

Chemical Analysis Report

NE-DIST-2018-09-21-01

Florida Department of Environmental Protection
Central Laboratory
2600 Blair Stone Road
Tallahassee, FL 32399-2400
DOH Accreditation E31780

Event Description: **Melrose lakes**
Request ID: **RQ-2018-09-10-21**
Customer: **NE-DIST**
Project ID: **SMP**

Send Reports to:
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Certified by: Thekkekalathil Chandrasekhar, Chemist Administrator

Date Certified: 23-OCT-2018 14:00



Case Narrative

Unless otherwise noted, all samples included in this report were received in accordance with protocols referenced in Chapter 62-160, Florida Administrative Code (F.A.C.). Results published in this report pertain only to the samples as submitted to, and received by the laboratory. All times in this report are adjusted to the applicable Eastern Time Zone (EST or EDT).

Results for the following analytical groups are included in this report: Metals and Nutrients.

Scientific notation may be used in reporting very large or small values. Values reported using scientific notation will take the form of the following example: 1.3E+03, which is equivalent to 1.3×10^3 or 1300.

Unless otherwise noted, analytical values for soil and sediment samples are reported on a dry weight basis, and analytical values for waste and tissue samples are reported on a wet weight basis.

Results for TNI accredited tests met requirements established by The NELAC Institute. A double asterisk (**) is used to indicate an analyte/matrix/method for which the laboratory is not TNI accredited or where accreditation for that field of testing is not applicable.

Any significant anomalies or deviations from established protocols are documented in Non-Conformance Reports, which, where appropriate, are included within this analytical report. Additional comments related to specific analytical tests may be included as remarks following the analytical results for each sample. Such comments and remarks are for informational purposes only and are not intended to convey judgement about the usability of the reported data.

A quality control report on the performance of the test method for the submitted samples is included. Uncertainty associated with the analytical results contained in this report can be estimated from the reported quality assurance results and from published quality control acceptance limits for each analytical test. Matrix quality control results (matrix spike recoveries and matrix sample precision) pertain only to the matrix sample tested and do not necessarily reflect test method performance for other samples.

Typical matrix quality control (QC) measurements may include matrix spike recovery, matrix spike duplicate recovery, matrix spike precision and matrix sample precision. Not all matrix QC results may be available or reportable; where they are not an explanation is provided. Typical reasons for unavailable QC results include, but are not limited to, a) insufficient matrix sample to perform some or all QC measurements; b) analyte concentration in the sample replicated was too low for a meaningful measurement of precision and c) analyte concentration in the matrix sample spiked was too high (relative to the amount of analyte spiked) for a meaningful measurement of recovery. Where matrix QC results are unavailable, other method performance metrics (e.g., LCS recovery, LCS precision, surrogate recovery) may be used to assess performance of the method. Comments explaining any missing QC measurements are not intended to convey any adverse conclusions about the quality of the reported data.

Precision is reported as relative percent difference unless otherwise noted.

Quality Control codes as defined below may be used in this report to indicate results that are associated with one or more quality control elements which did not fall within established test method criteria. Such results may be qualified as estimates using a J qualifier as required by 62-160 F.A.C. Explanations are included in the report for any results that were reported as estimates for other reasons.

QC Codes used in this report may include:

- LCS – Recovery for the batch Laboratory Control Sample (LCS) was outside existing control limits;
- MS – Recovery for the batch matrix spike (MS) was outside existing control limits;
- CCV – Recovery for a continuing calibration verification (CCV) standard was outside existing control limits;
- SUR – Recovery of a surrogate (SUR) for associated analytes was outside existing control limits;
- RPD – The precision, measured as relative percent difference (RPD), of batch replicate measurements was outside existing control limits;
- RSD – The precision, measured as relative standard deviation (RSD), of batch replicate measurements was outside existing control limits;
- SMP – Sample - used precision derived from replicate analyses of a sample;

The following data qualifiers are used, where applicable, in this report as specified in 62-160 F.A.C.

- A - Value reported is the mean of two or more determinations.
- B - Results based on colony counts outside the acceptable range.
- I - The reported value is between the laboratory method detection limit and the laboratory practical quantitation limit.
- J - Estimated value and/or the analysis did not meet established quality control criteria.
- K - Actual value is known to be less than value given.
- L - Actual value is known to be greater than value given.
- N - Presumptive evidence of presence of material.
- O - Sampled, but analysis lost or not performed.
- Q - Sample held beyond normal holding time.
- T - Value reported is less than the criterion of detection.
- U - Material was analyzed for but not detected. The reported value is the method detection limit for the sample analyzed.
- V - Analyte was detected in both sample and method blank.
- X - Too few individuals to calculate SCI value.
- Y - The laboratory analysis was from an unpreserved or improperly preserved sample. The data may not be accurate.
- Z - Colonies were too numerous to count (TNTC).

Quality control information from overflow laboratories may not be included in this report. Please refer to the associated report from the overflow laboratory for additional information.

