

Chemical Analysis Report

CEN-DIST-2020-02-06-02

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

Event Description: **Asher / Park / Gem / Marsh / Pearl / Lotus**

Request ID: **RQ-2020-01-13-22**

Customer: **CEN-DIST**

Project ID: **SMP**

Send Reports to:

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Date Certified: 04-MAR-2020 12:47



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 group are included in this report: 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: Lake Pearl at Center

Collection Date/Time: 02/05/2020 10:25

Field ID: G2CE0192

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2155345	EPA 180.1 Rev. 2.0	Turbidity	3.2		NTU	P378459	
	EPA 300.0 Rev. 2.1	Chloride	21		mg Cl/L	P379490	
		Sulfate	5.9		mg SO4/L	P379493	
	SM 2120 B-2011	Color (true)	62		PCU	P378463	
	SM 2320 B-2011	Total Alkalinity	31		mg CaCO3/L	P378558	
	SM 2540 C-2011	TDS	91	Q	mg/L	P379949	
	SM 2540 D-2011	TSS	4	I	mg/L	P379040	
	SM 4500 F-C-2011	Fluoride	0.072	I	mg F/L	P378834	
2155350	EPA 350.1 Rev. 2.0	Ammonia-N	0.004	I	mg N/L	P378891	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.77		mg N/L	P378836	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P379019	
	EPA 365.1 Rev. 2.0	Total-P	0.024		mg P/L	P378914	
	SM 5310 B-2011	Organic Carbon	11		mg C/L	P378684	
2155355	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P378452	

Ref. Method and Comment:

SM 2540 C-2011: Sample reanalyzed out of holding because of analytical difficulties.

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

Sample Location: Lake Gem at Center

Collection Date/Time: 02/05/2020 11:15

Field ID: G2CE0204

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2155346	EPA 180.1 Rev. 2.0	Turbidity	2.6		NTU	P378459	
	EPA 300.0 Rev. 2.1	Chloride	12		mg Cl/L	P379490	
		Sulfate	36		mg SO4/L	P379493	
	SM 2120 B-2011	Color (true)	8.7		PCU	P378463	
	SM 2320 B-2011	Total Alkalinity	70		mg CaCO3/L	P378558	
	SM 2540 C-2011	TDS	164		mg/L	P379349	
	SM 2540 D-2011	TSS	6	I	mg/L	P379040	
	SM 4500 F-C-2011	Fluoride	0.044	I	mg F/L	P378834	
2155351	EPA 350.1 Rev. 2.0	Ammonia-N	0.015		mg N/L	P378891	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.56		mg N/L	P378836	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.13		mg N/L	P379019	
	EPA 365.1 Rev. 2.0	Total-P	0.021		mg P/L	P378914	
	SM 5310 B-2011	Organic Carbon	5.7		mg C/L	P378684	
2155356	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P378452	

Ref. Method and Comment:

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

Sample Location: Lake Park at Center

Collection Date/Time: 02/05/2020 11:27

Field ID: G2CE0009

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2155347	EPA 180.1 Rev. 2.0	Turbidity	1.2		NTU	P378459	
	EPA 300.0 Rev. 2.1	Chloride	13		mg Cl/L	P379490	
		Sulfate	21		mg SO4/L	P379493	
	SM 2120 B-2011	Color (true)	16		PCU	P378463	
	SM 2320 B-2011	Total Alkalinity	58	A	mg CaCO3/L	P378558	
	SM 2540 C-2011	TDS	118		mg/L	P379349	
	SM 2540 D-2011	TSS	2	U	mg/L	P379040	
	SM 4500 F-C-2011	Fluoride	0.056	I	mg F/L	P378834	
2155352	EPA 350.1 Rev. 2.0	Ammonia-N	0.004	I	mg N/L	P378891	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.46		mg N/L	P379054	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P379019	
	EPA 365.1 Rev. 2.0	Total-P	0.028		mg P/L	P378914	
	SM 5310 B-2011	Organic Carbon	5.1		mg C/L	P378684	
2155357	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P378452	

Ref. Method and Comment:

