231.85** - **858.49**/**4**) / (**4**-1))^{½} = **2.396**	Compute sd of the last 4 measurements.
3	LCL = **$\bar{X}$** - **tS**/**N**^{½} = **7.325** - **2.353** * **2.396**/**4**^{½} = **4.506**	Compute lower confidence limit for the mean of the last 4 measurements.
4	UCL = **$\bar{X}$** + **tS**/**N**^{½} = **7.325** + **2.353** * **2.396**/**4**^{½} = **10.144**	Compute upper confidence limit for the mean of the last 4 measurements.
5	N' = **N** * (**N**-1) / 2 = **30** * (**30**-1) / 2 = **435**	Number of sample pairs during trend detection period.
6	S = **0.0**	Sen's estimator of trend.
7	var(S) = **2442.667**	Variance estimate for slope.
8	M(S) = (**N'** ± **Z**$_{.995}$ * **var(S)**^{½}) / 2 = (**435** ± **2.576** * **2442.667**^{½}) / 2 = [**153.843**, **281.157**]	Ordinal positions for two-sided lower confidence limits for slope. The LCL and UCL are the Mth largest slope estimates for the values shown. When the values are not integers, interpolation is used.
9	CL(S) = [**0.0**, **0.0**]	Two-sided confidence interval for slope.
10	the interval includes 0	There is no significant trend.

Worksheet 6 - Assessment Monitoring
Cadmium, total (ug/L) at MW-7

Step	Equation	Description
1	$\overline{X}$ = **sum[X]** / **N** = **1.6** / **4** = **0.4**	Compute the mean of the last 4 measurements.
2	S = ((**sum[X^2]** - **sum[X]**^{2}/**N**) / (**N**-1))^{½} = ((**0.64** - **2.56**/**4**) / (**4**-1))^{½} = **4.21**x**10**$^{-9}$	Compute sd of the last 4 measurements.
3	LCL = **$\overline{X}$** - **tS**/**N**^{½} = **0.4** - **2.353** * **4.21**x**10**$^{-9}$/**4**^{½} = **0.4**	Compute lower confidence limit for the mean of the last 4 measurements.
4	UCL = **$\overline{X}$** + **tS**/**N**^{½} = **0.4** + **2.353** * **4.21**x**10**$^{-9}$/**4**^{½} = **0.4**	Compute upper confidence limit for the mean of the last 4 measurements.
5	N' = **N** * (**N**-1) / 2 = **30** * (**30**-1) / 2 = **435**	Number of sample pairs during trend detection period.
6	S = **0.0**	Sen's estimator of trend.
7	var(S) = **2032.667**	Variance estimate for slope.
8	M(S) = (**N'** ± **Z**$_{.995}$ * **var(S)**^{½}) / 2 = (**435** ± **2.576** * **2032.667**^{½}) / 2 = [**159.43**, **275.57**]	Ordinal positions for two-sided lower confidence limits for slope. The LCL and UCL are the Mth largest slope estimates for the values shown. When the values are not integers, interpolation is used.
9	CL(S) = [**0.0**, **0.0**]	Two-sided confidence interval for slope.
10	the interval includes 0	There is no significant trend.

Worksheet 6 - Assessment Monitoring
Cobalt, total (ug/L) at MW-7

Step	Equation	Description
1	$\overline{X} = \textbf{sum[X]} / \textbf{N}$ $= \textbf{6.4} / \textbf{4}$ $= \textbf{1.6}$	Compute the mean of the last 4 measurements.
2	$S = ((\textbf{sum[X}^{\textbf{2}}\textbf{]} - \textbf{sum[X]}^2/\textbf{N}) / (\textbf{N}-1))^{½}$ $= ((\textbf{12.94} - \textbf{40.96/4}) / (\textbf{4}-1))^{½}$ $= \textbf{0.949}$	Compute sd of the last 4 measurements.
3	$LCL = \overline{\textbf{X}} - \textbf{tS/N}^{½}$ $= \textbf{1.6} - \textbf{2.353} * \textbf{0.949/4}^{½}$ $= \textbf{0.484}$	Compute lower confidence limit for the mean of the last 4 measurements.
4	$UCL = \overline{\textbf{X}} + \textbf{tS/N}^{½}$ $= \textbf{1.6} + \textbf{2.353} * \textbf{0.949/4}^{½}$ $= \textbf{2.716}$	Compute upper confidence limit for the mean of the last 4 measurements.
5	$N' = \textbf{N} * (\textbf{N}-1) / 2$ $= \textbf{30} * (\textbf{30}-1) / 2$ $= \textbf{435}$	Number of sample pairs during trend detection period.
6	$S = \textbf{0.0}$	Sen's estimator of trend.
7	$var(S) = \textbf{2807.0}$	Variance estimate for slope.
8	$M(S) = (\textbf{N'} \pm \textbf{Z}_{.995} * \textbf{var(S)}^{½}) / 2$ $= (\textbf{435} \pm \textbf{2.576} * \textbf{2807.0}^{½}) / 2$ $= [\ \textbf{149.26}, \textbf{285.74}\ ]$	Ordinal positions for two-sided lower confidence limits for slope. The LCL and UCL are the M^{th} largest slope estimates for the values shown. When the values are not integers, interpolation is used.
9	$CL(S) = [\ \textbf{0.0}, \textbf{0.172}\ ]$	Two-sided confidence interval for slope.
10	the interval includes 0	There is no significant trend.

Worksheet 6 - Assessment Monitoring
Copper, total (ug/L) at MW-7

Step	Equation	Description
1	$\bar{X} = \mathbf{sum[X]} / \mathbf{N}$ $= \mathbf{18.9} / \mathbf{4}$ $= \mathbf{4.725}$	Compute the mean of the last 4 measurements.
2	$S = ((\mathbf{sum[X^2]} - \mathbf{sum[X]}^2/\mathbf{N}) / (\mathbf{N}-1))^{1/2}$ $= ((\mathbf{100.13} - \mathbf{357.21/4}) / (\mathbf{4}-1))^{1/2}$ $= \mathbf{1.9}$	Compute sd of the last 4 measurements.
3	$LCL = \bar{\mathbf{X}} - \mathbf{tS/N}^{1/2}$ $= \mathbf{4.725} - \mathbf{2.353} * \mathbf{1.9/4}^{1/2}$ $= \mathbf{2.49}$	Compute lower confidence limit for the mean of the last 4 measurements.
4	$UCL = \bar{\mathbf{X}} + \mathbf{tS/N}^{1/2}$ $= \mathbf{4.725} + \mathbf{2.353} * \mathbf{1.9/4}^{1/2}$ $= \mathbf{6.96}$	Compute upper confidence limit for the mean of the last 4 measurements.
5	$N' = \mathbf{N} * (\mathbf{N}-1) / 2$ $= \mathbf{30} * (\mathbf{30}-1) / 2$ $= \mathbf{435}$	Number of sample pairs during trend detection period.
6	$S = \mathbf{0.0}$	Sen's estimator of trend.
7	$var(S) = \mathbf{2045.0}$	Variance estimate for slope.
8	$M(S) = (\mathbf{N'} \pm \mathbf{Z}_{.995} * \mathbf{var(S)}^{1/2}) / 2$ $= (\mathbf{435} \pm \mathbf{2.576} * \mathbf{2045.0}^{1/2}) / 2$ $= [\ \mathbf{159.254}, \mathbf{275.746}\ ]$	Ordinal positions for two-sided lower confidence limits for slope. The LCL and UCL are the Mth largest slope estimates for the values shown. When the values are not integers, interpolation is used.
9	$CL(S) = [\ \mathbf{0.0}, \mathbf{0.0}\ ]$	Two-sided confidence interval for slope.
10	the interval includes 0	There is no significant trend.

Worksheet 6 - Assessment Monitoring
Nickel, total (ug/L) at MW-7

Step	Equation	Description
1	$\overline{X} = \textbf{sum[X]} / \textbf{N}$ $= \textbf{116.7} / \textbf{4}$ $= \textbf{29.175}$	Compute the mean of the last 4 measurements.
2	$S = ((\textbf{sum[X}^{\textbf{2}}\textbf{]} - \textbf{sum[X]}^2/\textbf{N}) / (\textbf{N}-1))^{1/2}$ $= ((\textbf{4663.05} - \textbf{13618.89/4}) / (\textbf{4}-1))^{1/2}$ $= \textbf{20.48}$	Compute sd of the last 4 measurements.
3	$LCL = \overline{\textbf{X}} - \textbf{tS/N}^{1/2}$ $= \textbf{29.175} - \textbf{2.353} * \textbf{20.48/4}^{1/2}$ $= \textbf{5.084}$	Compute lower confidence limit for the mean of the last 4 measurements.
4	$UCL = \overline{\textbf{X}} + \textbf{tS/N}^{1/2}$ $= \textbf{29.175} + \textbf{2.353} * \textbf{20.48/4}^{1/2}$ $= \textbf{53.266}$	Compute upper confidence limit for the mean of the last 4 measurements.
5	$N' = \textbf{N} * (\textbf{N}-1) / 2$ $= \textbf{30} * (\textbf{30}-1) / 2$ $= \textbf{435}$	Number of sample pairs during trend detection period.
6	$S = \textbf{2.864}$	Sen's estimator of trend.
7	$var(S) = \textbf{3141.667}$	Variance estimate for slope.
8	$M(S) = (\textbf{N'} \pm \textbf{Z}_{.995} * \textbf{var(S)}^{1/2}) / 2$ $= (\textbf{435} \pm \textbf{2.576} * \textbf{3141.667}^{1/2}) / 2$ $= [\ \textbf{145.307}, \textbf{289.693}\ ]$	Ordinal positions for two-sided lower confidence limits for slope. The LCL and UCL are the M^{th} largest slope estimates for the values shown. When the values are not integers, interpolation is used.
9	$CL(S) = [\ \textbf{0.713}, \textbf{5.53}\ ]$	Two-sided confidence interval for slope.
10	$LCL(S) > 0$	**Significant increasing trend.**

Worksheet 6 - Assessment Monitoring
Cadmium, total (ug/L) at PZ-11

Step	Equation	Description
1	$\overline{X}$ = **sum[X]** / **N** = **1.6** / **4** = **0.4**	Compute the mean of the last 4 measurements.
2	S = ((**sum[X^2]** - **sum[X]^2**/**N**) / (**N**-1))^{½} = ((**0.64** - **2.56**/**4**) / (**4**-1))^{½} = **4.21**x**10^{-9}**	Compute sd of the last 4 measurements.
3	LCL = **$\overline{X}$** - **tS**/**N**^{½} = **0.4** - **2.353** * **4.21**x**10^{-9}**/**4**^{½} = **0.4**	Compute lower confidence limit for the mean of the last 4 measurements.
4	UCL = **$\overline{X}$** + **tS**/**N**^{½} = **0.4** + **2.353** * **4.21**x**10^{-9}**/**4**^{½} = **0.4**	Compute upper confidence limit for the mean of the last 4 measurements.
5	N' = **N** * (**N**-1) / 2 = **30** * (**30**-1) / 2 = **435**	Number of sample pairs during trend detection period.
6	S = **0.0**	Sen's estimator of trend.
7	var(S) = **579.667**	Variance estimate for slope.
8	M(S) = (**N'** ± **Z**$_{.995}$ * **var(S)**^{½}) / 2 = (**435** ± **2.576** * **579.667**^{½}) / 2 = [**186.49**, **248.51**]	Ordinal positions for two-sided lower confidence limits for slope. The LCL and UCL are the Mth largest slope estimates for the values shown. When the values are not integers, interpolation is used.
9	CL(S) = [**0.0**, **0.0**]	Two-sided confidence interval for slope.
10	the interval includes 0	There is no significant trend.

Worksheet 6 - Assessment Monitoring
Cobalt, total (ug/L) at PZ-11

Step	Equation	Description
1	$\bar{X} = \textbf{sum[X]} / \textbf{N}$ $= \textbf{1.8} / \textbf{4}$ $= \textbf{0.45}$	Compute the mean of the last 4 measurements.
2	$S = ((\textbf{sum[X}^2\textbf{]} - \textbf{sum[X]}^2/\textbf{N}) / (\textbf{N}-1))^{½}$ $= ((\textbf{0.82} - \textbf{3.24}/\textbf{4}) / (\textbf{4}-1))^{½}$ $= \textbf{0.058}$	Compute sd of the last 4 measurements.
3	$LCL = \bar{\textbf{X}} - \textbf{tS}/\textbf{N}^{½}$ $= \textbf{0.45} - \textbf{2.353} * \textbf{0.058}/\textbf{4}^{½}$ $= \textbf{0.382}$	Compute lower confidence limit for the mean of the last 4 measurements.
4	$UCL = \bar{\textbf{X}} + \textbf{tS}/\textbf{N}^{½}$ $= \textbf{0.45} + \textbf{2.353} * \textbf{0.058}/\textbf{4}^{½}$ $= \textbf{0.518}$	Compute upper confidence limit for the mean of the last 4 measurements.
5	$N' = \textbf{N} * (\textbf{N}-1) / 2$ $= \textbf{31} * (\textbf{31}-1) / 2$ $= \textbf{465}$	Number of sample pairs during trend detection period.
6	$S = \textbf{-0.322}$	Sen's estimator of trend.
7	$var(S) = \textbf{3295.667}$	Variance estimate for slope.
8	$M(S) = (\textbf{N'} \pm \textbf{Z}_{.995} * \textbf{var(S)}^{½}) / 2$ $= (\textbf{465} \pm \textbf{2.576} * \textbf{3295.667}^{½}) / 2$ $= [\ \textbf{158.559}, \textbf{306.441}\ ]$	Ordinal positions for two-sided lower confidence limits for slope. The LCL and UCL are the M^{th} largest slope estimates for the values shown. When the values are not integers, interpolation is used.
9	$CL(S) = [\ \textbf{-0.687}, \textbf{0.0}\ ]$	Two-sided confidence interval for slope.
10	the interval includes 0	There is no significant trend.

Worksheet 6 - Assessment Monitoring
Copper, total (ug/L) at PZ-11

Step	Equation	Description
1	$\overline{X}$ = **sum[X]** / **N** = **8.0** / **4** = **2.0**	Compute the mean of the last 4 measurements.
2	S = ((**sum[X^2]** - **sum[X]^2**/**N**) / (**N**-1))^{½} = ((**16.0** - **64.0**/**4**) / (**4**-1))^{½} = **0.0**	Compute sd of the last 4 measurements.
3	LCL = $\overline{X}$ - **tS**/**N**^{½} = **2.0** - **2.353** * **0.0**/**4**^{½} = **2.0**	Compute lower confidence limit for the mean of the last 4 measurements.
4	UCL = $\overline{X}$ + **tS**/**N**^{½} = **2.0** + **2.353** * **0.0**/**4**^{½} = **2.0**	Compute upper confidence limit for the mean of the last 4 measurements.
5	N' = **N** * (**N**-1) / 2 = **30** * (**30**-1) / 2 = **435**	Number of sample pairs during trend detection period.
6	S = **0.0**	Sen's estimator of trend.
7	var(S) = **2044.0**	Variance estimate for slope.
8	M(S) = (**N'** ± **Z**$_{.995}$ * **var(S)**^{½}) / 2 = (**435** ± **2.576** * **2044.0**^{½}) / 2 = [**159.269**, **275.731**]	Ordinal positions for two-sided lower confidence limits for slope. The LCL and UCL are the Mth largest slope estimates for the values shown. When the values are not integers, interpolation is used.
9	CL(S) = [**-0.418**, **0.0**]	Two-sided confidence interval for slope.
10	the interval includes 0	There is no significant trend.

Worksheet 6 - Assessment Monitoring
Nickel, total (ug/L) at PZ-11

Step	Equation	Description
1	$\overline{X}$ = **sum[X]** / **N** = **61.3** / **4** = **15.325**	Compute the mean of the last 4 measurements.
2	$S = ((\mathbf{sum[X^2]} - \mathbf{sum[X]}^2/\mathbf{N}) / (\mathbf{N}-1))^{1/2}$ $= ((\mathbf{1273.71} - \mathbf{3757.69/4}) / (\mathbf{4}-1))^{1/2}$ = **10.556**	Compute sd of the last 4 measurements.
3	$LCL = \overline{\mathbf{X}} - \mathbf{tS/N}^{1/2}$ $= \mathbf{15.325} - \mathbf{2.353} * \mathbf{10.556/4}^{1/2}$ = **2.908**	Compute lower confidence limit for the mean of the last 4 measurements.
4	$UCL = \overline{\mathbf{X}} + \mathbf{tS/N}^{1/2}$ $= \mathbf{15.325} + \mathbf{2.353} * \mathbf{10.556/4}^{1/2}$ = **27.742**	Compute upper confidence limit for the mean of the last 4 measurements.
5	N' = **N** * (**N**-1) / 2 = **31** * (**31**-1) / 2 = **465**	Number of sample pairs during trend detection period.
6	S = **-0.972**	Sen's estimator of trend.
7	var(S) = **3396.333**	Variance estimate for slope.
8	$M(S) = (\mathbf{N'} \pm \mathbf{Z}_{.995} * \mathbf{var(S)}^{1/2}) / 2$ $= (\mathbf{465} \pm \mathbf{2.576} * \mathbf{3396.333}^{1/2}) / 2$ = [**157.438**, **307.562**]	Ordinal positions for two-sided lower confidence limits for slope. The LCL and UCL are the M^{th} largest slope estimates for the values shown. When the values are not integers, interpolation is used.
9	CL(S) = [**-2.441**, **0.131**]	Two-sided confidence interval for slope.
10	the interval includes 0	There is no significant trend.

Attachment D

Summary Tables and Graphs for the Intrawell Comparisons

Table 1

Summary Statistics and Intermediate Computations for Combined Shewhart-CUSUM Control Charts

Constituent	Units	Well	N(back)	N(mon)	N(tot)	Mean	SD	R(i-1)	R(i)	S(i-1)	S(i)	Limit	Type	Conf	
Antimony, total	ug/L	MW-10	27	3	30			2.0000	2.0000			2.0000	nonpar	.99	**
Arsenic, total	ug/L	MW-10	27	3	30			4.0000	4.0000			8.3000	nonpar	.99	**
Barium, total	ug/L	MW-10	27	3	30	113.1815	11.4353	146.0000	141.0000	137.4235	156.6656	187.5110	normal		
Beryllium, total	ug/L	MW-10	27	3	30			4.0000	4.0000			4.0000	nonpar	.99	**
Cadmium, total	ug/L	MW-10	28	3	31			0.8000	2.4000			0.9000	nonpar	.99	**
Chromium, total	ug/L	MW-10	27	3	30			8.0000	8.0000			8.1000	nonpar	.99	**
Cobalt, total	ug/L	MW-10	27	3	30			0.4000	0.4000			0.8000	nonpar	.99	**
Copper, total	ug/L	MW-10	27	3	31			4.0000	4.0000			4.0000	nonpar	.99	**
Lead, total	ug/L	MW-10	27	3	30			4.0000	4.0000			4.0000	nonpar	.99	**
Nickel, total	ug/L	MW-10	26	3	30	4.8192	1.4927	8.4000	10.2000	7.2805	11.5418	14.5215	normal		
Selenium, total	ug/L	MW-10	27	3	30			4.0000	4.0000			4.7000	nonpar	.99	**
Silver, total	ug/L	MW-10	27	3	30			4.0000	4.0000			4.0000	nonpar	.99	**
Thallium, total	ug/L	MW-10	26	3	30			2.0000	2.0000			4.0000	nonpar	.99	**
Vanadium, total	ug/L	MW-10	27	3	30			20.0000	20.0000			25.8000	nonpar	.99	**
Zinc, total	ug/L	MW-10	28	3	31			20.0000	20.0000			25.2000	nonpar	.99	**
Antimony, total	ug/L	MW-13	27	3	30			2.0000	2.0000			2.0000	nonpar	.99	**
Arsenic, total	ug/L	MW-13	27	3	30			4.0000	4.0000			8.2000	nonpar	.99	**
Barium, total	ug/L	MW-13	27	3	30	97.4259	46.5836	64.5000	48.2000	97.4259	97.4259	400.2195	normal		
Beryllium, total	ug/L	MW-13	27	3	30			4.0000	4.0000			4.0000	nonpar	.99	**
Cadmium, total	ug/L	MW-13	27	3	30			0.8000	0.8000			0.8000	nonpar	.99	**
Chromium, total	ug/L	MW-13	27	3	30			8.0000	8.0000			13.0000	nonpar	.99	**
Cobalt, total	ug/L	MW-13	27	3	30			0.4000	0.4000			4.1000	nonpar	.99	**
Copper, total	ug/L	MW-13	27	3	30	5.1667	2.5640	4.0000	4.0000	5.1667	5.1667	21.8323	normal		
Lead, total	ug/L	MW-13	27	3	30			4.0000	4.0000			6.8000	nonpar	.99	**
Nickel, total	ug/L	MW-13	27	3	30	6.4926	4.0844	4.0000	4.0000	6.4926	6.4926	33.0411	normal		
Selenium, total	ug/L	MW-13	27	3	30			4.0000	4.0000			4.0000	nonpar	.99	**
Silver, total	ug/L	MW-13	27	3	30			4.0000	4.0000			4.0000	nonpar	.99	**
Thallium, total	ug/L	MW-13	26	3	30			2.0000	2.0000			4.0000	nonpar	.99	**
Vanadium, total	ug/L	MW-13	27	3	30			20.0000	20.0000			24.9000	nonpar	.99	**
Zinc, total	ug/L	MW-13	27	3	30	11.9963	5.2259	20.0000	20.0000	11.9963	11.9963	45.9644	normal		
Antimony, total	ug/L	MW-3	27	3	30			2.0000	2.0000			2.0000	nonpar	.99	**
Arsenic, total	ug/L	MW-3	27	3	30			4.0000	4.0000			4.1000	nonpar	.99	**
Barium, total	ug/L	MW-3	27	3	30	314.9259	108.9244	360.0000	325.0000	314.9259	314.9259	1022.9348	normal		
Beryllium, total	ug/L	MW-3	27	3	30			4.0000	4.0000			4.0000	nonpar	.99	**
Cadmium, total	ug/L	MW-3	27	3	30			0.8000	0.8000			1.5000	nonpar	.99	**
Chromium, total	ug/L	MW-3	27	3	30			8.0000	8.0000			8.0000	nonpar	.99	**
Cobalt, total	ug/L	MW-3	27	3	30	0.9889	0.6247	0.9000	0.4000	0.9889	0.9889	5.0495	normal		
Copper, total	ug/L	MW-3	27	3	30			4.0000	4.0000			5.5000	nonpar	.99	**
Lead, total	ug/L	MW-3	27	3	30			4.0000	4.0000			4.0000	nonpar	.99	**
Nickel, total	ug/L	MW-3	27	3	30	5.5704	2.8239	4.0000	4.0000	5.5704	5.5704	23.9258	normal		
Selenium, total	ug/L	MW-3	27	3	30			4.0000	4.0000			4.0000	nonpar	.99	**
Silver, total	ug/L	MW-3	27	3	30			4.0000	4.0000			4.0000	nonpar	.99	**
Thallium, total	ug/L	MW-3	26	3	30			2.0000	2.0000			4.0000	nonpar	.99	**
Vanadium, total	ug/L	MW-3	27	3	30			20.0000	20.0000			21.8000	nonpar	.99	**
Zinc, total	ug/L	MW-3	27	3	30	18.4185	4.9748	20.0000	20.0000	18.4185	18.4185	50.7546	normal		
Antimony, total	ug/L	MW-7	27	3	30			2.0000	2.0000			2.0000	nonpar	.99	**

N(back) and N(mon) = Non-outlier measurements in the background and monitoring periods.
N(tot) = All independent measurements for that constituent and well.
For transformed data, mean and SD in transformed units and control limit in original units.
Conf = confidence level for passing initial test or one verification resample (nonparametric test only).
* - Insufficient Data.
** - Detection Frequency < 25%.
*** - Zero Variance.

