

Chemical Analysis Report

WQAP-2017-01-11-03

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

Event Description: **Alligator Creek**
Request ID: **RQ-2016-11-07-22**
Customer: **WQAP**
Project ID: **SMP**

Send Reports to:
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2600 Blair Stone Rd
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Attn: Benjamin Ralys

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Certified by: Liang Lin, Environmental Administrator

Date Certified: 01-FEB-2017 13:59

A handwritten signature in black ink, appearing to read "Liang Lin", 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: Alligator Creek upstream of SR 273

Collection Date/Time: 01/11/2017 09:35

Field ID: G3WA0005-01112017

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1863217	EPA 180.1 Rev. 2.0	Turbidity	8.0		NTU	P318113	
	EPA 300.0 Rev. 2.1	Chloride	4.5		mg Cl/L	P318471	
	SM 2120 B	Color (true)	100		PCU	P318103	
	SM 2320 B-97	Total Alkalinity	5.4		mg CaCO3/L	P318453	
	SM 2540 C-97	TDS	47		mg/L	P318600	
	SM 2540 D-97	TSS	4	I	mg/L	P318546	
	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P318457	
1863224	EPA 350.1 Rev. 2.0	Ammonia-N	0.010		mg N/L	P318208	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.47		mg N/L	P318196	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.12		mg N/L	P318560	
	EPA 365.1 Rev. 2.0	Total-P	0.028		mg P/L	P318290	
	SM 5310 B-00	Organic Carbon	11		mg C/L	P318260	
1863231	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.010		mg P/L	P318116	

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: Little Alligator Creek at SR 273

Collection Date/Time: 01/11/2017 10:00

Field ID: G3WA0006-01112017

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1863218	EPA 180.1 Rev. 2.0	Turbidity	8.4		NTU	P318113	
	EPA 300.0 Rev. 2.1	Chloride	6.1		mg Cl/L	P318471	
	SM 2120 B	Color (true)	82		PCU	P318103	
	SM 2320 B-97	Total Alkalinity	8.2		mg CaCO3/L	P318453	
	SM 2540 C-97	TDS	45		mg/L	P318600	
	SM 2540 D-97	TSS	3	I	mg/L	P318546	
	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P318457	
1863225	EPA 350.1 Rev. 2.0	Ammonia-N	0.014		mg N/L	P318267	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.47		mg N/L	P318196	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.097		mg N/L	P318560	
	EPA 365.1 Rev. 2.0	Total-P	0.026		mg P/L	P318290	
	SM 5310 B-00	Organic Carbon	9.1		mg C/L	P318260	
1863232	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.008	I	mg P/L	P318116	

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: Alligator Creek upstream of Bentley Rd

Collection Date/Time: 01/11/2017 10:20

Field ID: G3WA0004-01112017

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1863219	EPA 180.1 Rev. 2.0	Turbidity	9.0		NTU	P318113	
	EPA 300.0 Rev. 2.1	Chloride	5.9	A	mg Cl/L	P318472	
	SM 2120 B	Color (true)	76		PCU	P318103	
	SM 2320 B-97	Total Alkalinity	7.9		mg CaCO3/L	P318453	
	SM 2540 C-97	TDS	48		mg/L	P318600	

Field ID: G3WA0004-01112017

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1863219	SM 2540 D-97	TSS	3	I	mg/L	P318546	
	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P318457	
1863226	EPA 350.1 Rev. 2.0	Ammonia-N	0.010		mg N/L	P318267	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.41		mg N/L	P318196	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.13		mg N/L	P318557	
	EPA 365.1 Rev. 2.0	Total-P	0.029		mg P/L	P318290	
	SM 5310 B-00	Organic Carbon	7.7		mg C/L	P318260	
1863233	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.009	I	mg P/L	P318116	

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: Scurlock Creek at Pilgrim Rd

