Chemical Analysis Report

NE-DIST-2018-08-08-01

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

Event Description: **Nassau West**
Request ID: **RQ-2018-08-06-19**
Customer: **NE-DIST**
Project ID: **SMP**

Send Reports to:
FL Dept. of Environmental Protection
8800 Baymeadows Way West
Jacksonville, FL 32256-7577
Attn: Jeremy Parrish

For additional information please contact
Colin Wright, Ph.D.
Liang-Tsair Lin, Ph.D.
Kerry Tate, Ph.D.
Dr. rer. nat. Bettina Steinbock
Thekkekalathil Chandrasekhar, Ph.D, QA Officer
Phone (850) 245-8085

Certified by: Thekkekalathil Chandrasekhar, Chemist Administrator Date Certified: 24-AUG-2018 11:17

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: Unnamed Branch @ CR125 **Collection Date/Time: 08/07/2018 09:40**

Field ID: 19010123 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2015064	EPA 180.1 Rev. 2.0	Turbidity	3.8		NTU	P349815	
	EPA 300.0 Rev. 2.1	Chloride	5.2		mg Cl/L	P350007	
		Sulfate	0.36	I	mg SO4/L	P350008	
	SM 2120 B	Color (true)	360		PCU	P349824	
	SM 2320 B-97	Total Alkalinity	6.7		mg CaCO3/L	P350186	
	SM 2540 C-97	TDS	85		mg/L	P350317	
	SM 2540 D-97	TSS	3	I	mg/L	P350309	
	SM 4500 F-C-97	Fluoride	0.036	I	mg F/L	P350109	
2015066	EPA 350.1 Rev. 2.0	Ammonia-N	0.021		mg N/L	P350000	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.99		mg N/L	P349990	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.018		mg N/L	P349891	
	EPA 365.1 Rev. 2.0	Total-P	0.12		mg P/L	P349972	
	SM 5310 B-00	Organic Carbon	30		mg C/L	P349962	
2015068	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.069		mg P/L	P349845	

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: Calkins Ck Trib @ Hamp Register Rd **Collection Date/Time: 08/07/2018 10:25**

Field ID: 19010042 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2015065	EPA 180.1 Rev. 2.0	Turbidity	3.2		NTU	P349815	
	EPA 300.0 Rev. 2.1	Chloride	6.5		mg Cl/L	P350007	
		Sulfate	0.28	I	mg SO4/L	P350035	
	SM 2120 B	Color (true)	610		PCU	P349824	
	SM 2320 B-97	Total Alkalinity	0.65	U	mg CaCO3/L	P350186	
	SM 2540 C-97	TDS	106	A	mg/L	P350317	
	SM 2540 D-97	TSS	2	IA	mg/L	P350309	
	SM 4500 F-C-97	Fluoride	0.040	I	mg F/L	P350109	
2015067	EPA 350.1 Rev. 2.0	Ammonia-N	0.042		mg N/L	P350000	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.2		mg N/L	P349990	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.038		mg N/L	P349891	
	EPA 365.1 Rev. 2.0	Total-P	0.022		mg P/L	P349972	
	SM 5310 B-00	Organic Carbon	51		mg C/L	P349962	
2015069	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.01	I	mg P/L	P349845	

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: Field Blank **Collection Date/Time: 08/07/2018 11:00**

Field ID: BLANK 08072018 Matrix: W-FIELD-BK

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2015070	EPA 180.1 Rev. 2.0	Turbidity	0.10	U	NTU	P349815	
	EPA 300.0 Rev. 2.1	Chloride	0.20	U	mg Cl/L	P350007	
		Sulfate	0.20	U	mg SO4/L	P350008	
	SM 2120 B	Color (true)	2.5	U	PCU	P349824	
	SM 2320 B-97	Total Alkalinity	0.65	U	mg CaCO3/L	P350186	
	SM 2540 C-97	TDS	15	U	mg/L	P350317	
	SM 2540 D-97	TSS	2	U	mg/L	P350309	
	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P350109	
2015071	EPA 350.1 Rev. 2.0	Ammonia-N	0.002	U	mg N/L	P350000	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.080	U	mg N/L	P350029	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P349891	
	SM 5310 B-00	Organic Carbon	0.50	U	mg C/L	P349963	
2015072	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P349845	

