

Chemical Analysis Report

NE-DIST-2017-02-22-01

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-2017-02-20-05**
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: Liang Lin, Environmental Administrator

Date Certified: 17-MAR-2017 11:12

A handwritten signature in black ink, appearing to read "Liang Lin", is written on a light-colored, textured 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: HARDESTY LAKE CENTER

Collection Date/Time: 02/21/2017 09:30

Field ID: G1NE0869 02212017

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1874768	EPA 180.1 Rev. 2.0	Turbidity	1.0		NTU	P320311	
	EPA 300.0 Rev. 2.1	Chloride	10		mg Cl/L	P321441	
		Sulfate	2.2		mg SO4/L	P321444	
	SM 2120 B	Color (true)	140		PCU	P320322	
	SM 2320 B-97	Total Alkalinity	1.3	I	mg CaCO3/L	P320592	
	SM 2540 C-97	TDS	42		mg/L	P320846	
	SM 2540 D-97	TSS	3	I	mg/L	P320838	
	SM 4500 F-C-97	Fluoride	0.037	I	mg F/L	P320600	
1874774	EPA 350.1 Rev. 2.0	Ammonia-N	0.011		mg N/L	P320608	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.43		mg N/L	P320371	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.14		mg N/L	P320553	
	EPA 365.1 Rev. 2.0	Total-P	0.027		mg P/L	P320372	MS
	SM 5310 B-00	Organic Carbon	12		mg C/L	P320485	
1874780	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P320305	

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 CENTER

Collection Date/Time: 02/21/2017 10:40

Field ID: G1NE0867 02212017

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1874769	EPA 180.1 Rev. 2.0	Turbidity	0.70		NTU	P320311	
	EPA 300.0 Rev. 2.1	Chloride	6.2		mg Cl/L	P321441	
		Sulfate	5.2		mg SO4/L	P321444	
	SM 2120 B	Color (true)	4.4	I	PCU	P320322	
	SM 2320 B-97	Total Alkalinity	1.3	I	mg CaCO3/L	P320592	
	SM 2540 C-97	TDS	22	I	mg/L	P320846	
	SM 2540 D-97	TSS	3	I	mg/L	P320838	
	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P320600	
1874775	EPA 350.1 Rev. 2.0	Ammonia-N	0.002	I	mg N/L	P320608	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.23		mg N/L	P320371	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P320553	
	EPA 365.1 Rev. 2.0	Total-P	0.010		mg P/L	P320372	MS
	SM 5310 B-00	Organic Carbon	2.8		mg C/L	P320485	
1874781	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P320305	

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 CENTER

Collection Date/Time: 02/21/2017 10:10

Field ID: G1NE0090 02212017

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1874770	EPA 180.1 Rev. 2.0	Turbidity	1.2		NTU	P320311	
	EPA 300.0 Rev. 2.1	Chloride	11	A	mg Cl/L	P321441	
		Sulfate	3.3	A	mg SO4/L	P321444	

Field ID: G1NE0090 02212017

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1874770	SM 2120 B	Color (true)	130		PCU	P320322	
	SM 2320 B-97	Total Alkalinity	2.8		mg CaCO3/L	P320592	
	SM 2540 C-97	TDS	43		mg/L	P320846	
	SM 2540 D-97	TSS	2	I	mg/L	P320838	
	SM 4500 F-C-97	Fluoride	0.039	I	mg F/L	P320600	
1874776	EPA 350.1 Rev. 2.0	Ammonia-N	0.003	I	mg N/L	P320608	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.61		mg N/L	P320371	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.024		mg N/L	P320553	
	EPA 365.1 Rev. 2.0	Total-P	0.019		mg P/L	P320372	MS
	SM 5310 B-00	Organic Carbon	13		mg C/L	P320485	
1874782	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P320305	