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

Sample Location: Lake Lotus @ Center

Collection Date/Time: 02/05/2020 12:40

Field ID: G2CE0015

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2155348	EPA 180.1 Rev. 2.0	Turbidity	3.6		NTU	P378459	
	EPA 300.0 Rev. 2.1	Chloride	19	A	mg Cl/L	P379491	
		Sulfate	10	A	mg SO4/L	P379494	
	SM 2120 B-2011	Color (true)	36		PCU	P378463	
	SM 2320 B-2011	Total Alkalinity	69		mg CaCO3/L	P378558	
	SM 2540 C-2011	TDS	110		mg/L	P379349	
	SM 2540 D-2011	TSS	7	I	mg/L	P379040	
	SM 4500 F-C-2011	Fluoride	0.083	I	mg F/L	P378834	
2155353	EPA 350.1 Rev. 2.0	Ammonia-N	0.005	I	mg N/L	P378891	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.68		mg N/L	P379054	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.21		mg N/L	P379019	
	EPA 365.1 Rev. 2.0	Total-P	0.060		mg P/L	P378914	
	SM 5310 B-2011	Organic Carbon	8.6		mg C/L	P378684	
2155358	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.008	I	mg P/L	P378452	

Ref. Method and Comment:

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

Sample Location: Asher Lake @ Center

Collection Date/Time: 02/05/2020 13:15

Field ID: G2CE0130

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2155349	EPA 180.1 Rev. 2.0	Turbidity	4.8		NTU	P378459	
	EPA 300.0 Rev. 2.1	Chloride	27		mg Cl/L	P379491	
		Sulfate	8.7		mg SO4/L	P379494	
	SM 2120 B-2011	Color (true)	40		PCU	P378463	
	SM 2320 B-2011	Total Alkalinity	35		mg CaCO3/L	P378558	
	SM 2540 C-2011	TDS	108	A	mg/L	P379350	
	SM 2540 D-2011	TSS	7	IA	mg/L	P379041	
	SM 4500 F-C-2011	Fluoride	0.035	U	mg F/L	P378834	
2155354	EPA 350.1 Rev. 2.0	Ammonia-N	0.014		mg N/L	P379056	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.81		mg N/L	P379054	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.064		mg N/L	P379019	
	EPA 365.1 Rev. 2.0	Total-P	0.051		mg P/L	P378914	
	SM 5310 B-2011	Organic Carbon	9.6		mg C/L	P378684	
2155359	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P378452	

Ref. Method and Comment:

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: P378459

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P379490

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P379491

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P379493

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P379494

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P378891

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P379056

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P378836

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P379054

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

Quality Assurance Report Method Blank Results

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P379019

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P378914

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P378452

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

Reference Method: SM 2120 B-2011
Batch ID: P378463

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2320 B-2011
Batch ID: P378558

Component	Result	Code	Units
Total Alkalinity	0.65	U	mg CaCO3/L

Reference Method: SM 2540 C-2011
Batch ID: P379349

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 C-2011
Batch ID: P379350

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 C-2011
Batch ID: P379949

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-2011
Batch ID: P379040

Component	Result	Code	Units
TSS	2	U	mg/L

Quality Assurance Report Method Blank Results

Reference Method: SM 2540 D-2011
Batch ID: P379041

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500 F-C-2011
Batch ID: P378834

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-2011
Batch ID: P378684

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

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P379490

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Chloride	98.8		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P379491

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Chloride	99.2		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P379493

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P379494

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Sulfate	99.8		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P378891

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P379056

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Ammonia-N	99.4		P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P378836

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P379054

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Kjeldahl Nitrogen	92.0		P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P379019

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

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P378914

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P378452

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

Reference Method: SM 2120 B-2011
Batch ID: P378463

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Color (true)	98.4		P	85 - 115

Reference Method: SM 2320 B-2011
Batch ID: P378558

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

Reference Method: SM 4500 F-C-2011
Batch ID: P378834

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	98.2		P	92 - 103

Reference Method: SM 5310 B-2011
Batch ID: P378684

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	98.8		P	85 - 115

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P379490

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2155010	Chloride	98.6		P	90 - 110
2155345	Chloride	101		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P379491

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2155348	Chloride	100		P	90 - 110
2156149	Chloride	104		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P379493

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2155010	Sulfate	98.0		P	90 - 110
2155345	Sulfate	99.0		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P379494

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2155348	Sulfate	99.9		P	90 - 110
2156149	Sulfate	100		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P378891

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2155043	Ammonia-N	101	100	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P379056

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2155657	Ammonia-N	99.7	99.9	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P378836

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2155350	Kjeldahl Nitrogen	104	108	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P379054

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2155354	Kjeldahl Nitrogen	107	98.9	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P379019

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P379019

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2155350	NO2NO3-N	99.5	98.5	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P378914

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2155299	Total-P	107	106	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P378452

