

Chemical Analysis Report

NE-DIST-2020-01-24-02

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

Event Description: **Interlachen 2020**
Request ID: **RQ-2020-01-20-12**
Customer: **NE-DIST**
Project ID: **SMP**

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Certified by: Kerry Tate, Ph.D., Environmental Administrator

Date Certified: 13-FEB-2020 11:48

A handwritten signature in black ink that reads "Kerry Tate". The signature is written in a cursive, flowing style with a horizontal line above the first name.

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 by the Florida Department of Health Environmental Laboratory Certification Program 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: Smith lake Center

Collection Date/Time: 01/23/2020 11:00

Field ID: G2NE1156

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2151614	EPA 180.1 Rev. 2.0	Turbidity	0.85		NTU	P377786	
	EPA 300.0 Rev. 2.1	Chloride	5.5		mg Cl/L	P378151	
		Sulfate	0.38	I	mg SO4/L	P378156	
		Color (true)	26		PCU	P377718	
	SM 2320 B-2011	Total Alkalinity	0.65	U	mg CaCO3/L	P378052	
	SM 2540 C-2011	TDS	18	I	mg/L	P378274	
	SM 2540 D-2011	TSS	2	U	mg/L	P378064	
	SM 4500 F-C-2011	Fluoride	0.035	U	mg F/L	P378057	
2151617	EPA 350.1 Rev. 2.0	Ammonia-N	0.008		mg N/L	P378392	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.62		mg N/L	P378321	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P377937	
	EPA 365.1 Rev. 2.0	Total-P	0.008		mg P/L	P378028	
	SM 5310 B-2011	Organic Carbon	8.5		mg C/L	P377956	
2151618	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P377759	

Ref. Method and Comment:

EPA 300.0 Rev. 2.1: Sulfate: Batch matrix spike recoveries for one of two spiked samples are unavailable because of high analyte concentration in the QC sample.

SM 2540 D-2011: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample.

Sample Location: Church lake Center

Collection Date/Time: 01/23/2020 12:45

Field ID: G1NE0867

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2151608	EPA 180.1 Rev. 2.0	Turbidity	1.0		NTU	P377786	
	EPA 300.0 Rev. 2.1	Chloride	5.5		mg Cl/L	P378151	
		Sulfate	3.0		mg SO4/L	P378156	
		Color (true)	10		PCU	P377718	
	SM 2120 B-2011	Total Alkalinity	4.6		mg CaCO3/L	P378052	
	SM 2540 C-2011	TDS	24	I	mg/L	P378274	
	SM 2540 D-2011	TSS	2	U	mg/L	P378064	
	SM 4500 F-C-2011	Fluoride	0.035	U	mg F/L	P378057	
2151610	EPA 350.1 Rev. 2.0	Ammonia-N	0.007		mg N/L	P378392	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.35		mg N/L	P378171	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.008	I	mg N/L	P377937	
	EPA 365.1 Rev. 2.0	Total-P	0.01		mg P/L	P378027	
	SM 5310 B-2011	Organic Carbon	3.8		mg C/L	P377956	
2151612	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P377759	
2151653	EPA 200.7 Rev. 4.4	Barium	2.9	I	ug/L	P377797	
		Calcium	2.04		mg/L	P377797	
		Iron	30	U	ug/L	P377797	
		Magnesium	0.76		mg/L	P377797	
		Potassium	0.80	I	mg/L	P377797	
		Sodium	3.9		mg/L	P377797	
		Zinc	5.0	U	ug/L	P377797	
		Aluminum	29		ug/L	P377797	
		Antimony	0.11	I	ug/L	P377797	
		Arsenic	8.33		ug/L	P377797	
	EPA 200.8 Rev. 5.4	Boron**	19.6		ug/L	P377797	
		Cadmium	0.020	U	ug/L	P377797	
		Chromium	0.40	U	ug/L	P377797	
		Copper	0.98		ug/L	P377797	
		Lead	0.20	U	ug/L	P377797	
		Nickel	0.50	U	ug/L	P377797	
		Selenium	0.20	U	ug/L	P377797	
		Silver	0.010	U	ug/L	P377797	
		Thallium	0.10	U	ug/L	P377797	
		Hardness	8.2		mg/L	P377797	

Ref. Method and Comment:

EPA 300.0 Rev. 2.1: Sulfate: Batch matrix spike recoveries for one of two spiked samples are unavailable because of high analyte concentration in the QC sample.

SM 2540 D-2011: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample.