Collection Date/Time: 01/11/2017 10:50

Field ID: G3WA0009-01112017

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1863220	EPA 180.1 Rev. 2.0	Turbidity	3.3		NTU	P318113	
	EPA 300.0 Rev. 2.1	Chloride	3.1		mg Cl/L	P318472	
	SM 2120 B	Color (true)	120		PCU	P318103	
	SM 2320 B-97	Total Alkalinity	2.3	I	mg CaCO3/L	P318453	
	SM 2540 C-97	TDS	27		mg/L	P318600	
	SM 2540 D-97	TSS	4	I	mg/L	P318546	
	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P318457	
1863227	EPA 350.1 Rev. 2.0	Ammonia-N	0.013		mg N/L	P318267	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.54		mg N/L	P318196	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.010		mg N/L	P318604	
	EPA 365.1 Rev. 2.0	Total-P	0.020		mg P/L	P318290	
	SM 5310 B-00	Organic Carbon	16		mg C/L	P318260	
1863234	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.005	I	mg P/L	P318116	

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: Pine Barn Creek at Woodrest Rd

Collection Date/Time: 01/11/2017 11:10

Field ID: G3WA0011_01112017

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1863221	EPA 180.1 Rev. 2.0	Turbidity	4.3		NTU	P318113	
	EPA 300.0 Rev. 2.1	Chloride	4.7		mg Cl/L	P318472	
	SM 2120 B	Color (true)	110		PCU	P318103	
	SM 2320 B-97	Total Alkalinity	8.2		mg CaCO3/L	P318453	
	SM 2540 C-97	TDS	42		mg/L	P318600	
	SM 2540 D-97	TSS	3	I	mg/L	P318546	
	SM 4500 F-C-97	Fluoride	0.040	I	mg F/L	P318457	
1863228	EPA 350.1 Rev. 2.0	Ammonia-N	0.01		mg N/L	P318267	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.54		mg N/L	P318196	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.007	I	mg N/L	P318604	
	EPA 365.1 Rev. 2.0	Total-P	0.038		mg P/L	P318290	

Field ID: G3WA0011_01112017

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1863228	SM 5310 B-00	Organic Carbon	11		mg C/L	P318260	
1863235	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.013		mg P/L	P318116	

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: Unnamed Creek at Woodrest Rd

Collection Date/Time: 01/11/2017 11:35

Field ID: G3WA0010-01112017

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1863222	EPA 180.1 Rev. 2.0	Turbidity	5.4		NTU	P318113	
	EPA 300.0 Rev. 2.1	Chloride	4.0		mg Cl/L	P318472	
	SM 2120 B	Color (true)	100		PCU	P318103	
	SM 2320 B-97	Total Alkalinity	2.0	I	mg CaCO3/L	P318453	
	SM 2540 C-97	TDS	37		mg/L	P318600	
	SM 2540 D-97	TSS	4	I	mg/L	P318546	
	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P318457	
1863229	EPA 350.1 Rev. 2.0	Ammonia-N	0.008		mg N/L	P318267	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.47		mg N/L	P318197	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.12		mg N/L	P318604	
	EPA 365.1 Rev. 2.0	Total-P	0.020		mg P/L	P318290	
	SM 5310 B-00	Organic Carbon	14		mg C/L	P318260	
1863236	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.005	I	mg P/L	P318116	

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: Giberts Mill Creek at Aycock Rd

Collection Date/Time: 01/11/2017 12:00

Field ID: G3WA0012_01112017

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1863223	EPA 180.1 Rev. 2.0	Turbidity	2.2	A	NTU	P318114	
	EPA 300.0 Rev. 2.1	Chloride	3.6		mg Cl/L	P318472	
	SM 2120 B	Color (true)	96		PCU	P318103	
	SM 2320 B-97	Total Alkalinity	0.82	I	mg CaCO3/L	P318453	
	SM 2540 C-97	TDS	33		mg/L	P318601	
	SM 2540 D-97	TSS	2	I	mg/L	P318546	
	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P318457	
1863230	EPA 350.1 Rev. 2.0	Ammonia-N	0.003	I	mg N/L	P318267	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.42		mg N/L	P318197	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P318604	
	EPA 365.1 Rev. 2.0	Total-P	0.015		mg P/L	P318609	
	SM 5310 B-00	Organic Carbon	14		mg C/L	P318260	
1863237	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P318116	