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2155300	O-Phosphate-P	93.9	95.2	P/P	90 - 110

Reference Method: SM 4500 F-C-2011
Batch ID: P378834

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2155347	Fluoride	98.0	97.4	P/P	89 - 106

Reference Method: SM 5310 B-2011
Batch ID: P378684

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2155352	Organic Carbon	102	103	P/P	85 - 115

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P378459

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2155129	Turbidity	3.26	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P379490

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2155010	Chloride	0.476	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P379491

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2155348	Chloride	0.503	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P379493

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2155010	Sulfate	0.971	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P379494

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2155348	Sulfate	1.07	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P378891

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2155043	Ammonia-N	0.793	Spike	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P379056

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2155657	Ammonia-N	0.132	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P378836

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2155350	Kjeldahl Nitrogen	2.00	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P379054

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2155354	Kjeldahl Nitrogen	4.71	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P379019

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2155350	NO2NO3-N	1.01	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P378914

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2155299	Total-P	0.600	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P378452

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2155300	O-Phosphate-P	0.842	Spike	P	0 - 20

Reference Method: SM 2120 B-2011
Batch ID: P378463

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2155298	Color (true)	5.77	Sample	P	0 - 20

Reference Method: SM 2320 B-2011
Batch ID: P378558

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2155347	Total Alkalinity	0.0387	Sample	P	0 - 2.8

Reference Method: SM 2540 C-2011
Batch ID: P379349

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2155212	TDS	2.23	Sample	P	0 - 10

Reference Method: SM 2540 C-2011
Batch ID: P379350

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2155349	TDS	2.76	Sample	P	0 - 10

Quality Assurance Report Precision

Reference Method: SM 2540 C-2011
Batch ID: P379949

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2160488	TDS	2.91	Sample	P	0 - 10

Reference Method: SM 4500 F-C-2011
Batch ID: P378834

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2155347	Fluoride	0.514	Spike	P	0 - 2.5

Reference Method: SM 5310 B-2011
Batch ID: P378684

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2155352	Organic Carbon	0.509	Spike	P	0 - 20

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

Quality Assurance Report Calibration Verification

Reference Method: EPA 365.1 Rev. 2.0 dissolved

Run ID: A97361

Included Lab Sample IDs: 2155355, 2155356, 2155357, 2155358, 2155359

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	98.1	96.9	P/P	90 - 110

Reference Method: EPA 180.1 Rev. 2.0

Run ID: A97366

Included Lab Sample IDs: 2155345, 2155346, 2155347, 2155348, 2155349

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Turbidity	99.5	100	P/P	95 - 105

Reference Method: SM 2120 B-2011

Run ID: A97367

Included Lab Sample IDs: 2155345, 2155346, 2155347, 2155348, 2155349

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	99.7	101	P/P	90 - 115

Reference Method: SM 2320 B-2011

Run ID: A97407

Included Lab Sample IDs: 2155345, 2155346, 2155347, 2155348, 2155349

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	101	105	P/P	90 - 110
Total Alkalinity	104	101	P/P	90 - 110

Reference Method: SM 5310 B-2011

Run ID: A97440

Included Lab Sample IDs: 2155350, 2155351, 2155352, 2155353, 2155354

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	102	99.9	P/P	90 - 110
Organic Carbon	98.8	102	P/P	90 - 110
Organic Carbon	99.9	99.4	P/P	90 - 110

Reference Method: SM 4500 F-C-2011

Run ID: A97496

Included Lab Sample IDs: 2155345, 2155346, 2155347, 2155348, 2155349

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

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A97525

Included Lab Sample IDs: 2155350, 2155351, 2155352, 2155353

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

Quality Assurance Report Calibration Verification

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A97543

Included Lab Sample IDs: 2155353, 2155354

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

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A97563

Included Lab Sample IDs: 2155350, 2155351

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	101	109	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A97569

Included Lab Sample IDs: 2155350, 2155351, 2155352

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

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A97576

Included Lab Sample IDs: 2155350, 2155351, 2155352, 2155353, 2155354

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

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A97585

Included Lab Sample IDs: 2155354

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

Reference Method: EPA 300.0 Rev. 2.1

Run ID: A97638

Included Lab Sample IDs: 2155345, 2155346, 2155347, 2155348, 2155349

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	96.6	97.6	P/P	90 - 110
Chloride	97.8	98.1	P/P	90 - 110
Chloride	98.1	98.4	P/P	90 - 110
Sulfate	97.0	98.4	P/P	90 - 110
Sulfate	98.5	99.2	P/P	90 - 110
Sulfate	98.5	98.5	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A97690

