

Chemical Analysis Report

NE-DIST-2017-08-01-01

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

Event Description: **Interlachen 1**
Request ID: **RQ-2017-07-31-03**
Customer: **NE-DIST**
Project ID: **SMP**

Send Reports to:
FL Dept. of Environmental Protection
8800 Baymeadows Way West
Jacksonville, FL 32256-7577
Attn: Jeremy Parrish

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Certified by: Colin Wright, Program Administrator

Date Certified: 18-AUG-2017 13:36

A handwritten signature in black ink, appearing to read "Colin Wright", is written on a light-colored rectangular background.

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 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: Clearwater Lake

Collection Date/Time: 07/31/2017 11:25

Field ID: G1NE113107312017

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1917847	EPA 180.1 Rev. 2.0	Turbidity	1.8	A	NTU	P329515	
	EPA 300.0 Rev. 2.1	Chloride	8.1		mg Cl/L	P329623	
		Sulfate	6.4		mg SO4/L	P329621	
	SM 2120 B	Color (true)	110		PCU	P329499	
	SM 2320 B-97	Total Alkalinity	1.6	I	mg CaCO3/L	P329656	
	SM 2540 C-97	TDS	64		mg/L	P329917	
	SM 2540 D-97	TSS	3	I	mg/L	P330146	
	SM 4500 F-C-97	Fluoride	0.073	I	mg F/L	P329658	
1917852	EPA 350.1 Rev. 2.0	Ammonia-N	0.005		mg N/L	P329679	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.85		mg N/L	P329814	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P329519	
	EPA 365.1 Rev. 2.0	Total-P	0.041		mg P/L	P329558	
	SM 5310 B-00	Organic Carbon	14		mg C/L	P329794	
1917857	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P329487	

Ref. Method and Comment:

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

Sample Location: Lake Ida

Collection Date/Time: 07/31/2017 10:00

Field ID: G1NE009007312017

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1917848	EPA 180.1 Rev. 2.0	Turbidity	1.3		NTU	P329515	
	EPA 300.0 Rev. 2.1	Chloride	9.3		mg Cl/L	P329623	
		Sulfate	3.8		mg SO4/L	P329621	
	SM 2120 B	Color (true)	310		PCU	P329499	
	SM 2320 B-97	Total Alkalinity	2.0	I	mg CaCO3/L	P329656	
	SM 2540 C-97	TDS	65		mg/L	P329917	
	SM 2540 D-97	TSS	3	I	mg/L	P330146	
	SM 4500 F-C-97	Fluoride	0.041	I	mg F/L	P329658	
1917853	EPA 350.1 Rev. 2.0	Ammonia-N	0.027		mg N/L	P329574	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.74		mg N/L	P329814	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.005	I	mg N/L	P329519	
	EPA 365.1 Rev. 2.0	Total-P	0.026		mg P/L	P329558	
	SM 5310 B-00	Organic Carbon	20		mg C/L	P329794	
1917858	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.005	I	mg P/L	P329486	

Ref. Method and Comment:

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

Sample Location: Hardesty Lake

Collection Date/Time: 07/31/2017 09:25

Field ID: G1NE086907312017

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1917849	EPA 180.1 Rev. 2.0	Turbidity	2.0		NTU	P329515	
	EPA 300.0 Rev. 2.1	Chloride	7.5		mg Cl/L	P329623	
		Sulfate	0.95		mg SO4/L	P329621	

Field ID: G1NE086907312017

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1917849	SM 2120 B	Color (true)	420		PCU	P329499	
	SM 2320 B-97	Total Alkalinity	0.67	I	mg CaCO3/L	P329761	
	SM 2540 C-97	TDS	60		mg/L	P329917	
	SM 2540 D-97	TSS	6	I	mg/L	P330146	
	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P329765	
1917854	EPA 350.1 Rev. 2.0	Ammonia-N	0.008		mg N/L	P329574	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.89		mg N/L	P329814	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P329519	
	EPA 365.1 Rev. 2.0	Total-P	0.047		mg P/L	P329558	
	SM 5310 B-00	Organic Carbon	23		mg C/L	P329794	
1917859	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.008	I	mg P/L	P329486	

Ref. Method and Comment:

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

Sample Location: Church Lake

Collection Date/Time: 07/31/2017 10:30

Field ID: G1NE086707312017

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1917850	EPA 180.1 Rev. 2.0	Turbidity	1.0		NTU	P329515	
	EPA 300.0 Rev. 2.1	Chloride	5.3		mg Cl/L	P329623	
		Sulfate	4.8		mg SO4/L	P329621	
	SM 2120 B	Color (true)	9.2		PCU	P329499	
	SM 2320 B-97	Total Alkalinity	1.6	I	mg CaCO3/L	P329761	
	SM 2540 C-97	TDS	24	I	mg/L	P329918	
	SM 2540 D-97	TSS	3	I	mg/L	P330147	
	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P329765	
1917855	EPA 350.1 Rev. 2.0	Ammonia-N	0.002	I	mg N/L	P329574	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.28		mg N/L	P329814	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P329519	
	EPA 365.1 Rev. 2.0	Total-P	0.009		mg P/L	P329558	
	SM 5310 B-00	Organic Carbon	3.1		mg C/L	P329794	
1917860	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P329486	