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: P318113

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P318114

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P318471

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P318472

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P318208

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P318267

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P318196

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P318197

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P318557

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

Quality Assurance Report Method Blank Results

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P318560

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P318604

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P318290

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P318609

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P318116

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

Reference Method: SM 2120 B
Batch ID: P318103

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2320 B-97
Batch ID: P318453

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

Reference Method: SM 2540 C-97
Batch ID: P318600

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 C-97
Batch ID: P318601

Component	Result	Code	Units
TDS	15	U	mg/L

Quality Assurance Report Method Blank Results

Reference Method: SM 2540 D-97
Batch ID: P318546

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500 F-C-97
Batch ID: P318457

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-00
Batch ID: P318260

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: P318471

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Chloride	99.2		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P318472

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P318208

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P318267

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Ammonia-N	108		P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P318196

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Kjeldahl Nitrogen	96.1		P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P318197

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P318197

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Kjeldahl Nitrogen	96.4		P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P318557

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
NO2NO3-N	105		P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P318560

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
NO2NO3-N	106		P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P318604

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: P318290

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total-P	92.2		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P318609

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total-P	99.6		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P318116

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

Reference Method: SM 2320 B-97
Batch ID: P318453

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	103		P	95 - 108

Reference Method: SM 4500 F-C-97
Batch ID: P318457

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	96.0		P	92 - 103

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: SM 5310 B-00
Batch ID: P318260

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

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P318471

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1863364	Chloride	99.0		P	90 - 110
1863403	Chloride	98.3		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P318472

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1863219	Chloride	101		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P318208

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1862700	Ammonia-N	98.9	99.9	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P318267

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1863225	Ammonia-N	97.6	98.3	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P318196

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1863069	Kjeldahl Nitrogen	104	101	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P318197

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1863320	Kjeldahl Nitrogen	96.3	92.5	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P318557

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1863226	NO2NO3-N	103	101	P/P	90 - 110

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P318560

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1863040	NO2NO3-N	102	101	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P318604

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1863227	NO2NO3-N	102	100	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P318290

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1863070	Total-P	91.4	91.0	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P318609

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1865221	Total-P	97.6	95.4	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P318116

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1863075	O-Phosphate-P	101	101	P/P	90 - 110

Reference Method: SM 4500 F-C-97
Batch ID: P318457

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1863363	Fluoride	96.4	96.4	P/P	91 - 105

Reference Method: SM 5310 B-00
Batch ID: P318260

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1863017	Organic Carbon	103		P	85 - 115

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P318113

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1863064	Turbidity	1.14	Sample	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P318114

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1863223	Turbidity	3.22	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P318471

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1863364	Chloride	0.0402	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P318472

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1863219	Chloride	0.551	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P318208

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1862700	Ammonia-N	0.904	Spike	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P318267

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1863225	Ammonia-N	0.535	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P318196

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1863069	Kjeldahl Nitrogen	2.72	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P318197

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1863320	Kjeldahl Nitrogen	3.18	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P318557

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1863226	NO2NO3-N	1.19	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P318560

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1863040	NO2NO3-N	0.651	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P318604

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1863227	NO2NO3-N	1.88	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P318290

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1863070	Total-P	0.443	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P318609

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1865221	Total-P	2.28	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P318116

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1863075	O-Phosphate-P	0.0994	Spike	P	0 - 20

Reference Method: SM 2120 B
Batch ID: P318103

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1863065	Color (true)	4.10	Sample	P	0 - 20

Reference Method: SM 2320 B-97
Batch ID: P318453

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1863363	Total Alkalinity	0.625	Sample	P	0 - 4.8

Reference Method: SM 2540 C-97
Batch ID: P318600

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1862469	TDS	2.36	Sample	P	0 - 10

Quality Assurance Report Precision

Reference Method: SM 2540 C-97
Batch ID: P318601

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1862471	TDS	6.90	Sample	P	0 - 10

Reference Method: SM 4500 F-C-97
Batch ID: P318457

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1863363	Fluoride	0.0	Spike	P	0 - 3.0

Reference Method: SM 5310 B-00
Batch ID: P318260

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1863017	Organic Carbon	0.702	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: SM 2120 B
Run ID: A73880
Included Lab Sample IDs: 1863217, 1863218, 1863219, 1863220, 1863221, 1863222, 1863223

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	102	103	P/P	85 - 115
Color (true)	103	102	P/P	85 - 115

