

Chemical Analysis Report

NW-DIST-2016-12-07-01

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

Event Description: **East Lake Run WBID 204A 283 61A**
Request ID: **RQ-2016-11-28-09**
Customer: **NW-DIST**
Project ID: **SMP**

Send Reports to:
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160 W Government St
Suite 208A
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Certified by: Colin Wright, Program Administrator

Date Certified: 29-DEC-2016 10:04

A handwritten signature in black ink, appearing to read "Colin Wright", is written on a light-colored rectangular 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: Sand Hammock Pond Center

Collection Date/Time: 12/06/2016 13:50

Field ID: G3NW0077

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1855602	EPA 180.1 Rev. 2.0	Turbidity	1.6		NTU	P316353	
	EPA 300.0 Rev. 2.1	Chloride	3.4		mg Cl/L	P316907	
		Sulfate	0.21	I	mg SO4/L	P316904	
	SM 2120 B	Color (true)	26		PCU	P316388	
	SM 2320 B-97	Total Alkalinity	3.4		mg CaCO3/L	P316631	
	SM 2540 C-97	TDS	21	I	mg/L	P316920	
	SM 2540 D-97	TSS	3	I	mg/L	P316838	
	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P316635	
1855607	EPA 350.1 Rev. 2.0	Ammonia-N	0.078		mg N/L	P316798	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.39		mg N/L	P316911	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.012		mg N/L	P316594	
	EPA 365.1 Rev. 2.0	Total-P	0.014		mg P/L	P316499	
	SM 5310 B-00	Organic Carbon	4.2		mg C/L	P316489	
1855612	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.006	I	mg P/L	P316351	

Ref. Method and Comment:

EPA 300.0 Rev. 2.1: Sulfate: Batch relative percent difference is unavailable because of low 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.

Sample Location: Sand Hammock Pond Center

Collection Date/Time: 12/06/2016 13:55

Field ID: G3NW0077DUPLICATE

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1855603	EPA 180.1 Rev. 2.0	Turbidity	1.7		NTU	P316353	
	EPA 300.0 Rev. 2.1	Chloride	3.3		mg Cl/L	P316907	
		Sulfate	0.21	I	mg SO4/L	P316904	
	SM 2120 B	Color (true)	25		PCU	P316388	
	SM 2320 B-97	Total Alkalinity	3.5		mg CaCO3/L	P316631	
	SM 2540 C-97	TDS	19	I	mg/L	P316920	
	SM 2540 D-97	TSS	4	I	mg/L	P316838	
	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P316635	
1855608	EPA 350.1 Rev. 2.0	Ammonia-N	0.077		mg N/L	P316798	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.36		mg N/L	P316911	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.011		mg N/L	P316594	
	EPA 365.1 Rev. 2.0	Total-P	0.013		mg P/L	P316499	
	SM 5310 B-00	Organic Carbon	4.2		mg C/L	P316489	
1855613	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P316351	

Ref. Method and Comment:

EPA 300.0 Rev. 2.1: Sulfate: Batch relative percent difference is unavailable because of low 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.

Sample Location: FIELD BLANK

Collection Date/Time: 12/06/2016 14:05

Field ID: FIELD BLANK

Matrix: W-FIELD-BK

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1855604	EPA 180.1 Rev. 2.0	Turbidity	0.10	U	NTU	P316353	

Field ID: FIELD BLANK

Matrix: W-FIELD-BK

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1855604	EPA 300.0 Rev. 2.1	Chloride	0.20	U	mg Cl/L	P316907	
		Sulfate	0.20	U	mg SO4/L	P316904	
	SM 2120 B	Color (true)	2.5	U	PCU	P316388	
	SM 2320 B-97	Total Alkalinity	0.65	U	mg CaCO3/L	P316631	
	SM 2540 C-97	TDS	15	U	mg/L	P316919	
	SM 2540 D-97	TSS	2	U	mg/L	P316837	
	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P316635	
1855609	EPA 350.1 Rev. 2.0	Ammonia-N	0.004	I	mg N/L	P317036	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.080	U	mg N/L	P316911	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P316594	
	EPA 365.1 Rev. 2.0	Total-P	0.002	I	mg P/L	P316499	
	SM 5310 B-00	Organic Carbon	0.70	I	mg C/L	P316489	
1855614	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.006	I	mg P/L	P316351	

