Chemical Analysis Report

CEN-DIST-2018-10-02-01

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

Event Description: **Tiger + D&B**
Request ID: **RQ-2018-09-10-58**
Customer: **CEN-DIST**
Project ID: **SMP**

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Certified by: Colin Wright, Program Administrator

Date Certified: 24-OCT-2018 11:43

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: Tiger Creek 1.45km Downstream of Lake Kissimmee **Collection Date/Time: 10/01/2018 11:24**

Field ID: G4CE0070 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2030002	EPA 180.1 Rev. 2.0	Turbidity	7.0		NTU	P352656	
	EPA 300.0 Rev. 2.1	Chloride	14		mg Cl/L	P353004	
		Sulfate	10		mg SO4/L	P353006	
	SM 2120 B	Color (true)	64	A	PCU	P352636	
	SM 2320 B-97	Total Alkalinity	15		mg CaCO3/L	P352884	
	SM 2540 C-97	TDS	99		mg/L	P352991	
	SM 2540 D-97	TSS	9	I	mg/L	P352924	
	SM 4500 F-C-97	Fluoride	0.087	I	mg F/L	P352887	
2030003	EPA 350.1 Rev. 2.0	Ammonia-N	0.069		mg N/L	P353033	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.3		mg N/L	P352758	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.046		mg N/L	P352775	
	EPA 365.1 Rev. 2.0	Total-P	0.18		mg P/L	P352694	
	SM 5310 B-00	Organic Carbon	12		mg C/L	P352972	
2030004	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.088		mg P/L	P352617	

Ref. Method and Comment:
SM 2540 D-97: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample.
EPA 351.2 Rev. 2.0: Batch matrix spike recoveries are unavailable because of high analyte concentration in the QC sample.

Sample Location: Tiger Creek 1.45km Downstream of Lake Kissimmee **Collection Date/Time: 10/01/2018 11:27**

Field ID: G4CE0070 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2030005	EPA 180.1 Rev. 2.0	Turbidity	7.3		NTU	P352656	
	EPA 300.0 Rev. 2.1	Chloride	14		mg Cl/L	P353004	
		Sulfate	11		mg SO4/L	P353006	
	SM 2120 B	Color (true)	65		PCU	P352636	
	SM 2320 B-97	Total Alkalinity	15		mg CaCO3/L	P352884	
	SM 2540 C-97	TDS	105		mg/L	P352991	
	SM 2540 D-97	TSS	10	I	mg/L	P352924	
	SM 4500 F-C-97	Fluoride	0.088	I	mg F/L	P352887	
2030006	EPA 350.1 Rev. 2.0	Ammonia-N	0.064		mg N/L	P353033	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.2		mg N/L	P352758	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.048		mg N/L	P352775	
	EPA 365.1 Rev. 2.0	Total-P	0.16		mg P/L	P352694	
	SM 5310 B-00	Organic Carbon	12		mg C/L	P352972	
2030007	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.085		mg P/L	P352617	

Ref. Method and Comment:
SM 2540 D-97: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample.
EPA 351.2 Rev. 2.0: Batch matrix spike recoveries are unavailable because of high analyte concentration in the QC sample.

Sample Location: Washroom **Collection Date/Time: 10/01/2018 12:05**

Field ID: Blank_10012018 Matrix: W-FIELD-BK

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2030008	EPA 180.1 Rev. 2.0	Turbidity	0.10	U	NTU	P352656	
	EPA 300.0 Rev. 2.1	Chloride	0.20	U	mg Cl/L	P353004	
		Sulfate	0.20	U	mg SO4/L	P353006	
	SM 2120 B	Color (true)	2.5	U	PCU	P352636	
	SM 2320 B-97	Total Alkalinity	0.65	U	mg CaCO3/L	P352884	
	SM 2540 C-97	TDS	15	U	mg/L	P352989	
	SM 2540 D-97	TSS	2	U	mg/L	P352922	
	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P352887	
2030009	EPA 350.1 Rev. 2.0	Ammonia-N	0.002	U	mg N/L	P353033	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.080	U	mg N/L	P352758	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P352776	
	EPA 365.1 Rev. 2.0	Total-P	0.002	U	mg P/L	P352694	
	SM 5310 B-00	Organic Carbon	0.50	U	mg C/L	P352973	
2030010	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P352617	

Ref. Method and Comment:
SM 2540 D-97: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample.
EPA 351.2 Rev. 2.0: Batch matrix spike recoveries are unavailable because of high analyte concentration in the QC sample.