Reference Method: EPA 180.1 Rev. 2.0
Run ID: A73882
Included Lab Sample IDs: 1863217, 1863218, 1863219, 1863220, 1863221, 1863222, 1863223

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Run ID: A73883
Included Lab Sample IDs: 1863231, 1863232, 1863233, 1863234, 1863235, 1863236, 1863237

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	96.8	96.4	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Run ID: A73916
Included Lab Sample IDs: 1863224

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

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A73916

Included Lab Sample IDs: 1863224

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	98.6	96.3	P/P	90 - 110

Reference Method: SM 5310 B-00

Run ID: A73931

Included Lab Sample IDs: 1863224, 1863225, 1863226, 1863227, 1863228, 1863229, 1863230

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	97.8	101	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A73934

Included Lab Sample IDs: 1863225, 1863226, 1863227, 1863228, 1863229, 1863230

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	98.8	96.5	P/P	90 - 110
Ammonia-N	99.7	98.8	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A73948

Included Lab Sample IDs: 1863224, 1863225, 1863226, 1863227, 1863228

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	100	95.2	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A73954

Included Lab Sample IDs: 1863229, 1863230

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	97.7	95.7	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A73977

Included Lab Sample IDs: 1863224, 1863225, 1863226, 1863227, 1863228, 1863229

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	96.8	95.0	P/P	90 - 110
Total-P	98.8	96.8	P/P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1

Run ID: A73993

Included Lab Sample IDs: 1863217, 1863218, 1863219, 1863220, 1863221, 1863222, 1863223

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	101	100	P/P	90 - 110
Chloride	99.5	101	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: SM 2320 B-97

Run ID: A74010

Included Lab Sample IDs: 1863217, 1863218, 1863219, 1863220, 1863221, 1863222, 1863223

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	102	104	P/P	90 - 110

Reference Method: SM 4500 F-C-97

Run ID: A74010

Included Lab Sample IDs: 1863217, 1863218, 1863219, 1863220, 1863221, 1863222, 1863223

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	99.5	99.0	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A74046

Included Lab Sample IDs: 1863224, 1863225, 1863226

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

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A74070

Included Lab Sample IDs: 1863227, 1863228, 1863229, 1863230

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

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A74101

Included Lab Sample IDs: 1863230

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	98.0	99.0	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				1.14	
	Turbidity				3.22	
EPA 300.0 Rev. 2.1	Chloride	99.2	99.0	98.3	0.0402	
	Chloride	100	101		0.551	
EPA 350.1 Rev. 2.0	Ammonia-N	99.1	98.9	99.9		0.904
	Ammonia-N	108	97.6	98.3		0.535
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	96.1	104	101		2.72
	Kjeldahl Nitrogen	96.4	96.3	92.5		3.18
EPA 353.2 Rev. 2.0	NO2NO3-N	105	103	101		1.19
	NO2NO3-N	106	102	101		0.651
	NO2NO3-N	102	102	100		1.88

Quality Assurance Report Summary

Ref. Method	Analyte	LCS % Recovery	MS % Recovery		Precision	
					LCS	MS
EPA 365.1 Rev. 2.0	Total-P	92.2	91.4	91.0		0.443
	Total-P	99.6	97.6	95.4		2.28
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	104	101	101		0.0994
SM 2120 B	Color (true)				4.10	
SM 2320 B-97	Total Alkalinity	103			0.625	
SM 2540 C-97	TDS				2.36	
	TDS				6.90	
SM 4500 F-C-97	Fluoride	96.0	96.4	96.4		0.0
SM 5310 B-00	Organic Carbon	101	103			0.702

