

Chemical Analysis Report

SO-DIST-2018-04-26-01

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

Event Description: **Lake Pythias, Huckleberry Lake, Pearl Lake, Lake Henry**
Request ID: **RQ-2018-03-26-26**
Customer: **SO-DIST**
Project ID: **SMP**

Send Reports to:
FL Dept. of Environmental Protection
FLDEP South District Office
2295 Victoria Ave. Suite 364
Fort Myers, FL 33901
Attn: Maryann dugan

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

Date Certified: 14-MAY-2018 13:22

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

Case Narrative

Unless otherwise noted, all samples included in this report were received in accordance with protocols referenced in Chapter 62-160, Florida Administrative Code (F.A.C.). Results published in this report pertain only to the samples as submitted to, and received by the laboratory. All times in this report are adjusted to the applicable Eastern Time Zone (EST or EDT).

Results for the following analytical 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: Pearl Lake @ Center

Collection Date/Time: 04/25/2018 11:30

Field ID: G4SD0137

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1987626	EPA 180.1 Rev. 2.0	Turbidity	0.95		NTU	P344152	
	EPA 300.0 Rev. 2.1	Chloride	16		mg Cl/L	P344282	
		Sulfate	17		mg SO4/L	P344286	
	SM 2120 B	Color (true)	11		PCU	P344126	
	SM 2320 B-97	Total Alkalinity	4.0		mg CaCO3/L	P344830	
	SM 2540 C-97	TDS	72	A	mg/L	P344813	
	SM 2540 D-97	TSS	2	UA	mg/L	P344597	
	SM 4500 F-C-97	Fluoride	0.038	I	mg F/L	P344746	
1987630	EPA 350.1 Rev. 2.0	Ammonia-N	0.003	I	mg N/L	P344624	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.38		mg N/L	P344220	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P344329	
	EPA 365.1 Rev. 2.0	Total-P	0.010		mg P/L	P344322	
	SM 5310 B-00	Organic Carbon	6.4		mg C/L	P344687	
1987634	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P344196	

Ref. Method and Comment:

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

EPA 351.2 Rev. 2.0: Batch matrix spike recoveries are unavailable because of high analyte concentration in the QC sample.

Sample Location: Lake Henry @ Middle

Collection Date/Time: 04/25/2018 10:50

Field ID: G4SD0167

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1987627	EPA 180.1 Rev. 2.0	Turbidity	2.1		NTU	P344152	
	EPA 300.0 Rev. 2.1	Chloride	19		mg Cl/L	P344282	
		Sulfate	21		mg SO4/L	P344286	
	SM 2120 B	Color (true)	18	A	PCU	P344127	
	SM 2320 B-97	Total Alkalinity	16	A	mg CaCO3/L	P344830	
	SM 2540 C-97	TDS	107		mg/L	P344813	
	SM 2540 D-97	TSS	2	I	mg/L	P344597	
	SM 4500 F-C-97	Fluoride	0.064	I	mg F/L	P344746	
1987631	EPA 350.1 Rev. 2.0	Ammonia-N	0.005	I	mg N/L	P344624	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.64		mg N/L	P344220	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P344329	
	EPA 365.1 Rev. 2.0	Total-P	0.018		mg P/L	P344322	
	SM 5310 B-00	Organic Carbon	9.1		mg C/L	P344687	
1987635	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P344196	

Ref. Method and Comment:

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

EPA 351.2 Rev. 2.0: Batch matrix spike recoveries are unavailable because of high analyte concentration in the QC sample.

