

Chemical Analysis Report

NW-DIST-2018-10-17-02

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

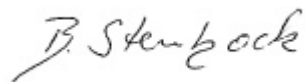
Event Description: **CRESTVIEW**
Request ID: **RQ-2018-10-08-58**
Customer: **NW-DIST**
Project ID: **SMP**

Send Reports to:
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Certified by: Dr. rer. nat. Bettina Steinbock, Environmental Administrator

Date Certified: 06-NOV-2018 12:49



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: Oak Creek below Tommy Steel Rd

Collection Date/Time: 10/16/2018 10:30

Field ID: G4NW0395

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2033354	EPA 180.1 Rev. 2.0	Turbidity	5.8		NTU	P353251	
	EPA 300.0 Rev. 2.1	Chloride	3.7		mg Cl/L	P353565	
		Sulfate	1.7		mg SO4/L	P353568	
	SM 2120 B	Color (true)	100		PCU	P353238	
	SM 2320 B-97	Total Alkalinity	4.2		mg CaCO3/L	P353709	
	SM 2540 C-97	TDS	46		mg/L	P353836	
	SM 2540 D-97	TSS	4	I	mg/L	P353585	
	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P353712	
2033357	EPA 350.1 Rev. 2.0	Ammonia-N	0.008		mg N/L	P353805	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.31		mg N/L	P353671	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.012		mg N/L	P353350	
	EPA 365.1 Rev. 2.0	Total-P	0.028		mg P/L	P353311	
	SM 5310 B-00	Organic Carbon	5.3		mg C/L	P353537	
2033360	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.008	I	mg P/L	P353244	

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: Green Branch Upstream of Buck Tyner Rd.

Collection Date/Time: 10/16/2018 11:30

Field ID: G4NW0207

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2033355	EPA 180.1 Rev. 2.0	Turbidity	5.4		NTU	P353251	
	EPA 300.0 Rev. 2.1	Chloride	4.7		mg Cl/L	P353565	
		Sulfate	0.53	I	mg SO4/L	P353568	
	SM 2120 B	Color (true)	75		PCU	P353238	
	SM 2320 B-97	Total Alkalinity	6.7		mg CaCO3/L	P353709	
	SM 2540 C-97	TDS	33		mg/L	P353836	
	SM 2540 D-97	TSS	3	I	mg/L	P353585	
	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P353712	
2033358	EPA 350.1 Rev. 2.0	Ammonia-N	0.003	I	mg N/L	P353805	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.33		mg N/L	P353671	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.005	I	mg N/L	P353350	
	EPA 365.1 Rev. 2.0	Total-P	0.021		mg P/L	P353311	
	SM 5310 B-00	Organic Carbon	5.8		mg C/L	P353621	
2033361	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.005	I	mg P/L	P353244	

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: Green Branch Upstream of Buck Tyner Rd.

Collection Date/Time: 10/16/2018 11:35

Field ID: G4NW0207_DUP

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2033356	EPA 180.1 Rev. 2.0	Turbidity	4.6		NTU	P353252	
	EPA 300.0 Rev. 2.1	Chloride	4.6		mg Cl/L	P353720	
		Sulfate	0.51	I	mg SO4/L	P353722	
	SM 2120 B	Color (true)	76		PCU	P353238	
	SM 2320 B-97	Total Alkalinity	6.8		mg CaCO3/L	P353710	
	SM 2540 C-97	TDS	35		mg/L	P353836	
	SM 2540 D-97	TSS	4	I	mg/L	P353585	
	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P353713	
	EPA 350.1 Rev. 2.0	Ammonia-N	0.003	I	mg N/L	P353805	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.29		mg N/L	P353671	
2033359	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P353350	
	EPA 365.1 Rev. 2.0	Total-P	0.020		mg P/L	P353311	
	SM 5310 B-00	Organic Carbon	5.7		mg C/L	P353621	
	EPA 365.1 Rev. 2.0	O-Phosphate-P	0.005	I	mg P/L	P353246	
	dissolved						

Ref. Method and Comment:

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

Sample Location: Green Branch Upstream of Buck Tyner Rd.

