

Chemical Analysis Report

NW-DIST-2020-01-17-01

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

Event Description: **Western Lakes**
Request ID: **RQ-2020-01-13-41**
Customer: **NW-DIST**
Project ID: **SMP**

Send Reports to:
FL Dept. of Environmental Protection
160 Government Center
Suite 208
Pensacola, FL 32502-5794
Attn: Cheryl Bunch

For additional information please contact
Colin Wright, Ph.D.
Liang-Tsair Lin, Ph.D.
Kerry Tate, Ph.D.
Dr. rer. nat. Bettina Steinbock
Thekkekalathil Chandrasekhar, Ph.D, QA Officer
Phone (850) 245-8085

Certified by: Liang Lin, Environmental Administrator

Date Certified: 10-FEB-2020 14:48

A handwritten signature in black ink, appearing to read "Liang Lin", on a light-colored background.

NON-CONFORMANCE REPORT INCLUDED

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: Locklin Lake Center

Collection Date/Time: 01/15/2020 13:55

Field ID: G4NW0437

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2150136	EPA 180.1 Rev. 2.0	Turbidity	4.0		NTU	P377405	
	EPA 300.0 Rev. 2.1	Chloride	3.9		mg Cl/L	P377876	
		Sulfate	1.1		mg SO4/L	P377879	
		Color (true)	18	A	PCU	P377491	
	SM 2320 B-2011	Total Alkalinity	8.7		mg CaCO3/L	P377697	
	SM 2540 C-2011	TDS	39		mg/L	P377790	
	SM 2540 D-2011	TSS	3	I	mg/L	P377577	
	SM 4500 F-C-2011	Fluoride	0.035	U	mg F/L	P377702	
2150139	EPA 350.1 Rev. 2.0	Ammonia-N	0.035		mg N/L	P377379	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.32		mg N/L	P377600	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.35		mg N/L	P377670	
	EPA 365.1 Rev. 2.0	Total-P	0.014		mg P/L	P377603	
	SM 5310 B-2011	Organic Carbon	2.5		mg C/L	P377539	
2150142	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P377434	

Sample Location: Lake Karick (Center)

Collection Date/Time: 01/15/2020 12:15

Field ID: G4NW0274

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2150137	EPA 180.1 Rev. 2.0	Turbidity	2.5	A	NTU	P377405	
	EPA 300.0 Rev. 2.1	Chloride	2.6		mg Cl/L	P377876	
		Sulfate	1.2		mg SO4/L	P377879	
		Color (true)	27		PCU	P377491	
	SM 2320 B-2011	Total Alkalinity	4.3		mg CaCO3/L	P377697	
	SM 2540 C-2011	TDS	34		mg/L	P377790	
	SM 2540 D-2011	TSS	2	I	mg/L	P377577	
	SM 4500 F-C-2011	Fluoride	0.035	U	mg F/L	P377702	
2150140	EPA 350.1 Rev. 2.0	Ammonia-N	0.004	I	mg N/L	P377379	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.25		mg N/L	P377600	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.027		mg N/L	P377670	
	EPA 365.1 Rev. 2.0	Total-P	0.008		mg P/L	P377635	
	SM 5310 B-2011	Organic Carbon	4.3		mg C/L	P377539	
2150143	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P377434	

Sample Location: Lake Stone Center

Collection Date/Time: 01/15/2020 10:40

Field ID: G4NW0426

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2150138	EPA 180.1 Rev. 2.0	Turbidity	4.8		NTU	P377405	
	EPA 300.0 Rev. 2.1	Chloride	3.4		mg Cl/L	P377877	
		Sulfate	2.7		mg SO4/L	P377880	
	SM 2120 B-2011	Color (true)	13	Q	PCU	P377491	
	SM 2320 B-2011	Total Alkalinity	11		mg CaCO3/L	P377697	
	SM 2540 C-2011	TDS	43		mg/L	P377790	
	SM 2540 D-2011	TSS	6	I	mg/L	P377577	
	SM 4500 F-C-2011	Fluoride	0.035	U	mg F/L	P377702	
	EPA 350.1 Rev. 2.0	Ammonia-N	0.018		mg N/L	P377379	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.67		mg N/L	P377600	
2150141	EPA 353.2 Rev. 2.0	NO2NO3-N	0.011		mg N/L	P377670	
	EPA 365.1 Rev. 2.0	Total-P	0.019		mg P/L	P377635	
	SM 5310 B-2011	Organic Carbon	6.1		mg C/L	P377539	
	EPA 365.1 Rev. 2.0	O-Phosphate-P	0.004	UQ	mg P/L	P377434	
	dissolved						

Ref. Method and Comment:

SM 2120 B-2011: The sample expired upon receipt.