Table 1

Summary Statistics and Intermediate Computations for Combined Shewhart-CUSUM Control Charts

Constituent	Units	Well	N(back)	N(mon)	N(tot)	Mean	SD	R(i-1)	R(i)	S(i-1)	S(i)	Limit	Type	Conf	
Arsenic, total	ug/L	MW-7	27	3	30			4.0000	4.0000			7.6000	nonpar	.99	**
Barium, total	ug/L	MW-7	27	3	30	187.4444	78.6068	139.0000	249.0000	187.4444	190.0449	698.3885	normal		
Beryllium, total	ug/L	MW-7	27	3	30			4.0000	4.0000			4.0000	nonpar	.99	**
Cadmium, total	ug/L	MW-7	27	3	30	0.8370	0.0839	0.8000	0.8000	0.8370	0.8370	1.3823	normal		
Chromium, total	ug/L	MW-7	27	3	30			8.0000	8.0000			8.0000	nonpar	.99	**
Cobalt, total	ug/L	MW-7	27	3	30	3.9889	2.1001	1.0000	2.8000	3.9889	3.9889	17.6393	normal		
Copper, total	ug/L	MW-7	27	3	30	4.3852	0.9926	4.0000	6.4000	4.3852	5.6556	10.8368	normal		
Lead, total	ug/L	MW-7	27	3	30			4.0000	4.0000			4.5000	nonpar	.99	**
Nickel, total	ug/L	MW-7	27	3	30	42.7519	23.3029	9.1000	49.6000	42.7519	42.7519	194.2205	normal		
Selenium, total	ug/L	MW-7	27	3	30			4.0000	4.0000			4.6000	nonpar	.99	**
Silver, total	ug/L	MW-7	27	3	30			4.0000	4.0000			4.0000	nonpar	.99	**
Thallium, total	ug/L	MW-7	26	3	30			2.0000	2.0000			4.0000	nonpar	.99	**
Vanadium, total	ug/L	MW-7	27	3	30			20.0000	20.0000			21.3000	nonpar	.99	**
Zinc, total	ug/L	MW-7	27	3	30	17.2519	4.5792	20.0000	20.0000	17.2519	17.2519	47.0170	normal		
Antimony, total	ug/L	PZ-11	27	3	30			2.0000	2.0000			2.0000	nonpar	.99	**
Arsenic, total	ug/L	PZ-11	28	3	31	5.4929	2.5206	4.0000	4.0000	5.4929	5.4929	21.8766	normal		
Barium, total	ug/L	PZ-11	27	3	30	151.8148	114.3610	77.3000	48.0000	151.8148	151.8148	895.1610	normal		
Beryllium, total	ug/L	PZ-11	27	3	30			4.0000	4.0000			4.0000	nonpar	.99	**
Cadmium, total	ug/L	PZ-11	27	3	30			0.8000	0.8000			1.1000	nonpar	.99	**
Chromium, total	ug/L	PZ-11	27	3	30			8.0000	8.0000			10.4000	nonpar	.99	**
Cobalt, total	ug/L	PZ-11	28	3	31	3.6071	4.1654	0.4000	0.5000	3.6071	3.6071	30.6821	normal		
Copper, total	ug/L	PZ-11	27	3	30	5.1370	2.0564	4.0000	4.0000	5.1370	5.1370	18.5033	normal		
Lead, total	ug/L	PZ-11	27	3	30			4.0000	4.0000			6.3000	nonpar	.99	**
Nickel, total	ug/L	PZ-11	28	3	31	16.0286	11.4847	8.8000	31.1000	16.0286	22.4865	90.6789	normal		
Selenium, total	ug/L	PZ-11	27	3	30			4.0000	4.0000			4.0000	nonpar	.99	**
Silver, total	ug/L	PZ-11	27	3	30			4.0000	4.0000			4.0000	nonpar	.99	**
Thallium, total	ug/L	PZ-11	26	3	30			2.0000	2.0000			4.0000	nonpar	.99	**
Vanadium, total	ug/L	PZ-11	27	3	30			20.0000	20.0000			31.0000	nonpar	.99	**
Zinc, total	ug/L	PZ-11	27	3	30	19.7074	5.8373	20.0000	20.0000	19.7074	19.7074	57.6497	normal		

N(back) and N(mon) = Non-outlier measurements in the background and monitoring periods.
N(tot) = All independent measurements for that constituent and well.
For transformed data, mean and SD in transformed units and control limit in original units.
Conf = confidence level for passing initial test or one verification resample (nonparametric test only).
*   - Insufficient Data.
** - Detection Frequency < 25%.
*** - Zero Variance.

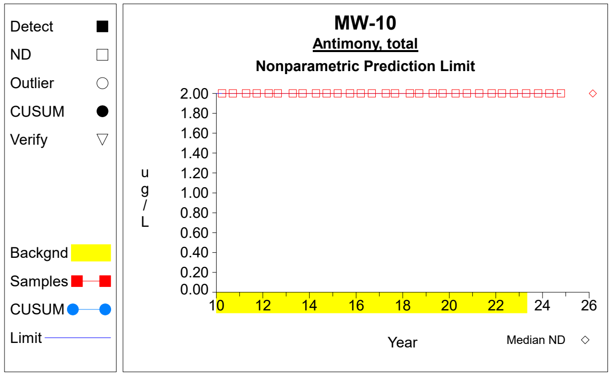
Table 4

Dixon's Test Outliers
1% Significance Level

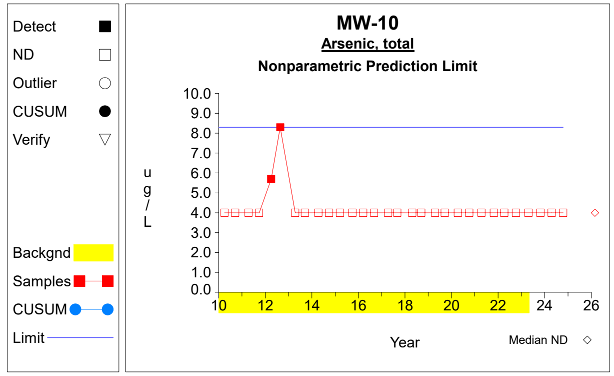
Constituent	Units	Well	Date	Result	ND Qualifier	Date Range	N	Critical Value
Nickel, total	ug/L	MW-10	04/23/2018	20.0000	< 20.0000	03/31/2010-04/19/2023	27	0.4744
Thallium, total	ug/L	MW-10	09/28/2015	1.0000	< 1.0000	03/31/2010-04/19/2023	27	0.4744
Thallium, total	ug/L	MW-13	09/28/2015	1.0000	< 1.0000	03/31/2010-04/19/2023	27	0.4744
Thallium, total	ug/L	MW-3	09/28/2015	1.0000	< 1.0000	03/31/2010-04/19/2023	27	0.4744
Thallium, total	ug/L	MW-7	09/28/2015	1.0000	< 1.0000	03/31/2010-04/19/2023	27	0.4744
Thallium, total	ug/L	PZ-11	09/28/2015	1.0000	< 1.0000	03/31/2010-04/19/2023	27	0.4744

N = Total number of independent measurements in background at each well.
Date Range = Dates of the first and last measurements included in background at each well.
Critical Value depends on the significance level and on N-1 when the two most extreme values are tested or N for the most extreme value.

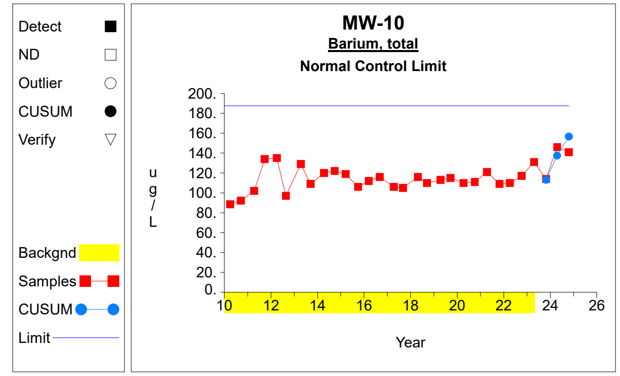
Intra-Well Control Charts / Prediction Limits



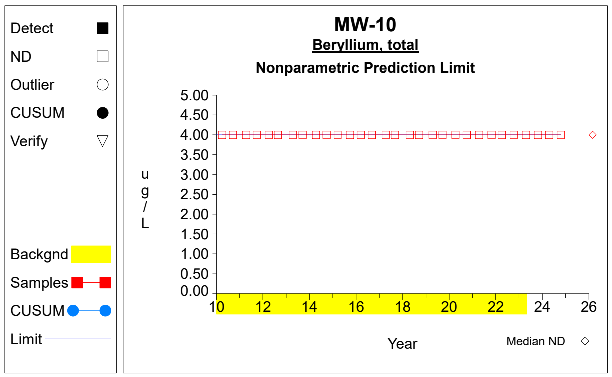
Graph 1



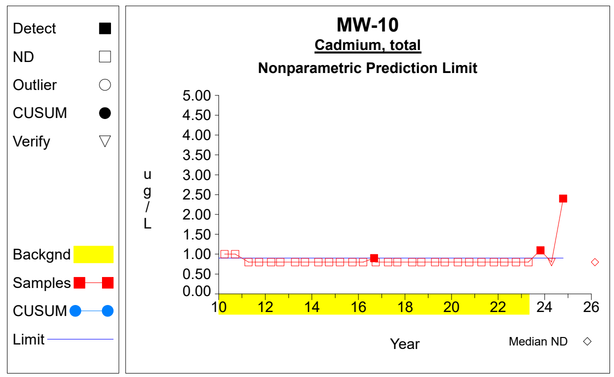
Graph 2



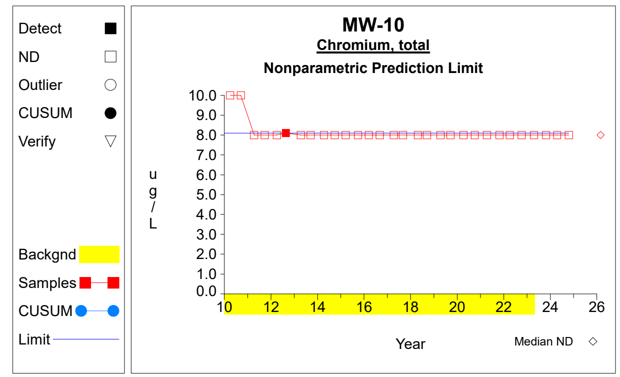
Graph 3



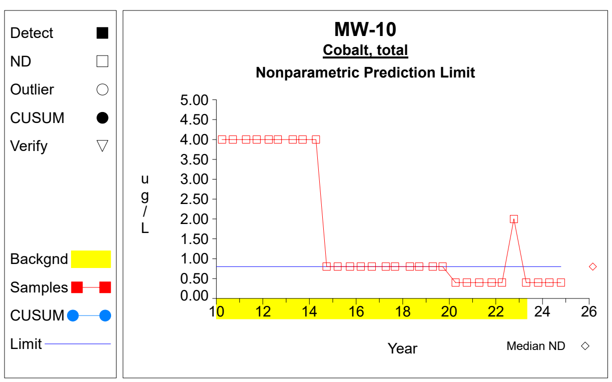
Graph 4



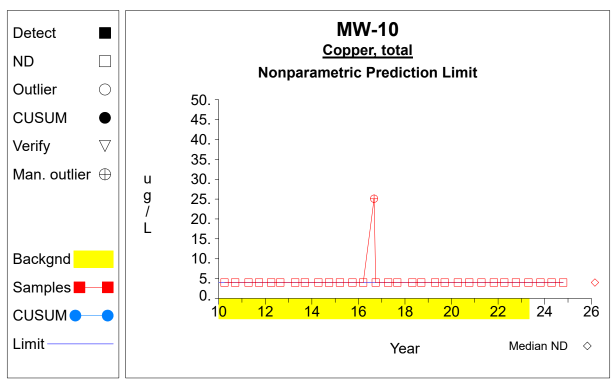
Graph 5



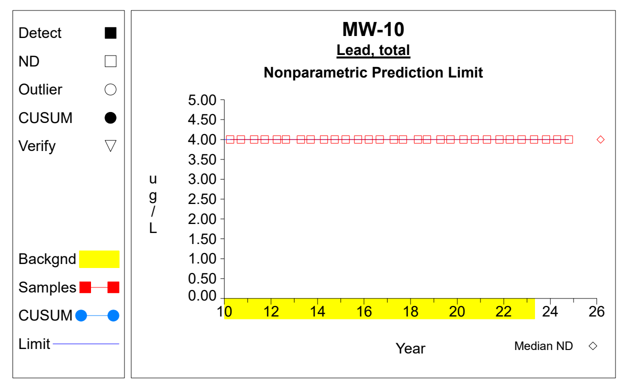
Graph 6



Graph 7



Graph 8



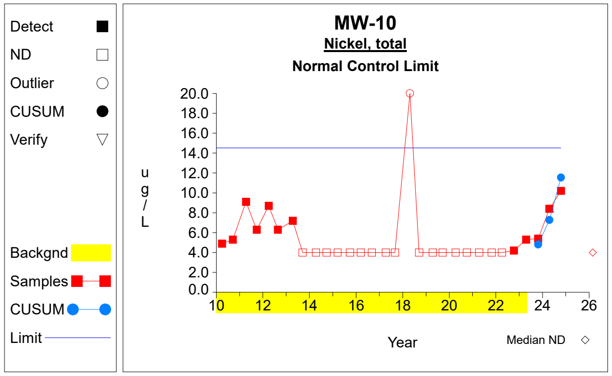
Graph 9

Prepared by: Otter Creek Environmental

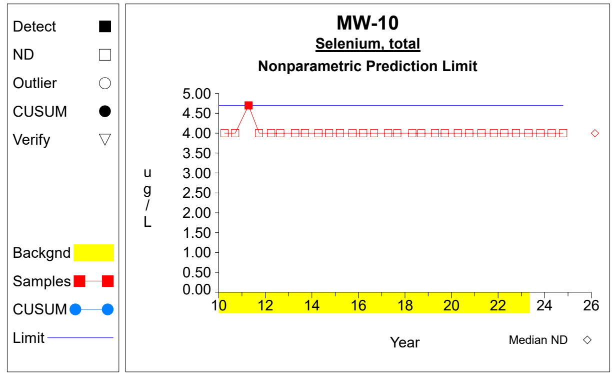
Ida County [GW]

November 2024

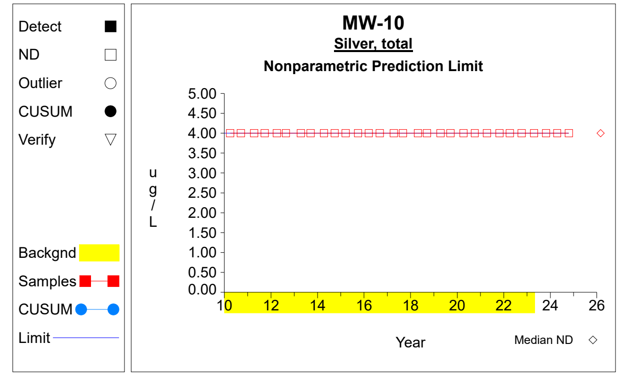
Intra-Well Control Charts / Prediction Limits



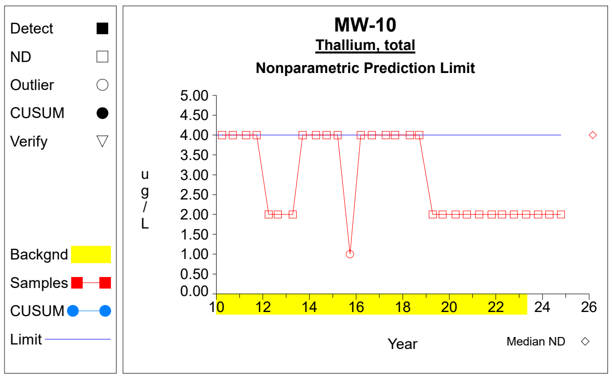
Graph 10



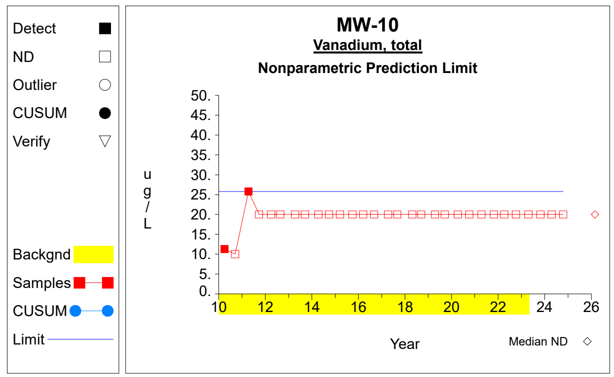
Graph 11



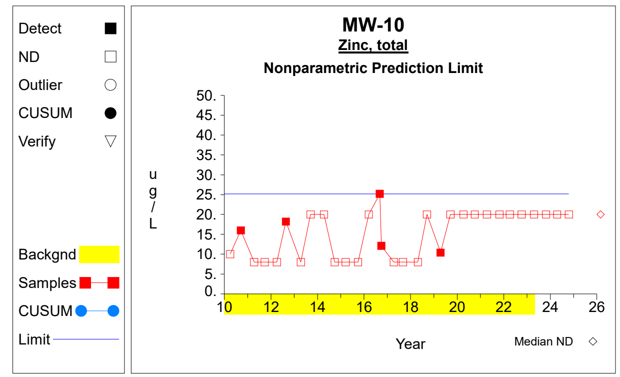
Graph 12



Graph 13



Graph 14



Graph 15

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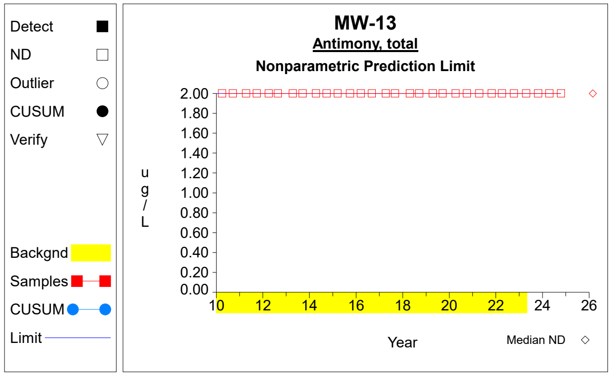
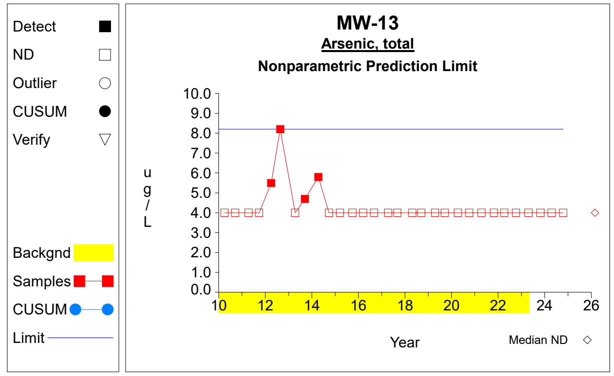
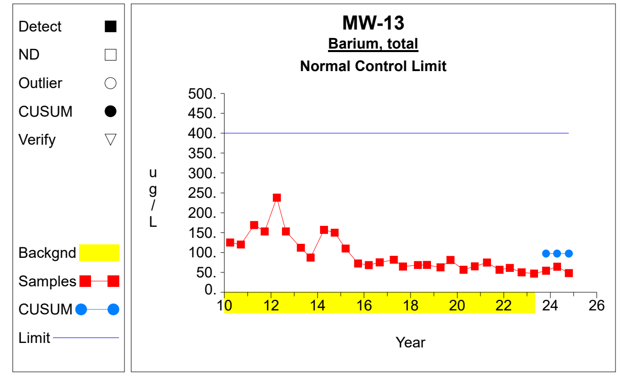
Intra-Well Control Charts / Prediction Limits



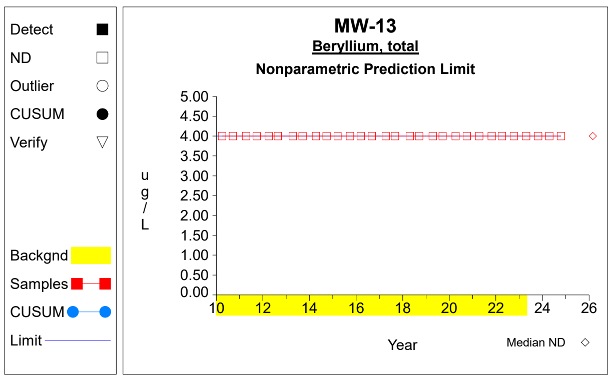
Graph 16



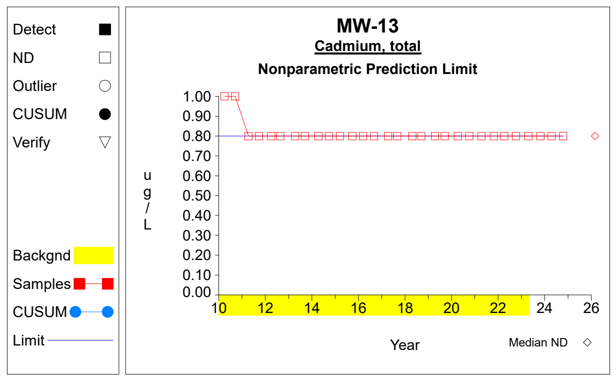
Graph 17



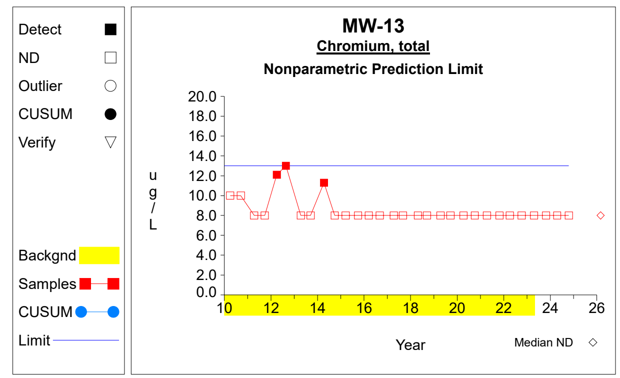
Graph 18



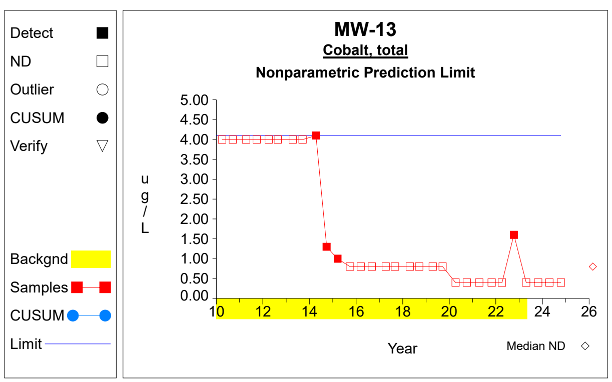
Graph 19



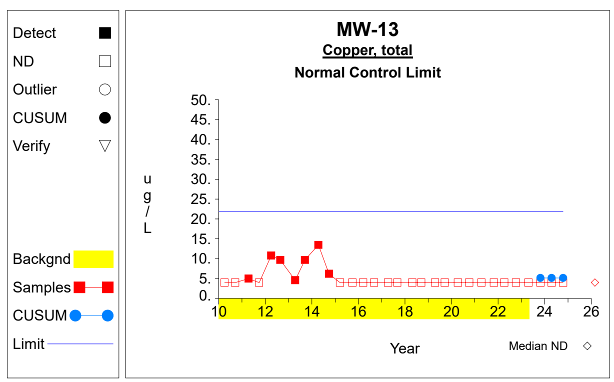
Graph 20



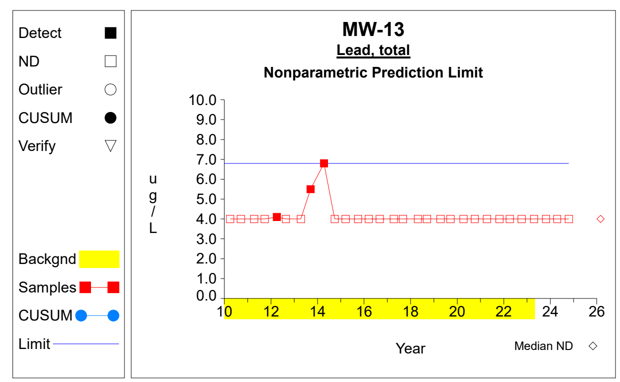
Graph 21



Graph 22



Graph 23



Graph 24

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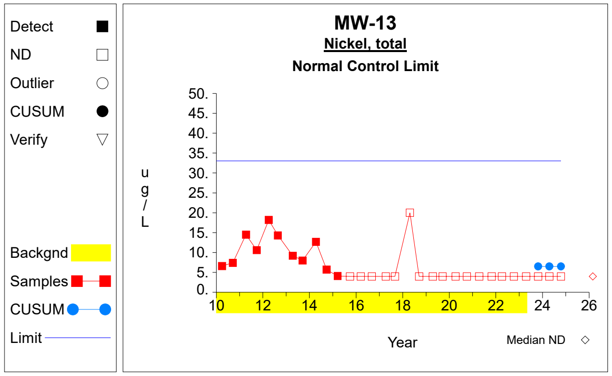
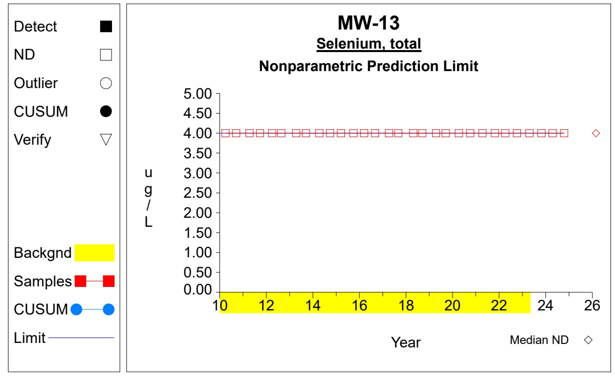
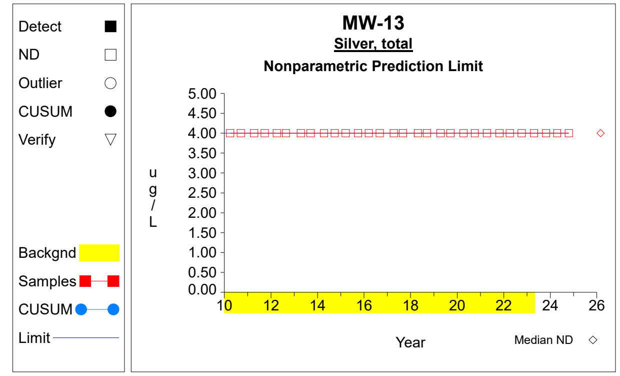
Intra-Well Control Charts / Prediction Limits



