June 7, 2019

Mr. John Hale, Permit Manager
Office of Land Quality
Indiana Department of Environmental Management
Solid Waste Permits
IGCN 1101
100 North Senate Avenue
Indianapolis, Indiana 46204-2251

RE: **Spring 2019 Semi-Annual Groundwater Monitoring Report**
Tanners Creek Development, LLC
Tanners Creek Plant – Type I Restricted Waste Landfill
Lawrenceburg, Indiana

Dear Mr. Hale:

On behalf of Tanners Creek Development, LLC, EnviroAnalytics Group, LLC (EAG) has prepared and submits the Spring 2019 Semi-Annual Groundwater Monitoring Report (Report) for the Tanners Creek Plant – Type I Restricted Waste Landfill site located in Lawrenceburg, Indiana. One hard copy and one electronic copy of the Report accompanies this letter for your review. Additionally, an electronic tab-delimited file of the resulting data has been submitted.

The Report documents the results and analysis of the activities conducted during the April 2019 groundwater monitoring event. Intrawell prediction intervals were calculated for boron, calcium, molybdenum, potassium, sodium, strontium, and sulfate at the four downgradient wells (MW-1, MW-2, MW-3, and MW-5). No statistically significant increases were found in any of the downgradient monitoring wells for the seven indicator constituents.

Since there were no statistically significant increases in any of the downgradient wells, the subject landfill will remain in detection monitoring. The next monitoring event is scheduled for October 2019.

Please feel free to contact me (314-835-2816; mdostal@enviroanalyticsgroup.com) or Patrick Kennedy (314-835-2822; pkennedy@enviroanalyticsgroup.com) with any questions or concerns you may have.

Sincerely,

Matthew C. Dostal
Project Geologist
EnviroAnalytics Group, LLC
1515 Des Peres Rd, Suite 300
St. Louis, MO 63131

cc: Russ Becker – EnviroAnalytics Group, LLC
Patrick Kennedy – EnviroAnalytics Group, LLC

SPRING 2019 SEMI-ANNUAL GROUNDWATER MONITORING REPORT

Tanners Creek Plant Type I Landfill

Tanners Creek Development, LLC

Lawrenceburg, Indiana

IDEM Permit # FP 15-12

June 2019

EnviroAnalytics Group

Environmental Engineers

EnviroAnalytics Group
1515 Des Peres Road, Suite 300
St. Louis, Missouri 63131

CERTIFICATION

I, Patrick Kennedy, certify that this *Spring 2019 Semi-Annual Groundwater Monitoring Report (June 2019)* has been prepared by an experienced geologist working under my supervision. This report has been prepared in accordance with industry standards and practices. The data and information contained herein is complete, truthful, and accurate to the best of my knowledge.

Patrick Kennedy, PE
Missouri PE License #2011000909
Missouri Licensed Professional Engineer

6/7/2019
(Date)

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1.0 INTRODUCTION

On behalf of the property owner, Tanners Creek Development, LLC (Tanners), EnviroAnalytics Group, LLC (EAG), has prepared this Spring 2019 Semi-Annual Groundwater Monitoring Report for the former Tanners Creek Plant – Type I Landfill site to be submitted to the Indiana Department of Environmental Management (IDEM). This report was generated based on the results from the April 2019 groundwater monitoring event. On April 2 and 3, 2019, eight groundwater monitoring wells surrounding the landfill site were purged and sampled for laboratory analysis to determine the current groundwater metals concentrations.

1.1 PROPERTY SETTING

The Tanners Creek Plant is a retired coal-fired steam electric power plant previously owned by American Electric Power (AEP). The last date of plant operation was May 31, 2015 due to the Mercury and Air Toxics Standards (MATS) regulation. The plant is now in the process of being decommissioned. The plant is located along the Ohio River at river mile 494 in Lawrenceburg, Indiana. It consisted of four units totalling 995 megawatts (MW). Units 1 and 2 were rated at 145 MW and came online in 1951 and 1952, respectively. Unit 3 was rated at 205 MW and came online in 1954. Unit 4 was rated at 500 MW and came online in 1964.

The Tanners Creek Plant burned approximately 2.6 million tons of coal per year; as a result, the plant produced around 160,000 tons of fly ash and about 80,000 tons of bottom ash/boiler slag per year. Fly ash, bottom ash, and boiler slag are restricted wastes under IDEM regulations contained in 329 IAC 10. In order to contain these residuals, the Tanners Creek Plant constructed a Type I Restricted Waste Landfill that was permitted by IDEM in May 2008. Construction of Phase I was completed and certified for disposal in January 2009. Disposal of fly ash at the landfill began in March 2009. The landfill permit for Tanners Creek was last renewed in July 2013.

The subject landfill is approximately 30 acres and was permitted to receive only coal fly ash, bottom ash, and boiler slag. The total permitted disposal capacity is about 2.4 million cubic yards. The landfill is lined with a 1-foot clay layer that has a hydraulic conductivity factor no greater than 1.0×10^{-6} centimeters per second (cm/s), then overlaid by a geosynthetic clay liner (GCL) and topped with a 30-mil polyvinyl chloride (PVC) geomembrane. Directly above the PVC membrane is a leachate collection system

consisting of 2 feet of granular drainage material that has a permeability factor no less than $1.0x10^{-3}$ cm/s, along with 16-inch and 20-inch slotted pipes embedded in the granular material covered by a geotextile to prevent plugging. This leachate collection system was routed to a collection pond lined in the same manner as the landfill with the leachate subsequently pumped into the fly ash pond. Fly ash pond water is decanted to the main ash pond for treatment and finally discharged to the Ohio River under the terms of an IDEM-issued NPDES permit. The final cap for the landfill consists of 2 feet of clay for slopes less than 15% gradient and 4 feet of clay for slopes greater than 25% gradient. The clay is then capped with a minimum of 6 inches of topsoil and then seeded. The post closure care period is 30 years. The landfill is still active, however not currently receiving waste, and will remain active through part of the site closure.

2.0 GROUNDWATER MONITORING SYSTEM

The subject landfill is encompassed by 8 groundwater monitoring wells, MW-1 through MW-8, as depicted on the attached **Figure** entitled "Potentiometric Map". Each well is screened in the Ohio River Valley sand and gravel alluvial aquifer under the landfill. Groundwater flow direction is to the northwest toward the facility fly ash pond with monitoring wells MW-4, MW-6, MW-7, and MW-8 designated as upgradient based on the groundwater flow direction, and monitoring wells MW-1, MW-2, MW-3, and MW-5 downgradient.

EAG sampled all 8 of the monitoring wells on April 2 and 3, 2019 using low-flow sampling methods described in the most recent Sampling and Analysis Plan (SAP) submitted by AEP in November 2013. As per the sampling QA/QC objectives outlined in the SAP, one field blank sample (Field Blank-1), one equipment blank sample (Equip Blank-1), and one duplicate sample (DUP-1 from MW-3) was collected and analysed for List A and List B parameters defined in Section C11 of the permit and Section 7.5 of the SAP. Due to the use of dedicated equipment in each of the monitoring wells, an appropriate equipment blank was collected by pouring laboratory-grade distilled water over the decontaminated probe of the water level meter.

3.0 STATISTICAL ANALYSES

Per the Statistical Evaluation Plan, intrawell statistical analysis was applied for seven constituents (boron, calcium, molybdenum, potassium, sodium, strontium, and sulfate) on the four downgradient wells MW-1, MW-2, MW-3, and MW-5. The upper prediction limit was calculated using the historical background data range from December 2007 to

October 2018. The most recent results were used as the compliance data range. The statistical analysis procedure and results are provided in **Attachment E**.

4.0 MONITORING & STATISTICAL RESULTS

Field logs, including the monitoring well gauging form and individual well purging/sampling forms, summarizing the Spring 2019 groundwater sampling event, and equipment calibration logs are provided in **Attachment A**.

Piper and Stiff Diagrams depicting the results of the eight monitoring wells are provided in **Attachment B** and **Attachment C**, respectively. Additionally, time series plots for all parameters recorded from each well since the December 2007 monitoring event are provided in **Attachment D**. The laboratory analytical results generated by Pace Analytical Services, Inc. are provided in **Attachment F**.

The number of downgradient and upgradient monitoring wells remains sufficient to determine the flow direction and quality of the groundwater. No statistically significant increases were found at any of the downgradient monitoring wells for the seven indicator constituents.

5.0 CONCLUSIONS AND RECOMMENDATIONS

Due to the fact that there were no statistically significant increases in any of the downgradient monitoring wells for the seven indicator constituents, the Tanners Creek Plant Type I Landfill will remain in detection monitoring. The next semi-annual groundwater sampling event is scheduled for October 2019.

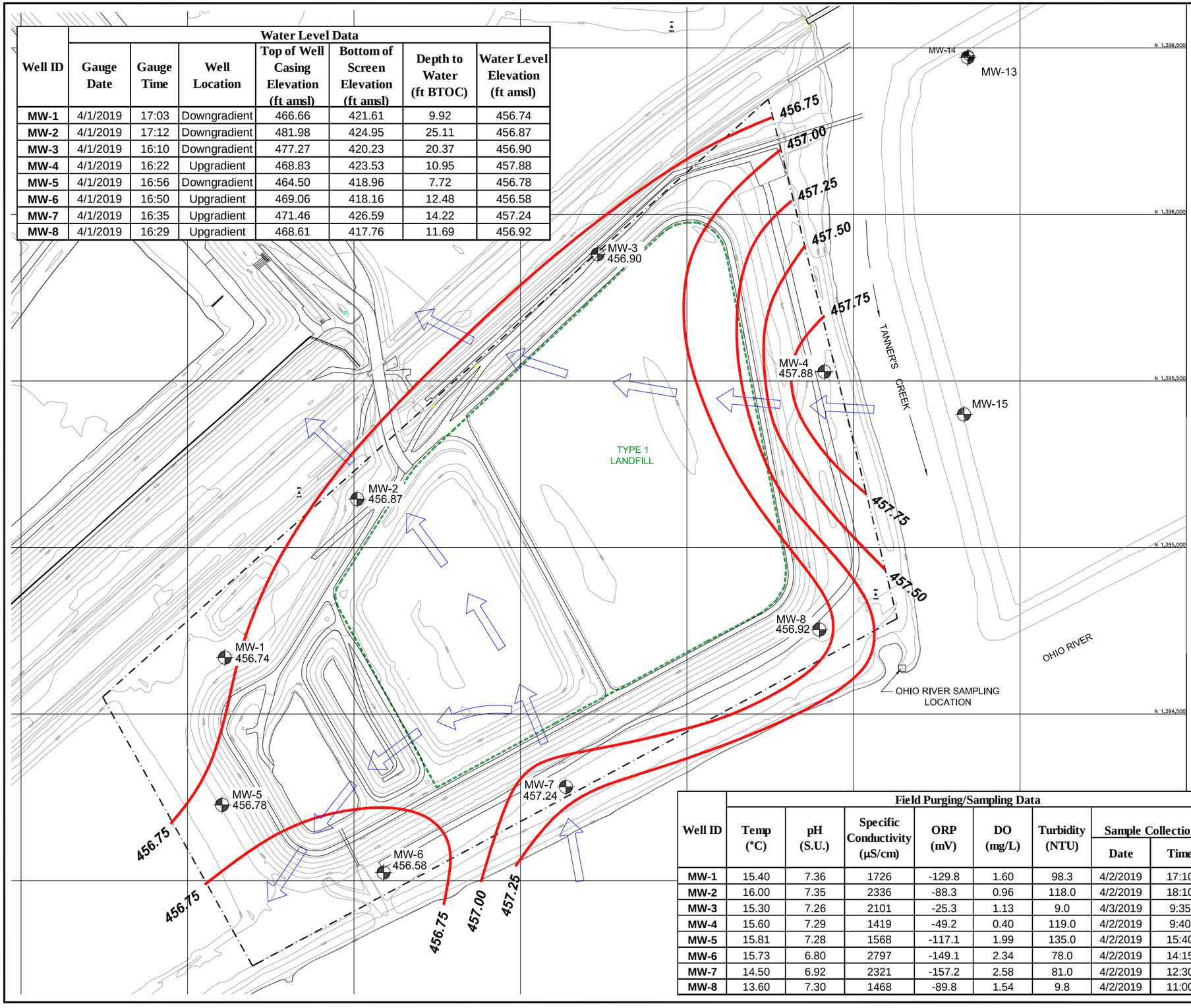
FIGURE

Potentiometric Map
April 2019

EnviroAnalytics Group

Environmental Engineers

Well ID	Water Level Data						
	Gauge Date	Gauge Time	Well Location	Top of Well Casing Elevation (ft amsl)	Bottom of Screen Elevation (ft amsl)	Depth to Water (ft BTOC)	Water Level Elevation (ft amsl)
MW-1	4/1/2019	17:03	Downgradient	466.66	421.61	9.92	456.74
MW-2	4/1/2019	17:12	Downgradient	481.98	424.95	25.11	456.87
MW-3	4/1/2019	16:10	Downgradient	477.27	420.23	20.37	456.90
MW-4	4/1/2019	16:22	Upgradient	468.83	423.53	10.95	457.88
MW-5	4/1/2019	16:56	Downgradient	464.50	418.96	7.72	456.78
MW-6	4/1/2019	16:50	Upgradient	469.06	418.16	12.48	456.58
MW-7	4/1/2019	16:35	Upgradient	471.46	426.59	14.22	457.24
MW-8	4/1/2019	16:29	Upgradient	468.61	417.76	11.69	456.92



LEGEND

- MONITORING WELL
- SITE PROPERTY LINE
- WASTE BOUNDARY
- 457.00 POTENTIOMETRIC CONTOUR
- FLOW DIRECTION

N

0 300 600

SCALE FEET

Well ID	Field Purging/Sampling Data							
	Temp (°C)	pH (S.U.)	Specific Conductivity (µS/cm)	ORP (mV)	DO (mg/L)	Turbidity (NTU)	Sample Collection	
							Date	Time
MW-1	15.40	7.36	1726	-129.8	1.60	98.3	4/2/2019	17:10
MW-2	16.00	7.35	2336	-88.3	0.96	118.0	4/2/2019	18:10
MW-3	15.30	7.26	2101	-25.3	1.13	9.0	4/3/2019	9:35
MW-4	15.60	7.29	1419	-49.2	0.40	119.0	4/2/2019	9:40
MW-5	15.81	7.28	1568	-117.1	1.99	135.0	4/2/2019	15:40
MW-6	15.73	6.80	2797	-149.1	2.34	78.0	4/2/2019	14:15
MW-7	14.50	6.92	2321	-157.2	2.58	81.0	4/2/2019	12:30
MW-8	13.60	7.30	1468	-89.8	1.54	9.8	4/2/2019	11:00

EnviroAnalytics Group

POTENTIOMETRIC MAP
TYPE 1 LANDFILL
Tanner's Creek Plant
Lawrenceburg, Indiana

DESIGN: MD	DRAWN: lmc	CHKD.: MD
DATE: 05/01/19	SCALE: AS SHOWN	REV.:
W.O.NO.: EAG 2019\TANNERS CREEK\POTENTIOMETRIC MAP APRIL 2019		

ATTACHMENTS

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Environmental Engineers

ATTACHMENT A

Groundwater Gauging and Sampling Field Logs

EnviroAnalytics Group

Environmental Engineers

TANNERS CREEK - FLY ASH LANDFILL MONITORING WELL GAUGING FORM									
Well ID	Well Diameter	Well to be Sampled?	Sample Parameters	Total Depth (ft)	Screened Interval (ft)	Measuring Point	Depth to Water	Time	Date
MW-1	2-inch	Yes	Metals et al.*	45	35-45	Top of Casing	9.92	1703	4/1/19
MW-2	2-inch	Yes	Metals et al.*	57	47-57	Top of Casing	25.11	1712	
MW-3	2-inch	Yes	Metals et al.*	57	47-57	Top of Casing	20.37	1610	
MW-4	2-inch	Yes	Metals et al.*	45	35-45	Top of Casing	10.95	1622	
MW-5	2-inch	Yes	Metals et al.*	45.5	35.5-45.5	Top of Casing	7.72	1656	
MW-6	2-inch	Yes	Metals et al.*	51	41-51	Top of Casing	12.48	1650	
MW-7	2-inch	Yes	Metals et al.*	45	35-45	Top of Casing	14.22	1635	
MW-8	2-inch	Yes	Metals et al.*	51	41-51	Top of Casing	11.69	1629	

* Metals/Hardness/Total Phosphorus/Nox/Cl/F/SO4/NO3/Alkalinity/TDS
* Metals samples will be field filtered through a 0.45 micron filter prior to preservation

EnviroAnalytics Group

Groundwater Monitoring Well Sampling Log

Well ID: MW-1

General Information

Project Name/Client: Tanners Creek Development, LLC	
Site Name: Tanners Creek - Type I Landfill	**Date:** 4/2/19
Site Location: Lawrenceburg, Indiana	**Time Duration:** 16:15 to 17:15
Operator(s): CS/MN	**Weather:** Sunny 60°F

Well Information

Well Diameter (in): 2	**Water Level Instrument:** Solinst Model 122
Casing Type: PVC	**Initial DTW (ft):** 9.92
Measuring Point: Top of casing (BTOC)	**Total Depth (ft):** 45.00
Screen Depth (ft BTOC): 35 to 45	**Water Column Height (ft):** 35.08
Pump Intake (ft BTOC): 41	**Volume in Well (gal):** 5.72

Monitoring Well Purge Summary

Purging Device: Grundfos Redi-Flo 2 Pump (dedicated)	**Water Quality Meter:** Aquaread AP-800

	Time	DTW (ft)	Drawdown (ft)	pH (s.u.)	Temp (°C)	Spec Conductivity (µS/cm)	RDO (mg/L)	Turbidity (NTU)	ORP (mV)
Stabilization Settings				+/- 0.1	+/- 1.0	+/- 3%	+/-1 or 10%	+/-10 or 10%	+/- 20
Last 5 Readings	16:45	11.37	1.45	7.36	15.50	1668	0.86	269	-126.1
	16:50	11.37	1.45	7.36	15.53	1685	0.91	199	-128.8
	16:55	11.49	1.57	7.36	15.60	1685	1.37	82.2	-128.9
	17:00	11.49	1.57	7.36	15.68	1714	1.03	94.6	-129.9
	17:05	11.48	1.56	7.36	15.40	1726	1.60	98.3	-129.8
Variance in Last 3 Readings	16:55	0.12	0.12	0.00	0.07	0.00%	0.46	-116.80	-0.1
	17:00	0.00	0.00	0.00	0.08	1.69%	-0.34	12.40	-1.0
	17:05	-0.01	-0.01	0.00	-0.28	0.70%	0.57	3.70	0.1

Estimated Total Volume Purged (gal): 6.00 **Purge Rate (mL/min):** 450 **Sample Rate (mL/min):** 450

NOTES: Well pad/riser/area in good condition.

Final Field Sample Data

Physical Appearance: Slightly murky water then cleared **Odor:** No noticeable odor

Sample Time	Final DTW (ft)	Final Drawdown (ft)	pH (s.u.)	Temp (°C)	Spec Cond (µS/cm)	RDO (mg/L)	Turbidity (NTU)	ORP (mV)	
17:10	11.48	1.56	7.36	15.40	1726	1.60	98.3	-129.8	

Laboratory Analysis

Sample ID	Parameter/Method	Container Size/Type	Preservative
MW-1	Metals, Hardness	250 mL poly	HNO3, 0.45 micron filter
	Total Phosphorous, Nox	250 mL poly	H2SO4
	CL, F, NO3, Si, SO4, Alkalinity, TDS	1.0 L poly	Unpreserved

Laboratory Used: Pace Analytical Services, Inc. **Notes:**

EnviroAnalytics Group

Groundwater Monitoring Well Sampling Log

Well ID: MW-2

General Information

Project Name/Client: Tanners Creek Development, LLC	
Site Name: Tanners Creek - Type I Landfill	**Date:** 4/2/19
Site Location: Lawrenceburg, Indiana	**Time Duration:** 17:30 to 18:15
Operator(s): CS/MN	**Weather:** Sunny 64°F

Well Information

Well Diameter (in): 2	**Water Level Instrument:** Solinst Model 122
Casing Type: PVC	**Initial DTW (ft):** 25.11
Measuring Point: Top of casing (BTOC)	**Total Depth (ft):** 57.00
Screen Depth (ft BTOC): 47 to 57	**Water Column Height (ft):** 31.89
Pump Intake (ft BTOC): 52	**Volume in Well (gal):** 5.20

Monitoring Well Purge Summary

Purging Device: Grundfos Redi-Flo 2 Pump (dedicated)	**Water Quality Meter:** Aquaread AP-800

	Time	DTW (ft)	Drawdown (ft)	pH (s.u.)	Temp (°C)	Spec Conductivity (µS/cm)	RDO (mg/L)	Turbidity (NTU)	ORP (mV)
Stabilization Settings				+/- 0.1	+/- 1.0	+/- 3%	+/-1 or 10%	+/-10 or 10%	+/- 20
Last 5 Readings	17:45	24.99	-0.12	7.38	15.00	2175	1.15	174.0	-84.5
	17:50	24.99	-0.12	7.37	15.40	2199	1.02	117.0	-86.9
	17:55	24.99	-0.12	7.36	15.80	2303	1.13	120.0	-87.5
	18:00	24.99	-0.12	7.35	15.90	2339	1.10	113.0	-86.7
	18:05	24.99	-0.12	7.35	16.00	2336	0.96	118.0	-88.3
Variance in Last 3 Readings	17:55	0.00	0.00	-0.01	0.40	4.52%	0.11	3.0	-0.6
	18:00	0.00	0.00	-0.01	0.10	1.54%	-0.03	-7.0	0.8
	18:05	0.00	0.00	0.00	0.10	-0.13%	-0.14	5.0	-1.6

Estimated Total Volume Purged (gal): 4.25 **Purge Rate (mL/min):** 450 **Sample Rate (mL/min):** 450

NOTES: Well pad/riser/area in good condition.

Final Field Sample Data

Physical Appearance: Visibly clear	**Odor:** Slight organic odor

Sample Time	Final DTW (ft)	Final Drawdown (ft)	pH (s.u.)	Temp (°C)	Spec Cond (µS/cm)	RDO (mg/L)	Turbidity (NTU)	ORP (mV)	
18:10	24.99	-0.12	7.35	16.00	2336	0.96	118.0	-88.3	

Laboratory Analysis

Sample ID	Parameter/Method	Container Size/Type	Preservative
MW-2	Metals, Hardness	250 mL poly	HNO3, 0.45 micron filter
	Total Phosphorous, Nox	250 mL poly	H2SO4
	CL, F, NO3, Si, SO4, Alkalinity, TDS	1.0 L poly	Unpreserved

Laboratory Used: Pace Analytical Services, Inc. **Notes:**

EnviroAnalytics Group

Groundwater Monitoring Well Sampling Log

Well ID: MW-3

General Information

Project Name/Client: Tanners Creek Development, LLC	
Site Name: Tanners Creek - Type I Landfill	**Date:** 4/3/19
Site Location: Lawrenceburg, Indiana	**Time Duration:** 09:00 to 09:40
Operator(s): CS/MN	**Weather:** Sunny 40°F

Well Information

Well Diameter (in): 2	**Water Level Instrument:** Solinst Model 122
Casing Type: PVC	**Initial DTW (ft):** 20.37
Measuring Point: Top of casing (BTOC)	**Total Depth (ft):** 57.00
Screen Depth (ft BTOC): 47 to 57	**Water Column Height (ft):** 36.63
Pump Intake (ft BTOC): 52	**Volume in Well (gal):** 5.97

Monitoring Well Purge Summary

Purging Device: Grundfos Redi-Flo 2 Pump (dedicated)	**Water Quality Meter:** Aquaread AP-800

	Time	DTW (ft)	Drawdown (ft)	pH (s.u.)	Temp (°C)	Spec Conductivity (µS/cm)	RDO (mg/L)	Turbidity (NTU)	ORP (mV)
Stabilization Settings				+/- 0.1	+/- 1.0	+/- 3%	+/-1 or 10%	+/-10 or 10%	+/- 20
Last 5 Readings	9:10	20.30	-0.07	7.37	13.25	2072	2.80	16.8	-29.1
	9:15	20.30	-0.07	7.30	14.20	2083	2.13	14.5	-28.4
	9:20	20.30	-0.07	7.27	14.80	2092	1.70	11.1	-26.7
	9:25	20.30	-0.07	7.26	14.90	2091	1.39	9.1	-22.8
	9:30	20.30	-0.07	7.26	15.30	2101	1.13	9.0	-25.3
Variance in Last 3 Readings	9:20	0.00	0.00	-0.03	0.60	0.43%	-0.43	-3.4	1.7
	9:25	0.00	0.00	-0.01	0.10	-0.05%	-0.31	-2.0	3.9
	9:30	0.00	0.00	0.00	0.40	0.48%	-0.26	-0.1	-2.5

Estimated Total Volume Purged (gal): 3.50 **Purge Rate (mL/min):** 450 **Sample Rate (mL/min):** 450

NOTES: Well pad/riser/area in good condition.

Final Field Sample Data

Physical Appearance: Visibly clear	**Odor:** No noticeable odor

Sample Time	Final DTW (ft)	Final Drawdown (ft)	pH (s.u.)	Temp (°C)	Spec Cond (µS/cm)	RDO (mg/L)	Turbidity (NTU)	ORP (mV)	
9:35	20.30	-0.07	7.26	15.30	2101	1.13	9.0	-25.3	

Laboratory Analysis

Sample ID	Parameter/Method	Container Size/Type	Preservative
MW-3	Metals, Hardness	250 mL poly	HNO3, 0.45 micron filter
plus DUP-1	Total Phosphorous, Nox	250 mL poly	H2SO4
	CL, F, NO3, Si, SO4, Alkalinity, TDS	1.0 L poly	Unpreserved

Laboratory Used: Pace Analytical Services, Inc. **Notes:** Duplicate collected @0935

EnviroAnalytics Group

Groundwater Monitoring Well Sampling Log

Well ID: MW-4

General Information

Project Name/Client: Tanners Creek Development, LLC	
Site Name: Tanners Creek - Type I Landfill	**Date:** 4/2/19
Site Location: Lawrenceburg, Indiana	**Time Duration:** 08:40 to 09:45
Operator(s): CS/MN	**Weather:** Cloudy 35°F

Well Information

Well Diameter (in): 2	**Water Level Instrument:** Solinst Model 122
Casing Type: PVC	**Initial DTW (ft):** 10.95
Measuring Point: Top of casing (BTOC)	**Total Depth (ft):** 45.00
Screen Depth (ft BTOC): 35 to 45	**Water Column Height (ft):** 34.05
Pump Intake (ft BTOC): 40	**Volume in Well (gal):** 5.55

Monitoring Well Purge Summary

Purging Device: Grundfos Redi-Flo 2 Pump (dedicated)	**Water Quality Meter:** Aquaread AP-800

	Time	DTW (ft)	Drawdown (ft)	pH (s.u.)	Temp (°C)	Spec Conductivity (µS/cm)	RDO (mg/L)	Turbidity (NTU)	ORP (mV)
Stabilization Settings				+/- 0.1	+/- 1.0	+/- 3%	+/-1 or 10%	+/-10 or 10%	+/- 20
Last 5 Readings	9:15	12.65	1.70	7.31	15.50	1392	0.08	142.0	-31.9
	9:20	12.65	1.70	7.30	15.50	1403	0.20	141.0	-39.8
	9:25	12.65	1.70	7.30	15.50	1382	0.28	126.0	-38.2
	9:30	12.65	1.70	7.29	15.55	1408	0.32	120.0	-46.3
	9:35	12.65	1.70	7.29	15.60	1419	0.40	119.0	-49.2
Variance in Last 3 Readings	9:25	0.00	0.00	0.00	0.00	-1.52%	0.08	-15.0	1.6
	9:30	0.00	0.00	-0.01	0.05	1.85%	0.04	-6.0	-8.1
	9:35	0.00	0.00	0.00	0.05	0.78%	0.08	-1.0	-2.9

Estimated Total Volume Purged (gal): 7.25 **Purge Rate (mL/min):** 500 **Sample Rate (mL/min):** 500

NOTES: Well pad/riser/area in good condition.

Final Field Sample Data

Physical Appearance: Slightly murky	**Odor:** No noticeable odor

Sample Time	Final DTW (ft)	Final Drawdown (ft)	pH (s.u.)	Temp (°C)	Spec Cond (µS/cm)	RDO (mg/L)	Turbidity (NTU)	ORP (mV)	
9:40	12.65	1.70	7.29	15.60	1419	0.40	119.0	-49.2	

Laboratory Analysis

Sample ID	Parameter/Method	Container Size/Type	Preservative
MW-4	Metals, Hardness	250 mL poly	HNO3, 0.45 micron filter
	Total Phosphorous, Nox	250 mL poly	H2SO4
	CL, F, NO3, Si, SO4, Alkalinity, TDS	1.0 L poly	Unpreserved

Laboratory Used: Pace Analytical Services, Inc. **Notes:**

EnviroAnalytics Group

Groundwater Monitoring Well Sampling Log

Well ID: MW-5

General Information

Project Name/Client: Tanners Creek Development, LLC	
Site Name: Tanners Creek - Type I Landfill	**Date:** 4/2/19
Site Location: Lawrenceburg, Indiana	**Time Duration:** 14:55 to 15:45
Operator(s): CS/MN	**Weather:** Sunny 60°F

Well Information

Well Diameter (in): 2	**Water Level Instrument:** Solinst Model 122
Casing Type: PVC	**Initial DTW (ft):** 7.72
Measuring Point: Top of casing (BTOC)	**Total Depth (ft):** 45.50
Screen Depth (ft BTOC): 35.5 to 45.5	**Water Column Height (ft):** 37.78
Pump Intake (ft BTOC): 41	**Volume in Well (gal):** 6.16

Monitoring Well Purge Summary

Purging Device: Grundfos Redi-Flo 2 Pump (dedicated)	**Water Quality Meter:** Aquaread AP-800

	Time	DTW (ft)	Drawdown (ft)	pH (s.u.)	Temp (°C)	Spec Conductivity (µS/cm)	RDO (mg/L)	Turbidity (NTU)	ORP (mV)
Stabilization Settings				+/- 0.1	+/- 1.0	+/- 3%	+/-1 or 10%	+/-10 or 10%	+/- 20
Last 5 Readings	15:15	12.70	4.98	7.29	15.20	1537	2.33	186.0	-112.5
	15:20	12.70	4.98	7.29	15.40	1555	2.40	142.0	-113.2
	15:25	12.70	4.98	7.28	15.50	1555	2.27	136.0	-113.6
	15:30	12.70	4.98	7.28	15.60	1565	2.13	136.0	-114.8
	15:35	12.70	4.98	7.28	15.81	1568	1.99	135.0	-117.1
Variance in Last 3 Readings	15:25	0.00	0.00	-0.01	0.10	0.00%	-0.13	-6.00	-0.4
	15:30	0.00	0.00	0.00	0.10	0.64%	-0.14	0.00	-1.2
	15:35	0.00	0.00	0.00	0.21	0.19%	-0.14	-1.00	-2.3

Estimated Total Volume Purged (gal): 4.75 **Purge Rate (mL/min):** 450 **Sample Rate (mL/min):** 450

NOTES: Well pad/riser/area in good condition.

Final Field Sample Data

Physical Appearance: Slightly brown murky **Odor:** Slight odor

Sample Time	Final DTW (ft)	Final Drawdown (ft)	pH (s.u.)	Temp (°C)	Spec Cond (µS/cm)	RDO (mg/L)	Turbidity (NTU)	ORP (mV)	
15:40	12.70	4.98	7.28	15.81	1568	1.99	135.0	-117.1	

Laboratory Analysis

Sample ID	Parameter/Method	Container Size/Type	Preservative
MW-5	Metals, Hardness	250 mL poly	HNO3, 0.45 micron filter
	Total Phosphorous, Nox	250 mL poly	H2SO4
	CL, F, NO3, Si, SO4, Alkalinity, TDS	1.0 L poly	Unpreserved

Laboratory Used: Pace Analytical Services, Inc. **Notes:**

EnviroAnalytics Group

Groundwater Monitoring Well Sampling Log

Well ID: MW-6

General Information

Project Name/Client: Tanners Creek Development, LLC	
Site Name: Tanners Creek - Type I Landfill	**Date:** 4/2/19
Site Location: Lawrenceburg, Indiana	**Time Duration:** 13:20 to 14:20
Operator(s): CS/MN	**Weather:** Sunny 55°F

Well Information

Well Diameter (in): 2	**Water Level Instrument:** Solinst Model 122
Casing Type: PVC	**Initial DTW (ft):** 12.48
Measuring Point: Top of casing (BTOC)	**Total Depth (ft):** 51.00
Screen Depth (ft BTOC): 41 to 51	**Water Column Height (ft):** 38.52
Pump Intake (ft BTOC): 46	**Volume in Well (gal):** 6.28

Monitoring Well Purge Summary

Purging Device: Grundfos Redi-Flo 2 Pump (dedicated)	**Water Quality Meter:** Aquaread AP-800

	Time	DTW (ft)	Drawdown (ft)	pH (s.u.)	Temp (°C)	Spec Conductivity (µS/cm)	RDO (mg/L)	Turbidity (NTU)	ORP (mV)
Stabilization Settings				+/- 0.1	+/- 1.0	+/- 3%	+/-1 or 10%	+/-10 or 10%	+/- 20
Last 5 Readings	13:50	12.80	0.32	6.78	15.70	2812	3.81	212.00	-143.1
	13:55	12.80	0.32	6.79	15.70	2861	3.46	163.0	-144.3
	14:00	12.80	0.32	6.79	15.70	2874	2.68	114.0	-147.8
	14:05	12.80	0.32	6.80	15.72	2813	2.36	83.0	-148.9
	14:10	12.80	0.32	6.80	15.73	2797	2.34	78.0	-149.1
Variance in Last 3 Readings	14:00	0.00	0.00	0.00	0.00	0.45%	-0.78	-49.0	-3.5
	14:05	0.00	0.00	0.01	0.02	-2.17%	-0.32	-31.0	-1.1
	14:10	0.00	0.00	0.00	0.01	-0.57%	-0.02	-5.0	-0.2

Estimated Total Volume Purged (gal): 6.00 **Purge Rate (mL/min):** 450 **Sample Rate (mL/min):** 450

NOTES: Well pad/riser/area in good condition. Unclogged weep hole at base of well riser housing.

Final Field Sample Data

Physical Appearance: Very turbid brown then cleared	**Odor:** Slight sulfur odor

Sample Time	Final DTW (ft)	Final Drawdown (ft)	pH (s.u.)	Temp (°C)	Spec Cond (µS/cm)	RDO (mg/L)	Turbidity (NTU)	ORP (mV)	
14:15	12.80	0.32	6.80	15.73	2797	2.34	78.0	-149.1	

Laboratory Analysis

Sample ID	Parameter/Method	Container Size/Type	Preservative
MW-6	Metals, Hardness	250 mL poly	HNO3, 0.45 micron filter
	Total Phosphorous, Nox	250 mL poly	H2SO4
	CL, F, NO3, Si, SO4, Alkalinity, TDS	1.0 L poly	Unpreserved

Laboratory Used: Pace Analytical Services, Inc. **Notes:**

EnviroAnalytics Group

Groundwater Monitoring Well Sampling Log

Well ID: MW-7

General Information

Project Name/Client: Tanners Creek Development, LLC	
Site Name: Tanners Creek - Type I Landfill	**Date:** 4/2/19
Site Location: Lawrenceburg, Indiana	**Time Duration:** 11:35 to 12:35
Operator(s): CS/MN	**Weather:** Sunny 55°F

Well Information

Well Diameter (in): 2	**Water Level Instrument:** Solinst Model 122
Casing Type: PVC	**Initial DTW (ft):** 14.22
Measuring Point: Top of casing (BTOC)	**Total Depth (ft):** 45.00
Screen Depth (ft BTOC): 35 to 45	**Water Column Height (ft):** 30.78
Pump Intake (ft BTOC): 40	**Volume in Well (gal):** 5.02

Monitoring Well Purge Summary

Purging Device: Grundfos Redi-Flo 2 Pump (dedicated)	**Water Quality Meter:** Aquaread AP-800

	Time	DTW (ft)	Drawdown (ft)	pH (s.u.)	Temp (°C)	Spec Conductivity (µS/cm)	RDO (mg/L)	Turbidity (NTU)	ORP (mV)
Stabilization Settings				+/- 0.1	+/- 1.0	+/- 3%	+/-1 or 10%	+/-10 or 10%	+/- 20
Last 5 Readings	12:05	14.08	-0.14	6.92	16.40	2146	2.92	748.0	-145.2
	12:10	14.08	-0.14	6.92	16.40	2223	3.04	322.0	-146.3
	12:15	14.08	-0.14	6.91	15.20	2301	3.14	87.0	-157.7
	12:20	14.08	-0.14	6.92	14.50	2323	2.94	83.0	-158.3
	12:25	14.08	-0.14	6.92	14.50	2321	2.58	81.0	-157.2
Variance in Last 3 Readings	12:15	0.00	0.00	-0.01	-1.20	3.39%	0.10	-235.00	-11.4
	12:20	0.00	0.00	0.01	-0.70	0.95%	-0.20	-4.00	-0.6
	12:25	0.00	0.00	0.00	0.00	-0.09%	-0.36	-2.00	1.1

Estimated Total Volume Purged (gal): 6.00 **Purge Rate (mL/min):** 400-500 **Sample Rate (mL/min):** 450

NOTES: Well pad/riser/area in good condition. Due to sporadic pump rate variations, purge water came out in intervals of clear and brown murky turbidity. Attempted to sample during clear/slightly turbid interval.

Final Field Sample Data

Physical Appearance: Murky brown to clear	**Odor:** Slight sulfur odor

Sample Time	Final DTW (ft)	Final Drawdown (ft)	pH (s.u.)	Temp (°C)	Spec Cond (µS/cm)	RDO (mg/L)	Turbidity (NTU)	ORP (mV)	
12:30	14.08	-0.14	6.92	14.50	2321	2.58	81.0	-157.2	

Laboratory Analysis

Sample ID	Parameter/Method	Container Size/Type	Preservative
MW-7	Metals, Hardness	250 mL poly	HNO3, 0.45 micron filter
	Total Phosphorous, Nox	250 mL poly	H2SO4
	CL, F, NO3, Si, SO4, Alkalinity, TDS	1.0 L poly	Unpreserved

Laboratory Used: Pace Analytical Services, Inc. **Notes:**

EnviroAnalytics Group

Groundwater Monitoring Well Sampling Log

Well ID: MW-8

General Information

Project Name/Client: Tanners Creek Development, LLC	
Site Name: Tanners Creek - Type I Landfill	**Date:** 4/2/19
Site Location: Lawrenceburg, Indiana	**Time Duration:** 10:05 to 11:05
Operator(s): CS/MN	**Weather:** Partly cloudy 45°F

Well Information

Well Diameter (in): 2	**Water Level Instrument:** Solinst Model 122
Casing Type: PVC	**Initial DTW (ft):** 11.69
Measuring Point: Top of casing (BTOC)	**Total Depth (ft):** 51.00
Screen Depth (ft BTOC): 41 to 51	**Water Column Height (ft):** 39.31
Pump Intake (ft BTOC): 46	**Volume in Well (gal):** 6.41

Monitoring Well Purge Summary

Purging Device: Grundfos Redi-Flo 2 Pump (dedicated)	**Water Quality Meter:** Aquaread AP-800

	Time	DTW (ft)	Drawdown (ft)	pH (s.u.)	Temp (°C)	Spec Conductivity (µS/cm)	RDO (mg/L)	Turbidity (NTU)	ORP (mV)
Stabilization Settings				+/- 0.1	+/- 1.0	+/- 3%	+/-1 or 10%	+/-10 or 10%	+/- 20
Last 5 Readings	10:35	11.55	-0.14	7.28	13.90	1489	1.32	110.0	-94.6
	10:40	11.45	-0.24	7.29	13.70	1480	1.75	47.0	-92.5
	10:45	11.45	-0.24	7.29	13.60	1462	1.43	28.0	-93.5
	10:50	11.45	-0.24	7.29	13.60	1455	1.62	13.0	-92.0
	10:55	11.45	-0.24	7.30	13.60	1468	1.54	9.8	-89.8
Variance in Last 3 Readings	10:45	0.00	0.00	0.00	-0.10	-1.23%	-0.32	-19.0	-1.0
	10:50	0.00	0.00	0.00	0.00	-0.48%	0.19	-15.0	1.5
	10:55	0.00	0.00	0.01	0.00	0.89%	-0.08	-3.2	2.2

Estimated Total Volume Purged (gal): 6.75 **Purge Rate (mL/min):** 500 **Sample Rate (mL/min):** 500

NOTES: Well pad/riser/area in good condition.

Final Field Sample Data

Physical Appearance: Slightly brown then visibly clear	**Odor:** Slight sulfur odor

Sample Time	Final DTW (ft)	Final Drawdown (ft)	pH (s.u.)	Temp (°C)	Spec Cond (µS/cm)	RDO (mg/L)	Turbidity (NTU)	ORP (mV)	
11:00	11.45	-0.24	7.30	13.60	1468	1.54	9.8	-89.8	

Laboratory Analysis

Sample ID	Parameter/Method	Container Size/Type	Preservative
MW-8	Metals, Hardness	250 mL poly	HNO3, 0.45 micron filter
	Total Phosphorous, Nox	250 mL poly	H2SO4
	CL, F, NO3, Si, SO4, Alkalinity, TDS	1.0 L poly	Unpreserved

Laboratory Used: Pace Analytical Services, Inc. **Notes:**

EnviroAnalytics Group

Groundwater Monitoring Well Sampling Log

Well ID: Ohio River-1

General Information

Project Name/Client: Tanners Creek Development, LLC	
Site Name: Tanners Creek - Type I Landfill	**Date:** 4/3/19
Site Location: Lawrenceburg, Indiana	**Time Duration:** 10:40 to 10:55
Operator(s): CS/MN	**Weather:** Sunny 50°F

Well Information

Well Diameter (in): N/A	**Water Level Instrument:** Solinst Model 122
Casing Type: PVC	**Initial DTW (ft):** N/A
Measuring Point: Top of casing (BTOC)	**Total Depth (ft):** 3.00
Screen Depth (ft BTOC): N/A	**Water Column Height (ft):** 3.00
Pump Intake (ft BTOC): 1.50	**Volume in Well (gal):** N/A

Monitoring Well Purge Summary

Purging Device: Peristaltic pump	**Water Quality Meter:** Aquaread AP-800

	Time	DTW (ft)	Drawdown (ft)	pH (s.u.)	Temp (°C)	Spec Conductivity (µS/cm)	RDO (mg/L)	Turbidity (NTU)	ORP (mV)
Stabilization Settings				+/- 0.1	+/- 1.0	+/- 3%	+/-1 or 10%	+/-10 or 10%	+/- 20
Last 5 Readings									
	10:47	--	--	7.71	20.70	3701	3.36	156.0	19.6
Variance in Last 3 Readings									

Total Volume Purged (gal): **Purge Rate (mL/min):** 400 **Sample Rate (mL/min):** 400

NOTES: Ohio River sample.

Final Field Sample Data

Physical Appearance: Murky brown	**Odor:** Organic odor (river smell)

Sample Time	Final DTW (ft)	Final Drawdown (ft)	pH (s.u.)	Temp (°C)	Spec Cond (µS/cm)	RDO (mg/L)	Turbidity (NTU)	ORP (mV)	
10:50	--	--	7.71	20.70	3701	3.36	156.0	19.6	

Laboratory Analysis

Sample ID	Parameter/Method	Container Size/Type	Preservative
Ohio River - 1	Metals, Hardness	250 mL poly	HNO3, 0.45 micron filter
	Total Phosphorous, Nox	250 mL poly	H2SO4
	CL, F, NO3, Si, SO4, Alkalinity, TDS	1.0 L poly	Unpreserved

Laboratory Used: Pace Analytical Services, Inc. **Notes:** Ohio River sample collected.

FIELD ENVIRONMENTAL INSTRUMENTS, INC.

www.fieldenvironmental.com

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Suite A
Pittsburgh, PA 15221
Toll Free (800) 393-4009
Local (412) 436-2600
Fax (412) 436-2616

AquaRead Calibration Certificate

Cal Standard	Lot #	Expiration	Pre-Cal Reading	Post-Cal Reading	Acceptable Range
PH 7 @ 25C	7810596	11/1/2020	6.84	7.00	(6.86 to 7.14)
			pH mV value	-22.4	(0 mV +/- 25mV)

Cal Standard	Lot #	Expiration	Pre-Cal Reading	Post-Cal Reading	Acceptable Range
PH 4 @ 25C	7901155	1/1/2021	4.09	4.00	(3.92 to 4.08)
			PH Slope (mV)	57.80	> 45 mV

Cal Standard	Lot #	Expiration	Pre-Cal Reading	Post-Cal Reading	Acceptable Range
PH 10 @ 25C	7901154	1/1/2021	9.99	10.00	(9.80 to 10.20)
			PH Slope (mV)	58.00	> 45 mV

Cal Standard	Lot #	Expiration	Pre-Cal Reading	Post-Cal Reading	Acceptable Range
Conductivity	7805579	6/1/2020	1.391	1.413	(1.338 to 1.479)

Dissolved Oxygen

	Pre-Cal Reading	Post-Cal Reading		Acceptable Range
100% Saturation	100	9.57	mg/L	
Gain		34.80		> 20 (0.8-1.5 ODO)

Check Standard	Temp °C	Relative Reading	Acceptable Range
ORP	20.2	229.0	(+/- 20mV)
	mV Offset	-8.4	

Turbidity	Pre-Cal Reading	Post-Cal Reading	Acceptable Range
0 NTU	0.4	0.0	+/- 10%
1000 NTU	999.0	1000.0	+/- 10%

Model	AquaRead AP800
Cable Length	3 Meter
Sonde SN	*105990950
Handheld SN	*104690427
Barcode	U91852X
Order #	392670

Calibrated By: Chris Pucci

Date of Calibration: 3/10/2019

*Solutions provided by LabChem (412-826-5230)

All calibrations performed by FEI conform to manufacturer's specifications. Please report any issues within 24 hours of receiving equipment.
All calibration solutions used are traceable to NIST. Additional documentation is available upon request.

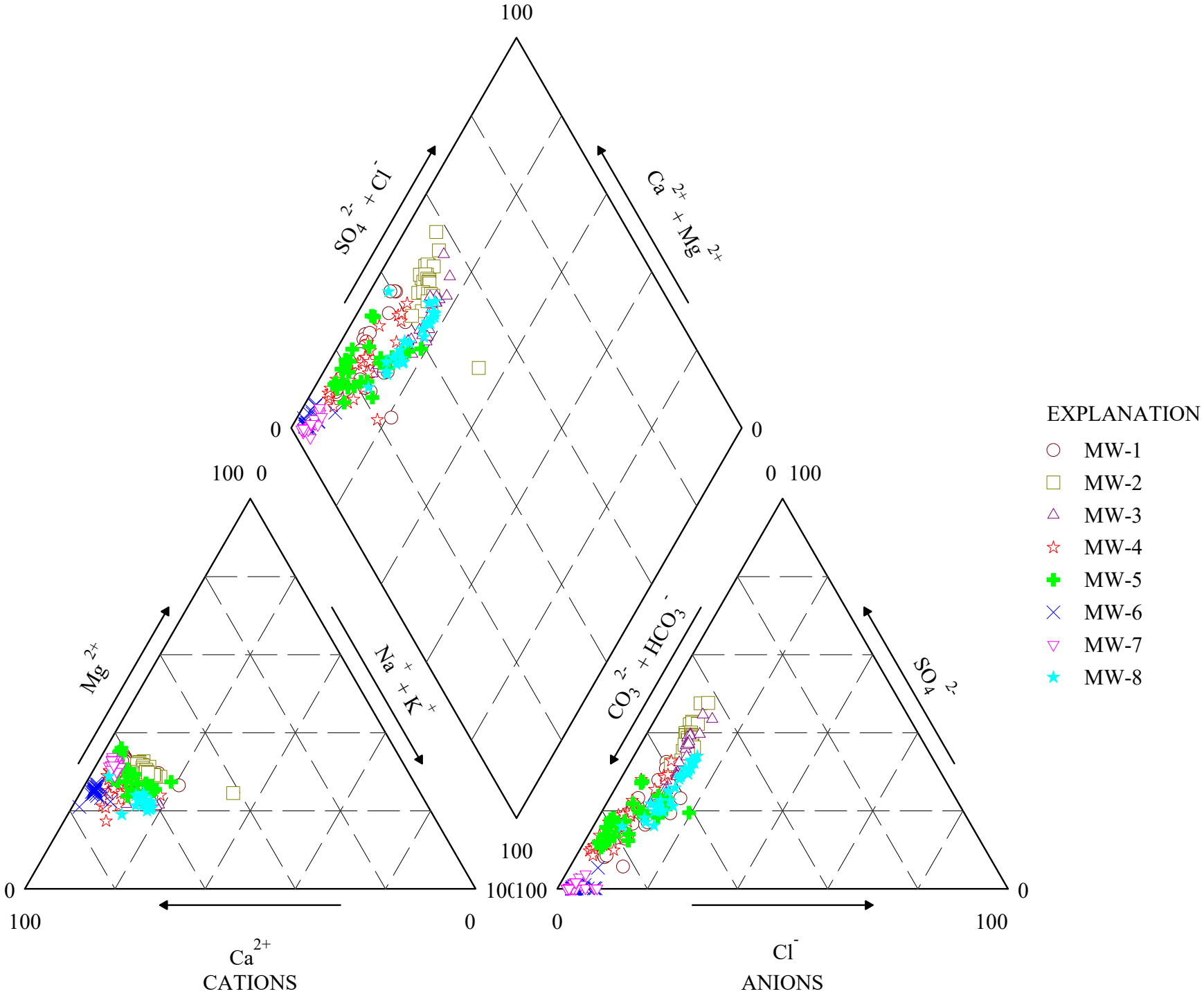
ATTACHMENT B

Piper Diagram

EnviroAnalytics Group

Environmental Engineers

Tanners Creek - Type I Landfill - Piper Diagram (Spring 2019)



