

Chemical Analysis Report

SW-DIST-2018-08-15-01

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

Event Description: **LVI Hooker & Dr Pond**
Request ID: **RQ-2018-08-13-13**
Customer: **SW-DIST**
Project ID: **SMP**

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Certified by: Colin Wright, Program Administrator

Date Certified: 31-AUG-2018 16:49

A handwritten signature in black ink, appearing to read "Colin Wright", is shown on a light-colored 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: Lake Hooker Center

Collection Date/Time: 08/14/2018 11:00

Field ID: G2SW0069

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2017288	EPA 180.1 Rev. 2.0	Turbidity	9.6		NTU	P350170	
	EPA 300.0 Rev. 2.1	Chloride	19		mg Cl/L	P350568	
		Sulfate	6.4		mg SO4/L	P350570	
	SM 2120 B	Color (true)	80		PCU	P350178	
	SM 2320 B-97	Total Alkalinity	27		mg CaCO3/L	P350415	
	SM 2540 C-97	TDS	99		mg/L	P350772	
	SM 2540 D-97	TSS	11		mg/L	P350760	
	SM 4500 F-C-97	Fluoride	0.18		mg F/L	P350416	
2017291	EPA 350.1 Rev. 2.0	Ammonia-N	0.005		mg N/L	P350521	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.8		mg N/L	P350277	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P350524	
	EPA 365.1 Rev. 2.0	Total-P	0.22		mg P/L	P350507	
	SM 5310 B-00	Organic Carbon	12		mg C/L	P350403	
2017294	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.078		mg P/L	P350174	

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: Branwood Dr Pond @ Center

Collection Date/Time: 08/14/2018 13:40

Field ID: G2SW0074

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2017289	EPA 180.1 Rev. 2.0	Turbidity	6.9		NTU	P350170	
	EPA 300.0 Rev. 2.1	Chloride	42		mg Cl/L	P350568	
		Sulfate	28		mg SO4/L	P350570	
	SM 2120 B	Color (true)	26	A	PCU	P350179	
	SM 2320 B-97	Total Alkalinity	33		mg CaCO3/L	P350415	
	SM 2540 C-97	TDS	157		mg/L	P350772	
	SM 2540 D-97	TSS	7	I	mg/L	P350760	
	SM 4500 F-C-97	Fluoride	0.15		mg F/L	P350416	
2017292	EPA 350.1 Rev. 2.0	Ammonia-N	0.006		mg N/L	P350521	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.3		mg N/L	P350277	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P350524	
	EPA 365.1 Rev. 2.0	Total-P	0.035		mg P/L	P350507	
	SM 5310 B-00	Organic Carbon	12		mg C/L	P350403	
2017295	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P350174	

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: Field Blank_0814-2018

Collection Date/Time: 08/14/2018 11:20

Field ID: BLANK

Matrix: W-FIELD-BK

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2017290	EPA 180.1 Rev. 2.0	Turbidity	0.10	U	NTU	P350170	
	EPA 300.0 Rev. 2.1	Chloride	0.20	U	mg Cl/L	P350568	
		Sulfate	0.20	U	mg SO4/L	P350570	
	SM 2120 B	Color (true)	2.5	U	PCU	P350179	
	SM 2320 B-97	Total Alkalinity	0.65	U	mg CaCO3/L	P350423	
	SM 2540 C-97	TDS	15	U	mg/L	P350769	
	SM 2540 D-97	TSS	2	U	mg/L	P350757	
	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P350426	
2017293	EPA 350.1 Rev. 2.0	Ammonia-N	0.002	U	mg N/L	P350625	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.080	U	mg N/L	P350277	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P350524	
	EPA 365.1 Rev. 2.0	Total-P	0.002	U	mg P/L	P350507	
	SM 5310 B-00	Organic Carbon	0.50	U	mg C/L	P350403	
2017296	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P350174	

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: P350170

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P350568

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P350570

Component	Result	Code	Units
Sulfate	0.20	U	mg SO ₄ /L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P350521