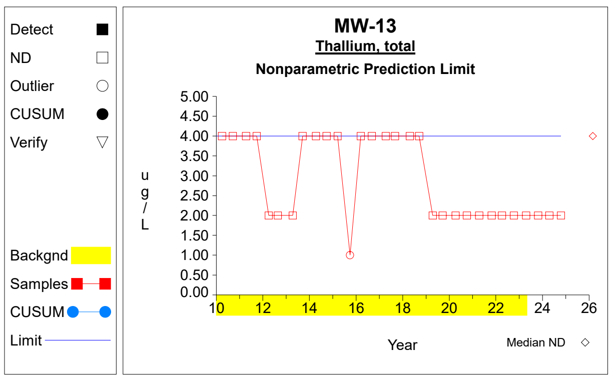
Graph 25



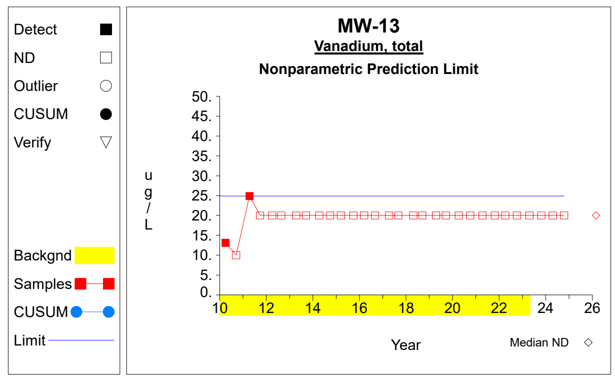
Graph 26



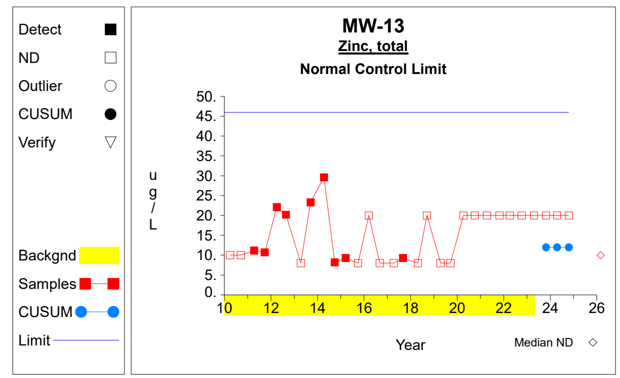
Graph 27



Graph 28

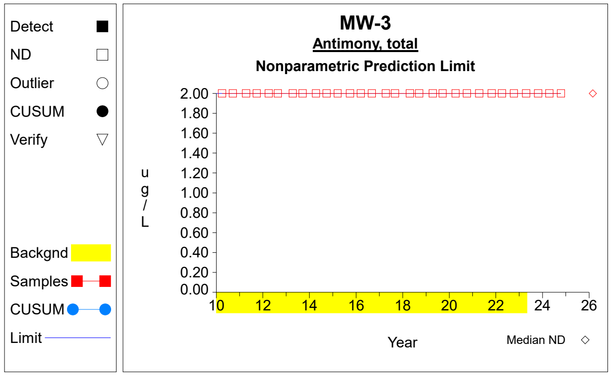


Graph 29

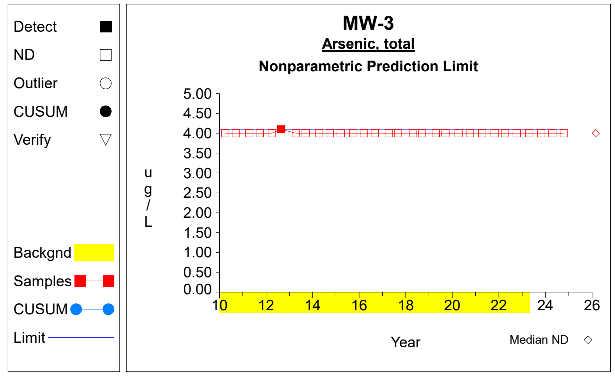


Graph 30

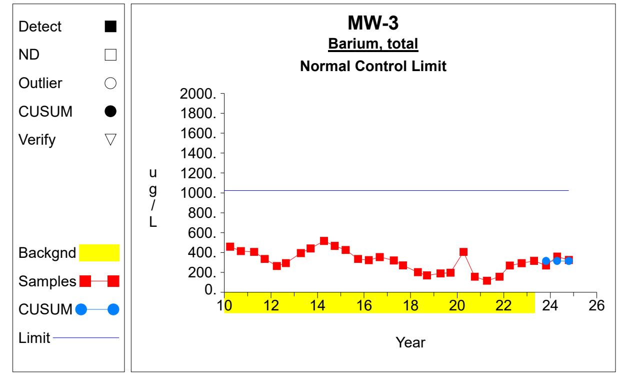
Intra-Well Control Charts / Prediction Limits



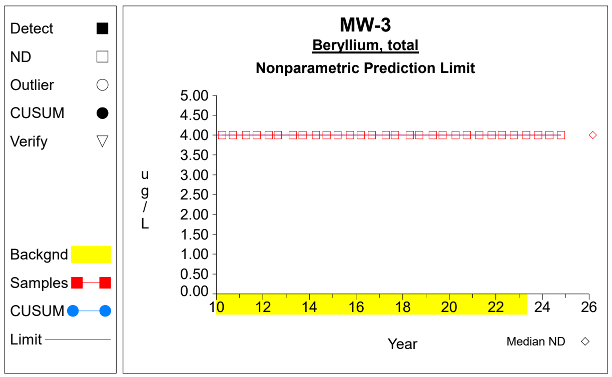
Graph 31



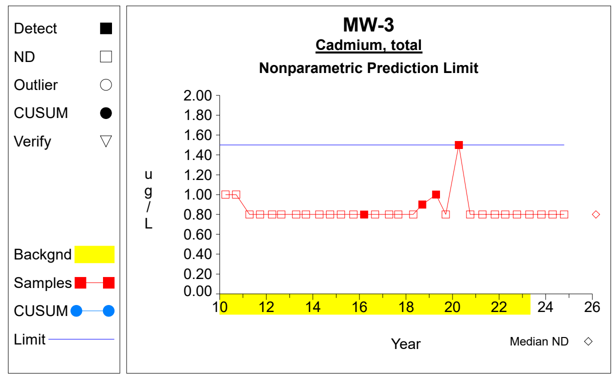
Graph 32



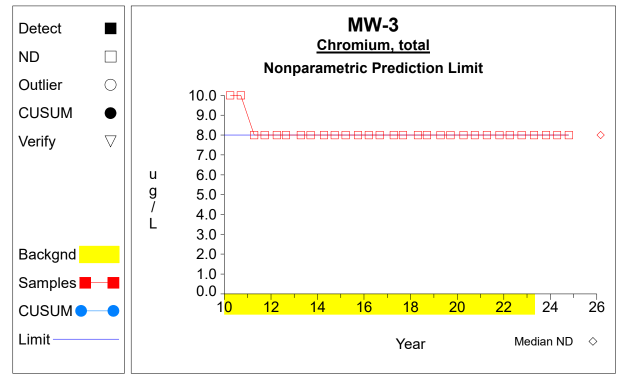
Graph 33



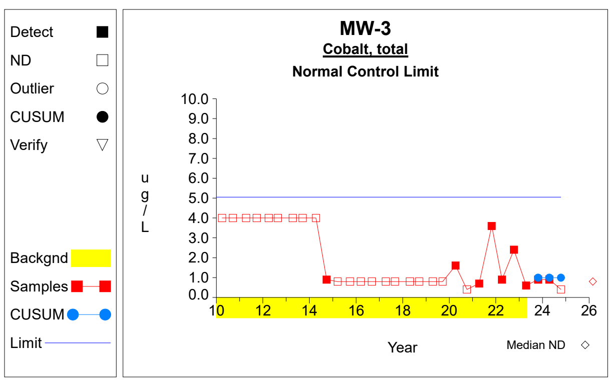
Graph 34



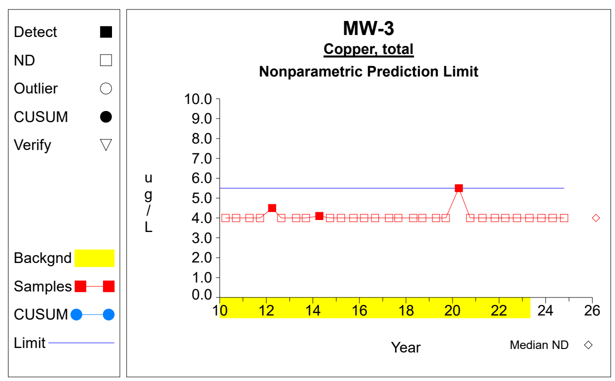
Graph 35



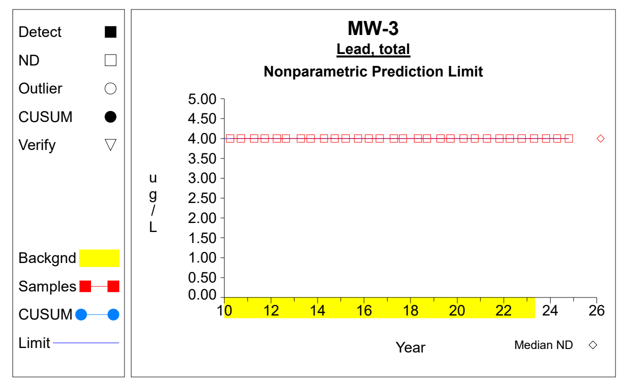
Graph 36



Graph 37



Graph 38



Graph 39

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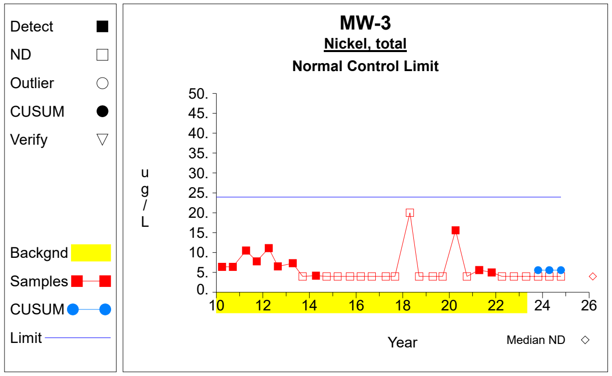
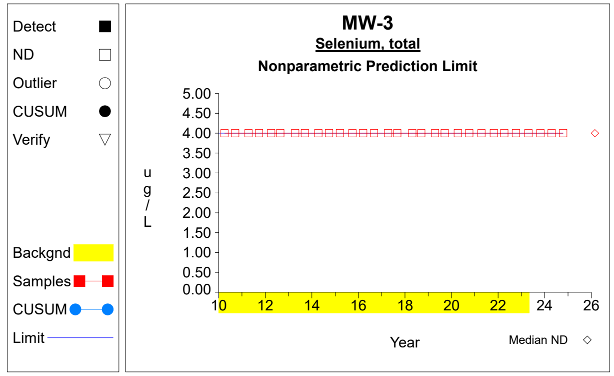
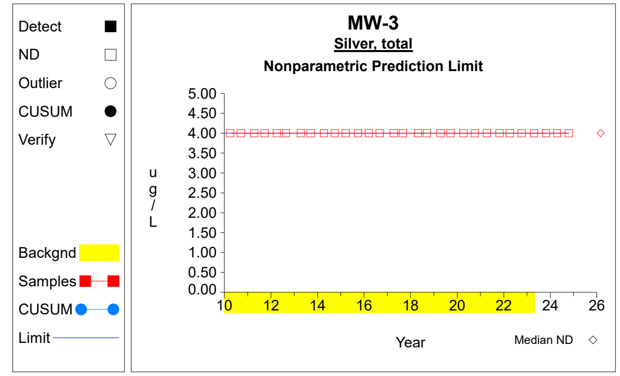
Intra-Well Control Charts / Prediction Limits



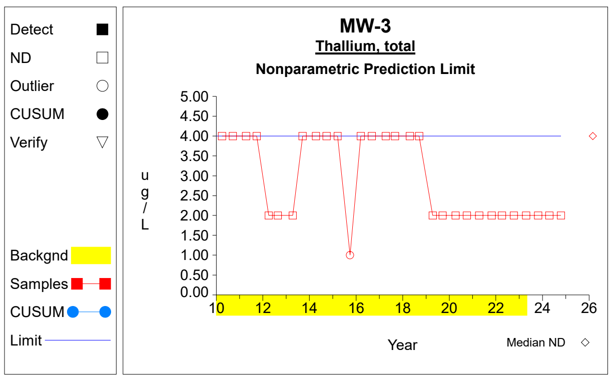
Graph 40



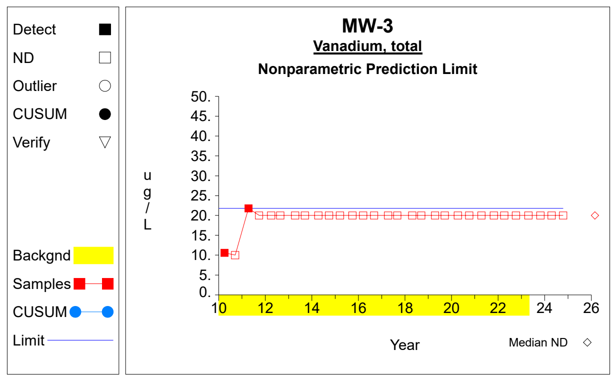
Graph 41



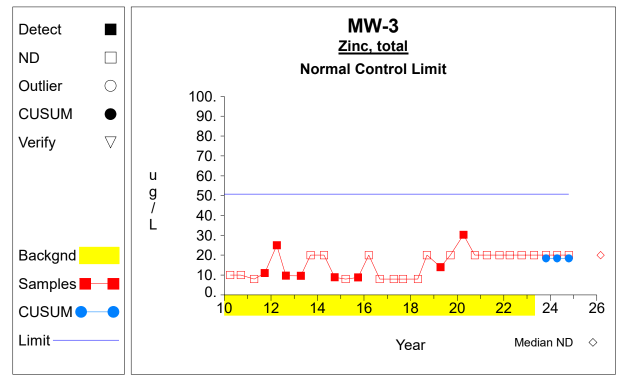
Graph 42



Graph 43

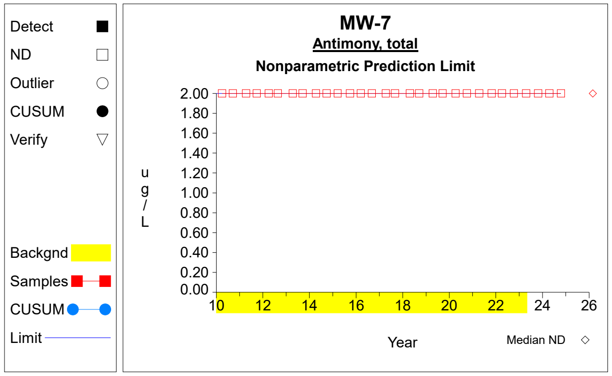


Graph 44

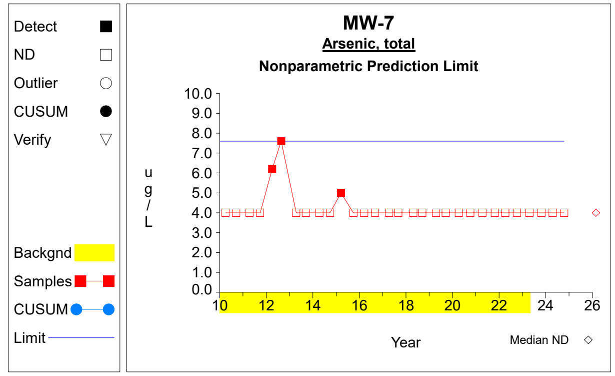


Graph 45

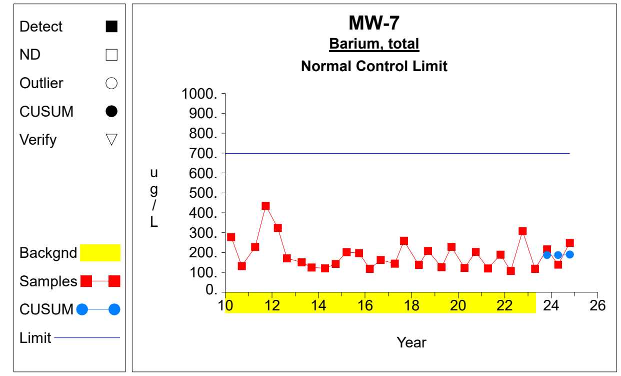
Intra-Well Control Charts / Prediction Limits



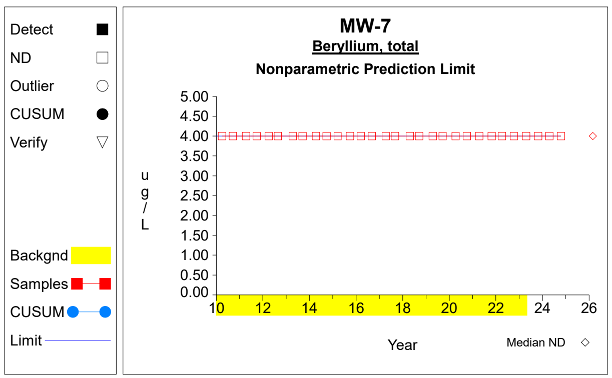
Graph 46



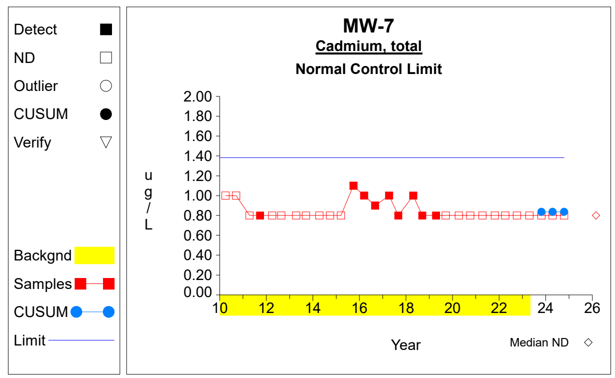
Graph 47



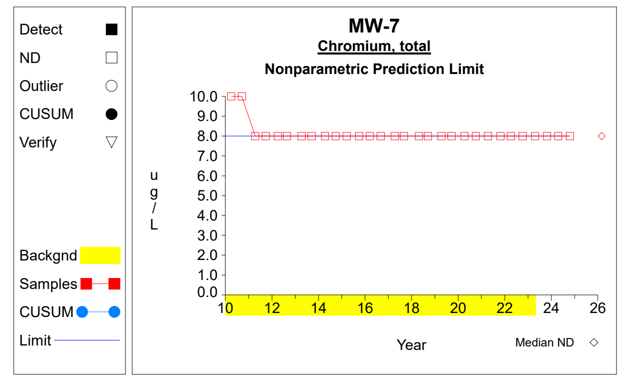
Graph 48



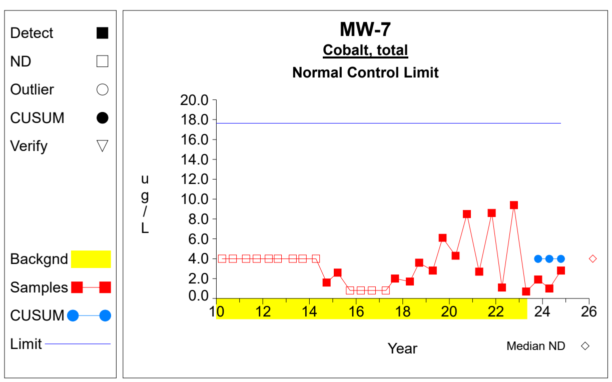
Graph 49



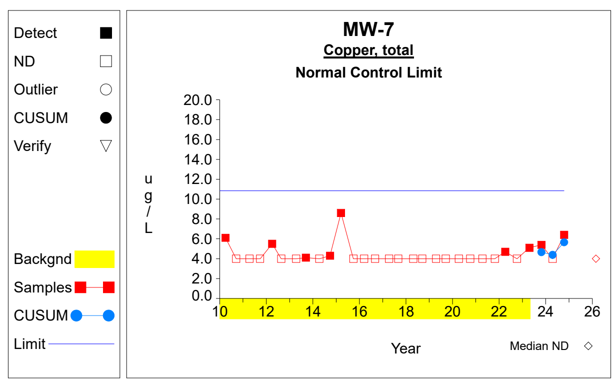
Graph 50



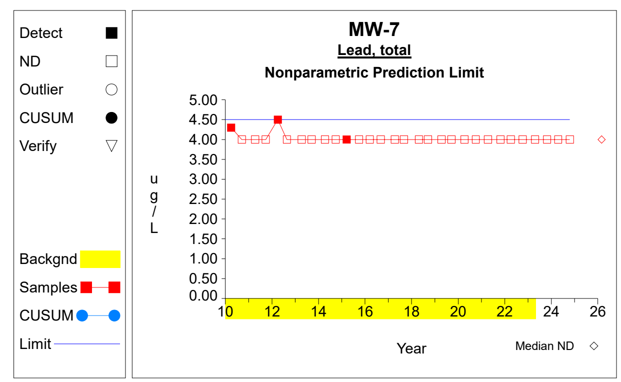
Graph 51



Graph 52

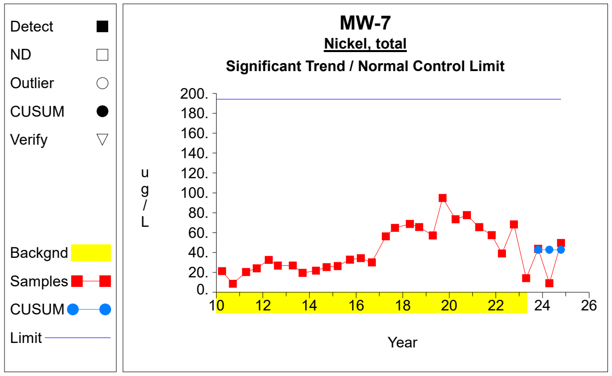


Graph 53

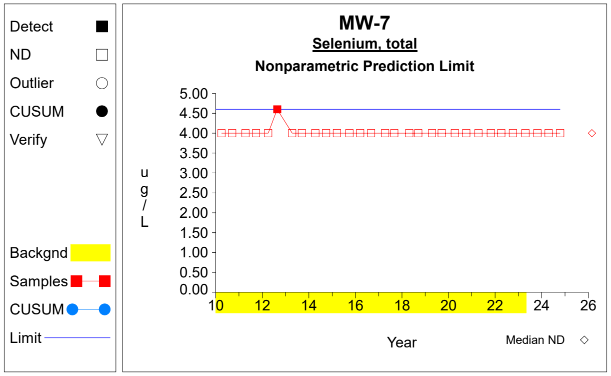


Graph 54

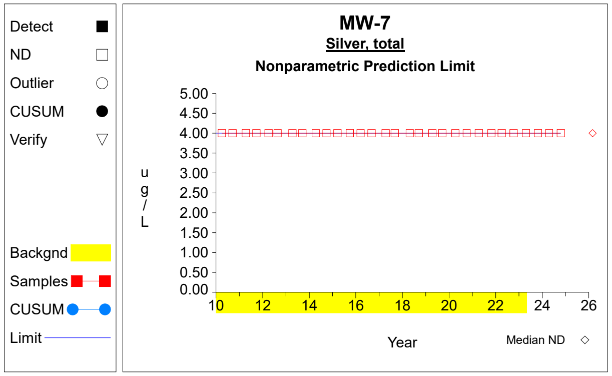
Intra-Well Control Charts / Prediction Limits