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: P349815

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P350007

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P350008

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P350035

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P350000

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P349990

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P350029

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P349891

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P349972

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

Quality Assurance Report
Method Blank Results

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P349845

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

Reference Method: SM 2120 B
Batch ID: P349824

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2320 B-97
Batch ID: P350186

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

Reference Method: SM 2540 C-97
Batch ID: P350317

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P350309

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500 F-C-97
Batch ID: P350109

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-00
Batch ID: P349962

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

Reference Method: SM 5310 B-00
Batch ID: P349963

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: P350007

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P350008

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Sulfate	95.7		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P350035

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P350000

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P349990

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P350029

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Kjeldahl Nitrogen	98.9		P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P349891

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: P349972

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P349845

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
O-Phosphate-P	97.2		P	90 - 110

Quality Assurance Report
Laboratory Control Sample Accuracy

Reference Method: SM 2120 B
Batch ID: P349824

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Color (true)	96.0		P	85 - 115

Reference Method: SM 2320 B-97
Batch ID: P350186

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

Reference Method: SM 4500 F-C-97
Batch ID: P350109

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

Reference Method: SM 5310 B-00
Batch ID: P349962

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	97.5		P	85 - 115

Reference Method: SM 5310 B-00
Batch ID: P349963

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	95.8		P	85 - 115

Quality Assurance Report
Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P350007

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2014634	Chloride	99.1		P	90 - 110
2015234	Chloride	97.0		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P350008

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2014634	Sulfate	98.1		P	90 - 110
2015234	Sulfate	95.4		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P350035

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2015697	Sulfate	99.8		P	90 - 110
2015702	Sulfate	97.1		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P350000

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2015045	Ammonia-N	97.2	97.7	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P349990

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2015046	Kjeldahl Nitrogen	102	101	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P350029

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2015248	Kjeldahl Nitrogen	97.6	99.0	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P349891

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2015788	NO2NO3-N	101	101	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P349972

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2015045	Total-P	92.6	93.4	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P349845

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2015048	O-Phosphate-P	94.2	94.2	P/P	90 - 110

Quality Assurance Report
Matrix Spike Accuracy

Reference Method: SM 4500 F-C-97
Batch ID: P350109

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2014647	Fluoride	98.6	99.3	P/P	91 - 105

Reference Method: SM 5310 B-00
Batch ID: P349962

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2015045	Organic Carbon	99.4	99.3	P/P	85 - 115

Reference Method: SM 5310 B-00
Batch ID: P349963

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2015161	Organic Carbon	103		P	85 - 115

Quality Assurance Report
Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P349815

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2015044	Turbidity	2.58	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P350007

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2014634	Chloride	6.40	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P350008

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2014634	Sulfate	7.04	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P350035

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2015702	Sulfate	0.365	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P350000

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2015045	Ammonia-N	0.385	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P349990

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2015046	Kjeldahl Nitrogen	0.485	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P350029

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2015248	Kjeldahl Nitrogen	0.790	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P349891

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2015788	NO2NO3-N	0.0	Spike	P	0 - 20

Quality Assurance Report
Precision

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P349972

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2015045	Total-P	0.870	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P349845

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2015048	O-Phosphate-P	0.0	Spike	P	0 - 20

Reference Method: SM 2120 B
Batch ID: P349824

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2015234	Color (true)	1.51	Sample	P	0 - 20

Reference Method: SM 2320 B-97
Batch ID: P350186

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2014647	Total Alkalinity	0.655	Sample	P	0 - 1.6

Reference Method: SM 2540 C-97
Batch ID: P350317

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2015065	TDS	6.57	Sample	P	0 - 10

Reference Method: SM 4500 F-C-97
Batch ID: P350109

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2014647	Fluoride	0.473	Spike	P	0 - 3.5

