

Chemical Analysis Report

SW-DIST-2018-11-29-01

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

Event Description: **Neff, Tooke, Thomas**

Request ID: **RQ-2018-11-05-06**

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: Ben Paswater

For additional information please contact

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Certified by: Colin Wright, Program Administrator

Date Certified: 18-DEC-2018 11:19



NON-CONFORMANCE REPORT INCLUDED

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: NEFF CENTER

Collection Date/Time: 11/28/2018 10:30

Field ID: G4SW0087

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2044574	EPA 180.1 Rev. 2.0	Turbidity	2.3		NTU	P355352	
	EPA 300.0 Rev. 2.1	Chloride	6.6		mg Cl/L	P355697	
		Sulfate	0.50	I	mg SO4/L	P355699	
	SM 2120 B	Color (true)	180		PCU	P355391	
	SM 2320 B-97	Total Alkalinity	23		mg CaCO3/L	P355560	
	SM 2540 C-97	TDS	60		mg/L	P355727	
	SM 2540 D-97	TSS	3	I	mg/L	P355821	
	SM 4500 F-C-97	Fluoride	0.069	I	mg F/L	P355563	
2044577	EPA 350.1 Rev. 2.0	Ammonia-N	0.11		mg N/L	P355590	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.2		mg N/L	P355402	MS
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.11		mg N/L	P355381	
	EPA 365.1 Rev. 2.0	Total-P	0.075		mg P/L	P355407	
	SM 5310 B-00	Organic Carbon	18		mg C/L	P355515	
2044580	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.030		mg P/L	P355340	

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: TOOKE LAKE NORTH

Collection Date/Time: 11/28/2018 11:55

Field ID: G5SW0122

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2044575	EPA 180.1 Rev. 2.0	Turbidity	1.7		NTU	P355352	
	EPA 300.0 Rev. 2.1	Chloride	5.6		mg Cl/L	P355697	
		Sulfate	3.0		mg SO4/L	P355699	
	SM 2120 B	Color (true)	26		PCU	P355391	
	SM 2320 B-97	Total Alkalinity	6.1		mg CaCO3/L	P355560	
	SM 2540 C-97	TDS	37		mg/L	P355727	
	SM 2540 D-97	TSS	3	I	mg/L	P355821	
	SM 4500 F-C-97	Fluoride	0.039	I	mg F/L	P355563	
	EPA 350.1 Rev. 2.0	Ammonia-N	0.004	I	mg N/L	P355590	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.80		mg N/L	P355402	MS
2044578	EPA 353.2 Rev. 2.0	NO2NO3-N	0.007	I	mg N/L	P355381	
	EPA 365.1 Rev. 2.0	Total-P	0.007		mg P/L	P355407	
	SM 5310 B-00	Organic Carbon	9.2		mg C/L	P355515	
	EPA 365.1 Rev. 2.0	O-Phosphate-P	0.004	U	mg P/L	P355340	
	dissolved						

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_11/28/2018

Collection Date/Time: 11/28/2018 14:40

Field ID: BLANK

Matrix: W-FIELD-BK

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2044576	EPA 180.1 Rev. 2.0	Turbidity	0.10	U	NTU	P355352	
	EPA 300.0 Rev. 2.1	Chloride	0.20	U	mg Cl/L	P355697	
		Sulfate	0.20	U	mg SO4/L	P355699	
		Color (true)	2.5	U	PCU	P355391	
	SM 2320 B-97	Total Alkalinity	0.65	U	mg CaCO3/L	P355560	
	SM 2540 C-97	TDS	15	U	mg/L	P355725	
	SM 2540 D-97	TSS	2	U	mg/L	P355819	
	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P355563	
2044579	EPA 350.1 Rev. 2.0	Ammonia-N	0.002	UY	mg N/L	P355592	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.080	UY	mg N/L	P355403	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	UY	mg N/L	P355381	
	EPA 365.1 Rev. 2.0	Total-P	0.002	UY	mg P/L	P355407	
	SM 5310 B-00	Organic Carbon	0.50	UY	mg C/L	P355515	
2044582	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P355340	

Ref. Method and Comment:

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

EPA 350.1 Rev. 2.0: The sample was received unpreserved: pH > 2. Sample preserved in laboratory.