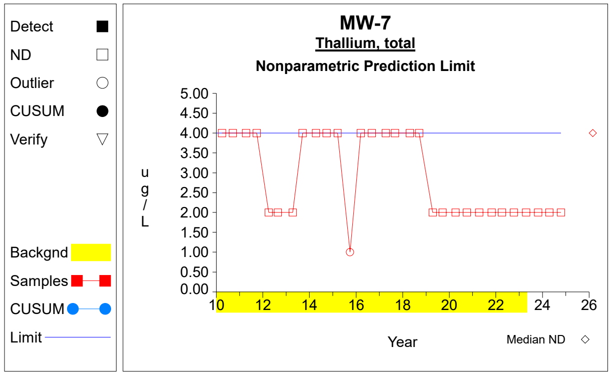
Graph 55



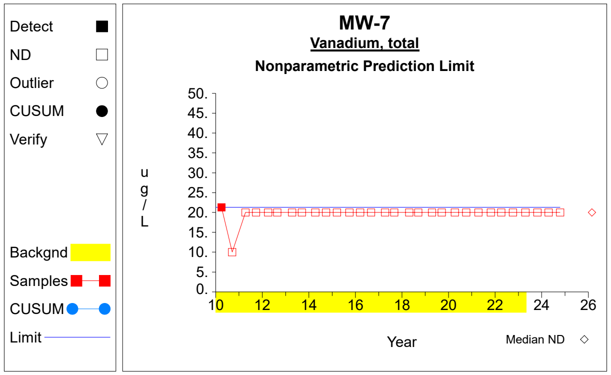
Graph 56



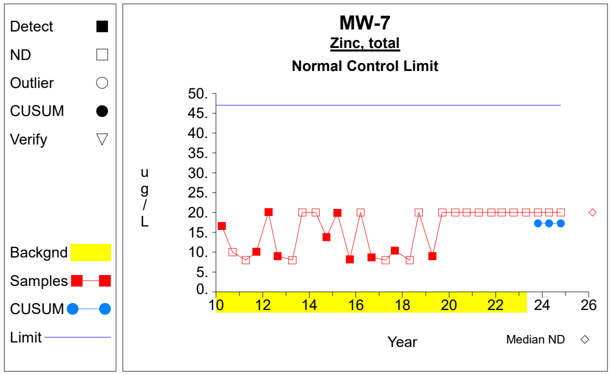
Graph 57



Graph 58



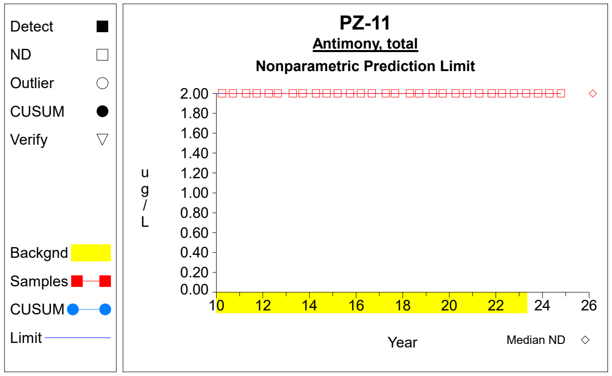
Graph 59



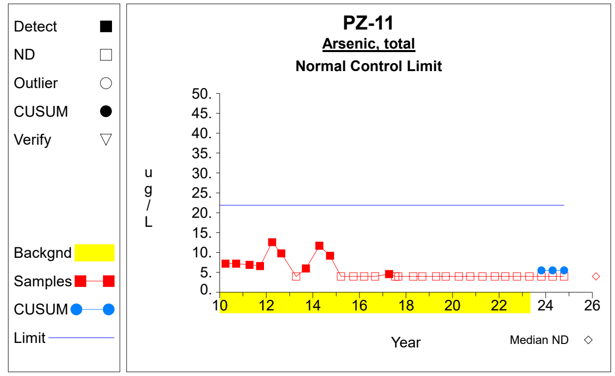
Graph 60

Ida County [GW] November 2024

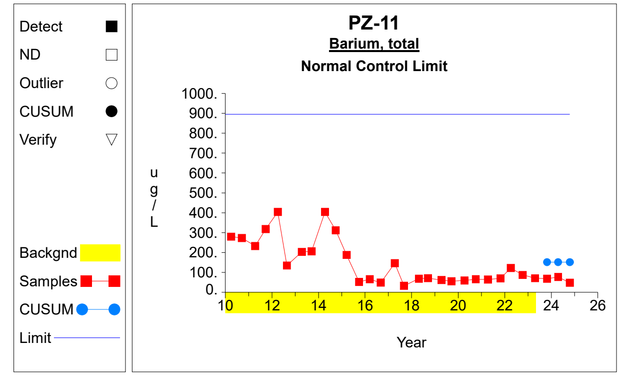
Intra-Well Control Charts / Prediction Limits



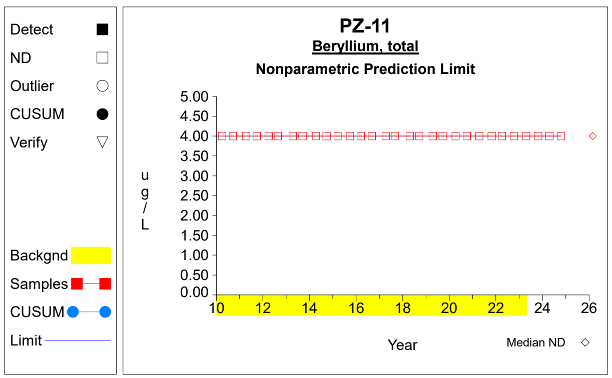
Graph 61



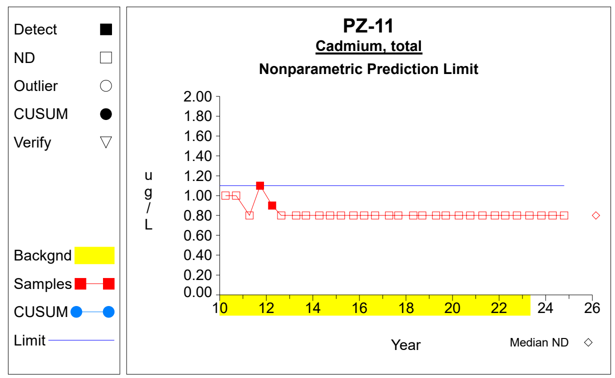
Graph 62



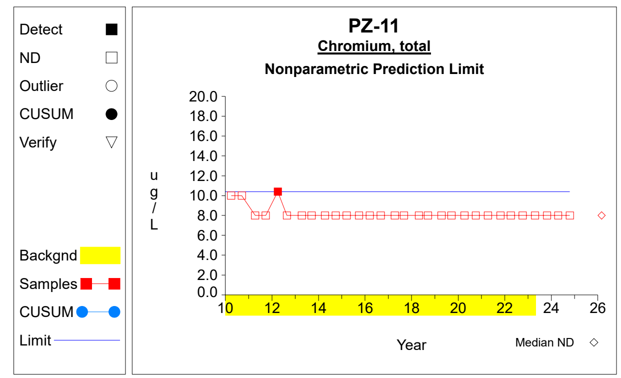
Graph 63



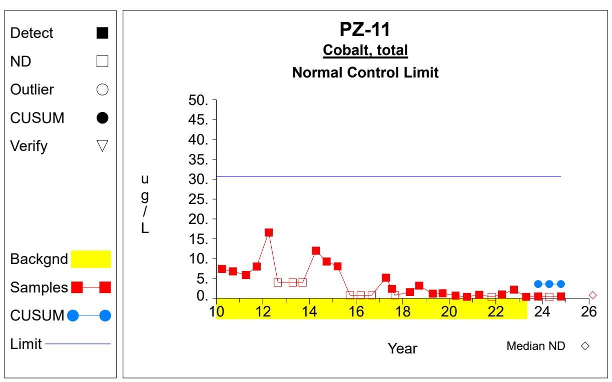
Graph 64



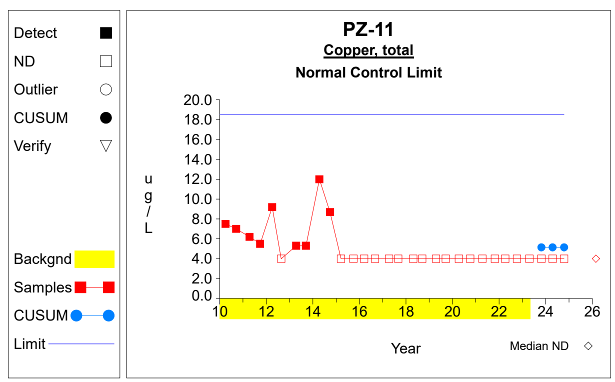
Graph 65



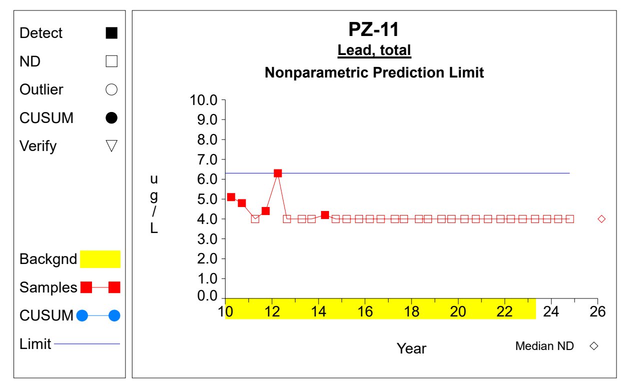
Graph 66



Graph 67



Graph 68



Graph 69

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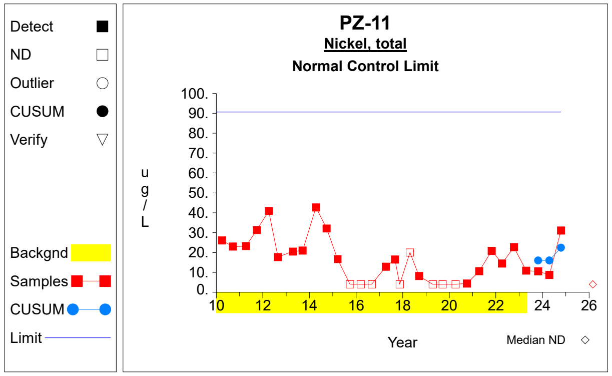
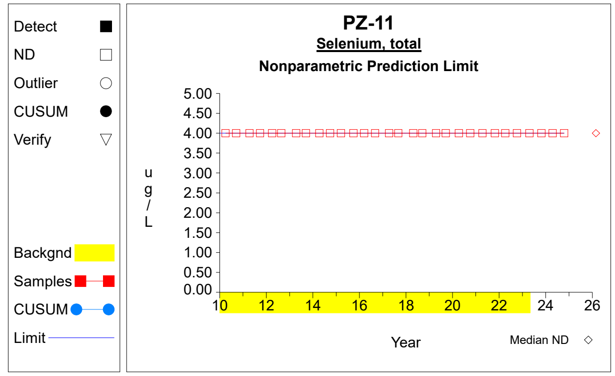
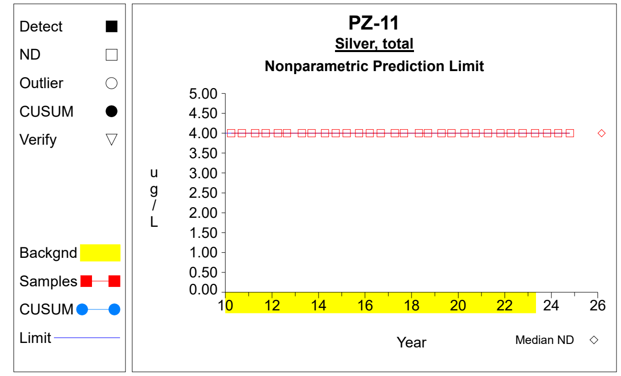
Intra-Well Control Charts / Prediction Limits



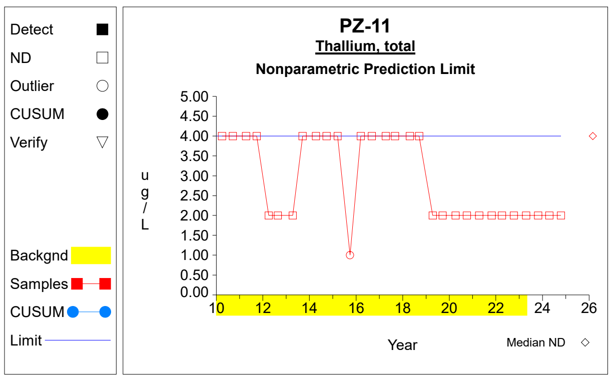
Graph 70



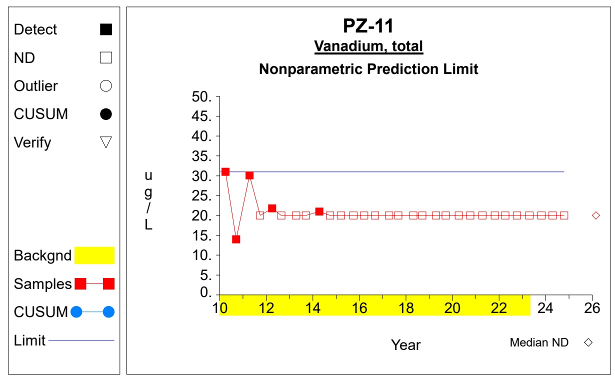
Graph 71



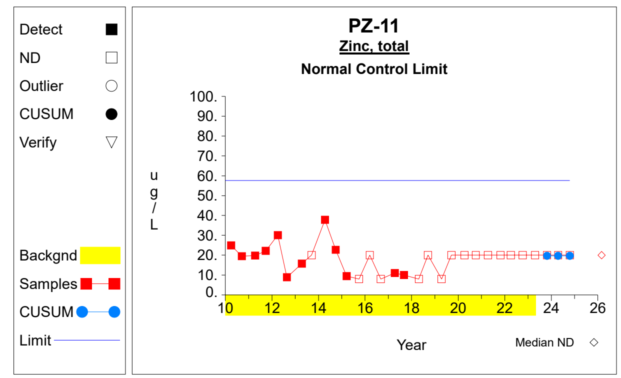
Graph 72



Graph 73

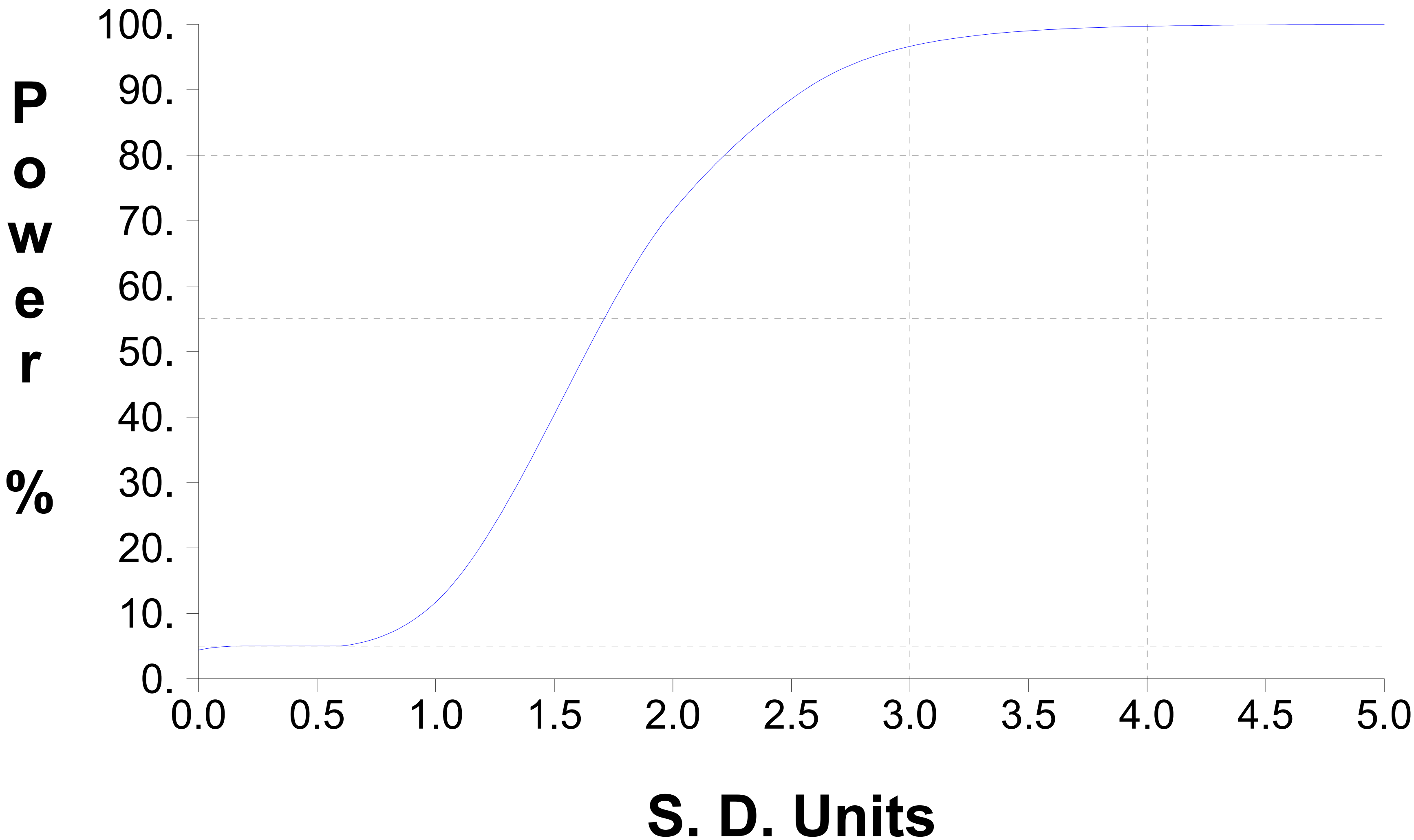


Graph 74



Graph 75

False Positive and False Negative Rates for Current Intra-Well Control Charts Monitoring Program



Worksheet 2 - Intra-Well Control Charts / Prediction Limits
Antimony, total (ug/L) at MW-10
Nonparametric Prediction Limit

Step	Equation	Description
1	PL = median(X) = **2.0**	Compute nonparametric prediction limit as median reporting limit in background.
2	Conf = **0.99**	Confidence level is based on N, K and resampling strategy (see Gibbons 1994).

Worksheet 2 - Intra-Well Control Charts / Prediction Limits
Arsenic, total (ug/L) at MW-10
Nonparametric Prediction Limit

Step	Equation	Description
1	PL = max(X) = **8.3**	Compute nonparametric prediction limit as largest background measurement.
2	Conf = **0.99**	Confidence level is based on N, K and resampling strategy (see Gibbons 1994).

Worksheet 2 - Intra-Well Control Charts / Prediction Limits
Barium, total (ug/L) at MW-10
Normal Control Limit

Step	Equation	Description
1	$\overline{X}$ = **sum[X]** / **N** = **3055.9** / **27** = **113.181**	Compute background mean.
2	S = ((**sum[X^2]** - **sum[X]^2**/**N**) / (**N**-1))^{½} = ((**349271.21** - **9.34**x**10^6**/**27**) / (**27**-1))^{½} = **11.435**	Compute background sd.
3	SCL = $\overline{X}$ + **F** * **S** = **113.181** + **6.5** * **11.435** = **187.511**	Compute combined Shewhart-CUSUM normal control limit.
4	N' = **N** * (**N**-1) / 2 = **27** * (**27**-1) / 2 = **351**	Number of sample pairs during trend detection period.
5	S = **0.667**	Sen's estimator of trend.
6	var(S) = **2294.333**	Variance estimate for slope.
7	M_1(S) = (**N'** - **Z**$_{.99}$ * **var(S)**^{½}) / 2 = (**351** - **2.326** * **2294.333**^{½}) / 2 = **119.793**	Ordinal position for one-sided lower confidence limit for slope. The LCL is the M_1th largest slope estimate. When M_1 is not an integer, interpolation is used.
8	LCL(S) = **-1.361**	One-sided lower confidence limit for slope.

Worksheet 2 - Intra-Well Control Charts / Prediction Limits
Beryllium, total (ug/L) at MW-10
Nonparametric Prediction Limit

Step	Equation	Description
1	PL = median(X) = **4.0**	Compute nonparametric prediction limit as median reporting limit in background.
2	Conf = **0.99**	Confidence level is based on N, K and resampling strategy (see Gibbons 1994).

Worksheet 2 - Intra-Well Control Charts / Prediction Limits
Cadmium, total (ug/L) at MW-10
Nonparametric Prediction Limit

Step	Equation	Description
1	PL = max(X) = **0.9**	Compute nonparametric prediction limit as largest background measurement.
2	Conf = **0.99**	Confidence level is based on N, K and resampling strategy (see Gibbons 1994).

Worksheet 2 - Intra-Well Control Charts / Prediction Limits
Chromium, total (ug/L) at MW-10
Nonparametric Prediction Limit

Step	Equation	Description
1	PL = max(X) = **8.1**	Compute nonparametric prediction limit as largest background measurement.
2	Conf = **0.99**	Confidence level is based on N, K and resampling strategy (see Gibbons 1994).

Worksheet 2 - Intra-Well Control Charts / Prediction Limits
Cobalt, total (ug/L) at MW-10
Nonparametric Prediction Limit

Step	Equation	Description
1	PL = median(X) = **0.8**	Compute nonparametric prediction limit as median reporting limit in background.
2	Conf = **0.99**	Confidence level is based on N, K and resampling strategy (see Gibbons 1994).

Worksheet 2 - Intra-Well Control Charts / Prediction Limits
Copper, total (ug/L) at MW-10
Nonparametric Prediction Limit

Step	Equation	Description
1	PL = median(X) = **4.0**	Compute nonparametric prediction limit as median reporting limit in background.
2	Conf = **0.99**	Confidence level is based on N, K and resampling strategy (see Gibbons 1994).

Worksheet 2 - Intra-Well Control Charts / Prediction Limits
Lead, total (ug/L) at MW-10
Nonparametric Prediction Limit

Step	Equation	Description
1	PL = median(X) = **4.0**	Compute nonparametric prediction limit as median reporting limit in background.
2	Conf = **0.99**	Confidence level is based on N, K and resampling strategy (see Gibbons 1994).

Worksheet 2 - Intra-Well Control Charts / Prediction Limits
Nickel, total (ug/L) at MW-10
Normal Control Limit

Step	Equation	Description
1	$\overline{X}$ = **sum[X]** / **N** = **125.3** / **26** = **4.819**	Compute background mean.
2	$S = ((\mathbf{sum[X^2]} - \mathbf{sum[X]}^2/\mathbf{N}) / (\mathbf{N}-1))^{1/2}$ $= ((\mathbf{659.55} - \mathbf{15700.09}/\mathbf{26}) / (\mathbf{26}-1))^{1/2}$ = **1.493**	Compute background sd.
3	SCL = $\overline{\mathbf{X}}$ + **F** * **S** = **4.819** + **6.5** * **1.493** = **14.521**	Compute combined Shewhart-CUSUM normal control limit.
4	N' = **N** * (**N**-1) / 2 = **26** * (**26**-1) / 2 = **325**	Number of sample pairs during trend detection period.
5	S = **0.0**	Sen's estimator of trend.
6	var(S) = **1467.0**	Variance estimate for slope.
7	$M_1(S) = (\mathbf{N'} - \mathbf{Z}_{.99} * \mathbf{var(S)}^{1/2}) / 2$ $= (\mathbf{325} - \mathbf{2.326} * \mathbf{1467.0}^{1/2}) / 2$ = **117.955**	Ordinal position for one-sided lower confidence limit for slope. The LCL is the M_1 th largest slope estimate. When M_1 is not an integer, interpolation is used.
8	LCL(S) = **-0.14**	One-sided lower confidence limit for slope.

