Chemical Analysis Report

CEN-DIST-2017-12-07-02

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

Event Description: **Yvonne / Hope / McCoy**
Request ID: **RQ-2017-12-04-57**
Customer: **CEN-DIST**
Project ID: **SMP**

Send Reports to:
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FL Dept. of Environmental Protection
3319 Maguire Blvd., Suite 232
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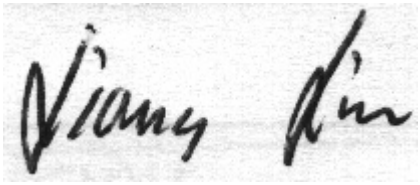
Certified by: Liang Lin, Environmental Administrator

Date Certified: 29-DEC-2017 10:50



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: Lake Hope @ Center **Collection Date/Time: 12/06/2017 10:45**

Field ID: G2CE0106 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1951747	EPA 180.1 Rev. 2.0	Turbidity	0.85		NTU	P336598	
	EPA 300.0 Rev. 2.1	Chloride	45		mg Cl/L	P336892	
		Sulfate	21		mg SO4/L	P336895	
	SM 2120 B	Color (true)	28	A	PCU	P336622	
	SM 2320 B-97	Total Alkalinity	40		mg CaCO3/L	P336990	
	SM 2540 C-97	TDS	158		mg/L	P337017	
	SM 2540 D-97	TSS	2	U	mg/L	P336776	
	SM 4500 F-C-97	Fluoride	0.069	I	mg F/L	P337106	
1951750	EPA 350.1 Rev. 2.0	Ammonia-N	0.003	I	mg N/L	P337342	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.48		mg N/L	P336907	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P336738	
	EPA 365.1 Rev. 2.0	Total-P	0.014		mg P/L	P336885	
	SM 5310 B-00	Organic Carbon	6.5		mg C/L	P336822	
1951753	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P336592	

Ref. Method and Comment:
EPA 300.0 Rev. 2.1: Chloride: Batch matrix spike recoveries for one of two spiked samples are unavailable because of high analyte concentration in the QC sample.
SM 2540 D-97: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample.

Sample Location: Lake McCoy @ Center of South Lobe **Collection Date/Time: 12/06/2017 11:30**

Field ID: G2CE0098 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1951748	EPA 180.1 Rev. 2.0	Turbidity	1.5		NTU	P336598	
	EPA 300.0 Rev. 2.1	Chloride	16	A	mg Cl/L	P336892	
		Sulfate	18	A	mg SO4/L	P336895	
	SM 2120 B	Color (true)	74		PCU	P336622	
	SM 2320 B-97	Total Alkalinity	37		mg CaCO3/L	P336990	
	SM 2540 C-97	TDS	109		mg/L	P337017	
	SM 2540 D-97	TSS	2	U	mg/L	P336776	
	SM 4500 F-C-97	Fluoride	0.046	I	mg F/L	P337106	
1951751	EPA 350.1 Rev. 2.0	Ammonia-N	0.068		mg N/L	P337342	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.84		mg N/L	P336908	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.095		mg N/L	P336738	
	EPA 365.1 Rev. 2.0	Total-P	0.040		mg P/L	P336886	
	SM 5310 B-00	Organic Carbon	13		mg C/L	P336822	
1951754	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.008	I	mg P/L	P336592	

Ref. Method and Comment:
EPA 300.0 Rev. 2.1: Chloride: Batch matrix spike recoveries for one of two spiked samples are unavailable because of high analyte concentration in the QC sample.
SM 2540 D-97: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample.

Sample Location: Lake Yvonne @ Center **Collection Date/Time: 12/06/2017 13:00**

Field ID: G2CE0095 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes

Field ID: G2CE0095 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1951749	EPA 180.1 Rev. 2.0	Turbidity	0.95		NTU	P336599	
	EPA 300.0 Rev. 2.1	Chloride	23		mg Cl/L	P336892	
		Sulfate	9.1		mg SO4/L	P336895	
	SM 2120 B	Color (true)	52		PCU	P336622	
	SM 2320 B-97	Total Alkalinity	57		mg CaCO3/L	P336990	
	SM 2540 C-97	TDS	121		mg/L	P337017	
	SM 2540 D-97	TSS	2	U	mg/L	P336776	
	SM 4500 F-C-97	Fluoride	0.21		mg F/L	P337106	
1951752	EPA 350.1 Rev. 2.0	Ammonia-N	0.005		mg N/L	P337342	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.66		mg N/L	P336908	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P336738	
	EPA 365.1 Rev. 2.0	Total-P	0.023		mg P/L	P336886	
	SM 5310 B-00	Organic Carbon	10		mg C/L	P336822	
1951755	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P336592	

Ref. Method and Comment:
EPA 300.0 Rev. 2.1: Chloride: Batch matrix spike recoveries for one of two spiked samples are unavailable because of high analyte concentration in the QC sample.
SM 2540 D-97: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample.