Sample Location: Goose Lake

Collection Date/Time: 09/20/2018 10:15

Field ID: 20030980

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2027581	EPA 180.1 Rev. 2.0	Turbidity	0.75		NTU	P352116	
	EPA 300.0 Rev. 2.1	Chloride	6.9		mg Cl/L	P352520	
		Sulfate	0.27	I	mg SO4/L	P352522	
	SM 2120 B	Color (true)	600		PCU	P352100	
	SM 2320 B-97	Total Alkalinity	0.65	U	mg CaCO3/L	P352565	
	SM 2540 C-97	TDS	93		mg/L	P352444	
	SM 2540 D-97	TSS	3	I	mg/L	P352515	
	SM 4500 F-C-97	Fluoride	0.050	I	mg F/L	P352567	
2027583	EPA 350.1 Rev. 2.0	Ammonia-N	0.45		mg N/L	P352555	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	2.2		mg N/L	P352332	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P352265	
	EPA 365.1 Rev. 2.0	Total-P	0.19		mg P/L	P352321	
	SM 5310 B-00	Organic Carbon	37		mg C/L	P352348	
2027585	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.15		mg P/L	P352103	

Ref. Method and Comment:

EPA 300.0 Rev. 2.1: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample.

SM 2540 D-97: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample.

Sample Location: Lake Suggs Ctr

Collection Date/Time: 09/20/2018 10:50

Field ID: 20030922

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2027587	EPA 180.1 Rev. 2.0	Turbidity	1.0		NTU	P352117	
	EPA 300.0 Rev. 2.1	Chloride	6.6		mg Cl/L	P352520	
		Sulfate	0.37	I	mg SO4/L	P352522	
		Color (true)	800		PCU	P352100	
	SM 2120 B	Total Alkalinity	0.65	U	mg CaCO3/L	P352565	
	SM 2540 C-97	TDS	134		mg/L	P352444	
	SM 2540 D-97	TSS	3	I	mg/L	P352515	
	SM 4500 F-C-97	Fluoride	0.049	I	mg F/L	P352567	
2027590	EPA 350.1 Rev. 2.0	Ammonia-N	1.4		mg N/L	P352626	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	4.0		mg N/L	P352332	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P352265	
	EPA 365.1 Rev. 2.0	Total-P	0.23		mg P/L	P352321	
	SM 5310 B-00	Organic Carbon	53		mg C/L	P352349	
2027593	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.18		mg P/L	P352103	
2027616	EPA 200.7 Rev. 4.4	Calcium	1.90		mg/L	P352138	
		Iron	860		ug/L	P352138	
		Magnesium	1.28		mg/L	P352138	
		Potassium	2.2		mg/L	P352138	
		Sodium	3.7		mg/L	P352138	
		Zinc	5.0	U	ug/L	P352138	
	EPA 200.8 Rev. 5.4	Arsenic	1.09		ug/L	P352138	
		Cadmium	0.020	U	ug/L	P352138	
		Chromium	0.79	I	ug/L	P352138	
		Copper	0.20	U	ug/L	P352138	
		Lead	0.66		ug/L	P352138	
		Nickel	0.77	I	ug/L	P352138	
		Silver	0.010	U	ug/L	P352898	

Ref. Method and Comment:

EPA 300.0 Rev. 2.1: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample.

SM 2540 D-97: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample.

SM 5310 B-00: Batch matrix spike recoveries are unavailable because of high analyte concentration in the QC sample.

EPA 200.8 Rev. 5.4: The lead result was confirmed in the undigested sample on 10/05/2018.

Sample Location: Lake Rowan Ctr

Collection Date/Time: 09/20/2018 11:15

Field ID: 20030923

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2027588	EPA 180.1 Rev. 2.0	Turbidity	0.80		NTU	P352116	
	EPA 300.0 Rev. 2.1	Chloride	5.5		mg Cl/L	P352520	
		Sulfate	0.41	I	mg SO4/L	P352522	
		Color (true)	500		PCU	P352100	
	SM 2120 B	Total Alkalinity	0.65	U	mg CaCO3/L	P352565	
	SM 2540 C-97	TDS	103		mg/L	P352444	
	SM 2540 D-97	TSS	2	I	mg/L	P352515	
	SM 4500 F-C-97	Fluoride	0.036	I	mg F/L	P352567	
2027591	EPA 350.1 Rev. 2.0	Ammonia-N	2.8		mg N/L	P352626	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	5.4		mg N/L	P352332	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.007	I	mg N/L	P352265	
	EPA 365.1 Rev. 2.0	Total-P	0.023		mg P/L	P352321	
	SM 5310 B-00	Organic Carbon	49		mg C/L	P352349	
2027594	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.005	I	mg P/L	P352104	
2027617	EPA 200.7 Rev. 4.4	Calcium	1.29		mg/L	P352138	
		Iron	490		ug/L	P352138	
		Magnesium	1.07		mg/L	P352138	
		Potassium	0.86	I	mg/L	P352138	
		Sodium	3.1		mg/L	P352138	
		Zinc	5.0	U	ug/L	P352138	
	EPA 200.8 Rev. 5.4	Arsenic	0.75		ug/L	P352138	
		Cadmium	0.020	U	ug/L	P352138	
		Chromium	0.40	I	ug/L	P352138	
		Copper	1.02		ug/L	P352138	
		Lead	0.63		ug/L	P352138	
		Nickel	0.53	I	ug/L	P352138	
		Silver	0.010	U	ug/L	P352898	