Quality Assurance Report
Method Blank Results

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P352656

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P353004

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P353006

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P353033

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P352758

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P352775

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P352776

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P352694

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P352617

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

Quality Assurance Report
Method Blank Results

Reference Method: SM 2120 B
Batch ID: P352636

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2320 B-97
Batch ID: P352884

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

Reference Method: SM 2540 C-97
Batch ID: P352989

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 C-97
Batch ID: P352991

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P352922

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P352924

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500 F-C-97
Batch ID: P352887

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-00
Batch ID: P352972

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

Reference Method: SM 5310 B-00
Batch ID: P352973

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: P353004

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Chloride	98.8		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P353006

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Sulfate	97.6		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P353033

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P352758

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Kjeldahl Nitrogen	109		P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P352775

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P352776

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P352694

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: P352617

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

Reference Method: SM 2120 B
Batch ID: P352636

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Color (true)	99.3		P	85 - 115

Quality Assurance Report
Laboratory Control Sample Accuracy

Reference Method: SM 2320 B-97
Batch ID: P352884

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

Reference Method: SM 4500 F-C-97
Batch ID: P352887

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	99.2		P	91 - 105

Reference Method: SM 5310 B-00
Batch ID: P352972

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

Reference Method: SM 5310 B-00
Batch ID: P352973

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	99.0		P	85 - 115

Quality Assurance Report
Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P353004

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2029937	Chloride	96.8		P	90 - 110
2030113	Chloride	96.0		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P353006

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2029937	Sulfate	93.9		P	90 - 110
2030113	Sulfate	96.7		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P353033

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2030229	Ammonia-N	102	101	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P352775

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2029938	NO2NO3-N	99.5		P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P352776

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2030114	NO2NO3-N	102	102	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P352694

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2030006	Total-P	100	97.9	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P352617

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2030240	O-Phosphate-P	97.5	98.7	P/P	90 - 110

Reference Method: SM 4500 F-C-97
Batch ID: P352887

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2030231	Fluoride	99.0	99.0	P/P	91 - 105

Reference Method: SM 5310 B-00
Batch ID: P352972

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2029790	Organic Carbon	97.9	97.7	P/P	85 - 115

Quality Assurance Report
Matrix Spike Accuracy

Reference Method: SM 5310 B-00
Batch ID: P352973

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2030114	Organic Carbon	90.8	91.8	P/P	85 - 115

Quality Assurance Report
Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P352656

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2029973	Turbidity	9.01	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P353004

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2029937	Chloride	2.76	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P353006

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2029937	Sulfate	2.93	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P353033

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2030229	Ammonia-N	0.778	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P352758

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2030095	Kjeldahl Nitrogen	1.53	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P352775

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2029938	NO2NO3-N	0.734	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P352776

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2030114	NO2NO3-N	0.980	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P352694

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2030006	Total-P	1.57	Spike	P	0 - 20

Quality Assurance Report
Precision

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P352617

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2030240	O-Phosphate-P	1.05	Spike	P	0 - 20

Reference Method: SM 2120 B
Batch ID: P352636

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2030002	Color (true)	0.567	Sample	P	0 - 20

Reference Method: SM 2320 B-97
Batch ID: P352884

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2030231	Total Alkalinity	0.642	Sample	P	0 - 1.6

Reference Method: SM 2540 C-97
Batch ID: P352989

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2029484	TDS	3.66	Sample	P	0 - 10

Reference Method: SM 2540 C-97
Batch ID: P352991

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2030113	TDS	7.63	Sample	P	0 - 10

Reference Method: SM 4500 F-C-97
Batch ID: P352887

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2030231	Fluoride	0.0	Spike	P	0 - 3.5

Reference Method: SM 5310 B-00
Batch ID: P352972

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2029790	Organic Carbon	0.243	Spike	P	0 - 20

Reference Method: SM 5310 B-00
Batch ID: P352973

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2030114	Organic Carbon	0.630	Spike	P	0 - 20

Quality Assurance Report
Precision

* Sample, spike and/or laboratory control sample precision (LCS) is reported.
Replicate spike precision may be reported when sample results are below quantifiable levels.

