

Chemical Analysis Report

NW-DIST-2018-04-19-01

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

Event Description: **EGLIN RUN WEST**
Request ID: **RQ-2018-04-16-26**
Customer: **NW-DIST**
Project ID: **SMP**

Send Reports to:
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Certified by: Colin Wright, Program Administrator

Date Certified: 09-MAY-2018 16:21

A handwritten signature in black ink, appearing to read "Colin Wright", is displayed 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: SHAW STILL BRANCH UPSTREAM E COLLEGE BLVD. **Collection Date/Time: 04/18/2018 10:00**

Field ID: G3NW0162

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1985825	EPA 180.1 Rev. 2.0	Turbidity	0.50		NTU	P343763	
	EPA 300.0 Rev. 2.1	Chloride	17		mg Cl/L	P343854	
		Sulfate	15		mg SO4/L	P343857	
	SM 2120 B	Color (true)	8.2		PCU	P343753	
	SM 2320 B-97	Total Alkalinity	45		mg CaCO3/L	P344298	
	SM 2540 C-97	TDS	114		mg/L	P344141	
	SM 2540 D-97	TSS	2	UA	mg/L	P343913	
	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P344302	
1985828	EPA 350.1 Rev. 2.0	Ammonia-N	0.002	I	mg N/L	P344037	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.16	I	mg N/L	P343798	
	EPA 353.2 Rev. 2.0	NO2NO3-N	2.9		mg N/L	P343906	
	EPA 365.1 Rev. 2.0	Total-P	0.002	U	mg P/L	P343976	
	SM 5310 B-00	Organic Carbon	1.9		mg C/L	P343981	
1985831	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P343759	

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: DEER MOSS CREEK BELOW COLLEGE BLVD. **Collection Date/Time: 04/18/2018 10:15**

Field ID: G3NW0138

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1985826	EPA 180.1 Rev. 2.0	Turbidity	0.80		NTU	P343764	
	EPA 300.0 Rev. 2.1	Chloride	15		mg Cl/L	P343854	
		Sulfate	11		mg SO4/L	P343857	
	SM 2120 B	Color (true)	7.6		PCU	P343753	
	SM 2320 B-97	Total Alkalinity	25		mg CaCO3/L	P344298	
	SM 2540 C-97	TDS	79		mg/L	P344141	
	SM 2540 D-97	TSS	2	I	mg/L	P343913	
	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P344302	
1985829	EPA 350.1 Rev. 2.0	Ammonia-N	0.01		mg N/L	P344037	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.16	I	mg N/L	P343798	
	EPA 353.2 Rev. 2.0	NO2NO3-N	2.2		mg N/L	P343906	
	EPA 365.1 Rev. 2.0	Total-P	0.052		mg P/L	P343976	
	SM 5310 B-00	Organic Carbon	1.4		mg C/L	P343981	
1985832	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.047		mg P/L	P343759	

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: EAGLE CREEK UPSTREAM OF HWY 20 **Collection Date/Time: 04/18/2018 10:35**

Field ID: G3NW0151

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1985834	EPA 180.1 Rev. 2.0	Turbidity	0.60		NTU	P343764	
	SM 2320 B-97	Total Alkalinity	0.82	I	mg CaCO3/L	P344449	

Field ID: G3NW0151

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1985834	SM 2540 D-97	TSS	4	I	mg/L	P343914	
	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P344454	
1985836	EPA 350.1 Rev. 2.0	Ammonia-N	0.008		mg N/L	P344037	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.27		mg N/L	P343798	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P343907	
	EPA 365.1 Rev. 2.0	Total-P	0.010		mg P/L	P343977	
	SM 5310 B-00	Organic Carbon	4.5		mg C/L	P343981	
1985838	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P343760	

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: MOUTH OF MULLET CREEK @ HWY 20