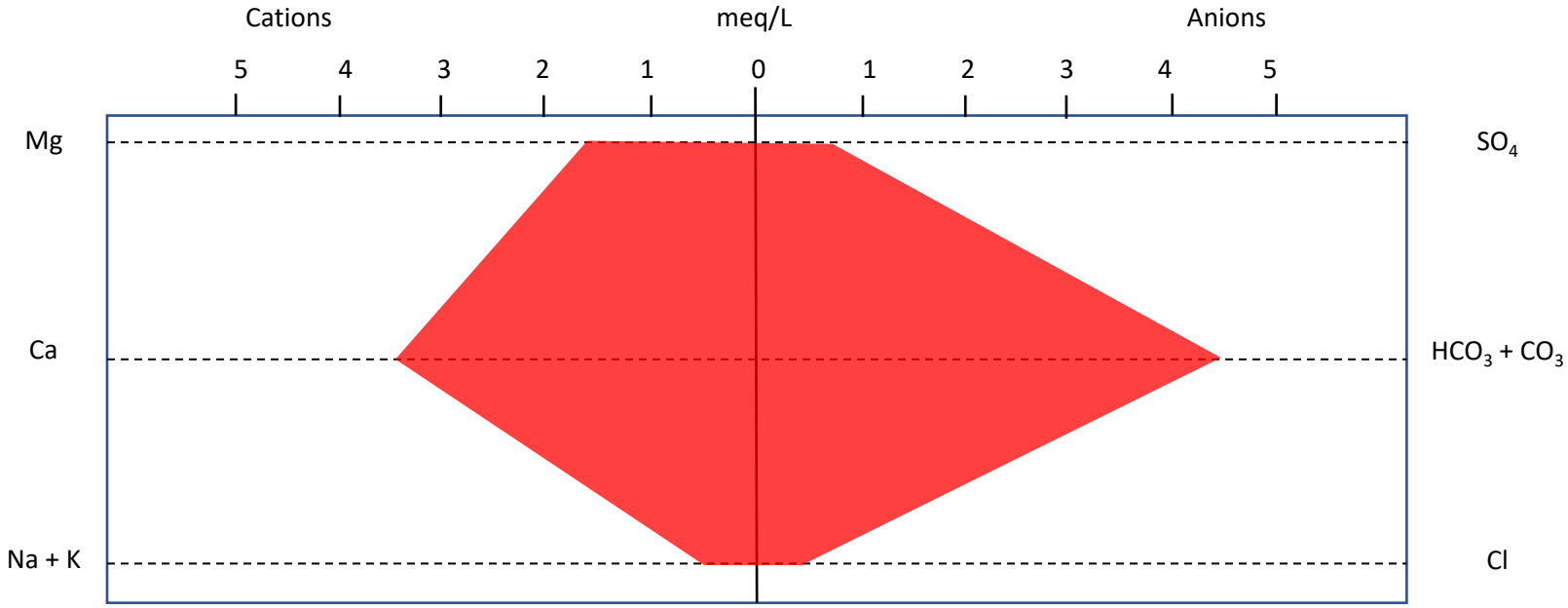
ATTACHMENT C

Stiff Diagrams

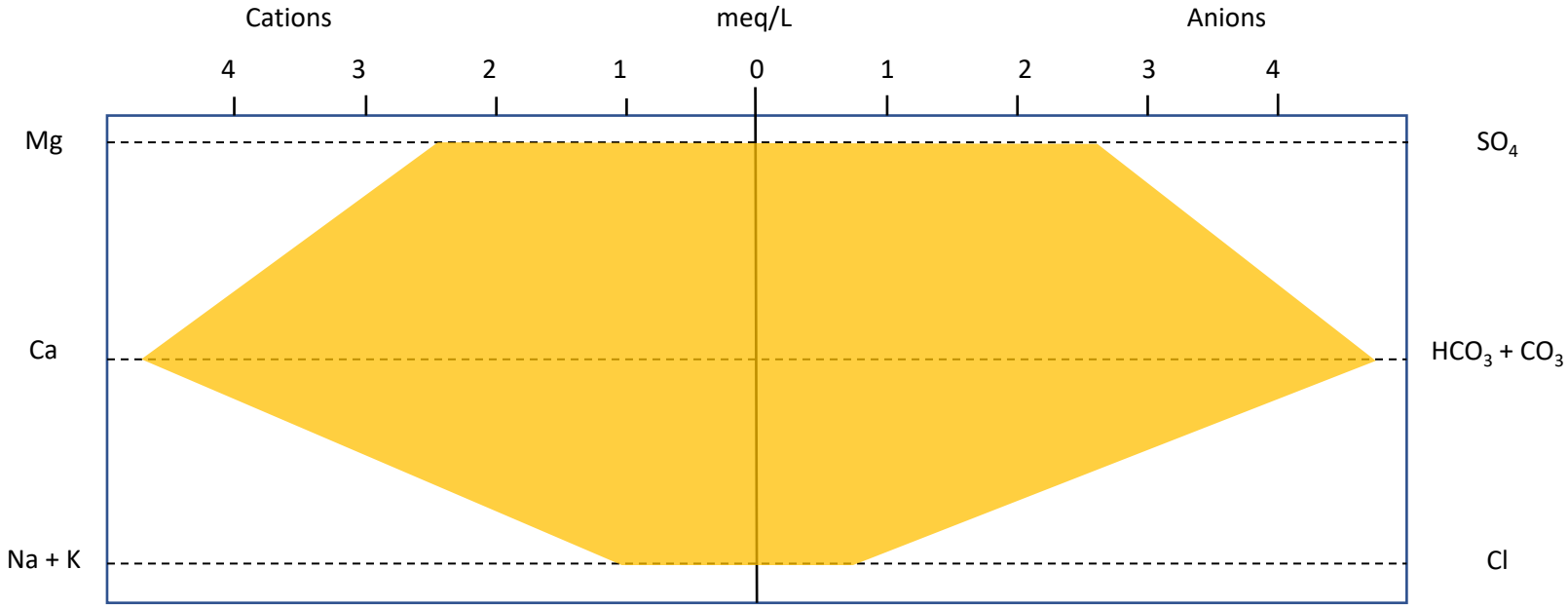
EnviroAnalytics Group

Environmental Engineers

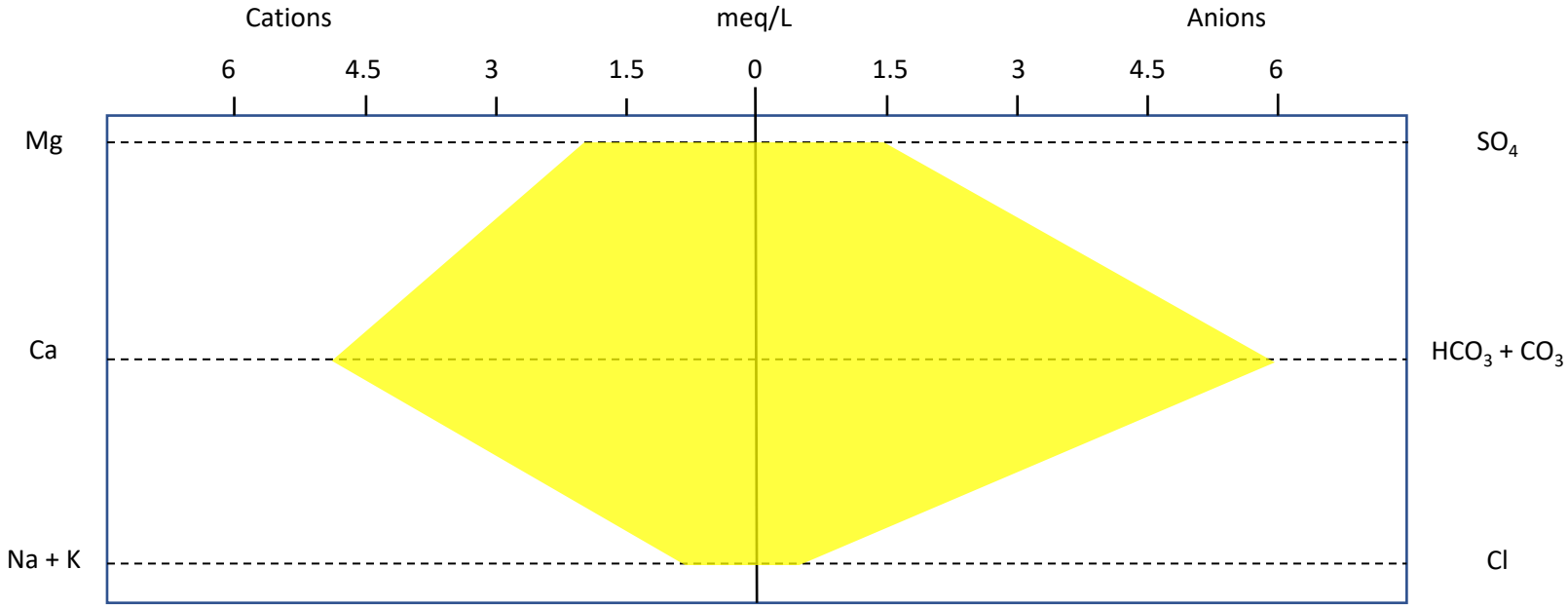
MW-1 Stiff Diagram
April 2019



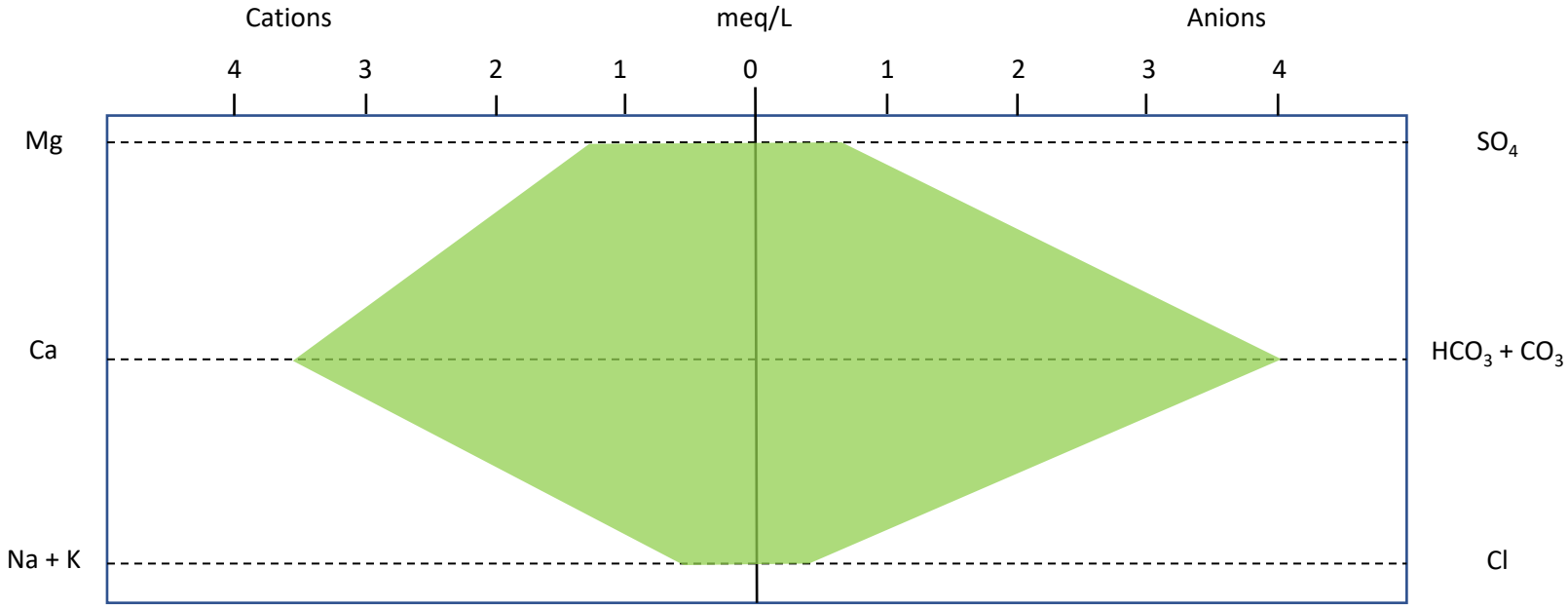
MW-2 Stiff Diagram
April 2019



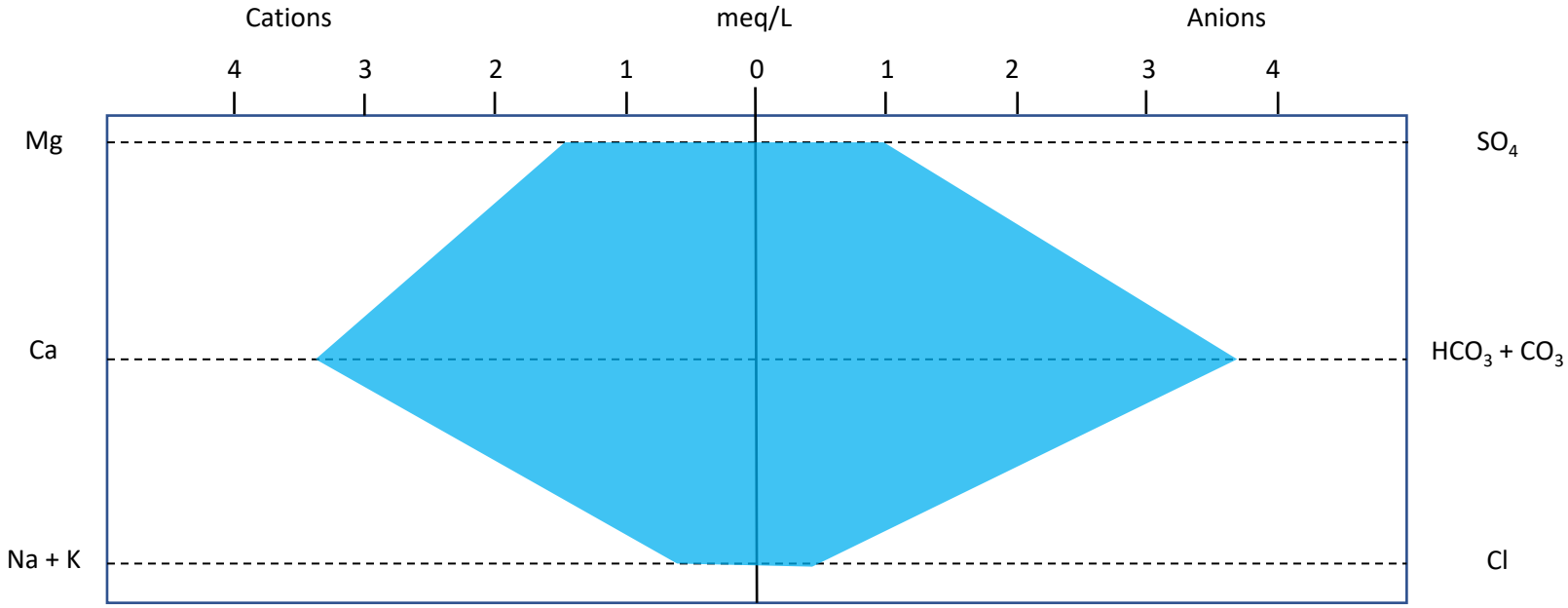
MW-3 Stiff Diagram
April 2019



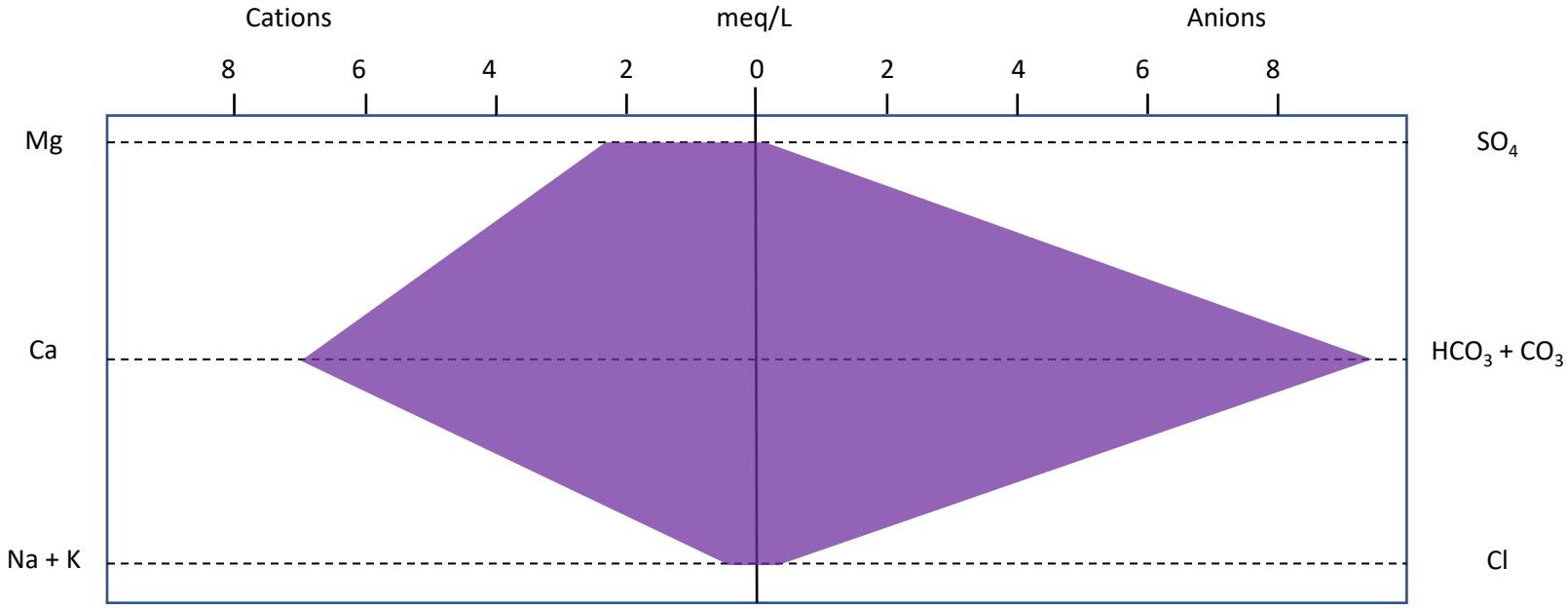
MW-4 Stiff Diagram
April 2019



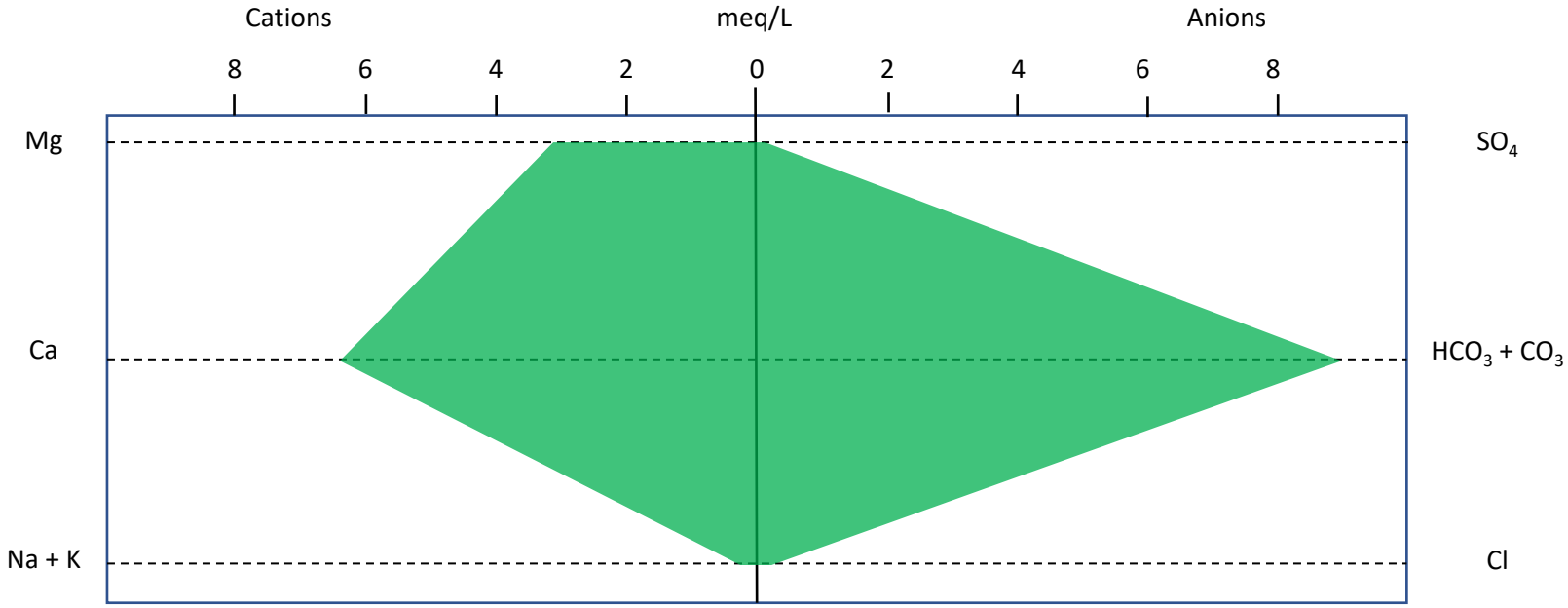
MW-5 Stiff Diagram
April 2019



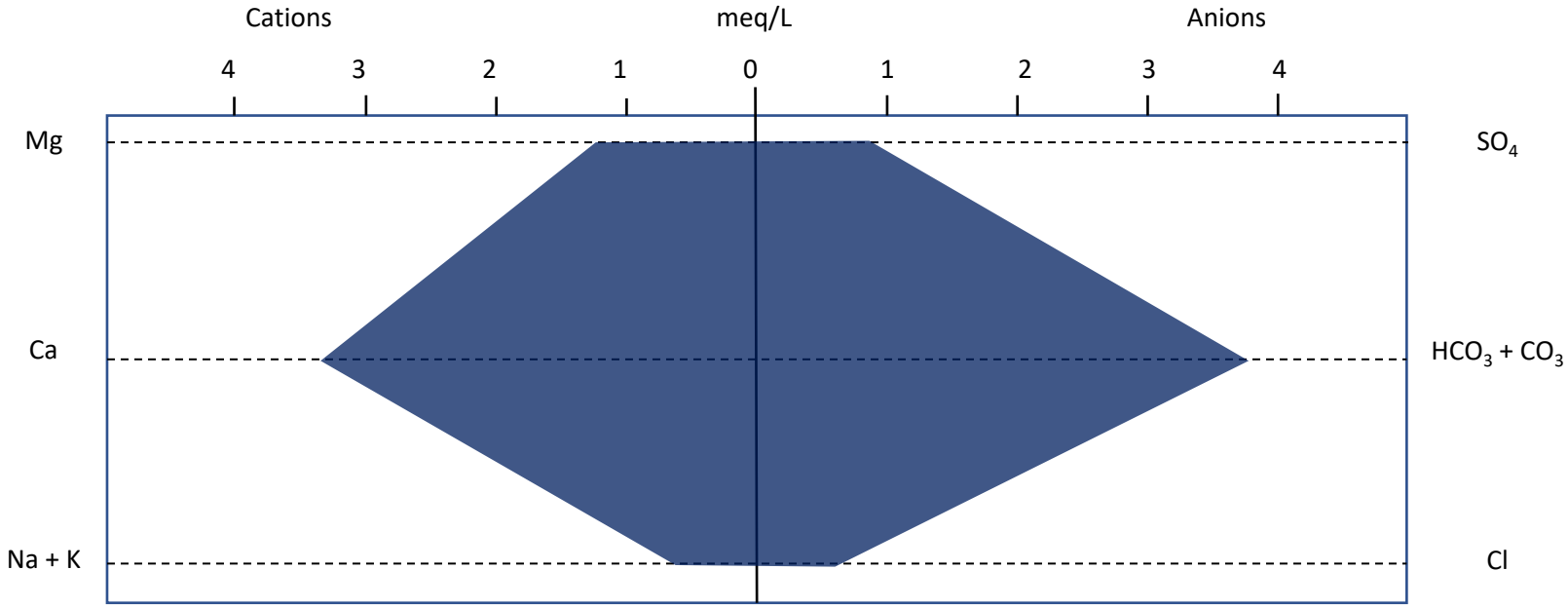
MW-6 Stiff Diagram
April 2019



MW-7 Stiff Diagram
April 2019



MW-8 Stiff Diagram
April 2019

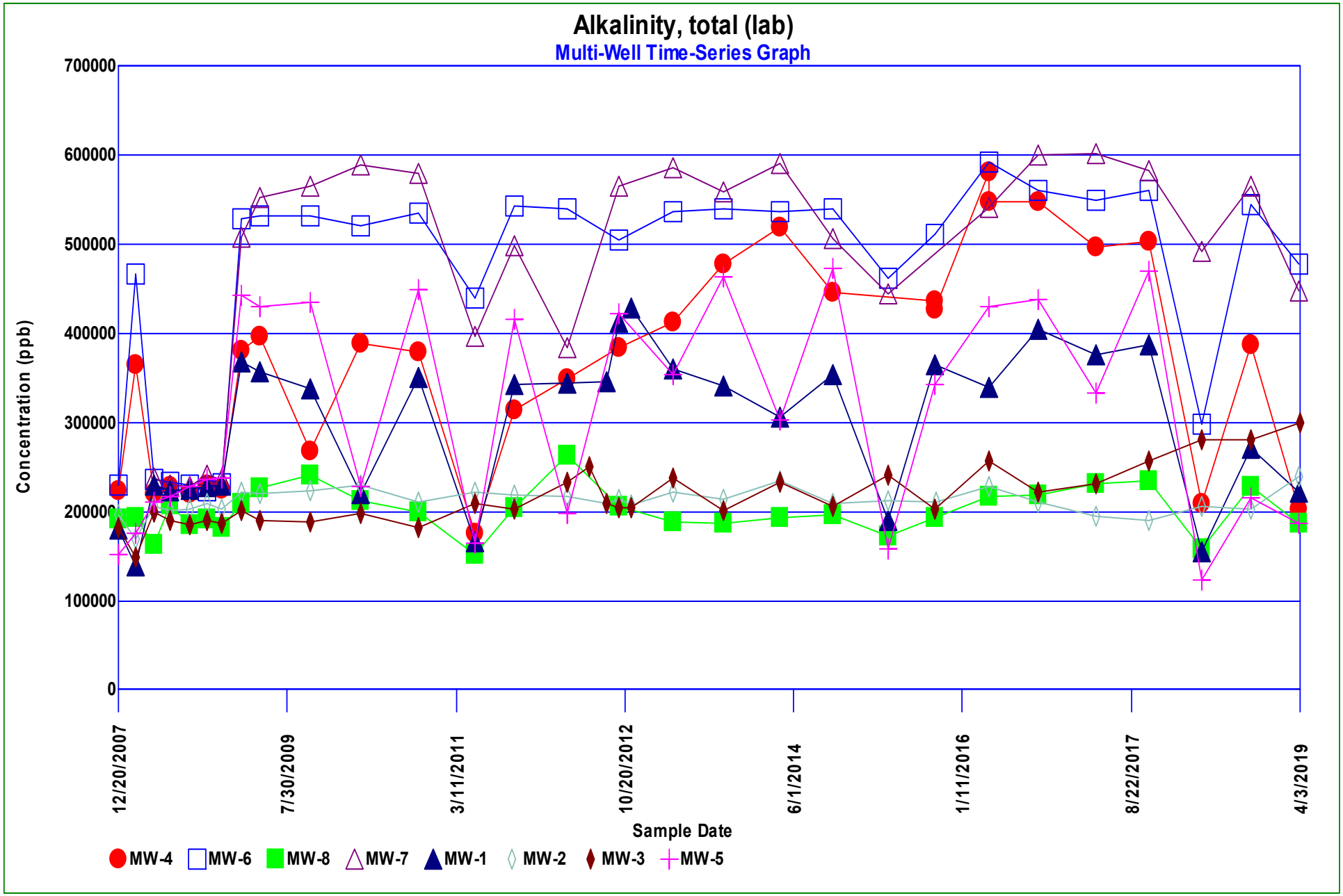


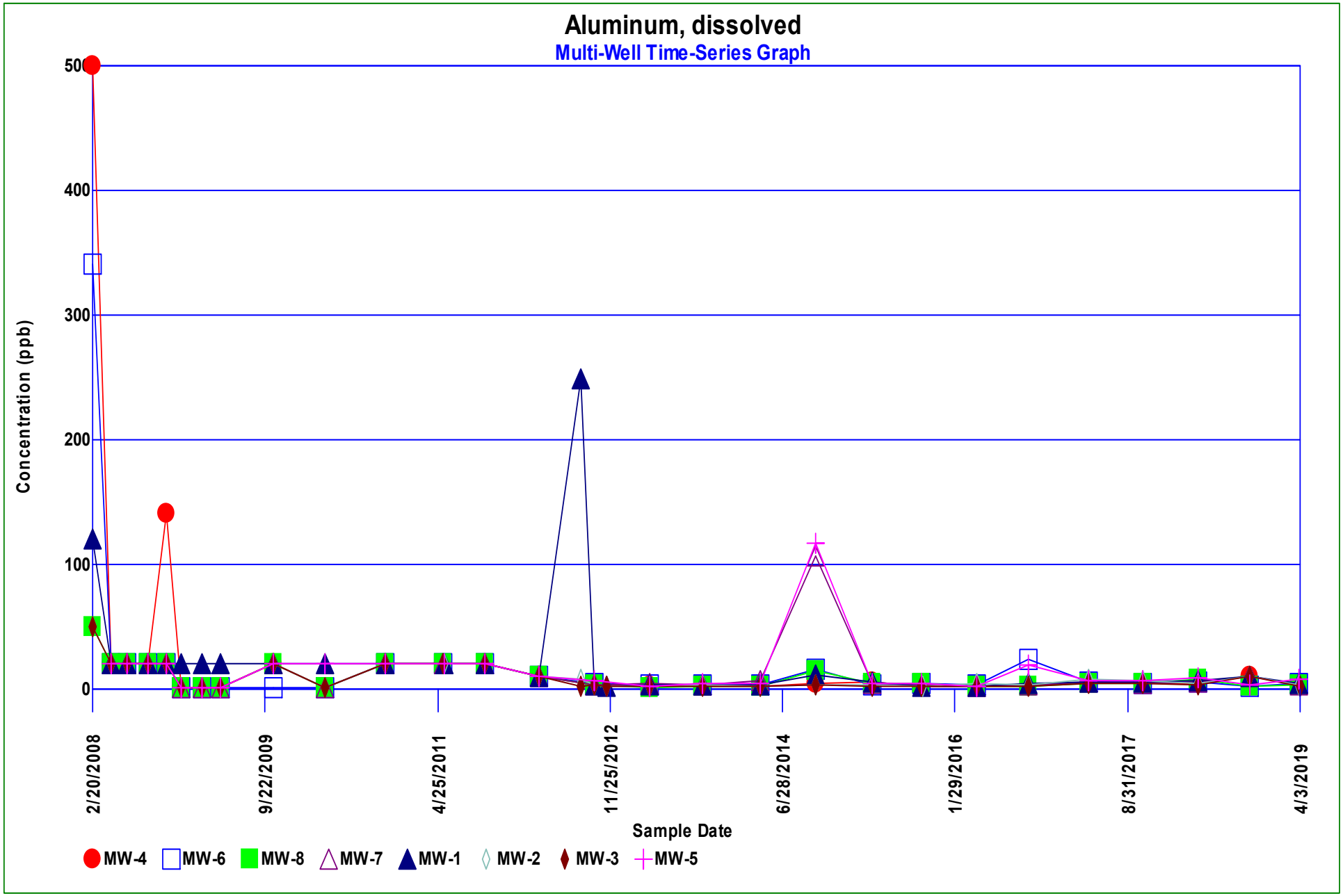
ATTACHMENT D

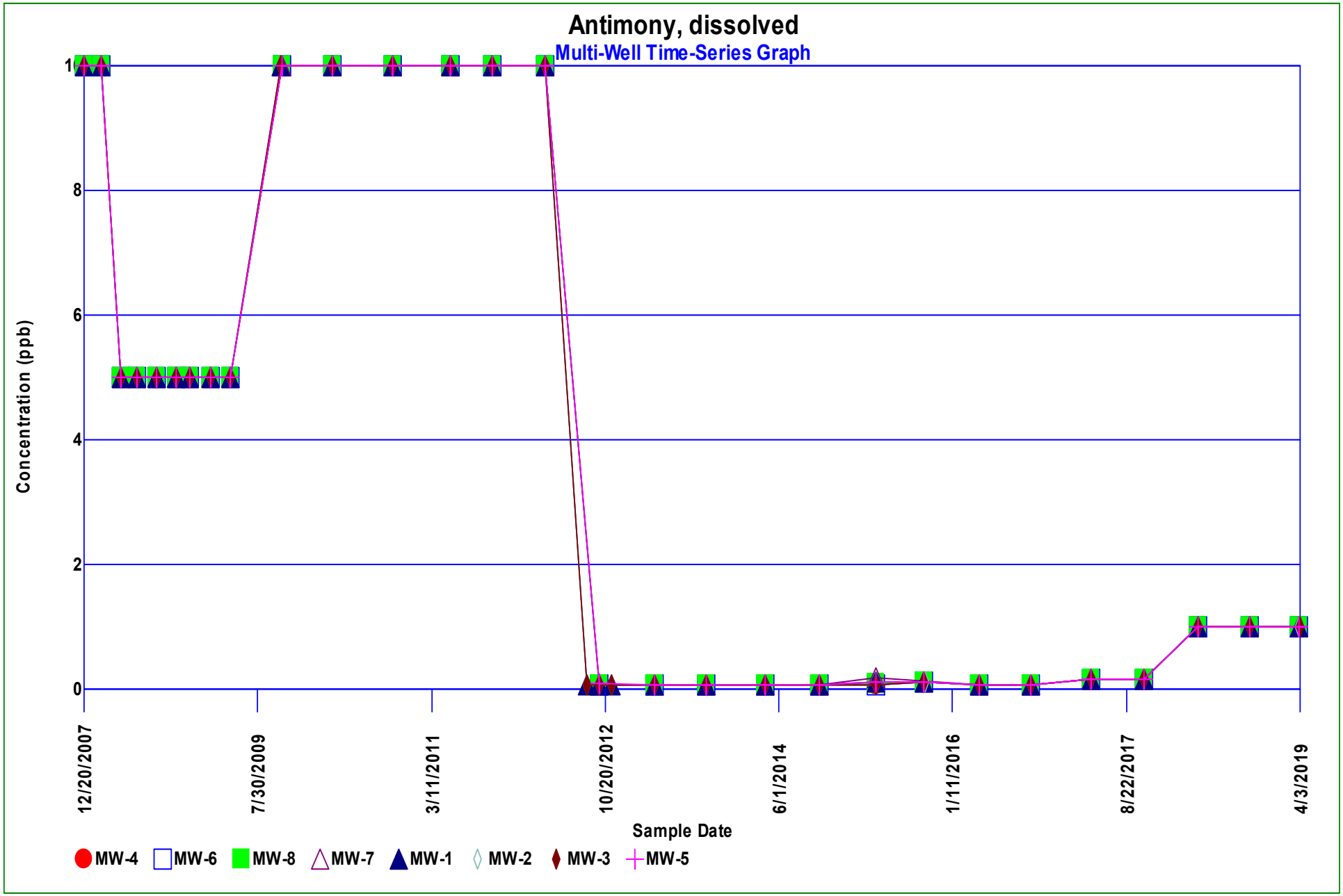
Time Series Plots

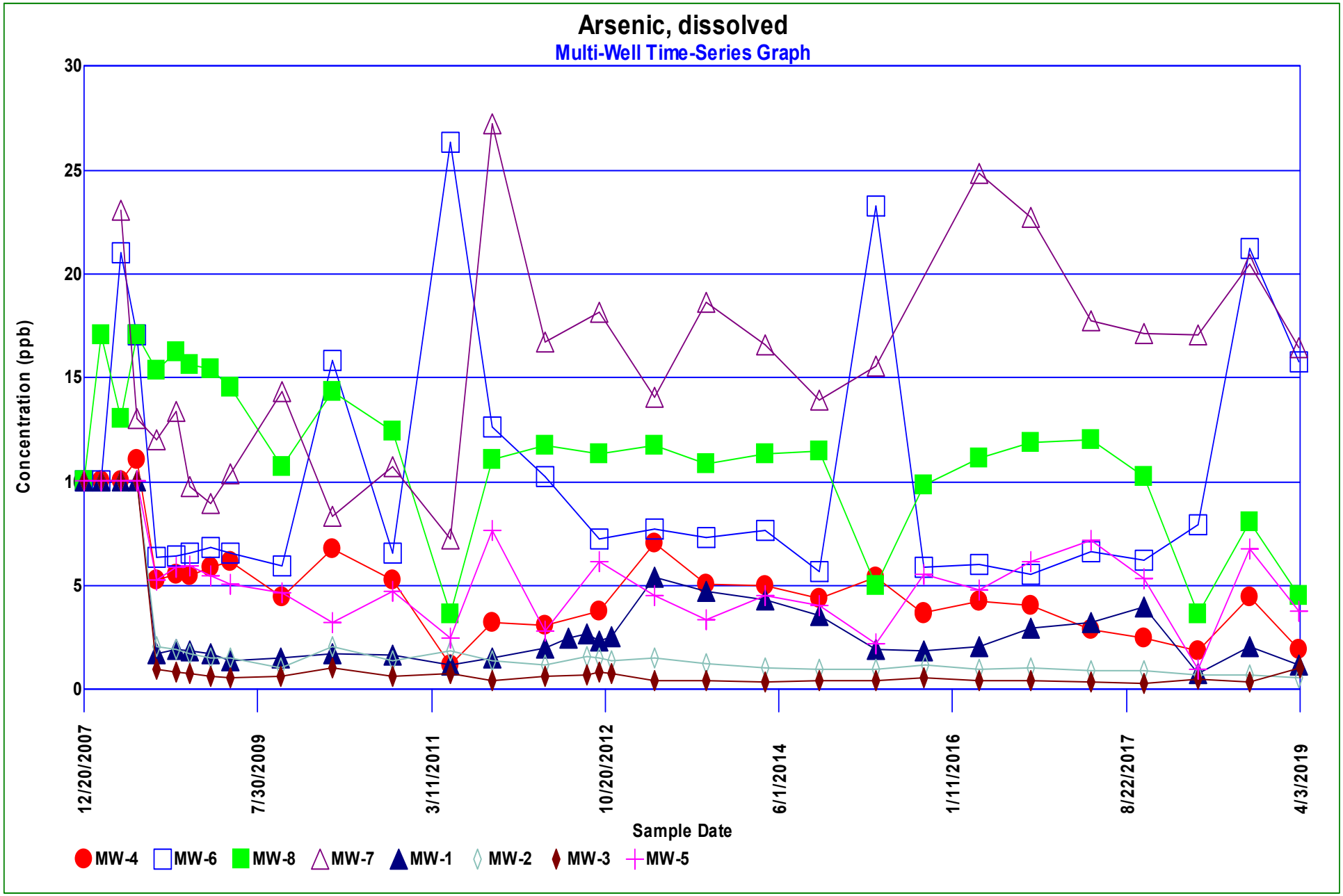
EnviroAnalytics Group

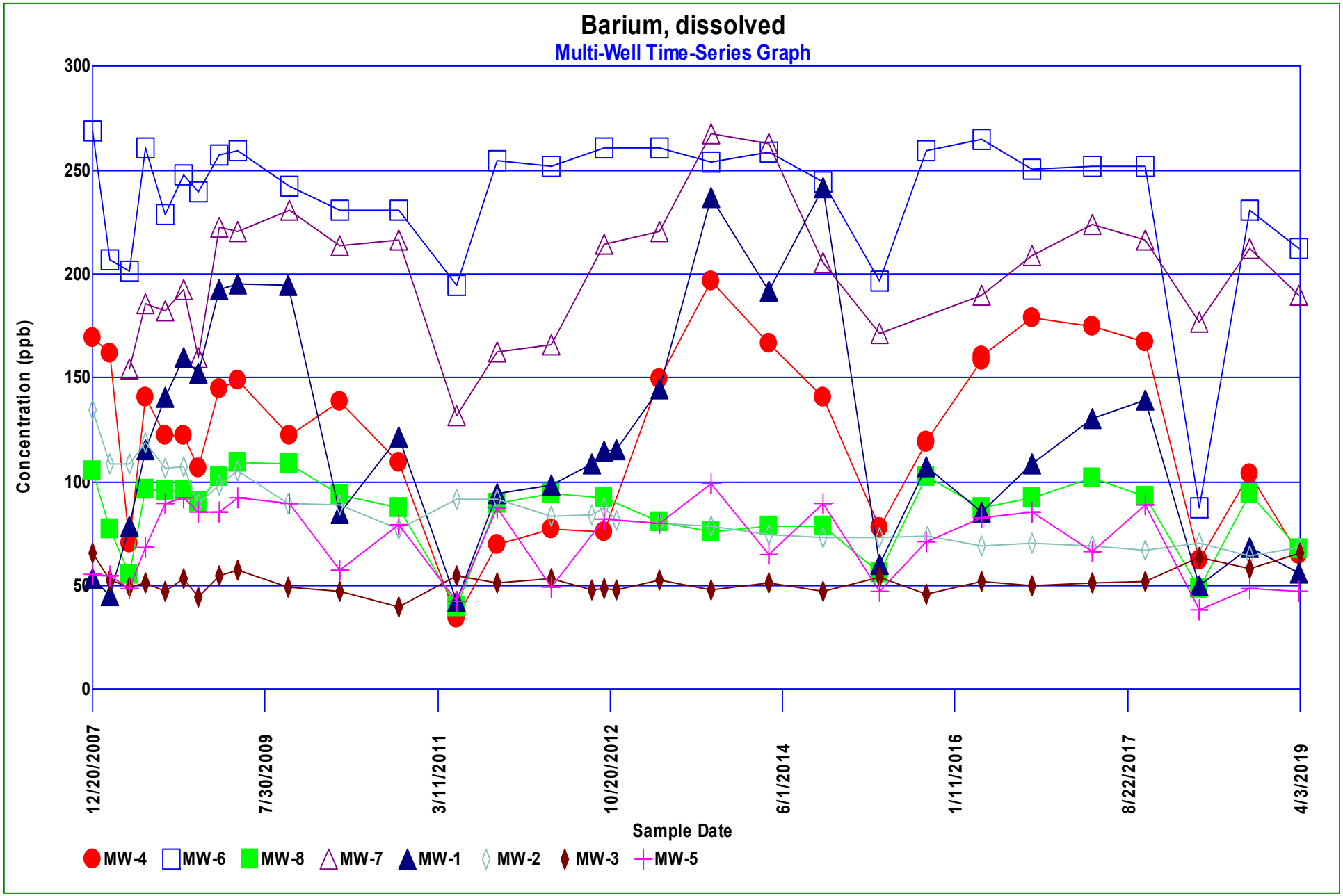
Environmental Engineers

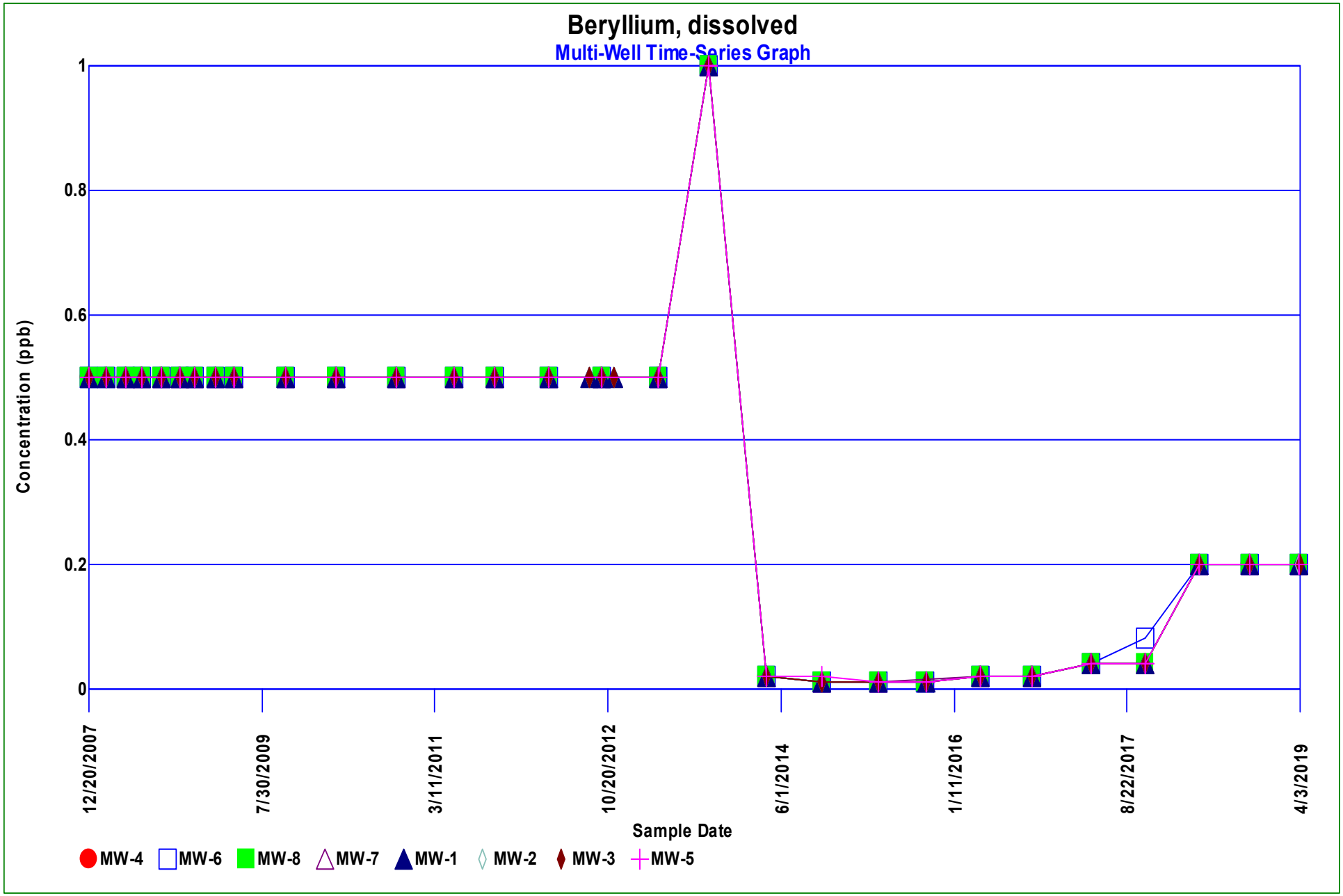

Alkalinity, total (lab)
Multi-Well Time-Series Graph
Concentration (ppb)
700000
600000
500000
400000
300000
200000
100000
0
12/20/2007
7/30/2009
3/11/2011
10/20/2012
6/1/2014
1/11/2016
8/22/2017
4/3/2019
Sample Date
MW-4
MW-6
MW-8
MW-7
MW-1
MW-2
MW-3
MW-5

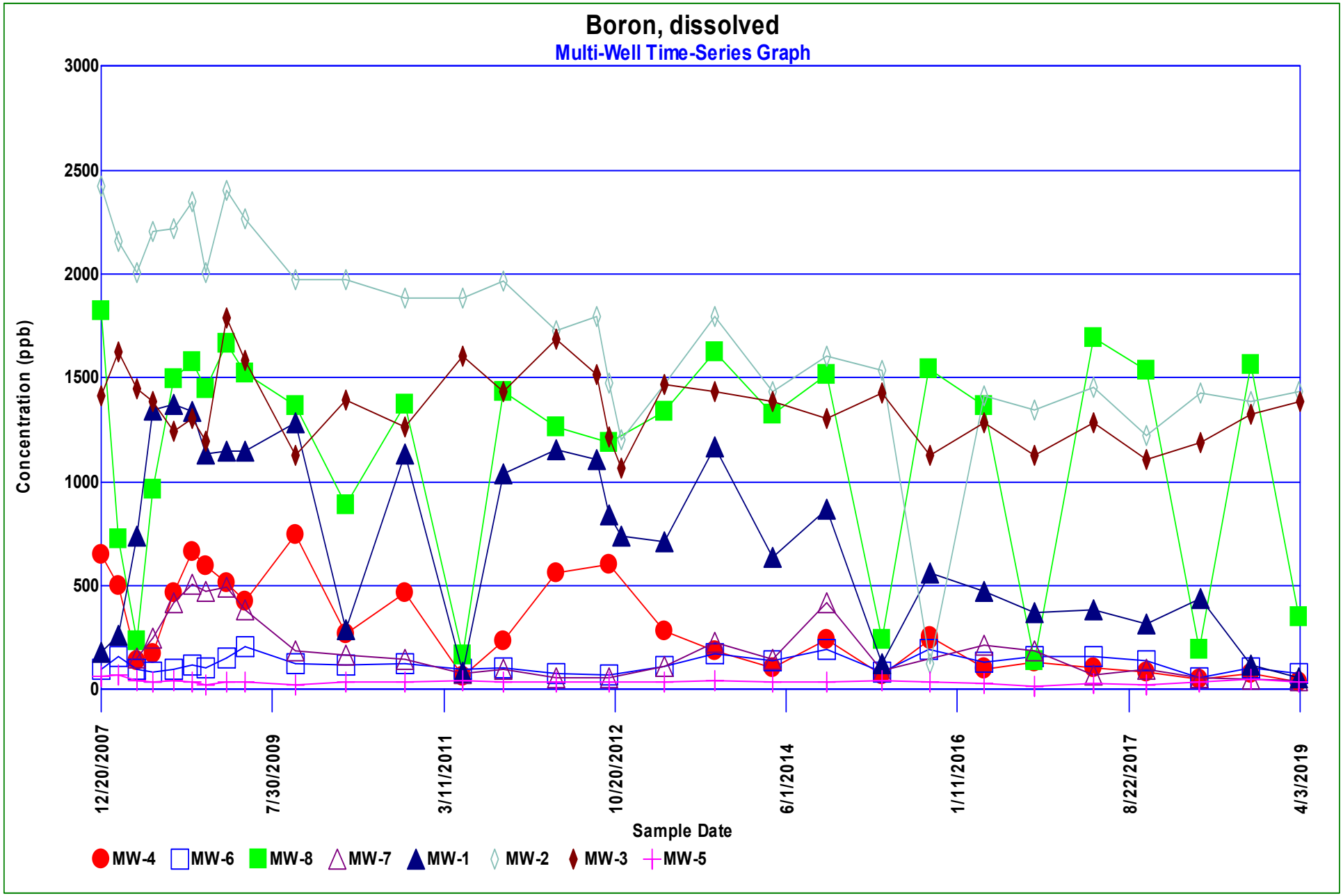

Aluminum, dissolved
Multi-Well Time-Series Graph
500
400
300
200
100
0
Concentration (ppb)
2/20/2008
9/22/2009
4/25/2011
11/25/2012
6/28/2014
1/29/2016
8/31/2017
4/3/2019
Sample Date
MW-4
MW-6
MW-8
MW-7
MW-1
MW-2
MW-3
MW-5

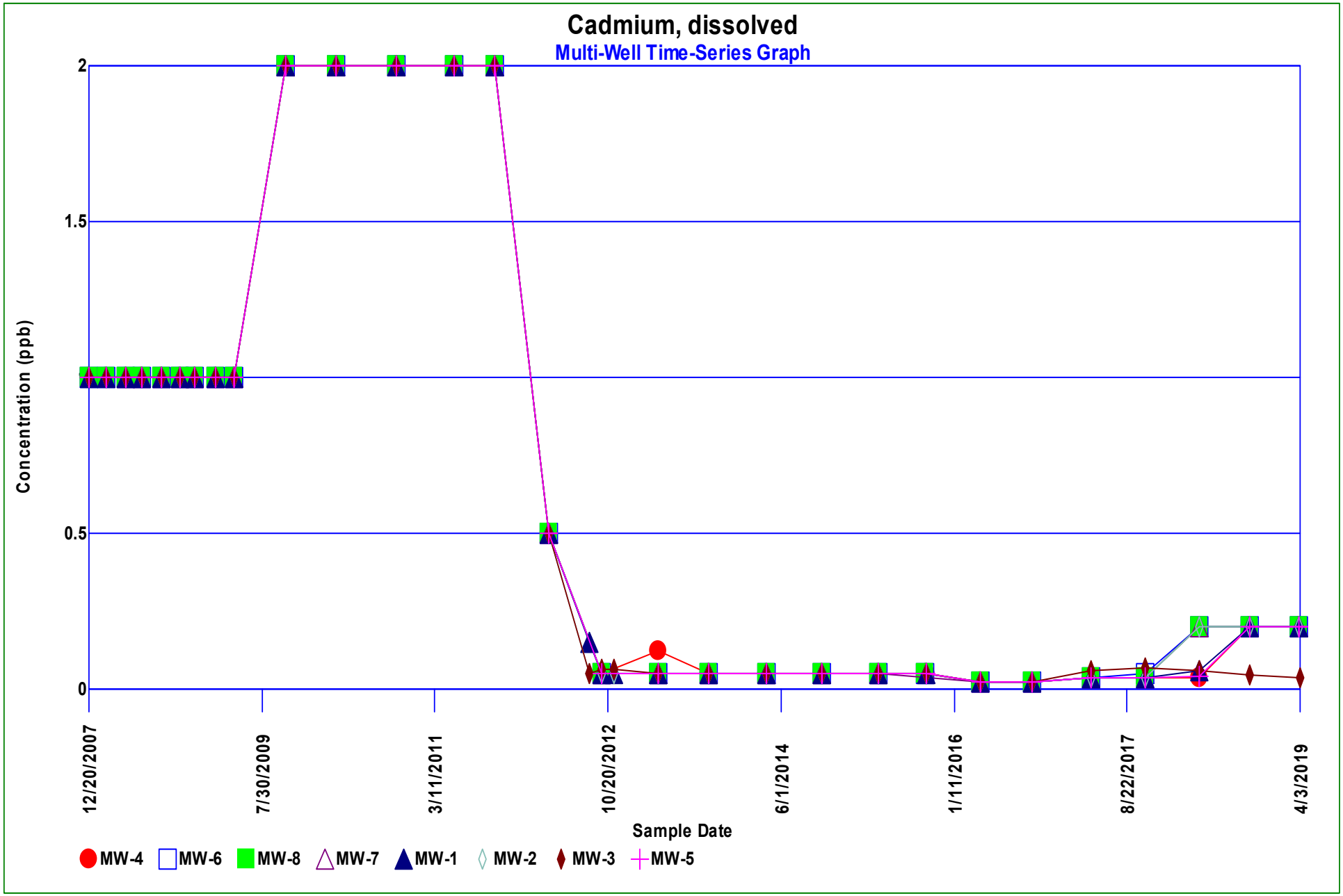

Antimony, dissolved
Multi-Well Time-Series Graph
Concentration (ppb)
1
8
6
4
2
0
12/20/2007
7/30/2009
3/11/2011
10/20/2012
6/1/2014
1/11/2016
8/22/2017
4/3/2019
Sample Date
MW-4
MW-6
MW-8
MW-7
MW-1
MW-2
MW-3
MW-5

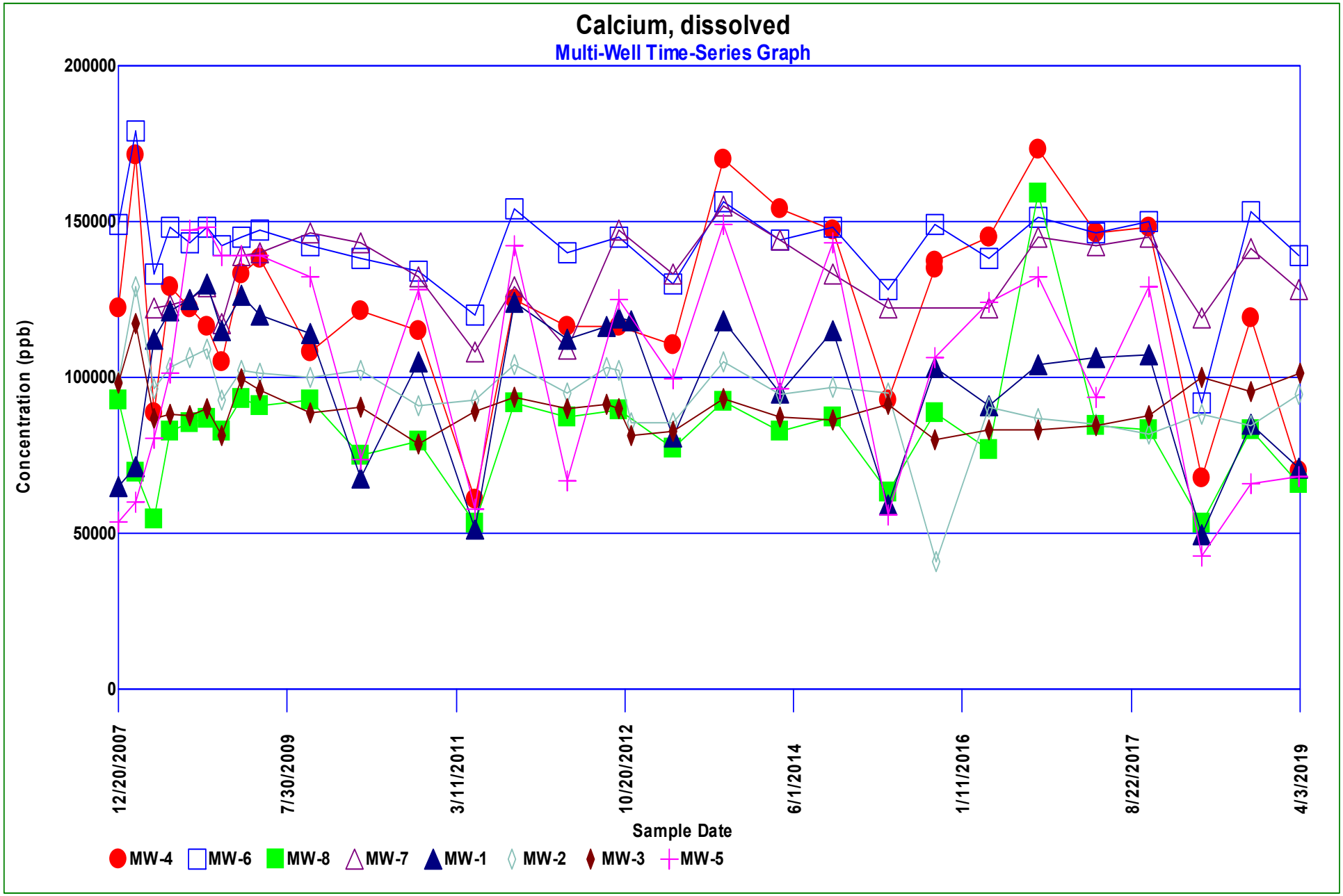

Arsenic, dissolved
Multi-Well Time-Series Graph
Concentration (ppb)
30
25
20
15
10
5
0
12/20/2007
7/30/2009
3/11/2011
10/20/2012
6/1/2014
1/11/2016
8/22/2017
4/3/2019
Sample Date
MW-4
MW-6
MW-8
MW-7
MW-1
MW-2
MW-3
MW-5

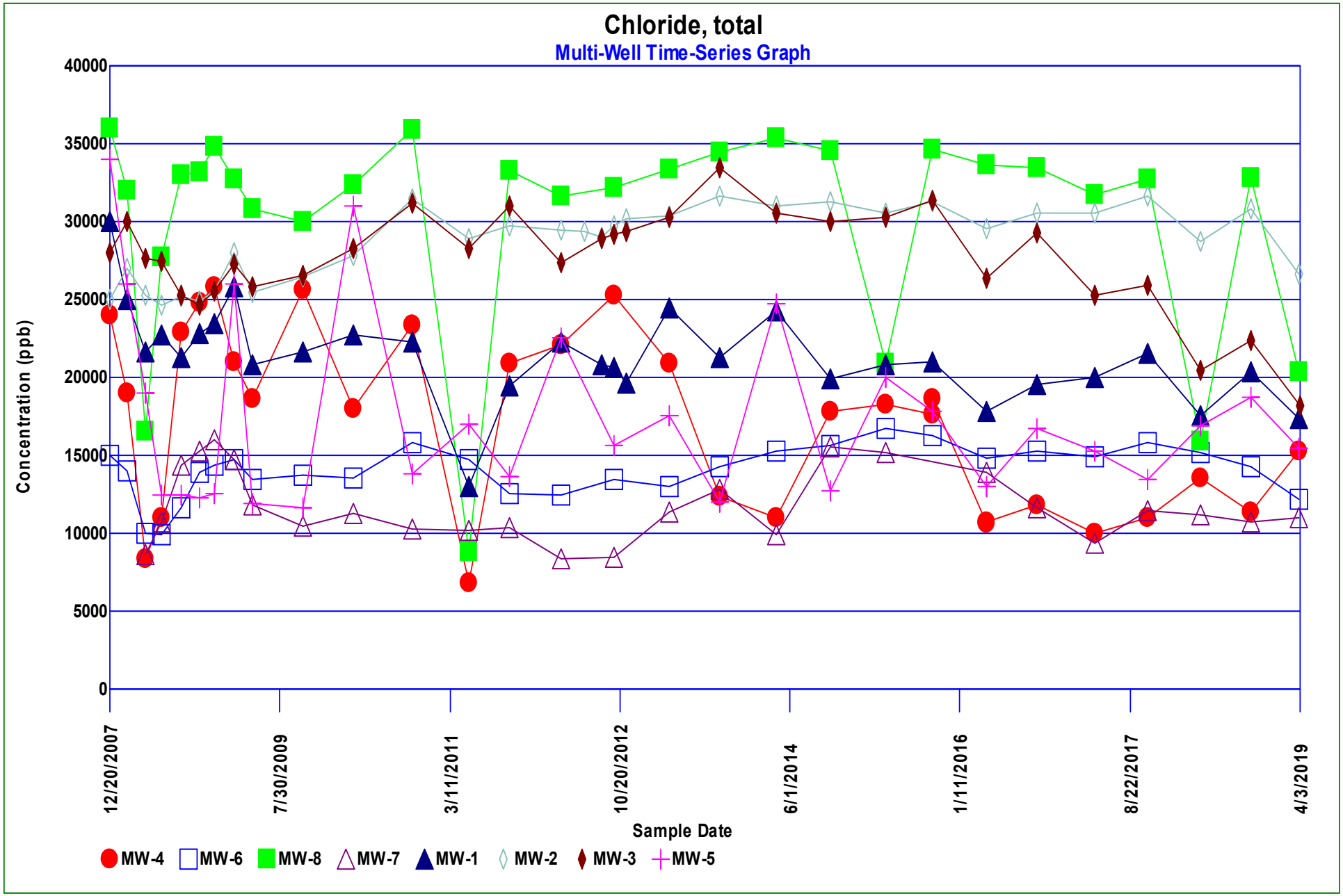

Barium, dissolved
Multi-Well Time-Series Graph
Concentration (ppb)
300
250
200
150
100
50
0
12/20/2007
7/30/2009
3/11/2011
10/20/2012
6/1/2014
1/11/2016
8/22/2017
4/3/2019
Sample Date
MW-4
MW-6
MW-8
MW-7
MW-1
MW-2
MW-3
MW-5

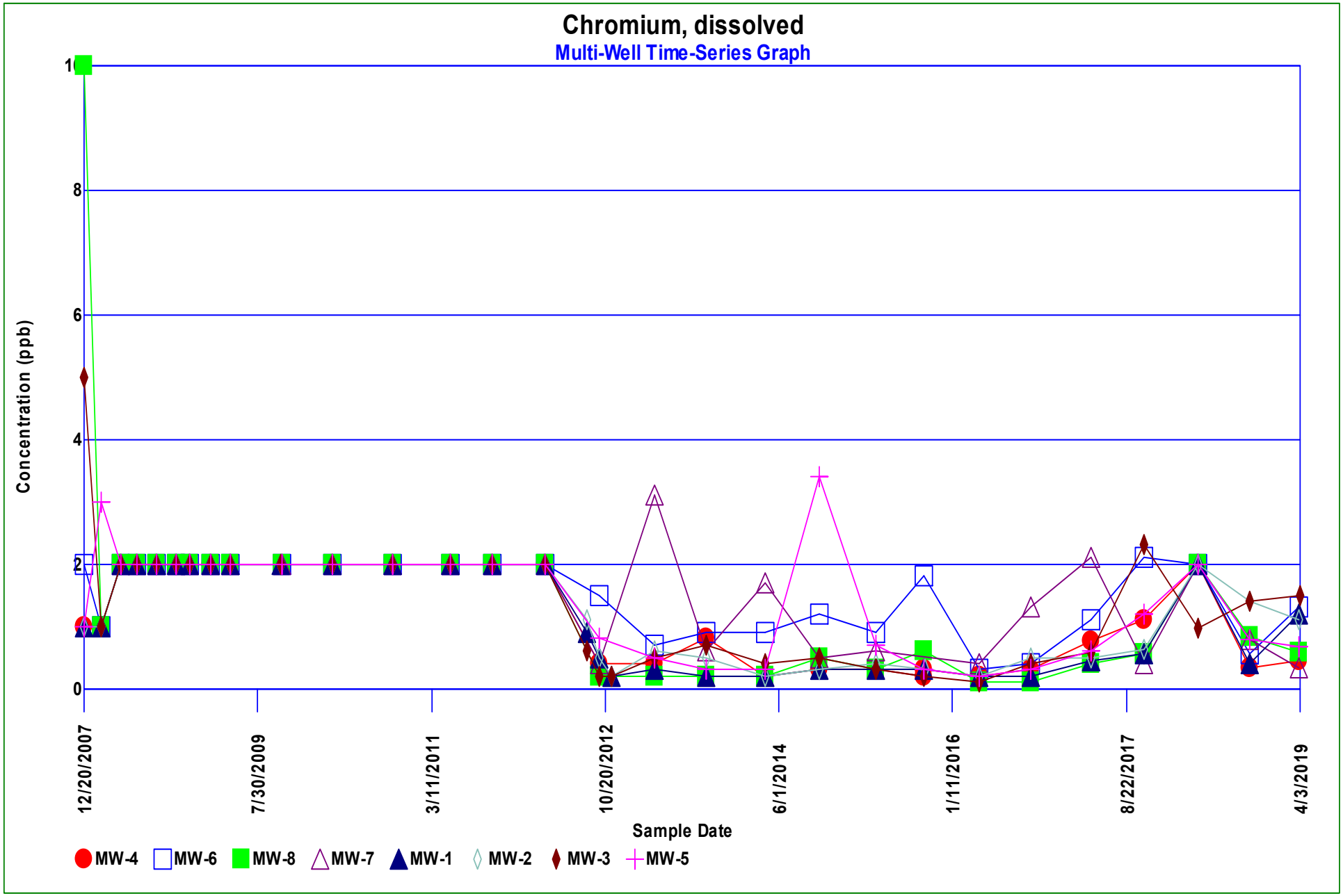

Beryllium, dissolved
Multi-Well Time-Series Graph
Concentration (ppb)
1
0.8
0.6
0.4
0.2
0
12/20/2007
7/30/2009
3/11/2011
10/20/2012
6/1/2014
1/11/2016
8/22/2017
4/3/2019
Sample Date
MW-4
MW-6
MW-8
MW-7
MW-1
MW-2
MW-3
MW-5

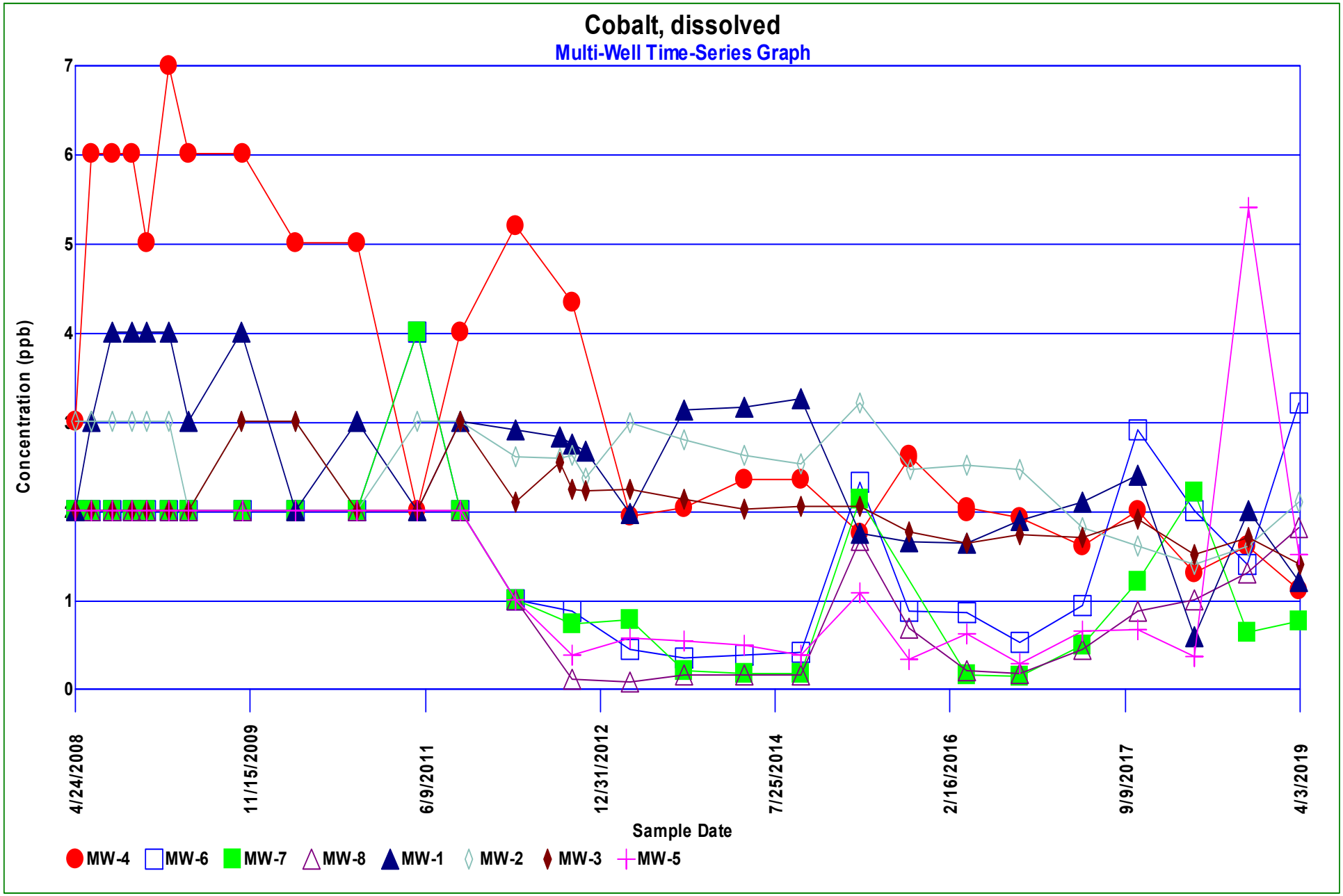

Boron, dissolved
Multi-Well Time-Series Graph
Concentration (ppb)
3000
2500
2000
1500
1000
500
0
12/20/2007
7/30/2009
3/11/2011
10/20/2012
6/1/2014
1/11/2016
8/22/2017
4/3/2019
Sample Date
MW-4
MW-6
MW-8
MW-7
MW-1
MW-2
MW-3
MW-5

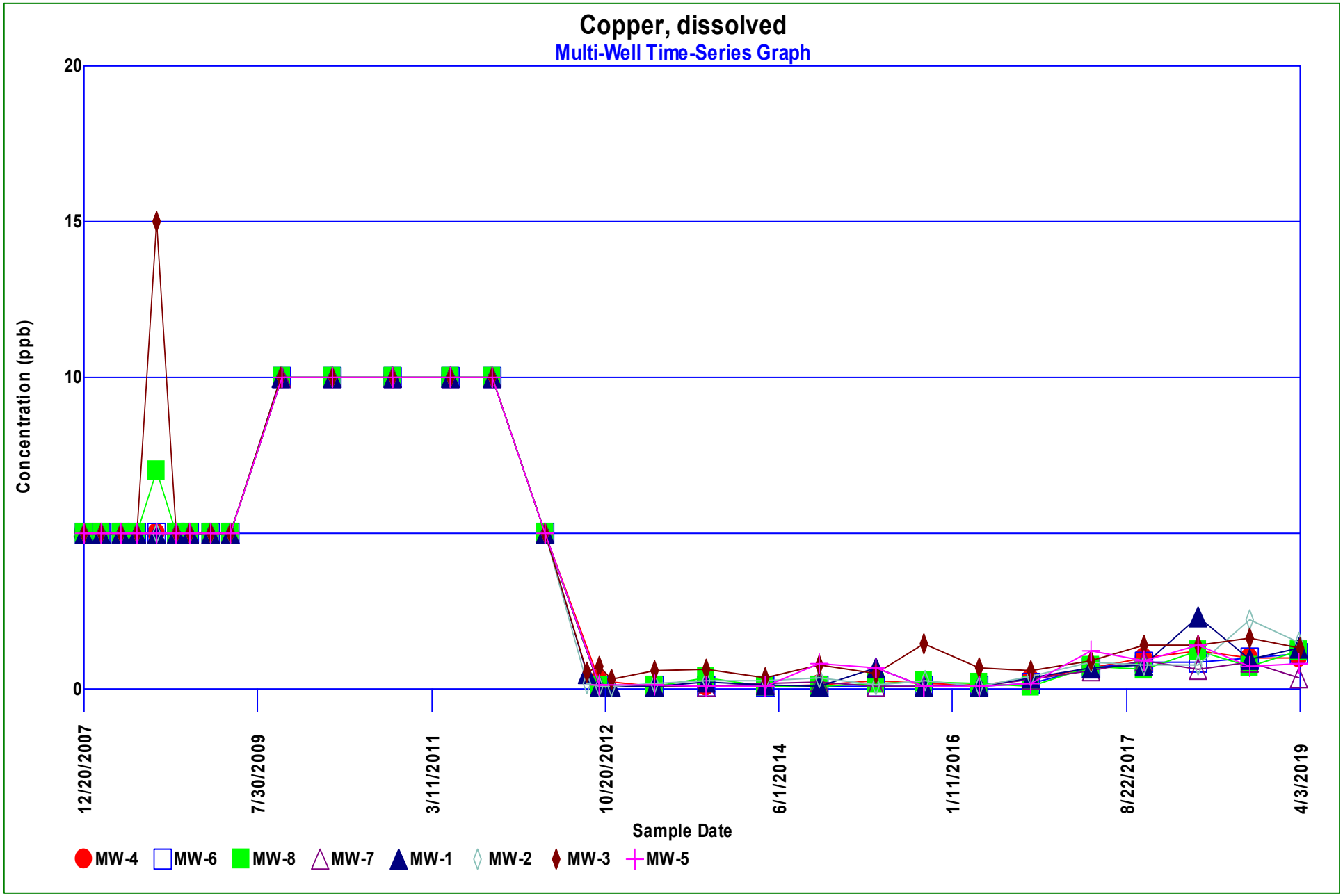

Cadmium, dissolved
Multi-Well Time-Series Graph
2
1.5
0.5
0
Concentration (ppb)
12/20/2007
7/30/2009
3/11/2011
10/20/2012
6/1/2014
1/11/2016
8/22/2017
4/3/2019
Sample Date
MW-4
MW-6
MW-8
MW-7
MW-1
MW-2
MW-3
MW-5