Collection Date/Time: 10/16/2018 11:45

Field ID: BLANK_10102018

Matrix: W-FIELD-BK

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2033363	EPA 180.1 Rev. 2.0	Turbidity	0.10	U	NTU	P353252	
	EPA 300.0 Rev. 2.1	Chloride	5.3		mg Cl/L	P353720	
		Sulfate	0.78		mg SO4/L	P353722	
	SM 2120 B	Color (true)	2.5	U	PCU	P353238	
	SM 2320 B-97	Total Alkalinity	0.65	U	mg CaCO3/L	P353710	
	SM 2540 C-97	TDS	15	U	mg/L	P353834	
	SM 2540 D-97	TSS	2	U	mg/L	P353583	
	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P353713	
	EPA 350.1 Rev. 2.0	Ammonia-N	0.002	U	mg N/L	P353805	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.080	U	mg N/L	P353671	
2033364	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P353350	
	EPA 365.1 Rev. 2.0	Total-P	0.002	U	mg P/L	P353311	
	SM 5310 B-00	Organic Carbon	0.50	U	mg C/L	P353621	
	EPA 365.1 Rev. 2.0	O-Phosphate-P	0.004	U	mg P/L	P353246	
	dissolved						

Ref. Method and Comment:

EPA 300.0 Rev. 2.1: Chloride: The result was confirmed on 10/30/2018.

EPA 300.0 Rev. 2.1: Sulfate: The result was confirmed on 10/30/2018.

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: P353251

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P353252

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P353565

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P353568

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P353720

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P353722

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P353805

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P353671

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P353350

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: P353311

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P353244

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P353246

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

Reference Method: SM 2120 B
Batch ID: P353238

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2320 B-97
Batch ID: P353709

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

Reference Method: SM 2320 B-97
Batch ID: P353710

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

Reference Method: SM 2540 C-97
Batch ID: P353834

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 C-97
Batch ID: P353836

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P353583

Component	Result	Code	Units
TSS	2	U	mg/L

Quality Assurance Report

Method Blank Results

Reference Method: SM 2540 D-97
Batch ID: P353585

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500 F-C-97
Batch ID: P353712

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 4500 F-C-97
Batch ID: P353713

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-00
Batch ID: P353537

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

Reference Method: SM 5310 B-00
Batch ID: P353621

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: P353565

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P353568

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P353720

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P353722

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P353805

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: P353671

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P353350

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P353311

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P353244

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

Quality Assurance Report

Laboratory Control Sample Accuracy

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P353246

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

Reference Method: SM 2120 B
Batch ID: P353238

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

Reference Method: SM 2320 B-97
Batch ID: P353709

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

Reference Method: SM 2320 B-97
Batch ID: P353710

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

Reference Method: SM 4500 F-C-97
Batch ID: P353712

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

Reference Method: SM 4500 F-C-97
Batch ID: P353713

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	96.6		P	91 - 105

Reference Method: SM 5310 B-00
Batch ID: P353537

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	91.1		P	85 - 115

Reference Method: SM 5310 B-00
Batch ID: P353621

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	96.3		P	85 - 115

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P353565

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2033099	Chloride	97.4		P	90 - 110
2033184	Chloride	98.7		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P353568

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2033099	Sulfate	101		P	90 - 110
2033184	Sulfate	98.3		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P353720

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2033381	Chloride	98.6		P	90 - 110
2033460	Chloride	98.2		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P353722

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2033381	Sulfate	93.1		P	90 - 110
2033460	Sulfate	98.5		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P353805

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2033357	Ammonia-N	98.1	96.8	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P353671

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2033358	Kjeldahl Nitrogen	96.9	106	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P353350

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2033295	NO2NO3-N	101	102	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P353311

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2033295	Total-P	102	97.0	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P353244