EPA 365.1 Rev. 2.0 dissolved: O-Phosphate-P: The sample expired upon receipt.

Non-Conformance Report

NCR ID: 8135

Event(s)

NW-DIST-2020-01-17-01

Job(s)

Sample(s)

Test(s)

NCR Type: SHIPPING/RECEIVING

NCR Category: Samples arrived late

Observation: Samples arrived one or more days late by FedEx, samples received within the acceptable temperature range.

Resolution: Samples will be qualified as appropriate.

Authorized by/Date: Joshua Ayres 1/22/2020

The Non-Conformance Report details exceptions or problems encountered with the events/jobs/samples/test.
Please address questions to:

Chemistry	Colin Wright	(850) 245-8085
Biology	Cheryl Swanson	(850) 245-8177

Quality Assurance Report Method Blank Results

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P377405

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P377876

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P377877

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P377879

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P377880

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P377379

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P377600

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P377670

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P377603

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

Quality Assurance Report

Method Blank Results

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P377635

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P377434

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

Reference Method: SM 2120 B-2011
Batch ID: P377491

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2320 B-2011
Batch ID: P377697

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

Reference Method: SM 2540 C-2011
Batch ID: P377790

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-2011
Batch ID: P377577

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500 F-C-2011
Batch ID: P377702

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-2011
Batch ID: P377539

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: P377876

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P377877

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P377879

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P377880

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P377379

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P377600

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P377670

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P377603

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P377635

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

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P377434

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
O-Phosphate-P	99.0		P	90 - 110

Reference Method: SM 2120 B-2011
Batch ID: P377491

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Color (true)	100		P	90 - 110

Reference Method: SM 2320 B-2011
Batch ID: P377697

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

Reference Method: SM 4500 F-C-2011
Batch ID: P377702

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	97.1		P	92 - 103

Reference Method: SM 5310 B-2011
Batch ID: P377539

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	101		P	85 - 115

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P377876

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2150013	Chloride	102		P	90 - 110
2150127	Chloride	104		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P377877

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2150138	Chloride	102		P	90 - 110
2150202	Chloride	90.4		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P377879

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2150013	Sulfate	101		P	90 - 110
2150127	Sulfate	103		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P377880

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2150138	Sulfate	101		P	90 - 110
2150202	Sulfate	96.4		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P377379

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2150094	Ammonia-N	102	99.4	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P377600

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2150094	Kjeldahl Nitrogen	106	101	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P377670

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2150128	NO2NO3-N	98.5	98.5	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P377603

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2149670	Total-P	107	105	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P377635

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P377635

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2150140	Total-P	106	107	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P377434

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2150144	O-Phosphate-P	96.8	98.2	P/P	90 - 110

Reference Method: SM 4500 F-C-2011
Batch ID: P377702

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2150023	Fluoride	98.0	98.0	P/P	89 - 106

Reference Method: SM 5310 B-2011
Batch ID: P377539

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2150016	Organic Carbon	105	103	P/P	85 - 115

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P377405

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2150137	Turbidity	0.806	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P377876

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2150013	Chloride	0.258	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P377877

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2150202	Chloride	2.04	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P377879

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2150013	Sulfate	0.409	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P377880

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2150202	Sulfate	2.61	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P377379

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2150094	Ammonia-N	1.34	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P377600

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2150094	Kjeldahl Nitrogen	2.79	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P377670

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2150128	NO2NO3-N	0.0	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P377603

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2149670	Total-P	1.35	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P377635

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2150140	Total-P	0.185	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P377434

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2150144	O-Phosphate-P	1.44	Spike	P	0 - 20

Reference Method: SM 2120 B-2011
Batch ID: P377491

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2150136	Color (true)	13.4	Sample	P	0 - 20

Reference Method: SM 2320 B-2011
Batch ID: P377697

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2150023	Total Alkalinity	0.297	Sample	P	0 - 2.8