Ref. Method and Comment:

EPA 300.0 Rev. 2.1: Sulfate: Batch relative percent difference is unavailable because of low 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 350.1 Rev. 2.0: The result was confirmed on 12/19/2016.

EPA 365.1 Rev. 2.0: Total-P: The result was confirmed on 12/19/2016.

SM 5310 B-00: The result was confirmed on 12/9/2016.

EPA 365.1 Rev. 2.0 dissolved: O-Phosphate-P: The result was confirmed on 12/07/2016.

Sample Location: Blue Pond Center

Collection Date/Time: 12/06/2016 15:15

Field ID: G3NW0070

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1855605	EPA 180.1 Rev. 2.0	Turbidity	1.4		NTU	P316353	
	EPA 300.0 Rev. 2.1	Chloride	2.7		mg Cl/L	P316907	
		Sulfate	0.94		mg SO4/L	P316904	
	SM 2120 B	Color (true)	8.6		PCU	P316388	
	SM 2320 B-97	Total Alkalinity	0.65	U	mg CaCO3/L	P316631	
	SM 2540 C-97	TDS	15	U	mg/L	P316920	
	SM 2540 D-97	TSS	2	U	mg/L	P316838	
1855610	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P316635	
	EPA 350.1 Rev. 2.0	Ammonia-N	0.018		mg N/L	P317036	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.20	I	mg N/L	P316911	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.009	I	mg N/L	P316594	
	EPA 365.1 Rev. 2.0	Total-P	0.008		mg P/L	P316499	
1855615	SM 5310 B-00	Organic Carbon	2.8		mg C/L	P316489	
	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P316351	

Ref. Method and Comment:

EPA 300.0 Rev. 2.1: Sulfate: Batch relative percent difference is unavailable because of low 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.

Sample Location: Juniper Lake NE of Defuniak

Collection Date/Time: 12/06/2016 16:15

Field ID: G3NW0119

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1855606	EPA 180.1 Rev. 2.0	Turbidity	0.35		NTU	P316354	

Field ID: G3NW0119 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1855606	EPA 300.0 Rev. 2.1	Chloride	5.3		mg Cl/L	P316907	
		Sulfate	0.89		mg SO4/L	P316904	
	SM 2120 B	Color (true)	13		PCU	P316389	
	SM 2320 B-97	Total Alkalinity	1.3	I	mg CaCO3/L	P316631	
	SM 2540 C-97	TDS	16	I	mg/L	P316920	
	SM 2540 D-97	TSS	2	U	mg/L	P316838	
	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P316635	
1855611	EPA 350.1 Rev. 2.0	Ammonia-N	0.007		mg N/L	P317036	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.32		mg N/L	P316911	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	I	mg N/L	P316595	
	EPA 365.1 Rev. 2.0	Total-P	0.006		mg P/L	P316499	
	SM 5310 B-00	Organic Carbon	4.3		mg C/L	P316489	
1855616	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P316351	

Ref. Method and Comment:
 EPA 300.0 Rev. 2.1: Sulfate: Batch relative percent difference is unavailable because of low 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.