Sample Location: Lake Pythias @ Middle

Collection Date/Time: 04/25/2018 13:45

Field ID: G4SD0138

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1987628	EPA 180.1 Rev. 2.0	Turbidity	5.0		NTU	P344152	

Field ID: G4SD0138

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1987628	EPA 300.0 Rev. 2.1	Chloride	20	A	mg Cl/L	P344749	
		Sulfate	36	A	mg SO4/L	P344752	
	SM 2120 B	Color (true)	16		PCU	P344127	
	SM 2320 B-97	Total Alkalinity	2.5	I	mg CaCO3/L	P344743	
	SM 2540 C-97	TDS	121		mg/L	P344813	
	SM 2540 D-97	TSS	5	I	mg/L	P344597	
	SM 4500 F-C-97	Fluoride	0.12		mg F/L	P344747	
1987632	EPA 350.1 Rev. 2.0	Ammonia-N	0.008		mg N/L	P344624	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.45		mg N/L	P344220	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.16		mg N/L	P344329	
	EPA 365.1 Rev. 2.0	Total-P	0.026		mg P/L	P344322	
	SM 5310 B-00	Organic Carbon	5.3		mg C/L	P344687	
1987636	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P344196	

Ref. Method and Comment:

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

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

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

EPA 351.2 Rev. 2.0: Batch matrix spike recoveries are unavailable because of high analyte concentration in the QC sample.

Sample Location: HUCKLEBERRY-2 MIDDLE

Collection Date/Time: 04/25/2018 12:40

Field ID: G4SD0166

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1987629	EPA 180.1 Rev. 2.0	Turbidity	17		NTU	P344152	
	EPA 300.0 Rev. 2.1	Chloride	14		mg Cl/L	P344749	
		Sulfate	3.8		mg SO4/L	P344752	
	SM 2120 B	Color (true)	90	A	PCU	P344131	
	SM 2320 B-97	Total Alkalinity	22		mg CaCO3/L	P344743	
	SM 2540 C-97	TDS	95		mg/L	P344813	
	SM 2540 D-97	TSS	12		mg/L	P344597	
1987633	SM 4500 F-C-97	Fluoride	0.091	I	mg F/L	P344747	
	EPA 350.1 Rev. 2.0	Ammonia-N	0.009		mg N/L	P344625	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.8		mg N/L	P344220	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P344329	
	EPA 365.1 Rev. 2.0	Total-P	0.10		mg P/L	P344322	
1987637	SM 5310 B-00	Organic Carbon	18		mg C/L	P344687	
	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P344196	

Ref. Method and Comment:

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

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

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

EPA 351.2 Rev. 2.0: Batch matrix spike recoveries are unavailable because of high analyte concentration in the QC sample.

Quality Assurance Report

Method Blank Results

Quality Assurance Report Method Blank Results

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P344152

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P344282

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P344286

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P344749

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P344752

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P344624

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P344625

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P344220

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P344329

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: P344322

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P344196

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

Reference Method: SM 2120 B
Batch ID: P344126

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2120 B
Batch ID: P344127

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2120 B
Batch ID: P344131

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2320 B-97
Batch ID: P344743

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

Reference Method: SM 2320 B-97
Batch ID: P344830

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

Reference Method: SM 2540 C-97
Batch ID: P344813

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P344597

Component	Result	Code	Units
TSS	2	U	mg/L

Quality Assurance Report Method Blank Results

Reference Method: SM 4500 F-C-97
Batch ID: P344746

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 4500 F-C-97
Batch ID: P344747

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-00
Batch ID: P344687

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: P344282

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P344286

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Sulfate	98.3		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P344749

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P344752

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P344624

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: P344625

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P344625

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P344220

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P344329

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P344322

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: P344196

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

Reference Method: SM 2320 B-97
Batch ID: P344743

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	103		P	98 - 107

Reference Method: SM 2320 B-97
Batch ID: P344830

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	101		P	98 - 107

Reference Method: SM 4500 F-C-97
Batch ID: P344746

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	95.3		P	91 - 105

Reference Method: SM 4500 F-C-97
Batch ID: P344747

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	97.1		P	91 - 105

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: SM 5310 B-00
 Batch ID: P344687

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	98.7		P	85 - 115

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
 Batch ID: P344282

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1987200	Chloride	98.9		P	90 - 110
1987533	Chloride	99.7		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
 Batch ID: P344286