Collection Date/Time: 04/18/2018 10:55

Field ID: G3NW0137

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1985835	EPA 180.1 Rev. 2.0	Turbidity	1.2		NTU	P343764	
	SM 2320 B-97	Total Alkalinity	3.0		mg CaCO3/L	P344449	
	SM 2540 D-97	TSS	3	I	mg/L	P343914	
	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P344454	
1985837	EPA 350.1 Rev. 2.0	Ammonia-N	0.01		mg N/L	P344037	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.19	I	mg N/L	P343798	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.008	I	mg N/L	P343907	
	EPA 365.1 Rev. 2.0	Total-P	0.016		mg P/L	P343977	
	SM 5310 B-00	Organic Carbon	2.2		mg C/L	P343981	
1985839	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.009	I	mg P/L	P343760	

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: MILL CREEK UPSTREAM OF BAYSHORE DR

Collection Date/Time: 04/18/2018 11:20

Field ID: G3NW0141

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1985827	EPA 180.1 Rev. 2.0	Turbidity	0.75		NTU	P343764	
	EPA 300.0 Rev. 2.1	Chloride	5.0		mg Cl/L	P343854	
		Sulfate	5.6		mg SO4/L	P343857	
		Color (true)	21	A	PCU	P343754	
	SM 2320 B-97	Total Alkalinity	15		mg CaCO3/L	P344298	
	SM 2540 C-97	TDS	34		mg/L	P344141	
	SM 2540 D-97	TSS	2	U	mg/L	P343914	
	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P344302	
1985830	EPA 350.1 Rev. 2.0	Ammonia-N	0.026		mg N/L	P344037	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.27		mg N/L	P343798	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.16		mg N/L	P343906	
	EPA 365.1 Rev. 2.0	Total-P	0.009		mg P/L	P343977	
	SM 5310 B-00	Organic Carbon	2.7		mg C/L	P343981	

Field ID: G3NW0141

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1985833	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P343760	

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: P343763

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 180.1 Rev. 2.0

Batch ID: P343764

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 300.0 Rev. 2.1

Batch ID: P343854

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1

Batch ID: P343857

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 350.1 Rev. 2.0

Batch ID: P344037

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

Reference Method: EPA 351.2 Rev. 2.0

Batch ID: P343798

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

Reference Method: EPA 353.2 Rev. 2.0

Batch ID: P343906

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

Reference Method: EPA 353.2 Rev. 2.0

Batch ID: P343907

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

Quality Assurance Report

Method Blank Results

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P343976

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P343977

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P343759

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P343760

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

Reference Method: SM 2120 B
Batch ID: P343753

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2120 B
Batch ID: P343754

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2320 B-97
Batch ID: P344298

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

Reference Method: SM 2320 B-97
Batch ID: P344449

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

Reference Method: SM 2540 C-97
Batch ID: P344141

Component	Result	Code	Units
TDS	15	U	mg/L

Quality Assurance Report Method Blank Results

Reference Method: SM 2540 D-97
Batch ID: P343913

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P343914

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500 F-C-97
Batch ID: P344302

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 4500 F-C-97
Batch ID: P344454

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-00
Batch ID: P343981

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: P343854

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P343857

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Sulfate	95.3		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P344037

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P343798

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: P343798

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P343906

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P343907

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: P343976

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P343977

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P343759

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
O-Phosphate-P	97.9		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P343760

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

Reference Method: SM 2320 B-97
Batch ID: P344298

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

Reference Method: SM 2320 B-97
Batch ID: P344449

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

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: SM 4500 F-C-97
Batch ID: P344302

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

Reference Method: SM 4500 F-C-97
Batch ID: P344454

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	94.7		P	91 - 105

Reference Method: SM 5310 B-00
Batch ID: P343981

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	96.1		P	85 - 115

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P343854

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1985676	Chloride	95.5		P	90 - 110
1985803	Chloride	95.5		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P343857

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1985676	Sulfate	92.4		P	90 - 110
1985803	Sulfate	95.7		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P344037

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1985837	Ammonia-N	97.3	96.3	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P343798

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1985830	Kjeldahl Nitrogen	101	106	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P343906

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1985776	NO2NO3-N	100	101	P/P	90 - 110

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P343907

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1985836	NO2NO3-N	102	103	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P343976

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1985828	Total-P	100	97.8	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P343977

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1985907	Total-P	100	103	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P343759

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1985774	O-Phosphate-P	96.9	98.1	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P343760