Sample Location: Church lake Center

Collection Date/Time: 01/23/2020 12:50

Field ID: G1NE0867_Dup

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2151609	EPA 180.1 Rev. 2.0	Turbidity	1.0		NTU	P377786	
	EPA 300.0 Rev. 2.1	Chloride	5.5		mg Cl/L	P378151	
		Sulfate	3.0		mg SO4/L	P378156	
		Color (true)	10		PCU	P377718	
	SM 2120 B-2011	Total Alkalinity	4.5		mg CaCO3/L	P378052	
	SM 2540 C-2011	TDS	28		mg/L	P378274	
	SM 2540 D-2011	TSS	2	U	mg/L	P378064	
	SM 4500 F-C-2011	Fluoride	0.035	U	mg F/L	P378057	
2151611	EPA 350.1 Rev. 2.0	Ammonia-N	0.008		mg N/L	P378392	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.35		mg N/L	P378171	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.008	I	mg N/L	P377937	
	EPA 365.1 Rev. 2.0	Total-P	0.01		mg P/L	P378028	
	SM 5310 B-2011	Organic Carbon	3.8		mg C/L	P377956	
2151613	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P377759	
2151654	EPA 200.7 Rev. 4.4	Barium	3.0	I	ug/L	P377797	
		Calcium	2.03		mg/L	P377797	
		Iron	30	U	ug/L	P377797	
		Magnesium	0.75		mg/L	P377797	
		Potassium	0.79	I	mg/L	P377797	
		Sodium	3.9		mg/L	P377797	
		Zinc	5.0	U	ug/L	P377797	
	EPA 200.8 Rev. 5.4	Aluminum	26		ug/L	P377797	
		Antimony	0.11	I	ug/L	P377797	
		Arsenic	8.17		ug/L	P377797	
		Boron**	19.8		ug/L	P377797	
		Cadmium	0.020	U	ug/L	P377797	
		Chromium	0.40	U	ug/L	P377797	
		Copper	1.04		ug/L	P377797	
		Lead	0.20	U	ug/L	P377797	
		Nickel	0.50	U	ug/L	P377797	
		Selenium	0.20	U	ug/L	P377797	
	SM 2340B	Silver	0.010	U	ug/L	P377797	
		Thallium	0.10	U	ug/L	P377797	
		Hardness	8.2		mg/L	P377797	

Ref. Method and Comment:

EPA 300.0 Rev. 2.1: Sulfate: Batch matrix spike recoveries for one of two spiked samples are unavailable because of high analyte concentration in the QC sample.

SM 2540 D-2011: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample.

Sample Location: Church lake Center

Collection Date/Time: 01/23/2020 13:00

Field ID: FB 01232020

Matrix: W-FIELD-BK

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2151621	EPA 180.1 Rev. 2.0	Turbidity	0.10	U	NTU	P377786	
	EPA 300.0 Rev. 2.1	Chloride	0.20	U	mg Cl/L	P378151	
		Sulfate	0.20	U	mg SO4/L	P378156	
		Color (true)	2.5	U	PCU	P377719	
	SM 2320 B-2011	Total Alkalinity	0.65	U	mg CaCO3/L	P378052	
	SM 2540 C-2011	TDS	15	U	mg/L	P378275	
	SM 2540 D-2011	TSS	2	U	mg/L	P378065	
	SM 4500 F-C-2011	Fluoride	0.035	U	mg F/L	P378057	
2151622	EPA 350.1 Rev. 2.0	Ammonia-N	0.002	U	mg N/L	P378392	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.080	U	mg N/L	P378171	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P378483	
	EPA 365.1 Rev. 2.0	Total-P	0.002	U	mg P/L	P378028	
	SM 5310 B-2011	Organic Carbon	0.50	U	mg C/L	P377956	
2151623	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P377759	
2151655	EPA 200.7 Rev. 4.4	Barium	1.0	U	ug/L	P377797	
		Calcium	0.075	U	mg/L	P377797	
		Iron	30	U	ug/L	P377797	
		Magnesium	0.040	U	mg/L	P377797	
		Potassium	0.30	U	mg/L	P377797	
		Sodium	0.50	U	mg/L	P377797	
		Zinc	5.0	U	ug/L	P377797	
		Aluminum	5.0	U	ug/L	P377797	
		Antimony	0.050	U	ug/L	P377797	
		Arsenic	0.050	U	ug/L	P377797	
		Boron**	2.0	U	ug/L	P377797	
		Cadmium	0.020	U	ug/L	P377797	
		Chromium	0.40	U	ug/L	P377797	
	EPA 200.8 Rev. 5.4	Copper	0.40	U	ug/L	P377797	
		Lead	0.20	U	ug/L	P377797	
		Nickel	0.50	U	ug/L	P377797	
		Selenium	0.20	U	ug/L	P377797	
		Silver	0.010	U	ug/L	P377797	
		Thallium	0.10	U	ug/L	P377797	
		Hardness	0.35	U	mg/L	P377797	
	SM 2340B						

Ref. Method and Comment:

EPA 300.0 Rev. 2.1: Sulfate: Batch matrix spike recoveries for one of two spiked samples are unavailable because of high analyte concentration in the QC sample.