Worksheet 2 - Intra-Well Control Charts / Prediction Limits
Selenium, total (ug/L) at MW-10
Nonparametric Prediction Limit

Step	Equation	Description
1	PL = max(X) = **4.7**	Compute nonparametric prediction limit as largest background measurement.
2	Conf = **0.99**	Confidence level is based on N, K and resampling strategy (see Gibbons 1994).

Worksheet 2 - Intra-Well Control Charts / Prediction Limits
Silver, total (ug/L) at MW-10
Nonparametric Prediction Limit

Step	Equation	Description
1	PL = median(X) = **4.0**	Compute nonparametric prediction limit as median reporting limit in background.
2	Conf = **0.99**	Confidence level is based on N, K and resampling strategy (see Gibbons 1994).

Worksheet 2 - Intra-Well Control Charts / Prediction Limits
Thallium, total (ug/L) at MW-10
Nonparametric Prediction Limit

Step	Equation	Description
1	PL = median(X) = **4.0**	Compute nonparametric prediction limit as median reporting limit in background.
2	Conf = **0.99**	Confidence level is based on N, K and resampling strategy (see Gibbons 1994).

Worksheet 2 - Intra-Well Control Charts / Prediction Limits
Vanadium, total (ug/L) at MW-10
Nonparametric Prediction Limit

Step	Equation	Description
1	PL = max(X) = **25.8**	Compute nonparametric prediction limit as largest background measurement.
2	Conf = **0.99**	Confidence level is based on N, K and resampling strategy (see Gibbons 1994).

Worksheet 2 - Intra-Well Control Charts / Prediction Limits
Zinc, total (ug/L) at MW-10
Nonparametric Prediction Limit

Step	Equation	Description
1	PL = max(X) = **25.2**	Compute nonparametric prediction limit as largest background measurement.
2	Conf = **0.99**	Confidence level is based on N, K and resampling strategy (see Gibbons 1994).

Worksheet 2 - Intra-Well Control Charts / Prediction Limits
Antimony, total (ug/L) at MW-13
Nonparametric Prediction Limit

Step	Equation	Description
1	PL = median(X) = **2.0**	Compute nonparametric prediction limit as median reporting limit in background.
2	Conf = **0.99**	Confidence level is based on N, K and resampling strategy (see Gibbons 1994).

Worksheet 2 - Intra-Well Control Charts / Prediction Limits
Arsenic, total (ug/L) at MW-13
Nonparametric Prediction Limit

Step	Equation	Description
1	PL = max(X) = **8.2**	Compute nonparametric prediction limit as largest background measurement.
2	Conf = **0.99**	Confidence level is based on N, K and resampling strategy (see Gibbons 1994).

Worksheet 2 - Intra-Well Control Charts / Prediction Limits
Barium, total (ug/L) at MW-13
Normal Control Limit

Step	Equation	Description
1	$\bar{X}$ = **sum[X] / N**	Compute background mean.
	= **2630.5** / **27**	
	= **97.426**	
2	$S = ((\mathbf{sum[X^2]} - \mathbf{sum[X]}^2/\mathbf{N}) / (\mathbf{N}-1))^{½}$	Compute background sd.
	$= ((\mathbf{312699.79} - \mathbf{6.92{\times}10^6/27}) / (\mathbf{27}-1))^{½}$	
	= **46.584**	
3	SCL = $\bar{\mathbf{X}}$ + **F** * **S**	Compute combined Shewhart-CUSUM normal control limit.
	= **97.426** + **6.5** * **46.584**	
	= **400.22**	
4	N' = **N** * (**N**-1) / 2	Number of sample pairs during trend detection period.
	= **27** * (**27**-1) / 2	
	= **351**	
5	S = **-7.231**	Sen's estimator of trend.
6	var(S) = **2300.0**	Variance estimate for slope.
7	$M_1(S) = (\mathbf{N'} - \mathbf{Z}_{.99} * \mathbf{var(S)}^{½}) / 2$	Ordinal position for one-sided lower confidence limit for slope. The LCL is the M_1th largest slope estimate. When M_1 is not an integer, interpolation is used.
	$= (\mathbf{351} - \mathbf{2.326} * \mathbf{2300.0}^{½}) / 2$	
	= **119.724**	
8	LCL(S) = **-10.91**	One-sided lower confidence limit for slope.

Worksheet 2 - Intra-Well Control Charts / Prediction Limits
Beryllium, total (ug/L) at MW-13
Nonparametric Prediction Limit

Step	Equation	Description
1	PL = median(X)	Compute nonparametric prediction limit as median reporting limit in background.
	= **4.0**	
2	Conf = **0.99**	Confidence level is based on N, K and resampling strategy (see Gibbons 1994).

Worksheet 2 - Intra-Well Control Charts / Prediction Limits
Cadmium, total (ug/L) at MW-13
Nonparametric Prediction Limit

Step	Equation	Description
1	PL = median(X) = **0.8**	Compute nonparametric prediction limit as median reporting limit in background.
2	Conf = **0.99**	Confidence level is based on N, K and resampling strategy (see Gibbons 1994).

Worksheet 2 - Intra-Well Control Charts / Prediction Limits
Chromium, total (ug/L) at MW-13
Nonparametric Prediction Limit

Step	Equation	Description
1	PL = max(X) = **13.0**	Compute nonparametric prediction limit as largest background measurement.
2	Conf = **0.99**	Confidence level is based on N, K and resampling strategy (see Gibbons 1994).

Worksheet 2 - Intra-Well Control Charts / Prediction Limits
Cobalt, total (ug/L) at MW-13
Nonparametric Prediction Limit

Step	Equation	Description
1	PL = max(X) = **4.1**	Compute nonparametric prediction limit as largest background measurement.
2	Conf = **0.99**	Confidence level is based on N, K and resampling strategy (see Gibbons 1994).

Worksheet 2 - Intra-Well Control Charts / Prediction Limits
Copper, total (ug/L) at MW-13
Normal Control Limit

Step	Equation	Description
1	$\bar{X}$ = **sum[X]** / **N** = **139.5** / **27** = **5.167**	Compute background mean.
2	S = ((**sum[X^2]** - **sum[X]**^{2}/**N**) / (**N**-1))^{½} = ((**891.67** - **19460.25**/**27**) / (**27**-1))^{½} = **2.564**	Compute background sd.
3	SCL = $\bar{\mathbf{X}}$ + **F** * **S** = **5.167** + **6.5** * **2.564** = **21.832**	Compute combined Shewhart-CUSUM normal control limit.
4	N' = **N** * (**N**-1) / 2 = **27** * (**27**-1) / 2 = **351**	Number of sample pairs during trend detection period.
5	S = **0.0**	Sen's estimator of trend.
6	var(S) = **1350.0**	Variance estimate for slope.
7	M_1(S) = (**N'** - $Z_{.99}$ * **var(S)**^{½}) / 2 = (**351** - **2.326** * **1350.0**^{½}) / 2 = **132.769**	Ordinal position for one-sided lower confidence limit for slope. The LCL is the M_1th largest slope estimate. When M_1 is not an integer, interpolation is used.
8	LCL(S) = **0.0**	One-sided lower confidence limit for slope.

Worksheet 2 - Intra-Well Control Charts / Prediction Limits
Lead, total (ug/L) at MW-13
Nonparametric Prediction Limit

Step	Equation	Description
1	PL = max(X) = **6.8**	Compute nonparametric prediction limit as largest background measurement.
2	Conf = **0.99**	Confidence level is based on N, K and resampling strategy (see Gibbons 1994).

Worksheet 2 - Intra-Well Control Charts / Prediction Limits
Nickel, total (ug/L) at MW-13
Normal Control Limit

Step	Equation	Description
1	$\overline{X}$ = **sum[X]** / **N** = **175.3** / **27** = **6.493**	Compute background mean.
2	S = ((**sum[X^2]** - **sum[X]**^{2}/**N**) / (**N**-1))^{½} = ((**1571.89** - **30730.09**/**27**) / (**27**-1))^{½} = **4.084**	Compute background sd.
3	SCL = $\overline{X}$ + **F** * **S** = **6.493** + **6.5** * **4.084** = **33.041**	Compute combined Shewhart-CUSUM normal control limit.
4	N' = **N** * (**N**-1) / 2 = **27** * (**27**-1) / 2 = **351**	Number of sample pairs during trend detection period.
5	S = **-0.288**	Sen's estimator of trend.
6	var(S) = **1807.667**	Variance estimate for slope.
7	M_1(S) = (**N'** - **$Z_{.99}$** * **var(S)**^{½}) / 2 = (**351** - **2.326** * **1807.667**^{½}) / 2 = **126.053**	Ordinal position for one-sided lower confidence limit for slope. The LCL is the M_1th largest slope estimate. When M_1 is not an integer, interpolation is used.
8	LCL(S) = **-0.696**	One-sided lower confidence limit for slope.

Worksheet 2 - Intra-Well Control Charts / Prediction Limits
Selenium, total (ug/L) at MW-13
Nonparametric Prediction Limit

Step	Equation	Description
1	PL = median(X) = **4.0**	Compute nonparametric prediction limit as median reporting limit in background.
2	Conf = **0.99**	Confidence level is based on N, K and resampling strategy (see Gibbons 1994).

Worksheet 2 - Intra-Well Control Charts / Prediction Limits
Silver, total (ug/L) at MW-13
Nonparametric Prediction Limit

Step	Equation	Description
1	PL = median(X) = **4.0**	Compute nonparametric prediction limit as median reporting limit in background.
2	Conf = **0.99**	Confidence level is based on N, K and resampling strategy (see Gibbons 1994).

Worksheet 2 - Intra-Well Control Charts / Prediction Limits
Thallium, total (ug/L) at MW-13
Nonparametric Prediction Limit

Step	Equation	Description
1	PL = median(X) = **4.0**	Compute nonparametric prediction limit as median reporting limit in background.
2	Conf = **0.99**	Confidence level is based on N, K and resampling strategy (see Gibbons 1994).

Worksheet 2 - Intra-Well Control Charts / Prediction Limits
Vanadium, total (ug/L) at MW-13
Nonparametric Prediction Limit

Step	Equation	Description
1	PL = max(X) = **24.9**	Compute nonparametric prediction limit as largest background measurement.
2	Conf = **0.99**	Confidence level is based on N, K and resampling strategy (see Gibbons 1994).

Worksheet 2 - Intra-Well Control Charts / Prediction Limits
Zinc, total (ug/L) at MW-13
Normal Control Limit

Step	Equation	Description
1	$\overline{X}$ = **sum[X]** / **N**	Compute background mean.
	= **323.9** / **27**	
	= **11.996**	
2	$S = ((\mathbf{sum[X^2]} - \mathbf{sum[X]}^2/\mathbf{N}) / (\mathbf{N}-1))^{½}$	Compute background sd.
	$= ((\mathbf{4595.65} - \mathbf{104911.21}/\mathbf{27}) / (\mathbf{27}-1))^{½}$	
	= **5.226**	
3	SCL = $\overline{\mathbf{X}}$ + **F** * **S**	Compute combined Shewhart-CUSUM normal control limit.
	= **11.996** + **6.5** * **5.226**	
	= **45.964**	
4	N' = **N** * (**N**-1) / 2	Number of sample pairs during trend detection period.
	= **27** * (**27**-1) / 2	
	= **351**	
5	S = **0.0**	Sen's estimator of trend.
6	var(S) = **1603.0**	Variance estimate for slope.
7	$M_1(S) = (\mathbf{N'} - \mathbf{Z}_{.99} * \mathbf{var(S)}^{½}) / 2$	Ordinal position for one-sided lower confidence limit for slope. The LCL is the M_1th largest slope estimate. When M_1 is not an integer, interpolation is used.
	$= (\mathbf{351} - \mathbf{2.326} * \mathbf{1603.0}^{½}) / 2$	
	= **128.936**	
8	LCL(S) = **0.0**	One-sided lower confidence limit for slope.

Worksheet 2 - Intra-Well Control Charts / Prediction Limits
Antimony, total (ug/L) at MW-3
Nonparametric Prediction Limit

Step	Equation	Description
1	PL = median(X)	Compute nonparametric prediction limit as median reporting limit in background.
	= **2.0**	
2	Conf = **0.99**	Confidence level is based on N, K and resampling strategy (see Gibbons 1994).

Worksheet 2 - Intra-Well Control Charts / Prediction Limits
Arsenic, total (ug/L) at MW-3
Nonparametric Prediction Limit

Step	Equation	Description
1	PL = max(X) = **4.1**	Compute nonparametric prediction limit as largest background measurement.
2	Conf = **0.99**	Confidence level is based on N, K and resampling strategy (see Gibbons 1994).

Worksheet 2 - Intra-Well Control Charts / Prediction Limits
Barium, total (ug/L) at MW-3
Normal Control Limit

Step	Equation	Description
1	$\overline{X}$ = **sum[X]** / **N** = **8503.0** / **27** = **314.926**	Compute background mean.
2	$S = ((\mathbf{sum[X^2]} - \mathbf{sum[X]}^2/\mathbf{N}) / (\mathbf{N}-1))^{½}$ $= ((\mathbf{2.99}\times\mathbf{10^6} - \mathbf{7.23}\times\mathbf{10^7}/\mathbf{27}) / (\mathbf{27}-1))^{½}$ = **108.924**	Compute background sd.
3	SCL = $\overline{\mathbf{X}}$ + **F** * **S** = **314.926** + **6.5** * **108.924** = **1022.935**	Compute combined Shewhart-CUSUM normal control limit.
4	N' = **N** * (**N**-1) / 2 = **27** * (**27**-1) / 2 = **351**	Number of sample pairs during trend detection period.
5	S = **-17.754**	Sen's estimator of trend.
6	var(S) = **2298.0**	Variance estimate for slope.
7	$M_1(S) = (\mathbf{N'} - \mathbf{Z}_{.99} * \mathbf{var(S)}^{½}) / 2$ $= (\mathbf{351} - \mathbf{2.326} * \mathbf{2298.0}^{½}) / 2$ = **119.749**	Ordinal position for one-sided lower confidence limit for slope. The LCL is the M_1 th largest slope estimate. When M_1 is not an integer, interpolation is used.
8	LCL(S) = **-31.017**	One-sided lower confidence limit for slope.

Worksheet 2 - Intra-Well Control Charts / Prediction Limits
Beryllium, total (ug/L) at MW-3
Nonparametric Prediction Limit

Step	Equation	Description
1	PL = median(X) = **4.0**	Compute nonparametric prediction limit as median reporting limit in background.
2	Conf = **0.99**	Confidence level is based on N, K and resampling strategy (see Gibbons 1994).

Worksheet 2 - Intra-Well Control Charts / Prediction Limits
Cadmium, total (ug/L) at MW-3
Nonparametric Prediction Limit

Step	Equation	Description
1	PL = max(X) = **1.5**	Compute nonparametric prediction limit as largest background measurement.
2	Conf = **0.99**	Confidence level is based on N, K and resampling strategy (see Gibbons 1994).

Worksheet 2 - Intra-Well Control Charts / Prediction Limits
Chromium, total (ug/L) at MW-3
Nonparametric Prediction Limit

Step	Equation	Description
1	PL = median(X) = **8.0**	Compute nonparametric prediction limit as median reporting limit in background.
2	Conf = **0.99**	Confidence level is based on N, K and resampling strategy (see Gibbons 1994).

Worksheet 2 - Intra-Well Control Charts / Prediction Limits
Cobalt, total (ug/L) at MW-3
Normal Control Limit

Step	Equation	Description
1	$\overline{X}$ = **sum[X]** / **N** = **26.7** / **27** = **0.989**	Compute background mean.
2	S = ((**sum[X^2]** - **sum[X]^2**/**N**) / (**N**-1))^{½} = ((**36.55** - **712.89**/**27**) / (**27**-1))^{½} = **0.625**	Compute background sd.
3	SCL = $\overline{\mathbf{X}}$ + **F** * **S** = **0.989** + **6.5** * **0.625** = **5.049**	Compute combined Shewhart-CUSUM normal control limit.
4	N' = **N** * (**N**-1) / 2 = **27** * (**27**-1) / 2 = **351**	Number of sample pairs during trend detection period.
5	S = **0.0**	Sen's estimator of trend.
6	var(S) = **1350.0**	Variance estimate for slope.
7	M_1(S) = (**N'** - **Z**$_{.99}$ * **var(S)**^{½}) / 2 = (**351** - **2.326** * **1350.0**^{½}) / 2 = **132.769**	Ordinal position for one-sided lower confidence limit for slope. The LCL is the M_1th largest slope estimate. When M_1 is not an integer, interpolation is used.
8	LCL(S) = **0.0**	One-sided lower confidence limit for slope.

Worksheet 2 - Intra-Well Control Charts / Prediction Limits
Copper, total (ug/L) at MW-3
Nonparametric Prediction Limit

Step	Equation	Description
1	PL = max(X) = **5.5**	Compute nonparametric prediction limit as largest background measurement.
2	Conf = **0.99**	Confidence level is based on N, K and resampling strategy (see Gibbons 1994).

Worksheet 2 - Intra-Well Control Charts / Prediction Limits
Lead, total (ug/L) at MW-3
Nonparametric Prediction Limit

Step	Equation	Description
1	PL = median(X) = **4.0**	Compute nonparametric prediction limit as median reporting limit in background.
2	Conf = **0.99**	Confidence level is based on N, K and resampling strategy (see Gibbons 1994).

Worksheet 2 - Intra-Well Control Charts / Prediction Limits
Nickel, total (ug/L) at MW-3
Normal Control Limit

Step	Equation	Description
1	$\overline{X}$ = **sum[X]** / **N** = **150.4** / **27** = **5.57**	Compute background mean.
2	S = ((**sum[X^2]** - **sum[X]**^{2}/**N**) / (**N**-1))$^{1/2}$ = ((**1045.12** - **22620.16**/**27**) / (**27**-1))$^{1/2}$ = **2.824**	Compute background sd.
3	SCL = $\overline{\mathbf{X}}$ + **F** * **S** = **5.57** + **6.5** * **2.824** = **23.926**	Compute combined Shewhart-CUSUM normal control limit.
4	N' = **N** * (**N**-1) / 2 = **27** * (**27**-1) / 2 = **351**	Number of sample pairs during trend detection period.
5	S = **0.0**	Sen's estimator of trend.
6	var(S) = **1806.667**	Variance estimate for slope.
7	M_1(S) = (**N'** - **Z**$_{.99}$ * **var(S)**$^{1/2}$) / 2 = (**351** - **2.326** * **1806.667**$^{1/2}$) / 2 = **126.067**	Ordinal position for one-sided lower confidence limit for slope. The LCL is the M_1th largest slope estimate. When M_1 is not an integer, interpolation is used.
8	LCL(S) = **-0.308**	One-sided lower confidence limit for slope.

Worksheet 2 - Intra-Well Control Charts / Prediction Limits
Selenium, total (ug/L) at MW-3
Nonparametric Prediction Limit

Step	Equation	Description
1	PL = median(X) = **4.0**	Compute nonparametric prediction limit as median reporting limit in background.
2	Conf = **0.99**	Confidence level is based on N, K and resampling strategy (see Gibbons 1994).

Worksheet 2 - Intra-Well Control Charts / Prediction Limits
Silver, total (ug/L) at MW-3
Nonparametric Prediction Limit

Step	Equation	Description
1	PL = median(X) = **4.0**	Compute nonparametric prediction limit as median reporting limit in background.
2	Conf = **0.99**	Confidence level is based on N, K and resampling strategy (see Gibbons 1994).

Worksheet 2 - Intra-Well Control Charts / Prediction Limits
Thallium, total (ug/L) at MW-3
Nonparametric Prediction Limit

Step	Equation	Description
1	PL = median(X) = **4.0**	Compute nonparametric prediction limit as median reporting limit in background.
2	Conf = **0.99**	Confidence level is based on N, K and resampling strategy (see Gibbons 1994).

Worksheet 2 - Intra-Well Control Charts / Prediction Limits
Vanadium, total (ug/L) at MW-3
Nonparametric Prediction Limit

Step	Equation	Description
1	PL = max(X) = **21.8**	Compute nonparametric prediction limit as largest background measurement.
2	Conf = **0.99**	Confidence level is based on N, K and resampling strategy (see Gibbons 1994).

Worksheet 2 - Intra-Well Control Charts / Prediction Limits
Zinc, total (ug/L) at MW-3
Normal Control Limit

Step	Equation	Description
1	$\bar{X}$ = **sum[X]** / **N** = **497.3** / **27** = **18.419**	Compute background mean.
2	S = ((**sum[X^2]** - **sum[X]**^{2}/**N**) / (**N**-1))^{½} = ((**9802.99** - **247307.29**/**27**) / (**27**-1))^{½} = **4.975**	Compute background sd.
3	SCL = $\bar{X}$ + **F** * **S** = **18.419** + **6.5** * **4.975** = **50.755**	Compute combined Shewhart-CUSUM normal control limit.
4	N' = **N** * (**N**-1) / 2 = **27** * (**27**-1) / 2 = **351**	Number of sample pairs during trend detection period.
5	S = **0.0**	Sen's estimator of trend.
6	var(S) = **1484.0**	Variance estimate for slope.
7	M_1(S) = (**N'** - **Z**$_{.99}$ * **var(S)**^{½}) / 2 = (**351** - **2.326** * **1484.0**^{½}) / 2 = **130.698**	Ordinal position for one-sided lower confidence limit for slope. The LCL is the M_1th largest slope estimate. When M_1 is not an integer, interpolation is used.
8	LCL(S) = **0.0**	One-sided lower confidence limit for slope.

Worksheet 2 - Intra-Well Control Charts / Prediction Limits
Antimony, total (ug/L) at MW-7
Nonparametric Prediction Limit

Step	Equation	Description
1	PL = median(X) = **2.0**	Compute nonparametric prediction limit as median reporting limit in background.
2	Conf = **0.99**	Confidence level is based on N, K and resampling strategy (see Gibbons 1994).

Worksheet 2 - Intra-Well Control Charts / Prediction Limits
Arsenic, total (ug/L) at MW-7
Nonparametric Prediction Limit

Step	Equation	Description
1	PL = max(X) = **7.6**	Compute nonparametric prediction limit as largest background measurement.
2	Conf = **0.99**	Confidence level is based on N, K and resampling strategy (see Gibbons 1994).

Worksheet 2 - Intra-Well Control Charts / Prediction Limits
Barium, total (ug/L) at MW-7
Normal Control Limit

Step	Equation	Description
1	$\overline{X} = \mathbf{sum[X]} / \mathbf{N}$ $= \mathbf{5061.0} / \mathbf{27}$ $= \mathbf{187.444}$	Compute background mean.
2	$S = ((\mathbf{sum[X^2]} - \mathbf{sum[X]}^2/\mathbf{N}) / (\mathbf{N}-1))^{½}$ $= ((\mathbf{1.11}x\mathbf{10^6} - \mathbf{2.56}x\mathbf{10^7}/\mathbf{27}) / (\mathbf{27}-1))^{½}$ $= \mathbf{78.607}$	Compute background sd.
3	$SCL = \overline{\mathbf{X}} + \mathbf{F} * \mathbf{S}$ $= \mathbf{187.444} + \mathbf{6.5} * \mathbf{78.607}$ $= \mathbf{698.389}$	Compute combined Shewhart-CUSUM normal control limit.
4	$N' = \mathbf{N} * (\mathbf{N}-1) / 2$ $= \mathbf{27} * (\mathbf{27}-1) / 2$ $= \mathbf{351}$	Number of sample pairs during trend detection period.
5	S = **-3.699**	Sen's estimator of trend.
6	var(S) = **2300.0**	Variance estimate for slope.
7	$M_1(S) = (\mathbf{N'} - \mathbf{Z}_{.99} * \mathbf{var(S)}^{½}) / 2$ $= (\mathbf{351} - \mathbf{2.326} * \mathbf{2300.0}^{½}) / 2$ $= \mathbf{119.724}$	Ordinal position for one-sided lower confidence limit for slope. The LCL is the M_1th largest slope estimate. When M_1 is not an integer, interpolation is used.
8	LCL(S) = **-13.312**	One-sided lower confidence limit for slope.