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P350625

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P350277

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P350524

Component	Result	Code	Units
NO ₂ NO ₃ -N	0.004	U	mg N/L

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P350507

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P350174

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

Quality Assurance Report

Method Blank Results

Reference Method: SM 2120 B
Batch ID: P350178

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2120 B
Batch ID: P350179

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2320 B-97
Batch ID: P350415

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

Reference Method: SM 2320 B-97
Batch ID: P350423

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

Reference Method: SM 2540 C-97
Batch ID: P350769

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 C-97
Batch ID: P350772

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P350757

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P350760

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500 F-C-97
Batch ID: P350416

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Quality Assurance Report

Method Blank Results

Reference Method: SM 4500 F-C-97
Batch ID: P350426

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-00
Batch ID: P350403

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: P350568

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P350570

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P350521

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P350625

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P350277

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P350524

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
NO ₂ NO ₃ -N	102		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P350507

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total-P	93.4		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P350174

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
O-Phosphate-P	97.7		P	90 - 110

Reference Method: SM 2120 B
Batch ID: P350178

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Color (true)	99.2		P	85 - 115

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: SM 2120 B
Batch ID: P350179

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Color (true)	98.7		P	85 - 115

Reference Method: SM 2320 B-97
Batch ID: P350415

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	102		P	98 - 107

Reference Method: SM 2320 B-97
Batch ID: P350423

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

Reference Method: SM 4500 F-C-97
Batch ID: P350416

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	97.7		P	91 - 105

Reference Method: SM 4500 F-C-97
Batch ID: P350426

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	98.2		P	91 - 105

Reference Method: SM 5310 B-00
Batch ID: P350403

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	95.2		P	85 - 115

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P350568

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2017236	Chloride	95.4		P	90 - 110
2017336	Chloride	101		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P350570

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2017236	Sulfate	94.3		P	90 - 110
2017336	Sulfate	101		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P350521

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2017200	Ammonia-N	101	101	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P350625

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2017307	Ammonia-N	101	101	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P350277

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2017238	Kjeldahl Nitrogen	107	102	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P350524

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2017291	NO2NO3-N	102	104	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P350507

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2017239	Total-P	91.7	93.3	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P350174

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2017295	O-Phosphate-P	94.9	95.1	P/P	90 - 110

Reference Method: SM 4500 F-C-97
Batch ID: P350416

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2017137	Fluoride	97.5	96.4	P/P	91 - 105

Quality Assurance Report Matrix Spike Accuracy

Reference Method: SM 4500 F-C-97
Batch ID: P350426

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2017729	Fluoride	96.0	99.8	P/P	91 - 105

Reference Method: SM 5310 B-00
Batch ID: P350403

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2017194	Organic Carbon	102		P	85 - 115

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P350170

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2017198	Turbidity	6.84	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P350568

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2017236	Chloride	0.897	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P350570

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2017236	Sulfate	0.520	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P350521

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2017200	Ammonia-N	0.533	Spike	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P350625

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2017307	Ammonia-N	0.126	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P350277

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2017238	Kjeldahl Nitrogen	3.32	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P350524

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2017291	NO2NO3-N	2.42	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P350507

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2017239	Total-P	1.35	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P350174

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2017295	O-Phosphate-P	0.211	Spike	P	0 - 20

Reference Method: SM 2120 B
Batch ID: P350178

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2017189	Color (true)	3.88	Sample	P	0 - 20

Reference Method: SM 2120 B
Batch ID: P350179

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2017289	Color (true)	2.30	Sample	P	0 - 20

Reference Method: SM 2320 B-97
Batch ID: P350415

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2017137	Total Alkalinity	1.45	Sample	P	0 - 1.6

Reference Method: SM 2320 B-97
Batch ID: P350423

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2017729	Total Alkalinity	0.0870	Sample	P	0 - 1.6

Reference Method: SM 2540 C-97
Batch ID: P350769

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2017019	TDS	6.87	Sample	P	0 - 10

Reference Method: SM 2540 C-97
Batch ID: P350772

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2017237	TDS	3.81	Sample	P	0 - 10