Ref. Method and Comment:

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

Sample Location: Mariner Lake

Collection Date/Time: 07/31/2017 11:00

Field ID: G1NE085907312017

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1917851	EPA 180.1 Rev. 2.0	Turbidity	1.8		NTU	P329515	
	EPA 300.0 Rev. 2.1	Chloride	5.9		mg Cl/L	P329623	
		Sulfate	2.8		mg SO4/L	P329621	
	SM 2120 B	Color (true)	8.7		PCU	P329499	
	SM 2320 B-97	Total Alkalinity	0.65	U	mg CaCO3/L	P329761	
	SM 2540 C-97	TDS	25		mg/L	P329918	
	SM 2540 D-97	TSS	3	I	mg/L	P330147	

Field ID: G1NE085907312017

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1917851	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P329765	
1917856	EPA 350.1 Rev. 2.0	Ammonia-N	0.003	I	mg N/L	P329574	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.25		mg N/L	P329814	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P329519	
	EPA 365.1 Rev. 2.0	Total-P	0.011		mg P/L	P329558	
	SM 5310 B-00	Organic Carbon	2.2		mg C/L	P329794	
1917861	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P329486	

Ref. Method and Comment:
 SM 2540 D-97: 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: P329515

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 300.0 Rev. 2.1
 Batch ID: P329621

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 300.0 Rev. 2.1
 Batch ID: P329623

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 350.1 Rev. 2.0
 Batch ID: P329574

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

Reference Method: EPA 350.1 Rev. 2.0
 Batch ID: P329679

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

Reference Method: EPA 351.2 Rev. 2.0
 Batch ID: P329814

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

Reference Method: EPA 353.2 Rev. 2.0
 Batch ID: P329519

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

Quality Assurance Report Method Blank Results

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P329558

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P329486

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P329487

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

Reference Method: SM 2120 B
Batch ID: P329499

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2320 B-97
Batch ID: P329656

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

Reference Method: SM 2320 B-97
Batch ID: P329761

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

Reference Method: SM 2540 C-97
Batch ID: P329917

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 C-97
Batch ID: P329918

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P330146

Component	Result	Code	Units
TSS	2	U	mg/L

Quality Assurance Report Method Blank Results

Reference Method: SM 2540 D-97
Batch ID: P330147

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500 F-C-97
Batch ID: P329658

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 4500 F-C-97
Batch ID: P329765

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-00
Batch ID: P329794

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: P329621

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P329623

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Chloride	98.9		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P329574

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: P329679

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P329814

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P329814

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P329519

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
NO2NO3-N	103		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P329558

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P329486

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P329487

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

Reference Method: SM 2320 B-97
Batch ID: P329656

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	102		P	95 - 108

Reference Method: SM 2320 B-97
Batch ID: P329761

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	103		P	95 - 108

Reference Method: SM 4500 F-C-97
Batch ID: P329658

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	94.0		P	92 - 103

Reference Method: SM 4500 F-C-97
Batch ID: P329765

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	95.3		P	92 - 103

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: SM 5310 B-00
Batch ID: P329794

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	97.2		P	85 - 115

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P329621

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1917851	Sulfate	95.3		P	90 - 110
1917999	Sulfate	99.1		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P329623

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1917851	Chloride	93.0		P	90 - 110
1917999	Chloride	97.9		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P329574

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1917738	Ammonia-N	100	97.7	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P329679

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1917480	Ammonia-N	97.9	96.0	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P329814

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1917856	Kjeldahl Nitrogen	91.1	104	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P329519

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1917852	NO2NO3-N	104	103	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P329558

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1917819	Total-P	100	96.9	P/P	90 - 110

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P329486

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1917860	O-Phosphate-P	98.8	99.0	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P329487

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1917719	O-Phosphate-P	99.3	100	P/P	90 - 110

Reference Method: SM 4500 F-C-97
Batch ID: P329658

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1917818	Fluoride	94.2	95.4	P/P	91 - 105

Reference Method: SM 4500 F-C-97
Batch ID: P329765

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1918058	Fluoride	99.2	99.2	P/P	91 - 105

Reference Method: SM 5310 B-00
Batch ID: P329794

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1917819	Organic Carbon	96.3	96.3	P/P	85 - 115

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P329515

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1917847	Turbidity	3.79	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P329621

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1917999	Sulfate	5.15	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P329623