Worksheet 2 - Intra-Well Control Charts / Prediction Limits
Beryllium, total (ug/L) at MW-7
Nonparametric Prediction Limit

Step	Equation	Description
1	PL = median(X) = **4.0**	Compute nonparametric prediction limit as median reporting limit in background.
2	Conf = **0.99**	Confidence level is based on N, K and resampling strategy (see Gibbons 1994).

Worksheet 2 - Intra-Well Control Charts / Prediction Limits
Cadmium, total (ug/L) at MW-7
Normal Control Limit

Step	Equation	Description
1	$\overline{X}$ = **sum[X]** / **N** = **22.6** / **27** = **0.837**	Compute background mean.
2	S = ((**sum[X^2]** - **sum[X]**^{2}/**N**) / (**N**-1))$^{1/2}$ = ((**19.1** - **510.76**/**27**) / (**27**-1))$^{1/2}$ = **0.084**	Compute background sd.
3	SCL = $\overline{\mathbf{X}}$ + **F** * **S** = **0.837** + **6.5** * **0.084** = **1.382**	Compute combined Shewhart-CUSUM normal control limit.
4	N' = **N** * (**N**-1) / 2 = **27** * (**27**-1) / 2 = **351**	Number of sample pairs during trend detection period.
5	S = **0.0**	Sen's estimator of trend.
6	var(S) = **1039.667**	Variance estimate for slope.
7	M_1(S) = (**N'** - **Z**$_{.99}$ * **var(S)**$^{1/2}$) / 2 = (**351** - **2.326** * **1039.667**$^{1/2}$) / 2 = **138.0**	Ordinal position for one-sided lower confidence limit for slope. The LCL is the M_1th largest slope estimate. When M_1 is not an integer, interpolation is used.
8	LCL(S) = **0.0**	One-sided lower confidence limit for slope.

Worksheet 2 - Intra-Well Control Charts / Prediction Limits
Chromium, total (ug/L) at MW-7
Nonparametric Prediction Limit

Step	Equation	Description
1	PL = median(X) = **8.0**	Compute nonparametric prediction limit as median reporting limit in background.
2	Conf = **0.99**	Confidence level is based on N, K and resampling strategy (see Gibbons 1994).

Worksheet 2 - Intra-Well Control Charts / Prediction Limits
Cobalt, total (ug/L) at MW-7
Normal Control Limit

Step	Equation	Description
1	$\bar{X} = \mathbf{sum[X]} / \mathbf{N}$ $= \mathbf{107.7} / \mathbf{27}$ $= \mathbf{3.989}$	Compute background mean.
2	$S = ((\mathbf{sum[X^2]} - \mathbf{sum[X]}^2/\mathbf{N}) / (\mathbf{N}-1))^{1/2}$ $= ((\mathbf{544.27} - \mathbf{11599.29}/\mathbf{27}) / (\mathbf{27}-1))^{1/2}$ $= \mathbf{2.1}$	Compute background sd.
3	$SCL = \bar{\mathbf{X}} + \mathbf{F} * \mathbf{S}$ $= \mathbf{3.989} + \mathbf{6.5} * \mathbf{2.1}$ $= \mathbf{17.639}$	Compute combined Shewhart-CUSUM normal control limit.
4	$N' = \mathbf{N} * (\mathbf{N}-1) / 2$ $= \mathbf{27} * (\mathbf{27}-1) / 2$ $= \mathbf{351}$	Number of sample pairs during trend detection period.
5	$S = \mathbf{0.0}$	Sen's estimator of trend.
6	$var(S) = \mathbf{2032.333}$	Variance estimate for slope.
7	$M_1(S) = (\mathbf{N'} - \mathbf{Z}_{.99} * \mathbf{var(S)}^{1/2}) / 2$ $= (\mathbf{351} - \mathbf{2.326} * \mathbf{2032.333}^{1/2}) / 2$ $= \mathbf{123.07}$	Ordinal position for one-sided lower confidence limit for slope. The LCL is the M_1th largest slope estimate. When M_1 is not an integer, interpolation is used.
8	$LCL(S) = \mathbf{-0.149}$	One-sided lower confidence limit for slope.

Worksheet 2 - Intra-Well Control Charts / Prediction Limits
Copper, total (ug/L) at MW-7
Normal Control Limit

Step	Equation	Description
1	$\bar{X}$ = **sum[X]** / **N** = **118.4** / **27** = **4.385**	Compute background mean.
2	S = ((**sum[X^2] - sum[X]^2/N**) / (**N**-1))^{½} = ((**544.82** - **14018.56/27**) / (**27**-1))^{½} = **0.993**	Compute background sd.
3	SCL = $\bar{X}$ + **F** * **S** = **4.385** + **6.5** * **0.993** = **10.837**	Compute combined Shewhart-CUSUM normal control limit.
4	N' = **N** * (**N**-1) / 2 = **27** * (**27**-1) / 2 = **351**	Number of sample pairs during trend detection period.
5	S = **0.0**	Sen's estimator of trend.
6	var(S) = **1351.0**	Variance estimate for slope.
7	M_1(S) = (**N' - $Z_{.99}$** * **var(S)^{½}**) / 2 = (**351** - **2.326** * **1351.0^{½}**) / 2 = **132.753**	Ordinal position for one-sided lower confidence limit for slope. The LCL is the M_1th largest slope estimate. When M_1 is not an integer, interpolation is used.
8	LCL(S) = **0.0**	One-sided lower confidence limit for slope.

Worksheet 2 - Intra-Well Control Charts / Prediction Limits
Lead, total (ug/L) at MW-7
Nonparametric Prediction Limit

Step	Equation	Description
1	PL = max(X) = **4.5**	Compute nonparametric prediction limit as largest background measurement.
2	Conf = **0.99**	Confidence level is based on N, K and resampling strategy (see Gibbons 1994).

Worksheet 2 - Intra-Well Control Charts / Prediction Limits
Nickel, total (ug/L) at MW-7
Normal Control Limit

Step	Equation	Description
1	$\overline{X} = \mathbf{sum[X]} / \mathbf{N}$ $= \mathbf{1154.3} / \mathbf{27}$ $= \mathbf{42.752}$	Compute background mean.
2	$S = ((\mathbf{sum[X^2]} - \mathbf{sum[X]}^2/\mathbf{N}) / (\mathbf{N}-1))^{½}$ $= ((\mathbf{63467.07} - \mathbf{1.33{\times}10^6/27}) / (\mathbf{27}-1))^{½}$ $= \mathbf{23.303}$	Compute background sd.
3	$SCL = \overline{\mathbf{X}} + \mathbf{F} * \mathbf{S}$ $= \mathbf{42.752} + \mathbf{6.5} * \mathbf{23.303}$ $= \mathbf{194.22}$	Compute combined Shewhart-CUSUM normal control limit.
4	$N' = \mathbf{N} * (\mathbf{N}-1) / 2$ $= \mathbf{27} * (\mathbf{27}-1) / 2$ $= \mathbf{351}$	Number of sample pairs during trend detection period.
5	$S = \mathbf{4.402}$	Sen's estimator of trend.
6	$var(S) = \mathbf{2301.0}$	Variance estimate for slope.
7	$M_1(S) = (\mathbf{N'} - \mathbf{Z}_{.99} * \mathbf{var(S)}^{½}) / 2$ $= (\mathbf{351} - \mathbf{2.326} * \mathbf{2301.0}^{½}) / 2$ $= \mathbf{119.712}$	Ordinal position for one-sided lower confidence limit for slope. The LCL is the M_1th largest slope estimate. When M_1 is not an integer, interpolation is used.
8	$LCL(S) = \mathbf{1.962}$	One-sided lower confidence limit for slope.
9	$LCL(S) > 0$	**Significant increasing trend.**

Worksheet 2 - Intra-Well Control Charts / Prediction Limits
Selenium, total (ug/L) at MW-7
Nonparametric Prediction Limit

Step	Equation	Description
1	$PL = max(X)$ $= \mathbf{4.6}$	Compute nonparametric prediction limit as largest background measurement.
2	$Conf = \mathbf{0.99}$	Confidence level is based on N, K and resampling strategy (see Gibbons 1994).

Worksheet 2 - Intra-Well Control Charts / Prediction Limits
Silver, total (ug/L) at MW-7
Nonparametric Prediction Limit

Step	Equation	Description
1	PL = median(X) = **4.0**	Compute nonparametric prediction limit as median reporting limit in background.
2	Conf = **0.99**	Confidence level is based on N, K and resampling strategy (see Gibbons 1994).

Worksheet 2 - Intra-Well Control Charts / Prediction Limits
Thallium, total (ug/L) at MW-7
Nonparametric Prediction Limit

Step	Equation	Description
1	PL = median(X) = **4.0**	Compute nonparametric prediction limit as median reporting limit in background.
2	Conf = **0.99**	Confidence level is based on N, K and resampling strategy (see Gibbons 1994).

Worksheet 2 - Intra-Well Control Charts / Prediction Limits
Vanadium, total (ug/L) at MW-7
Nonparametric Prediction Limit

Step	Equation	Description
1	PL = max(X) = **21.3**	Compute nonparametric prediction limit as largest background measurement.
2	Conf = **0.99**	Confidence level is based on N, K and resampling strategy (see Gibbons 1994).

Worksheet 2 - Intra-Well Control Charts / Prediction Limits
Zinc, total (ug/L) at MW-7
Normal Control Limit

Step	Equation	Description
1	$\bar{X} = \textbf{sum[X]} / \textbf{N}$ $= \textbf{465.8} / \textbf{27}$ $= \textbf{17.252}$	Compute background mean.
2	$S = ((\textbf{sum[X}^{\textbf{2}}\textbf{]} - \textbf{sum[X]}^2/\textbf{N}) / (\textbf{N}-1))^{½}$ $= ((\textbf{8581.12} - \textbf{216969.64}/\textbf{27}) / (\textbf{27}-1))^{½}$ $= \textbf{4.579}$	Compute background sd.
3	$SCL = \bar{\textbf{X}} + \textbf{F} * \textbf{S}$ $= \textbf{17.252} + \textbf{6.5} * \textbf{4.579}$ $= \textbf{47.017}$	Compute combined Shewhart-CUSUM normal control limit.
4	$N' = \textbf{N} * (\textbf{N}-1) / 2$ $= \textbf{27} * (\textbf{27}-1) / 2$ $= \textbf{351}$	Number of sample pairs during trend detection period.
5	$S = \textbf{0.0}$	Sen's estimator of trend.
6	$var(S) = \textbf{1710.667}$	Variance estimate for slope.
7	$M_1(S) = (\textbf{N'} - \textbf{Z}_{.99} * \textbf{var(S)}^{½}) / 2$ $= (\textbf{351} - \textbf{2.326} * \textbf{1710.667}^{½}) / 2$ $= \textbf{127.398}$	Ordinal position for one-sided lower confidence limit for slope. The LCL is the M_1th largest slope estimate. When M_1 is not an integer, interpolation is used.
8	$LCL(S) = \textbf{0.0}$	One-sided lower confidence limit for slope.

Worksheet 2 - Intra-Well Control Charts / Prediction Limits
Antimony, total (ug/L) at PZ-11
Nonparametric Prediction Limit

Step	Equation	Description
1	PL = median(X) = **2.0**	Compute nonparametric prediction limit as median reporting limit in background.
2	Conf = **0.99**	Confidence level is based on N, K and resampling strategy (see Gibbons 1994).

Worksheet 2 - Intra-Well Control Charts / Prediction Limits
Arsenic, total (ug/L) at PZ-11
Normal Control Limit

Step	Equation	Description
1	$\overline{X}$ = **sum[X]** / **N**	Compute background mean.
	= **153.8** / **28**	
	= **5.493**	
2	S = ((**sum[X^2]** - **sum[X]**^{2}/**N**) / (**N**-1))^{½}	Compute background sd.
	= ((**1016.34** - **23654.44**/**28**) / (**28**-1))^{½}	
	= **2.521**	
3	SCL = $\overline{X}$ + **F** * **S**	Compute combined Shewhart-CUSUM normal control limit.
	= **5.493** + **6.5** * **2.521**	
	= **21.877**	
4	N' = **N** * (**N**-1) / 2	Number of sample pairs during trend detection period.
	= **28** * (**28**-1) / 2	
	= **378**	
5	S = **-0.215**	Sen's estimator of trend.
6	var(S) = **1864.0**	Variance estimate for slope.
7	M_1(S) = (**N'** - **$Z_{.99}$** * **var(S)**^{½}) / 2	Ordinal position for one-sided lower confidence limit for slope. The LCL is the M_1th largest slope estimate. When M_1 is not an integer, interpolation is used.
	= (**378** - **2.326** * **1864.0**^{½}) / 2	
	= **138.789**	
8	LCL(S) = **-0.37**	One-sided lower confidence limit for slope.

Worksheet 2 - Intra-Well Control Charts / Prediction Limits
Barium, total (ug/L) at PZ-11
Normal Control Limit

Step	Equation	Description
1	$\bar{X}$ = **sum[X]** / **N**	Compute background mean.
	= **4099.0** / **27**	
	= **151.815**	
2	S = ((**sum[X^2]** - **sum[X]**^{2}/**N**) / (**N**-1))^{½}	Compute background sd.
	= ((**962328.04** - **1.68x10^7/27**) / (**27**-1))^{½}	
	= **114.361**	
3	SCL = $\bar{X}$ + **F** * **S**	Compute combined Shewhart-CUSUM normal control limit.
	= **151.815** + **6.5** * **114.361**	
	= **895.161**	
4	N' = **N** * (**N**-1) / 2	Number of sample pairs during trend detection period.
	= **27** * (**27**-1) / 2	
	= **351**	
5	S = **-16.855**	Sen's estimator of trend.
6	var(S) = **2300.0**	Variance estimate for slope.
7	M_1(S) = (**N'** - **$Z_{.99}$** * **var(S)**^{½}) / 2	Ordinal position for one-sided lower confidence limit for slope. The LCL is the M_1^{th} largest slope estimate. When M_1 is not an integer, interpolation is used.
	= (**351** - **2.326** * **2300.0**^{½}) / 2	
	= **119.724**	
8	LCL(S) = **-26.592**	One-sided lower confidence limit for slope.

Worksheet 2 - Intra-Well Control Charts / Prediction Limits
Beryllium, total (ug/L) at PZ-11
Nonparametric Prediction Limit

Step	Equation	Description
1	PL = median(X)	Compute nonparametric prediction limit as median reporting limit in background.
	= **4.0**	
2	Conf = **0.99**	Confidence level is based on N, K and resampling strategy (see Gibbons 1994).

Worksheet 2 - Intra-Well Control Charts / Prediction Limits
Cadmium, total (ug/L) at PZ-11
Nonparametric Prediction Limit

Step	Equation	Description
1	PL = max(X) = **1.1**	Compute nonparametric prediction limit as largest background measurement.
2	Conf = **0.99**	Confidence level is based on N, K and resampling strategy (see Gibbons 1994).

Worksheet 2 - Intra-Well Control Charts / Prediction Limits
Chromium, total (ug/L) at PZ-11
Nonparametric Prediction Limit

Step	Equation	Description
1	PL = max(X) = **10.4**	Compute nonparametric prediction limit as largest background measurement.
2	Conf = **0.99**	Confidence level is based on N, K and resampling strategy (see Gibbons 1994).

Worksheet 2 - Intra-Well Control Charts / Prediction Limits
Cobalt, total (ug/L) at PZ-11
Normal Control Limit

Step	Equation	Description
1	$\bar{X}$ = **sum[X]** / **N** = **101.0** / **28** = **3.607**	Compute background mean.
2	S = ((**sum[X^2]** - **sum[X]**^{2}/**N**) / (**N**-1))^{½} = ((**832.78** - **10201.0/28**) / (**28**-1))^{½} = **4.165**	Compute background sd.
3	SCL = $\bar{X}$ + **F** * **S** = **3.607** + **6.5** * **4.165** = **30.682**	Compute combined Shewhart-CUSUM normal control limit.
4	N' = **N** * (**N**-1) / 2 = **28** * (**28**-1) / 2 = **378**	Number of sample pairs during trend detection period.
5	S = **-0.431**	Sen's estimator of trend.
6	var(S) = **2495.667**	Variance estimate for slope.
7	M_1(S) = (**N'** - **Z**$_{.99}$ * **var(S)**^{½}) / 2 = (**378** - **2.326** * **2495.667**^{½}) / 2 = **130.9**	Ordinal position for one-sided lower confidence limit for slope. The LCL is the M_1th largest slope estimate. When M_1 is not an integer, interpolation is used.
8	LCL(S) = **-0.844**	One-sided lower confidence limit for slope.

Worksheet 2 - Intra-Well Control Charts / Prediction Limits
Copper, total (ug/L) at PZ-11
Normal Control Limit

Step	Equation	Description
1	$\overline{X}$ = **sum[X] / N** = **138.7 / 27** = **5.137**	Compute background mean.
2	$S = ((\mathbf{sum[X^2]} - \mathbf{sum[X]}^2/\mathbf{N}) / (\mathbf{N}-1))^{1/2}$ $= ((\mathbf{822.45} - \mathbf{19237.69/27}) / (\mathbf{27}-1))^{1/2}$ = **2.056**	Compute background sd.
3	SCL = $\overline{\mathbf{X}}$ + **F** * **S** = **5.137** + **6.5** * **2.056** = **18.503**	Compute combined Shewhart-CUSUM normal control limit.
4	N' = **N** * (**N**-1) / 2 = **27** * (**27**-1) / 2 = **351**	Number of sample pairs during trend detection period.
5	S = **-0.102**	Sen's estimator of trend.
6	var(S) = **1603.0**	Variance estimate for slope.
7	$M_1(S) = (\mathbf{N'} - \mathbf{Z}_{.99} * \mathbf{var(S)}^{1/2}) / 2$ $= (\mathbf{351} - \mathbf{2.326} * \mathbf{1603.0}^{1/2}) / 2$ = **128.936**	Ordinal position for one-sided lower confidence limit for slope. The LCL is the M_1th largest slope estimate. When M_1 is not an integer, interpolation is used.
8	LCL(S) = **-0.268**	One-sided lower confidence limit for slope.

Worksheet 2 - Intra-Well Control Charts / Prediction Limits
Lead, total (ug/L) at PZ-11
Nonparametric Prediction Limit

Step	Equation	Description
1	PL = max(X) = **6.3**	Compute nonparametric prediction limit as largest background measurement.
2	Conf = **0.99**	Confidence level is based on N, K and resampling strategy (see Gibbons 1994).

Worksheet 2 - Intra-Well Control Charts / Prediction Limits
Nickel, total (ug/L) at PZ-11
Normal Control Limit

Step	Equation	Description
1	$\bar{X}$ = **sum[X]** / **N** = **448.8** / **28** = **16.029**	Compute background mean.
2	$S = ((\mathbf{sum[X^2]} - \mathbf{sum[X]}^2/\mathbf{N}) / (\mathbf{N}-1))^{1/2}$ $= ((\mathbf{10754.86} - \mathbf{201421.44/28}) / (\mathbf{28}-1))^{1/2}$ = **11.485**	Compute background sd.
3	SCL = $\bar{\mathbf{X}}$ + **F** * **S** = **16.029** + **6.5** * **11.485** = **90.679**	Compute combined Shewhart-CUSUM normal control limit.
4	N' = **N** * (**N**-1) / 2 = **28** * (**28**-1) / 2 = **378**	Number of sample pairs during trend detection period.
5	S = **-1.387**	Sen's estimator of trend.
6	var(S) = **2496.667**	Variance estimate for slope.
7	$M_1(S) = (\mathbf{N'} - \mathbf{Z}_{.99} * \mathbf{var(S)}^{1/2}) / 2$ $= (\mathbf{378} - \mathbf{2.326} * \mathbf{2496.667}^{1/2}) / 2$ = **130.889**	Ordinal position for one-sided lower confidence limit for slope. The LCL is the M_1^{th} largest slope estimate. When M_1 is not an integer, interpolation is used.
8	LCL(S) = **-2.622**	One-sided lower confidence limit for slope.

Worksheet 2 - Intra-Well Control Charts / Prediction Limits
Selenium, total (ug/L) at PZ-11
Nonparametric Prediction Limit

Step	Equation	Description
1	PL = median(X) = **4.0**	Compute nonparametric prediction limit as median reporting limit in background.
2	Conf = **0.99**	Confidence level is based on N, K and resampling strategy (see Gibbons 1994).

Worksheet 2 - Intra-Well Control Charts / Prediction Limits
Silver, total (ug/L) at PZ-11
Nonparametric Prediction Limit

Step	Equation	Description
1	PL = median(X) = **4.0**	Compute nonparametric prediction limit as median reporting limit in background.
2	Conf = **0.99**	Confidence level is based on N, K and resampling strategy (see Gibbons 1994).

Worksheet 2 - Intra-Well Control Charts / Prediction Limits
Thallium, total (ug/L) at PZ-11
Nonparametric Prediction Limit

Step	Equation	Description
1	PL = median(X) = **4.0**	Compute nonparametric prediction limit as median reporting limit in background.
2	Conf = **0.99**	Confidence level is based on N, K and resampling strategy (see Gibbons 1994).

Worksheet 2 - Intra-Well Control Charts / Prediction Limits
Vanadium, total (ug/L) at PZ-11
Nonparametric Prediction Limit

Step	Equation	Description
1	PL = max(X) = **31.0**	Compute nonparametric prediction limit as largest background measurement.
2	Conf = **0.99**	Confidence level is based on N, K and resampling strategy (see Gibbons 1994).

Worksheet 2 - Intra-Well Control Charts / Prediction Limits
Zinc, total (ug/L) at PZ-11
Normal Control Limit

Step	Equation	Description
1	$\overline{X}$ = **sum[X]** / **N**	Compute background mean.
	= **532.1** / **27**	
	= **19.707**	
2	S = ((**sum[X^2]** - **sum[X]**^{2}/**N**) / (**N**-1))^{½}	Compute background sd.
	= ((**11372.23** - **283130.41**/**27**) / (**27**-1))^{½}	
	= **5.837**	
3	SCL = $\overline{X}$ + **F** * **S**	Compute combined Shewhart-CUSUM normal control limit.
	= **19.707** + **6.5** * **5.837**	
	= **57.65**	
4	N' = **N** * (**N**-1) / 2	Number of sample pairs during trend detection period.
	= **27** * (**27**-1) / 2	
	= **351**	
5	S = **0.0**	Sen's estimator of trend.
6	var(S) = **1892.667**	Variance estimate for slope.
7	M_1(S) = (**N'** - **Z**$_{.99}$ * **var(S)**^{½}) / 2	Ordinal position for one-sided lower confidence limit for slope. The LCL is the M_1th largest slope estimate. When M_1 is not an integer, interpolation is used.
	= (**351** - **2.326** * **1892.667**^{½}) / 2	
	= **124.904**	
8	LCL(S) = **0.0**	One-sided lower confidence limit for slope.