Quality Assurance Report

Method Blank Results

Reference Method: EPA 180.1 Rev. 2.0
 Batch ID: P316353

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 180.1 Rev. 2.0
 Batch ID: P316354

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 300.0 Rev. 2.1
 Batch ID: P316904

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 300.0 Rev. 2.1
 Batch ID: P316907

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 350.1 Rev. 2.0
 Batch ID: P316798

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

Quality Assurance Report

Method Blank Results

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P317036

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P316911

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P316594

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P316595

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P316499

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P316351

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

Reference Method: SM 2120 B
Batch ID: P316388

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2120 B
Batch ID: P316389

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2320 B-97
Batch ID: P316631

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

Quality Assurance Report Method Blank Results

Reference Method: SM 2540 C-97
Batch ID: P316919

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 C-97
Batch ID: P316920

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P316837

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P316838

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500 F-C-97
Batch ID: P316635

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-00
Batch ID: P316489

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: P316904

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Sulfate	95.9		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P316907

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P316798

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: P316798

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P317036

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P316911

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: P316594

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P316595

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P316499

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total-P	107		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P316351

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

Reference Method: SM 2320 B-97
Batch ID: P316631

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	98.9		P	95 - 108

Reference Method: SM 4500 F-C-97
Batch ID: P316635

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	98.3		P	92 - 103

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: SM 5310 B-00
 Batch ID: P316489

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	97.8		P	85 - 115

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
 Batch ID: P316904

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1855815	Sulfate	97.2		P	90 - 110
1855818	Sulfate	96.7		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
 Batch ID: P316907

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1855815	Chloride	102		P	90 - 110
1855818	Chloride	98.8		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
 Batch ID: P316798

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1855240	Ammonia-N	107	107	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
 Batch ID: P317036

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1856179	Ammonia-N	97.4	95.1	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
 Batch ID: P316911

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1855610	Kjeldahl Nitrogen	97.0	94.0	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
 Batch ID: P316594

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1855584	NO2NO3-N	95.8	93.3	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
 Batch ID: P316595

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1855611	NO2NO3-N	101	100	P/P	90 - 110

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P316499

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1855611	Total-P	103	107	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P316351

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1855615	O-Phosphate-P	102	101	P/P	90 - 110

Reference Method: SM 4500 F-C-97
Batch ID: P316635

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1855003	Fluoride	99.8	101	P/P	91 - 105

Reference Method: SM 5310 B-00
Batch ID: P316489

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1855607	Organic Carbon	93.0	95.2	P/P	85 - 115

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P316353

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1855236	Turbidity	0.164	Sample	P	0 - 20

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P316354

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1855659	Turbidity	0.449	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P316907

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1855815	Chloride	0.0887	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P316798

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1855240	Ammonia-N	0.523	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P317036

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1856179	Ammonia-N	1.22	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P316911

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1855610	Kjeldahl Nitrogen	2.72	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P316594

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1855584	NO2NO3-N	2.51	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P316595

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1855611	NO2NO3-N	0.976	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P316499

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1855611	Total-P	4.53	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P316351

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1855615	O-Phosphate-P	0.197	Spike	P	0 - 20

Reference Method: SM 2120 B
Batch ID: P316388

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1855583	Color (true)	14.1	Sample	P	0 - 20

Reference Method: SM 2120 B
Batch ID: P316389

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1855662	Color (true)	4.18	Sample	P	0 - 20

Quality Assurance Report Precision

Reference Method: SM 2320 B-97
Batch ID: P316631

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1855003	Total Alkalinity	0.107	Sample	P	0 - 4.8

Reference Method: SM 2540 C-97
Batch ID: P316919

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1855160	TDS	3.86	Sample	P	0 - 10

Reference Method: SM 2540 C-97
Batch ID: P316920

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1855238	TDS	1.25	Sample	P	0 - 10

Reference Method: SM 4500 F-C-97
Batch ID: P316635

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1855003	Fluoride	0.953	Spike	P	0 - 3.0

Reference Method: SM 5310 B-00
Batch ID: P316489

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1855607	Organic Carbon	1.95	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: A73232
Included Lab Sample IDs: 1855612, 1855613, 1855614, 1855615, 1855616

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	96.2	95.4	P/P	90 - 110
O-Phosphate-P	96.8	96.2	P/P	90 - 110