Quality Assurance Report
Calibration Verification

Reference Method: EPA 300.0 Rev. 2.1
Run ID: A86839
Included Lab Sample IDs: 2030002, 2030005, 2030008

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	99.6	100	P/P	90 - 110
Sulfate	98.4	99.2	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Run ID: A86850
Included Lab Sample IDs: 2030004, 2030007, 2030010

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	101	99.2	P/P	90 - 110
O-Phosphate-P	99.2	99.0	P/P	90 - 110

Reference Method: SM 2120 B
Run ID: A86859
Included Lab Sample IDs: 2030002, 2030005, 2030008

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	99.8	99.7	P/P	90 - 115

Reference Method: EPA 180.1 Rev. 2.0
Run ID: A86861
Included Lab Sample IDs: 2030002, 2030005, 2030008

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Turbidity	102	102	P/P	95 - 105

Reference Method: EPA 365.1 Rev. 2.0
Run ID: A86898
Included Lab Sample IDs: 2030003, 2030006

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

Reference Method: EPA 353.2 Rev. 2.0
Run ID: A86915
Included Lab Sample IDs: 2030003, 2030006, 2030009

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: A86920
Included Lab Sample IDs: 2030009

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	102	97.2	P/P	90 - 110

Quality Assurance Report
Calibration Verification

Reference Method: SM 2320 B-97
Run ID: A86959
Included Lab Sample IDs: 2030002, 2030005, 2030008

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	103	100	P/P	90 - 110

Reference Method: SM 4500 F-C-97
Run ID: A86959
Included Lab Sample IDs: 2030002, 2030005, 2030008

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

Reference Method: EPA 351.2 Rev. 2.0
Run ID: A86981
Included Lab Sample IDs: 2030003, 2030006, 2030009

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	101	94.7	P/P	90 - 110

Reference Method: SM 5310 B-00
Run ID: A86990
Included Lab Sample IDs: 2030003, 2030006, 2030009

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	94.1	94.5	P/P	90 - 110
Organic Carbon	94.5	93.2	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Run ID: A87014
Included Lab Sample IDs: 2030003, 2030006, 2030009

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

* Pass/Fail determinations are made for each bracketing calibration verification check.
Control limits for initial calibration checks may be different from those for continuing checks, depending on method requirements.
Where they are different, both control limits are provided.

Quality Assurance Report
Summary

Ref. Method	Analyte	LCS % Recovery	MS % Recovery		Precision		
					LCS	SMP	MS
EPA 180.1 Rev. 2.0	Turbidity					9.01	
EPA 300.0 Rev. 2.1	Chloride	98.8	96.8	96.0		2.76	
	Sulfate	97.6	93.9	96.7		2.93	
EPA 350.1 Rev. 2.0	Ammonia-N	99.4	102	101			0.778
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	109					1.53
EPA 353.2 Rev. 2.0	NO2NO3-N	100	99.5				0.734
	NO2NO3-N	101	102	102			0.980
EPA 365.1 Rev. 2.0	Total-P	103	100	97.9			1.57
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	104	97.5	98.7			1.05
SM 2120 B	Color (true)	99.3				0.567	
SM 2320 B-97	Total Alkalinity	103				0.642	
SM 2540 C-97	TDS					3.66	
	TDS					7.63	
SM 4500 F-C-97	Fluoride	99.2	99.0	99.0			0.0
SM 5310 B-00	Organic Carbon	103	97.9	97.7			0.243
	Organic Carbon	99.0	90.8	91.8			0.630