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1985833	O-Phosphate-P	99.2	100	P/P	90 - 110

Reference Method: SM 4500 F-C-97
Batch ID: P344302

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1986073	Fluoride	94.9	98.7	P/P	91 - 105

Reference Method: SM 4500 F-C-97
Batch ID: P344454

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1986809	Fluoride	96.9	96.1	P/P	91 - 105

Reference Method: SM 5310 B-00
Batch ID: P343981

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1985678	Organic Carbon	94.7	95.4	P/P	85 - 115

Quality Assurance Report Precision

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P343763

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1985775	Turbidity	2.33	Sample	P	0 - 20

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P343764

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1985876	Turbidity	17.1	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P343854

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1985676	Chloride	0.715	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P343857

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1985676	Sulfate	0.590	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P344037

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1985837	Ammonia-N	0.869	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P343798

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1985830	Kjeldahl Nitrogen	4.10	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P343906

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1985776	NO2NO3-N	0.496	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P343907

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1985836	NO2NO3-N	0.487	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P343976

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1985828	Total-P	2.30	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P343977

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1985907	Total-P	2.21	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P343759

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1985774	O-Phosphate-P	0.685	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P343760

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1985833	O-Phosphate-P	0.803	Spike	P	0 - 20

Reference Method: SM 2120 B
Batch ID: P343753

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1985775	Color (true)	0.643	Sample	P	0 - 20

Reference Method: SM 2120 B
Batch ID: P343754

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1985827	Color (true)	2.48	Sample	P	0 - 20

Reference Method: SM 2320 B-97
Batch ID: P344298

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1986073	Total Alkalinity	0.0231	Sample	P	0 - 1.6

Reference Method: SM 2320 B-97
Batch ID: P344449

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1986809	Total Alkalinity	0.340	Sample	P	0 - 1.6

Quality Assurance Report Precision

Reference Method: SM 2540 C-97
 Batch ID: P344141

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1985900	TDS	0.0	Sample	P	0 - 10

Reference Method: SM 4500 F-C-97
 Batch ID: P344302

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1986073	Fluoride	2.92	Spike	P	0 - 3.5

Reference Method: SM 4500 F-C-97
 Batch ID: P344454

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1986809	Fluoride	0.476	Spike	P	0 - 3.5

Reference Method: SM 5310 B-00
 Batch ID: P343981

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1985678	Organic Carbon	0.622	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 300.0 Rev. 2.1
 Run ID: A83267
 Included Lab Sample IDs: 1985825, 1985826, 1985827

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	98.2	99.8	P/P	90 - 110
Sulfate	98.4	99.2	P/P	90 - 110

Reference Method: SM 2120 B
 Run ID: A83349
 Included Lab Sample IDs: 1985825, 1985826, 1985827

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	100	101	P/P	90 - 115
Color (true)	99.1	100	P/P	90 - 115

Reference Method: EPA 365.1 Rev. 2.0 dissolved
 Run ID: A83350
 Included Lab Sample IDs: 1985831, 1985832, 1985833, 1985838, 1985839

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved

Run ID: A83350

Included Lab Sample IDs: 1985831, 1985832, 1985833, 1985838, 1985839

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	98.6	98.8	P/P	90 - 110
O-Phosphate-P	98.8	98.9	P/P	90 - 110
O-Phosphate-P	99.0	99.8	P/P	90 - 110

Reference Method: EPA 180.1 Rev. 2.0

Run ID: A83351

Included Lab Sample IDs: 1985825, 1985826, 1985827, 1985834, 1985835

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Turbidity	98.5	99.0	P/P	95 - 105
Turbidity	99.0	98.5	P/P	95 - 105

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A83402

Included Lab Sample IDs: 1985828, 1985829, 1985830, 1985836, 1985837

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

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A83410

Included Lab Sample IDs: 1985828, 1985829, 1985830, 1985836, 1985837

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	103	102	P/P	90 - 110
Kjeldahl Nitrogen	96.7	103	P/P	90 - 110

Reference Method: SM 5310 B-00

Run ID: A83430

Included Lab Sample IDs: 1985828, 1985829, 1985830, 1985836, 1985837

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

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A83454

Included Lab Sample IDs: 1985828, 1985829, 1985830, 1985836, 1985837

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	99.4	98.8	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A83473