Reference Method: SM 2540 C-2011
Batch ID: P377790

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2150127	TDS	1.12	Sample	P	0 - 10

Reference Method: SM 2540 D-2011
Batch ID: P377577

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2150127	TSS	0.0	Sample	P	0 - 10

Reference Method: SM 4500 F-C-2011
Batch ID: P377702

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2150023	Fluoride	0.0	Spike	P	0 - 2.5

Quality Assurance Report Precision

Reference Method: SM 5310 B-2011
Batch ID: P377539

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2150016	Organic Carbon	1.92	Spike	P	0 - 20

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

Quality Assurance Report Calibration Verification

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A96977

Included Lab Sample IDs: 2150139, 2150140, 2150141

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

Reference Method: EPA 180.1 Rev. 2.0

Run ID: A96989

Included Lab Sample IDs: 2150136, 2150137, 2150138

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Turbidity	100	102	P/P	95 - 105

Reference Method: EPA 365.1 Rev. 2.0 dissolved

Run ID: A96994

Included Lab Sample IDs: 2150142, 2150143, 2150144

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	98.2	97.8	P/P	90 - 110
O-Phosphate-P	99.5	98.2	P/P	90 - 110

Reference Method: SM 2120 B-2011

Run ID: A97028

Included Lab Sample IDs: 2150136, 2150137, 2150138

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	101	102	P/P	85 - 115

Reference Method: SM 5310 B-2011

Run ID: A97050

Included Lab Sample IDs: 2150139, 2150140, 2150141

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	104	107	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A97091

Included Lab Sample IDs: 2150139, 2150140, 2150141

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

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A97098

Included Lab Sample IDs: 2150139, 2150140, 2150141

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	108	108	P/P	90 - 110
Total-P	109	108	P/P	90 - 110

Reference Method: SM 2320 B-2011

Run ID: A97099

Included Lab Sample IDs: 2150136, 2150137, 2150138

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
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Quality Assurance Report Calibration Verification

Reference Method: SM 2320 B-2011

Run ID: A97099

Included Lab Sample IDs: 2150136, 2150137, 2150138

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

Reference Method: SM 4500 F-C-2011

Run ID: A97099

Included Lab Sample IDs: 2150136, 2150137, 2150138

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

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A97111

Included Lab Sample IDs: 2150139, 2150140, 2150141

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	105	101	P/P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1

Run ID: A97170

Included Lab Sample IDs: 2150136, 2150137, 2150138

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	101	101	P/P	90 - 110
Chloride	101	102	P/P	90 - 110
Chloride	102	100	P/P	90 - 110
Sulfate	101	102	P/P	90 - 110
Sulfate	102	103	P/P	90 - 110
Sulfate	103	101	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	
					LCS	MS
EPA 180.1 Rev. 2.0	Turbidity				0.806	
EPA 300.0 Rev. 2.1	Chloride	101	102	104	0.258	
	Chloride	103	102	90.4	2.04	
	Sulfate	101	101	103	0.409	
	Sulfate	102	96.4	101	2.61	
	Ammonia-N	99.6	102	99.4		1.34
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	102	106	101		2.79
EPA 353.2 Rev. 2.0	NO2NO3-N	102	98.5	98.5		0.0
EPA 365.1 Rev. 2.0	Total-P	107	107	105		1.35
	Total-P	106	106	107		0.185
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	99.0	96.8	98.2		1.44
SM 2120 B-2011	Color (true)	100			13.4	
SM 2320 B-2011	Total Alkalinity	103			0.297	
SM 2540 C-2011	TDS				1.12	
SM 2540 D-2011	TSS				0.0	
SM 4500 F-C-2011	Fluoride	97.1	98.0	98.0		0.0
SM 5310 B-2011	Organic Carbon	101	105	103		1.92