Reference Method: SM 4500 F-C-97
Batch ID: P350416

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2017137	Fluoride	0.969	Spike	P	0 - 3.5

Quality Assurance Report Precision

Reference Method: SM 4500 F-C-97
Batch ID: P350426

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2017729	Fluoride	2.88	Spike	P	0 - 3.5

Reference Method: SM 5310 B-00
Batch ID: P350403

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2017194	Organic Carbon	1.55	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 180.1 Rev. 2.0

Run ID: A85898

Included Lab Sample IDs: 2017288, 2017289, 2017290

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved

Run ID: A85899

Included Lab Sample IDs: 2017294, 2017295, 2017296

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	99.2	99.3	P/P	90 - 110
O-Phosphate-P	99.3	99.2	P/P	90 - 110
O-Phosphate-P	99.3	99.3	P/P	90 - 110

Reference Method: SM 2120 B

Run ID: A85900

Included Lab Sample IDs: 2017288, 2017289, 2017290

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	97.4	98.4	P/P	90 - 115
Color (true)	98.4	99.6	P/P	90 - 115

Reference Method: SM 2320 B-97

Run ID: A85991

Included Lab Sample IDs: 2017288, 2017289

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

Reference Method: SM 4500 F-C-97

Run ID: A85991

Included Lab Sample IDs: 2017288, 2017289

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

Reference Method: SM 5310 B-00

Run ID: A85992

Included Lab Sample IDs: 2017291, 2017292, 2017293

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	96.0	96.6	P/P	90 - 110
Organic Carbon	96.4	96.0	P/P	90 - 110

Reference Method: SM 2320 B-97

Run ID: A85999

Included Lab Sample IDs: 2017290

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

Quality Assurance Report Calibration Verification

Reference Method: SM 4500 F-C-97

Run ID: A85999

Included Lab Sample IDs: 2017290

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: A86017

Included Lab Sample IDs: 2017291, 2017292, 2017293

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	107	105	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A86031

Included Lab Sample IDs: 2017291, 2017292

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

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A86032

Included Lab Sample IDs: 2017291, 2017292, 2017293

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO2NO3-N	100	101	P/P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1

Run ID: A86049

Included Lab Sample IDs: 2017288, 2017289, 2017290

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	102	105	P/P	90 - 110
Chloride	103	102	P/P	90 - 110
Sulfate	102	104	P/P	90 - 110
Sulfate	103	102	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A86052

Included Lab Sample IDs: 2017291

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

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A86058

Included Lab Sample IDs: 2017292, 2017293

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

Quality Assurance Report Calibration Verification

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A86067

Included Lab Sample IDs: 2017293

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	100	100	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					6.84	
EPA 300.0 Rev. 2.1	Chloride	104	95.4	101		0.897	
	Sulfate	103	94.3	101		0.520	
EPA 350.1 Rev. 2.0	Ammonia-N	99.5	101	101			0.533
	Ammonia-N	99.8	101	101			0.126
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	106	107	102			3.32
EPA 353.2 Rev. 2.0	NO ₂ NO ₃ -N	102	102	104			2.42
EPA 365.1 Rev. 2.0	Total-P	93.4	91.7	93.3			1.35
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	97.7	94.9	95.1			0.211
SM 2120 B	Color (true)	99.2				3.88	
	Color (true)	98.7				2.30	
SM 2320 B-97	Total Alkalinity	102				1.45	
	Total Alkalinity	103				0.0870	
SM 2540 C-97	TDS					6.87	
	TDS					3.81	
SM 4500 F-C-97	Fluoride	97.7	97.5	96.4			0.969
	Fluoride	98.2	96.0	99.8			2.88
SM 5310 B-00	Organic Carbon	95.2	102				1.55