Included Lab Sample IDs: 1985828, 1985829, 1985830, 1985836, 1985837

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	99.5	99.5	P/P	90 - 110
Total-P	99.8	99.5	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: SM 2320 B-97

Run ID: A83541

Included Lab Sample IDs: 1985825, 1985826, 1985827

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	98.6	102	P/P	90 - 110

Reference Method: SM 4500 F-C-97

Run ID: A83541

Included Lab Sample IDs: 1985825, 1985826, 1985827

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

Reference Method: SM 2320 B-97

Run ID: A83593

Included Lab Sample IDs: 1985834, 1985835

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	101	98.4	P/P	90 - 110

Reference Method: SM 4500 F-C-97

Run ID: A83593

Included Lab Sample IDs: 1985834, 1985835

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	98.6	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				2.33	
	Turbidity				17.1	
EPA 300.0 Rev. 2.1	Chloride	96.4	95.5 95.5		0.715	
	Sulfate	95.3	92.4 95.7		0.590	
EPA 350.1 Rev. 2.0	Ammonia-N	100	97.3 96.3			0.869
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	104	101 106			4.10
EPA 353.2 Rev. 2.0	NO2NO3-N	102	100 101			0.496
	NO2NO3-N	102	102 103			0.487
EPA 365.1 Rev. 2.0	Total-P	103	100 97.8			2.30
	Total-P	103	100 103			2.21
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	97.9	96.9 98.1			0.685
	O-Phosphate-P	101	99.2 100			0.803
SM 2120 B	Color (true)				0.643	
	Color (true)				2.48	
SM 2320 B-97	Total Alkalinity	103			0.0231	
	Total Alkalinity	102			0.340	
SM 2540 C-97	TDS				0.0	
SM 4500 F-C-97	Fluoride	97.7	94.9 98.7			2.92

Quality Assurance Report Summary

Ref. Method	Analyte	LCS % Recovery	MS % Recovery		Precision	
					LCS	MS
SM 4500 F-C-97	Fluoride	94.7	96.9	96.1		0.476
SM 5310 B-00	Organic Carbon	96.1	94.7	95.4		0.622

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	1985825, 1985826, 1985827, 1985834, 1985835
EPA 300.0 Rev. 2.1 / E31780	Chloride in aqueous matrices	1985825, 1985826, 1985827
EPA 300.0 Rev. 2.1 / E31780	Sulfate in aqueous matrices	1985825, 1985826, 1985827
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	1985828, 1985829, 1985830, 1985836, 1985837
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	1985828, 1985829, 1985830, 1985836, 1985837
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	1985828, 1985829, 1985830, 1985836, 1985837
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	1985828, 1985829, 1985830, 1985836, 1985837
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	1985831, 1985832, 1985833, 1985838, 1985839
SM 2120 B / E31780	True Color measured at 450 nm	1985825, 1985826, 1985827
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO3/L	1985825, 1985826, 1985827, 1985834, 1985835
SM 2540 C-97 / E31780	Total Dissolved Solids in aqueous matrices	1985825, 1985826, 1985827
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices	1985825, 1985826, 1985827, 1985834, 1985835
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	1985825, 1985826, 1985827, 1985834, 1985835
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	1985828, 1985829, 1985830, 1985836, 1985837