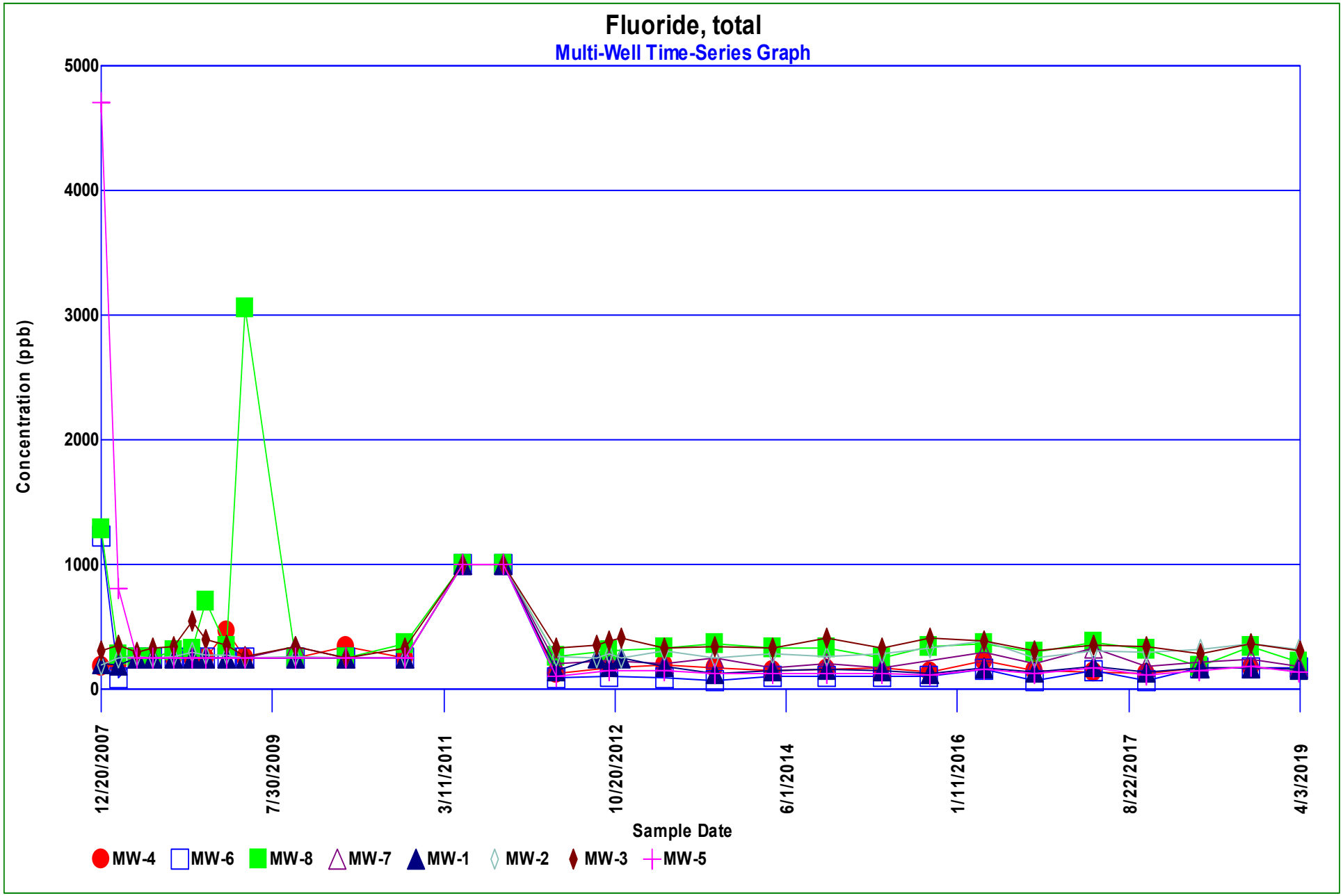

Calcium, dissolved
Multi-Well Time-Series Graph
200000
150000
100000
50000
0
Concentration (ppb)
12/20/2007
7/30/2009
3/11/2011
10/20/2012
6/1/2014
1/11/2016
8/22/2017
4/3/2019
Sample Date
MW-4
MW-6
MW-8
MW-7
MW-1
MW-2
MW-3
MW-5

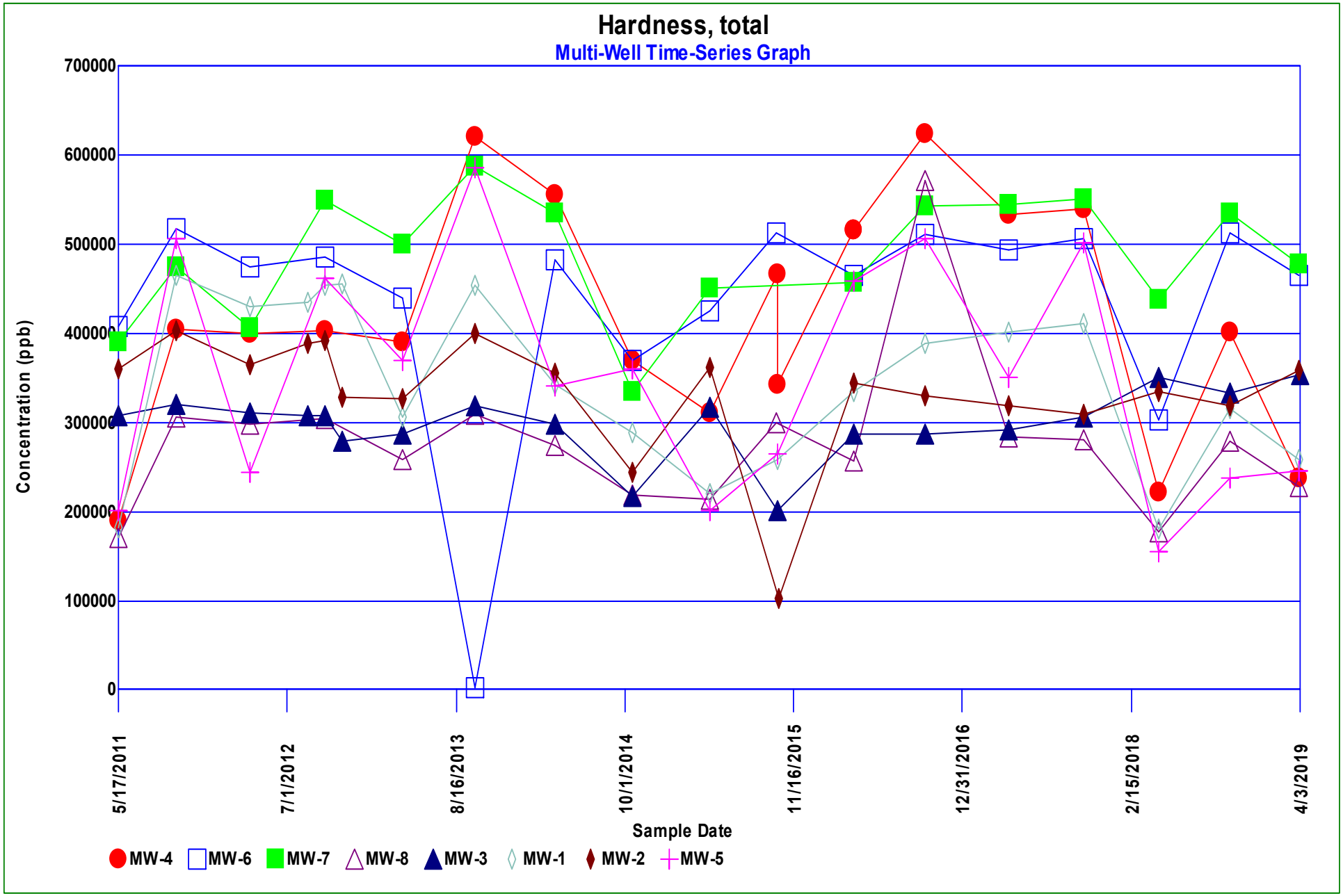

Chloride, total
Multi-Well Time-Series Graph
Concentration (ppb)
40000
35000
30000
25000
20000
15000
10000
5000
0
12/20/2007
7/30/2009
3/11/2011
10/20/2012
6/1/2014
1/11/2016
8/22/2017
4/3/2019
Sample Date
MW-4
MW-6
MW-8
MW-7
MW-1
MW-2
MW-3
MW-5

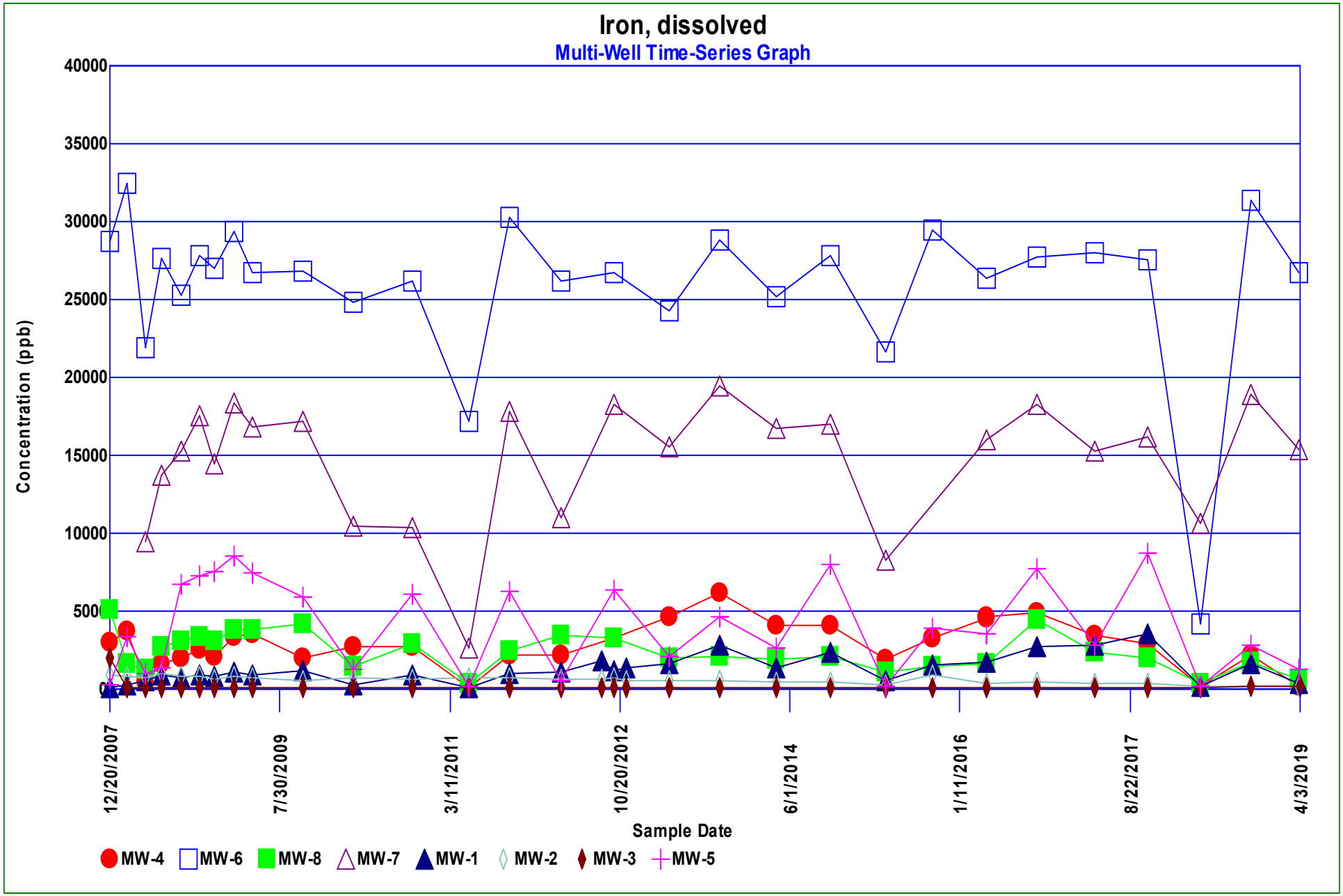

Chromium, dissolved
Multi-Well Time-Series Graph
Concentration (ppb)
10
8
6
4
2
0
12/20/2007
7/30/2009
3/11/2011
10/20/2012
6/1/2014
1/11/2016
8/22/2017
4/3/2019
Sample Date
MW-4
MW-6
MW-8
MW-7
MW-1
MW-2
MW-3
MW-5

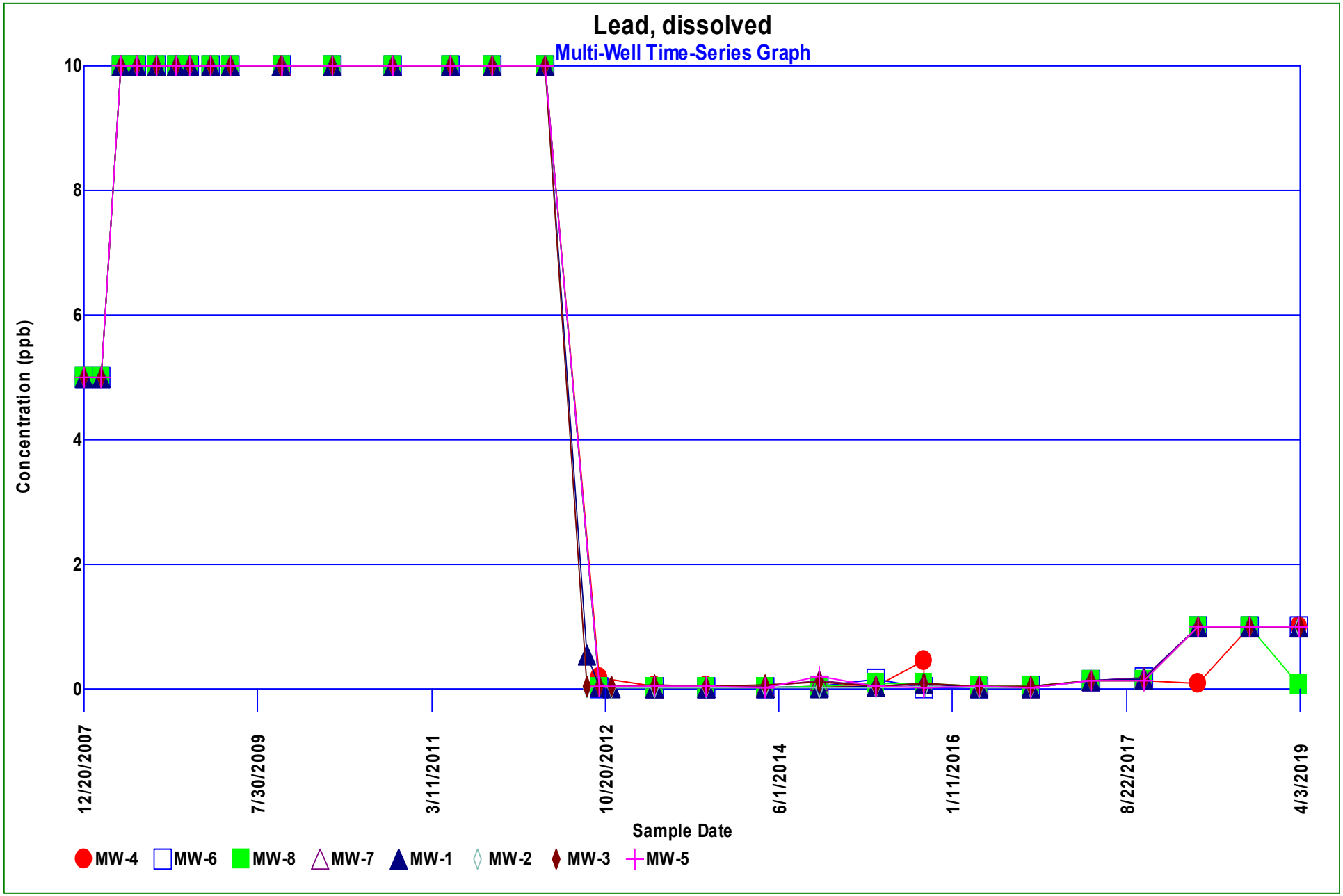

Cobalt, dissolved
Multi-Well Time-Series Graph
Concentration (ppb)
7
6
5
4
3
2
1
0
4/24/2008
11/15/2009
6/9/2011
12/31/2012
7/25/2014
2/16/2016
9/9/2017
4/3/2019
Sample Date
MW-4
MW-6
MW-7
MW-8
MW-1
MW-2
MW-3
MW-5

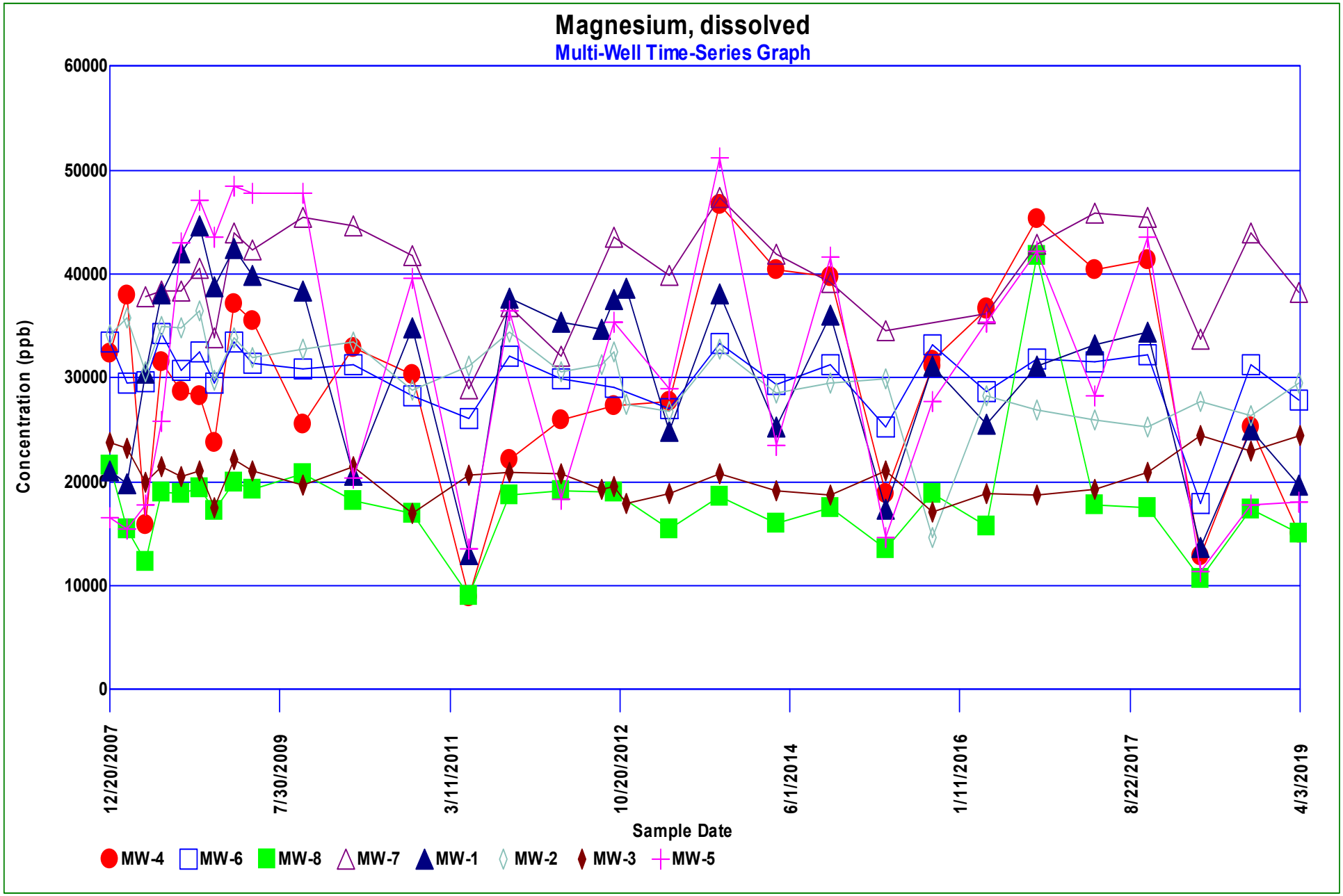

Copper, dissolved
Multi-Well Time-Series Graph
20
15
10
0
Concentration (ppb)
12/20/2007
7/30/2009
3/11/2011
10/20/2012
6/1/2014
1/11/2016
8/22/2017
4/3/2019
Sample Date
MW-4
MW-6
MW-8
MW-7
MW-1
MW-2
MW-3
MW-5

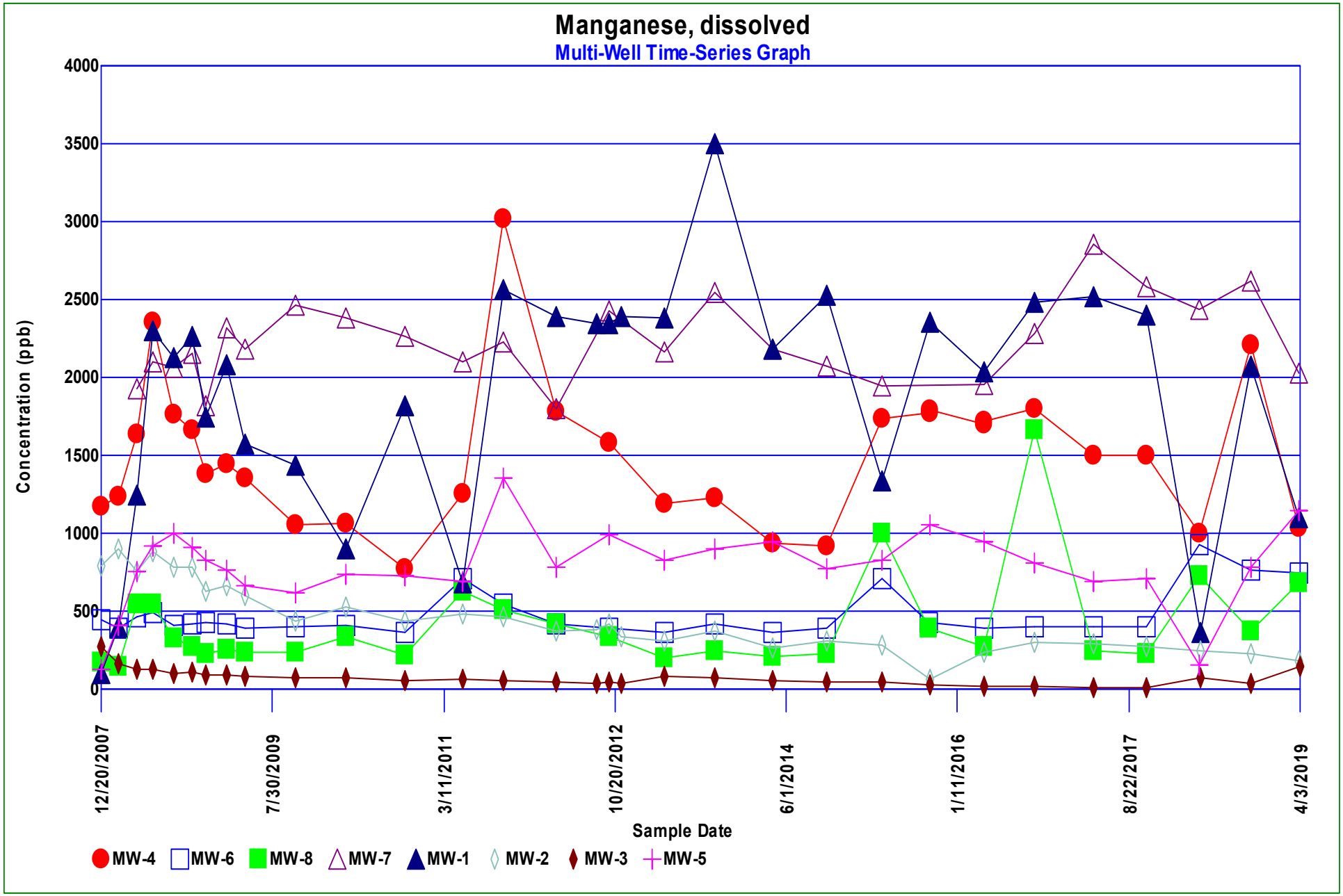

Fluoride, total
Multi-Well Time-Series Graph
Concentration (ppb)
5000
4000
3000
2000
1000
0
12/20/2007
7/30/2009
3/11/2011
10/20/2012
6/1/2014
1/11/2016
8/22/2017
4/3/2019
Sample Date
MW-4
MW-6
MW-8
MW-7
MW-1
MW-2
MW-3
MW-5

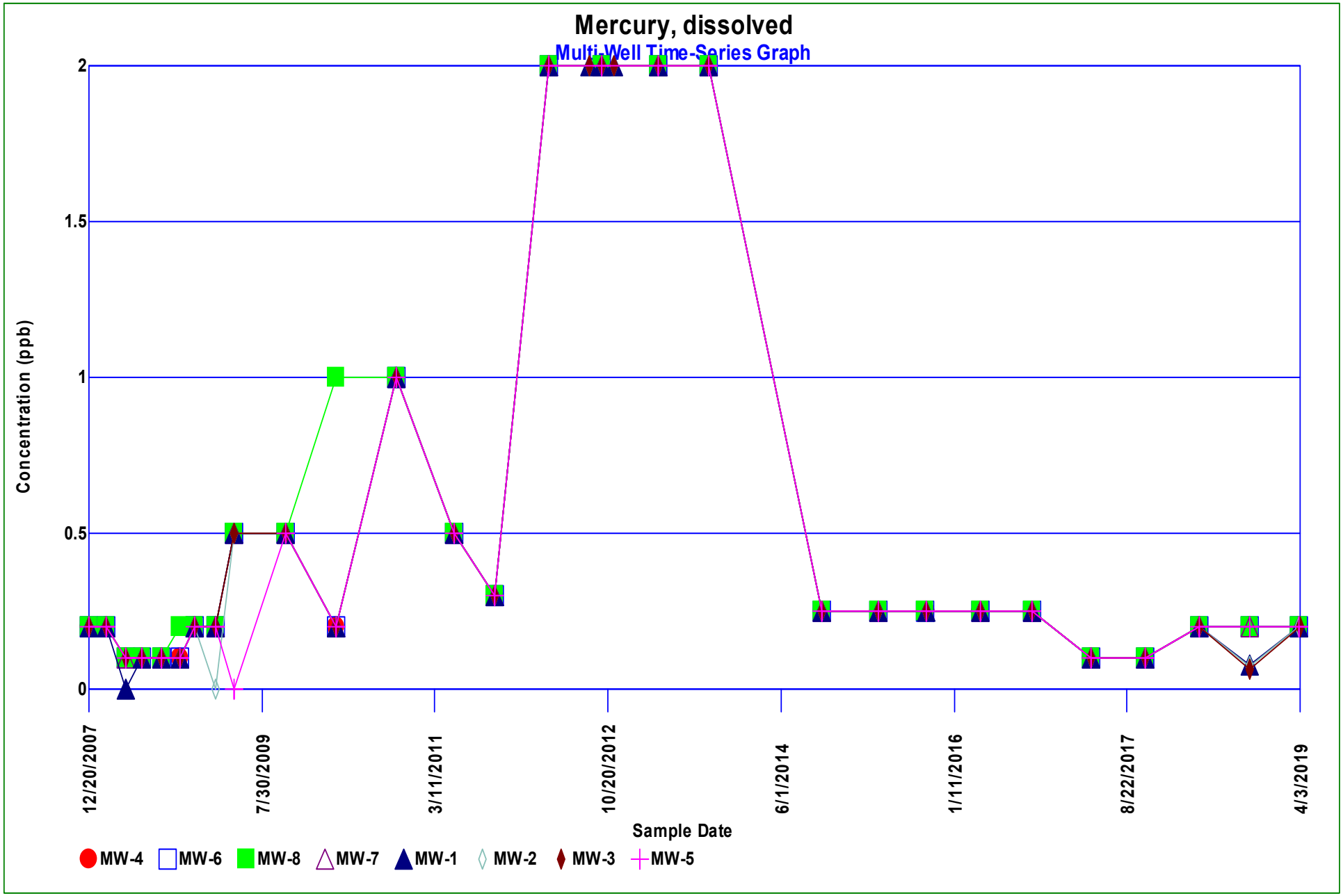

Hardness, total
Multi-Well Time-Series Graph
Concentration (ppb)
700000
600000
500000
400000
300000
200000
100000
0
5/17/2011
7/1/2012
8/16/2013
10/1/2014
11/16/2015
12/31/2016
2/15/2018
4/3/2019
Sample Date
MW-4
MW-6
MW-7
MW-8
MW-3
MW-1
MW-2
MW-5

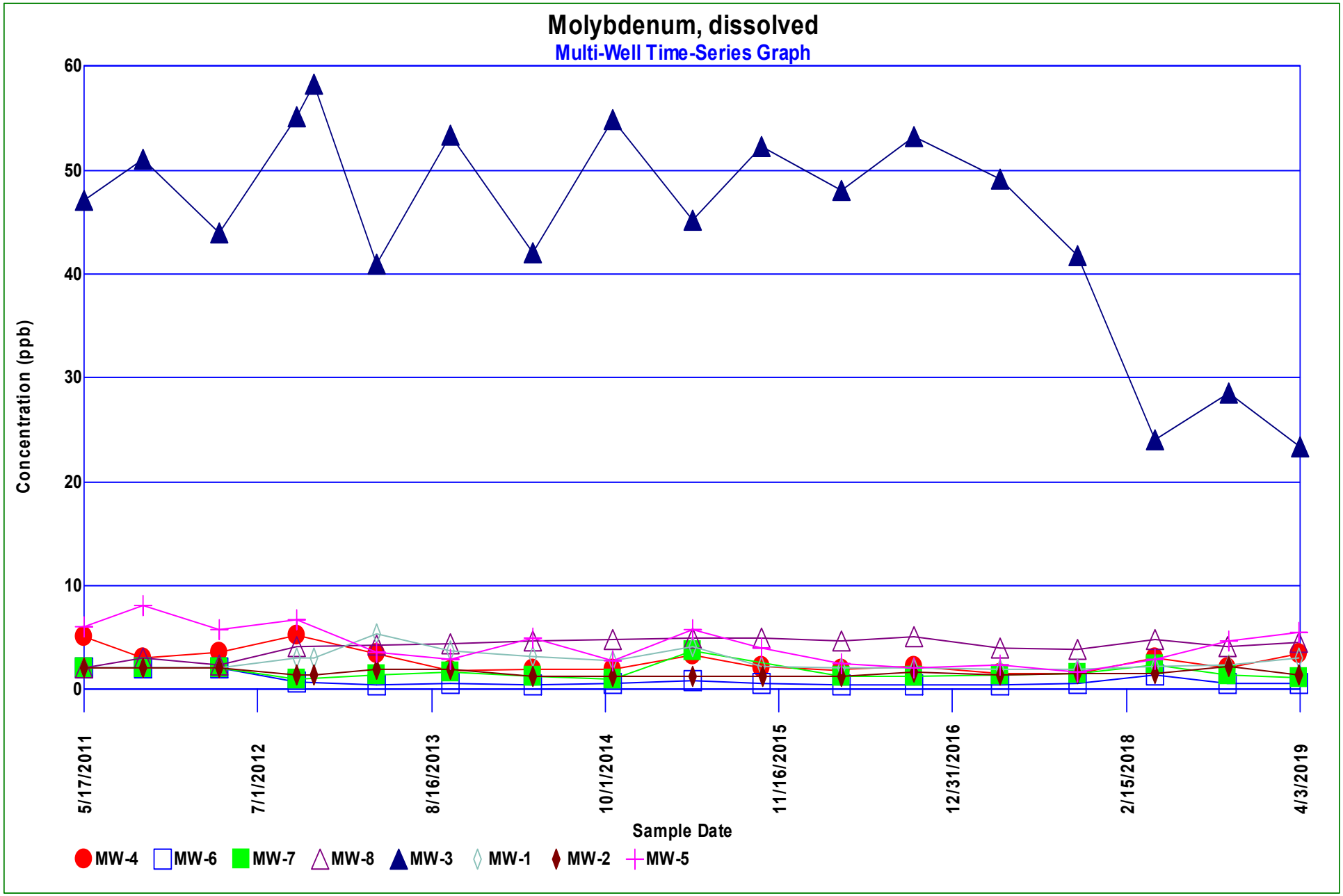

Iron, dissolved
Multi-Well Time-Series Graph
Concentration (ppb)
40000
35000
30000
25000
20000
15000
10000
500
0
12/20/2007
7/30/2009
3/11/2011
10/20/2012
6/1/2014
1/11/2016
8/22/2017
4/3/2019
Sample Date
MW-4
MW-6
MW-8
MW-7
MW-1
MW-2
MW-3
MW-5

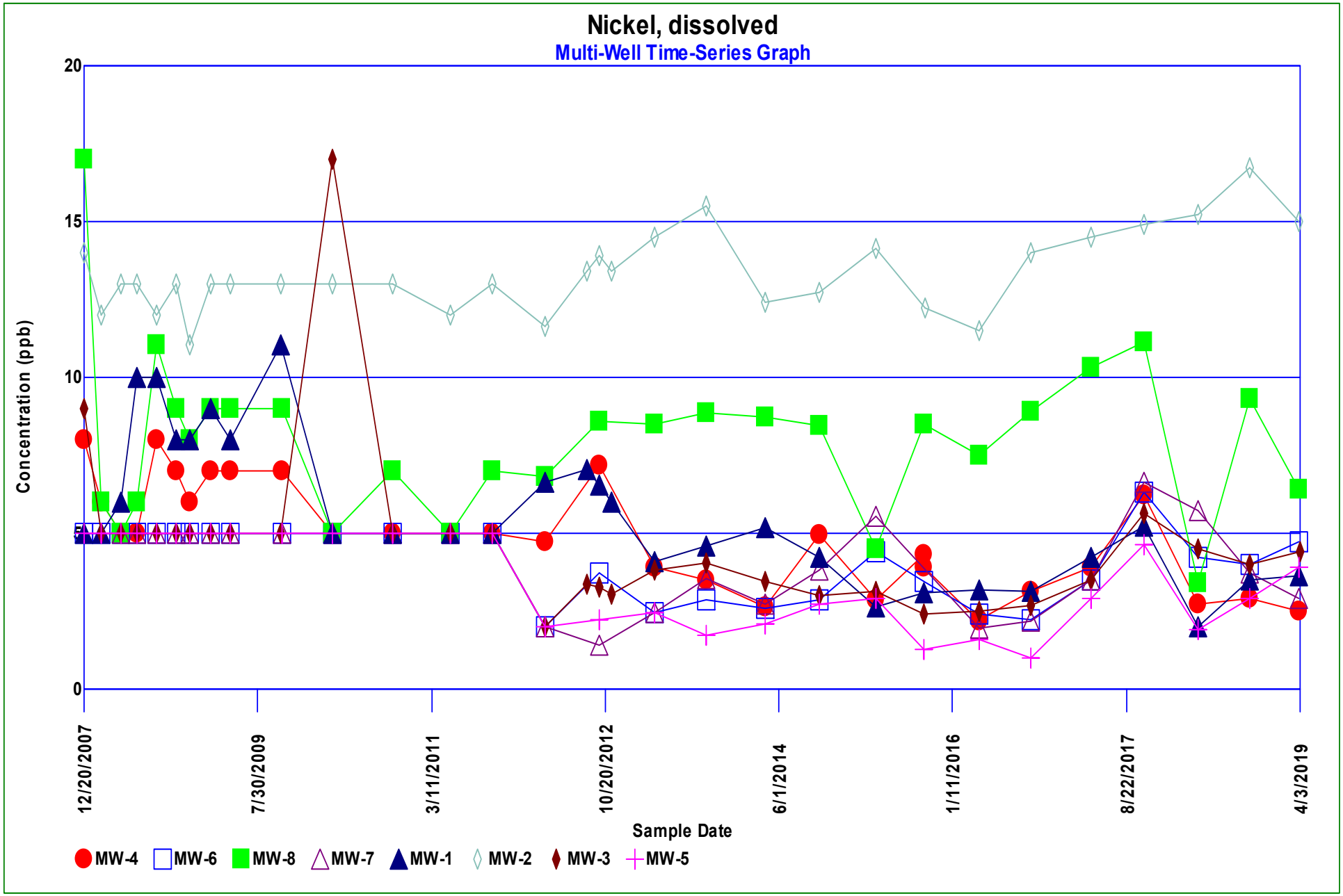

Lead, dissolved
Multi-Well Time-Series Graph
Concentration (ppb)
10
8
6
4
2
0
12/20/2007
7/30/2009
3/11/2011
10/20/2012
6/1/2014
1/11/2016
8/22/2017
4/3/2019
Sample Date
MW-4
MW-6
MW-8
MW-7
MW-1
MW-2
MW-3
MW-5

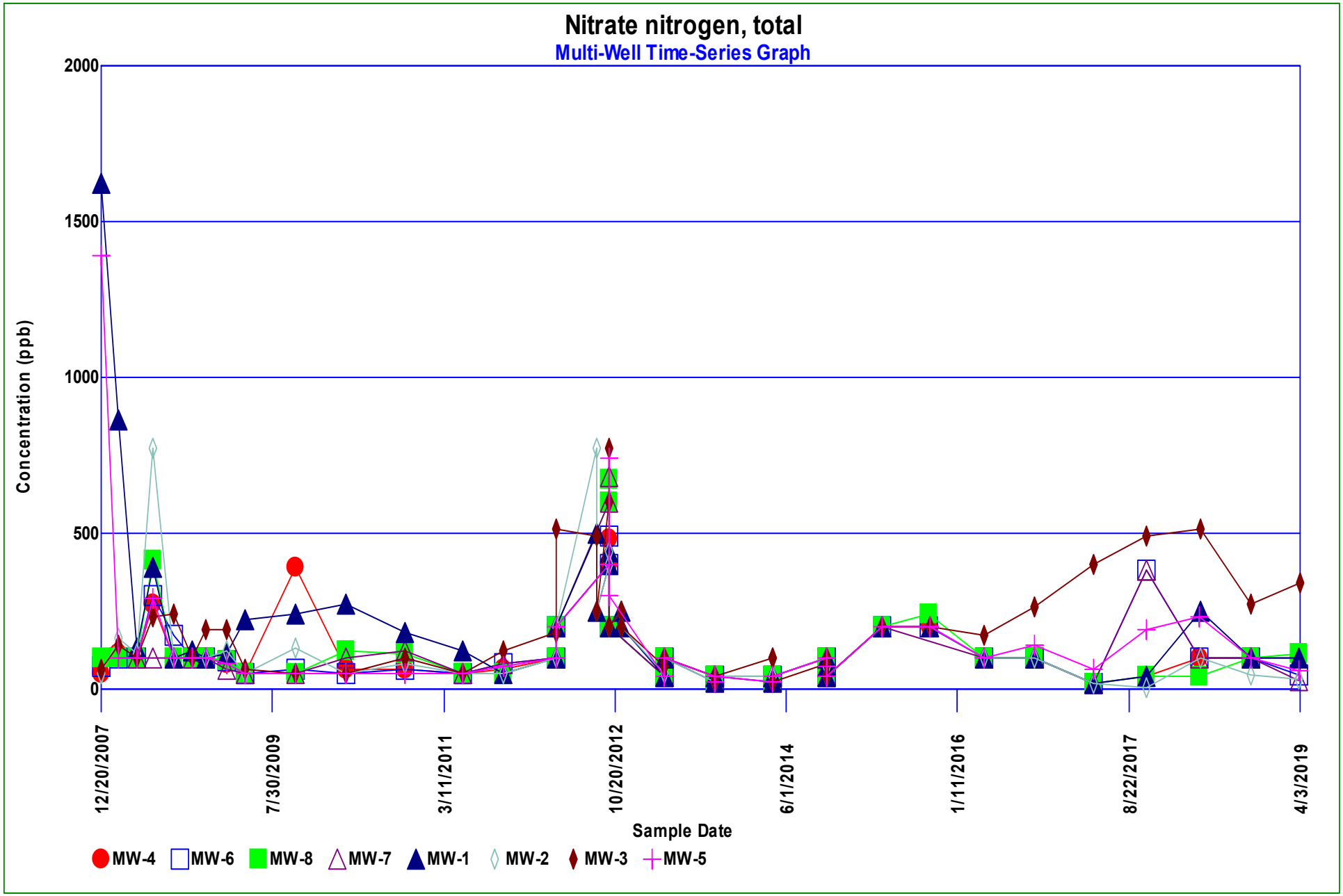

Magnesium, dissolved
Multi-Well Time-Series Graph
Concentration (ppb)
60000
50000
40000
30000
20000
10000
0
12/20/2007
7/30/2009
3/11/2011
10/20/2012
6/1/2014
1/11/2016
8/22/2017
4/3/2019
Sample Date
MW-4
MW-6
MW-8
MW-7
MW-1
MW-2
MW-3
MW-5

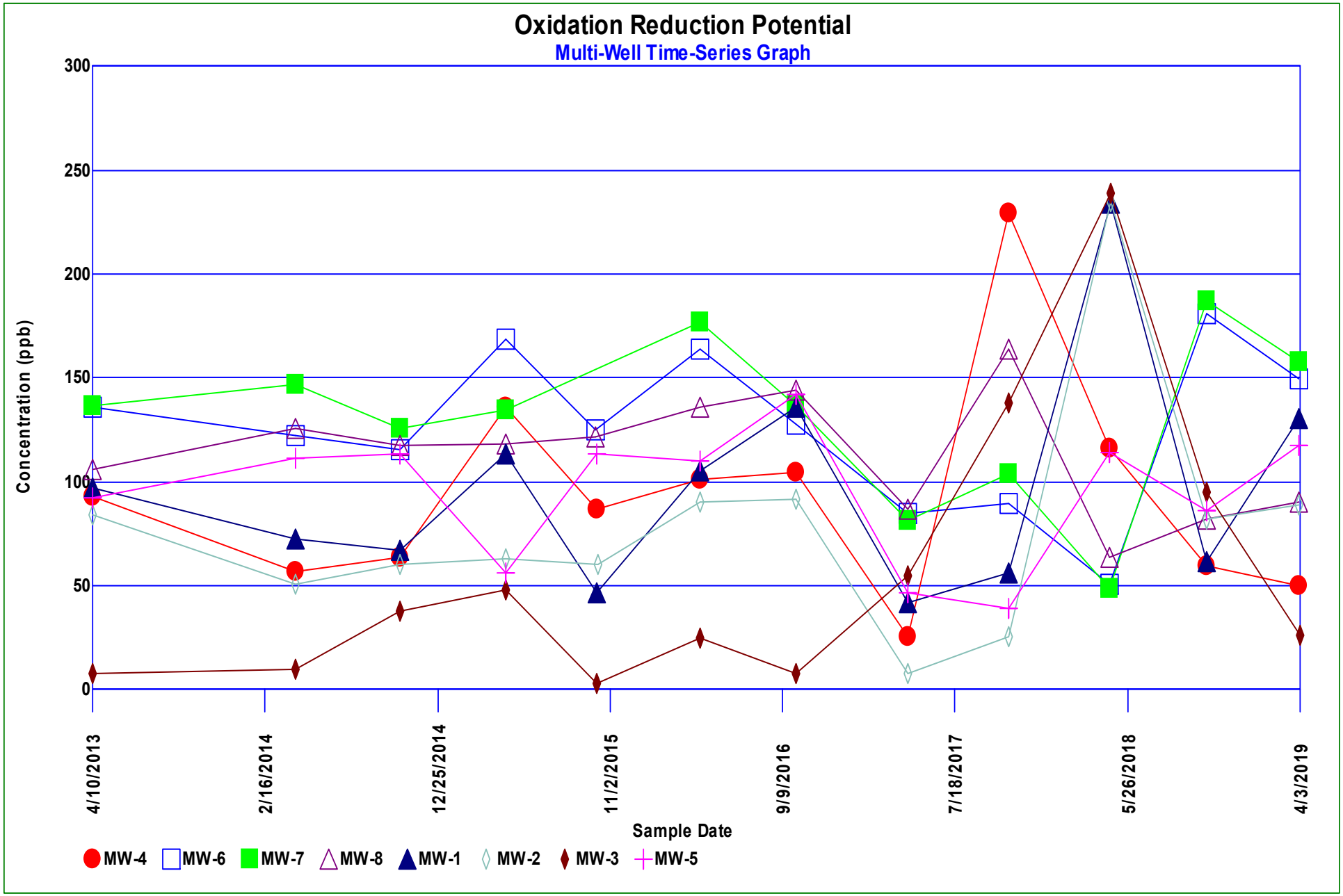

Manganese, dissolved
Multi-Well Time-Series Graph
Concentration (ppb)
4000
3500
3000
2500
2000
1500
1000
500
0
12/20/2007
7/30/2009
3/11/2011
10/20/2012
6/1/2014
1/11/2016
8/22/2017
4/3/2019
Sample Date
MW-4
MW-6
MW-8
MW-7
MW-1
MW-2
MW-3
MW-5

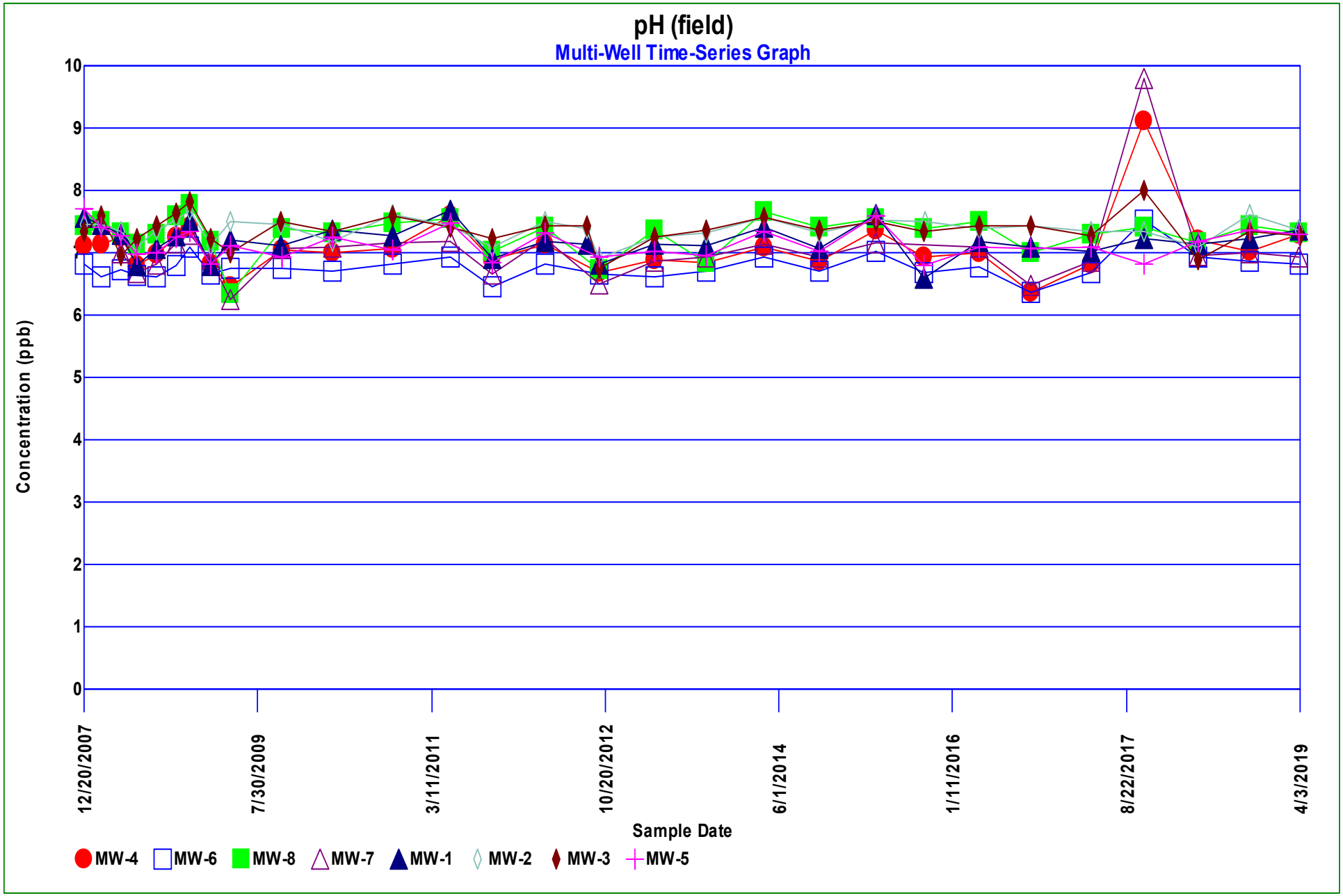

Mercury, dissolved
Multi-Well Time-Series Graph
Concentration (ppb)
2
1.5
1
0.5
0
12/20/2007
7/30/2009
3/11/2011
10/20/2012
6/1/2014
1/11/2016
8/22/2017
4/3/2019
Sample Date
MW-4
MW-6
MW-8
MW-7
MW-1
MW-2
MW-3
MW-5

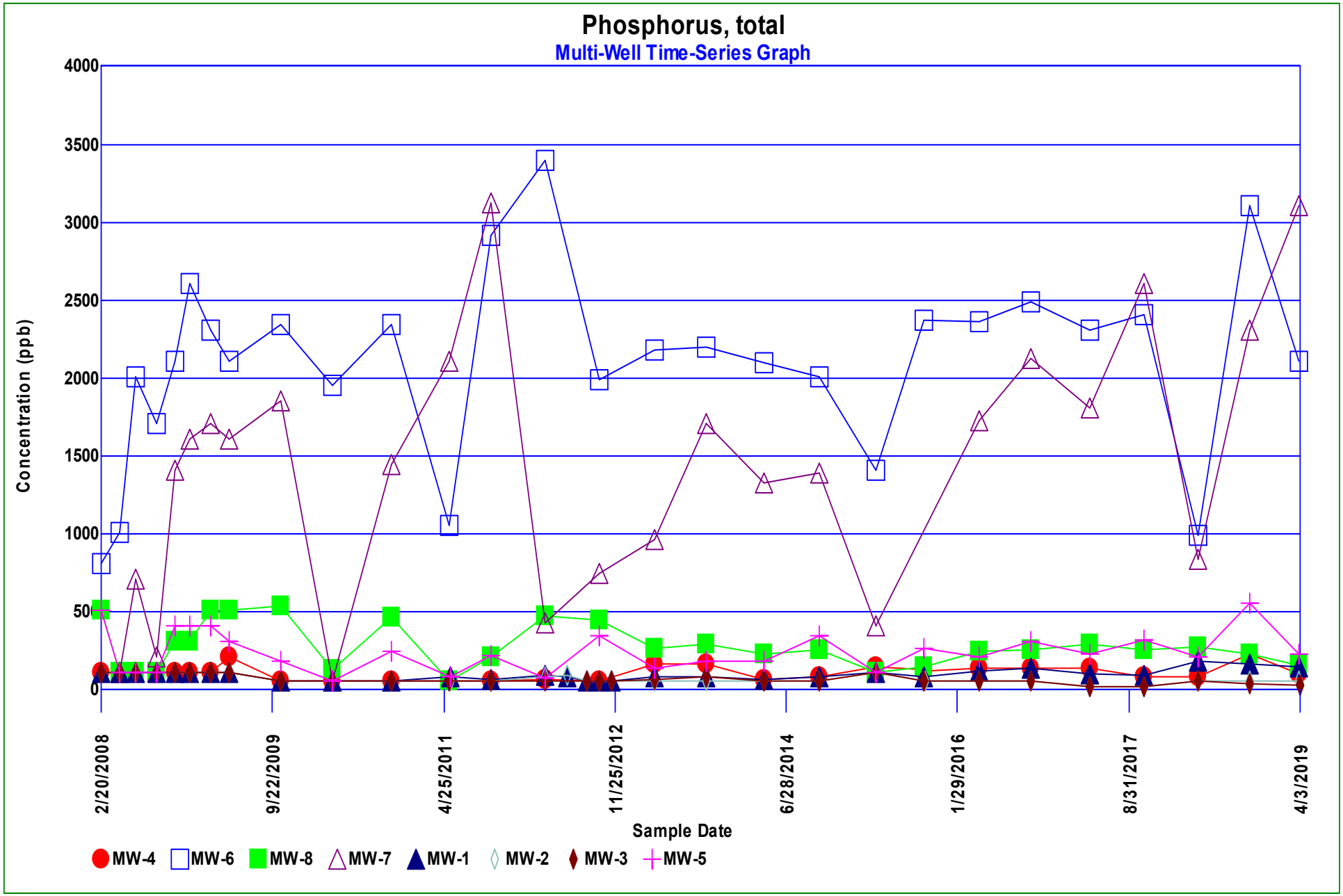

Molybdenum, dissolved
Multi-Well Time-Series Graph
Concentration (ppb)
60
50
40
30
20
10
0
5/17/2011
7/1/2012
8/16/2013
10/1/2014
11/16/2015
12/31/2016
2/15/2018
4/3/2019
Sample Date
MW-4
MW-6
MW-7
MW-8
MW-3
MW-1
MW-2
MW-5

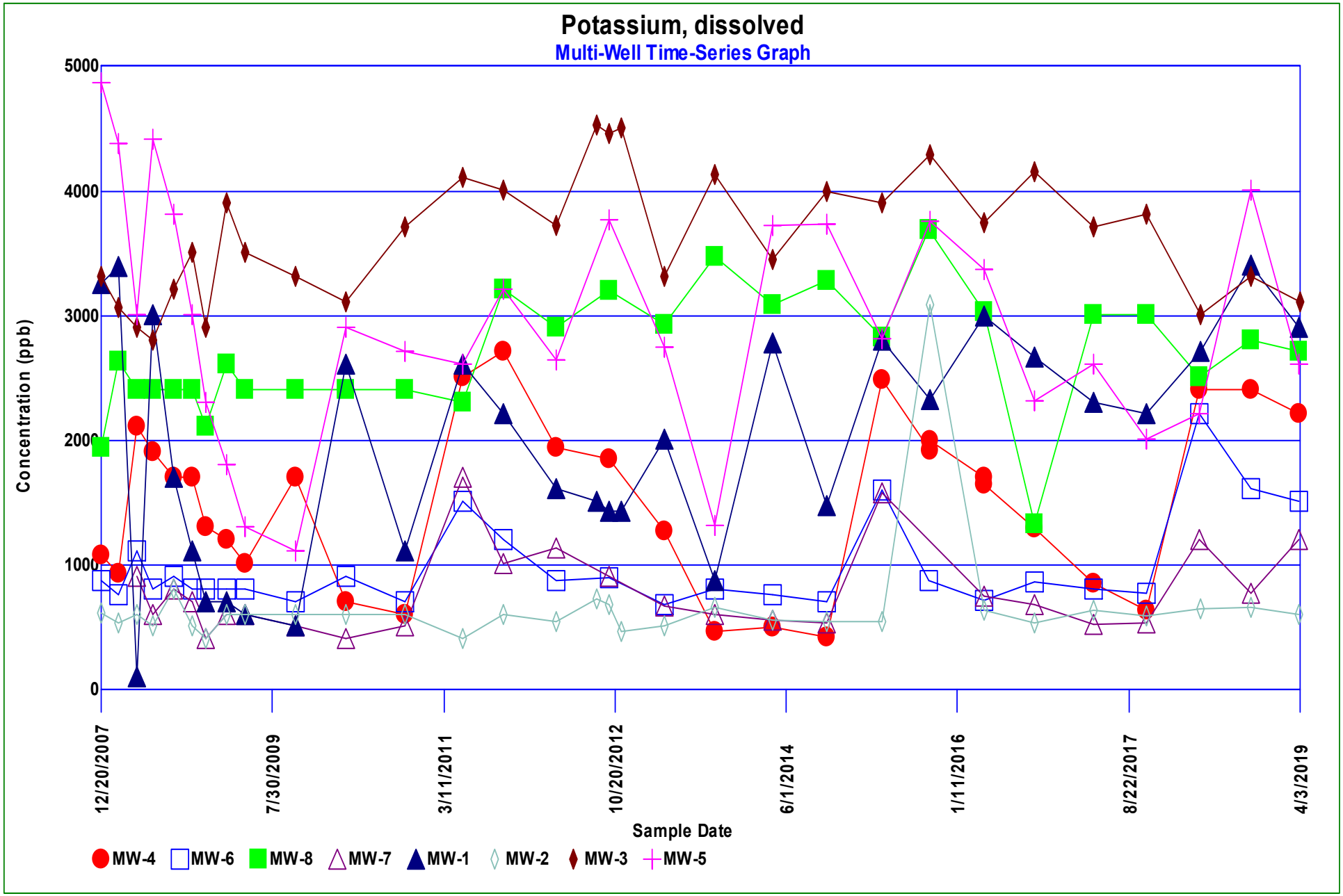

Nickel, dissolved
Multi-Well Time-Series Graph
Concentration (ppb)
20
15
10
5
0
12/20/2007
7/30/2009
3/11/2011
10/20/2012
6/1/2014
1/11/2016
8/22/2017
4/3/2019
Sample Date
MW-4
MW-6
MW-8
MW-7
MW-1
MW-2
MW-3
MW-5

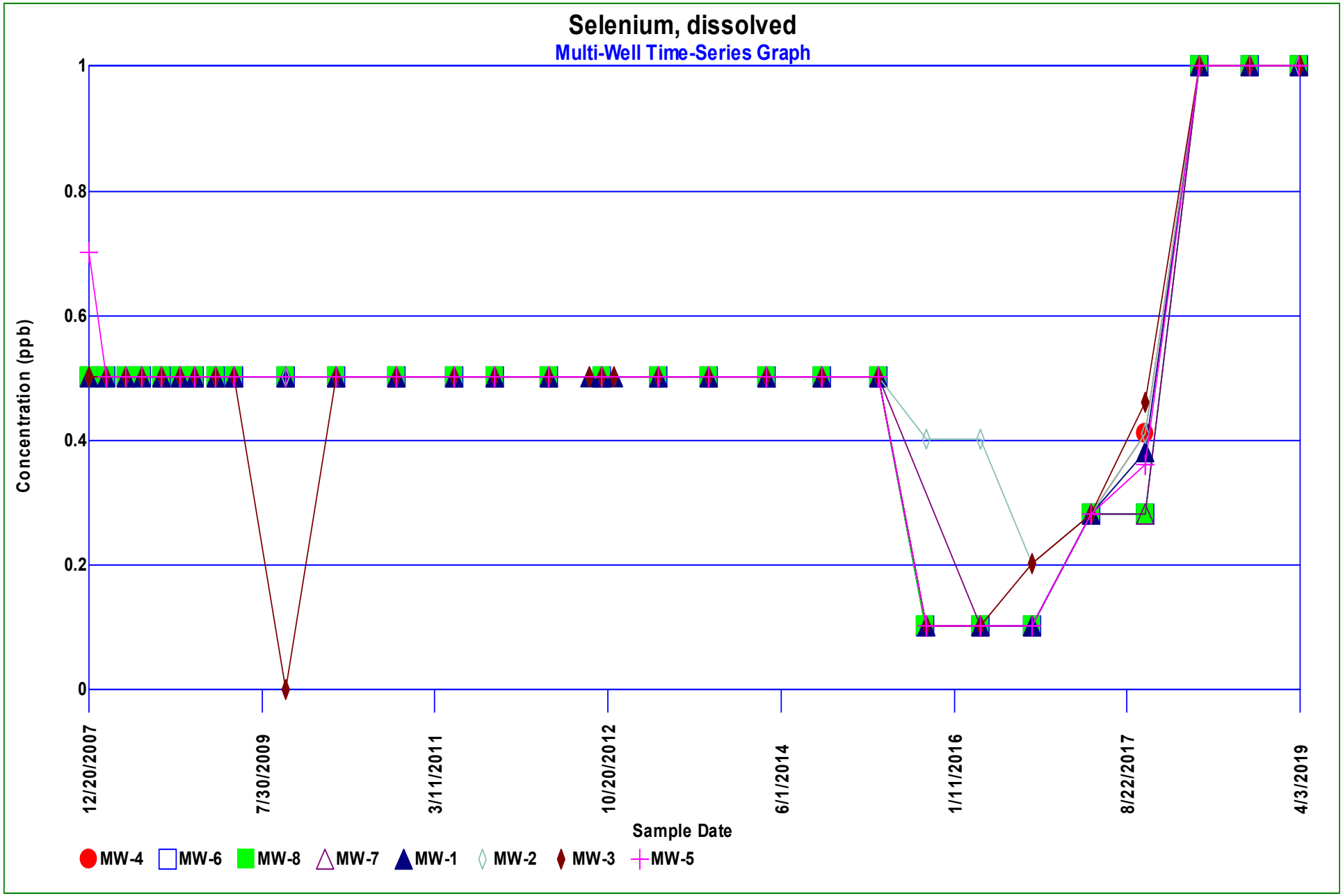

Nitrate nitrogen, total
Multi-Well Time-Series Graph
2000
1500
1000
500
0
Concentration (ppb)
12/20/2007
7/30/2009
3/11/2011
10/20/2012
6/1/2014
1/11/2016
8/22/2017
4/3/2019
Sample Date
MW-4
MW-6
MW-8
MW-7
MW-1
MW-2
MW-3
MW-5

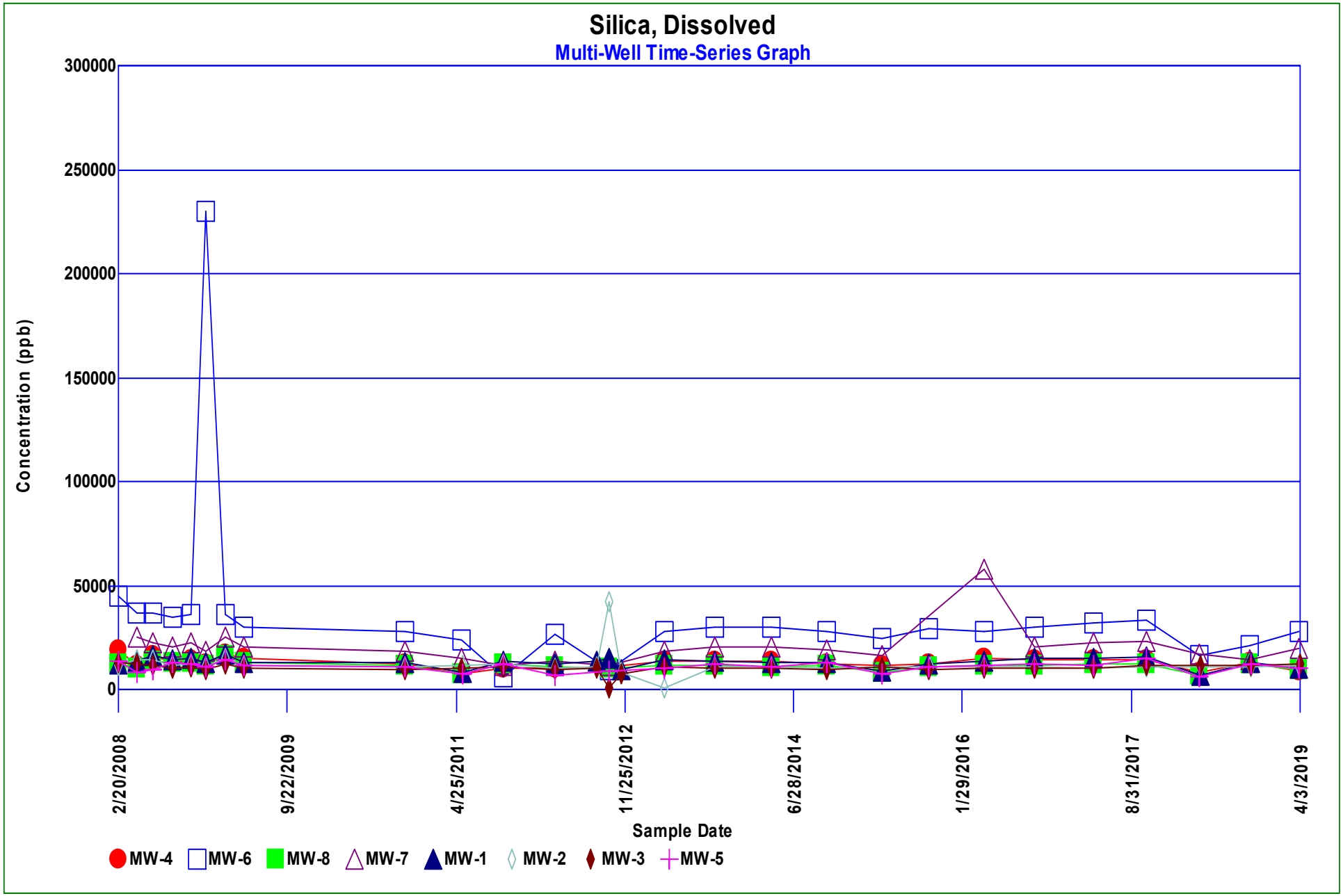

Oxidation Reduction Potential
Multi-Well Time-Series Graph
Concentration (ppb)
300
250
200
150
100
50
0
4/10/2013
2/16/2014
12/25/2014
11/2/2015
9/9/2016
7/18/2017
5/26/2018
4/3/2019
Sample Date
MW-4
MW-6
MW-7
MW-8
MW-1
MW-2
MW-3
MW-5