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	2017288, 2017289, 2017290
EPA 300.0 Rev. 2.1 / E31780	Chloride in aqueous matrices	2017288, 2017289, 2017290
EPA 300.0 Rev. 2.1 / E31780	Sulfate in aqueous matrices	2017288, 2017289, 2017290
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	2017291, 2017292, 2017293
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	2017291, 2017292, 2017293
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	2017291, 2017292, 2017293
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	2017291, 2017292, 2017293
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	2017294, 2017295, 2017296
SM 2120 B / E31780	True Color measured at 450 nm	2017288, 2017289, 2017290
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO ₃ /L	2017288, 2017289, 2017290
SM 2540 C-97 / E31780	Total Dissolved Solids in aqueous matrices	2017288, 2017289, 2017290
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices using a maximum of 250 mL of sample	2017288, 2017289, 2017290
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	2017288, 2017289, 2017290
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	2017291, 2017292, 2017293

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	08/15/2018			08/15/2018 16:37	William L. Brown IV	2017288, 2017289, 2017290
EPA 300.0 Rev. 2.1	08/15/2018			08/20/2018 20:39	Lipi Saha	2017288
	08/15/2018			08/20/2018 21:15	Lipi Saha	2017289
	08/15/2018			08/20/2018 21:27	Lipi Saha	2017290
EPA 350.1 Rev. 2.0	08/15/2018			08/20/2018 12:40	Ping Hua	2017291
	08/15/2018			08/20/2018 12:42	Ping Hua	2017292
	08/15/2018			08/22/2018 11:38	Ping Hua	2017293
EPA 351.2 Rev. 2.0	08/15/2018	08/17/2018 08:11	Adrian Shelby	08/20/2018 14:25	Joseph Suarez	2017291
	08/15/2018	08/17/2018 08:11	Adrian Shelby	08/20/2018 14:27	Joseph Suarez	2017292
	08/15/2018	08/17/2018 08:11	Adrian Shelby	08/20/2018 14:28	Joseph Suarez	2017293
EPA 353.2 Rev. 2.0	08/15/2018			08/21/2018 12:13	Lauren Bottorf	2017291
	08/15/2018			08/21/2018 12:20	Lauren Bottorf	2017293
	08/15/2018			08/21/2018 12:24	Lauren Bottorf	2017292
EPA 365.1 Rev. 2.0	08/15/2018	08/21/2018 13:00	Sima Feizi	08/22/2018 08:54	Beverly Y. Sanders	2017291
	08/15/2018	08/21/2018 13:00	Sima Feizi	08/22/2018 10:57	Beverly Y. Sanders	2017293
	08/15/2018	08/21/2018 13:00	Sima Feizi	08/22/2018 10:58	Beverly Y. Sanders	2017292
EPA 365.1 Rev. 2.0 dissolved	08/15/2018			08/15/2018 16:42	Julia Storbeck	2017295
	08/15/2018			08/15/2018 16:54	Julia Storbeck	2017296
	08/15/2018			08/15/2018 17:12	Julia Storbeck	2017294
SM 2120 B	08/15/2018			08/15/2018 17:08	Tanya Welborn	2017288
	08/15/2018			08/15/2018 17:13	Tanya Welborn	2017289
	08/15/2018			08/15/2018 17:14	Tanya Welborn	2017290
SM 2320 B-97	08/15/2018			08/17/2018 03:10	Dale L. Simmons	2017288
	08/15/2018			08/17/2018 03:20	Dale L. Simmons	2017289
	08/15/2018			08/17/2018 23:49	Dale L. Simmons	2017290
SM 2540 C-97	08/15/2018			08/17/2018 15:46	Yijie Li	2017288, 2017289, 2017290
SM 2540 D-97	08/15/2018			08/17/2018 15:46	Yijie Li	2017288, 2017289, 2017290
SM 4500 F-C-97	08/15/2018			08/17/2018 03:10	Dale L. Simmons	2017288
	08/15/2018			08/17/2018 03:20	Dale L. Simmons	2017289
	08/15/2018			08/17/2018 23:49	Dale L. Simmons	2017290
SM 5310 B-00	08/15/2018			08/18/2018 11:21	Megan Treadwell	2017291
	08/15/2018			08/18/2018 12:01	Megan Treadwell	2017292
	08/15/2018			08/18/2018 12:14	Megan Treadwell	2017293