EPA 351.2 Rev. 2.0: The sample was received unpreserved: pH > 2. Sample preserved in laboratory.

EPA 353.2 Rev. 2.0: The sample was received unpreserved: pH > 2. Sample preserved in laboratory.

EPA 365.1 Rev. 2.0: Total-P: The sample was received unpreserved: pH > 2. Sample preserved in laboratory.

SM 5310 B-00: The sample was received unpreserved: pH > 2. Sample preserved in laboratory.

Non-Conformance Report

NCR ID: 7358

Event(s)

SW-DIST-2018-11-29-01

Job(s)

TLH-2018-11-29-17

Sample(s)

2044579

Test(s)

NCR Type: SHIPPING/RECEIVING

NCR Category: Preservation Not Intact

Observation: Sample not preserved to pH < 2.

Resolution: Sample preserved in the laboratory with sulfuric acid.
H2SO4 Lot# SA8101020 | Expiration Date: 04/11/2019

Authorized by/Date: Joshua Ayres 12/3/2018

The Non-Conformance Report details exceptions or problems encountered with the events/jobs/samples/test.
Please address questions to:

Chemistry	Colin Wright	(850) 245-8085
Biology	Cheryl Swanson	(850) 245-8177

Quality Assurance Report Method Blank Results

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P355352

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P355697

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P355699

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P355590

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P355592

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P355402

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P355403

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P355381

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: P355407

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: P355340

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

Reference Method: SM 2120 B
Batch ID: P355391

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2320 B-97
Batch ID: P355560

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

Reference Method: SM 2540 C-97
Batch ID: P355725

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 C-97
Batch ID: P355727

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P355819

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P355821

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500 F-C-97
Batch ID: P355563

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-00
Batch ID: P355515

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: P355697

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Chloride	99.4		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P355699

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P355590

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Ammonia-N	99.0		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P355592

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P355402

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P355403

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: P355381

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: P355407

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P355340

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

Quality Assurance Report

Laboratory Control Sample Accuracy

Reference Method: SM 2120 B
Batch ID: P355391

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Color (true)	102		P	85 - 115

Reference Method: SM 2320 B-97
Batch ID: P355560

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	98.7		P	98 - 107

Reference Method: SM 4500 F-C-97
Batch ID: P355563

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	97.2		P	91 - 105

Reference Method: SM 5310 B-00
Batch ID: P355515

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	96.2		P	85 - 115

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
 Batch ID: P355697

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2044613	Chloride	96.1		P	90 - 110
2044657	Chloride	96.9		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
 Batch ID: P355699

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2044613	Sulfate	99.4		P	90 - 110
2044657	Sulfate	98.1		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
 Batch ID: P355590

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2044328	Ammonia-N	100	100	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
 Batch ID: P355592

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2044619	Ammonia-N	98.2	99.1	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
 Batch ID: P355402

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2044473	Kjeldahl Nitrogen	111	107	F/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
 Batch ID: P355403

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2044614	Kjeldahl Nitrogen	102	102	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
 Batch ID: P355381

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2044531	NO2NO3-N	101	101	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
 Batch ID: P355407

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2044614	Total-P	104	102	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
 Batch ID: P355340

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2044321	O-Phosphate-P	96.0	97.7	P/P	90 - 110

Quality Assurance Report Matrix Spike Accuracy

Reference Method: SM 4500 F-C-97
Batch ID: P355563

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2043988	Fluoride	100	99.7	P/P	91 - 105

Reference Method: SM 5310 B-00
Batch ID: P355515

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2044577	Organic Carbon	99.1	94.2	P/P	85 - 115

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P355352

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2044618	Turbidity	14.7	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P355697

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2044613	Chloride	0.103	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P355699

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2044613	Sulfate	0.893	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P355590

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2044328	Ammonia-N	0.166	Spike	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P355592

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2044619	Ammonia-N	0.636	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P355402

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2044473	Kjeldahl Nitrogen	3.38	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P355403

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2044614	Kjeldahl Nitrogen	0.386	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P355381

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2044531	NO2NO3-N	0.0	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P355407

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2044614	Total-P	1.75	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P355340

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2044321	O-Phosphate-P	1.16	Spike	P	0 - 20