Ref. Method and Comment:

EPA 300.0 Rev. 2.1: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample.

SM 2540 D-97: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample.

SM 5310 B-00: Batch matrix spike recoveries are unavailable because of high analyte concentration in the QC sample.

EPA 200.8 Rev. 5.4: The lead result was confirmed in the undigested sample on 10/05/2018.

Sample Location: Lake Rosa Center

Collection Date/Time: 09/20/2018 12:35

Field ID: G2NE1130

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2027582	EPA 180.1 Rev. 2.0	Turbidity	0.80		NTU	P352116	
	EPA 300.0 Rev. 2.1	Chloride	9.0		mg Cl/L	P352520	
		Sulfate	7.3		mg SO4/L	P352522	
	SM 2120 B	Color (true)	6.8		PCU	P352100	
	SM 2320 B-97	Total Alkalinity	3.3	AJ	mg CaCO3/L	P352763	RPD
	SM 2540 C-97	TDS	27		mg/L	P352444	
	SM 2540 D-97	TSS	2	I	mg/L	P352515	
	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P352567	
2027584	EPA 350.1 Rev. 2.0	Ammonia-N	0.002	U	mg N/L	P352555	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.31		mg N/L	P352332	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P352265	
	EPA 365.1 Rev. 2.0	Total-P	0.01		mg P/L	P352321	
	SM 5310 B-00	Organic Carbon	2.9		mg C/L	P352348	
2027586	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P352103	

Ref. Method and Comment:

EPA 300.0 Rev. 2.1: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample.

SM 2320 B-97: Refer to the narrative for an explanation of QC Codes.

SM 2540 D-97: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample.

Sample Location: Ross Lake Center

Collection Date/Time: 09/20/2018 12:10

Field ID: 20030454

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2027589	EPA 180.1 Rev. 2.0	Turbidity	0.70		NTU	P352116	
	EPA 300.0 Rev. 2.1	Chloride	7.1		mg Cl/L	P352521	MS
		Sulfate	0.34	I	mg SO4/L	P352523	
	SM 2120 B	Color (true)	690		PCU	P352100	
	SM 2320 B-97	Total Alkalinity	0.65	U	mg CaCO3/L	P352565	
	SM 2540 C-97	TDS	110		mg/L	P352444	
	SM 2540 D-97	TSS	2	I	mg/L	P352515	
	SM 4500 F-C-97	Fluoride	0.054	I	mg F/L	P352567	
2027592	EPA 350.1 Rev. 2.0	Ammonia-N	0.65		mg N/L	P352626	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	2.6		mg N/L	P352332	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P352265	
	EPA 365.1 Rev. 2.0	Total-P	0.24		mg P/L	P352321	
	SM 5310 B-00	Organic Carbon	42		mg C/L	P352349	
2027595	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.20		mg P/L	P352104	
2027618	EPA 200.7 Rev. 4.4	Calcium	1.76		mg/L	P352138	
		Iron	690		ug/L	P352138	
		Magnesium	1.18		mg/L	P352138	
		Potassium	1.7		mg/L	P352138	
		Sodium	4.0		mg/L	P352138	
		Zinc	5.0	U	ug/L	P352138	
	EPA 200.8 Rev. 5.4	Arsenic	1.09		ug/L	P352138	
		Cadmium	0.020	U	ug/L	P352138	
		Chromium	0.78	I	ug/L	P352138	
		Copper	0.22	I	ug/L	P352138	
		Lead	0.38		ug/L	P352138	
		Nickel	0.64	I	ug/L	P352138	
		Silver	0.010	U	ug/L	P352898	

Ref. Method and Comment:

SM 2540 D-97: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample.

SM 5310 B-00: Batch matrix spike recoveries are unavailable because of high analyte concentration in the QC sample.