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: CLEARWATER LAKE CENTER

Collection Date/Time: 02/21/2017 12:00

Field ID: G1NE1131 02212017

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1874771	EPA 180.1 Rev. 2.0	Turbidity	1.3		NTU	P320311	
	EPA 300.0 Rev. 2.1	Chloride	8.0		mg Cl/L	P321441	
		Sulfate	7.0		mg SO4/L	P321444	
	SM 2120 B	Color (true)	32	A	PCU	P320322	
	SM 2320 B-97	Total Alkalinity	0.65	U	mg CaCO3/L	P320592	
	SM 2540 C-97	TDS	28		mg/L	P320847	
	SM 2540 D-97	TSS	2	I	mg/L	P320839	
	SM 4500 F-C-97	Fluoride	0.077	I	mg F/L	P320600	
	EPA 350.1 Rev. 2.0	Ammonia-N	0.005	I	mg N/L	P320608	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.57		mg N/L	P320371	
1874777	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P320554	
	EPA 365.1 Rev. 2.0	Total-P	0.027		mg P/L	P320372	MS
	SM 5310 B-00	Organic Carbon	7.6		mg C/L	P320485	
	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P320305	

Sample Location: MARINER LAKE CENTER

Collection Date/Time: 02/21/2017 11:25

Field ID: G1NE0859 02212017

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1874772	EPA 180.1 Rev. 2.0	Turbidity	1.2		NTU	P320311	
	EPA 300.0 Rev. 2.1	Chloride	7.7		mg Cl/L	P321441	
		Sulfate	5.0		mg SO4/L	P321444	
	SM 2120 B	Color (true)	4.2	I	PCU	P320322	
	SM 2320 B-97	Total Alkalinity	0.92	I	mg CaCO3/L	P320592	
	SM 2540 C-97	TDS	19	I	mg/L	P320847	
	SM 2540 D-97	TSS	2	I	mg/L	P320839	
	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P320600	

Field ID: G1NE0859 02212017

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1874778	EPA 350.1 Rev. 2.0	Ammonia-N	0.002	I	mg N/L	P320608	MS
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.19	I	mg N/L	P320371	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P320554	
	EPA 365.1 Rev. 2.0	Total-P	0.010		mg P/L	P320372	
	SM 5310 B-00	Organic Carbon	1.5		mg C/L	P320485	
1874784	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P320305	

Sample Location: FIELD BLANK

Collection Date/Time: 02/21/2017 11:40

Field ID: FIELD BLANK

Matrix: W-FIELD-BK

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1874773	EPA 180.1 Rev. 2.0	Turbidity	0.10	U	NTU	P320311	MS
	EPA 300.0 Rev. 2.1	Chloride	0.20	U	mg Cl/L	P321441	
		Sulfate	0.20	U	mg SO4/L	P321444	
	SM 2120 B	Color (true)	2.5	U	PCU	P320322	
	SM 2320 B-97	Total Alkalinity	0.65	U	mg CaCO3/L	P320592	
	SM 2540 C-97	TDS	15	U	mg/L	P320845	
	SM 2540 D-97	TSS	2	U	mg/L	P320837	
	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P320600	
	EPA 350.1 Rev. 2.0	Ammonia-N	0.002	U	mg N/L	P320608	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.080	U	mg N/L	P320371	
1874779	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P320554	MS
	EPA 365.1 Rev. 2.0	Total-P	0.003	I	mg P/L	P320372	
	SM 5310 B-00	Organic Carbon	0.50	U	mg C/L	P320485	
	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P320305	

Ref. Method and Comment:

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

EPA 365.1 Rev. 2.0: Total-P: The result was confirmed on 02/28/2017.