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1917999	Chloride	0.0647	Sample	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P329574

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1917738	Ammonia-N	1.78	Spike	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P329679

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1917480	Ammonia-N	0.635	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P329814

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1917856	Kjeldahl Nitrogen	11.2	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P329519

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1917852	NO2NO3-N	0.484	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P329558

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1917819	Total-P	3.03	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P329486

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1917860	O-Phosphate-P	0.202	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P329487

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1917719	O-Phosphate-P	1.00	Spike	P	0 - 20

Reference Method: SM 2120 B
Batch ID: P329499

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1917862	Color (true)	1.75	Sample	P	0 - 20

Quality Assurance Report Precision

Reference Method: SM 2320 B-97
Batch ID: P329656

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1917818	Total Alkalinity	0.0793	Sample	P	0 - 4.8

Reference Method: SM 2320 B-97
Batch ID: P329761

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1918058	Total Alkalinity	0.0506	Sample	P	0 - 4.8

Reference Method: SM 2540 C-97
Batch ID: P329917

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1917818	TDS	0.597	Sample	P	0 - 10

Reference Method: SM 2540 C-97
Batch ID: P329918

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1918066	TDS	8.04	Sample	P	0 - 10

Reference Method: SM 4500 F-C-97
Batch ID: P329658

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1917818	Fluoride	1.00	Spike	P	0 - 3.0

Reference Method: SM 4500 F-C-97
Batch ID: P329765

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1918058	Fluoride	0.0	Spike	P	0 - 3.0

Reference Method: SM 5310 B-00
Batch ID: P329794

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1917819	Organic Carbon	0.0	Spike	P	0 - 20

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

Quality Assurance Report Calibration Verification

Quality Assurance Report Calibration Verification

Reference Method: EPA 365.1 Rev. 2.0 dissolved

Run ID: A78088

Included Lab Sample IDs: 1917857, 1917858, 1917859, 1917860, 1917861

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	98.2	99.3	P/P	90 - 110
O-Phosphate-P	98.5	98.2	P/P	90 - 110
O-Phosphate-P	99.3	98.1	P/P	90 - 110

Reference Method: SM 2120 B

Run ID: A78090

Included Lab Sample IDs: 1917847, 1917848, 1917849, 1917850, 1917851

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	100	101	P/P	85 - 115
Color (true)	101	101	P/P	85 - 115

Reference Method: EPA 180.1 Rev. 2.0

Run ID: A78097

Included Lab Sample IDs: 1917847, 1917848, 1917849, 1917850, 1917851

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

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A78098

Included Lab Sample IDs: 1917852, 1917853, 1917854, 1917855, 1917856

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: A78129

Included Lab Sample IDs: 1917853, 1917854, 1917855, 1917856

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

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A78155

Included Lab Sample IDs: 1917852, 1917853, 1917854, 1917855, 1917856

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	98.5	99.2	P/P	90 - 110
Total-P	99.2	98.8	P/P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1

Run ID: A78163

Included Lab Sample IDs: 1917847, 1917848, 1917849, 1917850, 1917851

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	98.9	94.9	P/P	90 - 110
Chloride	98.9	98.9	P/P	90 - 110
Sulfate	103	98.8	P/P	90 - 110
Sulfate	98.8	97.7	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: SM 2320 B-97

Run ID: A78171

Included Lab Sample IDs: 1917847, 1917848

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

Reference Method: SM 4500 F-C-97

Run ID: A78171

Included Lab Sample IDs: 1917847, 1917848

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	94.8	95.5	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A78181

Included Lab Sample IDs: 1917852

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	97.8	97.5	P/P	90 - 110

Reference Method: SM 2320 B-97

Run ID: A78219

Included Lab Sample IDs: 1917849, 1917850, 1917851

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	100	104	P/P	90 - 110
Total Alkalinity	104	101	P/P	90 - 110

Reference Method: SM 4500 F-C-97

Run ID: A78219

Included Lab Sample IDs: 1917849, 1917850, 1917851

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	98.0	97.6	P/P	90 - 110
Fluoride	98.6	98.0	P/P	90 - 110

Reference Method: SM 5310 B-00

Run ID: A78233

Included Lab Sample IDs: 1917852, 1917853, 1917854, 1917855, 1917856

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	97.2	98.2	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A78295

