

Chemical Analysis Report

SW-DIST-2018-12-12-01

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

Event Description: **Double and Woods**
Request ID: **RQ-2018-12-10-11**
Customer: **SW-DIST**
Project ID: **SMP**

Send Reports to:
FL Dept. of Environmental Protection
FL Dept. of Environmental Protection
13051 N. Telecom Parkway
Temple Terrace, FL 33637-0926
Attn: Sarah Meyer

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

Certified by: Thekkekalathil Chandrasekhar, Chemist Administrator

Date Certified: 07-JAN-2019 15:26



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: DOUBLE BRANCH @ STATE ST

Collection Date/Time: 12/11/2018 09:35

Field ID: G1SW0088

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2048099	EPA 180.1 Rev. 2.0	Turbidity	34	A	NTU	P356062	
	SM 2320 B-97	Total Alkalinity	87		mg CaCO3/L	P356140	
	SM 2540 D-97	TSS	167		mg/L	P356482	
	SM 4500 F-C-97	Fluoride	0.19		mg F/L	P356141	
2048101	EPA 350.1 Rev. 2.0	Ammonia-N	0.041		mg N/L	P356438	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.1		mg N/L	P356095	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.046		mg N/L	P356239	
	EPA 365.1 Rev. 2.0	Total-P	0.16		mg P/L	P356229	
	SM 5310 B-00	Organic Carbon	17		mg C/L	P356143	
2048103	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.046		mg P/L	P356055	

Ref. Method and Comment:

SM 2540 D-97: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample. The result was confirmed on 12/28/2018.

Sample Location: WOODS CREEK @ SLOW SPEED SIGN

Collection Date/Time: 12/11/2018 10:40

Field ID: G1SW0087

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2048100	EPA 180.1 Rev. 2.0	Turbidity	2.3		NTU	P356062	
	SM 2320 B-97	Total Alkalinity	103	A	mg CaCO3/L	P356592	
	SM 2540 D-97	TSS	3	I	mg/L	P356483	
	SM 4500 F-C-97	Fluoride	0.73		mg F/L	P356322	
2048102	EPA 350.1 Rev. 2.0	Ammonia-N	0.074		mg N/L	P356255	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.68		mg N/L	P356248	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.057		mg N/L	P356324	
	EPA 365.1 Rev. 2.0	Total-P	0.12		mg P/L	P356232	
	SM 5310 B-00	Organic Carbon	5.1		mg C/L	P356146	
2048104	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.091	Q	mg P/L	P356345	

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 dissolved: O-Phosphate-P: The sample was reanalyzed out of holding time due to analytical difficulties.

Quality Assurance Report

Method Blank Results

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P356062

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P356255

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P356438

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P356095

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P356248

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P356239

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P356324

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P356229

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P356232

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

Quality Assurance Report Method Blank Results

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P356055

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P356345

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

Reference Method: SM 2320 B-97
Batch ID: P356140

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

Reference Method: SM 2320 B-97
Batch ID: P356592

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

Reference Method: SM 2540 D-97
Batch ID: P356482

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P356483

Component	Result	Code	Units
TSS	3	U	mg/L

Reference Method: SM 4500 F-C-97
Batch ID: P356141

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 4500 F-C-97
Batch ID: P356322

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-00
Batch ID: P356143

Component	Result	Code	Units
Organic Carbon	0.50	U	mg C/L

Quality Assurance Report

Method Blank Results

Reference Method: SM 5310 B-00
Batch ID: P356146

Component	Result	Code	Units
Organic Carbon	0.50	U	mg C/L

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P356255

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P356438

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Ammonia-N	98.8		P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P356095

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P356248

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P356239

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P356324

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P356229

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P356232

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: P356055

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

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P356345

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
O-Phosphate-P	96.9		P	90 - 110