Reference Method: EPA 180.1 Rev. 2.0
Run ID: A73233
Included Lab Sample IDs: 1855602, 1855603, 1855604, 1855605, 1855606

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Turbidity	101	100	P/P	95 - 105

Quality Assurance Report Calibration Verification

Reference Method: EPA 180.1 Rev. 2.0

Run ID: A73233

Included Lab Sample IDs: 1855602, 1855603, 1855604, 1855605, 1855606

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Turbidity	99.5	101	P/P	95 - 105

Reference Method: SM 2120 B

Run ID: A73245

Included Lab Sample IDs: 1855602, 1855603, 1855604, 1855605, 1855606

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	98.8	98.8	P/P	85 - 115
Color (true)	99.1	98.8	P/P	85 - 115

Reference Method: SM 5310 B-00

Run ID: A73268

Included Lab Sample IDs: 1855607, 1855608, 1855609, 1855610, 1855611

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	95.8	95.5	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A73307

Included Lab Sample IDs: 1855607, 1855608, 1855609, 1855610, 1855611

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO2NO3-N	100	98.0	P/P	90 - 110
NO2NO3-N	98.0	96.5	P/P	90 - 110

Reference Method: SM 2320 B-97

Run ID: A73323

Included Lab Sample IDs: 1855602, 1855603, 1855604, 1855605, 1855606

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	97.0	99.1	P/P	90 - 110

Reference Method: SM 4500 F-C-97

Run ID: A73323

Included Lab Sample IDs: 1855602, 1855603, 1855604, 1855605, 1855606

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

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A73338

Included Lab Sample IDs: 1855607, 1855608, 1855609, 1855610, 1855611

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	98.2	97.8	P/P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1

Run ID: A73375

Included Lab Sample IDs: 1855602, 1855603, 1855604, 1855605, 1855606

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

Reference Method: EPA 300.0 Rev. 2.1

Run ID: A73375

Included Lab Sample IDs: 1855602, 1855603, 1855604, 1855605, 1855606

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	103	104	P/P	90 - 110
Sulfate	99.9	98.1	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A73377

Included Lab Sample IDs: 1855607, 1855608

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

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A73465

Included Lab Sample IDs: 1855607, 1855608, 1855610

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	90.6	92.9	P/P	90 - 110
Kjeldahl Nitrogen	96.6	90.6	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A73473

Included Lab Sample IDs: 1855609, 1855610, 1855611

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	96.4	97.5	P/P	90 - 110
Ammonia-N	97.5	98.2	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A73481

Included Lab Sample IDs: 1855609, 1855611

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	94.1	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				0.164	
	Turbidity				0.449	
EPA 300.0 Rev. 2.1	Chloride	101	102 98.8		0.0887	
	Sulfate	95.9	97.2 96.7			
EPA 350.1 Rev. 2.0	Ammonia-N	101	107 107			0.523
	Ammonia-N	99.1	97.4 95.1			1.22
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	100	97.0 94.0			2.72
EPA 353.2 Rev. 2.0	NO2NO3-N	103	95.8 93.3			2.51

Quality Assurance Report Summary

Ref. Method	Analyte	LCS % Recovery	MS % Recovery		Precision		
					LCS	SMP	MS
EPA 353.2 Rev. 2.0	NO2NO3-N	102	101	100			0.976
EPA 365.1 Rev. 2.0	Total-P	107	103	107			4.53
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	101	102	101			0.197
SM 2120 B	Color (true)					14.1	
	Color (true)					4.18	
SM 2320 B-97	Total Alkalinity	98.9				0.107	
SM 2540 C-97	TDS					3.86	
	TDS					1.25	
SM 4500 F-C-97	Fluoride	98.3	99.8	101			0.953
SM 5310 B-00	Organic Carbon	97.8	93.0	95.2			1.95