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1987200	Sulfate	98.9		P	90 - 110
1987533	Sulfate	96.6		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
 Batch ID: P344749

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1987628	Chloride	100		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
 Batch ID: P344624

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1987540	Ammonia-N	102	101	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
 Batch ID: P344625

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1987633	Ammonia-N	102	102	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
 Batch ID: P344329

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1987542	NO2NO3-N	99.6	98.6	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
 Batch ID: P344322

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1987630	Total-P	103	104	P/P	90 - 110

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P344196

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1987544	O-Phosphate-P	94.7	95.6	P/P	90 - 110

Reference Method: SM 4500 F-C-97
Batch ID: P344746

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1987627	Fluoride	94.8	94.8	P/P	91 - 105

Reference Method: SM 4500 F-C-97
Batch ID: P344747

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1988073	Fluoride	96.4	97.0	P/P	91 - 105

Reference Method: SM 5310 B-00
Batch ID: P344687

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1987630	Organic Carbon	101	101	P/P	85 - 115

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P344152

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1987532	Turbidity	6.86	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P344282

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1987200	Chloride	0.372	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P344286

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1987200	Sulfate	0.683	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P344749

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1987628	Chloride	0.133	Sample	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P344752

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1987628	Sulfate	0.0105	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P344624

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1987540	Ammonia-N	0.219	Spike	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P344625

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1987633	Ammonia-N	0.188	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P344220

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1987633	Kjeldahl Nitrogen	3.72	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P344329

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1987542	NO2NO3-N	0.943	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P344322

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1987630	Total-P	0.984	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P344196

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1987544	O-Phosphate-P	0.782	Spike	P	0 - 20

Reference Method: SM 2120 B
Batch ID: P344126

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1987495	Color (true)	6.36	Sample	P	0 - 20

Quality Assurance Report Precision

Reference Method: SM 2120 B
Batch ID: P344127

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1987627	Color (true)	3.06	Sample	P	0 - 20

Reference Method: SM 2120 B
Batch ID: P344131

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1987629	Color (true)	1.44	Sample	P	0 - 20

Reference Method: SM 2320 B-97
Batch ID: P344743

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1988073	Total Alkalinity	0.0690	Sample	P	0 - 1.6

Reference Method: SM 2320 B-97
Batch ID: P344830

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1987627	Total Alkalinity	1.01	Sample	P	0 - 1.6

Reference Method: SM 2540 C-97
Batch ID: P344813

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1987626	TDS	1.40	Sample	P	0 - 10

Reference Method: SM 4500 F-C-97
Batch ID: P344746

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1987627	Fluoride	0.0	Spike	P	0 - 3.5

Reference Method: SM 4500 F-C-97
Batch ID: P344747

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1988073	Fluoride	0.480	Spike	P	0 - 3.5

Reference Method: SM 5310 B-00
Batch ID: P344687

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1987630	Organic Carbon	0.264	Spike	P	0 - 20

Quality Assurance Report Precision

* 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 300.0 Rev. 2.1

Run ID: A83415

Included Lab Sample IDs: 1987626, 1987627

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	100	105	P/P	90 - 110
Sulfate	99.8	106	P/P	90 - 110

Reference Method: SM 2120 B

Run ID: A83481

Included Lab Sample IDs: 1987626, 1987627, 1987628, 1987629

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	100	100	P/P	90 - 115
Color (true)	98.3	99.3	P/P	90 - 115
Color (true)	99.3	98.7	P/P	90 - 115

Reference Method: EPA 180.1 Rev. 2.0

Run ID: A83486

Included Lab Sample IDs: 1987626, 1987627, 1987628, 1987629

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Turbidity	97.5	98.5	P/P	95 - 105

Reference Method: EPA 365.1 Rev. 2.0 dissolved

Run ID: A83498

Included Lab Sample IDs: 1987634, 1987635, 1987636, 1987637

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

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A83549

Included Lab Sample IDs: 1987630, 1987631, 1987632, 1987633

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

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A83564

Included Lab Sample IDs: 1987630, 1987631, 1987632, 1987633

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	93.2	93.7	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A83583