Included Lab Sample IDs: 1917852, 1917853, 1917854, 1917855, 1917856

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	101	98.7	P/P	90 - 110
Kjeldahl Nitrogen	96.8	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				3.79	
EPA 300.0 Rev. 2.1	Chloride	98.9	97.9	93.0	0.0647	
	Sulfate	103	99.1	95.3	5.15	
EPA 350.1 Rev. 2.0	Ammonia-N	102	100	97.7		1.78
	Ammonia-N	101	97.9	96.0		0.635
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	94.7	91.1	104		11.2
EPA 353.2 Rev. 2.0	NO2NO3-N	103	104	103		0.484
EPA 365.1 Rev. 2.0	Total-P	100	100	96.9		3.03
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	98.2	98.8	99.0		0.202
	O-Phosphate-P	100	99.3	100		1.00
SM 2120 B	Color (true)				1.75	
SM 2320 B-97	Total Alkalinity	102			0.0793	
	Total Alkalinity	103			0.0506	
SM 2540 C-97	TDS				0.597	
	TDS				8.04	
SM 4500 F-C-97	Fluoride	94.0	94.2	95.4		1.00
	Fluoride	95.3	99.2	99.2		0.0
SM 5310 B-00	Organic Carbon	97.2	96.3	96.3		0.0

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	1917847, 1917848, 1917849, 1917850, 1917851
EPA 300.0 Rev. 2.1 / E31780	Chloride in aqueous matrices	1917847, 1917848, 1917849, 1917850, 1917851
EPA 300.0 Rev. 2.1 / E31780	Sulfate in aqueous matrices	1917847, 1917848, 1917849, 1917850, 1917851
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	1917852, 1917853, 1917854, 1917855, 1917856
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	1917852, 1917853, 1917854, 1917855, 1917856
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	1917852, 1917853, 1917854, 1917855, 1917856
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	1917852, 1917853, 1917854, 1917855, 1917856
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	1917857, 1917858, 1917859, 1917860, 1917861
SM 2120 B / E31780	True Color measured at 450 nm	1917847, 1917848, 1917849, 1917850, 1917851
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO3/L	1917847, 1917848, 1917849, 1917850, 1917851
SM 2540 C-97 / E31780	Total Dissolved Solids in aqueous matrices	1917847, 1917848, 1917849, 1917850, 1917851
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices	1917847, 1917848, 1917849, 1917850, 1917851
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	1917847, 1917848, 1917849, 1917850, 1917851
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	1917852, 1917853, 1917854, 1917855, 1917856

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	08/01/2017			08/01/2017 15:58	Blanca Fach	1917847, 1917848, 1917849, 1917850, 1917851
EPA 300.0 Rev. 2.1	08/01/2017			08/02/2017	Julia Storbeck	1917847, 1917848, 1917849, 1917850, 1917851
EPA 350.1 Rev. 2.0	08/01/2017			08/02/2017	Sofia Elnemr	1917853, 1917854, 1917855, 1917856
	08/01/2017			08/03/2017	Sofia Elnemr	1917852
EPA 351.2 Rev. 2.0	08/01/2017	08/08/2017	Adrian Shelby	08/09/2017	Joseph Suarez	1917852, 1917853, 1917854, 1917855, 1917856
EPA 353.2 Rev. 2.0	08/01/2017			08/02/2017	Beverly Y. Sanders	1917852, 1917853, 1917854, 1917855, 1917856
EPA 365.1 Rev. 2.0	08/01/2017	08/02/2017	Sima Feizi	08/03/2017	Lipi Saha	1917852, 1917853, 1917854, 1917855, 1917856
EPA 365.1 Rev. 2.0 dissolved	08/01/2017			08/01/2017 14:42	Anthony C. Onicha	1917860
	08/01/2017			08/01/2017 15:01	Anthony C. Onicha	1917857
	08/01/2017			08/01/2017 15:06	Anthony C. Onicha	1917858
	08/01/2017			08/01/2017 15:07	Anthony C. Onicha	1917859
	08/01/2017			08/01/2017 15:08	Anthony C. Onicha	1917861
SM 2120 B	08/01/2017			08/01/2017 16:09	Tanya Welborn	1917847
	08/01/2017			08/01/2017 16:11	Tanya Welborn	1917850
	08/01/2017			08/01/2017 16:12	Tanya Welborn	1917851
	08/01/2017			08/01/2017 16:26	Tanya Welborn	1917848
	08/01/2017			08/01/2017 16:27	Tanya Welborn	1917849
SM 2320 B-97	08/01/2017			08/03/2017	Dale L. Simmons	1917847, 1917848
	08/01/2017			08/05/2017	Dale L. Simmons	1917849, 1917850, 1917851
SM 2540 C-97	08/01/2017			08/04/2017	Yijie Li	1917847, 1917848, 1917849, 1917850, 1917851
SM 2540 D-97	08/01/2017			08/04/2017	Yijie Li	1917847, 1917848, 1917849, 1917850, 1917851
SM 4500 F-C-97	08/01/2017			08/03/2017	Dale L. Simmons	1917847, 1917848
	08/01/2017			08/05/2017	Dale L. Simmons	1917849, 1917850, 1917851
SM 5310 B-00	08/01/2017			08/05/2017	Sofia Elnemr	1917852, 1917853, 1917854, 1917855, 1917856