SM 2540 D-2011: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample.

Sample Location: Hardesty Lake Center

Collection Date/Time: 01/23/2020 13:50

Field ID: G1NE0869

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2151615	EPA 180.1 Rev. 2.0	Turbidity	4.0	A	NTU	P377786	
	EPA 300.0 Rev. 2.1	Chloride	7.8		mg Cl/L	P378151	
		Sulfate	1.4		mg SO4/L	P378156	
		Color (true)	170		PCU	P377719	
	SM 2320 B-2011	Total Alkalinity	1.7	I	mg CaCO3/L	P378052	
	SM 2540 C-2011	TDS	48		mg/L	P378275	
	SM 2540 D-2011	TSS	5	I	mg/L	P378065	
	SM 4500 F-C-2011	Fluoride	0.035	U	mg F/L	P378057	
2151619	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.006	I	mg P/L	P377759	

Ref. Method and Comment:

EPA 300.0 Rev. 2.1: Sulfate: Batch matrix spike recoveries for one of two spiked samples are unavailable because of high analyte concentration in the QC sample.

SM 2540 D-2011: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample.

Sample Location: Gillis Pond Center

Collection Date/Time: 01/23/2020 15:20

Field ID: G1NE0863

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2151616	EPA 180.1 Rev. 2.0	Turbidity	1.8		NTU	P377786	
	EPA 300.0 Rev. 2.1	Chloride	11		mg Cl/L	P378151	
		Sulfate	3.4		mg SO4/L	P378156	
		Color (true)	57		PCU	P377719	
	SM 2320 B-2011	Total Alkalinity	0.65	U	mg CaCO3/L	P378052	
	SM 2540 C-2011	TDS	38		mg/L	P378275	
	SM 2540 D-2011	TSS	3	I	mg/L	P378065	
	SM 4500 F-C-2011	Fluoride	0.035	U	mg F/L	P378057	
2151620	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P377759	

Ref. Method and Comment:

EPA 300.0 Rev. 2.1: Sulfate: Batch matrix spike recoveries for one of two spiked samples are unavailable because of high analyte concentration in the QC sample.

SM 2540 D-2011: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample.

Quality Assurance Report Method Blank Results

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P377786

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P377797

Component	Result	Code	Units
Barium	1.0	U	ug/L
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: P377797

Component	Result	Code	Units
Aluminum	5.0	U	ug/L
Antimony	0.050	U	ug/L
Arsenic	0.050	U	ug/L
Boron	2.0	U	ug/L
Cadmium	0.020	U	ug/L
Chromium	0.40	U	ug/L
Copper	0.40	U	ug/L
Lead	0.20	U	ug/L
Nickel	0.50	U	ug/L
Selenium	0.20	U	ug/L
Silver	0.010	U	ug/L
Thallium	0.10	U	ug/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P378151

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P378156

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P378392

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

Quality Assurance Report Method Blank Results

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P378171

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P378321

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P377937

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P378483

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P378027

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P378028

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P377759

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

Reference Method: SM 2120 B-2011
Batch ID: P377718

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2120 B-2011
Batch ID: P377719

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Quality Assurance Report Method Blank Results

Reference Method: SM 2320 B-2011
Batch ID: P378052

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

Reference Method: SM 2540 C-2011
Batch ID: P378274

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 C-2011
Batch ID: P378275

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-2011
Batch ID: P378064

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 2540 D-2011
Batch ID: P378065

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500 F-C-2011
Batch ID: P378057

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-2011
Batch ID: P377956

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: P377797

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Barium	100		P	85 - 115
Calcium	100		P	85 - 115
Iron	104		P	85 - 115
Magnesium	105		P	85 - 115
Potassium	102		P	85 - 115
Sodium	104		P	85 - 115
Zinc	101		P	85 - 115

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P377797

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Aluminum	104		P	80 - 120
Antimony	107		P	80 - 120
Arsenic	103		P	85 - 115
Boron	98.6		P	85 - 115
Cadmium	105		P	85 - 115
Chromium	93.5		P	85 - 115
Copper	97.9		P	85 - 115
Lead	101		P	85 - 115
Nickel	94.3		P	85 - 115
Selenium	103		P	85 - 115
Silver	103		P	85 - 115
Thallium	87.8		P	85 - 115