Reference Method: SM 2120 B
Batch ID: P355391

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2044613	Color (true)	2.28	Sample	P	0 - 20

Reference Method: SM 2320 B-97
Batch ID: P355560

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2043988	Total Alkalinity	0.379	Sample	P	0 - 1.6

Reference Method: SM 2540 C-97
Batch ID: P355725

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2043892	TDS	2.18	Sample	P	0 - 10

Reference Method: SM 2540 C-97
Batch ID: P355727

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2044067	TDS	3.19	Sample	P	0 - 10

Reference Method: SM 4500 F-C-97
Batch ID: P355563

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2043988	Fluoride	0.470	Spike	P	0 - 3.5

Reference Method: SM 5310 B-00
Batch ID: P355515

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2044577	Organic Carbon	2.63	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 365.1 Rev. 2.0 dissolved

Run ID: A88047

Included Lab Sample IDs: 2044580, 2044581, 2044582

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	100	99.9	P/P	90 - 110
O-Phosphate-P	99.7	99.6	P/P	90 - 110
O-Phosphate-P	99.9	99.7	P/P	90 - 110

Reference Method: EPA 180.1 Rev. 2.0

Run ID: A88051

Included Lab Sample IDs: 2044574, 2044575, 2044576

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

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A88055

Included Lab Sample IDs: 2044577, 2044578, 2044579

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

Reference Method: SM 2120 B

Run ID: A88059

Included Lab Sample IDs: 2044574, 2044575, 2044576

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	102	103	P/P	90 - 115
Color (true)	103	102	P/P	90 - 115

Reference Method: SM 5310 B-00

Run ID: A88116

Included Lab Sample IDs: 2044577, 2044578, 2044579

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	93.5	98.0	P/P	90 - 110
Organic Carbon	98.0	97.0	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A88120

Included Lab Sample IDs: 2044577, 2044578, 2044579

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	105	97.2	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A88125

Included Lab Sample IDs: 2044577

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

Quality Assurance Report Calibration Verification

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A88130

Included Lab Sample IDs: 2044578, 2044579

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

Reference Method: SM 2320 B-97

Run ID: A88134

Included Lab Sample IDs: 2044574, 2044575, 2044576

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	101	98.7	P/P	90 - 110

Reference Method: SM 4500 F-C-97

Run ID: A88134

Included Lab Sample IDs: 2044574, 2044575, 2044576

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

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A88149

Included Lab Sample IDs: 2044577, 2044578, 2044579

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

Reference Method: EPA 300.0 Rev. 2.1

Run ID: A88194

Included Lab Sample IDs: 2044574, 2044575, 2044576

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	101	101	P/P	90 - 110
Chloride	101	100	P/P	90 - 110
Sulfate	102	101	P/P	90 - 110
Sulfate	102	102	P/P	90 - 110

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

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

Where they are different, both control limits are provided.

Quality Assurance Report Summary

Ref. Method	Analyte	LCS % Recovery	MS % Recovery		Precision	
					LCS	MS
EPA 180.1 Rev. 2.0	Turbidity				14.7	
EPA 300.0 Rev. 2.1	Chloride	99.4	96.1	96.9	0.103	
	Sulfate	99.8	99.4	98.1	0.893	
EPA 350.1 Rev. 2.0	Ammonia-N	99.0	100	100		0.166
	Ammonia-N	96.9	98.2	99.1		0.636
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	103	111	107		3.38
	Kjeldahl Nitrogen	106	102	102		0.386
EPA 353.2 Rev. 2.0	NO2NO3-N	100	101	101		0.0
EPA 365.1 Rev. 2.0	Total-P	104	104	102		1.75
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	97.1	96.0	97.7		1.16
SM 2120 B	Color (true)	102			2.28	
SM 2320 B-97	Total Alkalinity	98.7			0.379	
SM 2540 C-97	TDS				2.18	
	TDS				3.19	
SM 4500 F-C-97	Fluoride	97.2	100	99.7		0.470
SM 5310 B-00	Organic Carbon	96.2	99.1	94.2		2.63