Included Lab Sample IDs: 2155352, 2155353, 2155354

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	92.9	99.7	P/P	90 - 110

Quality Assurance Report

Calibration Verification

* 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	
					LCS	MS
EPA 180.1 Rev. 2.0	Turbidity				3.26	
EPA 300.0 Rev. 2.1	Chloride	98.8	98.6	101	0.476	
	Chloride	99.2	100	104	0.503	
	Sulfate	99.5	98.0	99.0	0.971	
	Sulfate	99.8	99.9	100	1.07	
EPA 350.1 Rev. 2.0	Ammonia-N	102	101	100		0.793
	Ammonia-N	99.4	99.7	99.9		0.132
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	104	104	108		2.00
	Kjeldahl Nitrogen	92.0	107	98.9		4.71
EPA 353.2 Rev. 2.0	NO2NO3-N	100	99.5	98.5		1.01
EPA 365.1 Rev. 2.0	Total-P	106	107	106		0.600
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	99.6	93.9	95.2		0.842
SM 2120 B-2011	Color (true)	98.4			5.77	
SM 2320 B-2011	Total Alkalinity	103			0.0387	
SM 2540 C-2011	TDS				2.23	
	TDS				2.76	
	TDS				2.91	
SM 4500 F-C-2011	Fluoride	98.2	98.0	97.4		0.514
SM 5310 B-2011	Organic Carbon	98.8	102	103		0.509

Reference Method Descriptions

Method	Description	Associated Samples
EPA 180.1 Rev. 2.0	Turbidity in aqueous matrices	2155345, 2155346, 2155347, 2155348, 2155349
EPA 300.0 Rev. 2.1	Chloride in aqueous matrices	2155345, 2155346, 2155347, 2155348, 2155349
EPA 300.0 Rev. 2.1	Sulfate in aqueous matrices	2155345, 2155346, 2155347, 2155348, 2155349
EPA 350.1 Rev. 2.0	Ammonia in aqueous matrices as mg N/L	2155350, 2155351, 2155352, 2155353, 2155354
EPA 351.2 Rev. 2.0	Total Kjeldahl Nitrogen in aqueous matrices	2155350, 2155351, 2155352, 2155353, 2155354
EPA 353.2 Rev. 2.0	Nitrite/Nitrate in aqueous matrices as mg N/L	2155350, 2155351, 2155352, 2155353, 2155354
EPA 365.1 Rev. 2.0	Total Phosphorus in aqueous matrices as mg P/L	2155350, 2155351, 2155352, 2155353, 2155354
EPA 365.1 Rev. 2.0 dissolved	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	2155355, 2155356, 2155357, 2155358, 2155359
SM 2120 B-2011	True Color measured at 450 nm (not valid for NPDES monitoring)	2155345, 2155346, 2155347, 2155348, 2155349
SM 2320 B-2011	Alkalinity in aqueous matrices as mg CaCO3/L	2155345, 2155346, 2155347, 2155348, 2155349
SM 2540 C-2011	Total Dissolved Solids in aqueous matrices	2155345, 2155346, 2155347, 2155348, 2155349
SM 2540 D-2011	Total Suspended Solids in aqueous matrices using a maximum of 250 mL of sample	2155345, 2155346, 2155347, 2155348, 2155349
SM 4500 F-C-2011	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	2155345, 2155346, 2155347, 2155348, 2155349
SM 5310 B-2011	Nonpurgeable Organic Carbon in aqueous matrices	2155350, 2155351, 2155352, 2155353, 2155354