Reference Method: SM 5310 B-00
Batch ID: P349962

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2015045	Organic Carbon	0.0687	Spike	P	0 - 20

Reference Method: SM 5310 B-00
Batch ID: P349963

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2015161	Organic Carbon	0.235	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: A85712
Included Lab Sample IDs: 2015064, 2015065, 2015070

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	103	104	P/P	90 - 110
Sulfate	103	104	P/P	90 - 110

Reference Method: EPA 180.1 Rev. 2.0
Run ID: A85756
Included Lab Sample IDs: 2015064, 2015065, 2015070

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

Reference Method: SM 2120 B
Run ID: A85759
Included Lab Sample IDs: 2015064, 2015065, 2015070

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	97.1	97.9	P/P	90 - 115
Color (true)	97.9	98.5	P/P	90 - 115

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Run ID: A85769
Included Lab Sample IDs: 2015068, 2015069

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	94.8	94.0	P/P	90 - 110
O-Phosphate-P	95.7	94.8	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Run ID: A85797
Included Lab Sample IDs: 2015066, 2015067, 2015071

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Run ID: A85799
Included Lab Sample IDs: 2015072

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	95.5	95.3	P/P	90 - 110

Reference Method: SM 5310 B-00
Run ID: A85825
Included Lab Sample IDs: 2015066, 2015067, 2015071

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	96.2	97.4	P/P	90 - 110
Organic Carbon	96.2	96.0	P/P	90 - 110
Organic Carbon	97.2	96.2	P/P	90 - 110

Quality Assurance Report
Calibration Verification

Reference Method: EPA 350.1 Rev. 2.0
Run ID: A85836
Included Lab Sample IDs: 2015066, 2015067, 2015071

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

Reference Method: EPA 300.0 Rev. 2.1
Run ID: A85845
Included Lab Sample IDs: 2015065

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

Reference Method: EPA 365.1 Rev. 2.0
Run ID: A85848
Included Lab Sample IDs: 2015066

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	98.3	98.9	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Run ID: A85853
Included Lab Sample IDs: 2015067

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

Reference Method: SM 4500 F-C-97
Run ID: A85868
Included Lab Sample IDs: 2015064, 2015065, 2015070

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

Reference Method: EPA 351.2 Rev. 2.0
Run ID: A85878
Included Lab Sample IDs: 2015066, 2015067

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	107	103	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Run ID: A85881
Included Lab Sample IDs: 2015071

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	103	105	P/P	90 - 110

Reference Method: SM 2320 B-97
Run ID: A85905
Included Lab Sample IDs: 2015064, 2015065, 2015070

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	103	101	P/P	90 - 110

Quality Assurance Report
Calibration Verification

* 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					2.58	
EPA 300.0 Rev. 2.1	Chloride	97.9	99.1	97.0		6.40	
	Sulfate	95.7	98.1	95.4		7.04	
	Sulfate	100	97.1	99.8		0.365	
EPA 350.1 Rev. 2.0	Ammonia-N	97.3	97.2	97.7			0.385
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	103	102	101			0.485
	Kjeldahl Nitrogen	98.9	97.6	99.0			0.790
EPA 353.2 Rev. 2.0	NO2NO3-N	102	101	101			0.0
EPA 365.1 Rev. 2.0	Total-P	92.2	92.6	93.4			0.870
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	97.2	94.2	94.2			0.0
SM 2120 B	Color (true)	96.0				1.51	
SM 2320 B-97	Total Alkalinity	103				0.655	
SM 2540 C-97	TDS					6.57	
SM 4500 F-C-97	Fluoride	97.9	98.6	99.3			0.473
SM 5310 B-00	Organic Carbon	97.5	99.4	99.3			0.0687
	Organic Carbon	95.8	103				0.235