Quality Assurance Report
Method Blank Results

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P336598

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P336599

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P336892

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P336895

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P337342

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

Quality Assurance Report
Method Blank Results

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P336907

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P336908

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P336738

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P336885

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P336886

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P336592

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

Reference Method: SM 2120 B
Batch ID: P336622

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2320 B-97
Batch ID: P336990

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

Reference Method: SM 2540 C-97
Batch ID: P337017

Component	Result	Code	Units
TDS	15	U	mg/L

Quality Assurance Report
Method Blank Results

Reference Method: SM 2540 D-97
Batch ID: P336776

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500 F-C-97
Batch ID: P337106

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-00
Batch ID: P336822

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: P336892

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P336895

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P337342

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: P336907

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Kjeldahl Nitrogen	97.1		P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P336908

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P336738

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits

Quality Assurance Report
Laboratory Control Sample Accuracy

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P336738

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
NO2NO3-N	104		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P336885

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P336886

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P336592

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

Reference Method: SM 2320 B-97
Batch ID: P336990

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	101		P	95 - 108

Reference Method: SM 4500 F-C-97
Batch ID: P337106

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	97.5		P	92 - 103

Reference Method: SM 5310 B-00
Batch ID: P336822

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	99.8		P	85 - 115

Quality Assurance Report
Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P336892

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1951748	Chloride	99.8		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P336895

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits

Quality Assurance Report
Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P336895

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1951748	Sulfate	101		P	90 - 110
1951781	Sulfate	98.9		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P337342

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1951709	Ammonia-N	99.2	97.0	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P336907

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1951647	Kjeldahl Nitrogen	96.6	102	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P336908

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1951783	Kjeldahl Nitrogen	96.3	103	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P336738

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1951750	NO2NO3-N	103	102	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P336885

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1951605	Total-P	98.2	97.2	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P336886

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1951752	Total-P	94.3	100	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P336592

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1951653	O-Phosphate-P	103	100	P/P	90 - 110

Reference Method: SM 4500 F-C-97
Batch ID: P337106

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1951838	Fluoride	97.9	98.5	P/P	91 - 105

Quality Assurance Report
Matrix Spike Accuracy

Reference Method: SM 5310 B-00
Batch ID: P336822

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1951605	Organic Carbon	103	99.1	P/P	85 - 115

Quality Assurance Report
Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P336598

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1951629	Turbidity	5.65	Sample	P	0 - 20

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P336599

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1951778	Turbidity	1.73	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P336892

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1951748	Chloride	3.42	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P336895

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1951748	Sulfate	3.35	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P337342

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1951709	Ammonia-N	1.83	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P336907

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1951647	Kjeldahl Nitrogen	4.48	Spike	P	0 - 20

Quality Assurance Report
Precision

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P336908

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1951783	Kjeldahl Nitrogen	4.83	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P336738

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1951750	NO2NO3-N	1.47	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P336885

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1951605	Total-P	0.725	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P336886

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1951752	Total-P	5.57	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P336592

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1951653	O-Phosphate-P	2.56	Spike	P	0 - 20

Reference Method: SM 2120 B
Batch ID: P336622

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1951747	Color (true)	1.39	Sample	P	0 - 20

Reference Method: SM 2320 B-97
Batch ID: P336990

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1951838	Total Alkalinity	0.704	Sample	P	0 - 4.8

Reference Method: SM 2540 C-97
Batch ID: P337017

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1951815	TDS	1.93	Sample	P	0 - 10

Quality Assurance Report
Precision

Reference Method: SM 4500 F-C-97
Batch ID: P337106

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1951838	Fluoride	0.490	Spike	P	0 - 3.0

Reference Method: SM 5310 B-00
Batch ID: P336822

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1951605	Organic Carbon	3.29	Spike	P	0 - 20

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

Quality Assurance Report
Calibration Verification

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Run ID: A80761
Included Lab Sample IDs: 1951753, 1951754, 1951755

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	99.0	99.4	P/P	90 - 110

Reference Method: EPA 180.1 Rev. 2.0
Run ID: A80763
Included Lab Sample IDs: 1951747, 1951748, 1951749

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

Reference Method: SM 2120 B
Run ID: A80772
Included Lab Sample IDs: 1951747, 1951748, 1951749

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	99.1	101	P/P	85 - 115

Reference Method: EPA 353.2 Rev. 2.0
Run ID: A80816
Included Lab Sample IDs: 1951750, 1951751, 1951752

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

Reference Method: SM 5310 B-00
Run ID: A80848
Included Lab Sample IDs: 1951750, 1951751, 1951752

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

Quality Assurance Report
Calibration Verification

Reference Method: EPA 300.0 Rev. 2.1
Run ID: A80872
Included Lab Sample IDs: 1951747, 1951748, 1951749

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	102	105	P/P	90 - 110
Sulfate	100	102	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Run ID: A80897
Included Lab Sample IDs: 1951750, 1951751, 1951752