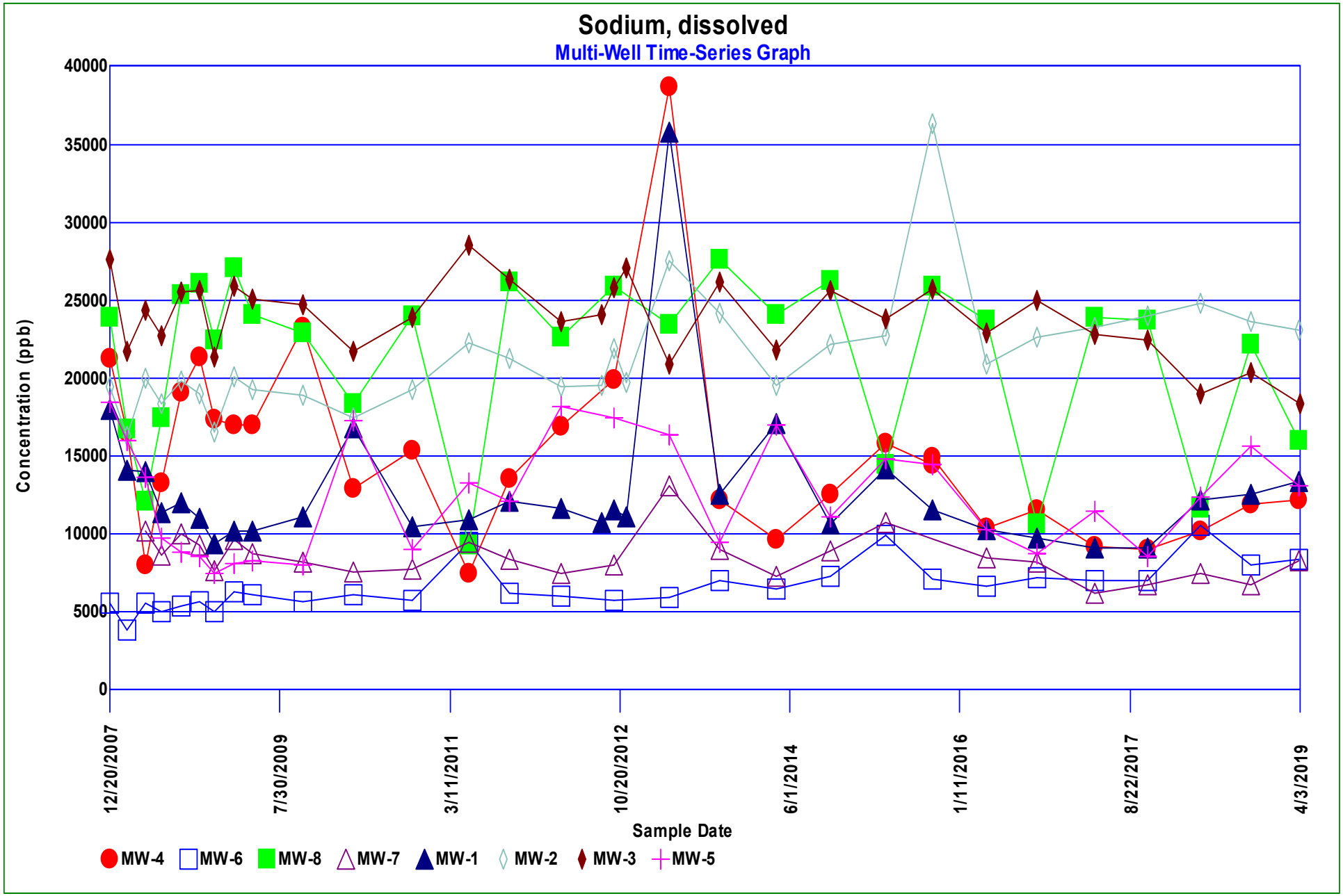

pH (field)
Multi-Well Time-Series Graph
Concentration (ppb)
10
9
8
7
6
5
4
3
2
1
0
12/20/2007
7/30/2009
3/11/2011
10/20/2012
6/1/2014
1/11/2016
8/22/2017
4/3/2019
Sample Date
MW-4
MW-6
MW-8
MW-7
MW-1
MW-2
MW-3
MW-5

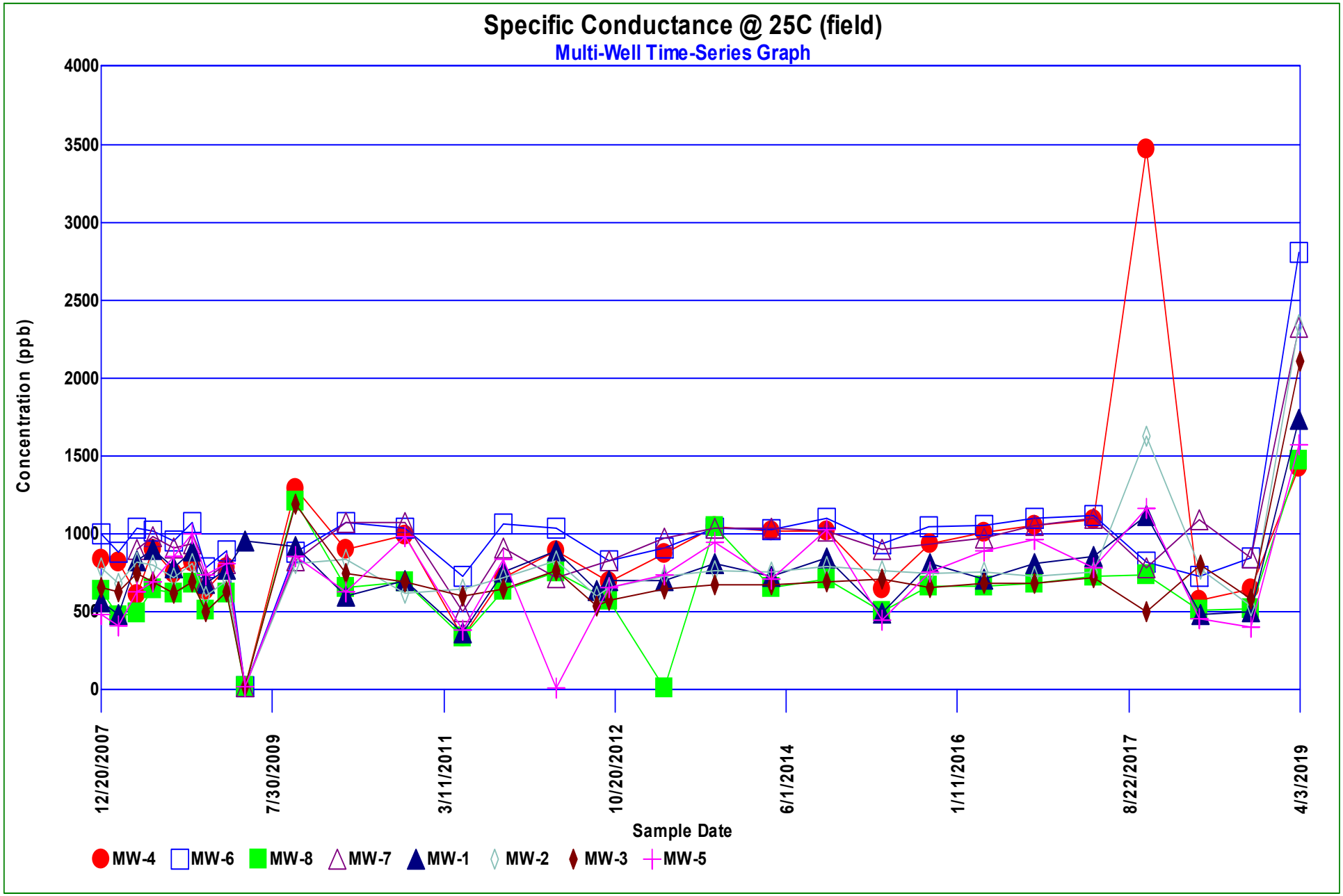

Phosphorus, total
Multi-Well Time-Series Graph
Concentration (ppb)
4000
3500
3000
2500
2000
1500
1000
50
0
2/20/2008
9/22/2009
4/25/2011
11/25/2012
6/28/2014
1/29/2016
8/31/2017
4/3/2019
Sample Date
MW-4
MW-6
MW-8
MW-7
MW-1
MW-2
MW-3
MW-5

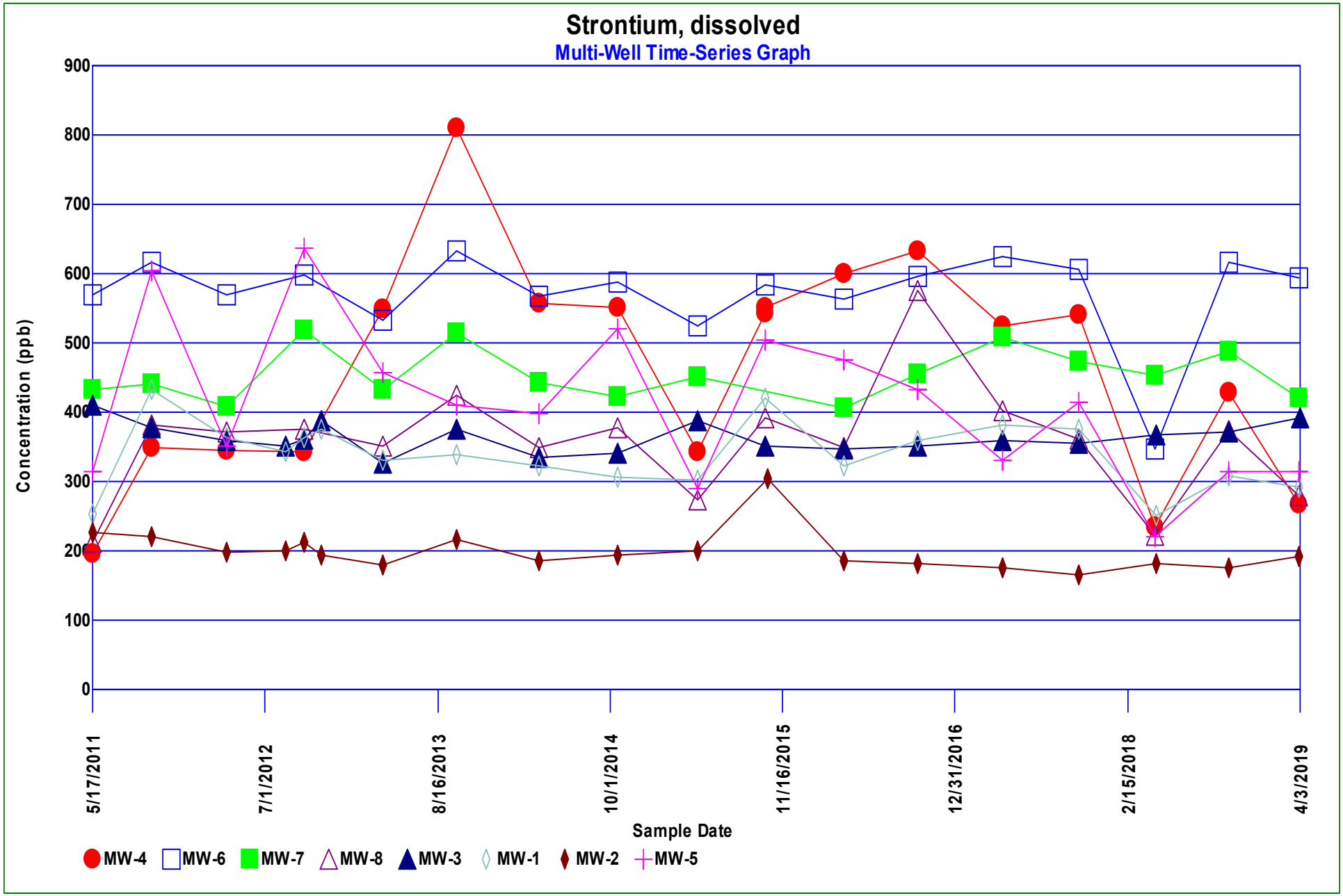

Potassium, dissolved
Multi-Well Time-Series Graph
Concentration (ppb)
5000
4000
3000
2000
1000
0
12/20/2007
7/30/2009
3/11/2011
10/20/2012
6/1/2014
1/11/2016
8/22/2017
4/3/2019
Sample Date
MW-4
MW-6
MW-8
MW-7
MW-1
MW-2
MW-3
MW-5

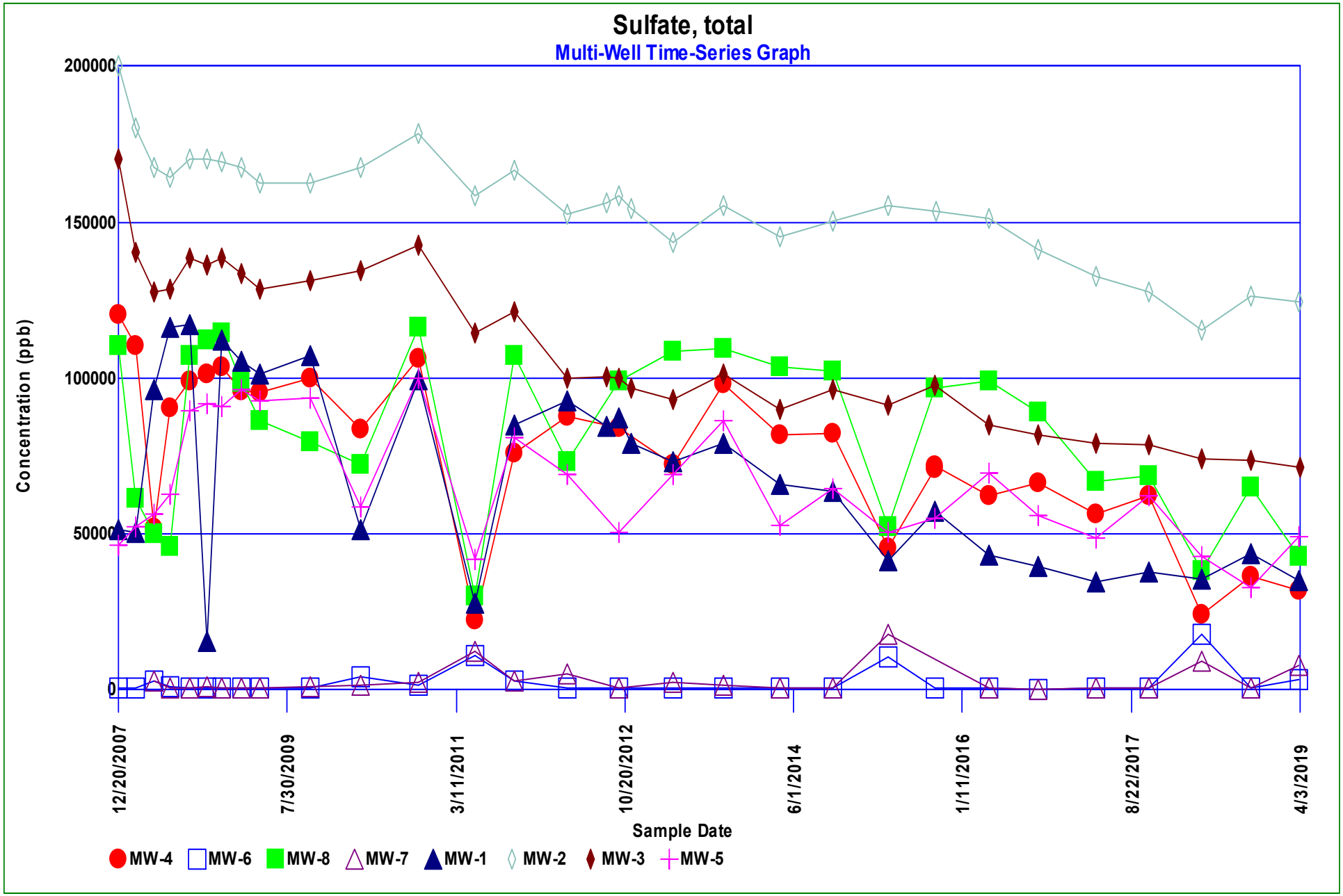

Selenium, dissolved
Multi-Well Time-Series Graph
Concentration (ppb)
1
0.8
0.6
0.4
0.2
0
12/20/2007
7/30/2009
3/11/2011
10/20/2012
6/1/2014
1/11/2016
8/22/2017
4/3/2019
Sample Date
MW-4
MW-6
MW-8
MW-7
MW-1
MW-2
MW-3
MW-5

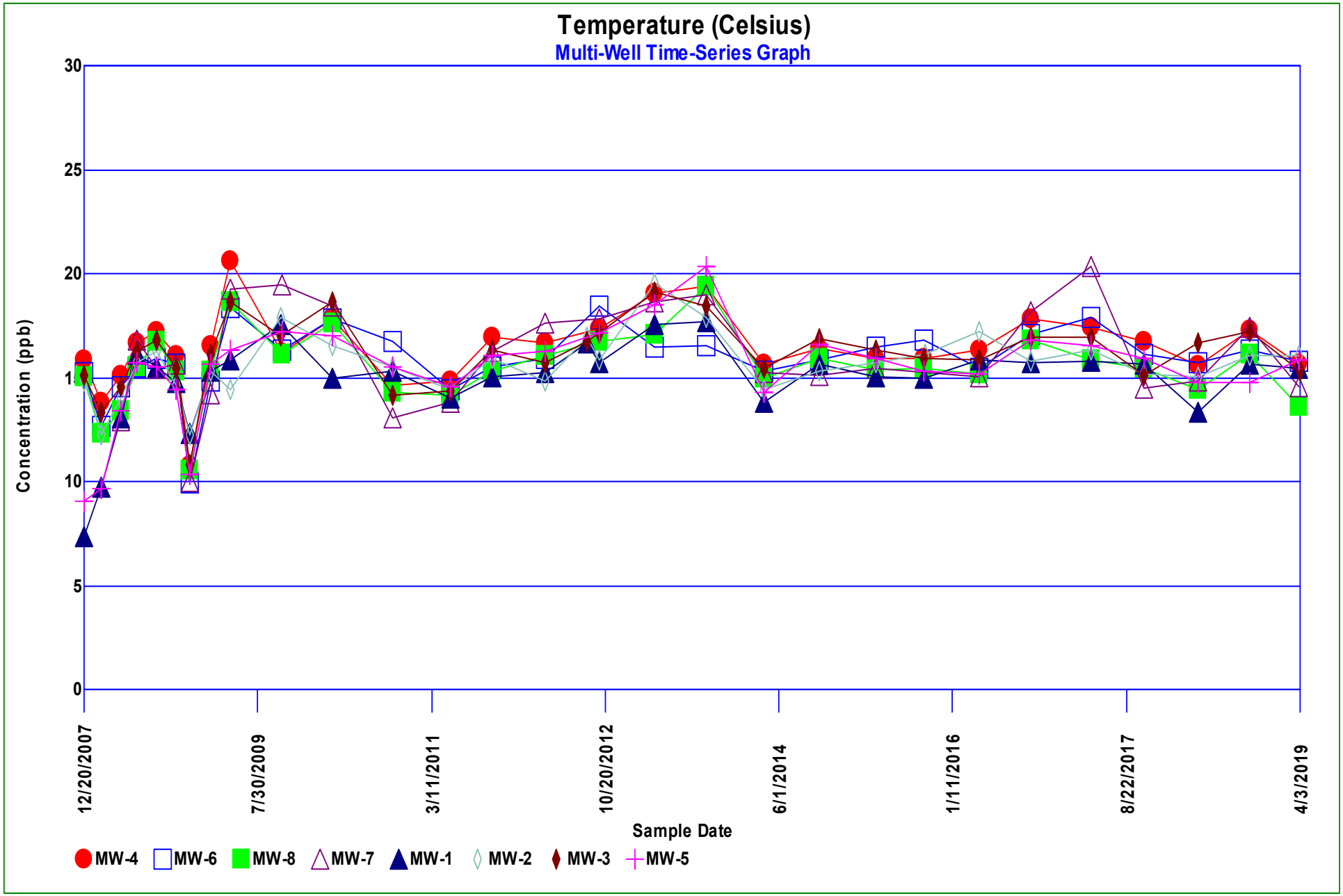

Silica, Dissolved
Multi-Well Time-Series Graph
300000
250000
200000
150000
100000
50000
0
Concentration (ppb)
2/20/2008
9/22/2009
4/25/2011
11/25/2012
6/28/2014
1/29/2016
8/31/2017
4/3/2019
Sample Date
MW-4
MW-6
MW-8
MW-7
MW-1
MW-2
MW-3
MW-5

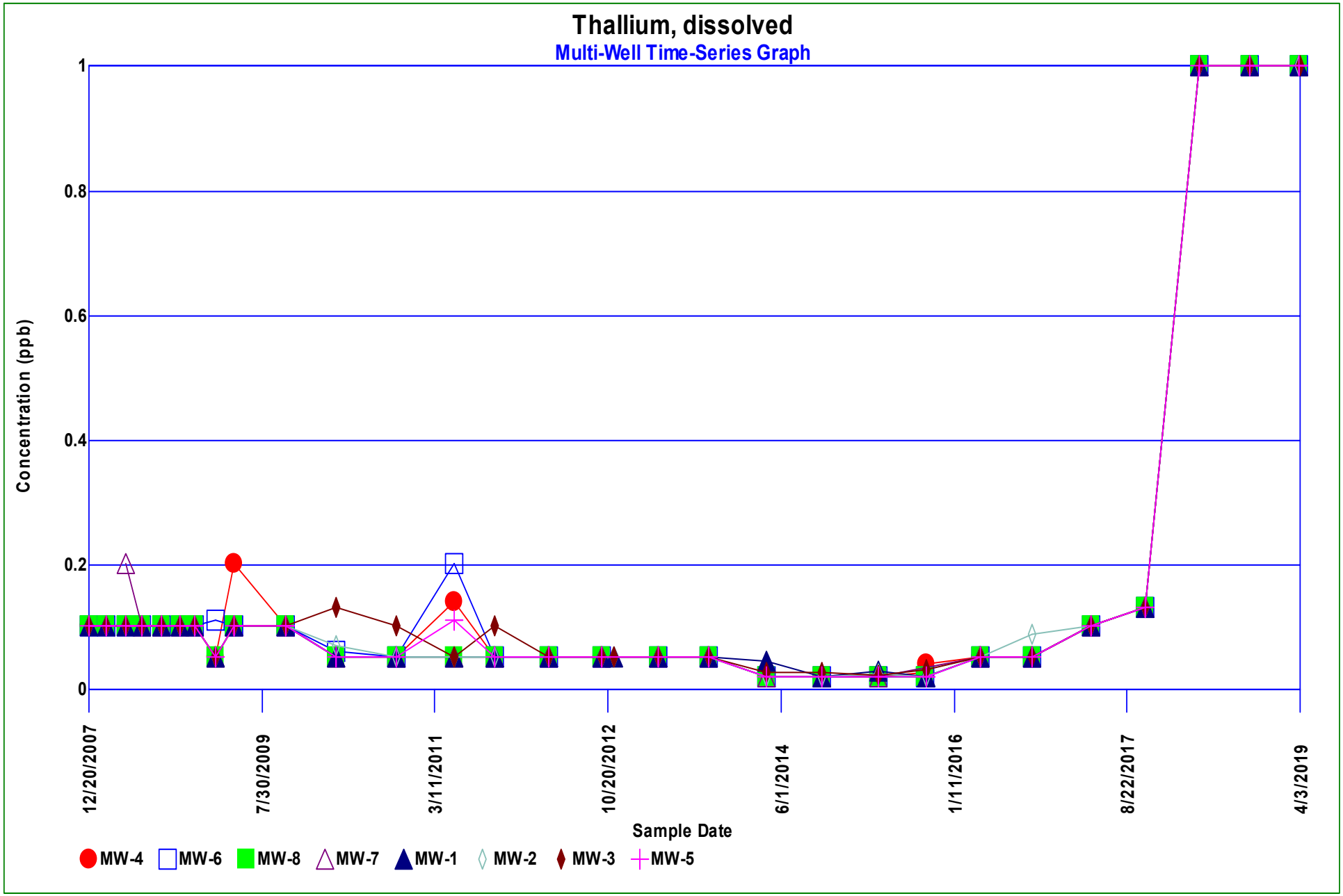

Sodium, dissolved
Multi-Well Time-Series Graph
Concentration (ppb)
40000
35000
30000
25000
20000
15000
10000
5000
0
12/20/2007
7/30/2009
3/11/2011
10/20/2012
6/1/2014
1/11/2016
8/22/2017
4/3/2019
Sample Date
MW-4
MW-6
MW-8
MW-7
MW-1
MW-2
MW-3
MW-5

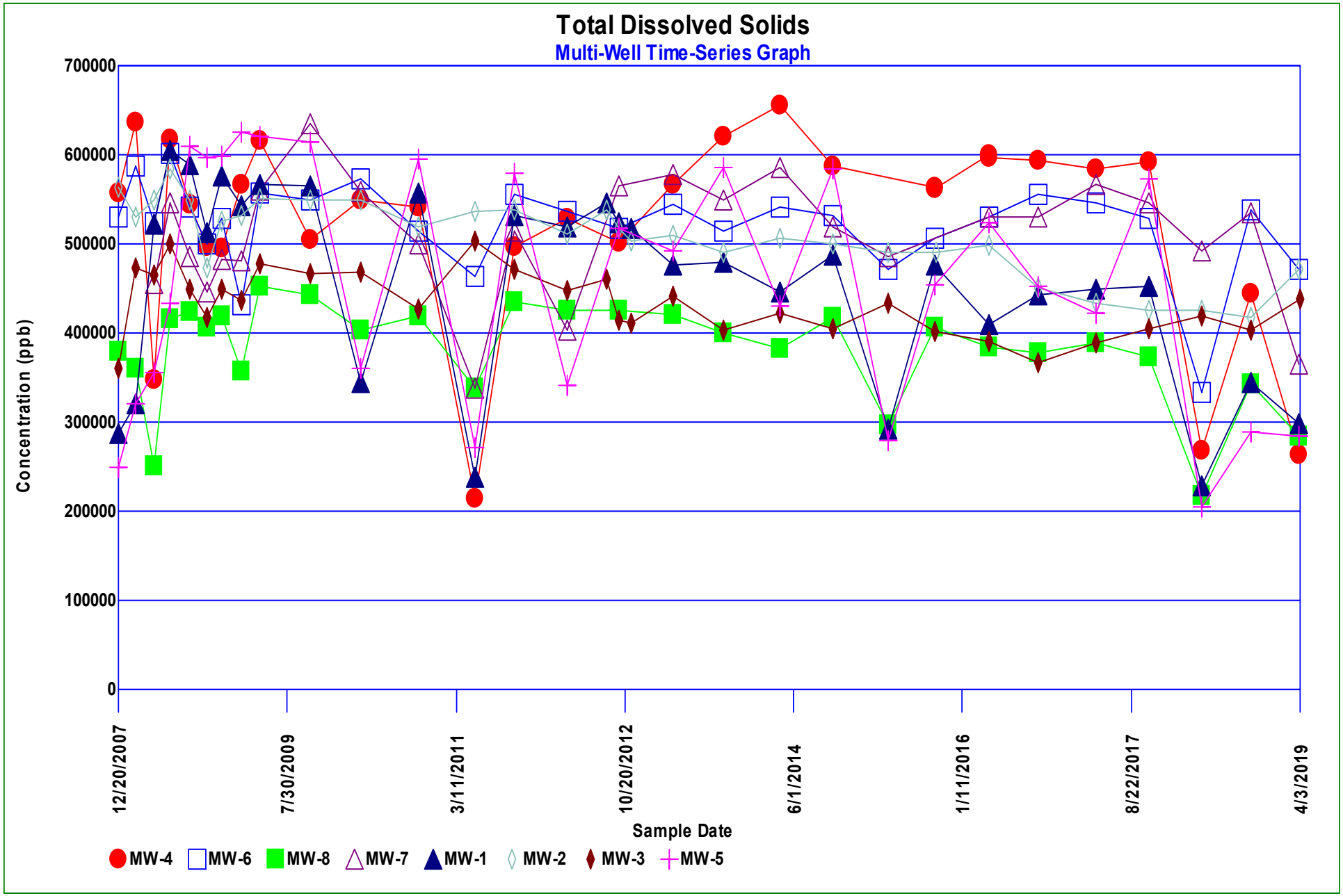

Specific Conductance @ 25C (field)
Multi-Well Time-Series Graph
Concentration (ppb)
4000
3500
3000
2500
2000
1500
1000
500
0
12/20/2007
7/30/2009
3/11/2011
10/20/2012
6/1/2014
1/11/2016
8/22/2017
4/3/2019
Sample Date
MW-4
MW-6
MW-8
MW-7
MW-1
MW-2
MW-3
MW-5

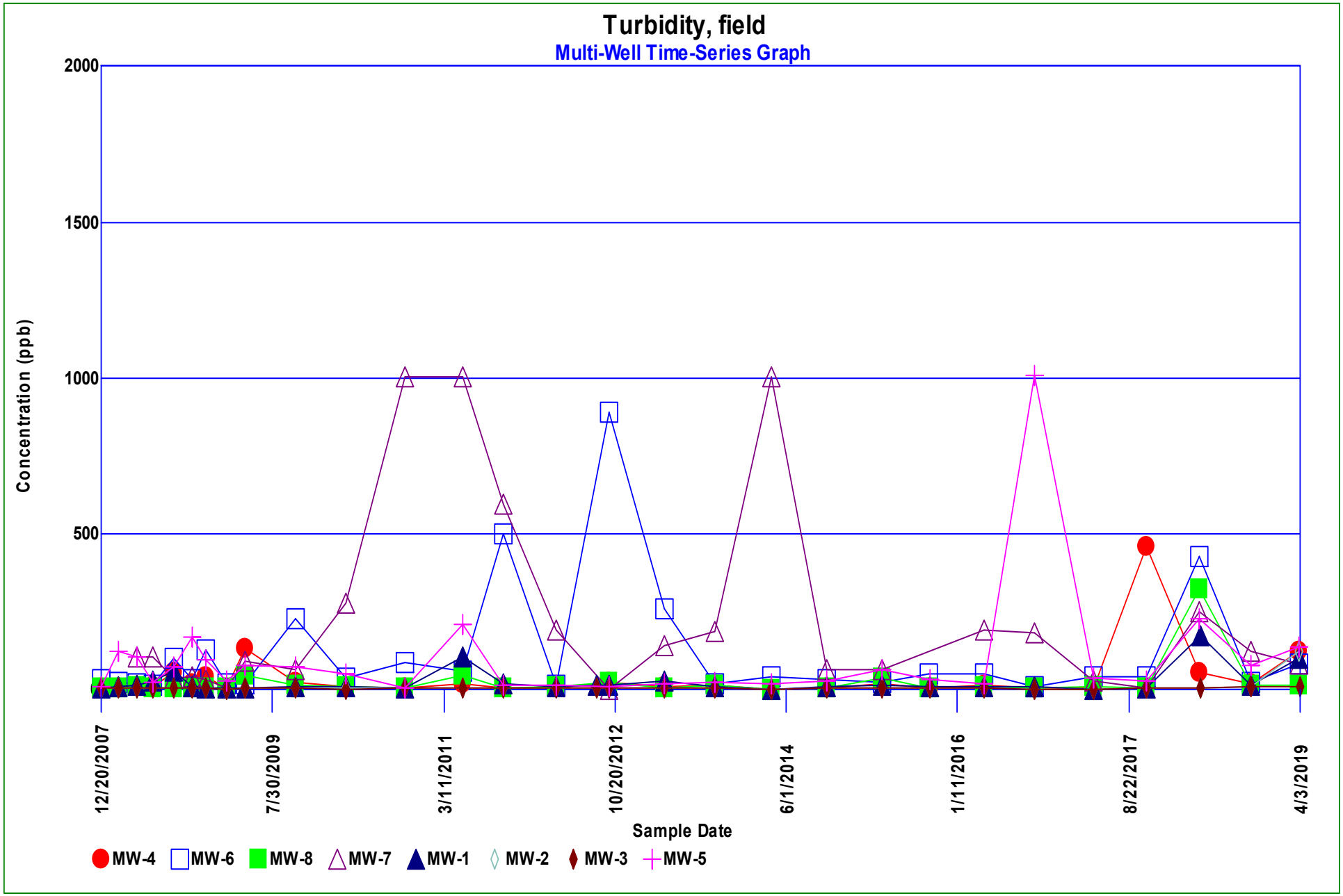

Strontium, dissolved
Multi-Well Time-Series Graph
Concentration (ppb)
900
800
700
600
500
400
300
200
100
0
5/17/2011
7/1/2012
8/16/2013
10/1/2014
11/16/2015
12/31/2016
2/15/2018
4/3/2019
Sample Date
MW-4
MW-6
MW-7
MW-8
MW-3
MW-1
MW-2
MW-5

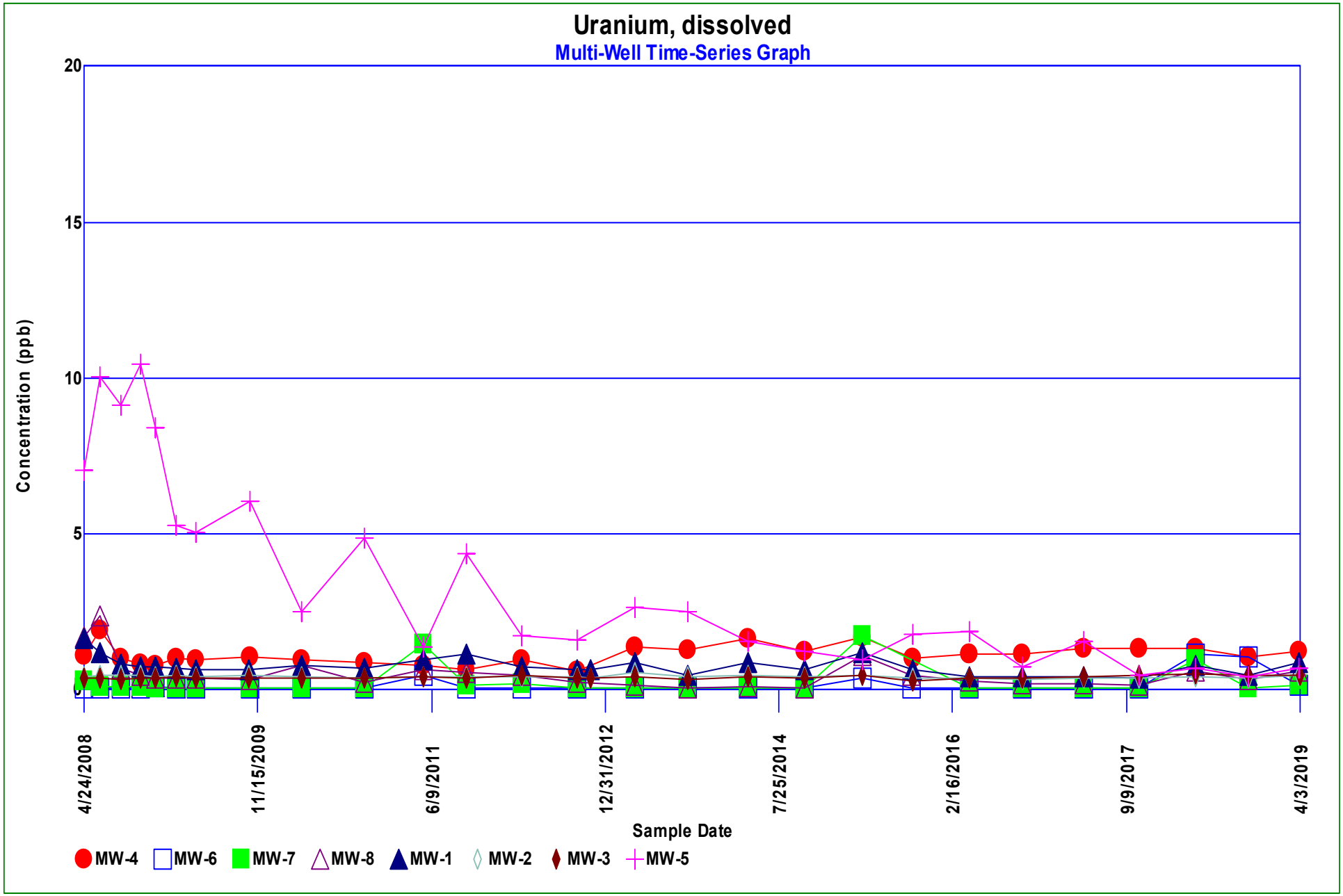

Sulfate, total
Multi-Well Time-Series Graph
200000
150000
100000
50000
0
Concentration (ppb)
12/20/2007
7/30/2009
3/11/2011
10/20/2012
6/1/2014
1/11/2016
8/22/2017
4/3/2019
Sample Date
MW-4
MW-6
MW-8
MW-7
MW-1
MW-2
MW-3
MW-5

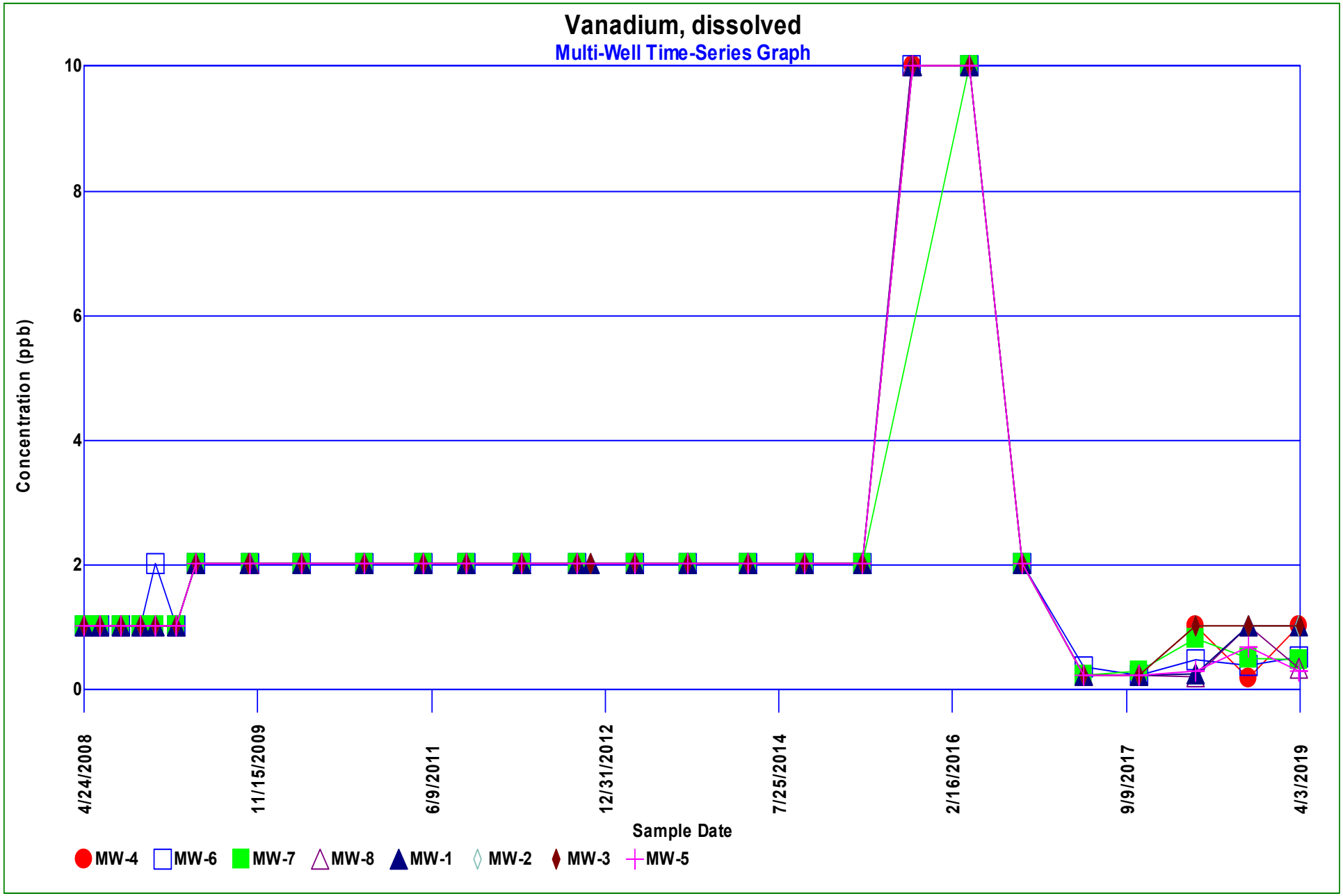

Temperature (Celsius)
Multi-Well Time-Series Graph
Concentration (ppb)
30
25
20
1
10
5
0
12/20/2007
7/30/2009
3/11/2011
10/20/2012
6/1/2014
1/11/2016
8/22/2017
4/3/2019
Sample Date
MW-4
MW-6
MW-8
MW-7
MW-1
MW-2
MW-3
MW-5

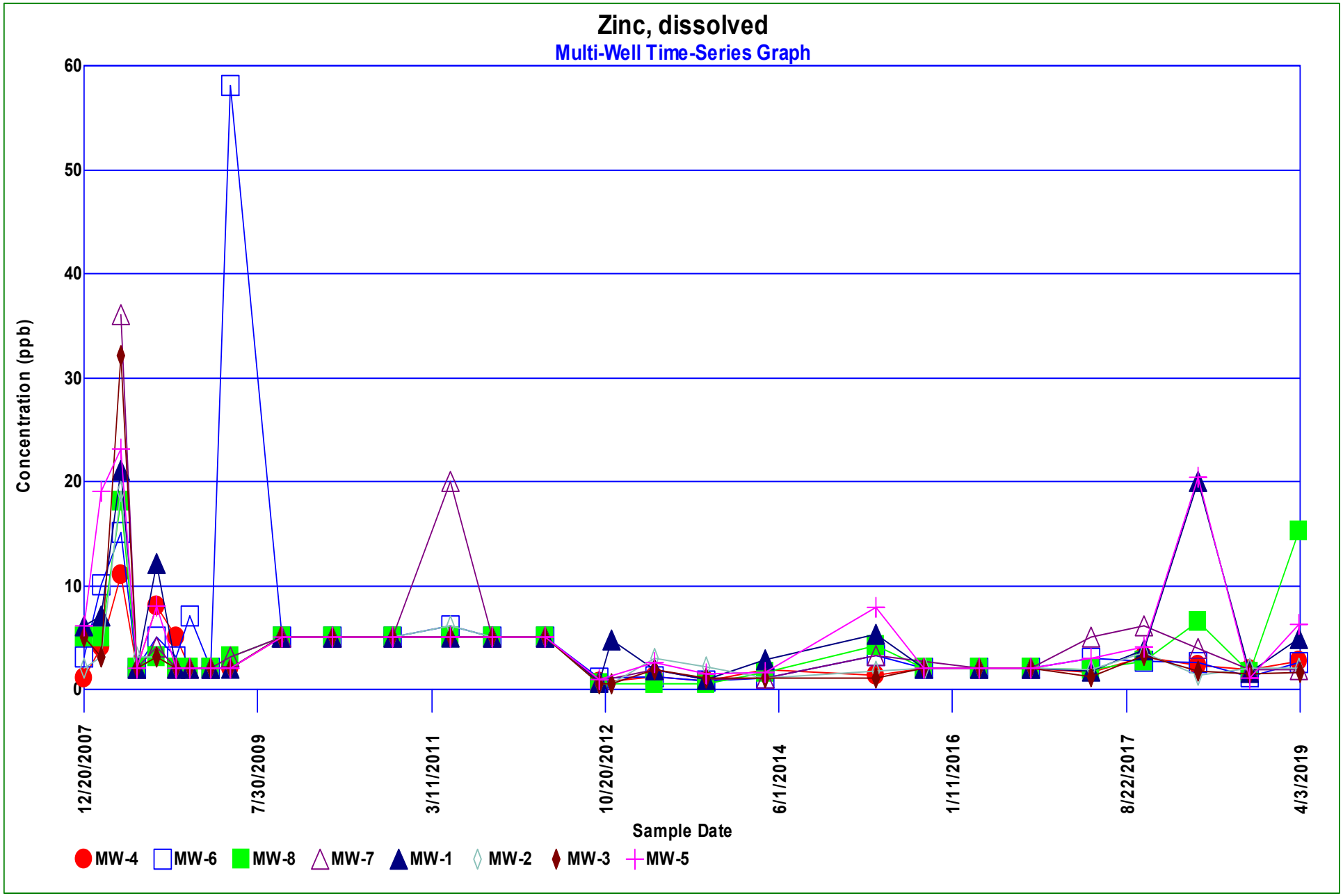

Thallium, dissolved
Multi-Well Time-Series Graph
Concentration (ppb)
1
0.8
0.6
0.4
0.2
0
12/20/2007
7/30/2009
3/11/2011
10/20/2012
6/1/2014
1/11/2016
8/22/2017
4/3/2019
Sample Date
MW-4
MW-6
MW-8
MW-7
MW-1
MW-2
MW-3
MW-5


Total Dissolved Solids
Multi-Well Time-Series Graph
Concentration (ppb)
700000
600000
500000
400000
300000
200000
100000
0
12/20/2007
7/30/2009
3/11/2011
10/20/2012
6/1/2014
1/11/2016
8/22/2017
4/3/2019
Sample Date
MW-4
MW-6
MW-8
MW-7
MW-1
MW-2
MW-3
MW-5


Turbidity, field
Multi-Well Time-Series Graph
2000
1500
1000
500
Concentration (ppb)
12/20/2007
7/30/2009
3/11/2011
10/20/2012
6/1/2014
1/11/2016
8/22/2017
4/3/2019
Sample Date
MW-4
MW-6
MW-8
MW-7
MW-1
MW-2
MW-3
MW-5


Uranium, dissolved
Multi-Well Time-Series Graph
Concentration (ppb)
20
15
10
5
0
4/24/2008
11/15/2009
6/9/2011
12/31/2012
7/25/2014
2/16/2016
9/9/2017
4/3/2019
Sample Date
MW-4
MW-6
MW-7
MW-8
MW-1
MW-2
MW-3
MW-5


Vanadium, dissolved
Multi-Well Time-Series Graph
Concentration (ppb)
10
8
6
4
2
0
4/24/2008
11/15/2009
6/9/2011
12/31/2012
7/25/2014
2/16/2016
9/9/2017
4/3/2019
Sample Date
MW-4
MW-6
MW-7
MW-8
MW-1
MW-2
MW-3
MW-5


Zinc, dissolved
Multi-Well Time-Series Graph
Concentration (ppb)
60
50
40
30
20
10
0
12/20/2007
7/30/2009
3/11/2011
10/20/2012
6/1/2014
1/11/2016
8/22/2017
4/3/2019
Sample Date
MW-4
MW-6
MW-8
MW-7
MW-1
MW-2
MW-3
MW-5

ATTACHMENT E

Intrawell Statistical Analyses of Downgradient Monitoring Wells

EnviroAnalytics Group

Environmental Engineers

Results of Statistical Analysis
Tanners Creek Groundwater April 2019 Data

Location	Sample Date	Parameter	# of Background Results Used	% Non-detects	Dataset Distribution	Test	Confidence Level	Prediction Limit	April 2019 Result	SSI?
MW-1	4/2/2019	Boron, dissolved	30	0	Non-normal	Non-Parametric PPI	96.8	1370	52.9	No
		Calcium, dissolved	30	0	Non-normal	Non-Parametric PPI	96.8	130	70.5	No
		Molybdenum, dissolved	17	11.11	Normal	Parametric PPI	95	3.00	4.44	No
		Potassium, dissolved	30	3.23	Normal	Parametric PPI	95	2.90	3.57	No
		Sodium, dissolved	30	0	Non-normal	Non-Parametric PPI	96.8	35.7	13.3	No
		Strontium, dissolved	18	0	Normal	Parametric PPI	95	428	290	No
		Sulfate	30	0	Normal	Parametric PPI	95	120.7	34.6	No
MW-2	4/2/2019	Boron, dissolved	30	0	Non-normal	Non-Parametric PPI	96.8	2420	1430	No
		Calcium, dissolved	30	0	Non-normal	Non-Parametric PPI	96.8	129	94.3	No
		Molybdenum, dissolved	17	16.67	Log-normal	Parametric PPI	95	0.652	0.262	No
		Potassium, dissolved	30	0	Non-normal	Non-Parametric PPI	96.8	3.08	0.60	No
		Sodium, dissolved	30	0	Non-normal	Non-Parametric PPI	96.8	36.2	23.0	No
		Strontium, dissolved	18	0	Non-normal	Non-Parametric PPI	96.8	303	190	No
		Sulfate	30	0	Normal	Parametric PPI	95	186.5	124	No
MW-3	4/3/2019	Boron, dissolved	30	0	Normal	Parametric PPI	95	1669	1380	No
		Calcium, dissolved	30	0	Log-normal	Parametric PPI	95	11.54	11.52	No
		Molybdenum, dissolved	17	0	Non-normal	Non-Parametric PPI	94.4	58.1	23.3	No
		Potassium, dissolved	30	0	Normal	Parametric PPI	95	4.50	3.10	No
		Sodium, dissolved	30	0	Normal	Parametric PPI	95	27.9	18.3	No
		Strontium, dissolved	18	0	Normal	Parametric PPI	95	398	390	No
		Sulfate	30	0	Normal	Parametric PPI	95	154.1	71.1	No
MW-5	4/2/2019	Boron, dissolved	30	0	Log-normal	Parametric PPI	95	4.01	3.35	No
		Calcium, dissolved	28	0	Non-normal	Non-Parametric PPI	94.4	148	67.9	No
		Molybdenum, dissolved	16	0	Normal	Parametric PPI	95	7.48	5.4	No
		Potassium, dissolved	28	0	Normal	Parametric PPI	95	4.61	2.6	No
		Sodium, dissolved	28	0	Non-normal	Non-Parametric PPI	94.4	18.4	13.0	No
		Strontium, dissolved	16	0	Normal	Parametric PPI	95	622	313	No
		Sulfate	28	0	Log-normal	Parametric PPI	95	11.58	10.79	No

Shapiro-Wilks Test of Normality

Parameter: Boron, dissolved

Location: MW-1

Normality Test of Parameter Concentrations

Original Data (Not Transformed)

Non-Detects Replaced with 1/2 DL

K = 15 for 31 measurements

i	x(i)	x(n-i+1)	x(n-1+1)-x(i)	a(n-i+1)	b(i)
1	52.9	1370	1317.1	0.422	555.816
2	80	1340	1260	0.2921	368.046
3	111	1330	1219	0.2475	301.702
4	122	1280	1158	0.2145	248.391
5	174	1160	986	0.1874	184.776
6	255	1150	895	0.1641	146.869
7	280	1140	860	0.1433	123.238
8	311	1140	829	0.1243	103.045
9	365	1130	765	0.1066	81.549
10	379	1130	751	0.0899	67.5149
11	432	1100	668	0.0739	49.3652
12	469	1030	561	0.0585	32.8185
13	556	860	304	0.0435	13.224
14	628	837	209	0.0289	6.0401
15	707	734	27	0.0144	0.3888
16	730	730	0		
17	734	707	-27		
18	837	628	-209		
19	860	556	-304		
20	1030	469	-561		
21	1100	432	-668		
22	1130	379	-751		
23	1130	365	-765		
24	1140	311	-829		
25	1140	280	-860		
26	1150	255	-895		
27	1160	174	-986		
28	1280	122	-1158		
29	1330	111	-1219		
30	1340	80	-1260		
31	1370	52.9	-1317.1		

Sum of b values = 2282.78
Sample Standard Deviation = 436.508
W Statistic = 0.911644

5% Critical value of 0.929 exceeds 0.911644
Evidence of non-normality at 95% level of significance

1% Critical value of 0.902 is less than 0.911644
Data is normally distributed at 99% level of significance

Shapiro-Wilks Test of Normality

Parameter: Calcium, dissolved

Location: MW-1

Normality Test of Parameter Concentrations

Original Data (Not Transformed)

Non-Detects Replaced with 1/2 DL

K = 15 for 31 measurements

i	x(i)	x(n-i+1)	x(n-1+1)-x(i)	a(n-i+1)	b(i)
1	49400	130000	80600	0.422	34013.2
2	51100	126000	74900	0.2921	21878.3
3	58800	125000	66200	0.2475	16384.5
4	64700	124000	59300	0.2145	12719.9
5	67500	121000	53500	0.1874	10025.9
6	70500	120000	49500	0.1641	8122.95
7	71300	119000	47700	0.1433	6835.41
8	80800	118000	37200	0.1243	4623.96
9	84700	118000	33300	0.1066	3549.78
10	90700	116000	25300	0.0899	2274.47
11	94700	115000	20300	0.0739	1500.17
12	103000	115000	12000	0.0585	702
13	104000	114000	10000	0.0435	435
14	105000	112000	7000	0.0289	202.3
15	106000	112000	6000	0.0144	86.4
16	107000	107000	0		
17	112000	106000	-6000		
18	112000	105000	-7000		
19	114000	104000	-10000		
20	115000	103000	-12000		
21	115000	94700	-20300		
22	116000	90700	-25300		
23	118000	84700	-33300		
24	118000	80800	-37200		
25	119000	71300	-47700		
26	120000	70500	-49500		
27	121000	67500	-53500		
28	124000	64700	-59300		
29	125000	58800	-66200		
30	126000	51100	-74900		
31	130000	49400	-80600		

Sum of b values = 123354
Sample Standard Deviation = 24023.3
W Statistic = 0.878866

5% Critical value of 0.929 exceeds 0.878866
Evidence of non-normality at 95% level of significance

1% Critical value of 0.902 exceeds 0.878866
Evidence of non-normality at 99% level of significance

Shapiro-Wilks Test of Normality

Parameter: Molybdenum, dissolved

Location: MW-1

Normality Test of Parameter Concentrations

Original Data (Not Transformed)

Non-Detects Replaced with 1/2 DL

K = 9 for 18 measurements

i	x(i)	x(n-i+1)	x(n-1+1)-x(i)	a(n-i+1)	b(i)
1	1	5.3	4.3	0.4886	2.10098
2	1	4.05	3.05	0.3253	0.992165
3	1.8	3.59	1.79	0.2553	0.456987
4	1.8	3.04	1.24	0.2027	0.251348
5	1.95	3	1.05	0.1587	0.166635
6	1.99	2.9	0.91	0.1197	0.108927
7	2	2.87	0.87	0.0837	0.072819
8	2.1	2.67	0.57	0.0496	0.028272
9	2.13	2.2	0.07	0.0163	0.001141
10	2.2	2.13	-0.07		
11	2.67	2.1	-0.57		
12	2.87	2	-0.87		
13	2.9	1.99	-0.91		
14	3	1.95	-1.05		
15	3.04	1.8	-1.24		
16	3.59	1.8	-1.79		
17	4.05	1	-3.05		
18	5.3	1	-4.3		

Sum of b values = 4.17927
Sample Standard Deviation = 1.05633
W Statistic = 0.92078

5% Critical value of 0.897 is less than 0.92078
Data is normally distributed at 95% level of significance

1% Critical value of 0.858 is less than 0.92078
Data is normally distributed at 99% level of significance

Shapiro-Wilks Test of Normality

Parameter: Potassium, dissolved

Location: MW-1

Normality Test of Parameter Concentrations

Original Data (Not Transformed)

Non-Detects Replaced with 1/2 DL

K = 15 for 31 measurements

i	x(i)	x(n-i+1)	x(n-1+1)-x(i)	a(n-i+1)	b(i)
1	50	3400	3350	0.422	1413.7
2	500	3380	2880	0.2921	841.248
3	600	3250	2650	0.2475	655.875
4	700	3000	2300	0.2145	493.35
5	700	2990	2290	0.1874	429.146
6	870	2900	2030	0.1641	333.123
7	1100	2790	1690	0.1433	242.177
8	1100	2770	1670	0.1243	207.581
9	1420	2700	1280	0.1066	136.448
10	1420	2660	1240	0.0899	111.476
11	1470	2600	1130	0.0739	83.507
12	1500	2600	1100	0.0585	64.35
13	1600	2320	720	0.0435	31.32
14	1700	2300	600	0.0289	17.34
15	2000	2200	200	0.0144	2.88
16	2200	2200	0		
17	2200	2000	-200		
18	2300	1700	-600		
19	2320	1600	-720		
20	2600	1500	-1100		
21	2600	1470	-1130		
22	2660	1420	-1240		
23	2700	1420	-1280		
24	2770	1100	-1670		
25	2790	1100	-1690		
26	2900	870	-2030		
27	2990	700	-2290		
28	3000	700	-2300		
29	3250	600	-2650		
30	3380	500	-2880		
31	3400	50	-3350		

Sum of b values = 5063.52
Sample Standard Deviation = 949.524
W Statistic = 0.947921

5% Critical value of 0.929 is less than 0.947921
Data is normally distributed at 95% level of significance

1% Critical value of 0.902 is less than 0.947921
Data is normally distributed at 99% level of significance

Shapiro-Wilks Test of Normality

Parameter: Sodium, dissolved

Location: MW-1

Normality Test of Parameter Concentrations

Original Data (Not Transformed)

Non-Detects Replaced with 1/2 DL

K = 15 for 31 measurements

i	x(i)	x(n-i+1)	x(n-1+1)-x(i)	a(n-i+1)	b(i)
1	9000	35700	26700	0.422	11267.4
2	9000	17900	8900	0.2921	2599.69
3	9340	17000	7660	0.2475	1895.85
4	9630	16700	7070	0.2145	1516.51
5	10100	14100	4000	0.1874	749.6
6	10100	14000	3900	0.1641	639.99
7	10200	13900	3700	0.1433	530.21
8	10400	13300	2900	0.1243	360.47
9	10600	12500	1900	0.1066	202.54
10	10700	12500	1800	0.0899	161.82
11	10800	12100	1300	0.0739	96.07
12	10900	12000	1100	0.0585	64.35
13	11000	11900	900	0.0435	39.15
14	11000	11600	600	0.0289	17.34
15	11300	11500	200	0.0144	2.88
16	11500	11500	0		
17	11500	11300	-200		
18	11600	11000	-600		
19	11900	11000	-900		
20	12000	10900	-1100		
21	12100	10800	-1300		
22	12500	10700	-1800		
23	12500	10600	-1900		
24	13300	10400	-2900		
25	13900	10200	-3700		
26	14000	10100	-3900		
27	14100	10100	-4000		
28	16700	9630	-7070		
29	17000	9340	-7660		
30	17900	9000	-8900		
31	35700	9000	-26700		

Sum of b values = 20143.9
Sample Standard Deviation = 4822.62
W Statistic = 0.581567

5% Critical value of 0.929 exceeds 0.581567
Evidence of non-normality at 95% level of significance

1% Critical value of 0.902 exceeds 0.581567
Evidence of non-normality at 99% level of significance

Shapiro-Wilks Test of Normality

Parameter: Strontium, dissolved

Location: MW-1

Normality Test of Parameter Concentrations

Original Data (Not Transformed)

Non-Detects Replaced with 1/2 DL

K = 9 for 19 measurements

i	x(i)	x(n-i+1)	x(n-1+1)-x(i)	a(n-i+1)	b(i)
1	250	432	182	0.4808	87.5056
2	252	419	167	0.3232	53.9744
3	290	381	91	0.2561	23.3051
4	301	375	74	0.2059	15.2366
5	306	375	69	0.1641	11.3229
6	307	363	56	0.1271	7.1176
7	321	363	42	0.0932	3.9144
8	322	359	37	0.0612	2.2644
9	330	342	12	0.0303	0.3636
10	337	337	0		
11	342	330	-12		
12	359	322	-37		
13	363	321	-42		
14	363	307	-56		
15	375	306	-69		
16	375	301	-74		
17	381	290	-91		
18	419	252	-167		
19	432	250	-182		

Sum of b values = 205.005
Sample Standard Deviation = 48.9322
W Statistic = 0.975135

5% Critical value of 0.901 is less than 0.975135
Data is normally distributed at 95% level of significance

1% Critical value of 0.863 is less than 0.975135
Data is normally distributed at 99% level of significance

Shapiro-Wilks Test of Normality

Parameter: Sulfate, total

Location: MW-1

Normality Test of Parameter Concentrations

Original Data (Not Transformed)

Non-Detects Replaced with 1/2 DL

K = 15 for 31 measurements

i	x(i)	x(n-i+1)	x(n-1+1)-x(i)	a(n-i+1)	b(i)
1	15000	117000	102000	0.422	43044
2	27600	116000	88400	0.2921	25821.6
3	34100	112000	77900	0.2475	19280.3
4	34600	107000	72400	0.2145	15529.8
5	35100	105000	69900	0.1874	13099.3
6	37200	101000	63800	0.1641	10469.6
7	39300	98900	59600	0.1433	8540.68
8	41000	96000	55000	0.1243	6836.5
9	42800	92400	49600	0.1066	5287.36
10	43500	86700	43200	0.0899	3883.68
11	50000	84400	34400	0.0739	2542.16
12	51000	84000	33000	0.0585	1930.5
13	51000	78900	27900	0.0435	1213.65
14	57100	78700	21600	0.0289	624.24
15	63100	72900	9800	0.0144	141.12
16	65400	65400	0		
17	72900	63100	-9800		
18	78700	57100	-21600		
19	78900	51000	-27900		
20	84000	51000	-33000		
21	84400	50000	-34400		
22	86700	43500	-43200		
23	92400	42800	-49600		
24	96000	41000	-55000		
25	98900	39300	-59600		
26	101000	37200	-63800		
27	105000	35100	-69900		
28	107000	34600	-72400		
29	112000	34100	-77900		
30	116000	27600	-88400		
31	117000	15000	-102000		

Sum of b values = 158244
Sample Standard Deviation = 29809.9
W Statistic = 0.939319

5% Critical value of 0.929 is less than 0.939319
Data is normally distributed at 95% level of significance

1% Critical value of 0.902 is less than 0.939319
Data is normally distributed at 99% level of significance

Shapiro-Wilks Test of Normality

Parameter: Boron, dissolved

Location: MW-2

Normality Test of Parameter Concentrations

Original Data (Not Transformed)