Included Lab Sample IDs: 1987633

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

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A83631

Included Lab Sample IDs: 1987630, 1987631, 1987632

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

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A83650

Included Lab Sample IDs: 1987630, 1987631, 1987632, 1987633

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

Reference Method: EPA 300.0 Rev. 2.1

Run ID: A83651

Included Lab Sample IDs: 1987628, 1987629

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

Reference Method: SM 5310 B-00

Run ID: A83673

Included Lab Sample IDs: 1987630, 1987631, 1987632, 1987633

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

Reference Method: SM 2320 B-97

Run ID: A83684

Included Lab Sample IDs: 1987628, 1987629

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

Reference Method: SM 4500 F-C-97

Run ID: A83684

Included Lab Sample IDs: 1987626, 1987627, 1987628, 1987629

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	98.1	100	P/P	90 - 110
Fluoride	99.0	98.1	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: SM 2320 B-97

Run ID: A83721

Included Lab Sample IDs: 1987626, 1987627

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	101	98.8	P/P	90 - 110
Total Alkalinity	98.7	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	LCS	Precision SMP	MS
EPA 180.1 Rev. 2.0	Turbidity				6.86	
EPA 300.0 Rev. 2.1	Chloride	99.5	98.9 99.7		0.372	
	Chloride	102	100		0.133	
	Sulfate	98.3	98.9 96.6		0.683	
	Sulfate	102			0.0105	
EPA 350.1 Rev. 2.0	Ammonia-N	102	102 101			0.219
	Ammonia-N	102	102 102			0.188
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	100				3.72
EPA 353.2 Rev. 2.0	NO2NO3-N	100	99.6 98.6			0.943
EPA 365.1 Rev. 2.0	Total-P	106	103 104			0.984
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	99.3	94.7 95.6			0.782
SM 2120 B	Color (true)				6.36	
	Color (true)				3.06	
	Color (true)				1.44	
SM 2320 B-97	Total Alkalinity	103			0.0690	
	Total Alkalinity	101			1.01	
SM 2540 C-97	TDS				1.40	
SM 4500 F-C-97	Fluoride	95.3	94.8 94.8			0.0
	Fluoride	97.1	96.4 97.0			0.480
SM 5310 B-00	Organic Carbon	98.7	101 101			0.264

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	1987626, 1987627, 1987628, 1987629
EPA 300.0 Rev. 2.1 / E31780	Chloride in aqueous matrices	1987626, 1987627, 1987628, 1987629
EPA 300.0 Rev. 2.1 / E31780	Sulfate in aqueous matrices	1987626, 1987627, 1987628, 1987629
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	1987630, 1987631, 1987632, 1987633
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	1987630, 1987631, 1987632, 1987633
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	1987630, 1987631, 1987632, 1987633
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	1987630, 1987631, 1987632, 1987633

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	1987634, 1987635, 1987636, 1987637
SM 2120 B / E31780	True Color measured at 450 nm	1987626, 1987627, 1987628, 1987629
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO ₃ /L	1987626, 1987627, 1987628, 1987629
SM 2540 C-97 / E31780	Total Dissolved Solids in aqueous matrices	1987626, 1987627, 1987628, 1987629
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices	1987626, 1987627, 1987628, 1987629
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	1987626, 1987627, 1987628, 1987629
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	1987630, 1987631, 1987632, 1987633