Quality Assurance Report Method Blank Results

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P352116

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P352117

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P352138

Component	Result	Code	Units
Calcium	0.075	U	mg/L
Iron	30	U	ug/L
Magnesium	0.040	U	mg/L
Potassium	0.30	U	mg/L
Sodium	0.50	U	mg/L
Zinc	5.0	U	ug/L

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P352138

Component	Result	Code	Units
Arsenic	0.050	U	ug/L
Cadmium	0.020	U	ug/L
Chromium	0.40	U	ug/L
Copper	0.20	U	ug/L
Lead	0.050	U	ug/L
Nickel	0.20	U	ug/L

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P352898

Component	Result	Code	Units
Silver	0.010	U	ug/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P352520

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P352521

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P352522

Component	Result	Code	Units
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Quality Assurance Report Method Blank Results

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P352522

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P352523

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P352555

Component	Result	Code	Units
Ammonia-N	0.002	U	mg N/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P352626

Component	Result	Code	Units
Ammonia-N	0.002	U	mg N/L

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P352332

Component	Result	Code	Units
Kjeldahl Nitrogen	0.080	U	mg N/L

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P352265

Component	Result	Code	Units
NO2NO3-N	0.004	U	mg N/L

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P352321

Component	Result	Code	Units
Total-P	0.002	U	mg P/L

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P352103

Component	Result	Code	Units
O-Phosphate-P	0.004	U	mg P/L

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P352104

Component	Result	Code	Units
O-Phosphate-P	0.004	U	mg P/L

Quality Assurance Report

Method Blank Results

Reference Method: SM 2120 B
Batch ID: P352100

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2320 B-97
Batch ID: P352565

Component	Result	Code	Units
Total Alkalinity	0.65	U	mg CaCO ₃ /L

Reference Method: SM 2320 B-97
Batch ID: P352763

Component	Result	Code	Units
Total Alkalinity	0.65	U	mg CaCO ₃ /L

Reference Method: SM 2540 C-97
Batch ID: P352444

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P352515

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500 F-C-97
Batch ID: P352567

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-00
Batch ID: P352348

Component	Result	Code	Units
Organic Carbon	0.50	U	mg C/L

Reference Method: SM 5310 B-00
Batch ID: P352349

Component	Result	Code	Units
Organic Carbon	0.50	U	mg C/L

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P352138

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Calcium	102		P	85 - 115
Iron	98.3		P	85 - 115
Magnesium	102		P	85 - 115
Potassium	96.5		P	85 - 115
Sodium	97.0		P	85 - 115
Zinc	95.1		P	85 - 115

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P352138

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Arsenic	106		P	85 - 115
Cadmium	99.4		P	85 - 115
Chromium	102		P	85 - 115
Copper	104		P	85 - 115
Lead	95.2		P	85 - 115
Nickel	103		P	85 - 115

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P352898

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Silver	95.8		P	85 - 115

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P352520

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Chloride	95.7		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P352521

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Chloride	97.7		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P352522

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Sulfate	95.6		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P352523

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Sulfate	97.8		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P352555

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
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Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P352555

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Ammonia-N	98.3		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P352626

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Ammonia-N	99.7		P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P352332

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Kjeldahl Nitrogen	105		P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P352265

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
NO2NO3-N	100		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P352321

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total-P	98.7		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P352103

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
O-Phosphate-P	98.2		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P352104

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
O-Phosphate-P	102		P	90 - 110

Reference Method: SM 2120 B
Batch ID: P352100

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Color (true)	96.7		P	85 - 115

Reference Method: SM 2320 B-97
Batch ID: P352565

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	102		P	98 - 107

Quality Assurance Report

Laboratory Control Sample Accuracy

Reference Method: SM 2320 B-97
Batch ID: P352763

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	102		P	90 - 110

Reference Method: SM 4500 F-C-97
Batch ID: P352567

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	97.8		P	91 - 105

Reference Method: SM 5310 B-00
Batch ID: P352348

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	93.8		P	85 - 115

Reference Method: SM 5310 B-00
Batch ID: P352349

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	94.5		P	85 - 115

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P352138

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2027064	Calcium	94.7		P	80 - 120
2027064	Iron	98.7		P	80 - 120
2027064	Magnesium	99.9		P	80 - 120
2027064	Potassium	98.6		P	80 - 120
2027064	Sodium	94.9		P	80 - 120
2027064	Zinc	93.2		P	80 - 120
2027534	Calcium	96.7		P	80 - 120
2027534	Iron	100	103	P/P	80 - 120
2027534	Magnesium	102	105	P/P	80 - 120
2027534	Potassium	104	106	P/P	80 - 120
2027534	Sodium	98.0	102	P/P	80 - 120
2027534	Zinc	98.4	96.7	P/P	80 - 120

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P352138

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2027064	Arsenic	106		P	80 - 120
2027064	Cadmium	97.5		P	80 - 120
2027064	Chromium	102		P	80 - 120
2027064	Copper	102		P	80 - 120
2027064	Lead	95.1		P	80 - 120
2027064	Nickel	98.8		P	80 - 120
2027534	Arsenic	103	105	P/P	80 - 120
2027534	Cadmium	99.7	101	P/P	80 - 120
2027534	Chromium	102	103	P/P	80 - 120
2027534	Copper	101	103	P/P	80 - 120
2027534	Lead	95.1	96.8	P/P	80 - 120
2027534	Nickel	98.9	100	P/P	80 - 120