Non-Detects Replaced with 1/2 DL

K = 15 for 31 measurements

i	x(i)	x(n-i+1)	x(n-1+1)-x(i)	a(n-i+1)	b(i)
1	122	2420	2298	0.422	969.756
2	1200	2400	1200	0.2921	350.52
3	1220	2340	1120	0.2475	277.2
4	1340	2260	920	0.2145	197.34
5	1380	2210	830	0.1874	155.542
6	1410	2200	790	0.1641	129.639
7	1420	2150	730	0.1433	104.609
8	1430	2000	570	0.1243	70.851
9	1430	2000	570	0.1066	60.762
10	1450	1970	520	0.0899	46.748
11	1460	1970	510	0.0739	37.689
12	1470	1960	490	0.0585	28.665
13	1530	1880	350	0.0435	15.225
14	1600	1880	280	0.0289	8.092
15	1720	1790	70	0.0144	1.008
16	1790	1790	0		
17	1790	1720	-70		
18	1880	1600	-280		
19	1880	1530	-350		
20	1960	1470	-490		
21	1970	1460	-510		
22	1970	1450	-520		
23	2000	1430	-570		
24	2000	1430	-570		
25	2150	1420	-730		
26	2200	1410	-790		
27	2210	1380	-830		
28	2260	1340	-920		
29	2340	1220	-1120		
30	2400	1200	-1200		
31	2420	122	-2298		

Sum of b values = 2453.65
Sample Standard Deviation = 469.957
W Statistic = 0.908628

5% Critical value of 0.929 exceeds 0.908628
Evidence of non-normality at 95% level of significance

1% Critical value of 0.902 is less than 0.908628
Data is normally distributed at 99% level of significance

Shapiro-Wilks Test of Normality

Parameter: Calcium, dissolved

Location: MW-2

Normality Test of Parameter Concentrations

Original Data (Not Transformed)

Non-Detects Replaced with 1/2 DL

K = 15 for 31 measurements

i	x(i)	x(n-i+1)	x(n-1+1)-x(i)	a(n-i+1)	b(i)
1	40500	129000	88500	0.422	37347
2	81700	109000	27300	0.2921	7974.33
3	84300	106000	21700	0.2475	5370.75
4	84800	105000	20200	0.2145	4332.9
5	85200	104000	18800	0.1874	3523.12
6	85400	103000	17600	0.1641	2888.16
7	86700	103000	16300	0.1433	2335.79
8	88100	102000	13900	0.1243	1727.77
9	90100	102000	11900	0.1066	1268.54
10	90900	102000	11100	0.0899	997.89
11	92700	101000	8300	0.0739	613.37
12	92700	100000	7300	0.0585	427.05
13	94200	98400	4200	0.0435	182.7
14	94300	96800	2500	0.0289	72.25
15	94600	96100	1500	0.0144	21.6
16	94700	94700	0		
17	96100	94600	-1500		
18	96800	94300	-2500		
19	98400	94200	-4200		
20	100000	92700	-7300		
21	101000	92700	-8300		
22	102000	90900	-11100		
23	102000	90100	-11900		
24	102000	88100	-13900		
25	103000	86700	-16300		
26	103000	85400	-17600		
27	104000	85200	-18800		
28	105000	84800	-20200		
29	106000	84300	-21700		
30	109000	81700	-27300		
31	129000	40500	-88500		

Sum of b values = 69083.2
Sample Standard Deviation = 13817.5
W Statistic = 0.833235

5% Critical value of 0.929 exceeds 0.833235
Evidence of non-normality at 95% level of significance

1% Critical value of 0.902 exceeds 0.833235
Evidence of non-normality at 99% level of significance

Shapiro-Wilks Test of Normality

Parameter: Molybdenum, dissolved

Location: MW-2

Normality Test of Parameter Concentrations

Natural Logarithm Transformation

Non-Detects Replaced with 1/2 DL

K = 9 for 18 measurements

i	x(i)	x(n-i+1)	x(n-1+1)-x(i)	a(n-i+1)	b(i)
1	0	0.741937	0.741937	0.4886	0.362511
2	0	0.582216	0.582216	0.3253	0.189395
3	0	0.576613	0.576613	0.2553	0.147209
4	0.139762	0.431782	0.29202	0.2027	0.0591926
5	0.14842	0.336472	0.188052	0.1587	0.0298439
6	0.14842	0.336472	0.188052	0.1197	0.0225099
7	0.19062	0.262364	0.0717439	0.0837	0.00600496
8	0.198851	0.262364	0.0635134	0.0496	0.00315026
9	0.207014	0.254642	0.047628	0.0163	0.000776337
10	0.254642	0.207014	-0.047628		
11	0.262364	0.198851	-0.0635134		
12	0.262364	0.19062	-0.0717439		
13	0.336472	0.14842	-0.188052		
14	0.336472	0.14842	-0.188052		
15	0.431782	0.139762	-0.29202		
16	0.576613	0	-0.576613		
17	0.582216	0	-0.582216		
18	0.741937	0	-0.741937		

Sum of b values = 0.820593
Sample Standard Deviation = 0.207228
W Statistic = 0.922382

5% Critical value of 0.897 is less than 0.922382
Data is normally distributed at 95% level of significance

1% Critical value of 0.858 is less than 0.922382
Data is normally distributed at 99% level of significance

Shapiro-Wilks Test of Normality

Parameter: Potassium, dissolved

Location: MW-2

Normality Test of Parameter Concentrations

Original Data (Not Transformed)

Non-Detects Replaced with 1/2 DL

K = 15 for 31 measurements

i	x(i)	x(n-i+1)	x(n-1+1)-x(i)	a(n-i+1)	b(i)
1	400	3080	2680	0.422	1130.96
2	400	800	400	0.2921	116.84
3	460	720	260	0.2475	64.35
4	500	680	180	0.2145	38.61
5	500	650	150	0.1874	28.11
6	510	650	140	0.1641	22.974
7	530	640	110	0.1433	15.763
8	530	630	100	0.1243	12.43
9	540	630	90	0.1066	9.594
10	540	610	70	0.0899	6.293
11	540	600	60	0.0739	4.434
12	550	600	50	0.0585	2.925
13	580	600	20	0.0435	0.87
14	600	600	0	0.0289	0
15	600	600	0	0.0144	0
16	600	600	0		
17	600	600	0		
18	600	600	0		
19	600	580	-20		
20	600	550	-50		
21	600	540	-60		
22	610	540	-70		
23	630	540	-90		
24	630	530	-100		
25	640	530	-110		
26	650	510	-140		
27	650	500	-150		
28	680	500	-180		
29	720	460	-260		
30	800	400	-400		
31	3080	400	-2680		

Sum of b values = 1454.15
Sample Standard Deviation = 456.731
W Statistic = 0.337892

5% Critical value of 0.929 exceeds 0.337892
Evidence of non-normality at 95% level of significance

1% Critical value of 0.902 exceeds 0.337892
Evidence of non-normality at 99% level of significance

Shapiro-Wilks Test of Normality

Parameter: Sodium, dissolved

Location: MW-2

Normality Test of Parameter Concentrations

Original Data (Not Transformed)

Non-Detects Replaced with 1/2 DL

K = 15 for 31 measurements

i	x(i)	x(n-i+1)	x(n-1+1)-x(i)	a(n-i+1)	b(i)
1	16200	36200	20000	0.422	8440
2	16500	27400	10900	0.2921	3183.89
3	17400	24700	7300	0.2475	1806.75
4	18300	24100	5800	0.2145	1244.1
5	18800	23900	5100	0.1874	955.74
6	18900	23500	4600	0.1641	754.86
7	19200	23200	4000	0.1433	573.2
8	19200	23000	3800	0.1243	472.34
9	19400	22600	3200	0.1066	341.12
10	19400	22500	3100	0.0899	278.69
11	19500	22200	2700	0.0739	199.53
12	19500	22100	2600	0.0585	152.1
13	19600	21800	2200	0.0435	95.7
14	19700	21200	1500	0.0289	43.35
15	19900	20800	900	0.0144	12.96
16	20000	20000	0		
17	20800	19900	-900		
18	21200	19700	-1500		
19	21800	19600	-2200		
20	22100	19500	-2600		
21	22200	19500	-2700		
22	22500	19400	-3100		
23	22600	19400	-3200		
24	23000	19200	-3800		
25	23200	19200	-4000		
26	23500	18900	-4600		
27	23900	18800	-5100		
28	24100	18300	-5800		
29	24700	17400	-7300		
30	27400	16500	-10900		
31	36200	16200	-20000		

Sum of b values = 18554.3
Sample Standard Deviation = 3735.84
W Statistic = 0.822229

5% Critical value of 0.929 exceeds 0.822229
Evidence of non-normality at 95% level of significance

1% Critical value of 0.902 exceeds 0.822229
Evidence of non-normality at 99% level of significance

Shapiro-Wilks Test of Normality

Parameter: Strontium, dissolved

Location: MW-2

Normality Test of Parameter Concentrations

Original Data (Not Transformed)

Non-Detects Replaced with 1/2 DL

K = 9 for 19 measurements

i	x(i)	x(n-i+1)	x(n-1+1)-x(i)	a(n-i+1)	b(i)
1	165	303	138	0.4808	66.3504
2	174	226	52	0.3232	16.8064
3	174	219	45	0.2561	11.5245
4	178	215	37	0.2059	7.6183
5	180	212	32	0.1641	5.2512
6	181	200	19	0.1271	2.4149
7	184	198	14	0.0932	1.3048
8	185	197	12	0.0612	0.7344
9	190	192	2	0.0303	0.0606
10	192	192	0		
11	192	190	-2		
12	197	185	-12		
13	198	184	-14		
14	200	181	-19		
15	212	180	-32		
16	215	178	-37		
17	219	174	-45		
18	226	174	-52		
19	303	165	-138		

Sum of b values = 112.066
Sample Standard Deviation = 30.2715
W Statistic = 0.761384

5% Critical value of 0.901 exceeds 0.761384
Evidence of non-normality at 95% level of significance

1% Critical value of 0.863 exceeds 0.761384
Evidence of non-normality at 99% level of significance

Shapiro-Wilks Test of Normality

Parameter: Sulfate, total

Location: MW-2

Normality Test of Parameter Concentrations

Original Data (Not Transformed)

Non-Detects Replaced with 1/2 DL

K = 15 for 31 measurements

i	x(i)	x(n-i+1)	x(n-1+1)-x(i)	a(n-i+1)	b(i)
1	115000	200000	85000	0.422	35870
2	124000	180000	56000	0.2921	16357.6
3	126000	178000	52000	0.2475	12870
4	127000	170000	43000	0.2145	9223.5
5	132000	170000	38000	0.1874	7121.2
6	141000	169000	28000	0.1641	4594.8
7	143000	167000	24000	0.1433	3439.2
8	145000	167000	22000	0.1243	2734.6
9	150000	167000	17000	0.1066	1812.2
10	151000	166000	15000	0.0899	1348.5
11	152000	164000	12000	0.0739	886.8
12	153000	162000	9000	0.0585	526.5
13	154000	162000	8000	0.0435	348
14	155000	158000	3000	0.0289	86.7
15	155000	158000	3000	0.0144	43.2
16	156000	156000	0		
17	158000	155000	-3000		
18	158000	155000	-3000		
19	162000	154000	-8000		
20	162000	153000	-9000		
21	164000	152000	-12000		
22	166000	151000	-15000		
23	167000	150000	-17000		
24	167000	145000	-22000		
25	167000	143000	-24000		
26	169000	141000	-28000		
27	170000	132000	-38000		
28	170000	127000	-43000		
29	178000	126000	-52000		
30	180000	124000	-56000		
31	200000	115000	-85000		

Sum of b values = 97262.8
Sample Standard Deviation = 18056.7
W Statistic = 0.967152

5% Critical value of 0.929 is less than 0.967152
Data is normally distributed at 95% level of significance

1% Critical value of 0.902 is less than 0.967152
Data is normally distributed at 99% level of significance

Shapiro-Wilks Test of Normality

Parameter: Boron, dissolved

Location: MW-3

Normality Test of Parameter Concentrations

Original Data (Not Transformed)

Non-Detects Replaced with 1/2 DL

K = 15 for 31 measurements

i	x(i)	x(n-i+1)	x(n-1+1)-x(i)	a(n-i+1)	b(i)
1	1060	1780	720	0.422	303.84
2	1100	1680	580	0.2921	169.418
3	1120	1620	500	0.2475	123.75
4	1120	1600	480	0.2145	102.96
5	1120	1580	460	0.1874	86.204
6	1180	1510	330	0.1641	54.153
7	1190	1460	270	0.1433	38.691
8	1210	1440	230	0.1243	28.589
9	1240	1430	190	0.1066	20.254
10	1260	1430	170	0.0899	15.283
11	1280	1420	140	0.0739	10.346
12	1280	1410	130	0.0585	7.605
13	1300	1390	90	0.0435	3.915
14	1300	1380	80	0.0289	2.312
15	1320	1380	60	0.0144	0.864
16	1380	1380	0		
17	1380	1320	-60		
18	1380	1300	-80		
19	1390	1300	-90		
20	1410	1280	-130		
21	1420	1280	-140		
22	1430	1260	-170		
23	1430	1240	-190		
24	1440	1210	-230		
25	1460	1190	-270		
26	1510	1180	-330		
27	1580	1120	-460		
28	1600	1120	-480		
29	1620	1120	-500		
30	1680	1100	-580		
31	1780	1060	-720		

Sum of b values = 968.184
Sample Standard Deviation = 179.66
W Statistic = 0.968033

5% Critical value of 0.929 is less than 0.968033
Data is normally distributed at 95% level of significance

1% Critical value of 0.902 is less than 0.968033
Data is normally distributed at 99% level of significance

Shapiro-Wilks Test of Normality

Parameter: Calcium, dissolved

Location: MW-3

Normality Test of Parameter Concentrations

Natural Logarithm Transformation

Non-Detects Replaced with 1/2 DL

K = 15 for 31 measurements

i	x(i)	x(n-i+1)	x(n-1+1)-x(i)	a(n-i+1)	b(i)
1	11.2696	11.6699	0.40035	0.422	0.168948
2	11.2848	11.5229	0.238106	0.2921	0.0695509
3	11.3022	11.5109	0.208719	0.2475	0.051658
4	11.3047	11.5059	0.20123	0.2145	0.0431639
5	11.323	11.4927	0.169748	0.1874	0.0318108
6	11.3242	11.4679	0.143745	0.1641	0.0235885
7	11.3266	11.4648	0.138189	0.1433	0.0198025
8	11.3433	11.4436	0.100253	0.1243	0.0124614
9	11.3621	11.4393	0.0771763	0.1066	0.008227
10	11.3691	11.4219	0.052851	0.0899	0.0047513
11	11.376	11.4197	0.0437535	0.0739	0.00323338
12	11.3783	11.4098	0.0315341	0.0585	0.00184475
13	11.3794	11.4076	0.0281709	0.0435	0.00122543
14	11.3851	11.4065	0.0213611	0.0289	0.000617337
15	11.3896	11.4031	0.0134834	0.0144	0.00019416
16	11.3941	11.3941	0		
17	11.4031	11.3896	-0.0134834		
18	11.4065	11.3851	-0.0213611		
19	11.4076	11.3794	-0.0281709		
20	11.4098	11.3783	-0.0315341		
21	11.4197	11.376	-0.0437535		
22	11.4219	11.3691	-0.052851		
23	11.4393	11.3621	-0.0771763		
24	11.4436	11.3433	-0.100253		
25	11.4648	11.3266	-0.138189		
26	11.4679	11.3242	-0.143745		
27	11.4927	11.323	-0.169748		
28	11.5059	11.3047	-0.20123		
29	11.5109	11.3022	-0.208719		
30	11.5229	11.2848	-0.238106		
31	11.6699	11.2696	-0.40035		

Sum of b values = 0.441077
Sample Standard Deviation = 0.0829748
W Statistic = 0.941921

5% Critical value of 0.929 is less than 0.941921
Data is normally distributed at 95% level of significance

1% Critical value of 0.902 is less than 0.941921
Data is normally distributed at 99% level of significance

Shapiro-Wilks Test of Normality

Parameter: Molybdenum, dissolved

Location: MW-3

Normality Test of Parameter Concentrations

Original Data (Not Transformed)

Non-Detects Replaced with 1/2 DL

K = 9 for 18 measurements

i	x(i)	x(n-i+1)	x(n-1+1)-x(i)	a(n-i+1)	b(i)
1	23.3	58.1	34.8	0.4886	17.0033
2	24	55	31	0.3253	10.0843
3	28.4	54.7	26.3	0.2553	6.71439
4	40.8	53.2	12.4	0.2027	2.51348
5	41.7	53.1	11.4	0.1587	1.80918
6	42	52.2	10.2	0.1197	1.22094
7	43.9	51	7.1	0.0837	0.59427
8	45.1	49	3.9	0.0496	0.19344
9	47	48	1	0.0163	0.0163
10	48	47	-1		
11	49	45.1	-3.9		
12	51	43.9	-7.1		
13	52.2	42	-10.2		
14	53.1	41.7	-11.4		
15	53.2	40.8	-12.4		
16	54.7	28.4	-26.3		
17	55	24	-31		
18	58.1	23.3	-34.8		

Sum of b values = 40.1496
Sample Standard Deviation = 10.4081
W Statistic = 0.875331

5% Critical value of 0.897 exceeds 0.875331
Evidence of non-normality at 95% level of significance

1% Critical value of 0.858 is less than 0.875331
Data is normally distributed at 99% level of significance

Shapiro-Wilks Test of Normality

Parameter: Potassium, dissolved

Location: MW-3

Normality Test of Parameter Concentrations

Original Data (Not Transformed)

Non-Detects Replaced with 1/2 DL

K = 15 for 31 measurements

i	x(i)	x(n-i+1)	x(n-1+1)-x(i)	a(n-i+1)	b(i)
1	2800	4520	1720	0.422	725.84
2	2900	4490	1590	0.2921	464.439
3	2900	4450	1550	0.2475	383.625
4	3000	4280	1280	0.2145	274.56
5	3050	4140	1090	0.1874	204.266
6	3100	4120	1020	0.1641	167.382
7	3100	4100	1000	0.1433	143.3
8	3200	4000	800	0.1243	99.44
9	3300	3980	680	0.1066	72.488
10	3300	3900	600	0.0899	53.94
11	3300	3900	600	0.0739	44.34
12	3310	3800	490	0.0585	28.665
13	3440	3740	300	0.0435	13.05
14	3500	3710	210	0.0289	6.069
15	3500	3700	200	0.0144	2.88
16	3700	3700	0		
17	3700	3500	-200		
18	3710	3500	-210		
19	3740	3440	-300		
20	3800	3310	-490		
21	3900	3300	-600		
22	3900	3300	-600		
23	3980	3300	-680		
24	4000	3200	-800		
25	4100	3100	-1000		
26	4120	3100	-1020		
27	4140	3050	-1090		
28	4280	3000	-1280		
29	4450	2900	-1550		
30	4490	2900	-1590		
31	4520	2800	-1720		

Sum of b values = 2684.28
Sample Standard Deviation = 501.361
W Statistic = 0.955507

5% Critical value of 0.929 is less than 0.955507
Data is normally distributed at 95% level of significance

1% Critical value of 0.902 is less than 0.955507
Data is normally distributed at 99% level of significance

Shapiro-Wilks Test of Normality

Parameter: Sodium, dissolved

Location: MW-3

Normality Test of Parameter Concentrations

Original Data (Not Transformed)

Non-Detects Replaced with 1/2 DL

K = 15 for 31 measurements

i	x(i)	x(n-i+1)	x(n-1+1)-x(i)	a(n-i+1)	b(i)
1	18300	28400	10100	0.422	4262.2
2	18900	27500	8600	0.2921	2512.06
3	20300	27000	6700	0.2475	1658.25
4	20800	26300	5500	0.2145	1179.75
5	21300	26100	4800	0.1874	899.52
6	21600	25800	4200	0.1641	689.22
7	21600	25700	4100	0.1433	587.53
8	21700	25600	3900	0.1243	484.77
9	22400	25500	3100	0.1066	330.46
10	22600	25500	2900	0.0899	260.71
11	22700	25400	2700	0.0739	199.53
12	22800	25000	2200	0.0585	128.7
13	23500	24900	1400	0.0435	60.9
14	23700	24600	900	0.0289	26.01
15	23800	24300	500	0.0144	7.2
16	24000	24000	0		
17	24300	23800	-500		
18	24600	23700	-900		
19	24900	23500	-1400		
20	25000	22800	-2200		
21	25400	22700	-2700		
22	25500	22600	-2900		
23	25500	22400	-3100		
24	25600	21700	-3900		
25	25700	21600	-4100		
26	25800	21600	-4200		
27	26100	21300	-4800		
28	26300	20800	-5500		
29	27000	20300	-6700		
30	27500	18900	-8600		
31	28400	18300	-10100		

Sum of b values = 13286.8
Sample Standard Deviation = 2456
W Statistic = 0.975578

5% Critical value of 0.929 is less than 0.975578
Data is normally distributed at 95% level of significance

1% Critical value of 0.902 is less than 0.975578
Data is normally distributed at 99% level of significance

Shapiro-Wilks Test of Normality

Parameter: Strontium, dissolved

Location: MW-3

Normality Test of Parameter Concentrations

Original Data (Not Transformed)

Non-Detects Replaced with 1/2 DL

K = 9 for 19 measurements

i	x(i)	x(n-i+1)	x(n-1+1)-x(i)	a(n-i+1)	b(i)
1	326	410	84	0.4808	40.3872
2	333	390	57	0.3232	18.4224
3	339	386	47	0.2561	12.0367
4	346	386	40	0.2059	8.236
5	350	377	27	0.1641	4.4307
6	351	374	23	0.1271	2.9233
7	351	370	19	0.0932	1.7708
8	354	367	13	0.0612	0.7956
9	359	361	2	0.0303	0.0606
10	359	359	0		
11	361	359	-2		
12	367	354	-13		
13	370	351	-19		
14	374	351	-23		
15	377	350	-27		
16	386	346	-40		
17	386	339	-47		
18	390	333	-57		
19	410	326	-84		

Sum of b values = 89.0633
Sample Standard Deviation = 21.1904
W Statistic = 0.981397

5% Critical value of 0.901 is less than 0.981397
Data is normally distributed at 95% level of significance

1% Critical value of 0.863 is less than 0.981397
Data is normally distributed at 99% level of significance

Shapiro-Wilks Test of Normality

Parameter: Sulfate, total

Location: MW-3

Normality Test of Parameter Concentrations

Original Data (Not Transformed)

Non-Detects Replaced with 1/2 DL

K = 15 for 31 measurements

i	x(i)	x(n-i+1)	x(n-1+1)-x(i)	a(n-i+1)	b(i)
1	71100	170000	98900	0.422	41735.8
2	73400	142000	68600	0.2921	20038.1
3	73700	140000	66300	0.2475	16409.3
4	78400	138000	59600	0.2145	12784.2
5	78900	138000	59100	0.1874	11075.3
6	81500	136000	54500	0.1641	8943.45
7	84500	134000	49500	0.1433	7093.35
8	89500	133000	43500	0.1243	5407.05
9	91000	131000	40000	0.1066	4264
10	92800	128000	35200	0.0899	3164.48
11	96100	128000	31900	0.0739	2357.41
12	96400	127000	30600	0.0585	1790.1
13	97500	121000	23500	0.0435	1022.25
14	99400	114000	14600	0.0289	421.94
15	99600	101000	1400	0.0144	20.16
16	100000	100000	0		
17	101000	99600	-1400		
18	114000	99400	-14600		
19	121000	97500	-23500		
20	127000	96400	-30600		
21	128000	96100	-31900		
22	128000	92800	-35200		
23	131000	91000	-40000		
24	133000	89500	-43500		
25	134000	84500	-49500		
26	136000	81500	-54500		
27	138000	78900	-59100		
28	138000	78400	-59600		
29	140000	73700	-66300		
30	142000	73400	-68600		
31	170000	71100	-98900		

Sum of b values = 136527
Sample Standard Deviation = 25806.5
W Statistic = 0.932946

5% Critical value of 0.929 is less than 0.932946
Data is normally distributed at 95% level of significance

1% Critical value of 0.902 is less than 0.932946
Data is normally distributed at 99% level of significance

Shapiro-Wilks Test of Normality

Parameter: Boron, dissolved

Location: MW-5

Normality Test of Parameter Concentrations

Natural Logarithm Transformation

Non-Detects Replaced with 1/2 DL

K = 14 for 29 measurements

i	x(i)	x(n-i+1)	x(n-1+1)-x(i)	a(n-i+1)	b(i)
1	2.56495	4.12713	1.56219	0.4291	0.670334
2	2.84491	4.02535	1.18044	0.2968	0.350355
3	2.99573	3.85651	0.860778	0.2499	0.215108
4	2.99573	3.68888	0.693147	0.215	0.149027
5	3.17805	3.68888	0.510826	0.1864	0.0952179
6	3.27714	3.68888	0.411735	0.1616	0.0665363
7	3.3499	3.63759	0.287682	0.1395	0.0401316
8	3.3569	3.58352	0.226622	0.1192	0.0270133
9	3.4012	3.52636	0.125163	0.1002	0.0125413
10	3.4012	3.52636	0.125163	0.0822	0.0102884
11	3.4012	3.49651	0.0953102	0.065	0.00619516
12	3.4012	3.49651	0.0953102	0.0483	0.00460348
13	3.4012	3.49651	0.0953102	0.032	0.00304993
14	3.4012	3.46574	0.0645385	0.0159	0.00102616
15	3.4012	3.4012	0		
16	3.46574	3.4012	-0.0645385		
17	3.49651	3.4012	-0.0953102		
18	3.49651	3.4012	-0.0953102		
19	3.49651	3.4012	-0.0953102		
20	3.52636	3.4012	-0.125163		
21	3.52636	3.4012	-0.125163		
22	3.58352	3.3569	-0.226622		
23	3.63759	3.3499	-0.287682		
24	3.68888	3.27714	-0.411735		
25	3.68888	3.17805	-0.510826		
26	3.68888	2.99573	-0.693147		
27	3.85651	2.99573	-0.860778		
28	4.02535	2.84491	-1.18044		
29	4.12713	2.56495	-1.56219		

Sum of b values = 1.65143
Sample Standard Deviation = 0.321489
W Statistic = 0.942386

5% Critical value of 0.926 is less than 0.942386
Data is normally distributed at 95% level of significance

1% Critical value of 0.898 is less than 0.942386
Data is normally distributed at 99% level of significance

Shapiro-Wilks Test of Normality

Parameter: Calcium, dissolved

Location: MW-5

Normality Test of Parameter Concentrations

Original Data (Not Transformed)

Non-Detects Replaced with 1/2 DL

K = 14 for 29 measurements

i	x(i)	x(n-i+1)	x(n-1+1)-x(i)	a(n-i+1)	b(i)
1	42700	149000	106300	0.4291	45613.3
2	53200	148000	94800	0.2968	28136.6
3	55600	147000	91400	0.2499	22840.9
4	57600	143000	85400	0.215	18361
5	59900	142000	82100	0.1864	15303.4
6	65600	139000	73400	0.1616	11861.4
7	66700	139000	72300	0.1395	10085.9
8	67900	139000	71100	0.1192	8475.12
9	73500	132000	58500	0.1002	5861.7
10	80100	132000	51900	0.0822	4266.18
11	93600	129000	35400	0.065	2301
12	96300	128000	31700	0.0483	1531.11
13	99200	125000	25800	0.032	825.6
14	101000	124000	23000	0.0159	365.7
15	106000	106000	0		
16	124000	101000	-23000		
17	125000	99200	-25800		
18	128000	96300	-31700		
19	129000	93600	-35400		
20	132000	80100	-51900		
21	132000	73500	-58500		
22	139000	67900	-71100		
23	139000	66700	-72300		
24	139000	65600	-73400		
25	142000	59900	-82100		
26	143000	57600	-85400		
27	147000	55600	-91400		
28	148000	53200	-94800		
29	149000	42700	-106300		

Sum of b values = 175829
Sample Standard Deviation = 35203.7
W Statistic = 0.890937

5% Critical value of 0.926 exceeds 0.890937
Evidence of non-normality at 95% level of significance

1% Critical value of 0.898 exceeds 0.890937
Evidence of non-normality at 99% level of significance

Shapiro-Wilks Test of Normality

Parameter: Molybdenum, dissolved

Location: MW-5

Normality Test of Parameter Concentrations

Original Data (Not Transformed)

Non-Detects Replaced with 1/2 DL

K = 8 for 17 measurements

i	x(i)	x(n-i+1)	x(n-1+1)-x(i)	a(n-i+1)	b(i)
1	1.6	8	6.4	0.4968	3.17952
2	1.94	6.57	4.63	0.3273	1.5154
3	2.2	6	3.8	0.254	0.9652
4	2.32	5.61	3.29	0.1988	0.654052
5	2.64	5.6	2.96	0.1524	0.451104
6	2.73	5.4	2.67	0.1109	0.296103
7	2.8	4.82	2.02	0.0725	0.14645
8	3.43	4.6	1.17	0.0359	0.042003
9	3.93	3.93	0		
10	4.6	3.43	-1.17		
11	4.82	2.8	-2.02		
12	5.4	2.73	-2.67		
13	5.6	2.64	-2.96		
14	5.61	2.32	-3.29		
15	6	2.2	-3.8		
16	6.57	1.94	-4.63		
17	8	1.6	-6.4		

Sum of b values = 7.24983
Sample Standard Deviation = 1.86691
W Statistic = 0.942518

5% Critical value of 0.892 is less than 0.942518
Data is normally distributed at 95% level of significance

1% Critical value of 0.851 is less than 0.942518
Data is normally distributed at 99% level of significance

Shapiro-Wilks Test of Normality

Parameter: Potassium, dissolved

Location: MW-5

Normality Test of Parameter Concentrations

Original Data (Not Transformed)

Non-Detects Replaced with 1/2 DL

K = 14 for 29 measurements

i	x(i)	x(n-i+1)	x(n-1+1)-x(i)	a(n-i+1)	b(i)
1	1100	4860	3760	0.4291	1613.42
2	1300	4400	3100	0.2968	920.08
3	1310	4370	3060	0.2499	764.694
4	1800	4000	2200	0.215	473
5	2000	3800	1800	0.1864	335.52
6	2200	3760	1560	0.1616	252.096
7	2300	3750	1450	0.1395	202.275
8	2310	3720	1410	0.1192	168.072
9	2600	3710	1110	0.1002	111.222
10	2600	3360	760	0.0822	62.472
11	2600	3200	600	0.065	39
12	2640	3000	360	0.0483	17.388
13	2700	3000	300	0.032	9.6
14	2740	2900	160	0.0159	2.544
15	2810	2810	0		
16	2900	2740	-160		
17	3000	2700	-300		
18	3000	2640	-360		
19	3200	2600	-600		
20	3360	2600	-760		
21	3710	2600	-1110		
22	3720	2310	-1410		
23	3750	2300	-1450		
24	3760	2200	-1560		
25	3800	2000	-1800		
26	4000	1800	-2200		
27	4370	1310	-3060		
28	4400	1300	-3100		
29	4860	1100	-3760		

Sum of b values = 4971.38
Sample Standard Deviation = 951.002
W Statistic = 0.975963

5% Critical value of 0.926 is less than 0.975963
Data is normally distributed at 95% level of significance

1% Critical value of 0.898 is less than 0.975963
Data is normally distributed at 99% level of significance

Shapiro-Wilks Test of Normality

Parameter: Sodium, dissolved

Location: MW-5

Normality Test of Parameter Concentrations

Original Data (Not Transformed)

Non-Detects Replaced with 1/2 DL

K = 14 for 29 measurements

i	x(i)	x(n-i+1)	x(n-1+1)-x(i)	a(n-i+1)	b(i)
1	7400	18400	11000	0.4291	4720.1
2	7900	18100	10200	0.2968	3027.36
3	8070	17400	9330	0.2499	2331.57
4	8210	17200	8990	0.215	1932.85
5	8460	16900	8440	0.1864	1573.22
6	8500	16300	7800	0.1616	1260.48
7	8690	15900	7210	0.1395	1005.8
8	8760	15600	6840	0.1192	815.328
9	8900	14700	5800	0.1002	581.16
10	9410	14400	4990	0.0822	410.178
11	9660	13600	3940	0.065	256.1
12	10200	13200	3000	0.0483	144.9
13	11000	13000	2000	0.032	64
14	11400	12300	900	0.0159	14.31
15	12000	12000	0		
16	12300	11400	-900		
17	13000	11000	-2000		
18	13200	10200	-3000		
19	13600	9660	-3940		
20	14400	9410	-4990		
21	14700	8900	-5800		
22	15600	8760	-6840		
23	15900	8690	-7210		
24	16300	8500	-7800		
25	16900	8460	-8440		
26	17200	8210	-8990		
27	17400	8070	-9330		
28	18100	7900	-10200		
29	18400	7400	-11000		

Sum of b values = 18137.3
Sample Standard Deviation = 3593.73
W Statistic = 0.9097

5% Critical value of 0.926 exceeds 0.9097
Evidence of non-normality at 95% level of significance

1% Critical value of 0.898 is less than 0.9097
Data is normally distributed at 99% level of significance

Shapiro-Wilks Test of Normality

Parameter: Strontium, dissolved

Location: MW-5

Normality Test of Parameter Concentrations

Original Data (Not Transformed)

Non-Detects Replaced with 1/2 DL

K = 8 for 17 measurements

i	x(i)	x(n-i+1)	x(n-1+1)-x(i)	a(n-i+1)	b(i)
1	220	635	415	0.4968	206.172
2	288	604	316	0.3273	103.427
3	313	520	207	0.254	52.578
4	313	503	190	0.1988	37.772
5	314	475	161	0.1524	24.5364
6	330	457	127	0.1109	14.0843
7	349	432	83	0.0725	6.0175
8	397	413	16	0.0359	0.5744
9	409	409	0		
10	413	397	-16		
11	432	349	-83		
12	457	330	-127		
13	475	314	-161		
14	503	313	-190		
15	520	313	-207		
16	604	288	-316		
17	635	220	-415		

Sum of b values = 445.161
Sample Standard Deviation = 113.26
W Statistic = 0.965519

5% Critical value of 0.892 is less than 0.965519
Data is normally distributed at 95% level of significance

1% Critical value of 0.851 is less than 0.965519
Data is normally distributed at 99% level of significance

Shapiro-Wilks Test of Normality

Parameter: Sulfate, total

Location: MW-5

Normality Test of Parameter Concentrations

Natural Logarithm Transformation

Non-Detects Replaced with 1/2 DL

K = 14 for 29 measurements

i	x(i)	x(n-i+1)	x(n-1+1)-x(i)	a(n-i+1)	b(i)
1	10.3859	11.5099	1.12401	0.4291	0.482312
2	10.6359	11.4721	0.836248	0.2968	0.248198
3	10.6573	11.4446	0.787387	0.2499	0.196768
4	10.7364	11.4339	0.697486	0.215	0.149959
5	10.7831	11.4219	0.638792	0.1864	0.119071
6	10.7934	11.4142	0.620775	0.1616	0.100317
7	10.8218	11.3964	0.574615	0.1395	0.0801588
8	10.8258	11.3598	0.534014	0.1192	0.0636545
9	10.859	11.2948	0.43577	0.1002	0.0436642
10	10.8705	11.1433	0.272839	0.0822	0.0224273
11	10.9078	11.1404	0.232622	0.065	0.0151204
12	10.9277	11.136	0.208312	0.0483	0.0100615
13	10.9331	11.0698	0.136652	0.032	0.00437285
14	10.9734	11.0397	0.0663593	0.0159	0.00105511
15	11.0365	11.0365	0		
16	11.0397	10.9734	-0.0663593		
17	11.0698	10.9331	-0.136652		
18	11.136	10.9277	-0.208312		
19	11.1404	10.9078	-0.232622		
20	11.1433	10.8705	-0.272839		
21	11.2948	10.859	-0.43577		
22	11.3598	10.8258	-0.534014		
23	11.3964	10.8218	-0.574615		
24	11.4142	10.7934	-0.620775		
25	11.4219	10.7831	-0.638792		
26	11.4339	10.7364	-0.697486		
27	11.4446	10.6573	-0.787387		
28	11.4721	10.6359	-0.836248		
29	11.5099	10.3859	-1.12401		

Sum of b values = 1.53714
Sample Standard Deviation = 0.298361
W Statistic = 0.94795

5% Critical value of 0.926 is less than 0.94795
Data is normally distributed at 95% level of significance

1% Critical value of 0.898 is less than 0.94795
Data is normally distributed at 99% level of significance

Non-Parametric Prediction Interval

Intra-Well Comparison for MW-1

Parameter: Boron, dissolved

Original Data (Not Transformed)

Non-Detects Replaced with 1/2 DL

Total Percent Non-Detects = 0%
Future Samples (k) = 1
Recent Dates = 1
Baseline Measurements (n) = 30
Maximum Baseline Concentration = 1370
Confidence Level = 96.8%
False Positive Rate = 3.2%

Baseline Measurements	Date	Value
	12/20/2007	174
	2/20/2008	255
	4/24/2008	730
	6/18/2008	1340
	8/26/2008	1370
	10/28/2008	1330
	12/16/2008	1130
	2/25/2009	1140
	4/29/2009	1140
	10/21/2009	1280
	4/13/2010	280
	11/2/2010	1130
	5/18/2011	80
	10/5/2011	1030
	4/3/2012	1150
	8/22/2012	1100
	10/3/2012	837
	11/14/2012	734
	4/10/2013	707
	10/2/2013	1160
	4/16/2014	628
	10/20/2014	860
	4/29/2015	122
	10/9/2015	556
	4/13/2016	469
	10/4/2016	365
	4/25/2017	379
	10/24/2017	311
	4/26/2018	432
	10/17/2018	111

Date	Count	Mean	Significant
4/2/2019	1	52.9	FALSE

Non-Parametric Prediction Interval

Intra-Well Comparison for MW-1

Parameter: Calcium, dissolved

Original Data (Not Transformed)

Non-Detects Replaced with 1/2 DL

Total Percent Non-Detects = 0%
Future Samples (k) = 1
Recent Dates = 1
Baseline Measurements (n) = 30
Maximum Baseline Concentration = 130000
Confidence Level = 96.8%
False Positive Rate = 3.2%

Baseline Measurements	Date	Value
	12/20/2007	64700
	2/20/2008	71300
	4/24/2008	112000
	6/18/2008	121000
	8/26/2008	125000
	10/28/2008	130000
	12/16/2008	115000
	2/25/2009	126000
	4/29/2009	120000
	10/21/2009	114000
	4/13/2010	67500
	11/2/2010	105000
	5/18/2011	51100
	10/5/2011	124000
	4/3/2012	112000
	8/22/2012	116000
	10/3/2012	119000
	11/14/2012	118000
	4/10/2013	80800
	10/2/2013	118000
	4/16/2014	94700
	10/20/2014	115000
	4/29/2015	58800
	10/9/2015	103000
	4/13/2016	90700
	10/4/2016	104000
	4/25/2017	106000
	10/24/2017	107000
	4/26/2018	49400
	10/17/2018	84700

Date	Count	Mean	Significant
4/2/2019	1	70500	FALSE

Parametric Prediction Interval Analysis

Intra-Well Comparison for MW-1

Parameter: Molybdenum, dissolved

Original Data (Not Transformed)

Non-Detects Replaced with 1/2 DL

Intra-Well USEPA (1989/1992) Formula 95% Comparison

Baseline Samples	Date	Result
	5/18/2011	2
	10/5/2011	ND<1 <
	4/3/2012	ND<1 <
	10/3/2012	2.87
	11/14/2012	2.9
	4/10/2013	5.3
	10/2/2013	3.59
	4/16/2014	3.04
	10/20/2014	2.67
	4/29/2015	4.05
	10/9/2015	2.13
	4/13/2016	1.99
	10/4/2016	1.95
	4/25/2017	1.8
	10/24/2017	1.8
	4/26/2018	2.1
	10/17/2018	2.2

From 17 baseline samples
Baseline mean = 2.49353
Baseline std Dev = 1.08186

For 1 recent sampling event(s)
95% confidence t = 1.74588 at 16 degrees of freedom

Date	Samples	Mean	Interval	Significant
4/2/2019	1	3	[0, 4.43709]	FALSE

Parametric Prediction Interval Analysis

Intra-Well Comparison for MW-1

Parameter: Potassium, dissolved

Original Data (Not Transformed)

Non-Detects Replaced with 1/2 DL

Intra-Well USEPA (1989/1992) Formula 95% Comparison

Baseline Samples	Date	Result
	12/20/2007	3250
	2/20/2008	3380
	4/24/2008	ND<50 <
	6/18/2008	3000
	8/26/2008	1700
	10/28/2008	1100
	12/16/2008	700
	2/25/2009	700
	4/29/2009	600
	10/21/2009	500
	4/13/2010	2600
	11/2/2010	1100
	5/18/2011	2600
	10/5/2011	2200
	4/3/2012	1600
	8/22/2012	1500
	10/3/2012	1420
	11/14/2012	1420
	4/10/2013	2000
	10/2/2013	870
	4/16/2014	2770
	10/20/2014	1470
	4/29/2015	2790
	10/9/2015	2320
	4/13/2016	2990
	10/4/2016	2660
	4/25/2017	2300
	10/24/2017	2200
	4/26/2018	2700
	10/17/2018	3400

From 30 baseline samples
Baseline mean = 1929.67
Baseline std Dev = 949.35

For 1 recent sampling event(s)
95% confidence t = 1.69913 at 29 degrees of freedom

Date	Samples	Mean	Interval	Significant
4/2/2019	1	2900	[0, 3569.4]	FALSE

Non-Parametric Prediction Interval

Intra-Well Comparison for MW-1

Parameter: Sodium, dissolved

Original Data (Not Transformed)

Non-Detects Replaced with 1/2 DL

Total Percent Non-Detects = 0%
Future Samples (k) = 1
Recent Dates = 1
Baseline Measurements (n) = 30
Maximum Baseline Concentration = 35700
Confidence Level = 96.8%
False Positive Rate = 3.2%

Baseline Measurements	Date	Value
	12/20/2007	17900
	2/20/2008	14000
	4/24/2008	13900
	6/18/2008	11300
	8/26/2008	11900
	10/28/2008	10900
	12/16/2008	9340
	2/25/2009	10100
	4/29/2009	10100
	10/21/2009	11000
	4/13/2010	16700
	11/2/2010	10400
	5/18/2011	10800
	10/5/2011	12000
	4/3/2012	11600
	8/22/2012	10700
	10/3/2012	11500
	11/14/2012	11000
	4/10/2013	35700
	10/2/2013	12500
	4/16/2014	17000
	10/20/2014	10600
	4/29/2015	14100
	10/9/2015	11500
	4/13/2016	10200
	10/4/2016	9630
	4/25/2017	9000
	10/24/2017	9000
	4/26/2018	12100
	10/17/2018	12500

Date	Count	Mean	Significant
4/2/2019	1	13300	FALSE

Parametric Prediction Interval Analysis

Intra-Well Comparison for MW-1

Parameter: Strontium, dissolved

Original Data (Not Transformed)

Non-Detects Replaced with 1/2 DL

Intra-Well USEPA (1989/1992) Formula 95% Comparison

Baseline Samples	Date	Result
	5/18/2011	252
	10/5/2011	432
	4/3/2012	363
	8/22/2012	342
	10/3/2012	363
	11/14/2012	375
	4/10/2013	330
	10/2/2013	337
	4/16/2014	321
	10/20/2014	306
	4/29/2015	301
	10/9/2015	419
	4/13/2016	322
	10/4/2016	359
	4/25/2017	381
	10/24/2017	375
	4/26/2018	250
	10/17/2018	307

From 18 baseline samples
Baseline mean = 340.833
Baseline std Dev = 48.9

For 1 recent sampling event(s)
95% confidence t = 1.73961 at 17 degrees of freedom

Date	Samples	Mean	Interval	Significant
4/2/2019	1	290	[0, 428.231]	FALSE

Parametric Prediction Interval Analysis

Intra-Well Comparison for MW-1

Parameter: Sulfate, total

Original Data (Not Transformed)

Non-Detects Replaced with 1/2 DL

Intra-Well USEPA (1989/1992) Formula 95% Comparison

Baseline Samples	Date	Result
	12/20/2007	51000
	2/20/2008	50000
	4/24/2008	96000
	6/18/2008	116000
	8/26/2008	117000
	10/28/2008	15000
	12/16/2008	112000
	2/25/2009	105000
	4/29/2009	101000
	10/21/2009	107000
	4/13/2010	51000
	11/2/2010	98900
	5/18/2011	27600
	10/5/2011	84400
	4/3/2012	92400
	8/22/2012	84000
	10/3/2012	86700
	11/14/2012	78700
	4/10/2013	72900
	10/2/2013	78900
	4/16/2014	65400
	10/20/2014	63100
	4/29/2015	41000
	10/9/2015	57100
	4/13/2016	42800
	10/4/2016	39300
	4/25/2017	34100
	10/24/2017	37200
	4/26/2018	35100
	10/17/2018	43500

From 30 baseline samples
Baseline mean = 69470
Baseline std Dev = 29642.9

For 1 recent sampling event(s)
95% confidence t = 1.69913 at 29 degrees of freedom

Date	Samples	Mean	Interval	Significant
4/2/2019	1	34600	[0, 120670]	FALSE

Non-Parametric Prediction Interval

Intra-Well Comparison for MW-2

Parameter: Boron, dissolved

Original Data (Not Transformed)

Non-Detects Replaced with 1/2 DL

Total Percent Non-Detects = 0%
Future Samples (k) = 1
Recent Dates = 1
Baseline Measurements (n) = 30
Maximum Baseline Concentration = 2420
Confidence Level = 96.8%
False Positive Rate = 3.2%

Baseline Measurements	Date	Value
	12/20/2007	2420
	2/20/2008	2150
	4/24/2008	2000
	6/18/2008	2200
	8/26/2008	2210
	10/28/2008	2340
	12/16/2008	2000
	2/25/2009	2400
	4/29/2009	2260
	10/21/2009	1970
	4/13/2010	1970
	11/2/2010	1880
	5/18/2011	1880
	10/5/2011	1960
	4/3/2012	1720
	8/22/2012	1790
	10/3/2012	1470
	11/14/2012	1200
	4/10/2013	1460
	10/2/2013	1790
	4/16/2014	1430
	10/20/2014	1600
	4/29/2015	1530
	10/12/2015	122
	4/13/2016	1410
	10/4/2016	1340
	4/25/2017	1450
	10/24/2017	1220
	4/26/2018	1420
	10/17/2018	1380

Date	Count	Mean	Significant
4/2/2019	1	1430	FALSE

Non-Parametric Prediction Interval

Intra-Well Comparison for MW-2

Parameter: Calcium, dissolved

Original Data (Not Transformed)

Non-Detects Replaced with 1/2 DL

Total Percent Non-Detects = 0%
Future Samples (k) = 1
Recent Dates = 1
Baseline Measurements (n) = 30
Maximum Baseline Concentration = 129000
Confidence Level = 96.8%
False Positive Rate = 3.2%

Baseline Measurements	Date	Value
	12/20/2007	98400
	2/20/2008	129000
	4/24/2008	96100
	6/18/2008	103000
	8/26/2008	106000
	10/28/2008	109000
	12/16/2008	92700
	2/25/2009	102000
	4/29/2009	101000
	10/21/2009	100000
	4/13/2010	102000
	11/2/2010	90900
	5/18/2011	92700
	10/5/2011	104000
	4/3/2012	94600
	8/22/2012	103000
	10/3/2012	102000
	11/14/2012	85400
	4/10/2013	85200
	10/2/2013	105000
	4/16/2014	94200
	10/20/2014	96800
	4/29/2015	94700
	10/12/2015	40500
	4/13/2016	90100
	10/4/2016	86700
	4/25/2017	84800
	10/24/2017	81700
	4/26/2018	88100
	10/17/2018	84300

Date	Count	Mean	Significant
4/2/2019	1	94300	FALSE

Parametric Prediction Interval Analysis

Intra-Well Comparison for MW-2

Parameter: Molybdenum, dissolved

Natural Logarithm Transformation

Non-Detects Replaced with 1/2 DL

Intra-Well USEPA (1989/1992) Formula 95% Comparison

Baseline Samples	Date	Result
	5/18/2011	ND<0 <
	10/5/2011	ND<0 <
	4/3/2012	ND<0 <
	10/3/2012	0.254642
	11/14/2012	0.207014
	4/10/2013	0.576613
	10/2/2013	0.582216
	4/16/2014	0.19062
	10/20/2014	0.14842
	4/29/2015	0.198851
	10/12/2015	0.14842
	4/13/2016	0.139762
	10/4/2016	0.431782
	4/25/2017	0.262364
	10/24/2017	0.336472
	4/26/2018	0.336472
	10/17/2018	0.741937

From 17 baseline samples
Baseline mean = 0.267976
Baseline std Dev = 0.213601

For 1 recent sampling event(s)
95% confidence t = 1.74588 at 16 degrees of freedom

Date	Samples	Mean	Interval	Significant
4/2/2019	1	0.262364	[0, 0.65171]	FALSE

Non-Parametric Prediction Interval

Intra-Well Comparison for MW-2

Parameter: Potassium, dissolved

Original Data (Not Transformed)

Non-Detects Replaced with 1/2 DL

Total Percent Non-Detects = 0%
Future Samples (k) = 1
Recent Dates = 1
Baseline Measurements (n) = 30
Maximum Baseline Concentration = 3080
Confidence Level = 96.8%
False Positive Rate = 3.2%

Baseline Measurements	Date	Value
	12/20/2007	610
	2/20/2008	530
	4/24/2008	600
	6/18/2008	500
	8/26/2008	800
	10/28/2008	500
	12/16/2008	400
	2/25/2009	600
	4/29/2009	600
	10/21/2009	600
	4/13/2010	600
	11/2/2010	600
	5/18/2011	400
	10/5/2011	600
	4/3/2012	540
	8/22/2012	720
	10/3/2012	680
	11/14/2012	460
	4/10/2013	510
	10/2/2013	650
	4/16/2014	550
	10/20/2014	540
	4/29/2015	540
	10/12/2015	3080
	4/13/2016	630
	10/4/2016	530
	4/25/2017	630 J
	10/24/2017	580 J
	4/26/2018	640 J
	10/17/2018	650 J

Date	Count	Mean	Significant
4/2/2019	1	600	FALSE

Non-Parametric Prediction Interval

Intra-Well Comparison for MW-2

Parameter: Sodium, dissolved

Original Data (Not Transformed)

Non-Detects Replaced with 1/2 DL

Total Percent Non-Detects = 0%
Future Samples (k) = 1
Recent Dates = 1
Baseline Measurements (n) = 30
Maximum Baseline Concentration = 36200
Confidence Level = 96.8%
False Positive Rate = 3.2%

Baseline Measurements	Date	Value
	12/20/2007	19400
	2/20/2008	16200
	4/24/2008	19900
	6/18/2008	18300
	8/26/2008	19700
	10/28/2008	18900
	12/16/2008	16500
	2/25/2009	20000
	4/29/2009	19200
	10/21/2009	18800
	4/13/2010	17400
	11/2/2010	19200
	5/18/2011	22200
	10/5/2011	21200
	4/3/2012	19400
	8/22/2012	19500
	10/3/2012	21800
	11/14/2012	19600
	4/10/2013	27400
	10/2/2013	24100
	4/16/2014	19500
	10/20/2014	22100
	4/29/2015	22600
	10/12/2015	36200
	4/13/2016	20800
	10/4/2016	22500
	4/25/2017	23200
	10/24/2017	23900
	4/26/2018	24700
	10/17/2018	23500

Date	Count	Mean	Significant
4/2/2019	1	23000	FALSE

Non-Parametric Prediction Interval

Intra-Well Comparison for MW-2

Parameter: Strontium, dissolved

Original Data (Not Transformed)

Non-Detects Replaced with 1/2 DL

Total Percent Non-Detects = 0%
Future Samples (k) = 1
Recent Dates = 1
Baseline Measurements (n) = 30
Maximum Baseline Concentration = 303
Confidence Level = 96.8%
False Positive Rate = 3.2%

Baseline Measurements	Date	Value
	5/18/2011	226
	10/5/2011	219
	4/3/2012	197
	8/22/2012	200
	10/3/2012	212
	11/14/2012	192
	4/10/2013	178
	10/2/2013	215
	4/16/2014	185
	10/20/2014	192
	4/29/2015	198
	10/12/2015	303
	4/13/2016	184
	10/4/2016	180
	4/25/2017	174
	10/24/2017	165
	4/26/2018	181
	10/17/2018	174
	4/2/2019	190

Date	Count	Mean	Significant
4/2/2019	1	190	FALSE

Parametric Prediction Interval Analysis

Intra-Well Comparison for MW-2

Parameter: Sulfate, total

Original Data (Not Transformed)

Non-Detects Replaced with 1/2 DL

Intra-Well USEPA (1989/1992) Formula 95% Comparison

Baseline Samples	Date	Result
	12/20/2007	200000
	2/20/2008	180000
	4/24/2008	167000
	6/18/2008	164000
	8/26/2008	170000
	10/28/2008	170000
	12/16/2008	169000
	2/25/2009	167000
	4/29/2009	162000
	10/21/2009	162000
	4/13/2010	167000
	11/2/2010	178000
	5/18/2011	158000
	10/5/2011	166000
	4/3/2012	152000
	8/22/2012	156000
	10/3/2012	158000
	11/14/2012	154000
	4/10/2013	143000
	10/2/2013	155000
	4/16/2014	145000
	10/20/2014	150000
	4/29/2015	155000
	10/12/2015	153000
	4/13/2016	151000
	10/4/2016	141000
	4/25/2017	132000
	10/24/2017	127000
	4/26/2018	115000
	10/17/2018	126000

From 30 baseline samples
Baseline mean = 156433
Baseline std Dev = 17383.5

For 1 recent sampling event(s)
95% confidence t = 1.69913 at 29 degrees of freedom

Date	Samples	Mean	Interval	Significant
4/2/2019	1	124000	[0, 186458]	FALSE

Parametric Prediction Interval Analysis

Intra-Well Comparison for MW-3

Parameter: Boron, dissolved

Original Data (Not Transformed)

Non-Detects Replaced with 1/2 DL

Intra-Well USEPA (1989/1992) Formula 95% Comparison

Baseline Samples	Date	Result
	12/20/2007	1410
	2/20/2008	1620
	4/24/2008	1440
	6/18/2008	1380
	8/26/2008	1240
	10/28/2008	1300
	12/16/2008	1190
	2/25/2009	1780
	4/29/2009	1580
	10/21/2009	1120
	4/13/2010	1390
	11/2/2010	1260
	5/17/2011	1600
	10/5/2011	1430
	4/3/2012	1680
	8/22/2012	1510
	10/3/2012	1210
	11/14/2012	1060
	4/10/2013	1460
	10/2/2013	1430
	4/16/2014	1380
	10/20/2014	1300
	4/29/2015	1420
	10/9/2015	1120
	4/13/2016	1280
	10/4/2016	1120
	4/25/2017	1280
	10/24/2017	1100
	4/26/2018	1180
	10/17/2018	1320

From 30 baseline samples
Baseline mean = 1353
Baseline std Dev = 182.665

For 1 recent sampling event(s)
95% confidence t = 1.69913 at 29 degrees of freedom

Date	Samples	Mean	Interval	Significant
4/3/2019	1	1380	[0, 1668.5]	FALSE

Parametric Prediction Interval Analysis

Intra-Well Comparison for MW-3

Parameter: Calcium, dissolved

Natural Logarithm Transformation

Non-Detects Replaced with 1/2 DL

Intra-Well USEPA (1989/1992) Formula 95% Comparison

Baseline Samples	Date	Result
	12/20/2007	11.4927
	2/20/2008	11.6699
	4/24/2008	11.3691
	6/18/2008	11.3851
	8/26/2008	11.3794
	10/28/2008	11.4076
	12/16/2008	11.3047
	2/25/2009	11.5059
	4/29/2009	11.4679
	10/21/2009	11.3896
	4/13/2010	11.4098
	11/2/2010	11.2696
	5/17/2011	11.3941
	10/5/2011	11.4436
	4/3/2012	11.4031
	8/22/2012	11.4197
	10/3/2012	11.4065
	11/14/2012	11.3022
	4/10/2013	11.323
	10/2/2013	11.4393
	4/16/2014	11.376
	10/20/2014	11.3621
	4/29/2015	11.4219
	10/9/2015	11.2848
	4/13/2016	11.3266
	10/4/2016	11.3242
	4/25/2017	11.3433
	10/24/2017	11.3783
	4/26/2018	11.5109
	10/17/2018	11.4648

From 30 baseline samples
Baseline mean = 11.3992
Baseline std Dev = 0.0813122

For 1 recent sampling event(s)
95% confidence t = 1.69913 at 29 degrees of freedom

Date	Samples	Mean	Interval	Significant
4/3/2019	1	11.5229	[0, 11.5396]	FALSE

Non-Parametric Prediction Interval

Intra-Well Comparison for MW-3

Parameter: Molybdenum, dissolved

Original Data (Not Transformed)

Non-Detects Replaced with 1/2 DL

Total Percent Non-Detects = 0%
Future Samples (k) = 1
Recent Dates = 1
Baseline Measurements (n) = 17
Maximum Baseline Concentration = 58.1
Confidence Level = 94.4%
False Positive Rate = 5.6%

Baseline Measurements	Date	Value
	5/17/2011	47
	10/5/2011	51
	4/3/2012	43.9
	10/3/2012	55
	11/14/2012	58.1
	4/10/2013	40.8
	10/2/2013	53.2
	4/16/2014	42
	10/20/2014	54.7
	4/29/2015	45.1
	10/9/2015	52.2
	4/13/2016	48
	10/4/2016	53.1
	4/25/2017	49
	10/24/2017	41.7
	4/26/2018	24
	10/17/2018	28.4

Date	Count	Mean	Significant
4/3/2019	1	23.3	FALSE

Parametric Prediction Interval Analysis

Intra-Well Comparison for MW-3

Parameter: Potassium, dissolved

Original Data (Not Transformed)

Non-Detects Replaced with 1/2 DL

Intra-Well USEPA (1989/1992) Formula 95% Comparison

Baseline Samples	Date	Result
	12/20/2007	3300
	2/20/2008	3050
	4/24/2008	2900
	6/18/2008	2800
	8/26/2008	3200
	10/28/2008	3500
	12/16/2008	2900
	2/25/2009	3900
	4/29/2009	3500
	10/21/2009	3300
	4/13/2010	3100
	11/2/2010	3700
	5/17/2011	4100
	10/5/2011	4000
	4/3/2012	3710
	8/22/2012	4520
	10/3/2012	4450
	11/14/2012	4490
	4/10/2013	3310
	10/2/2013	4120
	4/16/2014	3440
	10/20/2014	3980
	4/29/2015	3900
	10/9/2015	4280
	4/13/2016	3740
	10/4/2016	4140
	4/25/2017	3700
	10/24/2017	3800
	4/26/2018	3000
	10/17/2018	3300

From 30 baseline samples
Baseline mean = 3637.67
Baseline std Dev = 500.384

For 1 recent sampling event(s)
95% confidence t = 1.69913 at 29 degrees of freedom

Date	Samples	Mean	Interval	Significant
4/3/2019	1	3100	[0, 4501.94]	FALSE

Parametric Prediction Interval Analysis

Intra-Well Comparison for MW-3

Parameter: Sodium, dissolved

Original Data (Not Transformed)

Non-Detects Replaced with 1/2 DL

Intra-Well USEPA (1989/1992) Formula 95% Comparison

Baseline Samples	Date	Result
	12/20/2007	27500
	2/20/2008	21600
	4/24/2008	24300
	6/18/2008	22600
	8/26/2008	25400
	10/28/2008	25500
	12/16/2008	21300
	2/25/2009	25800
	4/29/2009	25000
	10/21/2009	24600
	4/13/2010	21600
	11/2/2010	23800
	5/17/2011	28400
	10/5/2011	26300
	4/3/2012	23500
	8/22/2012	24000
	10/3/2012	25700
	11/14/2012	27000
	4/10/2013	20800
	10/2/2013	26100
	4/16/2014	21700
	10/20/2014	25500
	4/29/2015	23700
	10/9/2015	25600
	4/13/2016	22800
	10/4/2016	24900
	4/25/2017	22700
	10/24/2017	22400
	4/26/2018	18900
	10/17/2018	20300

From 30 baseline samples
Baseline mean = 23976.7
Baseline std Dev = 2272.58

For 1 recent sampling event(s)
95% confidence t = 1.69913 at 29 degrees of freedom

Date	Samples	Mean	Interval	Significant
4/3/2019	1	18300	[0, 27901.9]	FALSE

Parametric Prediction Interval Analysis

Intra-Well Comparison for MW-3

Parameter: Strontium, dissolved

Original Data (Not Transformed)

Non-Detects Replaced with 1/2 DL

Intra-Well USEPA (1989/1992) Formula 95% Comparison

Baseline Samples	Date	Result
	5/17/2011	410
	10/5/2011	377
	4/3/2012	359
	8/22/2012	350
	10/3/2012	361
	11/14/2012	386
	4/10/2013	326
	10/2/2013	374
	4/16/2014	333
	10/20/2014	339
	4/29/2015	386
	10/9/2015	351
	4/13/2016	346
	10/4/2016	351
	4/25/2017	359
	10/24/2017	354
	4/26/2018	367
	10/17/2018	370

From 18 baseline samples
Baseline mean = 361.056
Baseline std Dev = 20.7066

For 1 recent sampling event(s)
95% confidence t = 1.73961 at 17 degrees of freedom

Date	Samples	Mean	Interval	Significant
4/3/2019	1	390	[0, 398.064]	FALSE

Parametric Prediction Interval Analysis

Intra-Well Comparison for MW-3

Parameter: Sulfate, total

Original Data (Not Transformed)

Non-Detects Replaced with 1/2 DL

Intra-Well USEPA (1989/1992) Formula 95% Comparison

Baseline Samples	Date	Result
	12/20/2007	170000
	2/20/2008	140000
	4/24/2008	127000
	6/18/2008	128000
	8/26/2008	138000
	10/28/2008	136000
	12/16/2008	138000
	2/25/2009	133000
	4/29/2009	128000
	10/21/2009	131000
	4/13/2010	134000
	11/2/2010	142000
	5/17/2011	114000
	10/5/2011	121000
	4/3/2012	99600
	8/22/2012	100000
	10/3/2012	99400
	11/14/2012	96400
	4/10/2013	92800
	10/2/2013	101000
	4/16/2014	89500
	10/20/2014	96100
	4/29/2015	91000
	10/9/2015	97500
	4/13/2016	84500
	10/4/2016	81500
	4/25/2017	78900
	10/24/2017	78400
	4/26/2018	73700
	10/17/2018	73400

From 30 baseline samples
Baseline mean = 110457
Baseline std Dev = 25243.8

For 1 recent sampling event(s)
95% confidence t = 1.69913 at 29 degrees of freedom

Date	Samples	Mean	Interval	Significant
4/3/2019	1	71100	[0, 154058]	FALSE

Parametric Prediction Interval Analysis

Intra-Well Comparison for MW-5

Parameter: Boron, dissolved

Natural Logarithm Transformation

Non-Detects Replaced with 1/2 DL

Intra-Well USEPA (1989/1992) Formula 95% Comparison

Baseline Samples	Date	Result
	12/20/2007	4.02535
	2/20/2008	4.12713
	4/24/2008	3.68888
	6/18/2008	3.4012
	8/26/2008	3.68888
	10/28/2008	3.4012
	12/16/2008	2.99573
	2/25/2009	3.4012
	4/29/2009	3.4012
	10/22/2009	2.99573
	4/13/2010	3.4012
	11/2/2010	3.4012
	5/18/2011	3.68888
	10/5/2011	3.4012
	4/3/2012	3.49651
	10/3/2012	3.49651
	4/10/2013	3.52636
	10/2/2013	3.58352
	4/16/2014	3.52636
	10/20/2014	3.46574
	4/29/2015	3.63759
	10/9/2015	3.49651
	4/13/2016	3.17805
	10/4/2016	2.56495
	4/25/2017	3.27714
	10/24/2017	2.84491
	4/25/2018	3.3569
	10/17/2018	3.85651