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	2044574, 2044575, 2044576
EPA 300.0 Rev. 2.1 / E31780	Chloride in aqueous matrices	2044574, 2044575, 2044576
EPA 300.0 Rev. 2.1 / E31780	Sulfate in aqueous matrices	2044574, 2044575, 2044576
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	2044577, 2044578, 2044579
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	2044577, 2044578, 2044579
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	2044577, 2044578, 2044579
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	2044577, 2044578, 2044579
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	2044580, 2044581, 2044582
SM 2120 B / E31780	True Color measured at 450 nm	2044574, 2044575, 2044576
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO3/L	2044574, 2044575, 2044576
SM 2540 C-97 / E31780	Total Dissolved Solids in aqueous matrices	2044574, 2044575, 2044576
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices using a maximum of 250 mL of sample	2044574, 2044575, 2044576
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	2044574, 2044575, 2044576
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	2044577, 2044578, 2044579

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	11/29/2018			11/29/2018 17:05	Megan Treadwell	2044574, 2044575, 2044576
EPA 300.0 Rev. 2.1	11/29/2018			12/05/2018 22:33	Lipi Saha	2044574
	11/29/2018			12/05/2018 22:45	Lipi Saha	2044575
	11/29/2018			12/05/2018 23:22	Lipi Saha	2044576
EPA 350.1 Rev. 2.0	11/29/2018			12/04/2018 12:45	Ping Hua	2044577
	11/29/2018			12/04/2018 12:47	Ping Hua	2044578
	11/29/2018			12/04/2018 13:47	Ping Hua	2044579
EPA 351.2 Rev. 2.0	11/29/2018	11/30/2018 12:15	Adrian Shelby	12/04/2018 10:02	Joseph Suarez	2044577
	11/29/2018	11/30/2018 12:15	Adrian Shelby	12/04/2018 10:04	Joseph Suarez	2044578
	11/29/2018	11/30/2018 12:15	Adrian Shelby	12/04/2018 10:12	Joseph Suarez	2044579
EPA 353.2 Rev. 2.0	11/29/2018			11/30/2018 10:55	Beverly Y. Sanders	2044579
	11/29/2018			11/30/2018 10:58	Beverly Y. Sanders	2044577
	11/29/2018			11/30/2018 10:59	Beverly Y. Sanders	2044578
EPA 365.1 Rev. 2.0	11/29/2018	11/30/2018 13:35	Sima Feizi	12/03/2018 12:47	Beverly Y. Sanders	2044577
	11/29/2018	11/30/2018 13:35	Sima Feizi	12/03/2018 15:52	Beverly Y. Sanders	2044578
	11/29/2018	11/30/2018 13:35	Sima Feizi	12/03/2018 15:53	Beverly Y. Sanders	2044579
EPA 365.1 Rev. 2.0 dissolved	11/29/2018			11/29/2018 17:07	Jhamieka S. Greenwood	2044581
	11/29/2018			11/29/2018 17:14	Jhamieka S. Greenwood	2044580
	11/29/2018			11/29/2018 17:25	Jhamieka S. Greenwood	2044582
SM 2120 B	11/29/2018			11/29/2018 15:38	Chelsea Hernandez	2044575, 2044576
	11/29/2018			11/29/2018 16:14	Chelsea Hernandez	2044574
SM 2320 B-97	11/29/2018			12/04/2018 09:01	Dale L. Simmons	2044574
	11/29/2018			12/04/2018 09:13	Dale L. Simmons	2044575
	11/29/2018			12/04/2018 09:27	Dale L. Simmons	2044576
SM 2540 C-97	11/29/2018			11/30/2018 16:02	Yijie Li	2044574, 2044575, 2044576
SM 2540 D-97	11/29/2018			11/30/2018 16:02	Yijie Li	2044574, 2044575, 2044576
SM 4500 F-C-97	11/29/2018			12/04/2018 09:01	Dale L. Simmons	2044574
	11/29/2018			12/04/2018 09:13	Dale L. Simmons	2044575
	11/29/2018			12/04/2018 09:27	Dale L. Simmons	2044576
SM 5310 B-00	11/29/2018			12/03/2018 08:55	Megan Treadwell	2044577
	11/29/2018			12/03/2018 10:15	Megan Treadwell	2044578
	11/29/2018			12/03/2018 10:27	Megan Treadwell	2044579