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P352898

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2027624	Silver	95.0	95.0	P/P	80 - 120
2027661	Silver	95.5		P	80 - 120

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P352520

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2027509	Chloride	93.8		P	90 - 110
2027582	Chloride	96.6		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P352521

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2027629	Chloride	90.4		P	90 - 110
2027725	Chloride	88.0		F	90 - 110

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P352522

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2027509	Sulfate	93.3		P	90 - 110
2027582	Sulfate	95.9		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P352523

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2027629	Sulfate	93.5		P	90 - 110
2027725	Sulfate	92.9		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P352555

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2027510	Ammonia-N	98.5	104	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P352626

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2027631	Ammonia-N	98.1	99.0	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P352332

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2027631	Kjeldahl Nitrogen	99.2	100	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P352265

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2027583	NO2NO3-N	98.0	98.0	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P352321

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2027631	Total-P	101	95.0	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P352103

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2027577	O-Phosphate-P	95.4	95.9	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P352104

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2027633	O-Phosphate-P	97.1	97.5	P/P	90 - 110

Quality Assurance Report Matrix Spike Accuracy

Reference Method: SM 4500 F-C-97
Batch ID: P352567

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2027329	Fluoride	96.0	96.0	P/P	91 - 105

Reference Method: SM 5310 B-00
Batch ID: P352348

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2027354	Organic Carbon	103		P	85 - 115

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P352116

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2027572	Turbidity	1.13	Sample	P	0 - 20

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P352117

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2027637	Turbidity	0.519	Sample	P	0 - 20

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P352138

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2027534	Calcium	2.27	Spike	P	0 - 20
2027534	Iron	2.78	Spike	P	0 - 20
2027534	Magnesium	1.89	Spike	P	0 - 20
2027534	Potassium	2.37	Spike	P	0 - 20
2027534	Sodium	2.36	Spike	P	0 - 20
2027534	Zinc	1.79	Spike	P	0 - 20

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P352138

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2027534	Arsenic	1.70	Spike	P	0 - 20
2027534	Cadmium	1.30	Spike	P	0 - 20
2027534	Chromium	0.637	Spike	P	0 - 20
2027534	Copper	1.98	Spike	P	0 - 20
2027534	Lead	1.81	Spike	P	0 - 20
2027534	Nickel	1.59	Spike	P	0 - 20

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P352898

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2027624	Silver	0.0318	Spike	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P352520

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2027509	Chloride	0.00256	Sample	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P352521

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2027629	Chloride	0.449	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P352523

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2027629	Sulfate	0.953	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P352555

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2027510	Ammonia-N	4.57	Spike	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P352626

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2027631	Ammonia-N	0.759	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P352332

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2027631	Kjeldahl Nitrogen	0.615	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P352265

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2027583	NO2NO3-N	0.0	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P352321

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2027631	Total-P	5.31	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P352103

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2027577	O-Phosphate-P	0.501	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P352104

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2027633	O-Phosphate-P	0.392	Spike	P	0 - 20

Reference Method: SM 2120 B
Batch ID: P352100

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2027578	Color (true)	0.881	Sample	P	0 - 20

Reference Method: SM 2320 B-97
Batch ID: P352565

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2027329	Total Alkalinity	1.02	Sample	P	0 - 1.6

Reference Method: SM 2320 B-97
Batch ID: P352763

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2027582	Total Alkalinity	2.79	Sample	F	0 - 1.6

Reference Method: SM 2540 C-97
Batch ID: P352444

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2027575	TDS	1.09	Sample	P	0 - 10

Reference Method: SM 4500 F-C-97
Batch ID: P352567

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2027329	Fluoride	0.0	Spike	P	0 - 3.5

Reference Method: SM 5310 B-00
Batch ID: P352348

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2027354	Organic Carbon	1.52	Spike	P	0 - 20

Reference Method: SM 5310 B-00
Batch ID: P352349

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2027590	Organic Carbon	0.320	Spike	P	0 - 20

Quality Assurance Report

Precision

* Sample, spike and/or laboratory control sample precision (LCS) is reported.
Replicate spike precision may be reported when sample results are below quantifiable levels.