Quality Assurance Report Method Blank Results

Reference Method: EPA 180.1 Rev. 2.0

Batch ID: P320311

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 300.0 Rev. 2.1

Batch ID: P321441

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1

Batch ID: P321444

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Quality Assurance Report Method Blank Results

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P320608

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P320371

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P320553

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P320554

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P320372

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P320305

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

Reference Method: SM 2120 B
Batch ID: P320322

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2320 B-97
Batch ID: P320592

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

Reference Method: SM 2540 C-97
Batch ID: P320845

Component	Result	Code	Units
TDS	15	U	mg/L

Quality Assurance Report Method Blank Results

Reference Method: SM 2540 C-97
Batch ID: P320846

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 C-97
Batch ID: P320847

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P320837

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P320838

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P320839

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500 F-C-97
Batch ID: P320600

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-00
Batch ID: P320485

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: P321441

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P321444

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P321444

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Sulfate	98.5		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P320608

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P320371

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P320553

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: P320554

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: P320372

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total-P	98.6		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P320305

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

Reference Method: SM 2320 B-97
Batch ID: P320592

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	104		P	95 - 108

Reference Method: SM 4500 F-C-97
Batch ID: P320600

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	98.0		P	92 - 103

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: SM 5310 B-00
 Batch ID: P320485

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	96.8		P	85 - 115

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
 Batch ID: P321441

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1874770	Chloride	103		P	90 - 110
1874967	Chloride	101		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
 Batch ID: P321444

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1874770	Sulfate	101		P	90 - 110
1874967	Sulfate	102		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
 Batch ID: P320608

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1874774	Ammonia-N	102	102	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
 Batch ID: P320371

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1874778	Kjeldahl Nitrogen	99.7	104	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
 Batch ID: P320553

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1874646	NO2NO3-N	101	102	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
 Batch ID: P320554

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1874777	NO2NO3-N	103	102	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
 Batch ID: P320372

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1874619	Total-P	86.4	85.2	F/F	90 - 110

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P320305

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1874783	O-Phosphate-P	97.2	100	P/P	90 - 110

Reference Method: SM 4500 F-C-97
Batch ID: P320600

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1875043	Fluoride	98.3	99.4	P/P	91 - 105

Reference Method: SM 5310 B-00
Batch ID: P320485

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1874958	Organic Carbon	96.1	96.8	P/P	85 - 115

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P320311

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1874741	Turbidity	1.23	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P321441

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1874770	Chloride	0.174	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P321444

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1874770	Sulfate	1.10	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P320608

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1874774	Ammonia-N	0.397	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P320371

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1874778	Kjeldahl Nitrogen	3.92	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P320553

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1874646	NO2NO3-N	0.985	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P320554

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1874777	NO2NO3-N	0.487	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P320372

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1874619	Total-P	1.43	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P320305

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1874783	O-Phosphate-P	3.34	Spike	P	0 - 20

Reference Method: SM 2120 B
Batch ID: P320322

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1874771	Color (true)	2.66	Sample	P	0 - 20

Reference Method: SM 2320 B-97
Batch ID: P320592

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1875043	Total Alkalinity	0.132	Sample	P	0 - 4.8

Reference Method: SM 2540 C-97
Batch ID: P320845

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1874533	TDS	6.54	Sample	P	0 - 10

Reference Method: SM 2540 C-97
Batch ID: P320846

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1874548	TDS	8.00	Sample	P	0 - 10

Quality Assurance Report Precision

Reference Method: SM 2540 C-97
Batch ID: P320847

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1874835	TDS	6.52	Sample	P	0 - 10

Reference Method: SM 2540 D-97
Batch ID: P320839

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1874835	TSS	7.14	Sample	P	0 - 10

Reference Method: SM 4500 F-C-97
Batch ID: P320600

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1875043	Fluoride	0.996	Spike	P	0 - 3.0

Reference Method: SM 5310 B-00
Batch ID: P320485

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1874958	Organic Carbon	0.777	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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Run ID: A74651
Included Lab Sample IDs: 1874780, 1874781, 1874782, 1874783, 1874784, 1874785

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	100	99.6	P/P	90 - 110
O-Phosphate-P	100	100	P/P	90 - 110
O-Phosphate-P	99.6	100	P/P	90 - 110

Reference Method: EPA 180.1 Rev. 2.0
Run ID: A74653
Included Lab Sample IDs: 1874768, 1874769, 1874770, 1874771, 1874772, 1874773