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P378151

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P378156

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P378392

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P378171

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

Quality Assurance Report

Laboratory Control Sample Accuracy

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P378321

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: P377937

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
NO2NO3-N	102		P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P378483

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P378027

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total-P	104		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P378028

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P377759

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
O-Phosphate-P	104		P	90 - 110

Reference Method: SM 2120 B-2011
Batch ID: P377718

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Color (true)	98.5		P	85 - 115

Reference Method: SM 2120 B-2011
Batch ID: P377719

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Color (true)	101		P	85 - 115

Reference Method: SM 2320 B-2011
Batch ID: P378052

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	103		P	98 - 106

Quality Assurance Report

Laboratory Control Sample Accuracy

Reference Method: SM 4500 F-C-2011
Batch ID: P378057

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	97.2		P	92 - 103

Reference Method: SM 5310 B-2011
Batch ID: P377956

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	99.2		P	85 - 115

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P377797

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2151873	Barium	99.9	102	P/P	80 - 120
2151873	Calcium	100		P	80 - 120
2151873	Iron	102	103	P/P	80 - 120
2151873	Magnesium	99.1	99.4	P/P	80 - 120
2151873	Potassium	98.7	99.6	P/P	80 - 120
2151873	Sodium	101	101	P/P	80 - 120
2151873	Zinc	100	102	P/P	80 - 120

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P377797

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2151873	Aluminum	99.4	103	P/P	80 - 120
2151873	Antimony	104	108	P/P	80 - 120
2151873	Arsenic	101	102	P/P	80 - 120
2151873	Boron	95.4	99.3	P/P	80 - 120
2151873	Cadmium	101	102	P/P	80 - 120
2151873	Chromium	94.8	95.6	P/P	80 - 120
2151873	Copper	95.5	96.1	P/P	80 - 120
2151873	Lead	99.3	100	P/P	80 - 120
2151873	Nickel	93.9	93.5	P/P	80 - 120
2151873	Selenium	98.8	99.5	P/P	80 - 120
2151873	Silver	102	102	P/P	80 - 120
2151873	Thallium	89.8	92.5	P/P	80 - 120

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P378151

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2151580	Chloride	102		P	90 - 110
2151682	Chloride	101		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P378156

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2151682	Sulfate	100		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P378392

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2151610	Ammonia-N	101	103	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P378171

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2151610	Kjeldahl Nitrogen	103	108	P/P	90 - 110

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P378321

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2152727	Kjeldahl Nitrogen	104	107	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P377937

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2151571	NO2NO3-N	100	102	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P378483

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2152923	NO2NO3-N	100	100	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P378027

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2151547	Total-P	107	107	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P378028

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2151611	Total-P	109	110	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P377759

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2151629	O-Phosphate-P	97.1	97.1	P/P	90 - 110
2151629	O-Phosphate-P	97.1		P	90 - 110

Reference Method: SM 4500 F-C-2011
Batch ID: P378057

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2151851	Fluoride	104	105	P/P	89 - 106

Reference Method: SM 5310 B-2011
Batch ID: P377956

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2151547	Organic Carbon	95.8	97.0	P/P	85 - 115

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P377786

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2151615	Turbidity	0.500	Sample	P	0 - 20

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P377797

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2151873	Barium	1.69	Spike	P	0 - 20
2151873	Calcium	0.250	Spike	P	0 - 20
2151873	Iron	0.675	Spike	P	0 - 20
2151873	Magnesium	0.139	Spike	P	0 - 20
2151873	Potassium	0.803	Spike	P	0 - 20
2151873	Sodium	0.297	Spike	P	0 - 20
2151873	Zinc	1.56	Spike	P	0 - 20

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P377797

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2151873	Aluminum	3.05	Spike	P	0 - 20
2151873	Antimony	4.02	Spike	P	0 - 20
2151873	Arsenic	1.09	Spike	P	0 - 20
2151873	Boron	3.62	Spike	P	0 - 20
2151873	Cadmium	0.394	Spike	P	0 - 20
2151873	Chromium	0.831	Spike	P	0 - 20
2151873	Copper	0.586	Spike	P	0 - 20
2151873	Lead	0.943	Spike	P	0 - 20
2151873	Nickel	0.378	Spike	P	0 - 20
2151873	Selenium	0.718	Spike	P	0 - 20
2151873	Silver	0.0414	Spike	P	0 - 20
2151873	Thallium	2.93	Spike	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P378151

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2151580	Chloride	0.871	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P378156

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2151580	Sulfate	0.418	Sample	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P378392