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	04/26/2018			04/26/2018 17:23	William L. Brown IV	1987626, 1987627, 1987628, 1987629
EPA 300.0 Rev. 2.1	04/26/2018			04/28/2018 07:58	Lipi Saha	1987626
	04/26/2018			04/28/2018 08:10	Lipi Saha	1987627
	04/26/2018			05/04/2018 17:49	Lipi Saha	1987628
	04/26/2018			05/04/2018 18:37	Lipi Saha	1987629
EPA 350.1 Rev. 2.0	04/26/2018			05/03/2018 14:15	Ping Hua	1987630
	04/26/2018			05/03/2018 14:16	Ping Hua	1987631
	04/26/2018			05/03/2018 14:18	Ping Hua	1987632
	04/26/2018			05/03/2018 14:28	Ping Hua	1987633
EPA 351.2 Rev. 2.0	04/26/2018	04/27/2018 11:00	Adrian Shelby	05/01/2018 08:40	Joseph Suarez	1987630
	04/26/2018	04/27/2018 11:00	Adrian Shelby	05/01/2018 08:41	Joseph Suarez	1987631
	04/26/2018	04/27/2018 11:00	Adrian Shelby	05/01/2018 08:43	Joseph Suarez	1987632
	04/26/2018	04/27/2018 11:00	Adrian Shelby	05/01/2018 08:44	Joseph Suarez	1987633
EPA 353.2 Rev. 2.0	04/26/2018			04/30/2018 12:36	Lauren Bottorf	1987630
	04/26/2018			04/30/2018 12:37	Lauren Bottorf	1987631
	04/26/2018			04/30/2018 12:39	Lauren Bottorf	1987632
	04/26/2018			04/30/2018 12:40	Lauren Bottorf	1987633
EPA 365.1 Rev. 2.0	04/26/2018	04/30/2018 13:15	Sima Feizi	05/01/2018 14:52	Beverly Y. Sanders	1987633
	04/26/2018	04/30/2018 13:15	Sima Feizi	05/02/2018 10:48	Beverly Y. Sanders	1987630
	04/26/2018	04/30/2018 13:15	Sima Feizi	05/02/2018 10:49	Beverly Y. Sanders	1987631
	04/26/2018	04/30/2018 13:15	Sima Feizi	05/02/2018 10:50	Beverly Y. Sanders	1987632
EPA 365.1 Rev. 2.0 dissolved	04/26/2018			04/26/2018 18:18	Megan Treadwell	1987634
	04/26/2018			04/26/2018 18:19	Megan Treadwell	1987635
	04/26/2018			04/26/2018 18:20	Megan Treadwell	1987636
	04/26/2018			04/26/2018 18:21	Megan Treadwell	1987637
SM 2120 B	04/26/2018			04/26/2018 14:24	Tanya Welborn	1987626
	04/26/2018			04/26/2018 14:28	Tanya Welborn	1987627
	04/26/2018			04/26/2018 14:29	Tanya Welborn	1987628
	04/26/2018			04/26/2018 15:11	Tanya Welborn	1987629
SM 2320 B-97	04/26/2018			05/04/2018 04:09	Dale L. Simmons	1987628
	04/26/2018			05/04/2018 04:19	Dale L. Simmons	1987629
	04/26/2018			05/07/2018 15:38	Dale L. Simmons	1987627
	04/26/2018			05/07/2018 18:17	Dale L. Simmons	1987626
SM 2540 C-97	04/26/2018			04/27/2018 13:15	William L. Brown IV	1987626, 1987627, 1987628, 1987629
SM 2540 D-97	04/26/2018			04/27/2018 13:15	William L. Brown IV	1987626, 1987627, 1987628, 1987629
SM 4500 F-C-97	04/26/2018			05/03/2018 22:59	Dale L. Simmons	1987627
	04/26/2018			05/04/2018 02:43	Dale L. Simmons	1987626
	04/26/2018			05/04/2018 04:09	Dale L. Simmons	1987628
	04/26/2018			05/04/2018 04:19	Dale L. Simmons	1987629
SM 5310 B-00	04/26/2018			05/03/2018 14:28	Megan Treadwell	1987630

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
SM 5310 B-00	04/26/2018			05/03/2018 15:19	Megan Treadwell	1987631
	04/26/2018			05/03/2018 15:45	Megan Treadwell	1987632
	04/26/2018			05/03/2018 15:59	Megan Treadwell	1987633