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P353244

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2033125	O-Phosphate-P	99.9	99.1	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P353246

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2033362	O-Phosphate-P	96.9	98.6	P/P	90 - 110

Reference Method: SM 4500 F-C-97
Batch ID: P353712

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2033971	Fluoride	100	101	P/P	91 - 105

Reference Method: SM 4500 F-C-97
Batch ID: P353713

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2033469	Fluoride	97.3	96.6	P/P	91 - 105

Reference Method: SM 5310 B-00
Batch ID: P353537

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2033108	Organic Carbon	92.6	95.0	P/P	85 - 115

Reference Method: SM 5310 B-00
Batch ID: P353621

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2033367	Organic Carbon	97.6	96.5	P/P	85 - 115

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P353251

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2033345	Turbidity	0.0	Sample	P	0 - 20

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P353252

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2033366	Turbidity	1.81	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P353565

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2033099	Chloride	0.851	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P353568

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2033099	Sulfate	0.758	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P353720

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2033381	Chloride	0.181	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P353722

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2033381	Sulfate	0.198	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P353805

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2033357	Ammonia-N	1.12	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P353671

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2033358	Kjeldahl Nitrogen	7.11	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P353350

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2033295	NO2NO3-N	0.494	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P353311

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2033295	Total-P	4.46	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P353244

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2033125	O-Phosphate-P	0.432	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P353246

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2033362	O-Phosphate-P	1.65	Spike	P	0 - 20

Reference Method: SM 2120 B
Batch ID: P353238

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2033294	Color (true)	0.780	Sample	P	0 - 20

Reference Method: SM 2320 B-97
Batch ID: P353709

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2033971	Total Alkalinity	0.297	Sample	P	0 - 1.6

Reference Method: SM 2320 B-97
Batch ID: P353710

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2033469	Total Alkalinity	0.283	Sample	P	0 - 1.6

Reference Method: SM 2540 C-97
Batch ID: P353834

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2033096	TDS	3.65	Sample	P	0 - 10

Quality Assurance Report Precision

Reference Method: SM 2540 C-97
 Batch ID: P353836

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2033294	TDS	5.71	Sample	P	0 - 10

Reference Method: SM 4500 F-C-97
 Batch ID: P353712

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2033971	Fluoride	0.977	Spike	P	0 - 3.5

Reference Method: SM 4500 F-C-97
 Batch ID: P353713

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2033469	Fluoride	0.470	Spike	P	0 - 3.5

Reference Method: SM 5310 B-00
 Batch ID: P353537

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2033108	Organic Carbon	2.36	Spike	P	0 - 20

Reference Method: SM 5310 B-00
 Batch ID: P353621

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2033367	Organic Carbon	0.637	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: A87100

Included Lab Sample IDs: 2033354, 2033355, 2033356, 2033363

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	101	103	P/P	90 - 115

Reference Method: EPA 365.1 Rev. 2.0 dissolved

Run ID: A87103

Included Lab Sample IDs: 2033360, 2033361, 2033362, 2033365

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	100	99.6	P/P	90 - 110
O-Phosphate-P	99.5	100	P/P	90 - 110
O-Phosphate-P	99.6	99.5	P/P	90 - 110

Reference Method: EPA 180.1 Rev. 2.0

Run ID: A87106

Included Lab Sample IDs: 2033354, 2033355, 2033356, 2033363

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 353.2 Rev. 2.0

Run ID: A87160

Included Lab Sample IDs: 2033357, 2033358, 2033359, 2033364

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: A87195

Included Lab Sample IDs: 2033357, 2033358, 2033364

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

Reference Method: EPA 300.0 Rev. 2.1

Run ID: A87212

Included Lab Sample IDs: 2033354, 2033355, 2033356, 2033363

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	99.4	101	P/P	90 - 110
Chloride	99.8	99.4	P/P	90 - 110
Sulfate	98.2	98.3	P/P	90 - 110
Sulfate	98.7	100	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A87220