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2151610	Ammonia-N	1.91	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P378171

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2151610	Kjeldahl Nitrogen	3.17	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P378321

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2152727	Kjeldahl Nitrogen	1.15	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P377937

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2151571	NO2NO3-N	0.575	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P378483

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2152923	NO2NO3-N	0.327	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P378027

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2151547	Total-P	0.391	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P378028

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2151611	Total-P	1.02	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P377759

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2151629	O-Phosphate-P	0.0	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: SM 2120 B-2011
 Batch ID: P377718

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2151567	Color (true)	2.24	Sample	P	0 - 20

Reference Method: SM 2120 B-2011
 Batch ID: P377719

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2151627	Color (true)	0.622	Sample	P	0 - 20

Reference Method: SM 2320 B-2011
 Batch ID: P378052

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2151851	Total Alkalinity	0.134	Sample	P	0 - 2.8

Reference Method: SM 2540 C-2011
 Batch ID: P378274

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2151567	TDS	9.02	Sample	P	0 - 10

Reference Method: SM 2540 C-2011
 Batch ID: P378275

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2151639	TDS	0.993	Sample	P	0 - 10

Reference Method: SM 4500 F-C-2011
 Batch ID: P378057

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2151851	Fluoride	0.968	Spike	P	0 - 2.5

Reference Method: SM 5310 B-2011
 Batch ID: P377956

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2151547	Organic Carbon	1.12	Spike	P	0 - 20

* Sample, spike and/or laboratory control sample precision (LCS) is reported.

Quality Assurance Report Calibration Verification

Reference Method: SM 2120 B-2011

Run ID: A97115

Included Lab Sample IDs: 2151608, 2151609, 2151614, 2151615, 2151616, 2151621

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	99.1	99.3	P/P	90 - 115
Color (true)	99.3	101	P/P	90 - 115
Color (true)	99.8	101	P/P	90 - 115

Reference Method: EPA 365.1 Rev. 2.0 dissolved

Run ID: A97136

Included Lab Sample IDs: 2151612, 2151613, 2151618, 2151619, 2151620, 2151623

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	98.5	98.6	P/P	90 - 110
O-Phosphate-P	99.6	98.5	P/P	90 - 110

Reference Method: EPA 180.1 Rev. 2.0

Run ID: A97142

Included Lab Sample IDs: 2151608, 2151609, 2151614, 2151615, 2151616, 2151621

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Turbidity	100	100	P/P	95 - 105

Reference Method: EPA 300.0 Rev. 2.1

Run ID: A97170

Included Lab Sample IDs: 2151608, 2151609, 2151614, 2151615, 2151616, 2151621

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	98.3	99.6	P/P	90 - 110
Chloride	99.6	99.7	P/P	90 - 110
Sulfate	100	100	P/P	90 - 110
Sulfate	99.0	100	P/P	90 - 110

Reference Method: EPA 200.7 Rev. 4.4

Run ID: A97177

Included Lab Sample IDs: 2151653, 2151654, 2151655

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Calcium	100	98.5	P/P	90 - 110
Iron	102	100	P/P	90 - 110
Magnesium	101	99.6	P/P	90 - 110
Potassium	102	100	P/P	90 - 110
Sodium	101	99.5	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A97186

Included Lab Sample IDs: 2151610, 2151611, 2151617

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO2NO3-N	102	102	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: SM 5310 B-2011

Run ID: A97198

Included Lab Sample IDs: 2151610, 2151611, 2151617, 2151622

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	98.0	98.4	P/P	90 - 110

Reference Method: EPA 200.7 Rev. 4.4

Run ID: A97201

Included Lab Sample IDs: 2151653, 2151654, 2151655

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Barium	99.5	99.0	P/P	95 - 105
Zinc	102	101	P/P	95 - 105

Reference Method: SM 2320 B-2011

Run ID: A97228

Included Lab Sample IDs: 2151608, 2151609, 2151614, 2151615, 2151616, 2151621

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

Reference Method: SM 4500 F-C-2011

Run ID: A97228

Included Lab Sample IDs: 2151608, 2151609, 2151614, 2151615, 2151616, 2151621

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	100	101	P/P	90 - 110
Fluoride	102	100	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A97282

Included Lab Sample IDs: 2151610, 2151611, 2151617, 2151622

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	106	106	P/P	90 - 110
Total-P	108	108	P/P	90 - 110
Total-P	108	106	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A97298

Included Lab Sample IDs: 2151610, 2151611, 2151622

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	103	99.5	P/P	90 - 110
Kjeldahl Nitrogen	103	103	P/P	90 - 110