From 28 baseline samples
Baseline mean = 3.44023
Baseline std Dev = 0.326942

For 1 recent sampling event(s)
95% confidence t = 1.70329 at 27 degrees of freedom

Date	Samples	Mean	Interval	Significant
4/2/2019	1	3.3499	[0, 4.00697]	FALSE

Non-Parametric Prediction Interval

Intra-Well Comparison for MW-5

Parameter: Calcium, dissolved

Original Data (Not Transformed)

Non-Detects Replaced with 1/2 DL

Total Percent Non-Detects = 0%
Future Samples (k) = 1
Recent Dates = 1
Baseline Measurements (n) = 17
Maximum Baseline Concentration = 148000
Confidence Level = 94.4%
False Positive Rate = 5.6%

Baseline Measurements	Date	Value
	12/20/2007	53200
	2/20/2008	59900
	4/24/2008	80100
	6/18/2008	101000
	8/26/2008	147000
	10/28/2008	148000
	12/16/2008	139000
	2/25/2009	139000
	4/29/2009	139000
	10/22/2009	132000
	4/13/2010	73500
	11/2/2010	128000
	5/18/2011	57600
	10/5/2011	142000
	4/3/2012	66700
	10/3/2012	125000
	4/10/2013	99200

Date	Count	Mean	Significant
4/2/2019	1	67900	FALSE

Parametric Prediction Interval Analysis

Intra-Well Comparison for MW-5

Parameter: Molybdenum, dissolved

Original Data (Not Transformed)

Non-Detects Replaced with 1/2 DL

Intra-Well USEPA (1989/1992) Formula 95% Comparison

Baseline Samples	Date	Result
	5/18/2011	6
	10/5/2011	8
	4/3/2012	5.6
	10/3/2012	6.57
	4/10/2013	3.43
	10/2/2013	2.73
	4/16/2014	4.82
	10/20/2014	2.64
	4/29/2015	5.61
	10/9/2015	3.93
	4/13/2016	2.32
	10/4/2016	1.94
	4/25/2017	2.2
	10/24/2017	1.6
	4/25/2018	2.8
	10/17/2018	4.6

From 16 baseline samples
Baseline mean = 4.04937
Baseline std Dev = 1.89822

For 1 recent sampling event(s)
95% confidence t = 1.75305 at 15 degrees of freedom

Date	Samples	Mean	Interval	Significant
4/2/2019	1	5.4	[0, 7.47947]	FALSE

Parametric Prediction Interval Analysis

Intra-Well Comparison for MW-5

Parameter: Potassium, dissolved

Original Data (Not Transformed)

Non-Detects Replaced with 1/2 DL

Intra-Well USEPA (1989/1992) Formula 95% Comparison

Baseline Samples	Date	Result
	12/20/2007	4860
	2/20/2008	4370
	4/24/2008	3000
	6/18/2008	4400
	8/26/2008	3800
	10/28/2008	3000
	12/16/2008	2300
	2/25/2009	1800
	4/29/2009	1300
	10/22/2009	1100
	4/13/2010	2900
	11/2/2010	2700
	5/18/2011	2600
	10/5/2011	3200
	4/3/2012	2640
	10/3/2012	3760
	4/10/2013	2740
	10/2/2013	1310
	4/16/2014	3710
	10/20/2014	3720
	4/29/2015	2810
	10/9/2015	3750
	4/13/2016	3360
	10/4/2016	2310
	4/25/2017	2600
	10/24/2017	2000
	4/25/2018	2200
	10/17/2018	4000

From 28 baseline samples
Baseline mean = 2937.14
Baseline std Dev = 966.352

For 1 recent sampling event(s)
95% confidence t = 1.70329 at 27 degrees of freedom

Date	Samples	Mean	Interval	Significant
4/2/2019	1	2600	[0, 4612.25]	FALSE

Non-Parametric Prediction Interval

Intra-Well Comparison for MW-5

Parameter: Sodium, dissolved

Original Data (Not Transformed)

Non-Detects Replaced with 1/2 DL

Total Percent Non-Detects = 0%
Future Samples (k) = 1
Recent Dates = 1
Baseline Measurements (n) = 17
Maximum Baseline Concentration = 18400
Confidence Level = 94.4%
False Positive Rate = 5.6%

Baseline Measurements	Date	Value
	12/20/2007	18400
	2/20/2008	15900
	4/24/2008	13600
	6/18/2008	9660
	8/26/2008	8760
	10/28/2008	8460
	12/16/2008	7400
	2/25/2009	8070
	4/29/2009	8210
	10/22/2009	7900
	4/13/2010	17200
	11/2/2010	8900
	5/18/2011	13200
	10/5/2011	12000
	4/3/2012	18100
	10/3/2012	17400
	4/10/2013	16300

Date	Count	Mean	Significant
4/2/2019	1	13000	FALSE

Parametric Prediction Interval Analysis

Intra-Well Comparison for MW-5

Parameter: Strontium, dissolved

Original Data (Not Transformed)

Non-Detects Replaced with 1/2 DL

Intra-Well USEPA (1989/1992) Formula 95% Comparison

Baseline Samples	Date	Result
	5/18/2011	313
	10/5/2011	604
	4/3/2012	349
	10/3/2012	635
	4/10/2013	457
	10/2/2013	409
	4/16/2014	397
	10/20/2014	520
	4/29/2015	288
	10/9/2015	503
	4/13/2016	475
	10/4/2016	432
	4/25/2017	330
	10/24/2017	413
	4/25/2018	220
	10/17/2018	314

From 16 baseline samples
Baseline mean = 416.188
Baseline std Dev = 114.083

For 1 recent sampling event(s)
95% confidence t = 1.75305 at 15 degrees of freedom

Date	Samples	Mean	Interval	Significant
4/2/2019	1	313	[0, 622.336]	FALSE

Parametric Prediction Interval Analysis

Intra-Well Comparison for MW-5

Parameter: Sulfate, total

Natural Logarithm Transformation

Non-Detects Replaced with 1/2 DL

Intra-Well USEPA (1989/1992) Formula 95% Comparison

Baseline Samples	Date	Result
	12/20/2007	10.7364
	2/20/2008	10.859
	4/24/2008	10.9331
	6/18/2008	11.0397
	8/26/2008	11.3964
	10/28/2008	11.4219
	12/16/2008	11.4142
	2/25/2009	11.4721
	4/29/2009	11.4339
	10/22/2009	11.4446
	4/13/2010	10.9734
	11/2/2010	11.5099
	5/18/2011	10.6359
	10/5/2011	11.2948
	4/3/2012	11.136
	10/3/2012	10.8258
	4/10/2013	11.1404
	10/2/2013	11.3598
	4/16/2014	10.8705
	10/20/2014	11.0698
	4/29/2015	10.8218
	10/9/2015	10.9078
	4/13/2016	11.1433
	10/4/2016	10.9277
	4/25/2017	10.7831
	10/24/2017	11.0365
	4/25/2018	10.6573
	10/17/2018	10.3859

From 28 baseline samples
Baseline mean = 11.0582
Baseline std Dev = 0.299681

For 1 recent sampling event(s)
95% confidence t = 1.70329 at 27 degrees of freedom

Date	Samples	Mean	Interval	Significant
4/2/2019	1	10.7934	[0, 11.5777]	FALSE

ATTACHMENT F

Laboratory Analytical Results

EnviroAnalytics Group

Environmental Engineers

Pace Analytical Services, LLC
7726 Moller Road
Indianapolis, IN 46268
(317)228-3100

April 16, 2019

Mr. Matthew Dostal
EnviroAnalytics Group
1515 Des Peres Rd
Suite 300
Saint Louis, MO 63131

RE: Project: Tanners Creek
Pace Project No.: 50221290

Dear Mr. Dostal:
Enclosed are the analytical results for sample(s) received by the laboratory on April 04, 2019. The results relate only to the samples included in this report. Results reported herein conform to the most current, applicable TNI/NELAC standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

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

Sincerely,

Regina Bedel
regina.bedel@pacelabs.com
(317)228-3100
Project Manager

Enclosures

cc: Mr. Adam Peetz, EnviroAnalytics Group

Pace Analytical Services, LLC
7726 Moller Road
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(317)228-3100

CERTIFICATIONS

Project: Tanners Creek
Pace Project No.: 50221290

Indiana Certification IDs

7726 Moller Road, Indianapolis, IN 46268
Illinois Certification #: 200074
Indiana Certification #: C-49-06
Kansas/NELAP Certification #: E-10177
Kentucky UST Certification #: 80226
Kentucky WW Certification #: 98019
Michigan Department of Environmental Quality, Laboratory #9050
Ohio VAP Certification #: CL0065
Oklahoma Certification #: 2018-101
Texas Certification #: T104704355
West Virginia Certification #: 330
Wisconsin Certification #: 999788130
USDA Soil Permit #: P330-16-00257

Pace Analytical Services, LLC
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SAMPLE SUMMARY

Project: Tanners Creek
Pace Project No.: 50221290

Lab ID	Sample ID	Matrix	Date Collected	Date Received
50221290001	**MW-2**	Water	04/02/19 18:10	04/04/19 09:00
50221290002	**MW-3**	Water	04/03/19 09:35	04/04/19 09:00
50221290003	**DUP-1**	Water	04/03/19 09:35	04/04/19 09:00
50221290004	**Ohio River-1**	Water	04/03/19 10:50	04/04/19 09:00
50221290005	**Field Blank-1**	Water	04/03/19 11:15	04/04/19 09:00
50221290006	**Equip Blank-1**	Water	04/03/19 11:25	04/04/19 09:00

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SAMPLE ANALYTE COUNT

Project: Tanners Creek
Pace Project No.: 50221290

Lab ID	Sample ID	Method	Analysts	Analytes Reported
50221290001	**MW-2**	EPA 300.0	NPW	3
		EPA 200.7	KJE	7
		EPA 200.8	DMT	21
		EPA 245.1	LBT	1
		SM 2320B	CDR	1
		SM 2540C	MLS	1
		EPA 353.2	SKK	1
		EPA 365.1	ZM	1
50221290002	**MW-3**	EPA 300.0	NPW	3
		EPA 200.7	KJE	7
		EPA 200.8	DMT	21
		EPA 245.1	LBT	1
		SM 2320B	CDR	1
		SM 2540C	MLS	1
		EPA 353.2	SKK	1
		EPA 365.1	ZM	1
50221290003	**DUP-1**	EPA 300.0	NPW	3
		EPA 200.7	KJE	7
		EPA 200.8	DMT	21
		EPA 245.1	LBT	1
		SM 2320B	CDR	1
		SM 2540C	MLS	1
		EPA 353.2	SKK	1
		EPA 365.1	ZM	1
50221290004	**Ohio River-1**	EPA 300.0	NPW	3
		EPA 200.7	KJE	7
		EPA 200.8	DMT	21
		EPA 245.1	LBT	1
		SM 2320B	CDR	1
		SM 2540C	MLS	1
		EPA 353.2	SKK	1
		EPA 365.1	ZM	1
50221290005	**Field Blank-1**	EPA 300.0	NPW	3
		EPA 200.7	KJE	7
		EPA 200.8	DMT	21
		EPA 245.1	LBT	1
		SM 2320B	CDR	1

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(317)228-3100

SAMPLE ANALYTE COUNT

Project: Tanners Creek
Pace Project No.: 50221290

Lab ID	Sample ID	Method	Analysts	Analytes Reported
		SM 2540C	MLS	1
		EPA 353.2	SKK	1
		EPA 365.1	ZM	1
50221290006	**Equip Blank-1**	EPA 300.0	NPW	3
		EPA 200.7	KJE	7
		EPA 200.8	DMT	21
		EPA 245.1	LBT	1
		SM 2320B	CDR	1
		SM 2540C	MLS	1
		EPA 353.2	SKK	1
		EPA 365.1	ZM	1

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SUMMARY OF DETECTION

Project: Tanners Creek
Pace Project No.: 50221290

Lab Sample ID / Method	Client Sample ID / Parameters	Result	Units	Report Limit	Analyzed	Qualifiers
50221290001	**MW-2**					
EPA 300.0	Chloride	26.6	mg/L	2.5	04/14/19 09:01	
EPA 300.0	Fluoride	0.31	mg/L	0.10	04/14/19 08:15	
EPA 300.0	Sulfate	124	mg/L	2.5	04/14/19 09:01	
EPA 200.7	Calcium, Dissolved	94.3	mg/L	1.0	04/09/19 10:55	
EPA 200.7	Iron, Dissolved	0.11	mg/L	0.10	04/09/19 10:55	
EPA 200.7	Magnesium, Dissolved	29.4	mg/L	1.0	04/09/19 10:55	
EPA 200.7	Potassium, Dissolved	0.60J	mg/L	1.0	04/09/19 10:55	
EPA 200.7	Silica, Dissolved	11.2	mg/L	0.45	04/09/19 10:55	
EPA 200.7	Sodium, Dissolved	23.0	mg/L	1.0	04/09/19 10:55	
EPA 200.7	Total Hardness by 2340B, Dissolved	357	mg/L	1.0	04/09/19 10:55	
EPA 200.8	Aluminum, Dissolved	2.4J	ug/L	10.0	04/12/19 10:29	
EPA 200.8	Arsenic, Dissolved	0.48J	ug/L	1.0	04/12/19 10:29	
EPA 200.8	Barium, Dissolved	67.8	ug/L	1.0	04/12/19 10:29	
EPA 200.8	Boron, Dissolved	1430	ug/L	125	04/13/19 03:40	
EPA 200.8	Chromium, Dissolved	1.1J	ug/L	2.0	04/12/19 10:29	
EPA 200.8	Cobalt, Dissolved	2.1	ug/L	1.0	04/12/19 10:29	
EPA 200.8	Copper, Dissolved	1.5	ug/L	1.0	04/12/19 10:29	
EPA 200.8	Manganese, Dissolved	179	ug/L	1.0	04/12/19 10:29	
EPA 200.8	Molybdenum, Dissolved	1.3	ug/L	1.0	04/12/19 10:29	
EPA 200.8	Nickel, Dissolved	15.0	ug/L	0.50	04/12/19 10:29	
EPA 200.8	Strontium, Dissolved	190	ug/L	2.0	04/13/19 05:45	N2
EPA 200.8	Uranium, Dissolved	0.42J	ug/L	1.0	04/12/19 10:29	N2
EPA 200.8	Zinc, Dissolved	2.0J	ug/L	3.0	04/12/19 10:29	
SM 2320B	Alkalinity, Total as CaCO3	238	mg/L	2.0	04/06/19 12:28	
SM 2540C	Total Dissolved Solids	471	mg/L	10.0	04/05/19 09:16	
EPA 353.2	Nitrogen, NO2 plus NO3	0.030J	mg/L	0.10	04/09/19 12:36	
50221290002	**MW-3**					
EPA 300.0	Chloride	18.1	mg/L	2.5	04/14/19 10:31	
EPA 300.0	Fluoride	0.30	mg/L	0.10	04/14/19 10:16	
EPA 300.0	Sulfate	71.1	mg/L	2.5	04/14/19 10:31	
EPA 200.7	Calcium, Dissolved	101	mg/L	1.0	04/09/19 11:06	
EPA 200.7	Magnesium, Dissolved	24.3	mg/L	1.0	04/09/19 11:06	
EPA 200.7	Potassium, Dissolved	3.1	mg/L	1.0	04/09/19 11:06	
EPA 200.7	Silica, Dissolved	11.7	mg/L	0.45	04/09/19 11:06	
EPA 200.7	Sodium, Dissolved	18.3	mg/L	1.0	04/09/19 11:06	
EPA 200.7	Total Hardness by 2340B, Dissolved	352	mg/L	1.0	04/09/19 11:06	
EPA 200.8	Aluminum, Dissolved	2.0J	ug/L	10.0	04/12/19 10:34	
EPA 200.8	Barium, Dissolved	65.0	ug/L	1.0	04/12/19 10:34	
EPA 200.8	Boron, Dissolved	1380	ug/L	125	04/13/19 03:45	
EPA 200.8	Cadmium, Dissolved	0.034J	ug/L	0.20	04/12/19 10:34	
EPA 200.8	Chromium, Dissolved	1.5J	ug/L	2.0	04/12/19 10:34	
EPA 200.8	Cobalt, Dissolved	1.4	ug/L	1.0	04/12/19 10:34	
EPA 200.8	Copper, Dissolved	1.3	ug/L	1.0	04/12/19 10:34	
EPA 200.8	Manganese, Dissolved	14.5	ug/L	1.0	04/12/19 10:34	
EPA 200.8	Molybdenum, Dissolved	23.3	ug/L	1.0	04/12/19 10:34	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
7726 Moller Road
Indianapolis, IN 46268
(317)228-3100

SUMMARY OF DETECTION

Project: Tanners Creek
Pace Project No.: 50221290

Lab Sample ID / Method	Client Sample ID / Parameters	Result	Units	Report Limit	Analyzed	Qualifiers
50221290002	**MW-3**					
EPA 200.8	Nickel, Dissolved	4.4	ug/L	0.50	04/12/19 10:34	
EPA 200.8	Strontium, Dissolved	390	ug/L	5.0	04/13/19 05:49	N2
EPA 200.8	Uranium, Dissolved	0.45J	ug/L	1.0	04/12/19 10:34	N2
EPA 200.8	Zinc, Dissolved	1.6J	ug/L	3.0	04/12/19 10:34	
SM 2320B	Alkalinity, Total as CaCO3	299	mg/L	2.0	04/06/19 12:28	
SM 2540C	Total Dissolved Solids	437	mg/L	10.0	04/07/19 07:30	
EPA 353.2	Nitrogen, NO2 plus NO3	0.34	mg/L	0.10	04/09/19 12:40	
EPA 365.1	Phosphorus	0.024J	mg/L	0.050	04/15/19 16:20	
50221290003	**DUP-1**					
EPA 300.0	Chloride	18.0	mg/L	2.5	04/14/19 11:02	
EPA 300.0	Fluoride	0.30	mg/L	0.10	04/14/19 10:47	
EPA 300.0	Sulfate	75.4	mg/L	2.5	04/14/19 11:02	
EPA 200.7	Calcium, Dissolved	101	mg/L	1.0	04/09/19 11:08	
EPA 200.7	Magnesium, Dissolved	24.1	mg/L	1.0	04/09/19 11:08	
EPA 200.7	Potassium, Dissolved	3.1	mg/L	1.0	04/09/19 11:08	
EPA 200.7	Silica, Dissolved	11.7	mg/L	0.45	04/09/19 11:08	
EPA 200.7	Sodium, Dissolved	18.3	mg/L	1.0	04/09/19 11:08	
EPA 200.7	Total Hardness by 2340B, Dissolved	351	mg/L	1.0	04/09/19 11:08	
EPA 200.8	Aluminum, Dissolved	1.7J	ug/L	10.0	04/12/19 10:39	
EPA 200.8	Barium, Dissolved	64.3	ug/L	1.0	04/12/19 10:39	
EPA 200.8	Boron, Dissolved	1430	ug/L	125	04/13/19 03:50	
EPA 200.8	Cadmium, Dissolved	0.041J	ug/L	0.20	04/12/19 10:39	
EPA 200.8	Chromium, Dissolved	1.5J	ug/L	2.0	04/12/19 10:39	
EPA 200.8	Cobalt, Dissolved	1.4	ug/L	1.0	04/12/19 10:39	
EPA 200.8	Copper, Dissolved	1.1	ug/L	1.0	04/12/19 10:39	
EPA 200.8	Manganese, Dissolved	14.5	ug/L	1.0	04/12/19 10:39	
EPA 200.8	Molybdenum, Dissolved	23.4	ug/L	1.0	04/12/19 10:39	
EPA 200.8	Nickel, Dissolved	4.0	ug/L	0.50	04/12/19 10:39	
EPA 200.8	Strontium, Dissolved	380	ug/L	5.0	04/13/19 05:54	N2
EPA 200.8	Uranium, Dissolved	0.45J	ug/L	1.0	04/12/19 10:39	N2
EPA 200.8	Zinc, Dissolved	0.84J	ug/L	3.0	04/12/19 10:39	
SM 2320B	Alkalinity, Total as CaCO3	298	mg/L	2.0	04/06/19 12:28	
SM 2540C	Total Dissolved Solids	427	mg/L	10.0	04/07/19 07:30	
EPA 353.2	Nitrogen, NO2 plus NO3	0.33	mg/L	0.10	04/09/19 12:46	
EPA 365.1	Phosphorus	0.056	mg/L	0.050	04/15/19 16:22	
50221290004	**Ohio River-1**					
EPA 300.0	Chloride	193	mg/L	5.0	04/14/19 11:32	
EPA 300.0	Fluoride	0.24	mg/L	0.10	04/14/19 11:17	
EPA 300.0	Sulfate	68.9	mg/L	5.0	04/14/19 11:32	
EPA 200.7	Calcium, Dissolved	85.3	mg/L	1.0	04/09/19 11:10	
EPA 200.7	Magnesium, Dissolved	24.4	mg/L	1.0	04/09/19 11:10	
EPA 200.7	Potassium, Dissolved	4.6	mg/L	1.0	04/09/19 11:10	
EPA 200.7	Silica, Dissolved	9.7	mg/L	0.45	04/09/19 11:10	
EPA 200.7	Sodium, Dissolved	112	mg/L	1.0	04/09/19 11:10	
EPA 200.7	Total Hardness by 2340B, Dissolved	314	mg/L	1.0	04/09/19 11:10	

Pace Analytical Services, LLC
7726 Moller Road
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SUMMARY OF DETECTION

Project: Tanners Creek
Pace Project No.: 50221290

Lab Sample ID / Method	Client Sample ID / Parameters	Result	Units	Report Limit	Analyzed	Qualifiers
50221290004	**Ohio River-1**					
EPA 200.8	Aluminum, Dissolved	11.5	ug/L	10.0	04/12/19 10:43	
EPA 200.8	Arsenic, Dissolved	0.51J	ug/L	1.0	04/12/19 10:43	
EPA 200.8	Barium, Dissolved	60.6	ug/L	1.0	04/12/19 10:43	
EPA 200.8	Boron, Dissolved	126	ug/L	10.0	04/13/19 03:54	
EPA 200.8	Chromium, Dissolved	0.22J	ug/L	2.0	04/12/19 10:43	
EPA 200.8	Cobalt, Dissolved	0.28J	ug/L	1.0	04/12/19 10:43	
EPA 200.8	Copper, Dissolved	4.1	ug/L	1.0	04/12/19 10:43	
EPA 200.8	Lead, Dissolved	0.069J	ug/L	1.0	04/12/19 10:43	
EPA 200.8	Manganese, Dissolved	26.4	ug/L	1.0	04/12/19 10:43	
EPA 200.8	Molybdenum, Dissolved	2.3	ug/L	1.0	04/12/19 10:43	
EPA 200.8	Nickel, Dissolved	1.9	ug/L	0.50	04/12/19 10:43	
EPA 200.8	Strontium, Dissolved	300	ug/L	2.0	04/13/19 03:54	N2
EPA 200.8	Uranium, Dissolved	0.61J	ug/L	1.0	04/12/19 10:43	N2
EPA 200.8	Vanadium, Dissolved	0.29J	ug/L	1.0	04/12/19 10:43	
EPA 200.8	Zinc, Dissolved	4.3	ug/L	3.0	04/12/19 10:43	
SM 2320B	Alkalinity, Total as CaCO3	244	mg/L	2.0	04/06/19 12:28	
SM 2540C	Total Dissolved Solids	669	mg/L	10.0	04/07/19 07:30	
EPA 353.2	Nitrogen, NO2 plus NO3	1.5	mg/L	0.10	04/09/19 12:48	
EPA 365.1	Phosphorus	0.16	mg/L	0.050	04/15/19 16:23	
50221290005	**Field Blank-1**					
EPA 200.7	Sodium, Dissolved	0.037J	mg/L	1.0	04/09/19 11:17	
EPA 200.8	Barium, Dissolved	0.048J	ug/L	1.0	04/12/19 10:48	
EPA 200.8	Boron, Dissolved	2.2J	ug/L	5.0	04/13/19 03:59	
EPA 200.8	Copper, Dissolved	0.92J	ug/L	1.0	04/12/19 10:48	
EPA 200.8	Manganese, Dissolved	0.17J	ug/L	1.0	04/12/19 10:48	
EPA 200.8	Zinc, Dissolved	0.65J	ug/L	3.0	04/12/19 10:48	
50221290006	**Equip Blank-1**					
EPA 200.7	Sodium, Dissolved	0.032J	mg/L	1.0	04/09/19 11:19	
EPA 200.8	Aluminum, Dissolved	1.4J	ug/L	10.0	04/12/19 11:02	
EPA 200.8	Barium, Dissolved	0.053J	ug/L	1.0	04/12/19 11:02	
EPA 200.8	Boron, Dissolved	1.4J	ug/L	5.0	04/13/19 04:03	
EPA 200.8	Chromium, Dissolved	0.12J	ug/L	2.0	04/12/19 11:02	
EPA 200.8	Copper, Dissolved	0.32J	ug/L	1.0	04/12/19 11:02	
EPA 200.8	Manganese, Dissolved	0.18J	ug/L	1.0	04/12/19 11:02	
EPA 200.8	Zinc, Dissolved	1.0J	ug/L	3.0	04/12/19 11:02	

Pace Analytical Services, LLC
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ANALYTICAL RESULTS

Project: Tanners Creek
Pace Project No.: 50221290

Sample: MW-2 **Lab ID: 50221290001** Collected: 04/02/19 18:10 Received: 04/04/19 09:00 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0								
Chloride	**26.6**	mg/L	2.5	0.49	10		04/14/19 09:01	16887-00-6	
Fluoride	**0.31**	mg/L	0.10	0.033	1		04/14/19 08:15	16984-48-8	
Sulfate	**124**	mg/L	2.5	0.87	10		04/14/19 09:01	14808-79-8	
200.7 Metals, Dissolved	Analytical Method: EPA 200.7 Preparation Method: EPA 200.7								
Calcium, Dissolved	**94.3**	mg/L	1.0	0.10	1	04/08/19 16:00	04/09/19 10:55	7440-70-2	
Iron, Dissolved	**0.11**	mg/L	0.10	0.030	1	04/08/19 16:00	04/09/19 10:55	7439-89-6	
Magnesium, Dissolved	**29.4**	mg/L	1.0	0.093	1	04/08/19 16:00	04/09/19 10:55	7439-95-4	
Potassium, Dissolved	**0.60J**	mg/L	1.0	0.054	1	04/08/19 16:00	04/09/19 10:55	7440-09-7	
Silica, Dissolved	**11.2**	mg/L	0.45		1	04/08/19 16:00	04/09/19 10:55	7631-86-9	
Sodium, Dissolved	**23.0**	mg/L	1.0	0.031	1	04/08/19 16:00	04/09/19 10:55	7440-23-5	
Total Hardness by 2340B, Dissolved	**357**	mg/L	1.0	1.0	1	04/08/19 16:00	04/09/19 10:55		
200.8 MET ICPMS, Dissolved	Analytical Method: EPA 200.8 Preparation Method: EPA 200.8								
Aluminum, Dissolved	**2.4J**	ug/L	10.0	1.3	1	04/11/19 09:35	04/12/19 10:29	7429-90-5	
Antimony, Dissolved	**<0.17**	ug/L	1.0	0.17	1	04/11/19 09:35	04/12/19 10:29	7440-36-0	
Arsenic, Dissolved	**0.48J**	ug/L	1.0	0.32	1	04/11/19 09:35	04/12/19 10:29	7440-38-2	
Barium, Dissolved	**67.8**	ug/L	1.0	0.036	1	04/11/19 09:35	04/12/19 10:29	7440-39-3	
Beryllium, Dissolved	**<0.024**	ug/L	0.20	0.024	1	04/11/19 09:35	04/12/19 10:29	7440-41-7	
Boron, Dissolved	**1430**	ug/L	125	25.7	25	04/11/19 09:35	04/13/19 03:40	7440-42-8	
Cadmium, Dissolved	**<0.026**	ug/L	0.20	0.026	1	04/11/19 09:35	04/12/19 10:29	7440-43-9	
Chromium, Dissolved	**1.1J**	ug/L	2.0	0.11	1	04/11/19 09:35	04/12/19 10:29	7440-47-3	
Cobalt, Dissolved	**2.1**	ug/L	1.0	0.036	1	04/11/19 09:35	04/12/19 10:29	7440-48-4	
Copper, Dissolved	**1.5**	ug/L	1.0	0.091	1	04/11/19 09:35	04/12/19 10:29	7440-50-8	
Lead, Dissolved	**<0.037**	ug/L	1.0	0.037	1	04/11/19 09:35	04/12/19 10:29	7439-92-1	
Manganese, Dissolved	**179**	ug/L	1.0	0.049	1	04/11/19 09:35	04/12/19 10:29	7439-96-5	
Molybdenum, Dissolved	**1.3**	ug/L	1.0	0.043	1	04/11/19 09:35	04/12/19 10:29	7439-98-7	
Nickel, Dissolved	**15.0**	ug/L	0.50	0.14	1	04/11/19 09:35	04/12/19 10:29	7440-02-0	
Selenium, Dissolved	**<0.48**	ug/L	1.0	0.48	1	04/11/19 09:35	04/12/19 10:29	7782-49-2	
Silver, Dissolved	**<0.025**	ug/L	0.50	0.025	1	04/11/19 09:35	04/12/19 10:29	7440-22-4	
Strontium, Dissolved	**190**	ug/L	2.0	0.094	2	04/11/19 09:35	04/13/19 05:45	7440-24-6	N2
Thallium, Dissolved	**<0.057**	ug/L	1.0	0.057	1	04/11/19 09:35	04/12/19 10:29	7440-28-0	
Uranium, Dissolved	**0.42J**	ug/L	1.0	0.0070	1	04/11/19 09:35	04/12/19 10:29	7440-61-1	N2
Vanadium, Dissolved	**<0.18**	ug/L	1.0	0.18	1	04/11/19 09:35	04/12/19 10:29	7440-62-2	
Zinc, Dissolved	**2.0J**	ug/L	3.0	0.30	1	04/11/19 09:35	04/12/19 10:29	7440-66-6	
245.1 Mercury, Dissolved	Analytical Method: EPA 245.1 Preparation Method: EPA 245.1								
Mercury, Dissolved	**<0.067**	ug/L	0.20	0.067	1	04/09/19 09:24	04/09/19 19:55	7439-97-6	
2320B Alkalinity	Analytical Method: SM 2320B								
Alkalinity, Total as CaCO3	**238**	mg/L	2.0	1.0	1		04/06/19 12:28		
2540C Total Dissolved Solids	Analytical Method: SM 2540C								
Total Dissolved Solids	**471**	mg/L	10.0	10.0	1		04/05/19 09:16		

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
7726 Moller Road
Indianapolis, IN 46268
(317)228-3100

ANALYTICAL RESULTS

Project: Tanners Creek
Pace Project No.: 50221290

Sample: MW-2 **Lab ID: 50221290001** Collected: 04/02/19 18:10 Received: 04/04/19 09:00 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
353.2 Nitrogen, NO2/NO3 pres.	Analytical Method: EPA 353.2								
Nitrogen, NO2 plus NO3	**0.030J**	mg/L	0.10	0.020	1		04/09/19 12:36		
365.1 Total Phosphorus	Analytical Method: EPA 365.1 Preparation Method: EPA 365.1								
Phosphorus	**<0.021**	mg/L	0.050	0.021	1	04/09/19 13:06	04/15/19 16:20	7723-14-0	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
7726 Moller Road
Indianapolis, IN 46268
(317)228-3100

ANALYTICAL RESULTS

Project: Tanners Creek
Pace Project No.: 50221290

Sample: MW-3 **Lab ID: 50221290002** Collected: 04/03/19 09:35 Received: 04/04/19 09:00 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0								
Chloride	**18.1**	mg/L	2.5	0.49	10		04/14/19 10:31	16887-00-6	
Fluoride	**0.30**	mg/L	0.10	0.033	1		04/14/19 10:16	16984-48-8	
Sulfate	**71.1**	mg/L	2.5	0.87	10		04/14/19 10:31	14808-79-8	
200.7 Metals, Dissolved	Analytical Method: EPA 200.7 Preparation Method: EPA 200.7								
Calcium, Dissolved	**101**	mg/L	1.0	0.10	1	04/08/19 16:00	04/09/19 11:06	7440-70-2	
Iron, Dissolved	**<0.030**	mg/L	0.10	0.030	1	04/08/19 16:00	04/09/19 11:06	7439-89-6	
Magnesium, Dissolved	**24.3**	mg/L	1.0	0.093	1	04/08/19 16:00	04/09/19 11:06	7439-95-4	
Potassium, Dissolved	**3.1**	mg/L	1.0	0.054	1	04/08/19 16:00	04/09/19 11:06	7440-09-7	
Silica, Dissolved	**11.7**	mg/L	0.45		1	04/08/19 16:00	04/09/19 11:06	7631-86-9	
Sodium, Dissolved	**18.3**	mg/L	1.0	0.031	1	04/08/19 16:00	04/09/19 11:06	7440-23-5	
Total Hardness by 2340B, Dissolved	**352**	mg/L	1.0	1.0	1	04/08/19 16:00	04/09/19 11:06		
200.8 MET ICPMS, Dissolved	Analytical Method: EPA 200.8 Preparation Method: EPA 200.8								
Aluminum, Dissolved	**2.0J**	ug/L	10.0	1.3	1	04/11/19 09:35	04/12/19 10:34	7429-90-5	
Antimony, Dissolved	**<0.17**	ug/L	1.0	0.17	1	04/11/19 09:35	04/12/19 10:34	7440-36-0	
Arsenic, Dissolved	**<0.32**	ug/L	1.0	0.32	1	04/11/19 09:35	04/12/19 10:34	7440-38-2	
Barium, Dissolved	**65.0**	ug/L	1.0	0.036	1	04/11/19 09:35	04/12/19 10:34	7440-39-3	
Beryllium, Dissolved	**<0.024**	ug/L	0.20	0.024	1	04/11/19 09:35	04/12/19 10:34	7440-41-7	
Boron, Dissolved	**1380**	ug/L	125	25.7	25	04/11/19 09:35	04/13/19 03:45	7440-42-8	
Cadmium, Dissolved	**0.034J**	ug/L	0.20	0.026	1	04/11/19 09:35	04/12/19 10:34	7440-43-9	
Chromium, Dissolved	**1.5J**	ug/L	2.0	0.11	1	04/11/19 09:35	04/12/19 10:34	7440-47-3	
Cobalt, Dissolved	**1.4**	ug/L	1.0	0.036	1	04/11/19 09:35	04/12/19 10:34	7440-48-4	
Copper, Dissolved	**1.3**	ug/L	1.0	0.091	1	04/11/19 09:35	04/12/19 10:34	7440-50-8	
Lead, Dissolved	**<0.037**	ug/L	1.0	0.037	1	04/11/19 09:35	04/12/19 10:34	7439-92-1	
Manganese, Dissolved	**14.5**	ug/L	1.0	0.049	1	04/11/19 09:35	04/12/19 10:34	7439-96-5	
Molybdenum, Dissolved	**23.3**	ug/L	1.0	0.043	1	04/11/19 09:35	04/12/19 10:34	7439-98-7	
Nickel, Dissolved	**4.4**	ug/L	0.50	0.14	1	04/11/19 09:35	04/12/19 10:34	7440-02-0	
Selenium, Dissolved	**<0.48**	ug/L	1.0	0.48	1	04/11/19 09:35	04/12/19 10:34	7782-49-2	
Silver, Dissolved	**<0.025**	ug/L	0.50	0.025	1	04/11/19 09:35	04/12/19 10:34	7440-22-4	
Strontium, Dissolved	**390**	ug/L	5.0	0.24	5	04/11/19 09:35	04/13/19 05:49	7440-24-6	N2
Thallium, Dissolved	**<0.057**	ug/L	1.0	0.057	1	04/11/19 09:35	04/12/19 10:34	7440-28-0	
Uranium, Dissolved	**0.45J**	ug/L	1.0	0.0070	1	04/11/19 09:35	04/12/19 10:34	7440-61-1	N2
Vanadium, Dissolved	**<0.18**	ug/L	1.0	0.18	1	04/11/19 09:35	04/12/19 10:34	7440-62-2	
Zinc, Dissolved	**1.6J**	ug/L	3.0	0.30	1	04/11/19 09:35	04/12/19 10:34	7440-66-6	
245.1 Mercury, Dissolved	Analytical Method: EPA 245.1 Preparation Method: EPA 245.1								
Mercury, Dissolved	**<0.067**	ug/L	0.20	0.067	1	04/09/19 09:24	04/09/19 20:01	7439-97-6	
2320B Alkalinity	Analytical Method: SM 2320B								
Alkalinity, Total as CaCO3	**299**	mg/L	2.0	1.0	1		04/06/19 12:28		
2540C Total Dissolved Solids	Analytical Method: SM 2540C								
Total Dissolved Solids	**437**	mg/L	10.0	10.0	1		04/07/19 07:30		

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
7726 Moller Road
Indianapolis, IN 46268
(317)228-3100

ANALYTICAL RESULTS

Project: Tanners Creek
Pace Project No.: 50221290

Sample: MW-3 **Lab ID: 50221290002** Collected: 04/03/19 09:35 Received: 04/04/19 09:00 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
353.2 Nitrogen, NO2/NO3 pres.	Analytical Method: EPA 353.2								
Nitrogen, NO2 plus NO3	**0.34**	mg/L	0.10	0.020	1		04/09/19 12:40		
365.1 Total Phosphorus	Analytical Method: EPA 365.1 Preparation Method: EPA 365.1								
Phosphorus	**0.024J**	mg/L	0.050	0.021	1	04/09/19 13:06	04/15/19 16:20	7723-14-0	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
7726 Moller Road
Indianapolis, IN 46268
(317)228-3100

ANALYTICAL RESULTS

Project: Tanners Creek
Pace Project No.: 50221290

Sample: DUP-1 **Lab ID: 50221290003** Collected: 04/03/19 09:35 Received: 04/04/19 09:00 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0								
Chloride	**18.0**	mg/L	2.5	0.49	10		04/14/19 11:02	16887-00-6	
Fluoride	**0.30**	mg/L	0.10	0.033	1		04/14/19 10:47	16984-48-8	
Sulfate	**75.4**	mg/L	2.5	0.87	10		04/14/19 11:02	14808-79-8	
200.7 Metals, Dissolved	Analytical Method: EPA 200.7 Preparation Method: EPA 200.7								
Calcium, Dissolved	**101**	mg/L	1.0	0.10	1	04/08/19 16:00	04/09/19 11:08	7440-70-2	
Iron, Dissolved	**<0.030**	mg/L	0.10	0.030	1	04/08/19 16:00	04/09/19 11:08	7439-89-6	
Magnesium, Dissolved	**24.1**	mg/L	1.0	0.093	1	04/08/19 16:00	04/09/19 11:08	7439-95-4	
Potassium, Dissolved	**3.1**	mg/L	1.0	0.054	1	04/08/19 16:00	04/09/19 11:08	7440-09-7	
Silica, Dissolved	**11.7**	mg/L	0.45		1	04/08/19 16:00	04/09/19 11:08	7631-86-9	
Sodium, Dissolved	**18.3**	mg/L	1.0	0.031	1	04/08/19 16:00	04/09/19 11:08	7440-23-5	
Total Hardness by 2340B, Dissolved	**351**	mg/L	1.0	1.0	1	04/08/19 16:00	04/09/19 11:08		
200.8 MET ICPMS, Dissolved	Analytical Method: EPA 200.8 Preparation Method: EPA 200.8								
Aluminum, Dissolved	**1.7J**	ug/L	10.0	1.3	1	04/11/19 09:35	04/12/19 10:39	7429-90-5	
Antimony, Dissolved	**<0.17**	ug/L	1.0	0.17	1	04/11/19 09:35	04/12/19 10:39	7440-36-0	
Arsenic, Dissolved	**<0.32**	ug/L	1.0	0.32	1	04/11/19 09:35	04/12/19 10:39	7440-38-2	
Barium, Dissolved	**64.3**	ug/L	1.0	0.036	1	04/11/19 09:35	04/12/19 10:39	7440-39-3	
Beryllium, Dissolved	**<0.024**	ug/L	0.20	0.024	1	04/11/19 09:35	04/12/19 10:39	7440-41-7	
Boron, Dissolved	**1430**	ug/L	125	25.7	25	04/11/19 09:35	04/13/19 03:50	7440-42-8	
Cadmium, Dissolved	**0.041J**	ug/L	0.20	0.026	1	04/11/19 09:35	04/12/19 10:39	7440-43-9	
Chromium, Dissolved	**1.5J**	ug/L	2.0	0.11	1	04/11/19 09:35	04/12/19 10:39	7440-47-3	
Cobalt, Dissolved	**1.4**	ug/L	1.0	0.036	1	04/11/19 09:35	04/12/19 10:39	7440-48-4	
Copper, Dissolved	**1.1**	ug/L	1.0	0.091	1	04/11/19 09:35	04/12/19 10:39	7440-50-8	
Lead, Dissolved	**<0.037**	ug/L	1.0	0.037	1	04/11/19 09:35	04/12/19 10:39	7439-92-1	
Manganese, Dissolved	**14.5**	ug/L	1.0	0.049	1	04/11/19 09:35	04/12/19 10:39	7439-96-5	
Molybdenum, Dissolved	**23.4**	ug/L	1.0	0.043	1	04/11/19 09:35	04/12/19 10:39	7439-98-7	
Nickel, Dissolved	**4.0**	ug/L	0.50	0.14	1	04/11/19 09:35	04/12/19 10:39	7440-02-0	
Selenium, Dissolved	**<0.48**	ug/L	1.0	0.48	1	04/11/19 09:35	04/12/19 10:39	7782-49-2	
Silver, Dissolved	**<0.025**	ug/L	0.50	0.025	1	04/11/19 09:35	04/12/19 10:39	7440-22-4	
Strontium, Dissolved	**380**	ug/L	5.0	0.24	5	04/11/19 09:35	04/13/19 05:54	7440-24-6	N2
Thallium, Dissolved	**<0.057**	ug/L	1.0	0.057	1	04/11/19 09:35	04/12/19 10:39	7440-28-0	
Uranium, Dissolved	**0.45J**	ug/L	1.0	0.0070	1	04/11/19 09:35	04/12/19 10:39	7440-61-1	N2
Vanadium, Dissolved	**<0.18**	ug/L	1.0	0.18	1	04/11/19 09:35	04/12/19 10:39	7440-62-2	
Zinc, Dissolved	**0.84J**	ug/L	3.0	0.30	1	04/11/19 09:35	04/12/19 10:39	7440-66-6	
245.1 Mercury, Dissolved	Analytical Method: EPA 245.1 Preparation Method: EPA 245.1								
Mercury, Dissolved	**<0.067**	ug/L	0.20	0.067	1	04/09/19 09:24	04/09/19 20:03	7439-97-6	
2320B Alkalinity	Analytical Method: SM 2320B								
Alkalinity, Total as CaCO3	**298**	mg/L	2.0	1.0	1		04/06/19 12:28		
2540C Total Dissolved Solids	Analytical Method: SM 2540C								
Total Dissolved Solids	**427**	mg/L	10.0	10.0	1		04/07/19 07:30		

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
7726 Moller Road
Indianapolis, IN 46268
(317)228-3100

ANALYTICAL RESULTS

Project: Tanners Creek
Pace Project No.: 50221290

Sample: DUP-1 **Lab ID: 50221290003** Collected: 04/03/19 09:35 Received: 04/04/19 09:00 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
353.2 Nitrogen, NO2/NO3 pres.	Analytical Method: EPA 353.2								
Nitrogen, NO2 plus NO3	**0.33**	mg/L	0.10	0.020	1		04/09/19 12:46		
365.1 Total Phosphorus	Analytical Method: EPA 365.1 Preparation Method: EPA 365.1								
Phosphorus	**0.056**	mg/L	0.050	0.021	1	04/09/19 13:06	04/15/19 16:22	7723-14-0	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
7726 Moller Road
Indianapolis, IN 46268
(317)228-3100

ANALYTICAL RESULTS

Project: Tanners Creek
Pace Project No.: 50221290

Sample: Ohio River-1 **Lab ID: 50221290004** Collected: 04/03/19 10:50 Received: 04/04/19 09:00 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0								
Chloride	**193**	mg/L	5.0	0.98	20		04/14/19 11:32	16887-00-6	
Fluoride	**0.24**	mg/L	0.10	0.033	1		04/14/19 11:17	16984-48-8	
Sulfate	**68.9**	mg/L	5.0	1.7	20		04/14/19 11:32	14808-79-8	
200.7 Metals, Dissolved	Analytical Method: EPA 200.7 Preparation Method: EPA 200.7								
Calcium, Dissolved	**85.3**	mg/L	1.0	0.10	1	04/08/19 16:00	04/09/19 11:10	7440-70-2	
Iron, Dissolved	**<0.030**	mg/L	0.10	0.030	1	04/08/19 16:00	04/09/19 11:10	7439-89-6	
Magnesium, Dissolved	**24.4**	mg/L	1.0	0.093	1	04/08/19 16:00	04/09/19 11:10	7439-95-4	
Potassium, Dissolved	**4.6**	mg/L	1.0	0.054	1	04/08/19 16:00	04/09/19 11:10	7440-09-7	
Silica, Dissolved	**9.7**	mg/L	0.45		1	04/08/19 16:00	04/09/19 11:10	7631-86-9	
Sodium, Dissolved	**112**	mg/L	1.0	0.031	1	04/08/19 16:00	04/09/19 11:10	7440-23-5	
Total Hardness by 2340B, Dissolved	**314**	mg/L	1.0	1.0	1	04/08/19 16:00	04/09/19 11:10		
200.8 MET ICPMS, Dissolved	Analytical Method: EPA 200.8 Preparation Method: EPA 200.8								
Aluminum, Dissolved	**11.5**	ug/L	10.0	1.3	1	04/11/19 09:35	04/12/19 10:43	7429-90-5	
Antimony, Dissolved	**<0.17**	ug/L	1.0	0.17	1	04/11/19 09:35	04/12/19 10:43	7440-36-0	
Arsenic, Dissolved	**0.51J**	ug/L	1.0	0.32	1	04/11/19 09:35	04/12/19 10:43	7440-38-2	
Barium, Dissolved	**60.6**	ug/L	1.0	0.036	1	04/11/19 09:35	04/12/19 10:43	7440-39-3	
Beryllium, Dissolved	**<0.024**	ug/L	0.20	0.024	1	04/11/19 09:35	04/12/19 10:43	7440-41-7	
Boron, Dissolved	**126**	ug/L	10.0	2.1	2	04/11/19 09:35	04/13/19 03:54	7440-42-8	
Cadmium, Dissolved	**<0.026**	ug/L	0.20	0.026	1	04/11/19 09:35	04/12/19 10:43	7440-43-9	
Chromium, Dissolved	**0.22J**	ug/L	2.0	0.11	1	04/11/19 09:35	04/12/19 10:43	7440-47-3	
Cobalt, Dissolved	**0.28J**	ug/L	1.0	0.036	1	04/11/19 09:35	04/12/19 10:43	7440-48-4	
Copper, Dissolved	**4.1**	ug/L	1.0	0.091	1	04/11/19 09:35	04/12/19 10:43	7440-50-8	
Lead, Dissolved	**0.069J**	ug/L	1.0	0.037	1	04/11/19 09:35	04/12/19 10:43	7439-92-1	
Manganese, Dissolved	**26.4**	ug/L	1.0	0.049	1	04/11/19 09:35	04/12/19 10:43	7439-96-5	
Molybdenum, Dissolved	**2.3**	ug/L	1.0	0.043	1	04/11/19 09:35	04/12/19 10:43	7439-98-7	
Nickel, Dissolved	**1.9**	ug/L	0.50	0.14	1	04/11/19 09:35	04/12/19 10:43	7440-02-0	
Selenium, Dissolved	**<0.48**	ug/L	1.0	0.48	1	04/11/19 09:35	04/12/19 10:43	7782-49-2	
Silver, Dissolved	**<0.025**	ug/L	0.50	0.025	1	04/11/19 09:35	04/12/19 10:43	7440-22-4	
Strontium, Dissolved	**300**	ug/L	2.0	0.094	2	04/11/19 09:35	04/13/19 03:54	7440-24-6	N2
Thallium, Dissolved	**<0.057**	ug/L	1.0	0.057	1	04/11/19 09:35	04/12/19 10:43	7440-28-0	
Uranium, Dissolved	**0.61J**	ug/L	1.0	0.0070	1	04/11/19 09:35	04/12/19 10:43	7440-61-1	N2
Vanadium, Dissolved	**0.29J**	ug/L	1.0	0.18	1	04/11/19 09:35	04/12/19 10:43	7440-62-2	
Zinc, Dissolved	**4.3**	ug/L	3.0	0.30	1	04/11/19 09:35	04/12/19 10:43	7440-66-6	
245.1 Mercury, Dissolved	Analytical Method: EPA 245.1 Preparation Method: EPA 245.1								
Mercury, Dissolved	**<0.067**	ug/L	0.20	0.067	1	04/09/19 09:24	04/09/19 20:05	7439-97-6	
2320B Alkalinity	Analytical Method: SM 2320B								
Alkalinity, Total as CaCO3	**244**	mg/L	2.0	1.0	1		04/06/19 12:28		
2540C Total Dissolved Solids	Analytical Method: SM 2540C								
Total Dissolved Solids	**669**	mg/L	10.0	10.0	1		04/07/19 07:30		

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
7726 Moller Road
Indianapolis, IN 46268
(317)228-3100

ANALYTICAL RESULTS

Project: Tanners Creek
Pace Project No.: 50221290

Sample: Ohio River-1 **Lab ID: 50221290004** Collected: 04/03/19 10:50 Received: 04/04/19 09:00 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
353.2 Nitrogen, NO2/NO3 pres.	Analytical Method: EPA 353.2								
Nitrogen, NO2 plus NO3	**1.5**	mg/L	0.10	0.020	1		04/09/19 12:48		
365.1 Total Phosphorus	Analytical Method: EPA 365.1 Preparation Method: EPA 365.1								
Phosphorus	**0.16**	mg/L	0.050	0.021	1	04/09/19 13:06	04/15/19 16:23	7723-14-0	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
7726 Moller Road
Indianapolis, IN 46268
(317)228-3100

ANALYTICAL RESULTS

Project: Tanners Creek
Pace Project No.: 50221290

Sample: Field Blank-1 **Lab ID: 50221290005** Collected: 04/03/19 11:15 Received: 04/04/19 09:00 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0								
Chloride	**<0.049**	mg/L	0.25	0.049	1		04/14/19 07:45	16887-00-6	
Fluoride	**<0.033**	mg/L	0.10	0.033	1		04/14/19 07:45	16984-48-8	
Sulfate	**<0.087**	mg/L	0.25	0.087	1		04/14/19 07:45	14808-79-8	
200.7 Metals, Dissolved	Analytical Method: EPA 200.7 Preparation Method: EPA 200.7								
Calcium, Dissolved	**<0.10**	mg/L	1.0	0.10	1	04/08/19 16:00	04/09/19 11:17	7440-70-2	
Iron, Dissolved	**<0.030**	mg/L	0.10	0.030	1	04/08/19 16:00	04/09/19 11:17	7439-89-6	
Magnesium, Dissolved	**<0.093**	mg/L	1.0	0.093	1	04/08/19 16:00	04/09/19 11:17	7439-95-4	
Potassium, Dissolved	**<0.054**	mg/L	1.0	0.054	1	04/08/19 16:00	04/09/19 11:17	7440-09-7	
Silica, Dissolved	**0.038J**	mg/L	0.45		1	04/08/19 16:00	04/09/19 11:17	7631-86-9	
Sodium, Dissolved	**0.037J**	mg/L	1.0	0.031	1	04/08/19 16:00	04/09/19 11:17	7440-23-5	
Total Hardness by 2340B, Dissolved	**<1.0**	mg/L	1.0	1.0	1	04/08/19 16:00	04/09/19 11:17		
200.8 MET ICPMS, Dissolved	Analytical Method: EPA 200.8 Preparation Method: EPA 200.8								
Aluminum, Dissolved	**<1.3**	ug/L	10.0	1.3	1	04/11/19 09:35	04/12/19 10:48	7429-90-5	
Antimony, Dissolved	**<0.17**	ug/L	1.0	0.17	1	04/11/19 09:35	04/12/19 10:48	7440-36-0	
Arsenic, Dissolved	**<0.32**	ug/L	1.0	0.32	1	04/11/19 09:35	04/12/19 10:48	7440-38-2	
Barium, Dissolved	**0.048J**	ug/L	1.0	0.036	1	04/11/19 09:35	04/12/19 10:48	7440-39-3	
Beryllium, Dissolved	**<0.024**	ug/L	0.20	0.024	1	04/11/19 09:35	04/12/19 10:48	7440-41-7	
Boron, Dissolved	**2.2J**	ug/L	5.0	1.0	1	04/11/19 09:35	04/13/19 03:59	7440-42-8	
Cadmium, Dissolved	**<0.026**	ug/L	0.20	0.026	1	04/11/19 09:35	04/12/19 10:48	7440-43-9	
Chromium, Dissolved	**<0.11**	ug/L	2.0	0.11	1	04/11/19 09:35	04/12/19 10:48	7440-47-3	
Cobalt, Dissolved	**<0.036**	ug/L	1.0	0.036	1	04/11/19 09:35	04/12/19 10:48	7440-48-4	
Copper, Dissolved	**0.92J**	ug/L	1.0	0.091	1	04/11/19 09:35	04/12/19 10:48	7440-50-8	
Lead, Dissolved	**<0.037**	ug/L	1.0	0.037	1	04/11/19 09:35	04/12/19 10:48	7439-92-1	
Manganese, Dissolved	**0.17J**	ug/L	1.0	0.049	1	04/11/19 09:35	04/12/19 10:48	7439-96-5	
Molybdenum, Dissolved	**<0.043**	ug/L	1.0	0.043	1	04/11/19 09:35	04/12/19 10:48	7439-98-7	
Nickel, Dissolved	**<0.14**	ug/L	0.50	0.14	1	04/11/19 09:35	04/12/19 10:48	7440-02-0	
Selenium, Dissolved	**<0.48**	ug/L	1.0	0.48	1	04/11/19 09:35	04/12/19 10:48	7782-49-2	
Silver, Dissolved	**<0.025**	ug/L	0.50	0.025	1	04/11/19 09:35	04/12/19 10:48	7440-22-4	
Strontium, Dissolved	**<0.047**	ug/L	1.0	0.047	1	04/11/19 09:35	04/12/19 10:48	7440-24-6	N2
Thallium, Dissolved	**<0.057**	ug/L	1.0	0.057	1	04/11/19 09:35	04/12/19 10:48	7440-28-0	
Uranium, Dissolved	**<0.0070**	ug/L	1.0	0.0070	1	04/11/19 09:35	04/12/19 10:48	7440-61-1	N2
Vanadium, Dissolved	**<0.18**	ug/L	1.0	0.18	1	04/11/19 09:35	04/12/19 10:48	7440-62-2	
Zinc, Dissolved	**0.65J**	ug/L	3.0	0.30	1	04/11/19 09:35	04/12/19 10:48	7440-66-6	
245.1 Mercury, Dissolved	Analytical Method: EPA 245.1 Preparation Method: EPA 245.1								
Mercury, Dissolved	**<0.067**	ug/L	0.20	0.067	1	04/09/19 09:24	04/09/19 20:07	7439-97-6	
2320B Alkalinity	Analytical Method: SM 2320B								
Alkalinity, Total as CaCO3	**<1.0**	mg/L	2.0	1.0	1		04/06/19 12:28		
2540C Total Dissolved Solids	Analytical Method: SM 2540C								
Total Dissolved Solids	**<10.0**	mg/L	10.0	10.0	1		04/07/19 07:30		

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
7726 Moller Road
Indianapolis, IN 46268
(317)228-3100

ANALYTICAL RESULTS

Project: Tanners Creek
Pace Project No.: 50221290

Sample: Field Blank-1 **Lab ID: 50221290005** Collected: 04/03/19 11:15 Received: 04/04/19 09:00 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
353.2 Nitrogen, NO2/NO3 pres.	Analytical Method: EPA 353.2								
Nitrogen, NO2 plus NO3	**<0.020**	mg/L	0.10	0.020	1		04/09/19 12:49		
365.1 Total Phosphorus	Analytical Method: EPA 365.1 Preparation Method: EPA 365.1								
Phosphorus	**<0.021**	mg/L	0.050	0.021	1	04/09/19 13:06	04/15/19 16:24	7723-14-0	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
7726 Moller Road
Indianapolis, IN 46268
(317)228-3100

ANALYTICAL RESULTS

Project: Tanners Creek
Pace Project No.: 50221290

Sample: Equip Blank-1 **Lab ID: 50221290006** Collected: 04/03/19 11:25 Received: 04/04/19 09:00 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0								
Chloride	**<0.049**	mg/L	0.25	0.049	1		04/14/19 08:00	16887-00-6	
Fluoride	**<0.033**	mg/L	0.10	0.033	1		04/14/19 08:00	16984-48-8	
Sulfate	**<0.087**	mg/L	0.25	0.087	1		04/14/19 08:00	14808-79-8	
200.7 Metals, Dissolved	Analytical Method: EPA 200.7 Preparation Method: EPA 200.7								
Calcium, Dissolved	**<0.10**	mg/L	1.0	0.10	1	04/08/19 16:00	04/09/19 11:19	7440-70-2	
Iron, Dissolved	**<0.030**	mg/L	0.10	0.030	1	04/08/19 16:00	04/09/19 11:19	7439-89-6	
Magnesium, Dissolved	**<0.093**	mg/L	1.0	0.093	1	04/08/19 16:00	04/09/19 11:19	7439-95-4	
Potassium, Dissolved	**<0.054**	mg/L	1.0	0.054	1	04/08/19 16:00	04/09/19 11:19	7440-09-7	
Silica, Dissolved	**0.035J**	mg/L	0.45		1	04/08/19 16:00	04/09/19 11:19	7631-86-9	
Sodium, Dissolved	**0.032J**	mg/L	1.0	0.031	1	04/08/19 16:00	04/09/19 11:19	7440-23-5	
Total Hardness by 2340B, Dissolved	**<1.0**	mg/L	1.0	1.0	1	04/08/19 16:00	04/09/19 11:19		
200.8 MET ICPMS, Dissolved	Analytical Method: EPA 200.8 Preparation Method: EPA 200.8								
Aluminum, Dissolved	**1.4J**	ug/L	10.0	1.3	1	04/11/19 09:35	04/12/19 11:02	7429-90-5	
Antimony, Dissolved	**<0.17**	ug/L	1.0	0.17	1	04/11/19 09:35	04/12/19 11:02	7440-36-0	
Arsenic, Dissolved	**<0.32**	ug/L	1.0	0.32	1	04/11/19 09:35	04/12/19 11:02	7440-38-2	
Barium, Dissolved	**0.053J**	ug/L	1.0	0.036	1	04/11/19 09:35	04/12/19 11:02	7440-39-3	
Beryllium, Dissolved	**<0.024**	ug/L	0.20	0.024	1	04/11/19 09:35	04/12/19 11:02	7440-41-7	
Boron, Dissolved	**1.4J**	ug/L	5.0	1.0	1	04/11/19 09:35	04/13/19 04:03	7440-42-8	
Cadmium, Dissolved	**<0.026**	ug/L	0.20	0.026	1	04/11/19 09:35	04/12/19 11:02	7440-43-9	
Chromium, Dissolved	**0.12J**	ug/L	2.0	0.11	1	04/11/19 09:35	04/12/19 11:02	7440-47-3	
Cobalt, Dissolved	**<0.036**	ug/L	1.0	0.036	1	04/11/19 09:35	04/12/19 11:02	7440-48-4	
Copper, Dissolved	**0.32J**	ug/L	1.0	0.091	1	04/11/19 09:35	04/12/19 11:02	7440-50-8	
Lead, Dissolved	**<0.037**	ug/L	1.0	0.037	1	04/11/19 09:35	04/12/19 11:02	7439-92-1	
Manganese, Dissolved	**0.18J**	ug/L	1.0	0.049	1	04/11/19 09:35	04/12/19 11:02	7439-96-5	
Molybdenum, Dissolved	**<0.043**	ug/L	1.0	0.043	1	04/11/19 09:35	04/12/19 11:02	7439-98-7	
Nickel, Dissolved	**<0.14**	ug/L	0.50	0.14	1	04/11/19 09:35	04/12/19 11:02	7440-02-0	
Selenium, Dissolved	**<0.48**	ug/L	1.0	0.48	1	04/11/19 09:35	04/12/19 11:02	7782-49-2	
Silver, Dissolved	**<0.025**	ug/L	0.50	0.025	1	04/11/19 09:35	04/12/19 11:02	7440-22-4	
Strontium, Dissolved	**<0.047**	ug/L	1.0	0.047	1	04/11/19 09:35	04/12/19 11:02	7440-24-6	N2
Thallium, Dissolved	**<0.057**	ug/L	1.0	0.057	1	04/11/19 09:35	04/12/19 11:02	7440-28-0	
Uranium, Dissolved	**<0.0070**	ug/L	1.0	0.0070	1	04/11/19 09:35	04/12/19 11:02	7440-61-1	N2
Vanadium, Dissolved	**<0.18**	ug/L	1.0	0.18	1	04/11/19 09:35	04/12/19 11:02	7440-62-2	
Zinc, Dissolved	**1.0J**	ug/L	3.0	0.30	1	04/11/19 09:35	04/12/19 11:02	7440-66-6	
245.1 Mercury, Dissolved	Analytical Method: EPA 245.1 Preparation Method: EPA 245.1								
Mercury, Dissolved	**<0.067**	ug/L	0.20	0.067	1	04/09/19 09:24	04/09/19 20:09	7439-97-6	
2320B Alkalinity	Analytical Method: SM 2320B								
Alkalinity, Total as CaCO3	**<1.0**	mg/L	2.0	1.0	1		04/06/19 12:28		
2540C Total Dissolved Solids	Analytical Method: SM 2540C								
Total Dissolved Solids	**<10.0**	mg/L	10.0	10.0	1		04/07/19 07:30		

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
7726 Moller Road
Indianapolis, IN 46268
(317)228-3100

ANALYTICAL RESULTS

Project: Tanners Creek
Pace Project No.: 50221290

Sample: Equip Blank-1 **Lab ID: 50221290006** Collected: 04/03/19 11:25 Received: 04/04/19 09:00 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
353.2 Nitrogen, NO2/NO3 pres.	Analytical Method: EPA 353.2								
Nitrogen, NO2 plus NO3	**<0.020**	mg/L	0.10	0.020	1		04/09/19 12:51		
365.1 Total Phosphorus	Analytical Method: EPA 365.1 Preparation Method: EPA 365.1								
Phosphorus	**<0.021**	mg/L	0.050	0.021	1	04/09/19 13:06	04/15/19 16:25	7723-14-0	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
7726 Moller Road
Indianapolis, IN 46268
(317)228-3100