Included Lab Sample IDs: 2033359

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

Quality Assurance Report Calibration Verification

Reference Method: SM 5310 B-00
Run ID: A87236
Included Lab Sample IDs: 2033357

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	94.2	95.9	P/P	90 - 110

Reference Method: SM 5310 B-00
Run ID: A87260
Included Lab Sample IDs: 2033358, 2033359, 2033364

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	97.2	99.6	P/P	90 - 110
Organic Carbon	99.6	98.2	P/P	90 - 110

Reference Method: SM 2320 B-97
Run ID: A87299
Included Lab Sample IDs: 2033354, 2033355, 2033356, 2033363

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	99.0	102	P/P	90 - 110

Reference Method: SM 4500 F-C-97
Run ID: A87299
Included Lab Sample IDs: 2033354, 2033355, 2033356, 2033363

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

Reference Method: EPA 350.1 Rev. 2.0
Run ID: A87340
Included Lab Sample IDs: 2033357, 2033358, 2033359, 2033364

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	100	99.3	P/P	90 - 110
Ammonia-N	99.7	100	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Run ID: A87357
Included Lab Sample IDs: 2033357, 2033358, 2033359, 2033364

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	103	107	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					0.0	
	Turbidity					1.81	
EPA 300.0 Rev. 2.1	Chloride	103	97.4	98.7		0.851	
	Chloride	101	98.6	98.2		0.181	
	Sulfate	102	101	98.3		0.758	
	Sulfate	101	93.1	98.5		0.198	
EPA 350.1 Rev. 2.0	Ammonia-N	100	98.1	96.8			1.12
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	101	96.9	106			7.11
EPA 353.2 Rev. 2.0	NO2NO3-N	99.5	101	102			0.494
EPA 365.1 Rev. 2.0	Total-P	101	102	97.0			4.46
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	99.0	99.9	99.1			0.432
	O-Phosphate-P	101	96.9	98.6			1.65
SM 2120 B	Color (true)	102				0.780	
SM 2320 B-97	Total Alkalinity	102				0.297	
	Total Alkalinity	101				0.283	
SM 2540 C-97	TDS					3.65	
	TDS					5.71	
SM 4500 F-C-97	Fluoride	96.1	100	101			0.977
	Fluoride	96.6	97.3	96.6			0.470
SM 5310 B-00	Organic Carbon	91.1	92.6	95.0			2.36
	Organic Carbon	96.3	97.6	96.5			0.637

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	2033354, 2033355, 2033356, 2033363
EPA 300.0 Rev. 2.1 / E31780	Chloride in aqueous matrices	2033354, 2033355, 2033356, 2033363
EPA 300.0 Rev. 2.1 / E31780	Sulfate in aqueous matrices	2033354, 2033355, 2033356, 2033363
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	2033357, 2033358, 2033359, 2033364
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	2033357, 2033358, 2033359, 2033364
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	2033357, 2033358, 2033359, 2033364
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	2033357, 2033358, 2033359, 2033364
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	2033360, 2033361, 2033362, 2033365
SM 2120 B / E31780	True Color measured at 450 nm	2033354, 2033355, 2033356, 2033363
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO3/L	2033354, 2033355, 2033356, 2033363
SM 2540 C-97 / E31780	Total Dissolved Solids in aqueous matrices	2033354, 2033355, 2033356, 2033363
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices using a maximum of 250 mL of sample	2033354, 2033355, 2033356, 2033363
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	2033354, 2033355, 2033356, 2033363
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	2033357, 2033358, 2033359, 2033364