Quality Assurance Report Calibration Verification

Reference Method: SM 2120 B

Run ID: A86649

Included Lab Sample IDs: 2027581, 2027582, 2027587, 2027588, 2027589

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	104	105	P/P	90 - 115
Color (true)	105	105	P/P	90 - 115

Reference Method: EPA 365.1 Rev. 2.0 dissolved

Run ID: A86650

Included Lab Sample IDs: 2027585, 2027586, 2027593, 2027594, 2027595

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	98.6	98.6	P/P	90 - 110
O-Phosphate-P	98.8	98.6	P/P	90 - 110

Reference Method: EPA 180.1 Rev. 2.0

Run ID: A86658

Included Lab Sample IDs: 2027581, 2027582, 2027587, 2027588, 2027589

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Turbidity	102	102	P/P	95 - 105
Turbidity	103	102	P/P	95 - 105

Reference Method: EPA 200.7 Rev. 4.4

Run ID: A86714

Included Lab Sample IDs: 2027616, 2027617, 2027618

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Calcium	93.0	94.5	P/P	90 - 110
Iron	95.6	96.8	P/P	90 - 110
Magnesium	95.8	97.0	P/P	90 - 110
Potassium	94.1	96.2	P/P	90 - 110
Sodium	94.6	94.4	P/P	90 - 110
Zinc	94.9	94.4	P/P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1

Run ID: A86718

Included Lab Sample IDs: 2027581, 2027582, 2027587, 2027588, 2027589

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	96.1	98.7	P/P	90 - 110
Chloride	98.1	99.9	P/P	90 - 110
Chloride	99.1	98.1	P/P	90 - 110
Sulfate	95.8	98.2	P/P	90 - 110
Sulfate	97.9	99.6	P/P	90 - 110
Sulfate	99.5	97.9	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A86724

Included Lab Sample IDs: 2027583, 2027584, 2027590, 2027591, 2027592

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO2NO3-N	100	99.5	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A86739

Included Lab Sample IDs: 2027583, 2027590, 2027592

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	102	101	P/P	90 - 110

Reference Method: SM 5310 B-00

Run ID: A86745

Included Lab Sample IDs: 2027583, 2027584, 2027590, 2027591, 2027592

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	94.4	94.5	P/P	90 - 110
Organic Carbon	94.5	93.8	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A86753

Included Lab Sample IDs: 2027583, 2027584, 2027590, 2027591, 2027592

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	100	102	P/P	90 - 110
Kjeldahl Nitrogen	104	100	P/P	90 - 110
Kjeldahl Nitrogen	106	103	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A86761

Included Lab Sample IDs: 2027584, 2027591

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	100	100	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A86826

Included Lab Sample IDs: 2027583, 2027584

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	103	103	P/P	90 - 110

Reference Method: SM 2320 B-97

Run ID: A86829

Included Lab Sample IDs: 2027581, 2027587, 2027588, 2027589

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	103	101	P/P	90 - 110

Reference Method: SM 4500 F-C-97

Run ID: A86829

Included Lab Sample IDs: 2027581, 2027582, 2027587, 2027588, 2027589

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	100	99.5	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: EPA 200.8 Rev. 5.4

Run ID: A86832

Included Lab Sample IDs: 2027616, 2027617, 2027618

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Arsenic	99.5	100	P/P	90 - 110
Cadmium	97.2	97.1	P/P	90 - 110
Copper	100	101	P/P	90 - 110
Lead	95.3	96.0	P/P	90 - 110
Nickel	98.5	99.9	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A86854

Included Lab Sample IDs: 2027590, 2027591, 2027592

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	102	102	P/P	90 - 110

Reference Method: EPA 200.8 Rev. 5.4

Run ID: A86855

Included Lab Sample IDs: 2027616, 2027617, 2027618

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chromium	102	103	P/P	90 - 110

Reference Method: SM 2320 B-97

Run ID: A86908

Included Lab Sample IDs: 2027582

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	103	100	P/P	90 - 110

Reference Method: EPA 200.8 Rev. 5.4

Run ID: A87002

Included Lab Sample IDs: 2027616, 2027617, 2027618

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Silver	93.9	93.4	P/P	90 - 110

* Pass/Fail determinations are made for each bracketing calibration verification check.

Control limits for initial calibration checks may be different from those for continuing checks, depending on method requirements.

Where they are different, both control limits are provided.

Quality Assurance Report Summary

Ref. Method	Analyte	LCS % Recovery	MS % Recovery			Precision SMP	MS
			LCS				
EPA 180.1 Rev. 2.0	Turbidity					1.13	
	Turbidity					0.519	
EPA 200.7 Rev. 4.4	Calcium	102	94.7	96.7			2.27
	Iron	98.3	98.7	100	103		2.78
	Magnesium	102	99.9	102	105		1.89
	Potassium	96.5	98.6	104	106		2.37
	Sodium	97.0	94.9	98.0	102		2.36
	Zinc	95.1	93.2	98.4	96.7		1.79
EPA 200.8 Rev. 5.4	Arsenic	106	106	103	105		1.70
	Cadmium	99.4	97.5	99.7	101		1.30
	Chromium	102	102	102	103		0.637
	Copper	104	102	101	103		1.98
	Lead	95.2	95.1	95.1	96.8		1.81
	Nickel	103	98.8	98.9	100		1.59
	Silver	95.8	95.0	95.0	95.5		0.0318
EPA 300.0 Rev. 2.1	Chloride	95.7	93.8	96.6		0.0025	
	Chloride	97.7	90.4	88.0		0.449	
	Sulfate	95.6	93.3	95.9			
	Sulfate	97.8	93.5	92.9		0.953	
EPA 350.1 Rev. 2.0	Ammonia-N	98.3	98.5	104			4.57
	Ammonia-N	99.7	98.1	99.0			0.759
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	105	99.2	100			0.615
EPA 353.2 Rev. 2.0	NO ₂ NO ₃ -N	100	98.0	98.0			0.0
EPA 365.1 Rev. 2.0	Total-P	98.7	101	95.0			5.31
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	98.2	95.4	95.9			0.501
	O-Phosphate-P	102	97.1	97.5			0.392
SM 2120 B	Color (true)	96.7				0.881	
SM 2320 B-97	Total Alkalinity	102				1.02	
	Total Alkalinity	102				2.79	
SM 2540 C-97	TDS					1.09	
SM 4500 F-C-97	Fluoride	97.8	96.0	96.0			0.0
SM 5310 B-00	Organic Carbon	93.8	103				1.52
	Organic Carbon	94.5					0.320