Reference Method: EPA 200.8 Rev. 5.4

Run ID: A97312

Included Lab Sample IDs: 2151653, 2151654, 2151655

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Arsenic	98.0	97.6	P/P	90 - 110
Boron	101	102	P/P	90 - 110
Cadmium	96.8	97.1	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: EPA 200.8 Rev. 5.4

Run ID: A97312

Included Lab Sample IDs: 2151653, 2151654, 2151655

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chromium	90.8	92.1	P/P	90 - 110
Copper	94.1	92.8	P/P	90 - 110
Lead	99.0	98.5	P/P	90 - 110
Nickel	91.3	92.1	P/P	90 - 110
Selenium	97.7	97.2	P/P	90 - 110
Silver	95.2	98.5	P/P	90 - 110
Thallium	95.3	96.4	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A97349

Included Lab Sample IDs: 2151610, 2151611, 2151617, 2151622

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	102	101	P/P	90 - 110
Ammonia-N	102	103	P/P	90 - 110
Ammonia-N	103	103	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A97365

Included Lab Sample IDs: 2151617

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	101	94.7	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A97369

Included Lab Sample IDs: 2151622

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

Reference Method: EPA 200.8 Rev. 5.4

Run ID: A97372

Included Lab Sample IDs: 2151653, 2151654, 2151655

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Aluminum	99.2	99.0	P/P	90 - 110
Antimony	102	102	P/P	90 - 110

Reference Method: EPA 200.8 Rev. 5.4

Run ID: A97401

Included Lab Sample IDs: 2151655

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Silver	97.9	98.9	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		LCS	Precision SMP	MS
EPA 180.1 Rev. 2.0	Turbidity					0.500	
EPA 200.7 Rev. 4.4	Barium	100	99.9	102			1.69
	Calcium	100	100				0.250
	Iron	104	102	103			0.675
	Magnesium	105	99.1	99.4			0.139
	Potassium	102	98.7	99.6			0.803
	Sodium	104	101	101			0.297
	Zinc	101	100	102			1.56
EPA 200.8 Rev. 5.4	Aluminum	104	99.4	103			3.05
	Antimony	107	104	108			4.02
	Arsenic	103	101	102			1.09
	Boron	98.6	95.4	99.3			3.62
	Cadmium	105	101	102			0.394
	Chromium	93.5	94.8	95.6			0.831
	Copper	97.9	95.5	96.1			0.586
	Lead	101	99.3	100			0.943
	Nickel	94.3	93.9	93.5			0.378
	Selenium	103	98.8	99.5			0.718
	Silver	103	102	102			0.0414
	Thallium	87.8	89.8	92.5			2.93
EPA 300.0 Rev. 2.1	Chloride	101	102	101		0.871	
	Sulfate	101	100			0.418	
EPA 350.1 Rev. 2.0	Ammonia-N	102	101	103			1.91
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	102	103	108			3.17
	Kjeldahl Nitrogen	105	104	107			1.15
EPA 353.2 Rev. 2.0	NO ₂ NO ₃ -N	102	100	102			0.575
	NO ₂ NO ₃ -N	99.5	100	100			0.327
EPA 365.1 Rev. 2.0	Total-P	104	107	107			0.391
	Total-P	105	109	110			1.02
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	104	97.1	97.1	97.1		0.0
SM 2120 B-2011	Color (true)	98.5				2.24	
	Color (true)	101				0.622	
SM 2320 B-2011	Total Alkalinity	103				0.134	
SM 2540 C-2011	TDS					9.02	
	TDS					0.993	
SM 4500 F-C-2011	Fluoride	97.2	104	105			0.968
SM 5310 B-2011	Organic Carbon	99.2	95.8	97.0			1.12

Reference Method Descriptions

Method	Description	Associated Samples
EPA 180.1 Rev. 2.0	Turbidity in aqueous matrices	2151608, 2151609, 2151614, 2151615, 2151616, 2151621
EPA 200.7 Rev. 4.4	Total Recoverable Metals analysis using ICP emission spectroscopy for aqueous samples supporting Clean Water Act Projects	2151653, 2151654, 2151655
EPA 200.8 Rev. 5.4	Total Recoverable Metals analysis using ICP-MS for aqueous samples supporting Clean Water Act Projects	2151653, 2151654, 2151655
EPA 300.0 Rev. 2.1	Chloride in aqueous matrices	2151608, 2151609, 2151614, 2151615, 2151616, 2151621
EPA 300.0 Rev. 2.1	Sulfate in aqueous matrices	2151608, 2151609, 2151614, 2151615, 2151616, 2151621
EPA 350.1 Rev. 2.0	Ammonia in aqueous matrices as mg N/L	2151610, 2151611, 2151617, 2151622
EPA 351.2 Rev. 2.0	Total Kjeldahl Nitrogen in aqueous matrices	2151610, 2151611, 2151617, 2151622
EPA 353.2 Rev. 2.0	Nitrite/Nitrate in aqueous matrices as mg N/L	2151610, 2151611, 2151617, 2151622