Reference Method: SM 2320 B-97
Batch ID: P356140

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

Reference Method: SM 2320 B-97
Batch ID: P356592

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	100		P	98 - 107

Reference Method: SM 4500 F-C-97
Batch ID: P356141

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

Reference Method: SM 4500 F-C-97
Batch ID: P356322

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	98.1		P	92 - 103

Reference Method: SM 5310 B-00
Batch ID: P356143

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

Reference Method: SM 5310 B-00
Batch ID: P356146

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	93.0		P	85 - 115

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P356255

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2047700	Ammonia-N	97.1	99.9	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P356438

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2048197	Ammonia-N	94.9	103	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P356095

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2048026	Kjeldahl Nitrogen	109	106	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P356248

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2048084	Kjeldahl Nitrogen	108	97.7	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P356239

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2047869	NO2NO3-N	100	99.9	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P356324

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2048081	NO2NO3-N	100		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P356229

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2048045	Total-P	108	102	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P356232

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2048082	Total-P	96.2	97.4	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P356055

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2048031	O-Phosphate-P	93.5	95.8	P/P	90 - 110

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P356345

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2048104	O-Phosphate-P	94.4	97.1	P/P	90 - 110

Reference Method: SM 4500 F-C-97
Batch ID: P356141

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2048022	Fluoride	99.5	100	P/P	91 - 105

Reference Method: SM 4500 F-C-97
Batch ID: P356322

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2048100	Fluoride	96.7	98.6	P/P	91 - 105

Reference Method: SM 5310 B-00
Batch ID: P356143

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2048023	Organic Carbon	103	101	P/P	85 - 115

Reference Method: SM 5310 B-00
Batch ID: P356146

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2048081	Organic Carbon	97.4	94.2	P/P	85 - 115

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P356062

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2048099	Turbidity	1.74	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P356255

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2047700	Ammonia-N	1.49	Spike	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P356438

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2048197	Ammonia-N	4.66	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P356095

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2048026	Kjeldahl Nitrogen	2.64	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P356248

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2048084	Kjeldahl Nitrogen	9.00	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P356239

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2047869	NO2NO3-N	0.423	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P356324

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2048081	NO2NO3-N	0.471	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P356229

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2048045	Total-P	5.11	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P356232

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2048082	Total-P	1.20	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P356055

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2048031	O-Phosphate-P	1.99	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P356345

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2048104	O-Phosphate-P	1.45	Spike	P	0 - 20

Reference Method: SM 2320 B-97
Batch ID: P356140

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2048022	Total Alkalinity	0.125	Sample	P	0 - 1.6

Reference Method: SM 2320 B-97
Batch ID: P356592

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2048100	Total Alkalinity	0.117	Sample	P	0 - 1.6

Reference Method: SM 4500 F-C-97
Batch ID: P356141

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2048022	Fluoride	0.467	Spike	P	0 - 3.5

Reference Method: SM 4500 F-C-97
Batch ID: P356322

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2048100	Fluoride	1.41	Spike	P	0 - 3.0

Reference Method: SM 5310 B-00
Batch ID: P356143

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2048023	Organic Carbon	1.86	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: SM 5310 B-00
Batch ID: P356146

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2048081	Organic Carbon	3.19	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: A88313

Included Lab Sample IDs: 2048103

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

Reference Method: EPA 180.1 Rev. 2.0

Run ID: A88316

Included Lab Sample IDs: 2048099, 2048100

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

Reference Method: SM 2320 B-97

Run ID: A88341

Included Lab Sample IDs: 2048099

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	98.9	101	P/P	90 - 110

Reference Method: SM 4500 F-C-97

Run ID: A88341

Included Lab Sample IDs: 2048099

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	97.7	98.6	P/P	90 - 110

Reference Method: SM 5310 B-00

Run ID: A88343

Included Lab Sample IDs: 2048101, 2048102

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	100	92.3	P/P	90 - 110
Organic Carbon	96.0	95.1	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A88358

Included Lab Sample IDs: 2048101

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	105	99.8	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A88385

Included Lab Sample IDs: 2048101

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

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A88389

Included Lab Sample IDs: 2048102

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

Quality Assurance Report Calibration Verification

Reference Method: SM 4500 F-C-97

Run ID: A88410

Included Lab Sample IDs: 2048100

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	99.1	100	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A88411