QUALITY CONTROL DATA

Project: Tanners Creek
Pace Project No.: 50221290

QC Batch: 494609 Analysis Method: EPA 300.0
QC Batch Method: EPA 300.0 Analysis Description: 300.0 IC Anions
Associated Lab Samples: 50221290001, 50221290002, 50221290003, 50221290004, 50221290005, 50221290006

METHOD BLANK: 2282610 Matrix: Water
Associated Lab Samples: 50221290001, 50221290002, 50221290003, 50221290004, 50221290005, 50221290006

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Chloride	mg/L	<0.049	0.25	0.049	04/14/19 07:15	
Fluoride	mg/L	<0.033	0.10	0.033	04/14/19 07:15	
Sulfate	mg/L	<0.087	0.25	0.087	04/14/19 07:15	

LABORATORY CONTROL SAMPLE: 2282611

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Chloride	mg/L	1.2	1.2	95	90-110	
Fluoride	mg/L	0.5	0.48	96	90-110	
Sulfate	mg/L	2.5	2.4	97	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2282669 2282670

Parameter	Units	50221290001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Chloride	mg/L	26.6	12.5	12.5	38.8	38.9	98	99	80-120	0	15	
Fluoride	mg/L	0.31	0.5	0.5	0.79	0.79	96	96	80-120	0	15	
Sulfate	mg/L	124	25	25	148	149	98	99	80-120	0	15	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2282671 2282672

Parameter	Units	50221336002 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Chloride	mg/L	131	31.2	31.2	163	163	102	101	80-120	0	15	
Fluoride	mg/L	1.1	0.5	0.5	1.6	1.6	98	97	80-120	0	15	
Sulfate	mg/L	213	62.5	62.5	274	273	97	96	80-120	0	15	

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REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
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QUALITY CONTROL DATA

Project: Tanners Creek
Pace Project No.: 50221290

QC Batch: 493613 Analysis Method: EPA 245.1
QC Batch Method: EPA 245.1 Analysis Description: 245.1 Mercury - Dissolved
Associated Lab Samples: 50221290001, 50221290002, 50221290003, 50221290004, 50221290005, 50221290006

METHOD BLANK: 2277619 Matrix: Water
Associated Lab Samples: 50221290001, 50221290002, 50221290003, 50221290004, 50221290005, 50221290006

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Mercury, Dissolved	ug/L	<0.067	0.20	0.067	04/09/19 19:51	

LABORATORY CONTROL SAMPLE: 2277620

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Mercury, Dissolved	ug/L	5	5.0	99	85-115	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2277621 2277622

Parameter	Units	50221290001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Mercury, Dissolved	ug/L	<0.067	5	5	4.6	4.6	93	91	70-130	2	20	

MATRIX SPIKE SAMPLE: 2277623

Parameter	Units	50221303006 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Mercury, Dissolved	ug/L	<0.067	5	4.7	94	70-130	

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REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
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(317)228-3100

QUALITY CONTROL DATA

Project: Tanners Creek
Pace Project No.: 50221290

QC Batch: 493481 Analysis Method: EPA 200.7
QC Batch Method: EPA 200.7 Analysis Description: 200.7 Metals, Dissolved
Associated Lab Samples: 50221290001, 50221290002, 50221290003, 50221290004, 50221290005, 50221290006

METHOD BLANK: 2277191 Matrix: Water
Associated Lab Samples: 50221290001, 50221290002, 50221290003, 50221290004, 50221290005, 50221290006

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Calcium, Dissolved	mg/L	<0.10	1.0	0.10	04/09/19 10:51	
Iron, Dissolved	mg/L	<0.030	0.10	0.030	04/09/19 10:51	
Magnesium, Dissolved	mg/L	<0.093	1.0	0.093	04/09/19 10:51	
Potassium, Dissolved	mg/L	<0.054	1.0	0.054	04/09/19 10:51	
Silica, Dissolved	mg/L	<0	0.45		04/09/19 10:51	
Sodium, Dissolved	mg/L	<0.031	1.0	0.031	04/09/19 10:51	
Total Hardness by 2340B, Dissolved	mg/L	<1.0	1.0	1.0	04/09/19 10:51	

LABORATORY CONTROL SAMPLE: 2277192

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Calcium, Dissolved	mg/L	10	9.3	93	85-115	
Iron, Dissolved	mg/L	10	9.5	95	85-115	
Magnesium, Dissolved	mg/L	10	9.2	92	85-115	
Potassium, Dissolved	mg/L	10	9.4	94	85-115	
Silica, Dissolved	mg/L	10.7	9.8	92	85-115	
Sodium, Dissolved	mg/L	10	9.4	94	85-115	
Total Hardness by 2340B, Dissolved	mg/L	66.2	61.2	92	85-115	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2277193 2277194

Parameter	Units	50221290001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Calcium, Dissolved	mg/L	94.3	10	10	99.9	97.6	56	33	70-130	2	20	P6
Iron, Dissolved	mg/L	0.11	10	10	9.7	9.4	95	93	70-130	2	20	
Magnesium, Dissolved	mg/L	29.4	10	10	37.6	36.7	82	73	70-130	2	20	
Potassium, Dissolved	mg/L	0.60J	10	10	10.2	10	96	94	70-130	2	20	
Silica, Dissolved	mg/L	11.2	10.7	10.7	20.8	20.4	90	86	70-130	2	20	
Sodium, Dissolved	mg/L	23.0	10	10	32.0	31.4	90	83	70-130	2	20	
Total Hardness by 2340B, Dissolved	mg/L	357	66.2	66.2	404	395	72	58	70-130	2	20	

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

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
7726 Moller Road
Indianapolis, IN 46268
(317)228-3100

QUALITY CONTROL DATA

Project: Tanners Creek
Pace Project No.: 50221290

MATRIX SPIKE SAMPLE: 2277195

Parameter	Units	50221303006 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Calcium, Dissolved	mg/L	70.5	10	78.4	79	70-130	
Iron, Dissolved	mg/L	0.34	10	9.8	95	70-130	
Magnesium, Dissolved	mg/L	19.6	10	28.5	88	70-130	
Potassium, Dissolved	mg/L	2.9	10	12.3	94	70-130	
Silica, Dissolved	mg/L	9.6	10.7	19.6	93	70-130	
Sodium, Dissolved	mg/L	13.3	10	22.9	96	70-130	
Total Hardness by 2340B, Dissolved	mg/L	257	66.2	313	85	70-130	

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REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
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(317)228-3100

QUALITY CONTROL DATA

Project: Tanners Creek
Pace Project No.: 50221290

QC Batch: 493933 Analysis Method: EPA 200.8
QC Batch Method: EPA 200.8 Analysis Description: 200.8 MET Dissolved
Associated Lab Samples: 50221290001, 50221290002, 50221290003, 50221290004, 50221290005, 50221290006

METHOD BLANK: 2278965 Matrix: Water
Associated Lab Samples: 50221290001, 50221290002, 50221290003, 50221290004, 50221290005, 50221290006

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Aluminum, Dissolved	ug/L	<1.3	10.0	1.3	04/12/19 09:34	
Antimony, Dissolved	ug/L	0.36J	1.0	0.17	04/12/19 09:34	
Arsenic, Dissolved	ug/L	<0.32	1.0	0.32	04/12/19 09:34	
Barium, Dissolved	ug/L	0.043J	1.0	0.036	04/12/19 09:34	
Beryllium, Dissolved	ug/L	<0.024	0.20	0.024	04/12/19 09:34	
Boron, Dissolved	ug/L	<1.0	5.0	1.0	04/13/19 03:17	
Cadmium, Dissolved	ug/L	<0.026	0.20	0.026	04/12/19 09:34	
Chromium, Dissolved	ug/L	<0.11	2.0	0.11	04/12/19 09:34	
Cobalt, Dissolved	ug/L	<0.036	1.0	0.036	04/12/19 09:34	
Copper, Dissolved	ug/L	<0.091	1.0	0.091	04/12/19 09:34	
Lead, Dissolved	ug/L	<0.037	1.0	0.037	04/12/19 09:34	
Manganese, Dissolved	ug/L	0.058J	1.0	0.049	04/12/19 09:34	
Molybdenum, Dissolved	ug/L	<0.043	1.0	0.043	04/12/19 09:34	
Nickel, Dissolved	ug/L	<0.14	0.50	0.14	04/13/19 03:17	
Selenium, Dissolved	ug/L	<0.48	1.0	0.48	04/12/19 09:34	
Silver, Dissolved	ug/L	<0.025	0.50	0.025	04/12/19 09:34	
Strontium, Dissolved	ug/L	<0.047	1.0	0.047	04/12/19 09:34	N2
Thallium, Dissolved	ug/L	<0.057	1.0	0.057	04/12/19 09:34	
Uranium, Dissolved	ug/L	<0.0070	1.0	0.0070	04/12/19 09:34	N2
Vanadium, Dissolved	ug/L	<0.18	1.0	0.18	04/12/19 09:34	
Zinc, Dissolved	ug/L	0.35J	3.0	0.30	04/12/19 09:34	

LABORATORY CONTROL SAMPLE: 2278966

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Aluminum, Dissolved	ug/L	400	363	91	85-115	
Antimony, Dissolved	ug/L	40	42.4	106	85-115	
Arsenic, Dissolved	ug/L	40	35.4	89	85-115	
Barium, Dissolved	ug/L	40	39.4	99	85-115	
Beryllium, Dissolved	ug/L	40	38.9	97	85-115	
Boron, Dissolved	ug/L	40	43.3	108	85-115	
Cadmium, Dissolved	ug/L	40	37.9	95	85-115	
Chromium, Dissolved	ug/L	40	37.9	95	85-115	
Cobalt, Dissolved	ug/L	40	38.6	97	85-115	
Copper, Dissolved	ug/L	40	38.3	96	85-115	
Lead, Dissolved	ug/L	40	39.6	99	85-115	
Manganese, Dissolved	ug/L	40	40.8	102	85-115	
Molybdenum, Dissolved	ug/L	40	38.9	97	85-115	
Nickel, Dissolved	ug/L	40	37.5	94	85-115	
Selenium, Dissolved	ug/L	40	35.4	88	85-115	

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REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
7726 Moller Road
Indianapolis, IN 46268
(317)228-3100

QUALITY CONTROL DATA

Project: Tanners Creek
Pace Project No.: 50221290

LABORATORY CONTROL SAMPLE: 2278966

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Silver, Dissolved	ug/L	40	38.4	96	85-115	
Strontium, Dissolved	ug/L	40	40.0	100	85-115	N2
Thallium, Dissolved	ug/L	40	40.4	101	85-115	
Uranium, Dissolved	ug/L	40	40.0	100	85-115	N2
Vanadium, Dissolved	ug/L	40	38.7	97	85-115	
Zinc, Dissolved	ug/L	40	40.4	101	85-115	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2278967 2278968

Parameter	Units	50221260001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Aluminum, Dissolved	ug/L	ND	2000	2000	2060	2050	101	100	70-130	1	20	
Antimony, Dissolved	ug/L	21.5	200	200	228	238	103	108	70-130	4	20	
Arsenic, Dissolved	ug/L	294	200	200	497	499	101	102	70-130	0	20	
Barium, Dissolved	ug/L	664	200	200	844	898	90	117	70-130	6	20	
Beryllium, Dissolved	ug/L	ND	200	200	197	207	99	104	70-130	5	20	
Boron, Dissolved	ug/L	32000	200	200	31100	33400	-480	706	70-130	7	20	CC,E, P6
Cadmium, Dissolved	ug/L	ND	200	200	175	182	88	91	70-130	4	20	CL
Chromium, Dissolved	ug/L	114	200	200	301	299	93	93	70-130	0	20	CL
Cobalt, Dissolved	ug/L	31.9	200	200	208	217	88	92	70-130	4	20	
Copper, Dissolved	ug/L	ND	200	200	173	179	85	88	70-130	3	20	
Lead, Dissolved	ug/L	ND	200	200	194	203	96	101	70-130	4	20	
Manganese, Dissolved	ug/L	166	200	200	341	357	88	96	70-130	5	20	
Molybdenum, Dissolved	ug/L	52.9	200	200	244	254	95	100	70-130	4	20	
Nickel, Dissolved	ug/L	397	200	200	555	591	79	97	70-130	6	20	
Selenium, Dissolved	ug/L	ND	200	200	194	187	95	91	70-130	3	20	
Silver, Dissolved	ug/L	ND	200	200	180	187	90	93	70-130	4	20	CL
Strontium, Dissolved	ug/L	748	200	200	908	974	80	113	70-130	7	20	N2
Thallium, Dissolved	ug/L	ND	200	200	205	214	102	107	70-130	5	20	
Uranium, Dissolved	ug/L	ND	200	200	210	217	105	108	70-130	3	20	N2
Vanadium, Dissolved	ug/L	65.3	200	200	267	265	101	100	70-130	1	20	
Zinc, Dissolved	ug/L	ND	200	200	178	187	84	89	70-130	5	20	

MATRIX SPIKE SAMPLE: 2278969

Parameter	Units	50221303004 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Aluminum, Dissolved	ug/L	4.3J	400	392	97	70-130	
Antimony, Dissolved	ug/L	<0.17	40	43.9	110	70-130	
Arsenic, Dissolved	ug/L	15.7	40	54.7	97	70-130	
Barium, Dissolved	ug/L	212	40	243	77	70-130	
Beryllium, Dissolved	ug/L	<0.024	40	39.2	98	70-130	
Boron, Dissolved	ug/L	71.5	40	112	101	70-130	
Cadmium, Dissolved	ug/L	<0.026	40	37.8	95	70-130	

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REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
7726 Moller Road
Indianapolis, IN 46268
(317)228-3100

QUALITY CONTROL DATA

Project: Tanners Creek
Pace Project No.: 50221290

MATRIX SPIKE SAMPLE: 2278969

Parameter	Units	50221303004 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Chromium, Dissolved	ug/L	1.3J	40	40.1	97	70-130	
Cobalt, Dissolved	ug/L	3.2	40	39.7	91	70-130	
Copper, Dissolved	ug/L	1.1	40	36.3	88	70-130	
Lead, Dissolved	ug/L	<0.037	40	40.3	101	70-130	
Manganese, Dissolved	ug/L	742	40	750	21	70-130	P6
Molybdenum, Dissolved	ug/L	0.43J	40	40.5	100	70-130	
Nickel, Dissolved	ug/L	4.7	40	39.9	88	70-130	
Selenium, Dissolved	ug/L	<0.48	40	38.1	95	70-130	
Silver, Dissolved	ug/L	<0.025	40	38.9	97	70-130	
Strontium, Dissolved	ug/L	593	40	612	46	70-130	N2,P6
Thallium, Dissolved	ug/L	<0.057	40	42.5	106	70-130	
Uranium, Dissolved	ug/L	0.11J	40	43.6	109	70-130	N2
Vanadium, Dissolved	ug/L	0.51J	40	41.2	102	70-130	
Zinc, Dissolved	ug/L	2.5J	40	38.4	90	70-130	

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REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
7726 Moller Road
Indianapolis, IN 46268
(317)228-3100

QUALITY CONTROL DATA

Project: Tanners Creek
Pace Project No.: 50221290

QC Batch: 493292 Analysis Method: SM 2320B
QC Batch Method: SM 2320B Analysis Description: 2320B Alkalinity
Associated Lab Samples: 50221290001, 50221290002, 50221290003, 50221290004, 50221290005, 50221290006

METHOD BLANK: 2276631 Matrix: Water
Associated Lab Samples: 50221290001, 50221290002, 50221290003, 50221290004, 50221290005, 50221290006

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Alkalinity, Total as CaCO3	mg/L	<1.0	2.0	1.0	04/06/19 12:28	

LABORATORY CONTROL SAMPLE: 2276632

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Alkalinity, Total as CaCO3	mg/L	50	49.9	100	90-110	

SAMPLE DUPLICATE: 2276633

Parameter	Units	50221290001 Result	Dup Result	RPD	Max RPD	Qualifiers
Alkalinity, Total as CaCO3	mg/L	238	228	5	20	

SAMPLE DUPLICATE: 2276634

Parameter	Units	50221280001 Result	Dup Result	RPD	Max RPD	Qualifiers
Alkalinity, Total as CaCO3	mg/L	340	342	0	20	

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REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
7726 Moller Road
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(317)228-3100

QUALITY CONTROL DATA

Project: Tanners Creek
Pace Project No.: 50221290

QC Batch: 493071 Analysis Method: SM 2540C
QC Batch Method: SM 2540C Analysis Description: 2540C Total Dissolved Solids
Associated Lab Samples: 50221290001

METHOD BLANK: 2275312 Matrix: Water
Associated Lab Samples: 50221290001

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Total Dissolved Solids	mg/L	<10.0	10.0	10.0	04/05/19 09:10	

LABORATORY CONTROL SAMPLE: 2275313

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Total Dissolved Solids	mg/L	300	278	93	80-120	

SAMPLE DUPLICATE: 2275314

Parameter	Units	50221147001 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	722	726	1	10	

SAMPLE DUPLICATE: 2275315

Parameter	Units	50221374010 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	15500	15800	2	10	

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REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
7726 Moller Road
Indianapolis, IN 46268
(317)228-3100

QUALITY CONTROL DATA

Project: Tanners Creek
Pace Project No.: 50221290

QC Batch: 493219 Analysis Method: SM 2540C
QC Batch Method: SM 2540C Analysis Description: 2540C Total Dissolved Solids
Associated Lab Samples: 50221290002, 50221290003, 50221290004, 50221290005, 50221290006

METHOD BLANK: 2276272 Matrix: Water
Associated Lab Samples: 50221290002, 50221290003, 50221290004, 50221290005, 50221290006

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Total Dissolved Solids	mg/L	<10.0	10.0	10.0	04/07/19 07:30	

LABORATORY CONTROL SAMPLE: 2276778

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Total Dissolved Solids	mg/L	300	267	89	80-120	

SAMPLE DUPLICATE: 2276273

Parameter	Units	50221124013 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	971	961	1	10	

SAMPLE DUPLICATE: 2276274

Parameter	Units	50221398004 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	363	394	8	10	

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REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
7726 Moller Road
Indianapolis, IN 46268
(317)228-3100

QUALITY CONTROL DATA

Project: Tanners Creek
Pace Project No.: 50221290

QC Batch: 493648 Analysis Method: EPA 353.2
QC Batch Method: EPA 353.2 Analysis Description: 353.2 Nitrate + Nitrite, preserved
Associated Lab Samples: 50221290001, 50221290002, 50221290003, 50221290004, 50221290005, 50221290006

METHOD BLANK: 2277730 Matrix: Water
Associated Lab Samples: 50221290001, 50221290002, 50221290003, 50221290004, 50221290005, 50221290006

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Nitrogen, NO2 plus NO3	mg/L	<0.020	0.10	0.020	04/09/19 12:04	

LABORATORY CONTROL SAMPLE: 2277731

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Nitrogen, NO2 plus NO3	mg/L	2	2.0	98	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2277732 2277733

Parameter	Units	50221096001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Nitrogen, NO2 plus NO3	mg/L	25.1	40	40	65.1	63.9	100	97	90-110	2	20	

MATRIX SPIKE SAMPLE: 2277734

Parameter	Units	50221290001 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Nitrogen, NO2 plus NO3	mg/L	0.030J	2	2.0	98	90-110	

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REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
7726 Moller Road
Indianapolis, IN 46268
(317)228-3100

QUALITY CONTROL DATA

Project: Tanners Creek
Pace Project No.: 50221290

QC Batch: 493688 Analysis Method: EPA 365.1
QC Batch Method: EPA 365.1 Analysis Description: 365.1 Total Phosphorus
Associated Lab Samples: 50221290001, 50221290002, 50221290003, 50221290004, 50221290005, 50221290006

METHOD BLANK: 2277942 Matrix: Water
Associated Lab Samples: 50221290001, 50221290002, 50221290003, 50221290004, 50221290005, 50221290006

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Phosphorus	mg/L	<0.021	0.050	0.021	04/15/19 16:08	

LABORATORY CONTROL SAMPLE: 2277943

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Phosphorus	mg/L	0.5	0.48	95	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2277944 2277945

Parameter	Units	50221275002 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Phosphorus	mg/L	ND	0.5	0.5	0.50	0.53	93	98	90-110	4	20	

MATRIX SPIKE SAMPLE: 2277946

Parameter	Units	50221290003 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Phosphorus	mg/L	0.056	0.5	0.52	92	90-110	

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REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
7726 Moller Road
Indianapolis, IN 46268
(317)228-3100

QUALIFIERS

Project: Tanners Creek
Pace Project No.: 50221290

DEFINITIONS

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

ND - Not Detected at or above adjusted reporting limit.

TNTC - Too Numerous To Count

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

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

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

S - Surrogate

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

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

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

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

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

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

TNI - The NELAC Institute.

ANALYTE QUALIFIERS

CC	The continuing calibration for this compound is outside of method control limits. The result is estimated.
CL	The continuing calibration for this compound is outside of Pace Analytical acceptance limits. The results may be biased low.
E	Analyte concentration exceeded the calibration range. The reported result is estimated.
N2	The lab does not hold NELAC/TNI accreditation for this parameter but other accreditations/certifications may apply. A complete list of accreditations/certifications is available upon request.
P6	Matrix spike recovery was outside laboratory control limits due to a parent sample concentration notably higher than the spike level.

Pace Analytical Services, LLC
7726 Moller Road
Indianapolis, IN 46268
(317)228-3100

QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: Tanners Creek
Pace Project No.: 50221290

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
50221290001	MW-2	EPA 300.0	494609		
50221290002	MW-3	EPA 300.0	494609		
50221290003	DUP-1	EPA 300.0	494609		
50221290004	Ohio River-1	EPA 300.0	494609		
50221290005	Field Blank-1	EPA 300.0	494609		
50221290006	Equip Blank-1	EPA 300.0	494609		
50221290001	MW-2	EPA 200.7	493481	EPA 200.7	493661
50221290002	MW-3	EPA 200.7	493481	EPA 200.7	493661
50221290003	DUP-1	EPA 200.7	493481	EPA 200.7	493661
50221290004	Ohio River-1	EPA 200.7	493481	EPA 200.7	493661
50221290005	Field Blank-1	EPA 200.7	493481	EPA 200.7	493661
50221290006	Equip Blank-1	EPA 200.7	493481	EPA 200.7	493661
50221290001	MW-2	EPA 200.8	493933	EPA 200.8	494316
50221290002	MW-3	EPA 200.8	493933	EPA 200.8	494316
50221290003	DUP-1	EPA 200.8	493933	EPA 200.8	494316
50221290004	Ohio River-1	EPA 200.8	493933	EPA 200.8	494316
50221290005	Field Blank-1	EPA 200.8	493933	EPA 200.8	494316
50221290006	Equip Blank-1	EPA 200.8	493933	EPA 200.8	494316
50221290001	MW-2	EPA 245.1	493613	EPA 245.1	493810
50221290002	MW-3	EPA 245.1	493613	EPA 245.1	493810
50221290003	DUP-1	EPA 245.1	493613	EPA 245.1	493810
50221290004	Ohio River-1	EPA 245.1	493613	EPA 245.1	493810
50221290005	Field Blank-1	EPA 245.1	493613	EPA 245.1	493810
50221290006	Equip Blank-1	EPA 245.1	493613	EPA 245.1	493810
50221290001	MW-2	SM 2320B	493292		
50221290002	MW-3	SM 2320B	493292		
50221290003	DUP-1	SM 2320B	493292		
50221290004	Ohio River-1	SM 2320B	493292		
50221290005	Field Blank-1	SM 2320B	493292		
50221290006	Equip Blank-1	SM 2320B	493292		
50221290001	MW-2	SM 2540C	493071		
50221290002	MW-3	SM 2540C	493219		
50221290003	DUP-1	SM 2540C	493219		
50221290004	Ohio River-1	SM 2540C	493219		
50221290005	Field Blank-1	SM 2540C	493219		
50221290006	Equip Blank-1	SM 2540C	493219		
50221290001	MW-2	EPA 353.2	493648		
50221290002	MW-3	EPA 353.2	493648		
50221290003	DUP-1	EPA 353.2	493648		
50221290004	Ohio River-1	EPA 353.2	493648		
50221290005	Field Blank-1	EPA 353.2	493648		
50221290006	Equip Blank-1	EPA 353.2	493648		
50221290001	MW-2	EPA 365.1	493688	EPA 365.1	494305
50221290002	MW-3	EPA 365.1	493688	EPA 365.1	494305
50221290003	DUP-1	EPA 365.1	493688	EPA 365.1	494305

Pace Analytical Services, LLC
7726 Moller Road
Indianapolis, IN 46268
(317)228-3100

QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: Tanners Creek
Pace Project No.: 50221290

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
50221290004	**Ohio River-1**	EPA 365.1	493688	EPA 365.1	494305
50221290005	**Field Blank-1**	EPA 365.1	493688	EPA 365.1	494305
50221290006	**Equip Blank-1**	EPA 365.1	493688	EPA 365.1	494305

Pace Analytical

CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.

Page : 1 Of 1

Section A Required Client Information:	Section B Required Project Information:	Section C Invoice Information:
Company: EnviroAnalytics Group	Report To: Dostal, Matthew	Attention:
Address: ~~1515~~ 1650 Des Peres Road	Copy To:	Company Name:
Suite 303, Saint Louis, MO 63131		Address:
Email: Mdostal@enviroanalyticsgroup.com	Purchase Order #: EAG-8334	Pace Quote:
Phone: Fax:	Project Name: Tanners Creek	Pace Project Manager: regina.bedel@pacelabs.com,
Requested Due Date:	Project #:	Pace Profile #: 6773 / 1

Regulatory Agency	State / Location
IDEM GW	IN

ITEM #	SAMPLE ID (One Character per box. (A-Z, 0-9 / , -) Sample Ids must be unique)	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED START DATE	COLLECTED START TIME	COLLECTED END DATE	COLLECTED END TIME	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives: Unpreserved	H2SO4	HNO3	HCl	NaOH	Na2S2O3	Methanol	Other	Analyses Test Y/N	Dissolved 200.7,200.8,245.1	Hardness	300.0 Chloride,Fluoride,Sulfa	Alkalinity	TDS	Nitrate+Nitrite	365.1 Total P	Residual Chlorine (Y/N)	50221290
1	MW-2	WT	G			4/3/19	1810		3	x	x	x							x	x	x	x	x	x	x		001
2	MW-3					4/3/19	0935																				002
3	Dup-1						0935																				003
4	Ohio River-1						1050																				004
5	Field Blank-1						1115																				005
6	Equip Blank-1						1125																				006
7																											
8																											
9												CS															
10												4/3/19															
11																											
12																											

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS			
200.7-Ca,Fe,Mg,K,Silica,Na	EAG	4/3/19	1400	Fedex						
200.8-Al,Sb,As,Ba,Be,B,Cd,Cr,Co,Cu	Fedex	4-4-19	900		4-4-19	900	2.3	Y	Y	Y
200.8-Pb,Mn,Mo,Ni,Se,Ag,Sr,Tl,U,V,Zn										

SAMPLER NAME AND SIGNATURE			TEMP in C	Received on Ice (Y/N)	Custody Sealed Cooler (Y/N)	Samples Intact (Y/N)
PRINT Name of SAMPLER: Christopher Stocke						
SIGNATURE of SAMPLER:	DATE Signed: 4/3/19					

Pace Analytical

SAMPLE CONDITION UPON RECEIPT FORM

Project #: 50221290

Date/Time and Initials of person examining contents: KS 4-4-19 1134

Courier: ☒ Fed Ex ☐ UPS ☐ USPS ☐ Client ☐ Commercial ☐ Pace ☐ Other _____

Tracking #: 4893 0201 0913

Custody Seal on Cooler/Box Present: ☒ Yes ☐ No **Seals Intact:** ☒ Yes ☐ No

Packing Material: ☐ Bubble Wrap ☐ Bubble Bags ☒ None ☐ Other _____

Thermometer: 1 2 (3) 4 5 6 A B C D E F **Ice Type:** ☒ Wet ☐ Blue ☐ None | Samples collected today and on ice: ☐ Yes ☐ No ☒ N/A

Cooler Temperature: 2.6 | 2.3 Ice Visible in Sample Containers?: ☐ Yes ☒ No ☐ N/A

(Initial/Corrected) Temp should be above freezing to 6°C If temp. is Over 6°C or under 0°C, was the PM Notified?: ☐ Yes ☐ No ☒ N/A

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

	Yes	No		Yes	No	N/A
Are samples from West Virginia? Document any containers out of temp.		/	All containers needing acid/base pres. Have been checked?: **exceptions: VOA, coliform, LLHg, O&G, and any container with a septum cap or preserved with HCl.** All containers needing preservation are found to be in compliance with EPA recommendation (<2, >9, >12) unless otherwise noted. Circle: ~~HNO3~~ ~~H2SO4~~ NaOH NaOH/ZnAc	/		
USDA Regulated Soils? (ID, NY, WA, OR, CA, NM, TX, OK, AR, LA, TN, AL, MS, NC, SC, GA, FL, or Puerto Rico)		/				
Chain of Custody Present:	/		Dissolved Metals field filtered?:	/		
Chain of Custody Filled Out:	/					
Short Hold Time Analysis (<72hr)?: Analysis:		/	Headspace Wisconsin Sulfide			/
Time 5035A TC placed in Freezer or Short Holds To Lab:				Present	Absent	N/A
			Residual Chlorine Check (SVOC 625 Pest/PCB 608)			/
			Residual Chlorine Check (Total/Amenable/Free Cyanide)			/
Rush TAT Requested:		/	Headspace in VOA Vials (>6mm):			/
Containers Intact?:	/		Trip Blank Present?:		/	
Sample Label (IDs/Dates/Times) Match COC?: ~~Except TCs, which only require sample ID~~	/		Trip Blank Custody Seals?:		/	

Comments:

Sample Container Count

WO# : 50221290

50221290

CLIENT: Enviro Analytics

COC PAGE 1 of 1

COC ID# _____

Project # 50221290 50221291

Sample Line Item	DG9H	VG9H	AG0U	AG1H	AG1U	AG2U	AG3S	WGFU	SP5T	BP1U	BP2N	BP2S	BP2U	BP3B	BP3N	BP3S	BP3U	R	Bulk	SBS	DI	Kit	Matrix (Soil/W Aqueou	pH <2	pH >9	pH>12
1										1					1	1							WT	✓		
2										↓					↓	↓							↓	↓		
3																										
4																										
5																										
6										↓					↓	↓							↓	↓		
7																										
8																										
9																										
10																										
11																										
12																										

Container Codes

Glass

DG9B	40mL Na Bisulfate amber vial	AG0U	100mL unpreserved amber glass
DG9H	40mL HCL amber voa vial	AG1H	1 liter HCL amber glass
DG9M	40mL MeOH clear vial	AG1S	1 liter H2SO4 amber glass
DG9P	40mL TSP amber vial	AG1T	1 liter Na Thiosulfate amber glass
DG9S	40mL H2SO4 amber vial	AG1U	1liter unpreserved amber glass
DG9T	40mL Na Thio amber vial	AG2N	500mL HNO3 amber glass
DG9U	40mL unpreserved **amber** vial	AG2S	500mL H2SO4 amber glass
VG9H	40mL HCL clear vial	AG2U	500mL unpreserved amber glass
VG9T	40mL Na Thio. clear vial	AG3S	250mL H2SO4 glass amber
VG9U	40mL unpreserved **clear** vial	AG3U	250mL unpreserved amber glass
VGFX	40mL w/hexane wipe vial	BG1H	1 liter HCL clear glass
VSG	Headspace septa vial & HCL	BG1S	1 liter H2SO4 clear glass
WGKU	8oz unpreserved clear jar	BG1T	1 liter Na Thiosulfate clear glass
WGFU	4oz clear soil jar	BG1U	1 liter unpreserved glass
JGFU	4oz unpreserved amber wide	BG3H	250mL HCl Clear Glass
		BG3U	250mL Unpreserved Clear Glass

Plastic / Misc.

BP1A	1 liter NaOH, Asc Acid plastic	BP3U	250mL unpreserved plastic
BP1N	1 liter HNO3 plastic	BP3Z	250mL NaOH, Zn Ac plastic
BP1S	1 liter H2SO4 plastic		
BP1U	1 liter unpreserved plastic	AF	Air Filter
BP1Z	1 liter NaOH, Zn, Ac	C	Air Cassettes
BP2A	500mL NaOH, Asc Acid plastic	R	Terra core kit
BP2N	500mL HNO3 plastic	SP5T	120mL Coliform Na Thiosulfate
BP2O	500mL NaOH plastic	U	Summa Can
BP2S	500mL H2SO4 plastic	ZPLC	Ziploc Bag
BP2U	500mL unpreserved plastic		
BP2Z	500mL NaOH, Zn Ac		
BP3B	250mL NaOH plastic		
BP3N	250mL HNO3 plastic		
BP3S	250mL H2SO4 plastic		

Pace Analytical Services, LLC
7726 Moller Road
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(317)228-3100

April 17, 2019

Mr. Matthew Dostal
EnviroAnalytics Group
1515 Des Peres Rd
Suite 300
Saint Louis, MO 63131

RE: Project: Tanners Creek
Pace Project No.: 50221303

Dear Mr. Dostal:
Enclosed are the analytical results for sample(s) received by the laboratory on April 04, 2019. The results relate only to the samples included in this report. Results reported herein conform to the most current, applicable TNI/NELAC standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

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

Sincerely,

Regina Bedel
regina.bedel@pacelabs.com
(317)228-3100
Project Manager

Enclosures

cc: Mr. Adam Peetz, EnviroAnalytics Group

Pace Analytical Services, LLC
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CERTIFICATIONS

Project: Tanners Creek
Pace Project No.: 50221303

Indiana Certification IDs

7726 Moller Road, Indianapolis, IN 46268
Illinois Certification #: 200074
Indiana Certification #: C-49-06
Kansas/NELAP Certification #: E-10177
Kentucky UST Certification #: 80226
Kentucky WW Certification #: 98019
Michigan Department of Environmental Quality, Laboratory #9050
Ohio VAP Certification #: CL0065
Oklahoma Certification #: 2018-101
Texas Certification #: T104704355
West Virginia Certification #: 330
Wisconsin Certification #: 999788130
USDA Soil Permit #: P330-16-00257

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SAMPLE SUMMARY

Project: Tanners Creek
Pace Project No.: 50221303

Lab ID	Sample ID	Matrix	Date Collected	Date Received
50221303001	**MW-4**	Water	04/02/19 09:40	04/04/19 09:00
50221303002	**MW-8**	Water	04/02/19 11:00	04/04/19 09:00
50221303003	**MW-7**	Water	04/02/19 12:30	04/04/19 09:00
50221303004	**MW-6**	Water	04/02/19 14:15	04/04/19 09:00
50221303005	**MW-5**	Water	04/02/19 15:40	04/04/19 09:00
50221303006	**MW-1**	Water	04/02/19 17:10	04/04/19 09:00

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SAMPLE ANALYTE COUNT

Project: Tanners Creek
Pace Project No.: 50221303

Lab ID	Sample ID	Method	Analysts	Analytes Reported
50221303001	**MW-4**	EPA 300.0	NPW	3
		EPA 200.7	KJE	7
		EPA 200.8	DMT	21
		EPA 245.1	LBT	1
		SM 2320B	CDR	1
		SM 2540C	MLS	1
		EPA 353.2	SKK	1
		EPA 365.1	ZM	1
50221303002	**MW-8**	EPA 300.0	NPW	3
		EPA 200.7	KJE	7
		EPA 200.8	DMT	21
		EPA 245.1	LBT	1
		SM 2320B	CDR	1
		SM 2540C	MLS	1
		EPA 353.2	SKK	1
		EPA 365.1	ZM	1
50221303003	**MW-7**	EPA 300.0	NPW	3
		EPA 200.7	KJE	7
		EPA 200.8	DMT	21
		EPA 245.1	LBT	1
		SM 2320B	CDR	1
		SM 2540C	MLS	1
		EPA 353.2	SKK	1
		EPA 365.1	ZM	1
50221303004	**MW-6**	EPA 300.0	NPW	3
		EPA 200.7	KJE	7
		EPA 200.8	DMT	21
		EPA 245.1	LBT	1
		SM 2320B	CDR	1
		SM 2540C	MLS	1
		EPA 353.2	SKK	1
		EPA 365.1	ZM	1
50221303005	**MW-5**	EPA 300.0	NPW	3
		EPA 200.7	KJE	7
		EPA 200.8	DMT	21
		EPA 245.1	LBT	1
		SM 2320B	CDR	1

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SAMPLE ANALYTE COUNT

Project: Tanners Creek
Pace Project No.: 50221303

Lab ID	Sample ID	Method	Analysts	Analytes Reported
		SM 2540C	MLS	1
		EPA 353.2	SKK	1
		EPA 365.1	ZM	1
50221303006	**MW-1**	EPA 300.0	NPW	3
		EPA 200.7	KJE	7
		EPA 200.8	DMT	21
		EPA 245.1	LBT	1
		SM 2320B	CDR	1
		SM 2540C	MLS	1
		EPA 353.2	SKK	1
		EPA 365.1	ZM	1

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SUMMARY OF DETECTION

Project: Tanners Creek
Pace Project No.: 50221303

Lab Sample ID / Method	Client Sample ID / Parameters	Result	Units	Report Limit	Analyzed	Qualifiers
50221303001	**MW-4**					
EPA 300.0	Chloride	15.2	mg/L	2.5	04/14/19 12:02	
EPA 300.0	Fluoride	0.17	mg/L	0.10	04/14/19 11:47	
EPA 300.0	Sulfate	31.4	mg/L	2.5	04/14/19 12:02	
EPA 200.7	Calcium, Dissolved	69.8	mg/L	1.0	04/09/19 11:21	
EPA 200.7	Iron, Dissolved	0.15	mg/L	0.10	04/09/19 11:21	
EPA 200.7	Magnesium, Dissolved	14.9	mg/L	1.0	04/09/19 11:21	
EPA 200.7	Potassium, Dissolved	2.2	mg/L	1.0	04/09/19 11:21	
EPA 200.7	Silica, Dissolved	8.5	mg/L	0.45	04/09/19 11:21	
EPA 200.7	Sodium, Dissolved	12.1	mg/L	1.0	04/09/19 11:21	
EPA 200.7	Total Hardness by 2340B, Dissolved	236	mg/L	1.0	04/09/19 11:21	
EPA 200.8	Aluminum, Dissolved	2.9J	ug/L	10.0	04/12/19 11:06	
EPA 200.8	Arsenic, Dissolved	1.9	ug/L	1.0	04/12/19 11:06	
EPA 200.8	Barium, Dissolved	64.5	ug/L	1.0	04/12/19 11:06	
EPA 200.8	Boron, Dissolved	32.5	ug/L	5.0	04/13/19 05:03	
EPA 200.8	Chromium, Dissolved	0.44J	ug/L	2.0	04/12/19 11:06	
EPA 200.8	Cobalt, Dissolved	1.1	ug/L	1.0	04/12/19 11:06	
EPA 200.8	Copper, Dissolved	1.0	ug/L	1.0	04/12/19 11:06	
EPA 200.8	Manganese, Dissolved	1030	ug/L	10.0	04/13/19 04:17	
EPA 200.8	Molybdenum, Dissolved	3.3	ug/L	1.0	04/12/19 11:06	
EPA 200.8	Nickel, Dissolved	2.5	ug/L	0.50	04/12/19 11:06	
EPA 200.8	Strontium, Dissolved	266	ug/L	10.0	04/13/19 04:17	N2
EPA 200.8	Uranium, Dissolved	1.2	ug/L	1.0	04/12/19 11:06	N2
EPA 200.8	Zinc, Dissolved	2.6J	ug/L	3.0	04/12/19 11:06	
SM 2320B	Alkalinity, Total as CaCO3	202	mg/L	2.0	04/06/19 12:28	
SM 2540C	Total Dissolved Solids	262	mg/L	10.0	04/05/19 09:16	
EPA 365.1	Phosphorus	0.095	mg/L	0.050	04/15/19 16:26	
50221303002	**MW-8**					
EPA 300.0	Chloride	20.3	mg/L	2.5	04/14/19 12:33	
EPA 300.0	Fluoride	0.21	mg/L	0.10	04/14/19 12:17	
EPA 300.0	Sulfate	42.5	mg/L	2.5	04/14/19 12:33	
EPA 200.7	Calcium, Dissolved	65.8	mg/L	1.0	04/09/19 11:23	
EPA 200.7	Iron, Dissolved	0.62	mg/L	0.10	04/09/19 11:23	
EPA 200.7	Magnesium, Dissolved	14.9	mg/L	1.0	04/09/19 11:23	
EPA 200.7	Potassium, Dissolved	2.7	mg/L	1.0	04/09/19 11:23	
EPA 200.7	Silica, Dissolved	8.9	mg/L	0.45	04/09/19 11:23	
EPA 200.7	Sodium, Dissolved	15.9	mg/L	1.0	04/09/19 11:23	
EPA 200.7	Total Hardness by 2340B, Dissolved	226	mg/L	1.0	04/09/19 11:23	
EPA 200.8	Aluminum, Dissolved	3.3J	ug/L	10.0	04/12/19 11:11	
EPA 200.8	Arsenic, Dissolved	4.5	ug/L	1.0	04/12/19 11:11	
EPA 200.8	Barium, Dissolved	67.2	ug/L	1.0	04/12/19 11:11	
EPA 200.8	Boron, Dissolved	344	ug/L	25.0	04/13/19 04:22	
EPA 200.8	Chromium, Dissolved	0.57J	ug/L	2.0	04/12/19 11:11	
EPA 200.8	Cobalt, Dissolved	1.8	ug/L	1.0	04/12/19 11:11	
EPA 200.8	Copper, Dissolved	1.2	ug/L	1.0	04/12/19 11:11	
EPA 200.8	Lead, Dissolved	0.049J	ug/L	1.0	04/12/19 11:11	

Pace Analytical Services, LLC
7726 Moller Road
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SUMMARY OF DETECTION

Project: Tanners Creek
Pace Project No.: 50221303

Lab Sample ID / Method	Client Sample ID / Parameters	Result	Units	Report Limit	Analyzed	Qualifiers
50221303002	**MW-8**					
EPA 200.8	Manganese, Dissolved	677	ug/L	5.0	04/13/19 04:22	
EPA 200.8	Molybdenum, Dissolved	4.5	ug/L	1.0	04/12/19 11:11	
EPA 200.8	Nickel, Dissolved	6.4	ug/L	0.50	04/12/19 11:11	
EPA 200.8	Strontium, Dissolved	279	ug/L	5.0	04/13/19 04:22	N2
EPA 200.8	Uranium, Dissolved	0.58J	ug/L	1.0	04/12/19 11:11	N2
EPA 200.8	Vanadium, Dissolved	0.34J	ug/L	1.0	04/12/19 11:11	
EPA 200.8	Zinc, Dissolved	15.2	ug/L	3.0	04/12/19 11:11	
SM 2320B	Alkalinity, Total as CaCO3	186	mg/L	2.0	04/06/19 12:28	
SM 2540C	Total Dissolved Solids	284	mg/L	10.0	04/05/19 09:16	
EPA 353.2	Nitrogen, NO2 plus NO3	0.11	mg/L	0.10	04/09/19 13:20	
EPA 365.1	Phosphorus	0.15	mg/L	0.050	04/15/19 16:29	
50221303003	**MW-7**					
EPA 300.0	Chloride	11.0	mg/L	2.5	04/14/19 13:33	
EPA 300.0	Fluoride	0.18	mg/L	0.10	04/14/19 13:18	
EPA 300.0	Sulfate	7.5	mg/L	0.25	04/14/19 13:18	
EPA 200.7	Calcium, Dissolved	128	mg/L	1.0	04/09/19 11:26	
EPA 200.7	Iron, Dissolved	15.3	mg/L	0.10	04/09/19 11:26	
EPA 200.7	Magnesium, Dissolved	38.1	mg/L	1.0	04/09/19 11:26	
EPA 200.7	Potassium, Dissolved	1.2	mg/L	1.0	04/09/19 11:26	
EPA 200.7	Silica, Dissolved	19.1	mg/L	0.45	04/09/19 11:26	
EPA 200.7	Sodium, Dissolved	8.2	mg/L	1.0	04/09/19 11:26	
EPA 200.7	Total Hardness by 2340B, Dissolved	476	mg/L	1.0	04/09/19 11:26	
EPA 200.8	Aluminum, Dissolved	2.7J	ug/L	10.0	04/12/19 11:15	
EPA 200.8	Arsenic, Dissolved	16.4	ug/L	1.0	04/12/19 11:15	
EPA 200.8	Barium, Dissolved	189	ug/L	5.0	04/13/19 04:49	
EPA 200.8	Boron, Dissolved	37.3	ug/L	5.0	04/13/19 05:08	
EPA 200.8	Chromium, Dissolved	0.34J	ug/L	2.0	04/12/19 11:15	
EPA 200.8	Cobalt, Dissolved	0.76J	ug/L	1.0	04/12/19 11:15	
EPA 200.8	Copper, Dissolved	0.34J	ug/L	1.0	04/12/19 11:15	
EPA 200.8	Manganese, Dissolved	2020	ug/L	20.0	04/13/19 04:26	
EPA 200.8	Molybdenum, Dissolved	0.96J	ug/L	1.0	04/12/19 11:15	
EPA 200.8	Nickel, Dissolved	2.9	ug/L	0.50	04/12/19 11:15	
EPA 200.8	Strontium, Dissolved	419	ug/L	5.0	04/13/19 04:49	N2
EPA 200.8	Uranium, Dissolved	0.099J	ug/L	1.0	04/12/19 11:15	N2
EPA 200.8	Vanadium, Dissolved	0.46J	ug/L	1.0	04/12/19 11:15	
EPA 200.8	Zinc, Dissolved	1.9J	ug/L	3.0	04/12/19 11:15	
SM 2320B	Alkalinity, Total as CaCO3	446	mg/L	2.0	04/06/19 12:28	
SM 2540C	Total Dissolved Solids	364	mg/L	40.0	04/05/19 09:17	
EPA 353.2	Nitrogen, NO2 plus NO3	0.025J	mg/L	0.10	04/09/19 13:29	
EPA 365.1	Phosphorus	3.1	mg/L	0.25	04/15/19 17:12	
50221303004	**MW-6**					
EPA 300.0	Chloride	12.1	mg/L	0.25	04/14/19 13:48	
EPA 300.0	Fluoride	0.16	mg/L	0.10	04/14/19 13:48	
EPA 300.0	Sulfate	3.0	mg/L	0.25	04/14/19 13:48	
EPA 200.7	Calcium, Dissolved	139	mg/L	1.0	04/09/19 11:28	

Pace Analytical Services, LLC
7726 Moller Road
Indianapolis, IN 46268
(317)228-3100

SUMMARY OF DETECTION

Project: Tanners Creek
Pace Project No.: 50221303

Lab Sample ID / Method	Client Sample ID / Parameters	Result	Units	Report Limit	Analyzed	Qualifiers
50221303004	**MW-6**					
EPA 200.7	Iron, Dissolved	26.7	mg/L	0.10	04/09/19 11:28	
EPA 200.7	Magnesium, Dissolved	27.8	mg/L	1.0	04/09/19 11:28	
EPA 200.7	Potassium, Dissolved	1.5	mg/L	1.0	04/09/19 11:28	
EPA 200.7	Silica, Dissolved	27.4	mg/L	0.45	04/09/19 11:28	
EPA 200.7	Sodium, Dissolved	8.3	mg/L	1.0	04/09/19 11:28	
EPA 200.7	Total Hardness by 2340B, Dissolved	463	mg/L	1.0	04/09/19 11:28	
EPA 200.8	Aluminum, Dissolved	4.3J	ug/L	10.0	04/12/19 11:20	
EPA 200.8	Arsenic, Dissolved	15.7	ug/L	1.0	04/12/19 11:20	
EPA 200.8	Barium, Dissolved	212	ug/L	5.0	04/13/19 04:31	
EPA 200.8	Boron, Dissolved	71.5	ug/L	5.0	04/13/19 05:12	
EPA 200.8	Chromium, Dissolved	1.3J	ug/L	2.0	04/12/19 11:20	
EPA 200.8	Cobalt, Dissolved	3.2	ug/L	1.0	04/12/19 11:20	
EPA 200.8	Copper, Dissolved	1.1	ug/L	1.0	04/12/19 11:20	
EPA 200.8	Manganese, Dissolved	742	ug/L	5.0	04/13/19 04:31	
EPA 200.8	Molybdenum, Dissolved	0.43J	ug/L	1.0	04/12/19 11:20	
EPA 200.8	Nickel, Dissolved	4.7	ug/L	0.50	04/12/19 11:20	
EPA 200.8	Strontium, Dissolved	593	ug/L	5.0	04/13/19 04:31	N2
EPA 200.8	Uranium, Dissolved	0.11J	ug/L	1.0	04/12/19 11:20	N2
EPA 200.8	Vanadium, Dissolved	0.51J	ug/L	1.0	04/12/19 11:20	
EPA 200.8	Zinc, Dissolved	2.5J	ug/L	3.0	04/12/19 11:20	
SM 2320B	Alkalinity, Total as CaCO3	476	mg/L	2.0	04/06/19 12:28	
SM 2540C	Total Dissolved Solids	470	mg/L	20.0	04/05/19 09:18	
EPA 353.2	Nitrogen, NO2 plus NO3	0.043J	mg/L	0.10	04/09/19 13:31	
EPA 365.1	Phosphorus	2.1	mg/L	0.25	04/15/19 17:13	
50221303005	**MW-5**					
EPA 300.0	Chloride	15.4	mg/L	2.5	04/14/19 14:34	
EPA 300.0	Fluoride	0.13	mg/L	0.10	04/14/19 14:19	
EPA 300.0	Sulfate	48.7	mg/L	2.5	04/14/19 14:34	
EPA 200.7	Calcium, Dissolved	67.9	mg/L	1.0	04/09/19 11:30	
EPA 200.7	Iron, Dissolved	1.2	mg/L	0.10	04/09/19 11:30	
EPA 200.7	Magnesium, Dissolved	18.0	mg/L	1.0	04/09/19 11:30	
EPA 200.7	Potassium, Dissolved	2.6	mg/L	1.0	04/09/19 11:30	
EPA 200.7	Silica, Dissolved	10.2	mg/L	0.45	04/09/19 11:30	
EPA 200.7	Sodium, Dissolved	13.0	mg/L	1.0	04/09/19 11:30	
EPA 200.7	Total Hardness by 2340B, Dissolved	244	mg/L	1.0	04/09/19 11:30	
EPA 200.8	Aluminum, Dissolved	7.3J	ug/L	10.0	04/12/19 11:38	
EPA 200.8	Arsenic, Dissolved	3.7	ug/L	1.0	04/12/19 11:38	
EPA 200.8	Barium, Dissolved	46.9	ug/L	1.0	04/12/19 11:38	
EPA 200.8	Boron, Dissolved	28.5	ug/L	5.0	04/13/19 05:22	
EPA 200.8	Chromium, Dissolved	0.68J	ug/L	2.0	04/12/19 11:38	
EPA 200.8	Cobalt, Dissolved	1.5	ug/L	1.0	04/12/19 11:38	
EPA 200.8	Copper, Dissolved	0.78J	ug/L	1.0	04/12/19 11:38	
EPA 200.8	Manganese, Dissolved	1140	ug/L	10.0	04/13/19 04:40	
EPA 200.8	Molybdenum, Dissolved	5.4	ug/L	1.0	04/12/19 11:38	
EPA 200.8	Nickel, Dissolved	3.9	ug/L	0.50	04/12/19 11:38	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
7726 Moller Road
Indianapolis, IN 46268
(317)228-3100

SUMMARY OF DETECTION

Project: Tanners Creek
Pace Project No.: 50221303

Lab Sample ID / Method	Client Sample ID / Parameters	Result	Units	Report Limit	Analyzed	Qualifiers
50221303005	**MW-5**					
EPA 200.8	Strontium, Dissolved	313	ug/L	10.0	04/13/19 04:40	N2
EPA 200.8	Uranium, Dissolved	0.66J	ug/L	1.0	04/12/19 11:38	N2
EPA 200.8	Vanadium, Dissolved	0.29J	ug/L	1.0	04/12/19 11:38	
EPA 200.8	Zinc, Dissolved	6.2	ug/L	3.0	04/12/19 11:38	
SM 2320B	Alkalinity, Total as CaCO3	186	mg/L	2.0	04/06/19 12:28	
SM 2540C	Total Dissolved Solids	283	mg/L	10.0	04/05/19 09:19	
EPA 353.2	Nitrogen, NO2 plus NO3	0.059J	mg/L	0.10	04/09/19 13:33	
EPA 365.1	Phosphorus	0.22	mg/L	0.050	04/15/19 16:31	
50221303006	**MW-1**					
EPA 300.0	Chloride	17.3	mg/L	2.5	04/14/19 15:04	
EPA 300.0	Fluoride	0.15	mg/L	0.10	04/14/19 14:49	
EPA 300.0	Sulfate	34.6	mg/L	2.5	04/14/19 15:04	
EPA 200.7	Calcium, Dissolved	70.5	mg/L	1.0	04/09/19 11:32	
EPA 200.7	Iron, Dissolved	0.34	mg/L	0.10	04/09/19 11:32	
EPA 200.7	Magnesium, Dissolved	19.6	mg/L	1.0	04/09/19 11:32	
EPA 200.7	Potassium, Dissolved	2.9	mg/L	1.0	04/09/19 11:32	
EPA 200.7	Silica, Dissolved	9.6	mg/L	0.45	04/09/19 11:32	
EPA 200.7	Sodium, Dissolved	13.3	mg/L	1.0	04/09/19 11:32	
EPA 200.7	Total Hardness by 2340B, Dissolved	257	mg/L	1.0	04/09/19 11:32	
EPA 200.8	Aluminum, Dissolved	4.1J	ug/L	10.0	04/12/19 11:43	
EPA 200.8	Arsenic, Dissolved	1.1	ug/L	1.0	04/12/19 11:43	
EPA 200.8	Barium, Dissolved	55.8	ug/L	1.0	04/12/19 11:43	
EPA 200.8	Boron, Dissolved	52.9	ug/L	5.0	04/13/19 05:26	
EPA 200.8	Chromium, Dissolved	1.2J	ug/L	2.0	04/12/19 11:43	
EPA 200.8	Cobalt, Dissolved	1.2	ug/L	1.0	04/12/19 11:43	
EPA 200.8	Copper, Dissolved	1.3	ug/L	1.0	04/12/19 11:43	
EPA 200.8	Manganese, Dissolved	1100	ug/L	10.0	04/13/19 04:45	
EPA 200.8	Molybdenum, Dissolved	3.0	ug/L	1.0	04/12/19 11:43	
EPA 200.8	Nickel, Dissolved	3.6	ug/L	0.50	04/12/19 11:43	
EPA 200.8	Strontium, Dissolved	290	ug/L	10.0	04/13/19 04:45	N2
EPA 200.8	Uranium, Dissolved	0.85J	ug/L	1.0	04/12/19 11:43	N2
EPA 200.8	Zinc, Dissolved	4.8	ug/L	3.0	04/12/19 11:43	
SM 2320B	Alkalinity, Total as CaCO3	220	mg/L	2.0	04/06/19 17:10	
SM 2540C	Total Dissolved Solids	298	mg/L	10.0	04/05/19 09:19	
EPA 365.1	Phosphorus	0.14	mg/L	0.050	04/15/19 16:32	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
7726 Moller Road
Indianapolis, IN 46268
(317)228-3100

ANALYTICAL RESULTS

Project: Tanners Creek
Pace Project No.: 50221303

Sample: MW-4 **Lab ID: 50221303001** Collected: 04/02/19 09:40 Received: 04/04/19 09:00 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0								
Chloride	**15.2**	mg/L	2.5	0.49	10		04/14/19 12:02	16887-00-6	
Fluoride	**0.17**	mg/L	0.10	0.033	1		04/14/19 11:47	16984-48-8	
Sulfate	**31.4**	mg/L	2.5	0.87	10		04/14/19 12:02	14808-79-8	
200.7 Metals, Dissolved	Analytical Method: EPA 200.7 Preparation Method: EPA 200.7								
Calcium, Dissolved	**69.8**	mg/L	1.0	0.10	1	04/08/19 16:00	04/09/19 11:21	7440-70-2	
Iron, Dissolved	**0.15**	mg/L	0.10	0.030	1	04/08/19 16:00	04/09/19 11:21	7439-89-6	
Magnesium, Dissolved	**14.9**	mg/L	1.0	0.093	1	04/08/19 16:00	04/09/19 11:21	7439-95-4	
Potassium, Dissolved	**2.2**	mg/L	1.0	0.054	1	04/08/19 16:00	04/09/19 11:21	7440-09-7	
Silica, Dissolved	**8.5**	mg/L	0.45		1	04/08/19 16:00	04/09/19 11:21	7631-86-9	
Sodium, Dissolved	**12.1**	mg/L	1.0	0.031	1	04/08/19 16:00	04/09/19 11:21	7440-23-5	
Total Hardness by 2340B, Dissolved	**236**	mg/L	1.0	1.0	1	04/08/19 16:00	04/09/19 11:21		
200.8 MET ICPMS, Dissolved	Analytical Method: EPA 200.8 Preparation Method: EPA 200.8								
Aluminum, Dissolved	**2.9J**	ug/L	10.0	1.3	1	04/11/19 09:35	04/12/19 11:06	7429-90-5	
Antimony, Dissolved	**<0.17**	ug/L	1.0	0.17	1	04/11/19 09:35	04/12/19 11:06	7440-36-0	
Arsenic, Dissolved	**1.9**	ug/L	1.0	0.32	1	04/11/19 09:35	04/12/19 11:06	7440-38-2	
Barium, Dissolved	**64.5**	ug/L	1.0	0.036	1	04/11/19 09:35	04/12/19 11:06	7440-39-3	
Beryllium, Dissolved	**<0.024**	ug/L	0.20	0.024	1	04/11/19 09:35	04/12/19 11:06	7440-41-7	
Boron, Dissolved	**32.5**	ug/L	5.0	1.0	1	04/11/19 09:35	04/13/19 05:03	7440-42-8	
Cadmium, Dissolved	**<0.026**	ug/L	0.20	0.026	1	04/11/19 09:35	04/12/19 11:06	7440-43-9	
Chromium, Dissolved	**0.44J**	ug/L	2.0	0.11	1	04/11/19 09:35	04/12/19 11:06	7440-47-3	
Cobalt, Dissolved	**1.1**	ug/L	1.0	0.036	1	04/11/19 09:35	04/12/19 11:06	7440-48-4	
Copper, Dissolved	**1.0**	ug/L	1.0	0.091	1	04/11/19 09:35	04/12/19 11:06	7440-50-8	
Lead, Dissolved	**<0.037**	ug/L	1.0	0.037	1	04/11/19 09:35	04/12/19 11:06	7439-92-1	
Manganese, Dissolved	**1030**	ug/L	10.0	0.49	10	04/11/19 09:35	04/13/19 04:17	7439-96-5	
Molybdenum, Dissolved	**3.3**	ug/L	1.0	0.043	1	04/11/19 09:35	04/12/19 11:06	7439-98-7	
Nickel, Dissolved	**2.5**	ug/L	0.50	0.14	1	04/11/19 09:35	04/12/19 11:06	7440-02-0	
Selenium, Dissolved	**<0.48**	ug/L	1.0	0.48	1	04/11/19 09:35	04/12/19 11:06	7782-49-2	
Silver, Dissolved	**<0.025**	ug/L	0.50	0.025	1	04/11/19 09:35	04/12/19 11:06	7440-22-4	
Strontium, Dissolved	**266**	ug/L	10.0	0.47	10	04/11/19 09:35	04/13/19 04:17	7440-24-6	N2
Thallium, Dissolved	**<0.057**	ug/L	1.0	0.057	1	04/11/19 09:35	04/12/19 11:06	7440-28-0	
Uranium, Dissolved	**1.2**	ug/L	1.0	0.0070	1	04/11/19 09:35	04/12/19 11:06	7440-61-1	N2
Vanadium, Dissolved	**<0.18**	ug/L	1.0	0.18	1	04/11/19 09:35	04/12/19 11:06	7440-62-2	
Zinc, Dissolved	**2.6J**	ug/L	3.0	0.30	1	04/11/19 09:35	04/12/19 11:06	7440-66-6	
245.1 Mercury, Dissolved	Analytical Method: EPA 245.1 Preparation Method: EPA 245.1								
Mercury, Dissolved	**<0.067**	ug/L	0.20	0.067	1	04/09/19 09:24	04/09/19 20:17	7439-97-6	
2320B Alkalinity	Analytical Method: SM 2320B								
Alkalinity, Total as CaCO3	**202**	mg/L	2.0	1.0	1		04/06/19 12:28		
2540C Total Dissolved Solids	Analytical Method: SM 2540C								
Total Dissolved Solids	**262**	mg/L	10.0	10.0	1		04/05/19 09:16		

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
7726 Moller Road
Indianapolis, IN 46268
(317)228-3100

ANALYTICAL RESULTS

Project: Tanners Creek
Pace Project No.: 50221303

Sample: MW-4 **Lab ID: 50221303001** Collected: 04/02/19 09:40 Received: 04/04/19 09:00 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
353.2 Nitrogen, NO2/NO3 pres.	Analytical Method: EPA 353.2								
Nitrogen, NO2 plus NO3	**<0.020**	mg/L	0.10	0.020	1		04/09/19 12:52		
365.1 Total Phosphorus	Analytical Method: EPA 365.1 Preparation Method: EPA 365.1								
Phosphorus	**0.095**	mg/L	0.050	0.021	1	04/11/19 10:00	04/15/19 16:26	7723-14-0	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
7726 Moller Road
Indianapolis, IN 46268
(317)228-3100