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	2030002, 2030005, 2030008
EPA 300.0 Rev. 2.1 / E31780	Chloride in aqueous matrices	2030002, 2030005, 2030008
EPA 300.0 Rev. 2.1 / E31780	Sulfate in aqueous matrices	2030002, 2030005, 2030008
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	2030003, 2030006, 2030009
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	2030003, 2030006, 2030009
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	2030003, 2030006, 2030009
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	2030003, 2030006, 2030009
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	2030004, 2030007, 2030010
SM 2120 B / E31780	True Color measured at 450 nm	2030002, 2030005, 2030008
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO3/L	2030002, 2030005, 2030008
SM 2540 C-97 / E31780	Total Dissolved Solids in aqueous matrices	2030002, 2030005, 2030008
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices using a maximum of 250 mL of sample	2030002, 2030005, 2030008
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	2030002, 2030005, 2030008
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	2030003, 2030006, 2030009

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	10/02/2018			10/02/2018 16:34	Megan Treadwell	2030002, 2030005, 2030008
EPA 300.0 Rev. 2.1	10/02/2018			10/05/2018 19:25	Lipi Saha	2030002
	10/02/2018			10/05/2018 19:37	Lipi Saha	2030005
	10/02/2018			10/05/2018 19:49	Lipi Saha	2030008
EPA 350.1 Rev. 2.0	10/02/2018			10/04/2018 13:08	Ping Hua	2030003
	10/02/2018			10/04/2018 13:16	Ping Hua	2030009
	10/02/2018			10/04/2018 13:28	Ping Hua	2030006
EPA 351.2 Rev. 2.0	10/02/2018	10/04/2018 11:30	Adrian Shelby	10/08/2018 12:47	Joseph Suarez	2030003
	10/02/2018	10/04/2018 11:30	Adrian Shelby	10/08/2018 12:49	Joseph Suarez	2030006
	10/02/2018	10/04/2018 11:30	Adrian Shelby	10/08/2018 12:50	Joseph Suarez	2030009
EPA 353.2 Rev. 2.0	10/02/2018			10/04/2018 13:33	Lauren Bottorf	2030003
	10/02/2018			10/04/2018 13:34	Lauren Bottorf	2030006
	10/02/2018			10/04/2018 13:50	Lauren Bottorf	2030009
EPA 365.1 Rev. 2.0	10/02/2018	10/03/2018 13:00	Sima Feizi	10/04/2018 09:20	Beverly Y. Sanders	2030006
	10/02/2018	10/03/2018 13:00	Sima Feizi	10/04/2018 09:27	Beverly Y. Sanders	2030003
	10/02/2018	10/03/2018 13:00	Sima Feizi	10/04/2018 12:34	Beverly Y. Sanders	2030009
EPA 365.1 Rev. 2.0 dissolved	10/02/2018			10/02/2018 15:57	Julia Storbeck	2030010
	10/02/2018			10/02/2018 16:06	Julia Storbeck	2030004, 2030007
SM 2120 B	10/02/2018			10/02/2018 14:59	Chelsea Hernandez	2030002
	10/02/2018			10/02/2018 15:00	Chelsea Hernandez	2030005
	10/02/2018			10/02/2018 15:01	Chelsea Hernandez	2030008
SM 2320 B-97	10/02/2018			10/06/2018 04:09	Dale L. Simmons	2030002
	10/02/2018			10/06/2018 04:19	Dale L. Simmons	2030005
	10/02/2018			10/06/2018 04:32	Dale L. Simmons	2030008
SM 2540 C-97	10/02/2018			10/03/2018 15:02	Yijie Li	2030002, 2030005, 2030008
SM 2540 D-97	10/02/2018			10/03/2018 15:02	Yijie Li	2030002, 2030005, 2030008
SM 4500 F-C-97	10/02/2018			10/06/2018 04:09	Dale L. Simmons	2030002
	10/02/2018			10/06/2018 04:19	Dale L. Simmons	2030005
	10/02/2018			10/06/2018 04:32	Dale L. Simmons	2030008
SM 5310 B-00	10/02/2018			10/04/2018 09:32	Megan Treadwell	2030003
	10/02/2018			10/04/2018 09:44	Megan Treadwell	2030006
	10/02/2018			10/04/2018 11:39	Megan Treadwell	2030009