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	2027581, 2027582, 2027587, 2027588, 2027589
EPA 200.7 Rev. 4.4 / E31780	Total Recoverable Metals analysis using ICP emission spectroscopy for aqueous samples supporting Clean Water Act Projects	2027616, 2027617, 2027618
EPA 200.8 Rev. 5.4 / E31780	Total Recoverable Metals analysis using ICP-MS for aqueous samples supporting Clean Water Act Projects	2027616, 2027617, 2027618
EPA 300.0 Rev. 2.1 / E31780	Chloride in aqueous matrices	2027581, 2027582, 2027587, 2027588, 2027589
EPA 300.0 Rev. 2.1 / E31780	Sulfate in aqueous matrices	2027581, 2027582, 2027587, 2027588, 2027589
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	2027583, 2027584, 2027590, 2027591, 2027592
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	2027583, 2027584, 2027590, 2027591, 2027592
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	2027583, 2027584, 2027590, 2027591, 2027592
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	2027583, 2027584, 2027590, 2027591, 2027592

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 365.1 Rev. 2.0 dissolved / E31780 SM 2120 B / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L True Color measured at 450 nm	2027585, 2027586, 2027593, 2027594, 2027595 2027581, 2027582, 2027587, 2027588, 2027589
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO3/L	2027581, 2027582, 2027587, 2027588, 2027589
SM 2540 C-97 / E31780	Total Dissolved Solids in aqueous matrices	2027581, 2027582, 2027587, 2027588, 2027589
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices using a maximum of 250 mL of sample	2027581, 2027582, 2027587, 2027588, 2027589
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	2027581, 2027582, 2027587, 2027588, 2027589
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	2027583, 2027584, 2027590, 2027591, 2027592