Attachment E

Summary Table of Historical VOC Detections

Table 1

Historical Volatile Organic Compound Detections

Constituent	Well	Date	Identifier	Result	Limit	Units
Acetone	MW-10	9/01/2017		18.5	10.0	ug/L
Acetone	MW-7	9/01/2017		14.8	10.0	ug/L
Benzene	MW-7	10/26/2021		1.6	1.0	ug/L
Chlorobenzene	MW-7	9/28/2015		1.0	1.0	ug/L
Chlorobenzene	MW-7	4/10/2017		1.0	1.0	ug/L
Chlorobenzene	MW-7	9/01/2017		1.5	1.0	ug/L
Chlorobenzene	MW-7	4/23/2018		1.7	1.0	ug/L
Chlorobenzene	MW-7	9/14/2018		1.2	1.0	ug/L
Chlorobenzene	MW-7	4/15/2019		1.6	1.0	ug/L
Chlorobenzene	MW-7	9/17/2019		2.4	1.0	ug/L
Chlorobenzene	MW-7	4/08/2020		2.0	1.0	ug/L
Chlorobenzene	MW-7	10/02/2020		2.8	1.0	ug/L
Chlorobenzene	MW-7	4/12/2021		1.7	1.0	ug/L
Chlorobenzene	MW-7	10/26/2021		2.4	1.0	ug/L
Chlorobenzene	MW-7	4/04/2022		1.1	1.0	ug/L
Chlorobenzene	MW-7	10/07/2022		1.8	1.0	ug/L
Chlorobenzene	MW-7	10/17/2024		1.2	1.0	ug/L
Chloroethane	MW-7	3/31/2010		1.5	1.0	ug/L
Chloroethane	MW-7	9/26/2011		1.0	1.0	ug/L
Chloroethane	MW-7	4/01/2012		1.6	1.0	ug/L
Chloroethane	MW-7	8/23/2012		1.5	1.0	ug/L
Chloroethane	MW-7	4/12/2013		1.8	1.0	ug/L
Chloroethane	MW-7	9/14/2013		1.3	1.0	ug/L
Chloroethane	MW-7	4/11/2014		2.3	1.0	ug/L
Chloroethane	MW-7	9/27/2014		2.6	1.0	ug/L
Chloroethane	MW-7	9/28/2015		1.4	1.0	ug/L
Chloroethane	MW-7	3/14/2016		1.6	1.0	ug/L
Chloroethane	MW-7	4/10/2017		1.2	1.0	ug/L
Chloroethane	MW-7	9/01/2017		1.7	1.0	ug/L
Chloroethane	MW-7	4/23/2018		1.7	1.0	ug/L
Chloroethane	MW-7	9/14/2018		1.2	1.0	ug/L
Chloroethane	MW-7	4/15/2019		1.6	1.0	ug/L
Chloroethane	MW-7	9/17/2019		1.1	1.0	ug/L
Chloroethane	MW-7	4/08/2020		1.5	1.0	ug/L
Chloroethane	MW-7	10/02/2020		1.3	1.0	ug/L
Chloroethane	MW-7	10/26/2021		1.2	1.0	ug/L
Chloroethane	MW-7	4/04/2022		1.7	1.0	ug/L
Chloroethane	MW-7	10/07/2022		1.9	1.0	ug/L
Chloroethane	MW-7	10/25/2023		1.3	1.0	ug/L
Chloromethane	MW-7	3/14/2016		3	1	ug/L
Cis-1,2-dichloroethylene	MW-7	3/31/2010		36.4	1.0	ug/L
Cis-1,2-dichloroethylene	MW-7	9/16/2010		1.3	1.0	ug/L
Cis-1,2-dichloroethylene	MW-7	4/11/2011		4.8	1.0	ug/L
Cis-1,2-dichloroethylene	MW-7	9/26/2011		19.2	1.0	ug/L
Cis-1,2-dichloroethylene	MW-7	4/01/2012		69.1	1.0	ug/L
Cis-1,2-dichloroethylene	MW-7	8/23/2012		124.0	1.0	ug/L
Cis-1,2-dichloroethylene	MW-7	4/12/2013		17.7	1.0	ug/L
Cis-1,2-dichloroethylene	MW-7	9/14/2013		95.0	1.0	ug/L
Cis-1,2-dichloroethylene	MW-7	4/11/2014		92.3	1.0	ug/L
Cis-1,2-dichloroethylene	MW-7	9/27/2014		24.4	1.0	ug/L
Cis-1,2-dichloroethylene	MW-7	3/16/2015		58.2	1.0	ug/L
Cis-1,2-dichloroethylene	MW-7	9/28/2015		62.8	1.0	ug/L
Cis-1,2-dichloroethylene	MW-7	3/14/2016		20.8	1.0	ug/L
Cis-1,2-dichloroethylene	MW-7	9/03/2016		3.4	1.0	ug/L
Cis-1,2-dichloroethylene	MW-7	4/10/2017		4.8	1.0	ug/L
Cis-1,2-dichloroethylene	MW-7	9/01/2017		18.3	1.0	ug/L
Cis-1,2-dichloroethylene	MW-7	4/23/2018		10.2	1.0	ug/L
Cis-1,2-dichloroethylene	MW-7	9/14/2018		10.4	1.0	ug/L
Cis-1,2-dichloroethylene	MW-7	4/15/2019		5.9	1.0	ug/L
Cis-1,2-dichloroethylene	MW-7	9/17/2019		7.7	1.0	ug/L
Cis-1,2-dichloroethylene	MW-7	4/08/2020		6.6	1.0	ug/L
Cis-1,2-dichloroethylene	MW-7	10/02/2020		22.5	1.0	ug/L
Cis-1,2-dichloroethylene	MW-7	4/12/2021		14.9	1.0	ug/L
Cis-1,2-dichloroethylene	MW-7	10/26/2021		5.9	1.0	ug/L
Cis-1,2-dichloroethylene	MW-7	10/07/2022		1.0	1.0	ug/L
Cis-1,2-dichloroethylene	MW-7	4/19/2023		1.4	1.0	ug/L
Cis-1,2-dichloroethylene	MW-7	10/25/2023		5.0	1.0	ug/L
Cis-1,2-dichloroethylene	MW-7	4/17/2024		2.3	1.0	ug/L
Cis-1,2-dichloroethylene	MW-7	10/17/2024		6.1	1.0	ug/L
Dichlorodifluoromethane	MW-7	4/01/2012		1.4	1.0	ug/L
Dichlorodifluoromethane	MW-7	8/23/2012		2.3	1.0	ug/L
Dichlorodifluoromethane	MW-7	4/12/2013		3.5	1.0	ug/L
Dichlorodifluoromethane	MW-7	9/14/2013		3.0	1.0	ug/L
Dichlorodifluoromethane	MW-7	4/11/2014		2.1	1.0	ug/L
Dichlorodifluoromethane	MW-7	9/27/2014		2.6	1.0	ug/L
Dichlorodifluoromethane	MW-7	4/10/2017		1.4	1.0	ug/L

Detections are shown for the constituents and sample points selected for the analysis
The Limit column refers to the laboratory reporting limit

Table 1

Historical Volatile Organic Compound Detections

Constituent	Well	Date	Identifier	Result	Limit	Units
Dichlorodifluoromethane	MW-7	4/23/2018		1.4	1.0	ug/L
Dichlorodifluoromethane	MW-7	9/14/2018		1.2	1.0	ug/L
Dichlorodifluoromethane	MW-7	4/15/2019		1.4	1.0	ug/L
Dichlorodifluoromethane	MW-7	4/08/2020		1.6	1.0	ug/L
Dichlorodifluoromethane	MW-7	10/02/2020		1.0	1.0	ug/L
Dichlorodifluoromethane	MW-7	10/26/2021		1.4	1.0	ug/L
Dichlorodifluoromethane	MW-7	10/07/2022		1.3	1.0	ug/L
Dichlorodifluoromethane	MW-7	10/25/2023		1.0	1.0	ug/L
Dichlorodifluoromethane	MW-7	4/17/2024		1.0	1.0	ug/L
Trans-1,2-dichloroethylene	MW-7	3/31/2010		1.0	1.0	ug/L
Trans-1,2-dichloroethylene	MW-7	4/01/2012		1.8	1.0	ug/L
Trans-1,2-dichloroethylene	MW-7	8/23/2012		3.6	1.0	ug/L
Trans-1,2-dichloroethylene	MW-7	9/14/2013		2.8	1.0	ug/L
Trans-1,2-dichloroethylene	MW-7	4/11/2014		2.5	1.0	ug/L
Trans-1,2-dichloroethylene	MW-7	9/28/2015		2.1	1.0	ug/L
Vinyl chloride	MW-7	3/31/2010		1.3	1.0	ug/L
Vinyl chloride	MW-7	4/01/2012		2.4	1.0	ug/L
Vinyl chloride	MW-7	8/23/2012		6.2	1.0	ug/L
Vinyl chloride	MW-7	4/12/2013		3.6	1.0	ug/L
Vinyl chloride	MW-7	9/14/2013		6.4	1.0	ug/L
Vinyl chloride	MW-7	4/11/2014		4.4	1.0	ug/L
Vinyl chloride	MW-7	9/27/2014		3.1	1.0	ug/L
Vinyl chloride	MW-7	9/28/2015		3.0	1.0	ug/L
Vinyl chloride	MW-7	3/14/2016		1.2	1.0	ug/L
Vinyl chloride	MW-7	4/10/2017		1.7	1.0	ug/L
Vinyl chloride	MW-7	9/01/2017		3.2	1.0	ug/L
Vinyl chloride	MW-7	4/23/2018		2.1	1.0	ug/L
Vinyl chloride	MW-7	9/14/2018		2.1	1.0	ug/L
Vinyl chloride	MW-7	4/15/2019		1.1	1.0	ug/L
Vinyl chloride	MW-7	9/17/2019		1.0	1.0	ug/L
Vinyl chloride	MW-7	4/08/2020		1.7	1.0	ug/L
Vinyl chloride	MW-7	10/02/2020		2.5	1.0	ug/L
1,1-dichloroethane	PZ-11	4/19/2023		1.2	1.0	ug/L
1,1-dichloroethane	PZ-11	10/25/2023		1.2	1.0	ug/L
1,1-dichloroethane	PZ-11	4/17/2024		1.3	1.0	ug/L
1,1-dichloroethane	PZ-11	10/17/2024		1.0	1.0	ug/L
Bis(2-ethylhexyl) phthalate	PZ-11	4/08/2020		6	6	ug/L
Bis(2-ethylhexyl) phthalate	PZ-11	4/12/2021		8	6	ug/L
Bis(2-ethylhexyl) phthalate	PZ-11	10/26/2021		7	6	ug/L
Chloroethane	PZ-11	10/25/2023		1.6	1.0	ug/L

Detections are shown for the constituents and sample points selected for the analysis
The Limit column refers to the laboratory reporting limit

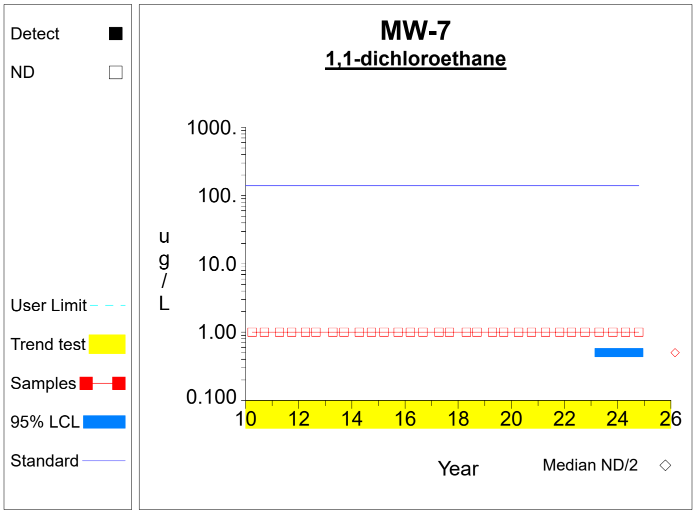
Table 1

Confidence Intervals for Comparing the Mean of the Last 4 Measurements to an Assessment Monitoring Standard

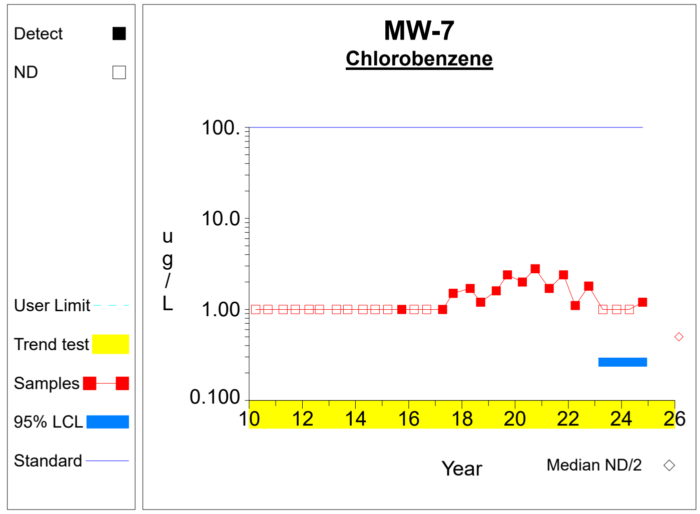
Constituent	Units	Well	N	Mean	SD	Factor	95% LCL	95% UCL	Standard	Trend	
1,1-dichloroethane	ug/L	MW-7	4	0.500	0.000	1.176	0.500	0.500	140.000		
Chlorobenzene	ug/L	MW-7	4	0.675	0.350	1.176	0.263	1.087	100.000		
Chloroethane	ug/L	MW-7	4	0.700	0.400	1.176	0.229	1.171	2800.000		
Cis-1,2-dichloroethylene	ug/L	MW-7	4	3.700	2.214	1.176	1.096	6.304	70.000	dec	
Dichlorodifluoromethane	ug/L	MW-7	4	0.750	0.289	1.176	0.410	1.090	1000.000		
Vinyl chloride	ug/L	MW-7	4	0.500	0.000	1.176	0.500	0.500	2.000		
1,1-dichloroethane	ug/L	PZ-11	4	1.175	0.126	1.176	1.027	1.323	140.000		
Chlorobenzene	ug/L	PZ-11	4	0.500	0.000	1.176	0.500	0.500	100.000		
Chloroethane	ug/L	PZ-11	4	0.775	0.550	1.176	0.128	1.422	2800.000		
Cis-1,2-dichloroethylene	ug/L	PZ-11	4	0.500	0.000	1.176	0.500	0.500	70.000		
Dichlorodifluoromethane	ug/L	PZ-11	3								*
Vinyl chloride	ug/L	PZ-11	4	0.500	0.000	1.176	0.500	0.500	2.000		

* - Insufficient Data
** - Significant Exceedance
LCL = Lower Confidence Limit
UCL = Upper Confidence Limit

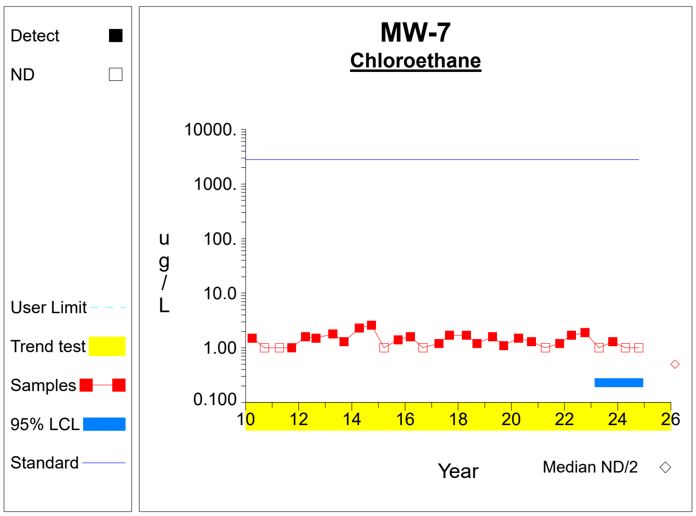
Confidence Limits (Assessment)



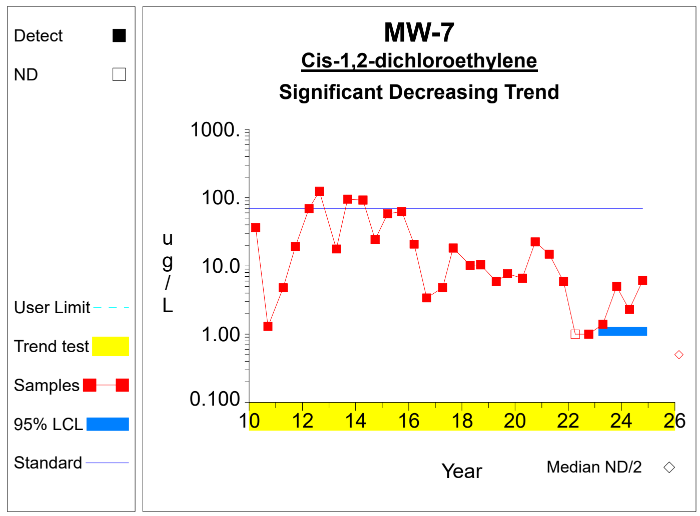
Graph 1



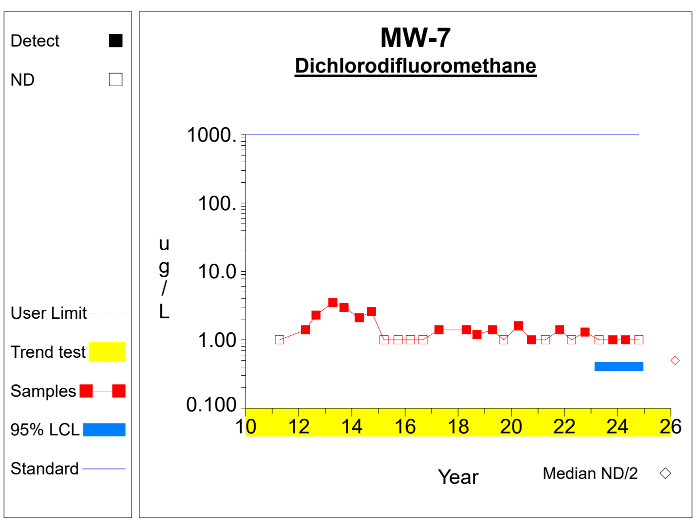
Graph 2



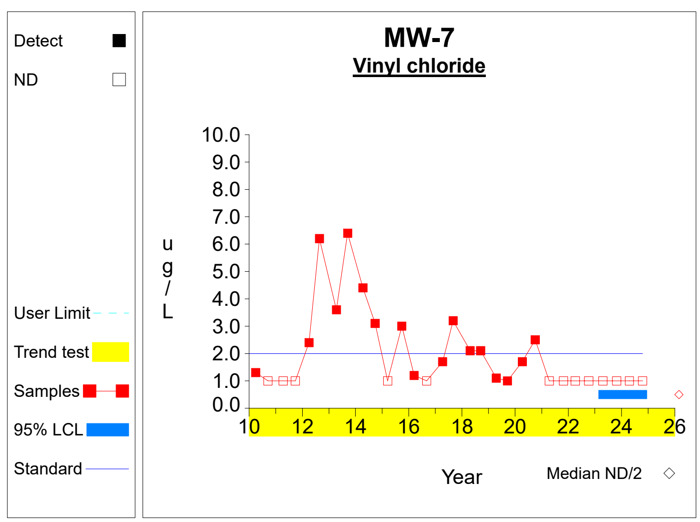
Graph 3



Graph 4



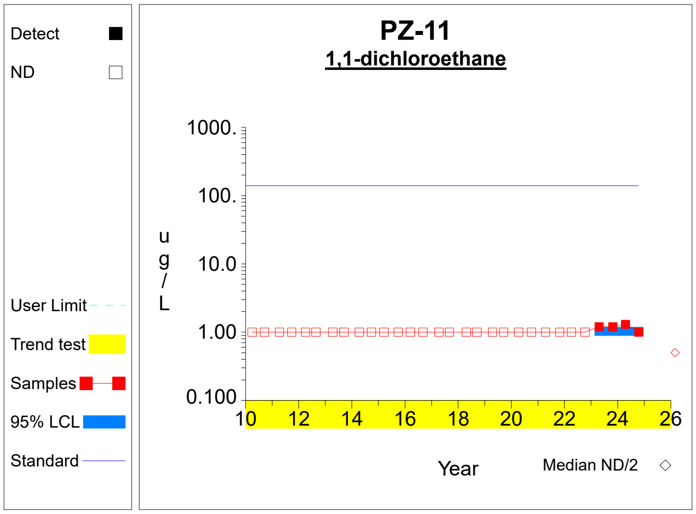
Graph 5



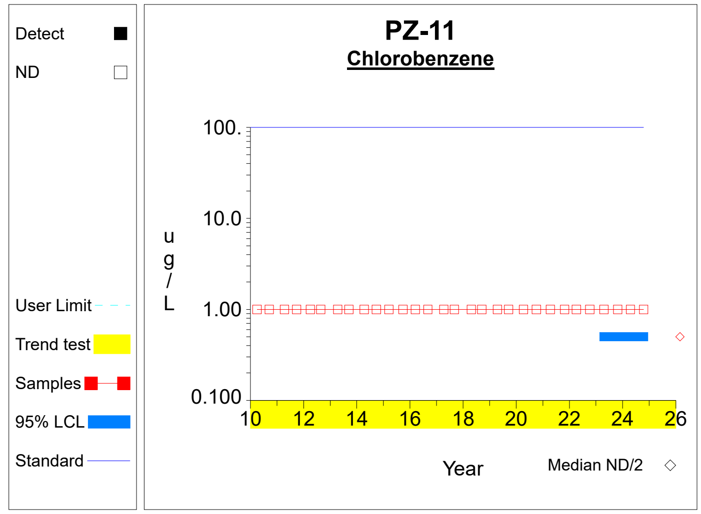
Graph 6

Prepared by: Otter Creek Environmental

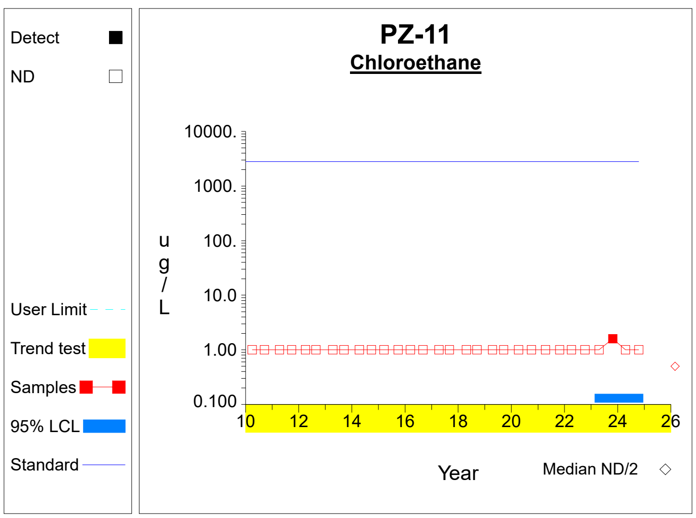
Confidence Limits (Assessment)



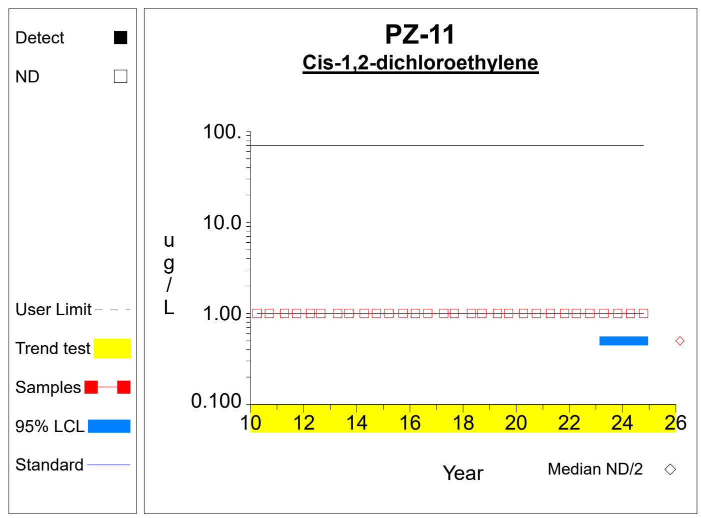
Graph 7



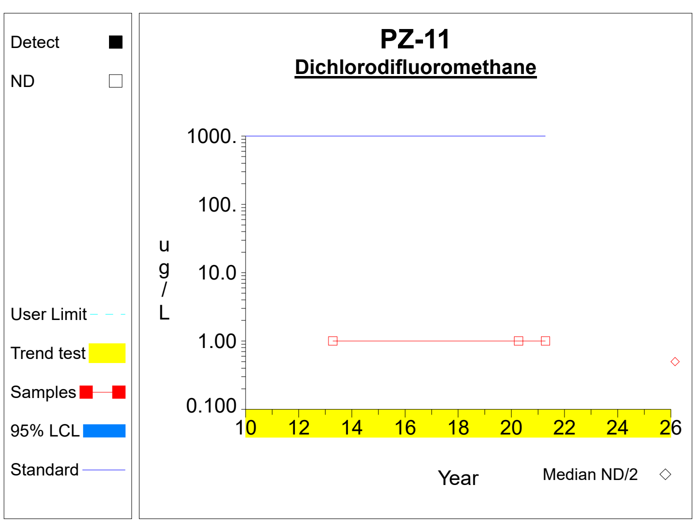
Graph 8



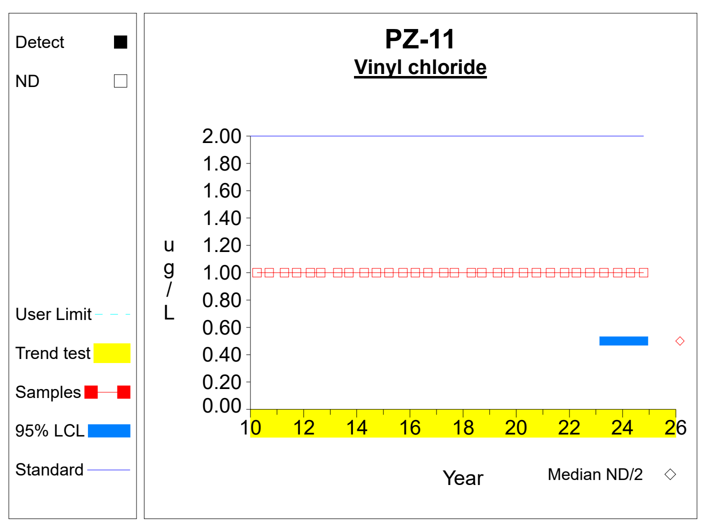
Graph 9



Graph 10



Graph 11



Graph 12

Worksheet 6 - Assessment Monitoring
1,1-dichloroethane (ug/L) at MW-7

Step	Equation	Description
1	$\bar{X} = \textbf{sum[X]} / \textbf{N}$ $= \textbf{2.0} / \textbf{4}$ $= \textbf{0.5}$	Compute the mean of the last 4 measurements.
2	$S = ((\textbf{sum[X}^2\textbf{]} - \textbf{sum[X]}^2/\textbf{N}) / (\textbf{N}-1))^{1/2}$ $= ((\textbf{1.0} - \textbf{4.0}/\textbf{4}) / (\textbf{4}-1))^{1/2}$ $= \textbf{0.0}$	Compute sd of the last 4 measurements.
3	$LCL = \bar{\textbf{X}} - \textbf{tS}/\textbf{N}^{1/2}$ $= \textbf{0.5} - \textbf{2.353} * \textbf{0.0}/\textbf{4}^{1/2}$ $= \textbf{0.5}$	Compute lower confidence limit for the mean of the last 4 measurements.
4	$UCL = \bar{\textbf{X}} + \textbf{tS}/\textbf{N}^{1/2}$ $= \textbf{0.5} + \textbf{2.353} * \textbf{0.0}/\textbf{4}^{1/2}$ $= \textbf{0.5}$	Compute upper confidence limit for the mean of the last 4 measurements.
5	$N' = \textbf{N} * (\textbf{N}-1) / 2$ $= \textbf{30} * (\textbf{30}-1) / 2$ $= \textbf{435}$	Number of sample pairs during trend detection period.
6	$S = \textbf{0.0}$	Sen's estimator of trend.
7	$var(S) = \textbf{0.0}$	Variance estimate for slope.
8	$M(S) = (\textbf{N'} \pm \textbf{Z}_{.995} * \textbf{var(S)}^{1/2}) / 2$ $= (\textbf{435} \pm \textbf{2.576} * \textbf{0.0}^{1/2}) / 2$ $= [\ \textbf{217.5}, \textbf{217.5}\ ]$	Ordinal positions for two-sided lower confidence limits for slope. The LCL and UCL are the M^{th} largest slope estimates for the values shown. When the values are not integers, interpolation is used.
9	$CL(S) = [\ \textbf{0.0}, \textbf{0.0}\ ]$	Two-sided confidence interval for slope.
10	the interval includes 0	There is no significant trend.