Reference Method Descriptions

Method	Description	Associated Samples
EPA 365.1 Rev. 2.0	Total Phosphorus in aqueous matrices as mg P/L	2151610, 2151611, 2151617, 2151622
EPA 365.1 Rev. 2.0 dissolved	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	2151612, 2151613, 2151618, 2151619, 2151620, 2151623
SM 2120 B-2011	True Color measured at 450 nm (not valid for NPDES monitoring)	2151608, 2151609, 2151614, 2151615, 2151616, 2151621
SM 2320 B-2011	Alkalinity in aqueous matrices as mg CaCO ₃ /L	2151608, 2151609, 2151614, 2151615, 2151616, 2151621
SM 2340B	Hardness by calculation, in aqueous matrices, reported as mg/L CaCO ₃	2151653, 2151654, 2151655
SM 2540 C-2011	Total Dissolved Solids in aqueous matrices	2151608, 2151609, 2151614, 2151615, 2151616, 2151621
SM 2540 D-2011	Total Suspended Solids in aqueous matrices using a maximum of 250 mL of sample	2151608, 2151609, 2151614, 2151615, 2151616, 2151621
SM 4500 F-C-2011	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	2151608, 2151609, 2151614, 2151615, 2151616, 2151621
SM 5310 B-2011	Nonpurgeable Organic Carbon in aqueous matrices	2151610, 2151611, 2151617, 2151622

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	01/24/2020			01/24/2020 16:34	Yen Ta	2151608, 2151609, 2151614, 2151615, 2151616, 2151621
EPA 200.7 Rev. 4.4	01/24/2020	01/28/2020 15:25	Elliott D. Healy	01/30/2020 00:31	Betina Topolski	2151655
	01/24/2020	01/28/2020 15:25	Elliott D. Healy	01/30/2020 01:05	Betina Topolski	2151653
	01/24/2020	01/28/2020 15:25	Elliott D. Healy	01/30/2020 01:11	Betina Topolski	2151654
	01/24/2020	01/28/2020 15:25	Elliott D. Healy	01/30/2020 12:31	Vijayalakshmi Reddy	2151655
	01/24/2020	01/28/2020 15:25	Elliott D. Healy	01/30/2020 12:41	Vijayalakshmi Reddy	2151653
	01/24/2020	01/28/2020 15:25	Elliott D. Healy	01/30/2020 12:44	Vijayalakshmi Reddy	2151654
EPA 200.8 Rev. 5.4	01/24/2020	01/28/2020 15:25	Elliott D. Healy	02/05/2020 00:50	Alexander Thompson	2151655
	01/24/2020	01/28/2020 15:25	Elliott D. Healy	02/05/2020 01:28	Alexander Thompson	2151653
	01/24/2020	01/28/2020 15:25	Elliott D. Healy	02/05/2020 01:38	Alexander Thompson	2151654
	01/24/2020	01/28/2020 15:25	Elliott D. Healy	02/06/2020 22:34	Alexander Thompson	2151655
	01/24/2020	01/28/2020 15:25	Elliott D. Healy	02/06/2020 23:13	Alexander Thompson	2151653
	01/24/2020	01/28/2020 15:25	Elliott D. Healy	02/06/2020 23:22	Alexander Thompson	2151654
	01/24/2020	01/28/2020 15:25	Elliott D. Healy	02/08/2020 03:14	Alexander Thompson	2151655
EPA 300.0 Rev. 2.1	01/24/2020			01/30/2020 23:35	Lipi Saha	2151608
	01/24/2020			01/30/2020 23:47	Lipi Saha	2151609
	01/24/2020			01/30/2020 23:59	Lipi Saha	2151614
	01/24/2020			01/31/2020 00:35	Lipi Saha	2151615
	01/24/2020			01/31/2020 00:47	Lipi Saha	2151616
	01/24/2020			01/31/2020 00:59	Lipi Saha	2151621
EPA 350.1 Rev. 2.0	01/24/2020			02/04/2020 12:40	Ping Hua	2151611
	01/24/2020			02/04/2020 12:41	Ping Hua	2151617
	01/24/2020			02/04/2020 12:56	Ping Hua	2151622
	01/24/2020			02/04/2020 15:13	Ping Hua	2151610
EPA 351.2 Rev. 2.0	01/24/2020	02/03/2020 11:45	Jhamieka S. Greenwood	02/04/2020 11:29	Jhamieka S. Greenwood	2151610
	01/24/2020	02/03/2020 11:45	Jhamieka S. Greenwood	02/04/2020 11:42	Jhamieka S. Greenwood	2151611
	01/24/2020	02/03/2020 11:45	Jhamieka S. Greenwood	02/04/2020 11:45	Jhamieka S. Greenwood	2151622
	01/24/2020	02/05/2020 14:50	Jhamieka S. Greenwood	02/06/2020 14:05	Jhamieka S. Greenwood	2151617
EPA 353.2 Rev. 2.0	01/24/2020			01/29/2020 10:15	Beverly Y. Sanders	2151610
	01/24/2020			01/29/2020 10:16	Beverly Y. Sanders	2151611
	01/24/2020			01/29/2020 10:17	Beverly Y. Sanders	2151617
	01/24/2020			02/06/2020 12:54	Beverly Y. Sanders	2151622
EPA 365.1 Rev. 2.0	01/24/2020	01/30/2020 14:58	Yen Ta	02/03/2020 12:22	Benjamin T. Nordmann	2151610
	01/24/2020	01/30/2020 14:58	Yen Ta	02/03/2020 12:31	Benjamin T. Nordmann	2151611
	01/24/2020	01/30/2020 14:58	Yen Ta	02/03/2020 12:32	Benjamin T. Nordmann	2151617
	01/24/2020	01/30/2020 14:58	Yen Ta	02/03/2020 13:10	Benjamin T. Nordmann	2151622
EPA 365.1 Rev. 2.0 dissolved	01/24/2020			01/24/2020 16:48	Carlos Miranda	2151612
	01/24/2020			01/24/2020 16:53	Carlos Miranda	2151613
	01/24/2020			01/24/2020 16:54	Carlos Miranda	2151618