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	2015064, 2015065, 2015070
EPA 300.0 Rev. 2.1 / E31780	Chloride in aqueous matrices	2015064, 2015065, 2015070
EPA 300.0 Rev. 2.1 / E31780	Sulfate in aqueous matrices	2015064, 2015065, 2015070
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	2015066, 2015067, 2015071
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	2015066, 2015067, 2015071
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	2015066, 2015067, 2015071
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	2015066, 2015067
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	2015068, 2015069, 2015072
SM 2120 B / E31780	True Color measured at 450 nm	2015064, 2015065, 2015070
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO3/L	2015064, 2015065, 2015070
SM 2540 C-97 / E31780	Total Dissolved Solids in aqueous matrices	2015064, 2015065, 2015070
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices using a maximum of 250 mL of sample	2015064, 2015065, 2015070
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	2015064, 2015065, 2015070
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	2015066, 2015067, 2015071

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	08/08/2018			08/08/2018 15:53	William L. Brown IV	2015064, 2015065, 2015070
EPA 300.0 Rev. 2.1	08/08/2018			08/09/2018 15:07	Lipi Saha	2015064
	08/08/2018			08/09/2018 15:19	Lipi Saha	2015065
	08/08/2018			08/09/2018 15:31	Lipi Saha	2015070
	08/08/2018			08/13/2018 23:04	Lipi Saha	2015065
EPA 350.1 Rev. 2.0	08/08/2018			08/10/2018 14:44	Julia Storbeck	2015071
	08/08/2018			08/10/2018 14:53	Julia Storbeck	2015066
	08/08/2018			08/10/2018 14:54	Julia Storbeck	2015067
EPA 351.2 Rev. 2.0	08/08/2018	08/13/2018 16:00	Adrian Shelby	08/14/2018 13:49	Joseph Suarez	2015066
	08/08/2018	08/13/2018 16:00	Adrian Shelby	08/14/2018 13:51	Joseph Suarez	2015067
	08/08/2018	08/14/2018 15:30	Adrian Shelby	08/15/2018 09:54	Joseph Suarez	2015071
EPA 353.2 Rev. 2.0	08/08/2018			08/10/2018 09:58	Beverly Y. Sanders	2015071
	08/08/2018			08/10/2018 10:01	Beverly Y. Sanders	2015066
	08/08/2018			08/10/2018 10:02	Beverly Y. Sanders	2015067
EPA 365.1 Rev. 2.0	08/08/2018	08/13/2018 11:40	Sima Feizi	08/14/2018 10:00	Beverly Y. Sanders	2015066
	08/08/2018	08/13/2018 11:40	Sima Feizi	08/14/2018 11:31	Beverly Y. Sanders	2015067
EPA 365.1 Rev. 2.0 dissolved	08/08/2018			08/08/2018 12:52	Megan Treadwell	2015068
	08/08/2018			08/08/2018 12:57	Megan Treadwell	2015069
	08/08/2018			08/08/2018 19:04	Megan Treadwell	2015072
SM 2120 B	08/08/2018			08/08/2018 16:59	Tanya Welborn	2015070
	08/08/2018			08/08/2018 17:11	Tanya Welborn	2015064
	08/08/2018			08/08/2018 17:12	Tanya Welborn	2015065
SM 2320 B-97	08/08/2018			08/16/2018 05:08	Dale L. Simmons	2015064
	08/08/2018			08/16/2018 05:14	Dale L. Simmons	2015065
	08/08/2018			08/16/2018 05:21	Dale L. Simmons	2015070
SM 2540 C-97	08/08/2018			08/10/2018 16:03	Yijie Li	2015064, 2015065, 2015070
SM 2540 D-97	08/08/2018			08/10/2018 16:03	Yijie Li	2015064, 2015065, 2015070
SM 4500 F-C-97	08/08/2018			08/14/2018 06:56	Dale L. Simmons	2015064
	08/08/2018			08/14/2018 07:06	Dale L. Simmons	2015065
	08/08/2018			08/14/2018 07:19	Dale L. Simmons	2015070
SM 5310 B-00	08/08/2018			08/09/2018 19:36	Julia Storbeck	2015066
	08/08/2018			08/10/2018 01:00	Julia Storbeck	2015067
	08/08/2018			08/10/2018 03:08	Julia Storbeck	2015071