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	10/17/2018			10/17/2018 16:15	Megan Treadwell	2033354, 2033355, 2033356, 2033363
EPA 300.0 Rev. 2.1	10/17/2018			10/24/2018 09:43	Lipi Saha	2033354
	10/17/2018			10/24/2018 09:55	Lipi Saha	2033355
	10/17/2018			10/24/2018 16:53	Lipi Saha	2033356
	10/17/2018			10/24/2018 17:05	Lipi Saha	2033363
EPA 350.1 Rev. 2.0	10/17/2018			10/26/2018 15:38	Ping Hua	2033357
	10/17/2018			10/26/2018 15:58	Ping Hua	2033358
	10/17/2018			10/26/2018 15:59	Ping Hua	2033359
	10/17/2018			10/26/2018 16:01	Ping Hua	2033364
EPA 351.2 Rev. 2.0	10/17/2018	10/25/2018 10:00	Adrian Shelby	10/29/2018 11:13	Virginia P. Brown	2033357
	10/17/2018	10/25/2018 10:00	Adrian Shelby	10/29/2018 11:15	Virginia P. Brown	2033358
	10/17/2018	10/25/2018 10:00	Adrian Shelby	10/29/2018 11:20	Virginia P. Brown	2033359
	10/17/2018	10/25/2018 10:00	Adrian Shelby	10/29/2018 11:21	Virginia P. Brown	2033364
EPA 353.2 Rev. 2.0	10/17/2018			10/19/2018 12:14	Lauren Bottorf	2033364
	10/17/2018			10/19/2018 12:15	Lauren Bottorf	2033358
	10/17/2018			10/19/2018 12:16	Lauren Bottorf	2033359
	10/17/2018			10/19/2018 12:21	Lauren Bottorf	2033357
EPA 365.1 Rev. 2.0	10/17/2018	10/19/2018 12:10	Sima Feizi	10/22/2018 11:34	Beverly Y. Sanders	2033364
	10/17/2018	10/19/2018 12:10	Sima Feizi	10/22/2018 11:36	Beverly Y. Sanders	2033357
	10/17/2018	10/19/2018 12:10	Sima Feizi	10/22/2018 11:44	Beverly Y. Sanders	2033358
	10/17/2018	10/19/2018 12:10	Sima Feizi	10/23/2018 11:40	Beverly Y. Sanders	2033359
EPA 365.1 Rev. 2.0 dissolved	10/17/2018			10/17/2018 15:41	Anthony C. Onicha	2033360
	10/17/2018			10/17/2018 15:42	Anthony C. Onicha	2033361
	10/17/2018			10/17/2018 15:56	Anthony C. Onicha	2033362
	10/17/2018			10/17/2018 16:03	Anthony C. Onicha	2033365
SM 2120 B	10/17/2018			10/17/2018 16:01	Chelsea Hernandez	2033354
	10/17/2018			10/17/2018 16:02	Chelsea Hernandez	2033355
	10/17/2018			10/17/2018 16:03	Chelsea Hernandez	2033356, 2033363
SM 2320 B-97	10/17/2018			10/24/2018 05:35	Dale L. Simmons	2033354
	10/17/2018			10/24/2018 05:47	Dale L. Simmons	2033355
	10/17/2018			10/24/2018 06:51	Dale L. Simmons	2033356
	10/17/2018			10/24/2018 07:05	Dale L. Simmons	2033363
SM 2540 C-97	10/17/2018			10/19/2018 15:48	Yijie Li	2033354, 2033355, 2033356, 2033363
SM 2540 D-97	10/17/2018			10/19/2018 15:48	Yijie Li	2033354, 2033355, 2033356, 2033363
SM 4500 F-C-97	10/17/2018			10/24/2018 05:35	Dale L. Simmons	2033354
	10/17/2018			10/24/2018 05:47	Dale L. Simmons	2033355
	10/17/2018			10/24/2018 06:51	Dale L. Simmons	2033356
	10/17/2018			10/24/2018 07:05	Dale L. Simmons	2033363
SM 5310 B-00	10/17/2018			10/23/2018 11:47	Megan Treadwell	2033357
	10/17/2018			10/23/2018 21:37	Megan Treadwell	2033358

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
SM 5310 B-00	10/17/2018			10/23/2018 21:52	Megan Treadwell	2033359
	10/17/2018			10/23/2018 22:32	Megan Treadwell	2033364