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	02/06/2020			02/06/2020 16:32	Yen Ta	2155345, 2155346, 2155347, 2155348, 2155349
EPA 300.0 Rev. 2.1	02/06/2020			02/20/2020 15:44	Elliott Rodriguez	2155345
	02/06/2020			02/20/2020 19:46	Elliott Rodriguez	2155346
	02/06/2020			02/20/2020 19:58	Elliott Rodriguez	2155347
	02/06/2020			02/20/2020 21:34	Elliott Rodriguez	2155348
	02/06/2020			02/20/2020 22:23	Elliott Rodriguez	2155349
EPA 350.1 Rev. 2.0	02/06/2020			02/13/2020 13:18	Ping Hua	2155350
	02/06/2020			02/13/2020 13:26	Ping Hua	2155351
	02/06/2020			02/13/2020 13:27	Ping Hua	2155352
	02/06/2020			02/13/2020 13:29	Ping Hua	2155353
	02/06/2020			02/14/2020 11:13	Ping Hua	2155354
EPA 351.2 Rev. 2.0	02/06/2020	02/13/2020 10:45	Elliott Rodriguez	02/14/2020 13:04	Virginia P. Brown	2155350
	02/06/2020	02/13/2020 10:45	Elliott Rodriguez	02/14/2020 13:08	Virginia P. Brown	2155351
	02/06/2020	02/18/2020 11:20	Sima Feizi	02/20/2020 14:31	Jhamieka S. Greenwood	2155354
	02/06/2020	02/18/2020 11:20	Sima Feizi	02/20/2020 14:36	Jhamieka S. Greenwood	2155352
	02/06/2020	02/18/2020 11:20	Sima Feizi	02/20/2020 14:37	Jhamieka S. Greenwood	2155353
EPA 353.2 Rev. 2.0	02/06/2020			02/17/2020 10:18	Beverly Y. Sanders	2155350
	02/06/2020			02/17/2020 10:29	Beverly Y. Sanders	2155351
	02/06/2020			02/17/2020 10:30	Beverly Y. Sanders	2155352
	02/06/2020			02/17/2020 10:31	Beverly Y. Sanders	2155353
	02/06/2020			02/17/2020 10:32	Beverly Y. Sanders	2155354
EPA 365.1 Rev. 2.0	02/06/2020	02/13/2020 13:46	Yen Ta	02/14/2020 11:23	Benjamin T. Nordmann	2155353
	02/06/2020	02/13/2020 13:46	Yen Ta	02/14/2020 11:24	Benjamin T. Nordmann	2155354
	02/06/2020	02/13/2020 13:46	Yen Ta	02/17/2020 12:44	Benjamin T. Nordmann	2155350
	02/06/2020	02/13/2020 13:46	Yen Ta	02/17/2020 12:45	Benjamin T. Nordmann	2155351
	02/06/2020	02/13/2020 13:46	Yen Ta	02/17/2020 12:46	Benjamin T. Nordmann	2155352
EPA 365.1 Rev. 2.0 dissolved	02/06/2020			02/06/2020 15:16	Carlos Miranda	2155355, 2155356
	02/06/2020			02/06/2020 15:17	Carlos Miranda	2155357
	02/06/2020			02/06/2020 15:18	Carlos Miranda	2155358
	02/06/2020			02/06/2020 15:19	Carlos Miranda	2155359
SM 2120 B-2011	02/06/2020			02/06/2020 16:25	Madeline Funaro	2155345
	02/06/2020			02/06/2020 16:26	Madeline Funaro	2155346
	02/06/2020			02/06/2020 16:27	Madeline Funaro	2155347
	02/06/2020			02/06/2020 16:28	Madeline Funaro	2155348, 2155349
SM 2320 B-2011	02/06/2020			02/08/2020 13:36	Dale L. Simmons	2155347
	02/06/2020			02/08/2020 15:32	Dale L. Simmons	2155345
	02/06/2020			02/08/2020 15:45	Dale L. Simmons	2155346
	02/06/2020			02/08/2020 15:57	Dale L. Simmons	2155348
	02/06/2020			02/08/2020 16:11	Dale L. Simmons	2155349

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
SM 2540 C-2011	02/06/2020			02/11/2020 15:30	Sima Feizi	2155346, 2155347, 2155348, 2155349
	02/06/2020			02/26/2020 14:06	Yijie Li	2155345
SM 2540 D-2011	02/06/2020			02/11/2020 15:30	Sima Feizi	2155345, 2155346, 2155347, 2155348, 2155349
SM 4500 F-C-2011	02/06/2020			02/12/2020 23:43	Dale L. Simmons	2155347
	02/06/2020			02/13/2020 00:19	Dale L. Simmons	2155345
	02/06/2020			02/13/2020 00:23	Dale L. Simmons	2155346
	02/06/2020			02/13/2020 00:28	Dale L. Simmons	2155348
	02/06/2020			02/13/2020 00:32	Dale L. Simmons	2155349
SM 5310 B-2011	02/06/2020			02/11/2020 00:45	Madeline Funaro	2155352
	02/06/2020			02/11/2020 03:29	Madeline Funaro	2155350
	02/06/2020			02/11/2020 04:06	Madeline Funaro	2155351
	02/06/2020			02/11/2020 04:18	Madeline Funaro	2155353
	02/06/2020			02/11/2020 04:31	Madeline Funaro	2155354