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	1855602, 1855603, 1855604, 1855605, 1855606
EPA 300.0 Rev. 2.1 / E31780	Chloride in aqueous matrices	1855602, 1855603, 1855604, 1855605, 1855606
EPA 300.0 Rev. 2.1 / E31780	Sulfate in aqueous matrices	1855602, 1855603, 1855604, 1855605, 1855606
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	1855607, 1855608, 1855609, 1855610, 1855611
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	1855607, 1855608, 1855609, 1855610, 1855611
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	1855607, 1855608, 1855609, 1855610, 1855611
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	1855607, 1855608, 1855609, 1855610, 1855611
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	1855612, 1855613, 1855614, 1855615, 1855616
SM 2120 B / E31780	True Color measured at 450 nm	1855602, 1855603, 1855604, 1855605, 1855606
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO3/L	1855602, 1855603, 1855604, 1855605, 1855606
SM 2540 C-97 / E31780	Total Dissolved Solids in aqueous matrices	1855602, 1855603, 1855604, 1855605, 1855606
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices	1855602, 1855603, 1855604, 1855605, 1855606
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	1855602, 1855603, 1855604, 1855605, 1855606
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	1855607, 1855608, 1855609, 1855610, 1855611

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	12/07/2016			12/07/2016 16:26	Sima Feizi	1855602, 1855603, 1855604, 1855605, 1855606
EPA 300.0 Rev. 2.1	12/07/2016			12/16/2016	Ping Hua	1855602, 1855603, 1855604, 1855605, 1855606
EPA 350.1 Rev. 2.0	12/07/2016			12/13/2016	Sofia Elnemr	1855607, 1855608
	12/07/2016			12/19/2016	Sofia Elnemr	1855609, 1855610, 1855611
EPA 351.2 Rev. 2.0	12/07/2016	12/16/2016	Adrian Shelby	12/19/2016	Joseph Suarez	1855607, 1855608, 1855610
	12/07/2016	12/16/2016	Adrian Shelby	12/20/2016	Joseph Suarez	1855609, 1855611
EPA 353.2 Rev. 2.0	12/07/2016			12/12/2016	Beverly Y. Sanders	1855607, 1855608, 1855609, 1855610, 1855611
EPA 365.1 Rev. 2.0	12/07/2016	12/09/2016	Vijayalakshmi Reddy	12/12/2016	Lipi Saha	1855607, 1855608, 1855609, 1855610, 1855611
EPA 365.1 Rev. 2.0 dissolved	12/07/2016			12/07/2016 15:51	Julia Storbeck	1855615
	12/07/2016			12/07/2016 16:02	Julia Storbeck	1855614
	12/07/2016			12/07/2016 16:04	Julia Storbeck	1855612
	12/07/2016			12/07/2016 16:05	Julia Storbeck	1855613
	12/07/2016			12/07/2016 16:10	Julia Storbeck	1855616
SM 2120 B	12/07/2016			12/07/2016 16:13	Jared I. Manley	1855602
	12/07/2016			12/07/2016 16:14	Jared I. Manley	1855603
	12/07/2016			12/07/2016 16:15	Jared I. Manley	1855604, 1855605
	12/07/2016			12/07/2016 16:20	Jared I. Manley	1855606
SM 2320 B-97	12/07/2016			12/09/2016	Dale L. Simmons	1855602, 1855603, 1855604, 1855605, 1855606
SM 2540 C-97	12/07/2016			12/09/2016	Yijie Li	1855602, 1855603, 1855604, 1855605, 1855606
SM 2540 D-97	12/07/2016			12/09/2016	Yijie Li	1855602, 1855603, 1855604, 1855605, 1855606
SM 4500 F-C-97	12/07/2016			12/09/2016	Dale L. Simmons	1855602, 1855603, 1855604, 1855605, 1855606
SM 5310 B-00	12/07/2016			12/08/2016	Julie Michelle Frank	1855607, 1855608, 1855609, 1855610, 1855611