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	01/24/2020			01/24/2020 16:55	Carlos Miranda	2151619
	01/24/2020			01/24/2020 16:56	Carlos Miranda	2151620, 2151623
SM 2120 B-2011	01/24/2020			01/24/2020 17:36	Madeline Funaro	2151608
	01/24/2020			01/24/2020 17:37	Madeline Funaro	2151609
	01/24/2020			01/24/2020 17:38	Madeline Funaro	2151614
	01/24/2020			01/24/2020 17:42	Madeline Funaro	2151616
	01/24/2020			01/24/2020 17:43	Madeline Funaro	2151621
	01/24/2020			01/24/2020 18:04	Madeline Funaro	2151615
SM 2320 B-2011	01/24/2020			01/30/2020 07:31	Dale L. Simmons	2151608
	01/24/2020			01/30/2020 07:45	Dale L. Simmons	2151609
	01/24/2020			01/30/2020 08:26	Dale L. Simmons	2151614
	01/24/2020			01/30/2020 08:38	Dale L. Simmons	2151615
	01/24/2020			01/30/2020 08:46	Dale L. Simmons	2151616
	01/24/2020			01/30/2020 09:00	Dale L. Simmons	2151621
SM 2340B	01/24/2020			01/30/2020 00:31	Betina Topolski	2151655
	01/24/2020			01/30/2020 01:05	Betina Topolski	2151653
	01/24/2020			01/30/2020 01:11	Betina Topolski	2151654
SM 2540 C-2011	01/24/2020			01/29/2020 17:00	Blanca Fach	2151608, 2151609, 2151614, 2151615, 2151616, 2151621
SM 2540 D-2011	01/24/2020			01/29/2020 17:00	Blanca Fach	2151608, 2151609, 2151614, 2151615, 2151616, 2151621
SM 4500 F-C-2011	01/24/2020			01/30/2020 07:31	Dale L. Simmons	2151608
	01/24/2020			01/30/2020 07:45	Dale L. Simmons	2151609
	01/24/2020			01/30/2020 08:26	Dale L. Simmons	2151614
	01/24/2020			01/30/2020 08:38	Dale L. Simmons	2151615
	01/24/2020			01/30/2020 08:46	Dale L. Simmons	2151616
	01/24/2020			01/30/2020 09:00	Dale L. Simmons	2151621
SM 5310 B-2011	01/24/2020			01/29/2020 20:07	Madeline Funaro	2151610
	01/24/2020			01/29/2020 20:22	Madeline Funaro	2151611
	01/24/2020			01/29/2020 20:36	Madeline Funaro	2151617
	01/24/2020			01/29/2020 20:48	Madeline Funaro	2151622