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
EPA 180.1 Rev. 2.0	09/21/2018			09/21/2018 16:28	Megan Treadwell	2027581, 2027582, 2027587, 2027588, 2027589
EPA 200.7 Rev. 4.4	09/21/2018	09/24/2018 13:10	Elliott D. Healy	09/25/2018 18:49	Betina Topolski	2027616
	09/21/2018	09/24/2018 13:10	Elliott D. Healy	09/25/2018 18:54	Betina Topolski	2027617
	09/21/2018	09/24/2018 13:10	Elliott D. Healy	09/25/2018 19:00	Betina Topolski	2027618
EPA 200.8 Rev. 5.4	09/21/2018	09/24/2018 13:10	Elliott D. Healy	10/02/2018 02:18	Robert K Palmer	2027616
	09/21/2018	09/24/2018 13:10	Elliott D. Healy	10/02/2018 02:28	Robert K Palmer	2027617
	09/21/2018	09/24/2018 13:10	Elliott D. Healy	10/02/2018 02:37	Robert K Palmer	2027618
	09/21/2018	09/24/2018 13:10	Elliott D. Healy	10/02/2018 21:06	Robert K Palmer	2027616
	09/21/2018	09/24/2018 13:10	Elliott D. Healy	10/02/2018 21:12	Robert K Palmer	2027617
	09/21/2018	09/24/2018 13:10	Elliott D. Healy	10/02/2018 21:18	Robert K Palmer	2027618
	09/21/2018	10/08/2018 10:04	Devin Thornton	10/08/2018 20:34	Robert K Palmer	2027616
	09/21/2018	10/08/2018 10:04	Devin Thornton	10/08/2018 20:40	Robert K Palmer	2027617
	09/21/2018	10/08/2018 10:04	Devin Thornton	10/08/2018 20:46	Robert K Palmer	2027618
EPA 300.0 Rev. 2.1	09/21/2018			09/28/2018 15:15	Lipi Saha	2027582
	09/21/2018			09/28/2018 17:40	Lipi Saha	2027581
	09/21/2018			09/28/2018 17:53	Lipi Saha	2027587
	09/21/2018			09/28/2018 18:05	Lipi Saha	2027588
	09/21/2018			09/28/2018 21:54	Lipi Saha	2027589
EPA 350.1 Rev. 2.0	09/21/2018			09/28/2018 13:10	Ping Hua	2027583
	09/21/2018			09/28/2018 13:11	Ping Hua	2027584
	09/21/2018			10/01/2018 13:27	Ping Hua	2027590
	09/21/2018			10/01/2018 13:28	Ping Hua	2027591
	09/21/2018			10/01/2018 13:30	Ping Hua	2027592
EPA 351.2 Rev. 2.0	09/21/2018	09/26/2018 15:45	Adrian Shelby	09/27/2018 13:23	Joseph Suarez	2027583
	09/21/2018	09/26/2018 15:45	Adrian Shelby	09/27/2018 13:25	Joseph Suarez	2027584
	09/21/2018	09/26/2018 15:45	Adrian Shelby	09/27/2018 13:30	Joseph Suarez	2027592
	09/21/2018	09/26/2018 15:45	Adrian Shelby	09/27/2018 14:31	Joseph Suarez	2027590
	09/21/2018	09/26/2018 15:45	Adrian Shelby	09/27/2018 14:35	Joseph Suarez	2027591
EPA 353.2 Rev. 2.0	09/21/2018			09/26/2018 08:48	Beverly Y. Sanders	2027583
	09/21/2018			09/26/2018 08:54	Beverly Y. Sanders	2027584
	09/21/2018			09/26/2018 08:55	Beverly Y. Sanders	2027590
	09/21/2018			09/26/2018 08:56	Beverly Y. Sanders	2027591
	09/21/2018			09/26/2018 08:57	Beverly Y. Sanders	2027592
EPA 365.1 Rev. 2.0	09/21/2018	09/26/2018 11:30	Adrian Shelby	09/27/2018 09:01	Beverly Y. Sanders	2027583
	09/21/2018	09/26/2018 11:30	Adrian Shelby	09/27/2018 09:04	Beverly Y. Sanders	2027590
	09/21/2018	09/26/2018 11:30	Adrian Shelby	09/27/2018 09:06	Beverly Y. Sanders	2027592
	09/21/2018	09/26/2018 11:30	Adrian Shelby	09/27/2018 14:14	Beverly Y. Sanders	2027584
	09/21/2018	09/26/2018 11:30	Adrian Shelby	09/27/2018 14:15	Beverly Y. Sanders	2027591
EPA 365.1 Rev. 2.0 dissolved	09/21/2018			09/21/2018 16:17	Julia Storbeck	2027585

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
EPA 365.1 Rev. 2.0 dissolved	09/21/2018			09/21/2018 16:18	Julia Storbeck	2027593
	09/21/2018			09/21/2018 16:19	Julia Storbeck	2027594
	09/21/2018			09/21/2018 16:25	Julia Storbeck	2027595
	09/21/2018			09/21/2018 16:26	Julia Storbeck	2027586
SM 2120 B	09/21/2018			09/21/2018 15:49	DeAsia Armster	2027582
	09/21/2018			09/21/2018 16:12	DeAsia Armster	2027581
	09/21/2018			09/21/2018 16:13	DeAsia Armster	2027587
	09/21/2018			09/21/2018 16:14	DeAsia Armster	2027588
SM 2320 B-97	09/21/2018			09/21/2018 16:15	DeAsia Armster	2027589
	09/21/2018			09/28/2018 08:22	Dale L. Simmons	2027581
	09/21/2018			09/28/2018 08:44	Dale L. Simmons	2027587
	09/21/2018			09/28/2018 08:52	Dale L. Simmons	2027588
SM 2540 C-97	09/21/2018			09/28/2018 09:02	Dale L. Simmons	2027589
	09/21/2018			10/04/2018 11:14	Dale L. Simmons	2027582
	09/21/2018			09/25/2018 15:05	Yijie Li	2027581, 2027582, 2027587, 2027588, 2027589
	09/21/2018			09/25/2018 15:05	Yijie Li	2027581, 2027582, 2027587, 2027588, 2027589
SM 4500 F-C-97	09/21/2018			09/28/2018 08:22	Dale L. Simmons	2027581
	09/21/2018			09/28/2018 08:34	Dale L. Simmons	2027582
	09/21/2018			09/28/2018 08:44	Dale L. Simmons	2027587
	09/21/2018			09/28/2018 08:52	Dale L. Simmons	2027588
SM 5310 B-00	09/21/2018			09/28/2018 09:02	Dale L. Simmons	2027589
	09/21/2018			09/26/2018 21:01	Megan Treadwell	2027583
	09/21/2018			09/26/2018 21:14	Megan Treadwell	2027584
	09/21/2018			09/26/2018 21:54	Megan Treadwell	2027590
	09/21/2018			09/26/2018 23:19	Megan Treadwell	2027591
	09/21/2018			09/26/2018 23:33	Megan Treadwell	2027592