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	1863217, 1863218, 1863219, 1863220, 1863221, 1863222, 1863223
EPA 300.0 Rev. 2.1 / E31780	Chloride in aqueous matrices	1863217, 1863218, 1863219, 1863220, 1863221, 1863222, 1863223
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	1863224, 1863225, 1863226, 1863227, 1863228, 1863229, 1863230
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	1863224, 1863225, 1863226, 1863227, 1863228, 1863229, 1863230
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	1863224, 1863225, 1863226, 1863227, 1863228, 1863229, 1863230
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	1863224, 1863225, 1863226, 1863227, 1863228, 1863229, 1863230
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	1863231, 1863232, 1863233, 1863234, 1863235, 1863236, 1863237
SM 2120 B / E31780	True Color measured at 450 nm	1863217, 1863218, 1863219, 1863220, 1863221, 1863222, 1863223
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO3/L	1863217, 1863218, 1863219, 1863220, 1863221, 1863222, 1863223
SM 2540 C-97 / E31780	Total Dissolved Solids in aqueous matrices	1863217, 1863218, 1863219, 1863220, 1863221, 1863222, 1863223
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices	1863217, 1863218, 1863219, 1863220, 1863221, 1863222, 1863223
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	1863217, 1863218, 1863219, 1863220, 1863221, 1863222, 1863223
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	1863224, 1863225, 1863226, 1863227, 1863228, 1863229, 1863230

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	01/11/2017			01/11/2017 15:58	Sima Feizi	1863217, 1863218, 1863219, 1863220, 1863221, 1863222, 1863223
EPA 300.0 Rev. 2.1	01/11/2017			01/20/2017	Ping Hua	1863217, 1863218, 1863219, 1863220, 1863221, 1863222, 1863223
EPA 350.1 Rev. 2.0	01/11/2017			01/12/2017	Sofia Elnemr	1863224
	01/11/2017			01/13/2017	Sofia Elnemr	1863225, 1863226, 1863227, 1863228, 1863229, 1863230
EPA 351.2 Rev. 2.0	01/11/2017	01/13/2017	Adrian Shelby	01/17/2017	Joseph Suarez	1863224, 1863225, 1863226, 1863227, 1863228, 1863229, 1863230
EPA 353.2 Rev. 2.0	01/11/2017			01/23/2017	Beverly Y. Sanders	1863224, 1863225, 1863226
	01/11/2017			01/24/2017	Beverly Y. Sanders	1863227, 1863228, 1863229, 1863230
EPA 365.1 Rev. 2.0	01/11/2017	01/17/2017	Vijayalakshmi Reddy	01/18/2017	Lipi Saha	1863224, 1863225, 1863226, 1863227, 1863228, 1863229
	01/11/2017	01/24/2017	Vijayalakshmi Reddy	01/25/2017	Lipi Saha	1863230
EPA 365.1 Rev. 2.0 dissolved	01/11/2017			01/11/2017 16:06	Julia Storbeck	1863231
	01/11/2017			01/11/2017 16:07	Julia Storbeck	1863232, 1863233
	01/11/2017			01/11/2017 16:08	Julia Storbeck	1863234
	01/11/2017			01/11/2017 16:09	Julia Storbeck	1863235
	01/11/2017			01/11/2017 16:10	Julia Storbeck	1863236
	01/11/2017			01/11/2017 16:11	Julia Storbeck	1863237
SM 2120 B	01/11/2017			01/11/2017 15:24	Jared I. Manley	1863217
	01/11/2017			01/11/2017 15:25	Jared I. Manley	1863218, 1863219
	01/11/2017			01/11/2017 15:26	Jared I. Manley	1863220
	01/11/2017			01/11/2017 15:27	Jared I. Manley	1863221
	01/11/2017			01/11/2017 15:32	Jared I. Manley	1863222
	01/11/2017			01/11/2017 15:33	Jared I. Manley	1863223
SM 2320 B-97	01/11/2017			01/19/2017	Dale L. Simmons	1863217, 1863218, 1863219, 1863220, 1863221, 1863222, 1863223
SM 2540 C-97	01/11/2017			01/13/2017	Yijie Li	1863217, 1863218, 1863219, 1863220, 1863221, 1863222, 1863223
SM 2540 D-97	01/11/2017			01/13/2017	Yijie Li	1863217, 1863218, 1863219, 1863220, 1863221, 1863222, 1863223
SM 4500 F-C-97	01/11/2017			01/19/2017	Dale L. Simmons	1863217, 1863218, 1863219, 1863220, 1863221, 1863222, 1863223
SM 5310 B-00	01/11/2017			01/12/2017	Julie Michelle Frank	1863224, 1863225, 1863226, 1863227, 1863228, 1863229, 1863230