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	04/19/2018			04/19/2018 16:36	William L. Brown IV	1985825, 1985826, 1985827, 1985834, 1985835
EPA 300.0 Rev. 2.1	04/19/2018			04/20/2018 17:14	Lipi Saha	1985825
	04/19/2018			04/20/2018 17:26	Lipi Saha	1985826
	04/19/2018			04/20/2018 17:38	Lipi Saha	1985827
EPA 350.1 Rev. 2.0	04/19/2018			04/24/2018 14:16	Adrian Shelby	1985828
	04/19/2018			04/24/2018 14:18	Adrian Shelby	1985829
	04/19/2018			04/24/2018 14:19	Adrian Shelby	1985830
	04/19/2018			04/24/2018 14:21	Adrian Shelby	1985836
	04/19/2018			04/24/2018 14:22	Adrian Shelby	1985837
EPA 351.2 Rev. 2.0	04/19/2018	04/20/2018 10:50	Adrian Shelby	04/24/2018 09:55	Joseph Suarez	1985828
	04/19/2018	04/20/2018 10:50	Adrian Shelby	04/24/2018 09:57	Joseph Suarez	1985829
	04/19/2018	04/20/2018 10:50	Adrian Shelby	04/24/2018 09:58	Joseph Suarez	1985830
	04/19/2018	04/20/2018 10:50	Adrian Shelby	04/24/2018 10:06	Joseph Suarez	1985836
	04/19/2018	04/20/2018 10:50	Adrian Shelby	04/24/2018 10:08	Joseph Suarez	1985837
EPA 353.2 Rev. 2.0	04/19/2018			04/23/2018 14:06	Lauren Bottorf	1985836
	04/19/2018			04/23/2018 14:12	Lauren Bottorf	1985837
	04/19/2018			04/23/2018 14:54	Lauren Bottorf	1985828
	04/19/2018			04/23/2018 14:55	Lauren Bottorf	1985829
	04/19/2018			04/23/2018 14:56	Lauren Bottorf	1985830
EPA 365.1 Rev. 2.0	04/19/2018	04/24/2018 15:27	Sima Feizi	04/25/2018 13:03	Beverly Y. Sanders	1985828
	04/19/2018	04/24/2018 15:27	Sima Feizi	04/25/2018 13:04	Beverly Y. Sanders	1985829
	04/19/2018	04/24/2018 15:27	Sima Feizi	04/25/2018 13:13	Beverly Y. Sanders	1985830
	04/19/2018	04/24/2018 15:27	Sima Feizi	04/25/2018 13:14	Beverly Y. Sanders	1985836, 1985837
EPA 365.1 Rev. 2.0 dissolved	04/19/2018			04/19/2018 15:11	Megan Treadwell	1985833
	04/19/2018			04/19/2018 15:36	Megan Treadwell	1985831
	04/19/2018			04/19/2018 15:37	Megan Treadwell	1985832
	04/19/2018			04/19/2018 15:38	Megan Treadwell	1985838
	04/19/2018			04/19/2018 15:43	Megan Treadwell	1985839
SM 2120 B	04/19/2018			04/19/2018 14:21	Tanya Welborn	1985825
	04/19/2018			04/19/2018 14:22	Tanya Welborn	1985826
	04/19/2018			04/19/2018 14:26	Tanya Welborn	1985827
SM 2320 B-97	04/19/2018			04/28/2018 06:51	Dale L. Simmons	1985825
	04/19/2018			04/28/2018 07:03	Dale L. Simmons	1985826
	04/19/2018			04/28/2018 07:13	Dale L. Simmons	1985827
	04/19/2018			05/01/2018 18:04	Dale L. Simmons	1985834
	04/19/2018			05/01/2018 18:15	Dale L. Simmons	1985835
SM 2540 C-97	04/19/2018			04/20/2018 18:00	William L. Brown IV	1985825, 1985826, 1985827
SM 2540 D-97	04/19/2018			04/20/2018 18:00	William L. Brown IV	1985825, 1985826, 1985827, 1985834, 1985835

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
SM 4500 F-C-97	04/19/2018			04/28/2018 06:51	Dale L. Simmons	1985825
	04/19/2018			04/28/2018 07:03	Dale L. Simmons	1985826
	04/19/2018			04/28/2018 07:13	Dale L. Simmons	1985827
	04/19/2018			05/01/2018 18:04	Dale L. Simmons	1985834
	04/19/2018			05/01/2018 18:15	Dale L. Simmons	1985835
SM 5310 B-00	04/19/2018			04/24/2018 06:04	Megan Treadwell	1985828
	04/19/2018			04/24/2018 06:18	Megan Treadwell	1985829
	04/19/2018			04/24/2018 06:34	Megan Treadwell	1985830
	04/19/2018			04/24/2018 06:48	Megan Treadwell	1985836
	04/19/2018			04/24/2018 07:03	Megan Treadwell	1985837