Included Lab Sample IDs: 2048102

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

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A88412

Included Lab Sample IDs: 2048102

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved

Run ID: A88415

Included Lab Sample IDs: 2048104

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

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A88429

Included Lab Sample IDs: 2048101, 2048102

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

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A88457

Included Lab Sample IDs: 2048101

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

Reference Method: SM 2320 B-97

Run ID: A88518

Included Lab Sample IDs: 2048100

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	98.6	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					1.74	
EPA 350.1 Rev. 2.0	Ammonia-N	99.3	97.1	99.9			1.49
	Ammonia-N	98.8	94.9	103			4.66
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	102	109	106			2.64
	Kjeldahl Nitrogen	103	108	97.7			9.00
EPA 353.2 Rev. 2.0	NO2NO3-N	98.5	100	99.9			0.423
	NO2NO3-N	99.5	100				0.471
EPA 365.1 Rev. 2.0	Total-P	101	108	102			5.11
	Total-P	106	96.2	97.4			1.20
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	96.8	93.5	95.8			1.99
	O-Phosphate-P	96.9	94.4	97.1			1.45
SM 2320 B-97	Total Alkalinity	101				0.125	
	Total Alkalinity	100				0.117	
SM 4500 F-C-97	Fluoride	98.3	99.5	100			0.467
	Fluoride	98.1	96.7	98.6			1.41
SM 5310 B-00	Organic Carbon	97.2	103	101			1.86
	Organic Carbon	93.0	97.4	94.2			3.19

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	2048099, 2048100
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	2048101, 2048102
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	2048101, 2048102
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	2048101, 2048102
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	2048101, 2048102
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	2048103, 2048104
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO3/L	2048099, 2048100
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices using a maximum of 250 mL of sample	2048099, 2048100
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	2048099, 2048100
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	2048101, 2048102

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	12/12/2018			12/12/2018 17:07	Megan Treadwell	2048099, 2048100
EPA 350.1 Rev. 2.0	12/12/2018			12/14/2018 12:05	Ping Hua	2048102
	12/12/2018			12/18/2018 12:36	Ping Hua	2048101
EPA 351.2 Rev. 2.0	12/12/2018	12/13/2018 12:30	Adrian Shelby	12/14/2018 12:19	Chelsea Hernandez	2048101
	12/12/2018	12/17/2018 14:00	Adrian Shelby	12/18/2018 11:48	Chelsea Hernandez	2048102
EPA 353.2 Rev. 2.0	12/12/2018			12/17/2018 10:50	Beverly Y. Sanders	2048101
	12/12/2018			12/18/2018 12:23	Lauren Bottorf	2048102
EPA 365.1 Rev. 2.0	12/12/2018	12/17/2018 11:45	Sima Feizi	12/18/2018 15:10	Beverly Y. Sanders	2048101
	12/12/2018	12/17/2018 11:45	Sima Feizi	12/18/2018 16:04	Beverly Y. Sanders	2048102
EPA 365.1 Rev. 2.0 dissolved	12/12/2018			12/12/2018 17:00	Jhamieka S. Greenwood	2048103
	12/12/2018			12/18/2018 14:36	Jhamieka S. Greenwood	2048104
SM 2320 B-97	12/12/2018			12/13/2018 18:52	Lauren Bottorf	2048099
	12/12/2018			12/21/2018 00:56	Dale L. Simmons	2048100
SM 2540 D-97	12/12/2018			12/13/2018 23:45	Yijie Li	2048099, 2048100
SM 4500 F-C-97	12/12/2018			12/13/2018 18:52	Lauren Bottorf	2048099
	12/12/2018			12/18/2018 09:02	Lauren Bottorf	2048100
SM 5310 B-00	12/12/2018			12/13/2018 05:49	Megan Treadwell	2048101
	12/12/2018			12/14/2018 06:48	Megan Treadwell	2048102