ANALYTICAL RESULTS

Project: Tanners Creek
Pace Project No.: 50221303

Sample: MW-8 **Lab ID: 50221303002** Collected: 04/02/19 11:00 Received: 04/04/19 09:00 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0								
Chloride	**20.3**	mg/L	2.5	0.49	10		04/14/19 12:33	16887-00-6	
Fluoride	**0.21**	mg/L	0.10	0.033	1		04/14/19 12:17	16984-48-8	
Sulfate	**42.5**	mg/L	2.5	0.87	10		04/14/19 12:33	14808-79-8	
200.7 Metals, Dissolved	Analytical Method: EPA 200.7 Preparation Method: EPA 200.7								
Calcium, Dissolved	**65.8**	mg/L	1.0	0.10	1	04/08/19 16:00	04/09/19 11:23	7440-70-2	
Iron, Dissolved	**0.62**	mg/L	0.10	0.030	1	04/08/19 16:00	04/09/19 11:23	7439-89-6	
Magnesium, Dissolved	**14.9**	mg/L	1.0	0.093	1	04/08/19 16:00	04/09/19 11:23	7439-95-4	
Potassium, Dissolved	**2.7**	mg/L	1.0	0.054	1	04/08/19 16:00	04/09/19 11:23	7440-09-7	
Silica, Dissolved	**8.9**	mg/L	0.45		1	04/08/19 16:00	04/09/19 11:23	7631-86-9	
Sodium, Dissolved	**15.9**	mg/L	1.0	0.031	1	04/08/19 16:00	04/09/19 11:23	7440-23-5	
Total Hardness by 2340B, Dissolved	**226**	mg/L	1.0	1.0	1	04/08/19 16:00	04/09/19 11:23		
200.8 MET ICPMS, Dissolved	Analytical Method: EPA 200.8 Preparation Method: EPA 200.8								
Aluminum, Dissolved	**3.3J**	ug/L	10.0	1.3	1	04/11/19 09:35	04/12/19 11:11	7429-90-5	
Antimony, Dissolved	**<0.17**	ug/L	1.0	0.17	1	04/11/19 09:35	04/12/19 11:11	7440-36-0	
Arsenic, Dissolved	**4.5**	ug/L	1.0	0.32	1	04/11/19 09:35	04/12/19 11:11	7440-38-2	
Barium, Dissolved	**67.2**	ug/L	1.0	0.036	1	04/11/19 09:35	04/12/19 11:11	7440-39-3	
Beryllium, Dissolved	**<0.024**	ug/L	0.20	0.024	1	04/11/19 09:35	04/12/19 11:11	7440-41-7	
Boron, Dissolved	**344**	ug/L	25.0	5.1	5	04/11/19 09:35	04/13/19 04:22	7440-42-8	
Cadmium, Dissolved	**<0.026**	ug/L	0.20	0.026	1	04/11/19 09:35	04/12/19 11:11	7440-43-9	
Chromium, Dissolved	**0.57J**	ug/L	2.0	0.11	1	04/11/19 09:35	04/12/19 11:11	7440-47-3	
Cobalt, Dissolved	**1.8**	ug/L	1.0	0.036	1	04/11/19 09:35	04/12/19 11:11	7440-48-4	
Copper, Dissolved	**1.2**	ug/L	1.0	0.091	1	04/11/19 09:35	04/12/19 11:11	7440-50-8	
Lead, Dissolved	**0.049J**	ug/L	1.0	0.037	1	04/11/19 09:35	04/12/19 11:11	7439-92-1	
Manganese, Dissolved	**677**	ug/L	5.0	0.24	5	04/11/19 09:35	04/13/19 04:22	7439-96-5	
Molybdenum, Dissolved	**4.5**	ug/L	1.0	0.043	1	04/11/19 09:35	04/12/19 11:11	7439-98-7	
Nickel, Dissolved	**6.4**	ug/L	0.50	0.14	1	04/11/19 09:35	04/12/19 11:11	7440-02-0	
Selenium, Dissolved	**<0.48**	ug/L	1.0	0.48	1	04/11/19 09:35	04/12/19 11:11	7782-49-2	
Silver, Dissolved	**<0.025**	ug/L	0.50	0.025	1	04/11/19 09:35	04/12/19 11:11	7440-22-4	
Strontium, Dissolved	**279**	ug/L	5.0	0.24	5	04/11/19 09:35	04/13/19 04:22	7440-24-6	N2
Thallium, Dissolved	**<0.057**	ug/L	1.0	0.057	1	04/11/19 09:35	04/12/19 11:11	7440-28-0	
Uranium, Dissolved	**0.58J**	ug/L	1.0	0.0070	1	04/11/19 09:35	04/12/19 11:11	7440-61-1	N2
Vanadium, Dissolved	**0.34J**	ug/L	1.0	0.18	1	04/11/19 09:35	04/12/19 11:11	7440-62-2	
Zinc, Dissolved	**15.2**	ug/L	3.0	0.30	1	04/11/19 09:35	04/12/19 11:11	7440-66-6	
245.1 Mercury, Dissolved	Analytical Method: EPA 245.1 Preparation Method: EPA 245.1								
Mercury, Dissolved	**<0.067**	ug/L	0.20	0.067	1	04/09/19 09:24	04/09/19 20:19	7439-97-6	
2320B Alkalinity	Analytical Method: SM 2320B								
Alkalinity, Total as CaCO3	**186**	mg/L	2.0	1.0	1		04/06/19 12:28		
2540C Total Dissolved Solids	Analytical Method: SM 2540C								
Total Dissolved Solids	**284**	mg/L	10.0	10.0	1		04/05/19 09:16		

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
7726 Moller Road
Indianapolis, IN 46268
(317)228-3100

ANALYTICAL RESULTS

Project: Tanners Creek
Pace Project No.: 50221303

Sample: MW-8 **Lab ID: 50221303002** Collected: 04/02/19 11:00 Received: 04/04/19 09:00 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
353.2 Nitrogen, NO2/NO3 pres.	Analytical Method: EPA 353.2								
Nitrogen, NO2 plus NO3	**0.11**	mg/L	0.10	0.020	1		04/09/19 13:20		
365.1 Total Phosphorus	Analytical Method: EPA 365.1 Preparation Method: EPA 365.1								
Phosphorus	**0.15**	mg/L	0.050	0.021	1	04/11/19 10:00	04/15/19 16:29	7723-14-0	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
7726 Moller Road
Indianapolis, IN 46268
(317)228-3100

ANALYTICAL RESULTS

Project: Tanners Creek
Pace Project No.: 50221303

Sample: MW-7 **Lab ID: 50221303003** Collected: 04/02/19 12:30 Received: 04/04/19 09:00 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0								
Chloride	**11.0**	mg/L	2.5	0.49	10		04/14/19 13:33	16887-00-6	
Fluoride	**0.18**	mg/L	0.10	0.033	1		04/14/19 13:18	16984-48-8	
Sulfate	**7.5**	mg/L	0.25	0.087	1		04/14/19 13:18	14808-79-8	
200.7 Metals, Dissolved	Analytical Method: EPA 200.7 Preparation Method: EPA 200.7								
Calcium, Dissolved	**128**	mg/L	1.0	0.10	1	04/08/19 16:00	04/09/19 11:26	7440-70-2	
Iron, Dissolved	**15.3**	mg/L	0.10	0.030	1	04/08/19 16:00	04/09/19 11:26	7439-89-6	
Magnesium, Dissolved	**38.1**	mg/L	1.0	0.093	1	04/08/19 16:00	04/09/19 11:26	7439-95-4	
Potassium, Dissolved	**1.2**	mg/L	1.0	0.054	1	04/08/19 16:00	04/09/19 11:26	7440-09-7	
Silica, Dissolved	**19.1**	mg/L	0.45		1	04/08/19 16:00	04/09/19 11:26	7631-86-9	
Sodium, Dissolved	**8.2**	mg/L	1.0	0.031	1	04/08/19 16:00	04/09/19 11:26	7440-23-5	
Total Hardness by 2340B, Dissolved	**476**	mg/L	1.0	1.0	1	04/08/19 16:00	04/09/19 11:26		
200.8 MET ICPMS, Dissolved	Analytical Method: EPA 200.8 Preparation Method: EPA 200.8								
Aluminum, Dissolved	**2.7J**	ug/L	10.0	1.3	1	04/11/19 09:35	04/12/19 11:15	7429-90-5	
Antimony, Dissolved	**<0.17**	ug/L	1.0	0.17	1	04/11/19 09:35	04/12/19 11:15	7440-36-0	
Arsenic, Dissolved	**16.4**	ug/L	1.0	0.32	1	04/11/19 09:35	04/12/19 11:15	7440-38-2	
Barium, Dissolved	**189**	ug/L	5.0	0.18	5	04/11/19 09:35	04/13/19 04:49	7440-39-3	
Beryllium, Dissolved	**<0.024**	ug/L	0.20	0.024	1	04/11/19 09:35	04/12/19 11:15	7440-41-7	
Boron, Dissolved	**37.3**	ug/L	5.0	1.0	1	04/11/19 09:35	04/13/19 05:08	7440-42-8	
Cadmium, Dissolved	**<0.026**	ug/L	0.20	0.026	1	04/11/19 09:35	04/12/19 11:15	7440-43-9	
Chromium, Dissolved	**0.34J**	ug/L	2.0	0.11	1	04/11/19 09:35	04/12/19 11:15	7440-47-3	
Cobalt, Dissolved	**0.76J**	ug/L	1.0	0.036	1	04/11/19 09:35	04/12/19 11:15	7440-48-4	
Copper, Dissolved	**0.34J**	ug/L	1.0	0.091	1	04/11/19 09:35	04/12/19 11:15	7440-50-8	
Lead, Dissolved	**<0.037**	ug/L	1.0	0.037	1	04/11/19 09:35	04/12/19 11:15	7439-92-1	
Manganese, Dissolved	**2020**	ug/L	20.0	0.98	20	04/11/19 09:35	04/13/19 04:26	7439-96-5	
Molybdenum, Dissolved	**0.96J**	ug/L	1.0	0.043	1	04/11/19 09:35	04/12/19 11:15	7439-98-7	
Nickel, Dissolved	**2.9**	ug/L	0.50	0.14	1	04/11/19 09:35	04/12/19 11:15	7440-02-0	
Selenium, Dissolved	**<0.48**	ug/L	1.0	0.48	1	04/11/19 09:35	04/12/19 11:15	7782-49-2	
Silver, Dissolved	**<0.025**	ug/L	0.50	0.025	1	04/11/19 09:35	04/12/19 11:15	7440-22-4	
Strontium, Dissolved	**419**	ug/L	5.0	0.24	5	04/11/19 09:35	04/13/19 04:49	7440-24-6	N2
Thallium, Dissolved	**<0.057**	ug/L	1.0	0.057	1	04/11/19 09:35	04/12/19 11:15	7440-28-0	
Uranium, Dissolved	**0.099J**	ug/L	1.0	0.0070	1	04/11/19 09:35	04/12/19 11:15	7440-61-1	N2
Vanadium, Dissolved	**0.46J**	ug/L	1.0	0.18	1	04/11/19 09:35	04/12/19 11:15	7440-62-2	
Zinc, Dissolved	**1.9J**	ug/L	3.0	0.30	1	04/11/19 09:35	04/12/19 11:15	7440-66-6	
245.1 Mercury, Dissolved	Analytical Method: EPA 245.1 Preparation Method: EPA 245.1								
Mercury, Dissolved	**<0.067**	ug/L	0.20	0.067	1	04/09/19 09:24	04/09/19 20:21	7439-97-6	
2320B Alkalinity	Analytical Method: SM 2320B								
Alkalinity, Total as CaCO3	**446**	mg/L	2.0	1.0	1		04/06/19 12:28		
2540C Total Dissolved Solids	Analytical Method: SM 2540C								
Total Dissolved Solids	**364**	mg/L	40.0	40.0	1		04/05/19 09:17		

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
7726 Moller Road
Indianapolis, IN 46268
(317)228-3100

ANALYTICAL RESULTS

Project: Tanners Creek
Pace Project No.: 50221303

Sample: MW-7 **Lab ID: 50221303003** Collected: 04/02/19 12:30 Received: 04/04/19 09:00 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
353.2 Nitrogen, NO2/NO3 pres.	Analytical Method: EPA 353.2								
Nitrogen, NO2 plus NO3	**0.025J**	mg/L	0.10	0.020	1		04/09/19 13:29		
365.1 Total Phosphorus	Analytical Method: EPA 365.1 Preparation Method: EPA 365.1								
Phosphorus	**3.1**	mg/L	0.25	0.10	5	04/11/19 10:00	04/15/19 17:12	7723-14-0	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
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Indianapolis, IN 46268
(317)228-3100

ANALYTICAL RESULTS

Project: Tanners Creek
Pace Project No.: 50221303

Sample: MW-6 **Lab ID: 50221303004** Collected: 04/02/19 14:15 Received: 04/04/19 09:00 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0								
Chloride	**12.1**	mg/L	0.25	0.049	1		04/14/19 13:48	16887-00-6	
Fluoride	**0.16**	mg/L	0.10	0.033	1		04/14/19 13:48	16984-48-8	
Sulfate	**3.0**	mg/L	0.25	0.087	1		04/14/19 13:48	14808-79-8	
200.7 Metals, Dissolved	Analytical Method: EPA 200.7 Preparation Method: EPA 200.7								
Calcium, Dissolved	**139**	mg/L	1.0	0.10	1	04/08/19 16:00	04/09/19 11:28	7440-70-2	
Iron, Dissolved	**26.7**	mg/L	0.10	0.030	1	04/08/19 16:00	04/09/19 11:28	7439-89-6	
Magnesium, Dissolved	**27.8**	mg/L	1.0	0.093	1	04/08/19 16:00	04/09/19 11:28	7439-95-4	
Potassium, Dissolved	**1.5**	mg/L	1.0	0.054	1	04/08/19 16:00	04/09/19 11:28	7440-09-7	
Silica, Dissolved	**27.4**	mg/L	0.45		1	04/08/19 16:00	04/09/19 11:28	7631-86-9	
Sodium, Dissolved	**8.3**	mg/L	1.0	0.031	1	04/08/19 16:00	04/09/19 11:28	7440-23-5	
Total Hardness by 2340B, Dissolved	**463**	mg/L	1.0	1.0	1	04/08/19 16:00	04/09/19 11:28		
200.8 MET ICPMS, Dissolved	Analytical Method: EPA 200.8 Preparation Method: EPA 200.8								
Aluminum, Dissolved	**4.3J**	ug/L	10.0	1.3	1	04/11/19 09:35	04/12/19 11:20	7429-90-5	
Antimony, Dissolved	**<0.17**	ug/L	1.0	0.17	1	04/11/19 09:35	04/12/19 11:20	7440-36-0	
Arsenic, Dissolved	**15.7**	ug/L	1.0	0.32	1	04/11/19 09:35	04/12/19 11:20	7440-38-2	
Barium, Dissolved	**212**	ug/L	5.0	0.18	5	04/11/19 09:35	04/13/19 04:31	7440-39-3	
Beryllium, Dissolved	**<0.024**	ug/L	0.20	0.024	1	04/11/19 09:35	04/12/19 11:20	7440-41-7	
Boron, Dissolved	**71.5**	ug/L	5.0	1.0	1	04/11/19 09:35	04/13/19 05:12	7440-42-8	
Cadmium, Dissolved	**<0.026**	ug/L	0.20	0.026	1	04/11/19 09:35	04/12/19 11:20	7440-43-9	
Chromium, Dissolved	**1.3J**	ug/L	2.0	0.11	1	04/11/19 09:35	04/12/19 11:20	7440-47-3	
Cobalt, Dissolved	**3.2**	ug/L	1.0	0.036	1	04/11/19 09:35	04/12/19 11:20	7440-48-4	
Copper, Dissolved	**1.1**	ug/L	1.0	0.091	1	04/11/19 09:35	04/12/19 11:20	7440-50-8	
Lead, Dissolved	**<0.037**	ug/L	1.0	0.037	1	04/11/19 09:35	04/12/19 11:20	7439-92-1	
Manganese, Dissolved	**742**	ug/L	5.0	0.24	5	04/11/19 09:35	04/13/19 04:31	7439-96-5	
Molybdenum, Dissolved	**0.43J**	ug/L	1.0	0.043	1	04/11/19 09:35	04/12/19 11:20	7439-98-7	
Nickel, Dissolved	**4.7**	ug/L	0.50	0.14	1	04/11/19 09:35	04/12/19 11:20	7440-02-0	
Selenium, Dissolved	**<0.48**	ug/L	1.0	0.48	1	04/11/19 09:35	04/12/19 11:20	7782-49-2	
Silver, Dissolved	**<0.025**	ug/L	0.50	0.025	1	04/11/19 09:35	04/12/19 11:20	7440-22-4	
Strontium, Dissolved	**593**	ug/L	5.0	0.24	5	04/11/19 09:35	04/13/19 04:31	7440-24-6	N2
Thallium, Dissolved	**<0.057**	ug/L	1.0	0.057	1	04/11/19 09:35	04/12/19 11:20	7440-28-0	
Uranium, Dissolved	**0.11J**	ug/L	1.0	0.0070	1	04/11/19 09:35	04/12/19 11:20	7440-61-1	N2
Vanadium, Dissolved	**0.51J**	ug/L	1.0	0.18	1	04/11/19 09:35	04/12/19 11:20	7440-62-2	
Zinc, Dissolved	**2.5J**	ug/L	3.0	0.30	1	04/11/19 09:35	04/12/19 11:20	7440-66-6	
245.1 Mercury, Dissolved	Analytical Method: EPA 245.1 Preparation Method: EPA 245.1								
Mercury, Dissolved	**<0.067**	ug/L	0.20	0.067	1	04/09/19 09:24	04/09/19 20:23	7439-97-6	
2320B Alkalinity	Analytical Method: SM 2320B								
Alkalinity, Total as CaCO3	**476**	mg/L	2.0	1.0	1		04/06/19 12:28		
2540C Total Dissolved Solids	Analytical Method: SM 2540C								
Total Dissolved Solids	**470**	mg/L	20.0	20.0	1		04/05/19 09:18		

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
7726 Moller Road
Indianapolis, IN 46268
(317)228-3100

ANALYTICAL RESULTS

Project: Tanners Creek
Pace Project No.: 50221303

Sample: MW-6 **Lab ID: 50221303004** Collected: 04/02/19 14:15 Received: 04/04/19 09:00 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
353.2 Nitrogen, NO2/NO3 pres.	Analytical Method: EPA 353.2								
Nitrogen, NO2 plus NO3	**0.043J**	mg/L	0.10	0.020	1		04/09/19 13:31		
365.1 Total Phosphorus	Analytical Method: EPA 365.1 Preparation Method: EPA 365.1								
Phosphorus	**2.1**	mg/L	0.25	0.10	5	04/11/19 10:00	04/15/19 17:13	7723-14-0	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
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ANALYTICAL RESULTS

Project: Tanners Creek
Pace Project No.: 50221303

Sample: MW-5 **Lab ID: 50221303005** Collected: 04/02/19 15:40 Received: 04/04/19 09:00 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0								
Chloride	**15.4**	mg/L	2.5	0.49	10		04/14/19 14:34	16887-00-6	
Fluoride	**0.13**	mg/L	0.10	0.033	1		04/14/19 14:19	16984-48-8	
Sulfate	**48.7**	mg/L	2.5	0.87	10		04/14/19 14:34	14808-79-8	
200.7 Metals, Dissolved	Analytical Method: EPA 200.7 Preparation Method: EPA 200.7								
Calcium, Dissolved	**67.9**	mg/L	1.0	0.10	1	04/08/19 16:00	04/09/19 11:30	7440-70-2	
Iron, Dissolved	**1.2**	mg/L	0.10	0.030	1	04/08/19 16:00	04/09/19 11:30	7439-89-6	
Magnesium, Dissolved	**18.0**	mg/L	1.0	0.093	1	04/08/19 16:00	04/09/19 11:30	7439-95-4	
Potassium, Dissolved	**2.6**	mg/L	1.0	0.054	1	04/08/19 16:00	04/09/19 11:30	7440-09-7	
Silica, Dissolved	**10.2**	mg/L	0.45		1	04/08/19 16:00	04/09/19 11:30	7631-86-9	
Sodium, Dissolved	**13.0**	mg/L	1.0	0.031	1	04/08/19 16:00	04/09/19 11:30	7440-23-5	
Total Hardness by 2340B, Dissolved	**244**	mg/L	1.0	1.0	1	04/08/19 16:00	04/09/19 11:30		
200.8 MET ICPMS, Dissolved	Analytical Method: EPA 200.8 Preparation Method: EPA 200.8								
Aluminum, Dissolved	**7.3J**	ug/L	10.0	1.3	1	04/11/19 09:35	04/12/19 11:38	7429-90-5	
Antimony, Dissolved	**<0.17**	ug/L	1.0	0.17	1	04/11/19 09:35	04/12/19 11:38	7440-36-0	
Arsenic, Dissolved	**3.7**	ug/L	1.0	0.32	1	04/11/19 09:35	04/12/19 11:38	7440-38-2	
Barium, Dissolved	**46.9**	ug/L	1.0	0.036	1	04/11/19 09:35	04/12/19 11:38	7440-39-3	
Beryllium, Dissolved	**<0.024**	ug/L	0.20	0.024	1	04/11/19 09:35	04/12/19 11:38	7440-41-7	
Boron, Dissolved	**28.5**	ug/L	5.0	1.0	1	04/11/19 09:35	04/13/19 05:22	7440-42-8	
Cadmium, Dissolved	**<0.026**	ug/L	0.20	0.026	1	04/11/19 09:35	04/12/19 11:38	7440-43-9	
Chromium, Dissolved	**0.68J**	ug/L	2.0	0.11	1	04/11/19 09:35	04/12/19 11:38	7440-47-3	
Cobalt, Dissolved	**1.5**	ug/L	1.0	0.036	1	04/11/19 09:35	04/12/19 11:38	7440-48-4	
Copper, Dissolved	**0.78J**	ug/L	1.0	0.091	1	04/11/19 09:35	04/12/19 11:38	7440-50-8	
Lead, Dissolved	**<0.037**	ug/L	1.0	0.037	1	04/11/19 09:35	04/12/19 11:38	7439-92-1	
Manganese, Dissolved	**1140**	ug/L	10.0	0.49	10	04/11/19 09:35	04/13/19 04:40	7439-96-5	
Molybdenum, Dissolved	**5.4**	ug/L	1.0	0.043	1	04/11/19 09:35	04/12/19 11:38	7439-98-7	
Nickel, Dissolved	**3.9**	ug/L	0.50	0.14	1	04/11/19 09:35	04/12/19 11:38	7440-02-0	
Selenium, Dissolved	**<0.48**	ug/L	1.0	0.48	1	04/11/19 09:35	04/12/19 11:38	7782-49-2	
Silver, Dissolved	**<0.025**	ug/L	0.50	0.025	1	04/11/19 09:35	04/12/19 11:38	7440-22-4	
Strontium, Dissolved	**313**	ug/L	10.0	0.47	10	04/11/19 09:35	04/13/19 04:40	7440-24-6	N2
Thallium, Dissolved	**<0.057**	ug/L	1.0	0.057	1	04/11/19 09:35	04/12/19 11:38	7440-28-0	
Uranium, Dissolved	**0.66J**	ug/L	1.0	0.0070	1	04/11/19 09:35	04/12/19 11:38	7440-61-1	N2
Vanadium, Dissolved	**0.29J**	ug/L	1.0	0.18	1	04/11/19 09:35	04/12/19 11:38	7440-62-2	
Zinc, Dissolved	**6.2**	ug/L	3.0	0.30	1	04/11/19 09:35	04/12/19 11:38	7440-66-6	
245.1 Mercury, Dissolved	Analytical Method: EPA 245.1 Preparation Method: EPA 245.1								
Mercury, Dissolved	**<0.067**	ug/L	0.20	0.067	1	04/09/19 09:24	04/09/19 20:25	7439-97-6	
2320B Alkalinity	Analytical Method: SM 2320B								
Alkalinity, Total as CaCO3	**186**	mg/L	2.0	1.0	1		04/06/19 12:28		
2540C Total Dissolved Solids	Analytical Method: SM 2540C								
Total Dissolved Solids	**283**	mg/L	10.0	10.0	1		04/05/19 09:19		

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
7726 Moller Road
Indianapolis, IN 46268
(317)228-3100

ANALYTICAL RESULTS

Project: Tanners Creek
Pace Project No.: 50221303

Sample: MW-5 **Lab ID: 50221303005** Collected: 04/02/19 15:40 Received: 04/04/19 09:00 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
353.2 Nitrogen, NO2/NO3 pres.	Analytical Method: EPA 353.2								
Nitrogen, NO2 plus NO3	**0.059J**	mg/L	0.10	0.020	1		04/09/19 13:33		
365.1 Total Phosphorus	Analytical Method: EPA 365.1 Preparation Method: EPA 365.1								
Phosphorus	**0.22**	mg/L	0.050	0.021	1	04/11/19 10:00	04/15/19 16:31	7723-14-0	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
7726 Moller Road
Indianapolis, IN 46268
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ANALYTICAL RESULTS

Project: Tanners Creek
Pace Project No.: 50221303

Sample: MW-1 **Lab ID: 50221303006** Collected: 04/02/19 17:10 Received: 04/04/19 09:00 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0								
Chloride	**17.3**	mg/L	2.5	0.49	10		04/14/19 15:04	16887-00-6	
Fluoride	**0.15**	mg/L	0.10	0.033	1		04/14/19 14:49	16984-48-8	
Sulfate	**34.6**	mg/L	2.5	0.87	10		04/14/19 15:04	14808-79-8	
200.7 Metals, Dissolved	Analytical Method: EPA 200.7 Preparation Method: EPA 200.7								
Calcium, Dissolved	**70.5**	mg/L	1.0	0.10	1	04/08/19 16:00	04/09/19 11:32	7440-70-2	
Iron, Dissolved	**0.34**	mg/L	0.10	0.030	1	04/08/19 16:00	04/09/19 11:32	7439-89-6	
Magnesium, Dissolved	**19.6**	mg/L	1.0	0.093	1	04/08/19 16:00	04/09/19 11:32	7439-95-4	
Potassium, Dissolved	**2.9**	mg/L	1.0	0.054	1	04/08/19 16:00	04/09/19 11:32	7440-09-7	
Silica, Dissolved	**9.6**	mg/L	0.45		1	04/08/19 16:00	04/09/19 11:32	7631-86-9	
Sodium, Dissolved	**13.3**	mg/L	1.0	0.031	1	04/08/19 16:00	04/09/19 11:32	7440-23-5	
Total Hardness by 2340B, Dissolved	**257**	mg/L	1.0	1.0	1	04/08/19 16:00	04/09/19 11:32		
200.8 MET ICPMS, Dissolved	Analytical Method: EPA 200.8 Preparation Method: EPA 200.8								
Aluminum, Dissolved	**4.1J**	ug/L	10.0	1.3	1	04/11/19 09:35	04/12/19 11:43	7429-90-5	
Antimony, Dissolved	**<0.17**	ug/L	1.0	0.17	1	04/11/19 09:35	04/12/19 11:43	7440-36-0	
Arsenic, Dissolved	**1.1**	ug/L	1.0	0.32	1	04/11/19 09:35	04/12/19 11:43	7440-38-2	
Barium, Dissolved	**55.8**	ug/L	1.0	0.036	1	04/11/19 09:35	04/12/19 11:43	7440-39-3	
Beryllium, Dissolved	**<0.024**	ug/L	0.20	0.024	1	04/11/19 09:35	04/12/19 11:43	7440-41-7	
Boron, Dissolved	**52.9**	ug/L	5.0	1.0	1	04/11/19 09:35	04/13/19 05:26	7440-42-8	
Cadmium, Dissolved	**<0.026**	ug/L	0.20	0.026	1	04/11/19 09:35	04/12/19 11:43	7440-43-9	
Chromium, Dissolved	**1.2J**	ug/L	2.0	0.11	1	04/11/19 09:35	04/12/19 11:43	7440-47-3	
Cobalt, Dissolved	**1.2**	ug/L	1.0	0.036	1	04/11/19 09:35	04/12/19 11:43	7440-48-4	
Copper, Dissolved	**1.3**	ug/L	1.0	0.091	1	04/11/19 09:35	04/12/19 11:43	7440-50-8	
Lead, Dissolved	**<0.037**	ug/L	1.0	0.037	1	04/11/19 09:35	04/12/19 11:43	7439-92-1	
Manganese, Dissolved	**1100**	ug/L	10.0	0.49	10	04/11/19 09:35	04/13/19 04:45	7439-96-5	
Molybdenum, Dissolved	**3.0**	ug/L	1.0	0.043	1	04/11/19 09:35	04/12/19 11:43	7439-98-7	
Nickel, Dissolved	**3.6**	ug/L	0.50	0.14	1	04/11/19 09:35	04/12/19 11:43	7440-02-0	
Selenium, Dissolved	**<0.48**	ug/L	1.0	0.48	1	04/11/19 09:35	04/12/19 11:43	7782-49-2	
Silver, Dissolved	**<0.025**	ug/L	0.50	0.025	1	04/11/19 09:35	04/12/19 11:43	7440-22-4	
Strontium, Dissolved	**290**	ug/L	10.0	0.47	10	04/11/19 09:35	04/13/19 04:45	7440-24-6	N2
Thallium, Dissolved	**<0.057**	ug/L	1.0	0.057	1	04/11/19 09:35	04/12/19 11:43	7440-28-0	
Uranium, Dissolved	**0.85J**	ug/L	1.0	0.0070	1	04/11/19 09:35	04/12/19 11:43	7440-61-1	N2
Vanadium, Dissolved	**<0.18**	ug/L	1.0	0.18	1	04/11/19 09:35	04/12/19 11:43	7440-62-2	
Zinc, Dissolved	**4.8**	ug/L	3.0	0.30	1	04/11/19 09:35	04/12/19 11:43	7440-66-6	
245.1 Mercury, Dissolved	Analytical Method: EPA 245.1 Preparation Method: EPA 245.1								
Mercury, Dissolved	**<0.067**	ug/L	0.20	0.067	1	04/09/19 09:24	04/09/19 20:27	7439-97-6	
2320B Alkalinity	Analytical Method: SM 2320B								
Alkalinity, Total as CaCO3	**220**	mg/L	2.0	1.0	1		04/06/19 17:10		
2540C Total Dissolved Solids	Analytical Method: SM 2540C								
Total Dissolved Solids	**298**	mg/L	10.0	10.0	1		04/05/19 09:19		

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
7726 Moller Road
Indianapolis, IN 46268
(317)228-3100

ANALYTICAL RESULTS

Project: Tanners Creek
Pace Project No.: 50221303

Sample: MW-1 **Lab ID: 50221303006** Collected: 04/02/19 17:10 Received: 04/04/19 09:00 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
353.2 Nitrogen, NO2/NO3 pres.	Analytical Method: EPA 353.2								
Nitrogen, NO2 plus NO3	**<0.020**	mg/L	0.10	0.020	1		04/09/19 13:34		
365.1 Total Phosphorus	Analytical Method: EPA 365.1 Preparation Method: EPA 365.1								
Phosphorus	**0.14**	mg/L	0.050	0.021	1	04/11/19 10:00	04/15/19 16:32	7723-14-0	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
7726 Moller Road
Indianapolis, IN 46268
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QUALITY CONTROL DATA

Project: Tanners Creek
Pace Project No.: 50221303

QC Batch: 494609 Analysis Method: EPA 300.0
QC Batch Method: EPA 300.0 Analysis Description: 300.0 IC Anions
Associated Lab Samples: 50221303001, 50221303002, 50221303003, 50221303004, 50221303005, 50221303006

METHOD BLANK: 2282610 Matrix: Water
Associated Lab Samples: 50221303001, 50221303002, 50221303003, 50221303004, 50221303005, 50221303006

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Chloride	mg/L	<0.049	0.25	0.049	04/14/19 07:15	
Fluoride	mg/L	<0.033	0.10	0.033	04/14/19 07:15	
Sulfate	mg/L	<0.087	0.25	0.087	04/14/19 07:15	

LABORATORY CONTROL SAMPLE: 2282611

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Chloride	mg/L	1.2	1.2	95	90-110	
Fluoride	mg/L	0.5	0.48	96	90-110	
Sulfate	mg/L	2.5	2.4	97	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2282669 2282670

Parameter	Units	50221290001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Chloride	mg/L	26.6	12.5	12.5	38.8	38.9	98	99	80-120	0	15	
Fluoride	mg/L	0.31	0.5	0.5	0.79	0.79	96	96	80-120	0	15	
Sulfate	mg/L	124	25	25	148	149	98	99	80-120	0	15	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2282671 2282672

Parameter	Units	50221336002 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Chloride	mg/L	131	31.2	31.2	163	163	102	101	80-120	0	15	
Fluoride	mg/L	1.1	0.5	0.5	1.6	1.6	98	97	80-120	0	15	
Sulfate	mg/L	213	62.5	62.5	274	273	97	96	80-120	0	15	

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REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
7726 Moller Road
Indianapolis, IN 46268
(317)228-3100

QUALITY CONTROL DATA

Project: Tanners Creek
Pace Project No.: 50221303

QC Batch: 493613 Analysis Method: EPA 245.1
QC Batch Method: EPA 245.1 Analysis Description: 245.1 Mercury - Dissolved
Associated Lab Samples: 50221303001, 50221303002, 50221303003, 50221303004, 50221303005, 50221303006

METHOD BLANK: 2277619 Matrix: Water
Associated Lab Samples: 50221303001, 50221303002, 50221303003, 50221303004, 50221303005, 50221303006

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Mercury, Dissolved	ug/L	<0.067	0.20	0.067	04/09/19 19:51	

LABORATORY CONTROL SAMPLE: 2277620

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Mercury, Dissolved	ug/L	5	5.0	99	85-115	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2277621 2277622

Parameter	Units	50221290001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Mercury, Dissolved	ug/L	<0.067	5	5	4.6	4.6	93	91	70-130	2	20	

MATRIX SPIKE SAMPLE: 2277623

Parameter	Units	50221303006 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Mercury, Dissolved	ug/L	<0.067	5	4.7	94	70-130	

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REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
7726 Moller Road
Indianapolis, IN 46268
(317)228-3100

QUALITY CONTROL DATA

Project: Tanners Creek
Pace Project No.: 50221303

QC Batch: 493481 Analysis Method: EPA 200.7
QC Batch Method: EPA 200.7 Analysis Description: 200.7 Metals, Dissolved
Associated Lab Samples: 50221303001, 50221303002, 50221303003, 50221303004, 50221303005, 50221303006

METHOD BLANK: 2277191 Matrix: Water
Associated Lab Samples: 50221303001, 50221303002, 50221303003, 50221303004, 50221303005, 50221303006

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Calcium, Dissolved	mg/L	<0.10	1.0	0.10	04/09/19 10:51	
Iron, Dissolved	mg/L	<0.030	0.10	0.030	04/09/19 10:51	
Magnesium, Dissolved	mg/L	<0.093	1.0	0.093	04/09/19 10:51	
Potassium, Dissolved	mg/L	<0.054	1.0	0.054	04/09/19 10:51	
Silica, Dissolved	mg/L	<0	0.45		04/09/19 10:51	
Sodium, Dissolved	mg/L	<0.031	1.0	0.031	04/09/19 10:51	
Total Hardness by 2340B, Dissolved	mg/L	<1.0	1.0	1.0	04/09/19 10:51	

LABORATORY CONTROL SAMPLE: 2277192

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Calcium, Dissolved	mg/L	10	9.3	93	85-115	
Iron, Dissolved	mg/L	10	9.5	95	85-115	
Magnesium, Dissolved	mg/L	10	9.2	92	85-115	
Potassium, Dissolved	mg/L	10	9.4	94	85-115	
Silica, Dissolved	mg/L	10.7	9.8	92	85-115	
Sodium, Dissolved	mg/L	10	9.4	94	85-115	
Total Hardness by 2340B, Dissolved	mg/L	66.2	61.2	92	85-115	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2277193 2277194

Parameter	Units	50221290001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Calcium, Dissolved	mg/L	94.3	10	10	99.9	97.6	56	33	70-130	2	20	P6
Iron, Dissolved	mg/L	0.11	10	10	9.7	9.4	95	93	70-130	2	20	
Magnesium, Dissolved	mg/L	29.4	10	10	37.6	36.7	82	73	70-130	2	20	
Potassium, Dissolved	mg/L	0.60J	10	10	10.2	10	96	94	70-130	2	20	
Silica, Dissolved	mg/L	11.2	10.7	10.7	20.8	20.4	90	86	70-130	2	20	
Sodium, Dissolved	mg/L	23.0	10	10	32.0	31.4	90	83	70-130	2	20	
Total Hardness by 2340B, Dissolved	mg/L	357	66.2	66.2	404	395	72	58	70-130	2	20	

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REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
7726 Moller Road
Indianapolis, IN 46268
(317)228-3100

QUALITY CONTROL DATA

Project: Tanners Creek
Pace Project No.: 50221303

MATRIX SPIKE SAMPLE: 2277195

Parameter	Units	50221303006 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Calcium, Dissolved	mg/L	70.5	10	78.4	79	70-130	
Iron, Dissolved	mg/L	0.34	10	9.8	95	70-130	
Magnesium, Dissolved	mg/L	19.6	10	28.5	88	70-130	
Potassium, Dissolved	mg/L	2.9	10	12.3	94	70-130	
Silica, Dissolved	mg/L	9.6	10.7	19.6	93	70-130	
Sodium, Dissolved	mg/L	13.3	10	22.9	96	70-130	
Total Hardness by 2340B, Dissolved	mg/L	257	66.2	313	85	70-130	

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REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
7726 Moller Road
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(317)228-3100

QUALITY CONTROL DATA

Project: Tanners Creek
Pace Project No.: 50221303

QC Batch: 493933 Analysis Method: EPA 200.8
QC Batch Method: EPA 200.8 Analysis Description: 200.8 MET Dissolved
Associated Lab Samples: 50221303001, 50221303002, 50221303003, 50221303004, 50221303005, 50221303006

METHOD BLANK: 2278965 Matrix: Water
Associated Lab Samples: 50221303001, 50221303002, 50221303003, 50221303004, 50221303005, 50221303006

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Aluminum, Dissolved	ug/L	<1.3	10.0	1.3	04/12/19 09:34	
Antimony, Dissolved	ug/L	0.36J	1.0	0.17	04/12/19 09:34	
Arsenic, Dissolved	ug/L	<0.32	1.0	0.32	04/12/19 09:34	
Barium, Dissolved	ug/L	0.043J	1.0	0.036	04/12/19 09:34	
Beryllium, Dissolved	ug/L	<0.024	0.20	0.024	04/12/19 09:34	
Boron, Dissolved	ug/L	<1.0	5.0	1.0	04/13/19 03:17	
Cadmium, Dissolved	ug/L	<0.026	0.20	0.026	04/12/19 09:34	
Chromium, Dissolved	ug/L	<0.11	2.0	0.11	04/12/19 09:34	
Cobalt, Dissolved	ug/L	<0.036	1.0	0.036	04/12/19 09:34	
Copper, Dissolved	ug/L	<0.091	1.0	0.091	04/12/19 09:34	
Lead, Dissolved	ug/L	<0.037	1.0	0.037	04/12/19 09:34	
Manganese, Dissolved	ug/L	0.058J	1.0	0.049	04/12/19 09:34	
Molybdenum, Dissolved	ug/L	<0.043	1.0	0.043	04/12/19 09:34	
Nickel, Dissolved	ug/L	<0.14	0.50	0.14	04/13/19 03:17	
Selenium, Dissolved	ug/L	<0.48	1.0	0.48	04/12/19 09:34	
Silver, Dissolved	ug/L	<0.025	0.50	0.025	04/12/19 09:34	
Strontium, Dissolved	ug/L	<0.047	1.0	0.047	04/12/19 09:34	N2
Thallium, Dissolved	ug/L	<0.057	1.0	0.057	04/12/19 09:34	
Uranium, Dissolved	ug/L	<0.0070	1.0	0.0070	04/12/19 09:34	N2
Vanadium, Dissolved	ug/L	<0.18	1.0	0.18	04/12/19 09:34	
Zinc, Dissolved	ug/L	0.35J	3.0	0.30	04/12/19 09:34	

LABORATORY CONTROL SAMPLE: 2278966

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Aluminum, Dissolved	ug/L	400	363	91	85-115	
Antimony, Dissolved	ug/L	40	42.4	106	85-115	
Arsenic, Dissolved	ug/L	40	35.4	89	85-115	
Barium, Dissolved	ug/L	40	39.4	99	85-115	
Beryllium, Dissolved	ug/L	40	38.9	97	85-115	
Boron, Dissolved	ug/L	40	43.3	108	85-115	
Cadmium, Dissolved	ug/L	40	37.9	95	85-115	
Chromium, Dissolved	ug/L	40	37.9	95	85-115	
Cobalt, Dissolved	ug/L	40	38.6	97	85-115	
Copper, Dissolved	ug/L	40	38.3	96	85-115	
Lead, Dissolved	ug/L	40	39.6	99	85-115	
Manganese, Dissolved	ug/L	40	40.8	102	85-115	
Molybdenum, Dissolved	ug/L	40	38.9	97	85-115	
Nickel, Dissolved	ug/L	40	37.5	94	85-115	
Selenium, Dissolved	ug/L	40	35.4	88	85-115	

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REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
7726 Moller Road
Indianapolis, IN 46268
(317)228-3100

QUALITY CONTROL DATA

Project: Tanners Creek
Pace Project No.: 50221303

LABORATORY CONTROL SAMPLE: 2278966

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Silver, Dissolved	ug/L	40	38.4	96	85-115	
Strontium, Dissolved	ug/L	40	40.0	100	85-115	N2
Thallium, Dissolved	ug/L	40	40.4	101	85-115	
Uranium, Dissolved	ug/L	40	40.0	100	85-115	N2
Vanadium, Dissolved	ug/L	40	38.7	97	85-115	
Zinc, Dissolved	ug/L	40	40.4	101	85-115	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2278967 2278968

Parameter	Units	50221260001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Aluminum, Dissolved	ug/L	ND	2000	2000	2060	2050	101	100	70-130	1	20	
Antimony, Dissolved	ug/L	21.5	200	200	228	238	103	108	70-130	4	20	
Arsenic, Dissolved	ug/L	294	200	200	497	499	101	102	70-130	0	20	
Barium, Dissolved	ug/L	664	200	200	844	898	90	117	70-130	6	20	
Beryllium, Dissolved	ug/L	ND	200	200	197	207	99	104	70-130	5	20	
Boron, Dissolved	ug/L	32000	200	200	31100	33400	-480	706	70-130	7	20	CC,E, P6
Cadmium, Dissolved	ug/L	ND	200	200	175	182	88	91	70-130	4	20	CL
Chromium, Dissolved	ug/L	114	200	200	301	299	93	93	70-130	0	20	CL
Cobalt, Dissolved	ug/L	31.9	200	200	208	217	88	92	70-130	4	20	
Copper, Dissolved	ug/L	ND	200	200	173	179	85	88	70-130	3	20	
Lead, Dissolved	ug/L	ND	200	200	194	203	96	101	70-130	4	20	
Manganese, Dissolved	ug/L	166	200	200	341	357	88	96	70-130	5	20	
Molybdenum, Dissolved	ug/L	52.9	200	200	244	254	95	100	70-130	4	20	
Nickel, Dissolved	ug/L	397	200	200	555	591	79	97	70-130	6	20	
Selenium, Dissolved	ug/L	ND	200	200	194	187	95	91	70-130	3	20	
Silver, Dissolved	ug/L	ND	200	200	180	187	90	93	70-130	4	20	CL
Strontium, Dissolved	ug/L	748	200	200	908	974	80	113	70-130	7	20	N2
Thallium, Dissolved	ug/L	ND	200	200	205	214	102	107	70-130	5	20	
Uranium, Dissolved	ug/L	ND	200	200	210	217	105	108	70-130	3	20	N2
Vanadium, Dissolved	ug/L	65.3	200	200	267	265	101	100	70-130	1	20	
Zinc, Dissolved	ug/L	ND	200	200	178	187	84	89	70-130	5	20	

MATRIX SPIKE SAMPLE: 2278969

Parameter	Units	50221303004 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Aluminum, Dissolved	ug/L	4.3J	400	392	97	70-130	
Antimony, Dissolved	ug/L	<0.17	40	43.9	110	70-130	
Arsenic, Dissolved	ug/L	15.7	40	54.7	97	70-130	
Barium, Dissolved	ug/L	212	40	243	77	70-130	
Beryllium, Dissolved	ug/L	<0.024	40	39.2	98	70-130	
Boron, Dissolved	ug/L	71.5	40	112	101	70-130	
Cadmium, Dissolved	ug/L	<0.026	40	37.8	95	70-130	

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REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
7726 Moller Road
Indianapolis, IN 46268
(317)228-3100

QUALITY CONTROL DATA

Project: Tanners Creek
Pace Project No.: 50221303

MATRIX SPIKE SAMPLE: 2278969

Parameter	Units	50221303004 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Chromium, Dissolved	ug/L	1.3J	40	40.1	97	70-130	
Cobalt, Dissolved	ug/L	3.2	40	39.7	91	70-130	
Copper, Dissolved	ug/L	1.1	40	36.3	88	70-130	
Lead, Dissolved	ug/L	<0.037	40	40.3	101	70-130	
Manganese, Dissolved	ug/L	742	40	750	21	70-130	P6
Molybdenum, Dissolved	ug/L	0.43J	40	40.5	100	70-130	
Nickel, Dissolved	ug/L	4.7	40	39.9	88	70-130	
Selenium, Dissolved	ug/L	<0.48	40	38.1	95	70-130	
Silver, Dissolved	ug/L	<0.025	40	38.9	97	70-130	
Strontium, Dissolved	ug/L	593	40	612	46	70-130	N2,P6
Thallium, Dissolved	ug/L	<0.057	40	42.5	106	70-130	
Uranium, Dissolved	ug/L	0.11J	40	43.6	109	70-130	N2
Vanadium, Dissolved	ug/L	0.51J	40	41.2	102	70-130	
Zinc, Dissolved	ug/L	2.5J	40	38.4	90	70-130	

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REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
7726 Moller Road
Indianapolis, IN 46268
(317)228-3100

QUALITY CONTROL DATA

Project: Tanners Creek
Pace Project No.: 50221303

QC Batch: 493292 Analysis Method: SM 2320B
QC Batch Method: SM 2320B Analysis Description: 2320B Alkalinity
Associated Lab Samples: 50221303001, 50221303002, 50221303003, 50221303004, 50221303005

METHOD BLANK: 2276631 Matrix: Water
Associated Lab Samples: 50221303001, 50221303002, 50221303003, 50221303004, 50221303005

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Alkalinity, Total as CaCO3	mg/L	<1.0	2.0	1.0	04/06/19 12:28	

LABORATORY CONTROL SAMPLE: 2276632

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Alkalinity, Total as CaCO3	mg/L	50	49.9	100	90-110	

SAMPLE DUPLICATE: 2276633

Parameter	Units	50221290001 Result	Dup Result	RPD	Max RPD	Qualifiers
Alkalinity, Total as CaCO3	mg/L	238	228	5	20	

SAMPLE DUPLICATE: 2276634

Parameter	Units	50221280001 Result	Dup Result	RPD	Max RPD	Qualifiers
Alkalinity, Total as CaCO3	mg/L	340	342	0	20	

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REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
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(317)228-3100

QUALITY CONTROL DATA

Project: Tanners Creek
Pace Project No.: 50221303

QC Batch: 493313
QC Batch Method: SM 2320B
Analysis Method: SM 2320B
Analysis Description: 2320B Alkalinity
Associated Lab Samples: 50221303006

METHOD BLANK: 2276774 Matrix: Water
Associated Lab Samples: 50221303006

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Alkalinity, Total as CaCO3	mg/L	<1.0	2.0	1.0	04/06/19 17:10	

LABORATORY CONTROL SAMPLE: 2276775

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Alkalinity, Total as CaCO3	mg/L	50	49.3	99	90-110	

SAMPLE DUPLICATE: 2276776

Parameter	Units	50221376001 Result	Dup Result	RPD	Max RPD	Qualifiers
Alkalinity, Total as CaCO3	mg/L	58.7	57.9	1	20	

SAMPLE DUPLICATE: 2276777

Parameter	Units	50221470001 Result	Dup Result	RPD	Max RPD	Qualifiers
Alkalinity, Total as CaCO3	mg/L	344	343	0	20	

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REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
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(317)228-3100

QUALITY CONTROL DATA

Project: Tanners Creek
Pace Project No.: 50221303

QC Batch: 493071 Analysis Method: SM 2540C
QC Batch Method: SM 2540C Analysis Description: 2540C Total Dissolved Solids
Associated Lab Samples: 50221303001, 50221303002, 50221303003, 50221303004, 50221303005, 50221303006

METHOD BLANK: 2275312 Matrix: Water
Associated Lab Samples: 50221303001, 50221303002, 50221303003, 50221303004, 50221303005, 50221303006

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Total Dissolved Solids	mg/L	<10.0	10.0	10.0	04/05/19 09:10	

LABORATORY CONTROL SAMPLE: 2275313

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Total Dissolved Solids	mg/L	300	278	93	80-120	

SAMPLE DUPLICATE: 2275314

Parameter	Units	50221147001 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	722	726	1	10	

SAMPLE DUPLICATE: 2275315

Parameter	Units	50221374010 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	15500	15800	2	10	

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REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
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QUALITY CONTROL DATA

Project: Tanners Creek
Pace Project No.: 50221303

QC Batch: 493648
QC Batch Method: EPA 353.2
Analysis Method: EPA 353.2
Analysis Description: 353.2 Nitrate + Nitrite, preserved
Associated Lab Samples: 50221303001

METHOD BLANK: 2277730 Matrix: Water
Associated Lab Samples: 50221303001

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Nitrogen, NO2 plus NO3	mg/L	<0.020	0.10	0.020	04/09/19 12:04	

LABORATORY CONTROL SAMPLE: 2277731

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Nitrogen, NO2 plus NO3	mg/L	2	2.0	98	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2277732 2277733

Parameter	Units	50221096001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Nitrogen, NO2 plus NO3	mg/L	25.1	40	40	65.1	63.9	100	97	90-110	2	20	

MATRIX SPIKE SAMPLE: 2277734

Parameter	Units	50221290001 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Nitrogen, NO2 plus NO3	mg/L	0.030J	2	2.0	98	90-110	

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REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
7726 Moller Road
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(317)228-3100

QUALITY CONTROL DATA

Project: Tanners Creek
Pace Project No.: 50221303

QC Batch: 493649 Analysis Method: EPA 353.2
QC Batch Method: EPA 353.2 Analysis Description: 353.2 Nitrate + Nitrite, preserved
Associated Lab Samples: 50221303002, 50221303003, 50221303004, 50221303005, 50221303006

METHOD BLANK: 2277735 Matrix: Water
Associated Lab Samples: 50221303002, 50221303003, 50221303004, 50221303005, 50221303006

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Nitrogen, NO2 plus NO3	mg/L	<0.020	0.10	0.020	04/09/19 13:17	

LABORATORY CONTROL SAMPLE: 2277736

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Nitrogen, NO2 plus NO3	mg/L	2	1.9	95	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2277737 2277738

Parameter	Units	50221303002 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Nitrogen, NO2 plus NO3	mg/L	0.11	2	2	2.0	2.0	93	94	90-110	1	20	

MATRIX SPIKE SAMPLE: 2277739

Parameter	Units	50221495005 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Nitrogen, NO2 plus NO3	mg/L	0.020	2	2.0	97	90-110	

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

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
7726 Moller Road
Indianapolis, IN 46268
(317)228-3100

QUALITY CONTROL DATA

Project: Tanners Creek
Pace Project No.: 50221303

QC Batch: 494128 Analysis Method: EPA 365.1
QC Batch Method: EPA 365.1 Analysis Description: 365.1 Total Phosphorus
Associated Lab Samples: 50221303001, 50221303002, 50221303003, 50221303004, 50221303005, 50221303006

METHOD BLANK: 2280066 Matrix: Water
Associated Lab Samples: 50221303001, 50221303002, 50221303003, 50221303004, 50221303005, 50221303006

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Phosphorus	mg/L	<0.021	0.050	0.021	04/15/19 16:25	

LABORATORY CONTROL SAMPLE: 2280067

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Phosphorus	mg/L	0.5	0.51	101	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2280068 2280069

Parameter	Units	50221303001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Phosphorus	mg/L	0.095	0.5	0.5	0.62	0.56	105	92	90-110	11	20	

MATRIX SPIKE SAMPLE: 2280070

Parameter	Units	50221376001 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Phosphorus	mg/L	<0.050	0.5	0.50	98	90-110	

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

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
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Indianapolis, IN 46268
(317)228-3100

QUALIFIERS

Project: Tanners Creek
Pace Project No.: 50221303

DEFINITIONS

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

ND - Not Detected at or above adjusted reporting limit.

TNTC - Too Numerous To Count

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

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

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

S - Surrogate

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

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

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

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

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

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

TNI - The NELAC Institute.

ANALYTE QUALIFIERS

CC	The continuing calibration for this compound is outside of method control limits. The result is estimated.
CL	The continuing calibration for this compound is outside of Pace Analytical acceptance limits. The results may be biased low.
E	Analyte concentration exceeded the calibration range. The reported result is estimated.
N2	The lab does not hold NELAC/TNI accreditation for this parameter but other accreditations/certifications may apply. A complete list of accreditations/certifications is available upon request.
P6	Matrix spike recovery was outside laboratory control limits due to a parent sample concentration notably higher than the spike level.

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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: Tanners Creek
Pace Project No.: 50221303

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
50221303001	**MW-4**	EPA 300.0	494609		
50221303002	**MW-8**	EPA 300.0	494609		
50221303003	**MW-7**	EPA 300.0	494609		
50221303004	**MW-6**	EPA 300.0	494609		
50221303005	**MW-5**	EPA 300.0	494609		
50221303006	**MW-1**	EPA 300.0	494609		
50221303001	**MW-4**	EPA 200.7	493481	EPA 200.7	493661
50221303002	**MW-8**	EPA 200.7	493481	EPA 200.7	493661
50221303003	**MW-7**	EPA 200.7	493481	EPA 200.7	493661
50221303004	**MW-6**	EPA 200.7	493481	EPA 200.7	493661
50221303005	**MW-5**	EPA 200.7	493481	EPA 200.7	493661
50221303006	**MW-1**	EPA 200.7	493481	EPA 200.7	493661
50221303001	**MW-4**	EPA 200.8	493933	EPA 200.8	494316
50221303002	**MW-8**	EPA 200.8	493933	EPA 200.8	494316
50221303003	**MW-7**	EPA 200.8	493933	EPA 200.8	494316
50221303004	**MW-6**	EPA 200.8	493933	EPA 200.8	494316
50221303005	**MW-5**	EPA 200.8	493933	EPA 200.8	494316
50221303006	**MW-1**	EPA 200.8	493933	EPA 200.8	494316
50221303001	**MW-4**	EPA 245.1	493613	EPA 245.1	493810
50221303002	**MW-8**	EPA 245.1	493613	EPA 245.1	493810
50221303003	**MW-7**	EPA 245.1	493613	EPA 245.1	493810
50221303004	**MW-6**	EPA 245.1	493613	EPA 245.1	493810
50221303005	**MW-5**	EPA 245.1	493613	EPA 245.1	493810
50221303006	**MW-1**	EPA 245.1	493613	EPA 245.1	493810
50221303001	**MW-4**	SM 2320B	493292		
50221303002	**MW-8**	SM 2320B	493292		
50221303003	**MW-7**	SM 2320B	493292		
50221303004	**MW-6**	SM 2320B	493292		
50221303005	**MW-5**	SM 2320B	493292		
50221303006	**MW-1**	SM 2320B	493313		
50221303001	**MW-4**	SM 2540C	493071		
50221303002	**MW-8**	SM 2540C	493071		
50221303003	**MW-7**	SM 2540C	493071		
50221303004	**MW-6**	SM 2540C	493071		
50221303005	**MW-5**	SM 2540C	493071		
50221303006	**MW-1**	SM 2540C	493071		
50221303001	**MW-4**	EPA 353.2	493648		
50221303002	**MW-8**	EPA 353.2	493649		
50221303003	**MW-7**	EPA 353.2	493649		
50221303004	**MW-6**	EPA 353.2	493649		
50221303005	**MW-5**	EPA 353.2	493649		
50221303006	**MW-1**	EPA 353.2	493649		
50221303001	**MW-4**	EPA 365.1	494128	EPA 365.1	494306
50221303002	**MW-8**	EPA 365.1	494128	EPA 365.1	494306

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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: Tanners Creek
Pace Project No.: 50221303

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
50221303003	**MW-7**	EPA 365.1	494128	EPA 365.1	494306
50221303004	**MW-6**	EPA 365.1	494128	EPA 365.1	494306
50221303005	**MW-5**	EPA 365.1	494128	EPA 365.1	494306
50221303006	**MW-1**	EPA 365.1	494128	EPA 365.1	494306

Pace Analytical

CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.

Page : 1 Of 1

Section A Required Client Information:	Section B Required Project Information:	Section C Invoice Information:
Company: EnviroAnalytics Group	Report To: Dostal, Matthew	Attention:
Address: 1515 ~~1050~~ Des Peres Road	Copy To:	Company Name:
Suite ~~300~~ 308, Saint Louis, MO 63131		Address:
Email: Mdostal@enviroanalyticsgroup.com	Purchase Order #: EAG-B334	Pace Quote:
Phone: Fax:	Project Name: Tanners Creek	Pace Project Manager: regina.bedel@pacelabs.com,
Requested Due Date:	Project #:	Pace Profile #: 6773 / 1

Regulatory Agency
IDEM GW
State / Location
IN

SAMPLE ID
One Character per box.
(A-Z, 0-9 / , -)
Sample Ids must be unique

MATRIX	CODE
Drinking Water	DW
Water	WT
Waste Water	WW
Product	P
Soil/Solid	SL
Oil	OL
Wipe	WP
Air	AR
Other	OT
Tissue	TS

ITEM #	SAMPLE ID	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED START DATE	COLLECTED START TIME	COLLECTED END DATE	COLLECTED END TIME	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives: Unpreserved	H2SO4	HNO3	HCl	NaOH	Na2S2O3	Methanol	Other	Analyses Test: Y/N	Dissolved 200.7,200.8,245.1	Hardness	300.0 Chloride,Fluoride,Sulfa	Alkalinity	TDS	Nitrate+Nitrite	365.1 Total P	Residual Chlorine (Y/N)	50221303
1	MW-4	WT	G			4/2/19	0940		3	X	X	X						Y	X	X	X	X	X	X	X		001
2	MW-8						1100																				002
3	MW-7						1230																				003
4	MW-6						1415																				004
5	MW-5						1540																				005
6	MW-1						1710																				006
7																											
8																											
9									CS																		
10									4/3/19																		
11																											
12																											

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS			
200.7-Ca,Fe,Mg,K,Silica,Na	EAG	4/3/19	1400	Fedex						
~~200.8-Al,Sb,As,Ba,Be,B,Cd,Cr,Co,Cu~~	Fedex	4-4-19	900		4-4-19	900	1.1	Y	Y	Y
200.8-Pb,Mn,Mo,Ni,Se,Ag,Sr,Tl,U,V,Zn										

SAMPLER NAME AND SIGNATURE				
PRINT Name of SAMPLER: Christopher Stocker				
SIGNATURE of SAMPLER:	DATE Signed: 4/3/19	TEMP in C	Received on Ice (Y/N)	Custody Sealed Cooler (Y/N)	Samples Intact (Y/N)

Pace Analytical

SAMPLE CONDITION UPON RECEIPT FORM

Project #: 50221303

Date/Time and Initials of person examining contents: KS 4-4-19 1207

Courier: ☒ Fed Ex ☐ UPS ☐ USPS ☐ Client ☐ Commercial ☐ Pace ☐ Other _____

Tracking #: 489302010902

Custody Seal on Cooler/Box Present: ☒ Yes ☐ No **Seals Intact:** ☒ Yes ☐ No

Packing Material: ☐ Bubble Wrap ☐ Bubble Bags ☒ None ☐ Other _____

Thermometer: 1 2 (3) 4 5 6 A B C D E F **Ice Type:** ☒ Wet ☐ Blue ☐ None | Samples collected today and on ice: ☐ Yes ☐ No ☒ N/A

Cooler Temperature: 1.4 / 1.1 Ice Visible in Sample Containers?: ☐ Yes ☒ No ☐ N/A

(Initial/Corrected) Temp should be above freezing to 6°C If temp. is Over 6°C or under 0°C, was the PM Notified?: ☐ Yes ☐ No ☒ N/A

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

	Yes	No		Yes	No	N/A
Are samples from West Virginia? Document any containers out of temp.		/	All containers needing acid/base pres. Have been checked?: **exceptions: VOA, coliform, LLHg, O&G, and any container with a septum cap or preserved with HCl.** All containers needing preservation are found to be in compliance with EPA recommendation (<2, >9, >12) unless otherwise noted.	/		
USDA Regulated Soils? (ID, NY, WA, OR, CA, NM, TX, OK, AR, LA, TN, AL, MS, NC, SC, GA, FL, or Puerto Rico)		/				
Chain of Custody Present:	/		Circle: ~~HNO3~~ ~~H2SO4~~ NaOH NaOH/ZnAc	/		
Chain of Custody Filled Out:	/		Dissolved Metals field filtered?:	/		
Short Hold Time Analysis (<72hr)?: **Analysis:**		/	Headspace Wisconsin Sulfide			/
Time 5035A TC placed in Freezer or Short Holds To Lab:				Present	Absent	N/A
			Residual Chlorine Check (SVOC 625 Pest/PCB 608)			/
			Residual Chlorine Check (Total/Amenable/Free Cyanide)			/
Rush TAT Requested:		/	Headspace in VOA Vials (>6mm):			/
Containers Intact?:	/		Trip Blank Present?:		/	
Sample Label (IDs/Dates/Times) Match COC?: Except TCs, which only require sample ID	/		Trip Blank Custody Seals?:		/	

Comments:

Sample Container Count

WO# : 50221303

50221303

CLIENT: Enviro Analytics

COC PAGE 1 of 1

COC ID# _____

Project # 50221303

Sample Line Item	DG9H VG9H	AG0U	AG1H	AG1U	AG2U	AG3S	WGFU	SP5T	BP1U	BP2N	BP2S	BP2U	BP3B	BP3N	BP3S	BP3U	SBS DI Bulk Kit R	Matrix (Soil/W Aqueo	pH <2	pH >9	pH>12
1									1					1	1			WT	✓		
2									↓					↓	↓			↓	↓		
3																					
4																					
5																					
6																					
7																					
8																					
9																					
10																					
11																					
12																					

Container Codes

Glass

DG9B	40mL Na Bisulfate amber vial	AG0U	100mL unpreserved amber glass
DG9H	40mL HCL amber voa vial	AG1H	1 liter HCL amber glass
DG9M	40mL MeOH clear vial	AG1S	1 liter H2SO4 amber glass
DG9P	40mL TSP amber vial	AG1T	1 liter Na Thiosulfate amber glass
DG9S	40mL H2SO4 amber vial	AG1U	1liter unpreserved amber glass
DG9T	40mL Na Thio amber vial	AG2N	500mL HNO3 amber glass
DG9U	40mL unpreserved **amber** vial	AG2S	500mL H2SO4 amber glass
VG9H	40mL HCL clear vial	AG2U	500mL unpreserved amber glass
VG9T	40mL Na Thio. clear vial	AG3S	250mL H2SO4 glass amber
VG9U	40mL unpreserved **clear** vial	AG3U	250mL unpreserved amber glass
VGFX	40mL w/hexane wipe vial	BG1H	1 liter HCL clear glass
VSG	Headspace septa vial & HCL	BG1S	1 liter H2SO4 clear glass
WGKU	8oz unpreserved clear jar	BG1T	1 liter Na Thiosulfate clear glass
WGFU	4oz clear soil jar	BG1U	1 liter unpreserved glass
JGFU	4oz unpreserved amber wide	BG3H	250mL HCl Clear Glass
		BG3U	250mL Unpreserved Clear Glass

Plastic / Misc.

BP1A	1 liter NaOH, Asc Acid plastic	BP3U	250mL unpreserved plastic
BP1N	1 liter HNO3 plastic	BP3Z	250mL NaOH, Zn Ac plastic
BP1S	1 liter H2SO4 plastic		
BP1U	1 liter unpreserved plastic	AF	Air Filter
BP1Z	1 liter NaOH, Zn, Ac	C	Air Cassettes
BP2A	500mL NaOH, Asc Acid plastic	R	Terra core kit
BP2N	500mL HNO3 plastic	SP5T	120mL Coliform Na Thiosulfate
BP2O	500mL NaOH plastic	U	Summa Can
BP2S	500mL H2SO4 plastic	ZPLC	Ziploc Bag
BP2U	500mL unpreserved plastic		
BP2Z	500mL NaOH, Zn Ac		
BP3B	250mL NaOH plastic		
BP3N	250mL HNO3 plastic		
BP3S	250mL H2SO4 plastic		