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	2150136, 2150137, 2150138
EPA 300.0 Rev. 2.1 / E31780	Chloride in aqueous matrices	2150136, 2150137, 2150138
EPA 300.0 Rev. 2.1 / E31780	Sulfate in aqueous matrices	2150136, 2150137, 2150138
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	2150139, 2150140, 2150141
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	2150139, 2150140, 2150141
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	2150139, 2150140, 2150141
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	2150139, 2150140, 2150141
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	2150142, 2150143, 2150144
SM 2120 B-2011 / E31780	True Color measured at 450 nm (not valid for NPDES monitoring)	2150136, 2150137, 2150138
SM 2320 B-2011 / E31780	Alkalinity in aqueous matrices as mg CaCO3/L	2150136, 2150137, 2150138
SM 2540 C-2011 / E31780	Total Dissolved Solids in aqueous matrices	2150136, 2150137, 2150138
SM 2540 D-2011 / E31780	Total Suspended Solids in aqueous matrices using a maximum of 250 mL of sample	2150136, 2150137, 2150138
SM 4500 F-C-2011 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	2150136, 2150137, 2150138
SM 5310 B-2011 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	2150139, 2150140, 2150141

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	01/17/2020			01/17/2020 10:35	Blanca Fach	2150138
	01/17/2020			01/17/2020 10:42	Blanca Fach	2150137
	01/17/2020			01/17/2020 10:52	Blanca Fach	2150136
EPA 300.0 Rev. 2.1	01/17/2020			01/28/2020 22:30	Lipi Saha	2150136
	01/17/2020			01/28/2020 23:06	Lipi Saha	2150137
	01/17/2020			01/29/2020 01:44	Lipi Saha	2150138
EPA 350.1 Rev. 2.0	01/17/2020			01/17/2020 15:01	Ping Hua	2150139
	01/17/2020			01/17/2020 15:04	Ping Hua	2150141
	01/17/2020			01/17/2020 15:07	Ping Hua	2150140
EPA 351.2 Rev. 2.0	01/17/2020	01/23/2020 11:30	Jhamieka S. Greenwood	01/24/2020 10:34	Jhamieka S. Greenwood	2150139
	01/17/2020	01/23/2020 11:30	Jhamieka S. Greenwood	01/24/2020 10:36	Jhamieka S. Greenwood	2150140
	01/17/2020	01/23/2020 11:30	Jhamieka S. Greenwood	01/24/2020 10:37	Jhamieka S. Greenwood	2150141
EPA 353.2 Rev. 2.0	01/17/2020			01/24/2020 09:31	Beverly Y. Sanders	2150139
	01/17/2020			01/24/2020 09:32	Beverly Y. Sanders	2150140
	01/17/2020			01/24/2020 09:33	Beverly Y. Sanders	2150141
EPA 365.1 Rev. 2.0	01/17/2020	01/23/2020 15:35	Yen Ta	01/24/2020 15:00	Benjamin T. Nordmann	2150139
	01/17/2020	01/23/2020 15:35	Yen Ta	01/24/2020 16:04	Benjamin T. Nordmann	2150140
	01/17/2020	01/23/2020 15:35	Yen Ta	01/24/2020 16:05	Benjamin T. Nordmann	2150141
EPA 365.1 Rev. 2.0 dissolved	01/17/2020			01/17/2020 11:55	Carlos Miranda	2150144
	01/17/2020			01/17/2020 12:06	Carlos Miranda	2150143
	01/17/2020			01/17/2020 12:07	Carlos Miranda	2150142
SM 2120 B-2011	01/17/2020			01/17/2020 10:51	Madeline Funaro	2150138
	01/17/2020			01/17/2020 10:53	Madeline Funaro	2150137
	01/17/2020			01/17/2020 10:56	Madeline Funaro	2150136
SM 2320 B-2011	01/17/2020			01/25/2020 07:36	Dale L. Simmons	2150136
	01/17/2020			01/25/2020 07:48	Dale L. Simmons	2150137
	01/17/2020			01/25/2020 08:01	Dale L. Simmons	2150138
SM 2540 C-2011	01/17/2020			01/21/2020 15:30	Sima Feizi	2150136, 2150137, 2150138
SM 2540 D-2011	01/17/2020			01/21/2020 15:30	Sima Feizi	2150136, 2150137, 2150138
SM 4500 F-C-2011	01/17/2020			01/25/2020 07:36	Dale L. Simmons	2150136
	01/17/2020			01/25/2020 07:48	Dale L. Simmons	2150137
	01/17/2020			01/25/2020 08:01	Dale L. Simmons	2150138
SM 5310 B-2011	01/17/2020			01/22/2020 12:11	Madeline Funaro	2150139
	01/17/2020			01/22/2020 12:23	Madeline Funaro	2150140
	01/17/2020			01/22/2020 12:35	Madeline Funaro	2150141