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	100	105	P/P	90 - 110

Reference Method: SM 2320 B-97
Run ID: A80909
Included Lab Sample IDs: 1951747, 1951748, 1951749

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	98.3	101	P/P	90 - 110

Reference Method: SM 4500 F-C-97
Run ID: A80962
Included Lab Sample IDs: 1951747, 1951748, 1951749

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

Reference Method: EPA 351.2 Rev. 2.0
Run ID: A80972
Included Lab Sample IDs: 1951750

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	99.8	97.1	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Run ID: A80979
Included Lab Sample IDs: 1951751, 1951752

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	101	97.2	P/P	90 - 110
Kjeldahl Nitrogen	97.2	98.7	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Run ID: A81069
Included Lab Sample IDs: 1951750, 1951751, 1951752

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	101	101	P/P	90 - 110
Ammonia-N	99.1	101	P/P	90 - 110

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

Quality Assurance Report
Summary

Ref. Method	Analyte	LCS % Recovery	MS % Recovery		Precision		
					LCS	SMP	MS
EPA 180.1 Rev. 2.0	Turbidity					5.65	
	Turbidity					1.73	
EPA 300.0 Rev. 2.1	Chloride	102	99.8			3.42	
	Sulfate	101	101	98.9		3.35	
EPA 350.1 Rev. 2.0	Ammonia-N	100	99.2	97.0			1.83
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	97.1	96.6	102			4.48
	Kjeldahl Nitrogen	102	96.3	103			4.83
EPA 353.2 Rev. 2.0	NO2NO3-N	104	103	102			1.47
EPA 365.1 Rev. 2.0	Total-P	101	98.2	97.2			0.725
	Total-P	99.0	94.3	100			5.57
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	98.1	103	100			2.56
SM 2120 B	Color (true)					1.39	
SM 2320 B-97	Total Alkalinity	101				0.704	
SM 2540 C-97	TDS					1.93	
SM 4500 F-C-97	Fluoride	97.5	97.9	98.5			0.490
SM 5310 B-00	Organic Carbon	99.8	103	99.1			3.29

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	1951747, 1951748, 1951749
EPA 300.0 Rev. 2.1 / E31780	Chloride in aqueous matrices	1951747, 1951748, 1951749
EPA 300.0 Rev. 2.1 / E31780	Sulfate in aqueous matrices	1951747, 1951748, 1951749
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	1951750, 1951751, 1951752
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	1951750, 1951751, 1951752
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	1951750, 1951751, 1951752
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	1951750, 1951751, 1951752
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	1951753, 1951754, 1951755
SM 2120 B / E31780	True Color measured at 450 nm	1951747, 1951748, 1951749
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO3/L	1951747, 1951748, 1951749
SM 2540 C-97 / E31780	Total Dissolved Solids in aqueous matrices	1951747, 1951748, 1951749
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices	1951747, 1951748, 1951749
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	1951747, 1951748, 1951749
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	1951750, 1951751, 1951752

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
EPA 180.1 Rev. 2.0	12/07/2017			12/07/2017 16:28	DeAsia Armster	1951747, 1951748, 1951749
EPA 300.0 Rev. 2.1	12/07/2017			12/12/2017	Julia Storbeck	1951747, 1951748, 1951749
EPA 350.1 Rev. 2.0	12/07/2017			12/20/2017	Sofia Elnemr	1951750, 1951751, 1951752
EPA 351.2 Rev. 2.0	12/07/2017	12/13/2017	Adrian Shelby	12/18/2017	Joseph Suarez	1951750, 1951751, 1951752
EPA 353.2 Rev. 2.0	12/07/2017			12/11/2017	Lauren Bottorf	1951750, 1951751, 1951752
EPA 365.1 Rev. 2.0	12/07/2017	12/13/2017	Sima Feizi	12/14/2017	Lipi Saha	1951750, 1951751, 1951752
EPA 365.1 Rev. 2.0 dissolved	12/07/2017			12/07/2017 13:34	Megan Treadwell	1951753
	12/07/2017			12/07/2017 13:35	Megan Treadwell	1951754
	12/07/2017			12/07/2017 13:36	Megan Treadwell	1951755
SM 2120 B	12/07/2017			12/07/2017 16:14	Tanya Welborn	1951747
	12/07/2017			12/07/2017 16:15	Tanya Welborn	1951748
	12/07/2017			12/07/2017 16:16	Tanya Welborn	1951749
SM 2320 B-97	12/07/2017			12/14/2017	Dale L. Simmons	1951747, 1951748, 1951749
SM 2540 C-97	12/07/2017			12/08/2017	DeAsia Armster	1951747, 1951748, 1951749
SM 2540 D-97	12/07/2017			12/08/2017	DeAsia Armster	1951747, 1951748, 1951749
SM 4500 F-C-97	12/07/2017			12/18/2017	Dale L. Simmons	1951747, 1951748, 1951749
SM 5310 B-00	12/07/2017			12/12/2017	Ping Hua	1951750, 1951751, 1951752