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

Reference Method: SM 2120 B
Run ID: A74656
Included Lab Sample IDs: 1874768, 1874769, 1874770, 1874771, 1874772, 1874773

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

Reference Method: SM 2120 B

Run ID: A74656

Included Lab Sample IDs: 1874768, 1874769, 1874770, 1874771, 1874772, 1874773

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	94.7	95.8	P/P	85 - 115

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A74711

Included Lab Sample IDs: 1874774, 1874775, 1874776, 1874777, 1874778, 1874779

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	102	99.1	P/P	90 - 110
Kjeldahl Nitrogen	98.2	98.4	P/P	90 - 110
Kjeldahl Nitrogen	98.4	98.2	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A74716

Included Lab Sample IDs: 1874774, 1874775, 1874776, 1874777, 1874778, 1874779

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

Reference Method: SM 5310 B-00

Run ID: A74718

Included Lab Sample IDs: 1874774, 1874775, 1874776, 1874777, 1874778, 1874779

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	95.4	95.4	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A74741

Included Lab Sample IDs: 1874774, 1874775, 1874776, 1874777, 1874778, 1874779

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO2NO3-N	97.0	96.5	P/P	90 - 110
NO2NO3-N	97.0	97.0	P/P	90 - 110
NO2NO3-N	98.0	97.0	P/P	90 - 110
NO2NO3-N	98.5	98.0	P/P	90 - 110

Reference Method: SM 2320 B-97

Run ID: A74752

Included Lab Sample IDs: 1874768, 1874769, 1874770, 1874771, 1874772, 1874773

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	103	105	P/P	90 - 110

Reference Method: SM 4500 F-C-97

Run ID: A74752

Included Lab Sample IDs: 1874768, 1874769, 1874770, 1874771, 1874772, 1874773

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

Quality Assurance Report Calibration Verification

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A74758

Included Lab Sample IDs: 1874774, 1874775, 1874776, 1874777, 1874778, 1874779

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

Reference Method: EPA 300.0 Rev. 2.1

Run ID: A74977

Included Lab Sample IDs: 1874768, 1874769, 1874770, 1874771, 1874772, 1874773

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	101	98.6	P/P	90 - 110
Chloride	98.6	98.7	P/P	90 - 110
Sulfate	95.4	94.3	P/P	90 - 110
Sulfate	97.5	95.4	P/P	90 - 110

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

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

Where they are different, both control limits are provided.

Quality Assurance Report Summary

Ref. Method	Analyte	LCS % Recovery	MS % Recovery		LCS	Precision	MS
						SMP	
EPA 180.1 Rev. 2.0	Turbidity					1.23	
EPA 300.0 Rev. 2.1	Chloride	103	103	101		0.174	
	Sulfate	98.5	101	102		1.10	
EPA 350.1 Rev. 2.0	Ammonia-N	103	102	102			0.397
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	108	99.7	104			3.92
EPA 353.2 Rev. 2.0	NO2NO3-N	102	101	102			0.985
	NO2NO3-N	102	103	102			0.487
EPA 365.1 Rev. 2.0	Total-P	98.6	86.4	85.2			1.43
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	98.5	97.2	100			3.34
SM 2120 B	Color (true)					2.66	
SM 2320 B-97	Total Alkalinity	104				0.132	
SM 2540 C-97	TDS					6.54	
	TDS					8.00	
	TDS					6.52	
SM 2540 D-97	TSS					7.14	
SM 4500 F-C-97	Fluoride	98.0	98.3	99.4			0.996
SM 5310 B-00	Organic Carbon	96.8	96.1	96.8			0.777

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	1874768, 1874769, 1874770, 1874771, 1874772, 1874773
EPA 300.0 Rev. 2.1 / E31780	Chloride in aqueous matrices	1874768, 1874769, 1874770, 1874771, 1874772, 1874773
EPA 300.0 Rev. 2.1 / E31780	Sulfate in aqueous matrices	1874768, 1874769, 1874770, 1874771, 1874772, 1874773