Worksheet 6 - Assessment Monitoring
Chlorobenzene (ug/L) at MW-7

Step	Equation	Description
1	$\bar{X}$ = **sum[X]** / **N** = **2.7** / **4** = **0.675**	Compute the mean of the last 4 measurements.
2	S = ((**sum[X^2] - sum[X]^2/N**) / (**N**-1))^{½} = ((**2.19** - **7.29/4**) / (**4**-1))^{½} = **0.35**	Compute sd of the last 4 measurements.
3	LCL = **$\bar{X}$ - tS/N**^{½} = **0.675** - **2.353** * **0.35/4**^{½} = **0.263**	Compute lower confidence limit for the mean of the last 4 measurements.
4	UCL = **$\bar{X}$ + tS/N**^{½} = **0.675** + **2.353** * **0.35/4**^{½} = **1.087**	Compute upper confidence limit for the mean of the last 4 measurements.
5	N' = **N** * (**N**-1) / 2 = **30** * (**30**-1) / 2 = **435**	Number of sample pairs during trend detection period.
6	S = **0.062**	Sen's estimator of trend.
7	var(S) = **2644.333**	Variance estimate for slope.
8	M(S) = (**N'** ± **Z**$_{.995}$ * **var(S)**^{½}) / 2 = (**435** ± **2.576** * **2644.333**^{½}) / 2 = [**151.267**, **283.733**]	Ordinal positions for two-sided lower confidence limits for slope. The LCL and UCL are the Mth largest slope estimates for the values shown. When the values are not integers, interpolation is used.
9	CL(S) = [**0.0**, **0.152**]	Two-sided confidence interval for slope.
10	the interval includes 0	There is no significant trend.

Worksheet 6 - Assessment Monitoring
Chloroethane (ug/L) at MW-7

Step	Equation	Description
1	$\bar{X}$ = **sum[X]** / **N** = **2.8** / **4** = **0.7**	Compute the mean of the last 4 measurements.
2	S = ((**sum[X²] - sum[X]²/N**) / (**N**-1))^{½} = ((**2.44** - **7.84/4**) / (**4**-1))^{½} = **0.4**	Compute sd of the last 4 measurements.
3	LCL = **$\bar{X}$ - tS/N**^{½} = **0.7** - **2.353** * **0.4/4**^{½} = **0.229**	Compute lower confidence limit for the mean of the last 4 measurements.
4	UCL = **$\bar{X}$ + tS/N**^{½} = **0.7** + **2.353** * **0.4/4**^{½} = **1.171**	Compute upper confidence limit for the mean of the last 4 measurements.
5	N' = **N** * (**N**-1) / 2 = **30** * (**30**-1) / 2 = **435**	Number of sample pairs during trend detection period.
6	S = **0.0**	Sen's estimator of trend.
7	var(S) = **3058.0**	Variance estimate for slope.
8	M(S) = (**N'** ± **Z**$_{.995}$ * **var(S)**^{½}) / 2 = (**435** ± **2.576** * **3058.0**^{½}) / 2 = [**146.275**, **288.725**]	Ordinal positions for two-sided lower confidence limits for slope. The LCL and UCL are the Mth largest slope estimates for the values shown. When the values are not integers, interpolation is used.
9	CL(S) = [**-0.093**, **0.039**]	Two-sided confidence interval for slope.
10	the interval includes 0	There is no significant trend.

Worksheet 6 - Assessment Monitoring
Cis-1,2-dichloroethylene (ug/L) at MW-7

Step	Equation	Description
1	$\bar{X} = \mathbf{sum[X]} / \mathbf{N}$ $= \mathbf{14.8} / \mathbf{4}$ $= \mathbf{3.7}$	Compute the mean of the last 4 measurements.
2	$S = ((\mathbf{sum[X^2]} - \mathbf{sum[X]}^2/\mathbf{N}) / (\mathbf{N}-1))^{½}$ $= ((\mathbf{69.46} - \mathbf{219.04}/\mathbf{4}) / (\mathbf{4}-1))^{½}$ $= \mathbf{2.214}$	Compute sd of the last 4 measurements.
3	$LCL = \bar{\mathbf{X}} - \mathbf{tS}/\mathbf{N}^{½}$ $= \mathbf{3.7} - \mathbf{2.353} * \mathbf{2.214}/\mathbf{4}^{½}$ $= \mathbf{1.096}$	Compute lower confidence limit for the mean of the last 4 measurements.
4	$UCL = \bar{\mathbf{X}} + \mathbf{tS}/\mathbf{N}^{½}$ $= \mathbf{3.7} + \mathbf{2.353} * \mathbf{2.214}/\mathbf{4}^{½}$ $= \mathbf{6.304}$	Compute upper confidence limit for the mean of the last 4 measurements.
5	$N' = \mathbf{N} * (\mathbf{N}-1) / 2$ $= \mathbf{30} * (\mathbf{30}-1) / 2$ $= \mathbf{435}$	Number of sample pairs during trend detection period.
6	$S = \mathbf{-2.075}$	Sen's estimator of trend.
7	$var(S) = \mathbf{3139.667}$	Variance estimate for slope.
8	$M(S) = (\mathbf{N'} \pm \mathbf{Z}_{.995} * \mathbf{var(S)}^{½}) / 2$ $= (\mathbf{435} \pm \mathbf{2.576} * \mathbf{3139.667}^{½}) / 2$ $= [\ \mathbf{145.33}, \mathbf{289.67}\ ]$	Ordinal positions for two-sided lower confidence limits for slope. The LCL and UCL are the M^{th} largest slope estimates for the values shown. When the values are not integers, interpolation is used.
9	$CL(S) = [\ \mathbf{-5.465}, \mathbf{-0.352}\ ]$	Two-sided confidence interval for slope.
10	$UCL(S) < 0$	**Significant decreasing trend.**

Worksheet 6 - Assessment Monitoring
Dichlorodifluoromethane (ug/L) at MW-7

Step	Equation	Description
1	$\bar{X}$ = **sum[X]** / **N** = **3.0** / **4** = **0.75**	Compute the mean of the last 4 measurements.
2	S = ((**sum[X²] - sum[X]²/N**) / (**N**-1))^½ = ((**2.5** - **9.0/4**) / (**4**-1))^½ = **0.289**	Compute sd of the last 4 measurements.
3	LCL = $\bar{X}$ - **tS/N**^½ = **0.75** - **2.353** * **0.289/4**^½ = **0.41**	Compute lower confidence limit for the mean of the last 4 measurements.
4	UCL = $\bar{X}$ + **tS/N**^½ = **0.75** + **2.353** * **0.289/4**^½ = **1.09**	Compute upper confidence limit for the mean of the last 4 measurements.
5	N' = **N** * (**N**-1) / 2 = **26** * (**26**-1) / 2 = **325**	Number of sample pairs during trend detection period.
6	S = **-0.073**	Sen's estimator of trend.
7	var(S) = **1913.0**	Variance estimate for slope.
8	M(S) = (**N'** ± $Z_{.995}$ * **var(S)**^½) / 2 = (**325** ± **2.576** * **1913.0**^½) / 2 = [**106.166**, **218.834**]	Ordinal positions for two-sided lower confidence limits for slope. The LCL and UCL are the M^{th} largest slope estimates for the values shown. When the values are not integers, interpolation is used.
9	CL(S) = [**-0.196**, **0.0**]	Two-sided confidence interval for slope.
10	the interval includes 0	There is no significant trend.

Worksheet 6 - Assessment Monitoring
Vinyl chloride (ug/L) at MW-7

Step	Equation	Description
1	$\bar{X}$ = **sum[X]** / **N** = **2.0** / **4** = **0.5**	Compute the mean of the last 4 measurements.
2	S = ((**sum[X^2]** - **sum[X]^2**/**N**) / (**N**-1))^{½} = ((**1.0** - **4.0**/**4**) / (**4**-1))^{½} = **0.0**	Compute sd of the last 4 measurements.
3	LCL = $\bar{X}$ - **tS**/**N**^{½} = **0.5** - **2.353** * **0.0**/**4**^{½} = **0.5**	Compute lower confidence limit for the mean of the last 4 measurements.
4	UCL = $\bar{X}$ + **tS**/**N**^{½} = **0.5** + **2.353** * **0.0**/**4**^{½} = **0.5**	Compute upper confidence limit for the mean of the last 4 measurements.
5	N' = **N** * (**N**-1) / 2 = **30** * (**30**-1) / 2 = **435**	Number of sample pairs during trend detection period.
6	S = **-0.116**	Sen's estimator of trend.
7	var(S) = **2871.0**	Variance estimate for slope.
8	M(S) = (**N'** ± $Z_{.995}$ * **var(S)**^{½}) / 2 = (**435** ± **2.576** * **2871.0**^{½}) / 2 = [**148.487**, **286.513**]	Ordinal positions for two-sided lower confidence limits for slope. The LCL and UCL are the M^{th} largest slope estimates for the values shown. When the values are not integers, interpolation is used.
9	CL(S) = [**-0.307**, **0.0**]	Two-sided confidence interval for slope.
10	the interval includes 0	There is no significant trend.

Worksheet 6 - Assessment Monitoring
1,1-dichloroethane (ug/L) at PZ-11

Step	Equation	Description
1	$\overline{X} = \textbf{sum[X]} / \textbf{N}$ $= \textbf{4.7} / \textbf{4}$ $= \textbf{1.175}$	Compute the mean of the last 4 measurements.
2	$S = ((\textbf{sum[X}^{\textbf{2}}\textbf{]} - \textbf{sum[X]}^2/\textbf{N}) / (\textbf{N}-1))^{1/2}$ $= ((\textbf{5.57} - \textbf{22.09}/\textbf{4}) / (\textbf{4}-1))^{1/2}$ $= \textbf{0.126}$	Compute sd of the last 4 measurements.
3	$LCL = \overline{\textbf{X}} - \textbf{tS}/\textbf{N}^{1/2}$ $= \textbf{1.175} - \textbf{2.353} * \textbf{0.126}/\textbf{4}^{1/2}$ $= \textbf{1.027}$	Compute lower confidence limit for the mean of the last 4 measurements.
4	$UCL = \overline{\textbf{X}} + \textbf{tS}/\textbf{N}^{1/2}$ $= \textbf{1.175} + \textbf{2.353} * \textbf{0.126}/\textbf{4}^{1/2}$ $= \textbf{1.323}$	Compute upper confidence limit for the mean of the last 4 measurements.
5	$N' = \textbf{N} * (\textbf{N}-1) / 2$ $= \textbf{30} * (\textbf{30}-1) / 2$ $= \textbf{435}$	Number of sample pairs during trend detection period.
6	$S = \textbf{0.0}$	Sen's estimator of trend.
7	$var(S) = \textbf{1082.333}$	Variance estimate for slope.
8	$M(S) = (\textbf{N'} \pm \textbf{Z}_{.995} * \textbf{var(S)}^{1/2}) / 2$ $= (\textbf{435} \pm \textbf{2.576} * \textbf{1082.333}^{1/2}) / 2$ $= [\ \textbf{175.126}, \textbf{259.874}\ ]$	Ordinal positions for two-sided lower confidence limits for slope. The LCL and UCL are the M^{th} largest slope estimates for the values shown. When the values are not integers, interpolation is used.
9	$CL(S) = [\ \textbf{0.0}, \textbf{0.0}\ ]$	Two-sided confidence interval for slope.
10	the interval includes 0	There is no significant trend.

Worksheet 6 - Assessment Monitoring
Chlorobenzene (ug/L) at PZ-11

Step	Equation	Description
1	$\overline{X}$ = **sum[X]** / **N** = **2.0** / **4** = **0.5**	Compute the mean of the last 4 measurements.
2	$S = ((\textbf{sum[X}^2\textbf{]} - \textbf{sum[X]}^2/\textbf{N}) / (\textbf{N}-1))^{1/2}$ $= ((\textbf{1.0} - \textbf{4.0}/\textbf{4}) / (\textbf{4}-1))^{1/2}$ = **0.0**	Compute sd of the last 4 measurements.
3	$LCL = \overline{\textbf{X}} - \textbf{tS}/\textbf{N}^{1/2}$ $= \textbf{0.5} - \textbf{2.353} * \textbf{0.0}/\textbf{4}^{1/2}$ = **0.5**	Compute lower confidence limit for the mean of the last 4 measurements.
4	$UCL = \overline{\textbf{X}} + \textbf{tS}/\textbf{N}^{1/2}$ $= \textbf{0.5} + \textbf{2.353} * \textbf{0.0}/\textbf{4}^{1/2}$ = **0.5**	Compute upper confidence limit for the mean of the last 4 measurements.
5	N' = **N** * (**N**-1) / 2 = **30** * (**30**-1) / 2 = **435**	Number of sample pairs during trend detection period.
6	S = **0.0**	Sen's estimator of trend.
7	var(S) = **0.0**	Variance estimate for slope.
8	$M(S) = (\textbf{N'} \pm \textbf{Z}_{.995} * \textbf{var(S)}^{1/2}) / 2$ $= (\textbf{435} \pm \textbf{2.576} * \textbf{0.0}^{1/2}) / 2$ = [**217.5**, **217.5**]	Ordinal positions for two-sided lower confidence limits for slope. The LCL and UCL are the M^{th} largest slope estimates for the values shown. When the values are not integers, interpolation is used.
9	CL(S) = [**0.0**, **0.0**]	Two-sided confidence interval for slope.
10	the interval includes 0	There is no significant trend.

Worksheet 6 - Assessment Monitoring
Chloroethane (ug/L) at PZ-11

Step	Equation	Description
1	$\overline{X}$ = **sum[X]** / **N** = **3.1** / **4** = **0.775**	Compute the mean of the last 4 measurements.
2	S = ((**sum[X^2] - sum[X]^2/N**) / (**N**-1))$^{1/2}$ = ((**3.31** - **9.61/4**) / (**4**-1))$^{1/2}$ = **0.55**	Compute sd of the last 4 measurements.
3	LCL = $\overline{X}$ - **tS/N**$^{1/2}$ = **0.775** - **2.353** * **0.55/4**$^{1/2}$ = **0.128**	Compute lower confidence limit for the mean of the last 4 measurements.
4	UCL = $\overline{X}$ + **tS/N**$^{1/2}$ = **0.775** + **2.353** * **0.55/4**$^{1/2}$ = **1.422**	Compute upper confidence limit for the mean of the last 4 measurements.
5	N' = **N** * (**N**-1) / 2 = **30** * (**30**-1) / 2 = **435**	Number of sample pairs during trend detection period.
6	S = **0.0**	Sen's estimator of trend.
7	var(S) = **299.667**	Variance estimate for slope.
8	M(S) = (**N'** ± $Z_{.995}$ * **var(S)**$^{1/2}$) / 2 = (**435** ± **2.576** * **299.667**$^{1/2}$) / 2 = [**195.204**, **239.796**]	Ordinal positions for two-sided lower confidence limits for slope. The LCL and UCL are the Mth largest slope estimates for the values shown. When the values are not integers, interpolation is used.
9	CL(S) = [**0.0**, **0.0**]	Two-sided confidence interval for slope.
10	the interval includes 0	There is no significant trend.

Worksheet 6 - Assessment Monitoring
Cis-1,2-dichloroethylene (ug/L) at PZ-11

Step	Equation	Description
1	$\overline{X}$ = **sum[X]** / **N** = **2.0** / **4** = **0.5**	Compute the mean of the last 4 measurements.
2	S = ((**sum[X^2]** - **sum[X]**^{2}/**N**) / (**N**-1))$^{1/2}$ = ((**1.0** - **4.0**/**4**) / (**4**-1))$^{1/2}$ = **0.0**	Compute sd of the last 4 measurements.
3	LCL = **$\overline{X}$** - **tS**/**N**$^{1/2}$ = **0.5** - **2.353** * **0.0**/**4**$^{1/2}$ = **0.5**	Compute lower confidence limit for the mean of the last 4 measurements.
4	UCL = **$\overline{X}$** + **tS**/**N**$^{1/2}$ = **0.5** + **2.353** * **0.0**/**4**$^{1/2}$ = **0.5**	Compute upper confidence limit for the mean of the last 4 measurements.
5	N' = **N** * (**N**-1) / 2 = **30** * (**30**-1) / 2 = **435**	Number of sample pairs during trend detection period.
6	S = **0.0**	Sen's estimator of trend.
7	var(S) = **0.0**	Variance estimate for slope.
8	M(S) = (**N'** ± **Z**$_{.995}$ * **var(S)**$^{1/2}$) / 2 = (**435** ± **2.576** * **0.0**$^{1/2}$) / 2 = [**217.5**, **217.5**]	Ordinal positions for two-sided lower confidence limits for slope. The LCL and UCL are the Mth largest slope estimates for the values shown. When the values are not integers, interpolation is used.
9	CL(S) = [**0.0**, **0.0**]	Two-sided confidence interval for slope.
10	the interval includes 0	There is no significant trend.

Worksheet 6 - Assessment Monitoring
Dichlorodifluoromethane (ug/L) at PZ-11

Insufficient data to perform analysis

Worksheet 6 - Assessment Monitoring
Vinyl chloride (ug/L) at PZ-11

Step	Equation	Description
1	$\bar{X} = \mathbf{sum[X]} / \mathbf{N}$ $= \mathbf{2.0} / \mathbf{4}$ $= \mathbf{0.5}$	Compute the mean of the last 4 measurements.
2	$S = ((\mathbf{sum[X^2]} - \mathbf{sum[X]}^2/\mathbf{N}) / (\mathbf{N}-1))^{½}$ $= ((\mathbf{1.0} - \mathbf{4.0}/\mathbf{4}) / (\mathbf{4}-1))^{½}$ $= \mathbf{0.0}$	Compute sd of the last 4 measurements.
3	$LCL = \mathbf{\bar{X}} - \mathbf{tS}/\mathbf{N}^{½}$ $= \mathbf{0.5} - \mathbf{2.353} * \mathbf{0.0}/\mathbf{4}^{½}$ $= \mathbf{0.5}$	Compute lower confidence limit for the mean of the last 4 measurements.
4	$UCL = \mathbf{\bar{X}} + \mathbf{tS}/\mathbf{N}^{½}$ $= \mathbf{0.5} + \mathbf{2.353} * \mathbf{0.0}/\mathbf{4}^{½}$ $= \mathbf{0.5}$	Compute upper confidence limit for the mean of the last 4 measurements.
5	$N' = \mathbf{N} * (\mathbf{N}-1) / 2$ $= \mathbf{30} * (\mathbf{30}-1) / 2$ $= \mathbf{435}$	Number of sample pairs during trend detection period.
6	$S = \mathbf{0.0}$	Sen's estimator of trend.
7	$var(S) = \mathbf{0.0}$	Variance estimate for slope.
8	$M(S) = (\mathbf{N'} \pm \mathbf{Z}_{.995} * \mathbf{var(S)}^{½}) / 2$ $= (\mathbf{435} \pm \mathbf{2.576} * \mathbf{0.0}^{½}) / 2$ $= [\ \mathbf{217.5}, \mathbf{217.5}\ ]$	Ordinal positions for two-sided lower confidence limits for slope. The LCL and UCL are the M^{th} largest slope estimates for the values shown. When the values are not integers, interpolation is used.
9	$CL(S) = [\ \mathbf{0.0}, \mathbf{0.0}\ ]$	Two-sided confidence interval for slope.
10	the interval includes 0	There is no significant trend.

APPENDIX E

Summary of Appendix II Events & Compound Detections (over time)

Assessment Monitoring Compound Detections

Date	bis(2-ethylhexyl)phthalate (ug/L)		Dichlorofluoromethane (ug/L)	
	MW-7	PZ-11	MW-7	PZ-11
4/11/2011	<8	NT	<1.0	NT
9/26/2011	NT	NT	NT	NT
4/1/2012	<8	NT	**1.4**	NT
8/23/2012	NT	NT	**2.3**	NT
4/12/2013	NT	<8	**3.5**	<1.0
9/14/2013	NT	NT	**3.0**	NT
4/11/2014	NT	NT	**2.1**	NT
9/27/2014	NT	NT	**2.6**	NT
3/16/2015	NT	NT	<1.0	NT
9/28/2015	NT	NT	<1.0	NT
3/14/2016	NT	NT	<1.0	NT
9/3/2016	NT	NT	<1.0	NT
4/10/2017	<8	NT	**1.4**	NT
9/1/2017	NT	NT	NT	NT
4/23/2018	NT	NT	**1.4**	NT
9/14/2018	NT	NT	**1.2**	NT
4/15/2019	NT	NT	**1.4**	NT
9/17/2019	NT	NT	<1.0	NT
4/8/2020	NT	**6.0**	**1.6**	<1.0
10/2/2020	NT	NT	**1.0**	NT
4/12/2021	NT	**8.0**	<1.0	<1.0
10/26/2021	NT	**7.0**	**1.4**	NT
4/4/2022	NT	<6	<1.0	NT
10/7/2022	<6	<6	**1.3**	NT
4/19/2023	NT	<6	<1.0	NT
10/25/2023	NT	NT	**1.0**	NT
4/17/2024	NT	NT	**1.0**	NT
10/17/2024	NT	NT	<1.0	NT