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	1874774, 1874775, 1874776, 1874777, 1874778, 1874779
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	1874774, 1874775, 1874776, 1874777, 1874778, 1874779
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	1874774, 1874775, 1874776, 1874777, 1874778, 1874779
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	1874774, 1874775, 1874776, 1874777, 1874778, 1874779
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	1874780, 1874781, 1874782, 1874783, 1874784, 1874785
SM 2120 B / E31780	True Color measured at 450 nm	1874768, 1874769, 1874770, 1874771, 1874772, 1874773
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO ₃ /L	1874768, 1874769, 1874770, 1874771, 1874772, 1874773
SM 2540 C-97 / E31780	Total Dissolved Solids in aqueous matrices	1874768, 1874769, 1874770, 1874771, 1874772, 1874773
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices	1874768, 1874769, 1874770, 1874771, 1874772, 1874773
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	1874768, 1874769, 1874770, 1874771, 1874772, 1874773
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	1874774, 1874775, 1874776, 1874777, 1874778, 1874779

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	02/22/2017			02/22/2017 15:55	Sima Feizi	1874768, 1874769, 1874770, 1874771, 1874772, 1874773
EPA 300.0 Rev. 2.1	02/22/2017			03/09/2017	Elisa J Lutz	1874768, 1874769, 1874770, 1874771, 1874772, 1874773
EPA 350.1 Rev. 2.0	02/22/2017			02/27/2017	Sofia Elnemr	1874774, 1874775, 1874776, 1874777, 1874778, 1874779
EPA 351.2 Rev. 2.0	02/22/2017	02/23/2017	Adrian Shelby	02/24/2017	Joseph Suarez	1874774, 1874775, 1874776, 1874777, 1874778, 1874779
EPA 353.2 Rev. 2.0	02/22/2017			02/27/2017	Beverly Y. Sanders	1874774, 1874775, 1874776, 1874777, 1874778, 1874779
EPA 365.1 Rev. 2.0	02/22/2017	02/23/2017	Adrian Shelby	02/24/2017	Lipi Saha	1874774, 1874775, 1874776, 1874777, 1874778, 1874779
EPA 365.1 Rev. 2.0 dissolved	02/22/2017			02/22/2017 14:25	Julia Storbeck	1874783
	02/22/2017			02/22/2017 14:37	Julia Storbeck	1874785
	02/22/2017			02/22/2017 15:03	Julia Storbeck	1874780
	02/22/2017			02/22/2017 15:04	Julia Storbeck	1874781
	02/22/2017			02/22/2017 15:05	Julia Storbeck	1874782
	02/22/2017			02/22/2017 15:06	Julia Storbeck	1874784
SM 2120 B	02/22/2017			02/22/2017 16:26	Julie Michelle Frank	1874768
	02/22/2017			02/22/2017 16:27	Julie Michelle Frank	1874769, 1874770
	02/22/2017			02/22/2017 16:29	Julie Michelle Frank	1874771
	02/22/2017			02/22/2017 16:30	Julie Michelle Frank	1874772, 1874773
SM 2320 B-97	02/22/2017			02/25/2017	Dale L. Simmons	1874768, 1874769, 1874770, 1874771, 1874772, 1874773
SM 2540 C-97	02/22/2017			02/24/2017	Yijie Li	1874768, 1874769, 1874770, 1874771, 1874772, 1874773
SM 2540 D-97	02/22/2017			02/24/2017	Yijie Li	1874768, 1874769, 1874770, 1874771, 1874772, 1874773
SM 4500 F-C-97	02/22/2017			02/25/2017	Dale L. Simmons	1874768, 1874769, 1874770, 1874771, 1874772, 1874773
SM 5310 B-00	02/22/2017			02/24/2017	Julie Michelle Frank	1874774, 1874775, 1874776, 1874777, 1874778, 1874779