Chemical Analysis Report

NE-DIST-2018-01-31-02

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

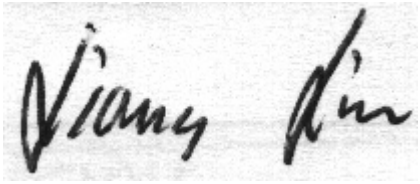
Event Description: **Nassau East**
Request ID: **RQ-2018-01-29-09**
Customer: **NE-DIST**
Project ID: **SMP**

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.
Thekkekalathil Chandrasekhar, Ph.D, QA Officer
Phone (850) 245-8085

Certified by: Liang Lin, Environmental Administrator

Date Certified: 21-FEB-2018 14:23



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: Thomas Crk 6 mi. Below City Prison **Collection Date/Time: 01/30/2018 10:35**

Field ID: G4NE0008 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1963199	EPA 180.1 Rev. 2.0	Turbidity	16		NTU	P339091	
	EPA 300.0 Rev. 2.1	Sulfate	13		mg SO4/L	P339230	
	SM 2320 B-97	Total Alkalinity	23		mg CaCO3/L	P339475	
	SM 2540 D-97	TSS	21	A	mg/L	P339625	
	SM 4500 F-C-97	Fluoride	0.061	I	mg F/L	P339478	RPD
1963201	EPA 350.1 Rev. 2.0	Ammonia-N	0.033		mg N/L	P339291	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.0		mg N/L	P339104	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.038		mg N/L	P339148	
	EPA 365.1 Rev. 2.0	Total-P	0.17		mg P/L	P339154	
	SM 5310 B-00	Organic Carbon	24		mg C/L	P339267	
1963203	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.11		mg P/L	P339117	

Ref. Method and Comment:
EPA 300.0 Rev. 2.1: Sulfate: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample.
EPA 365.1 Rev. 2.0 dissolved: O-Phosphate-P: Batch matrix spike recoveries are unavailable because of high analyte concentration in the QC sample.

Sample Location: Thomas CR Ethyl Rd. **Collection Date/Time: 01/30/2018 11:25**

Field ID: 19010103 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1963205	EPA 180.1 Rev. 2.0	Turbidity	6.5	A	NTU	P339092	
	EPA 300.0 Rev. 2.1	Chloride	32		mg Cl/L	P339227	
		Sulfate	10		mg SO4/L	P339230	
	SM 2120 B	Color (true)	210		PCU	P339095	
	SM 2320 B-97	Total Alkalinity	49		mg CaCO3/L	P339475	
	SM 2540 C-97	TDS	169		mg/L	P339571	
	SM 2540 D-97	TSS	3	I	mg/L	P339623	
	SM 4500 F-C-97	Fluoride	0.073	I	mg F/L	P339478	RPD
1963206	EPA 350.1 Rev. 2.0	Ammonia-N	0.099		mg N/L	P339675	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.1		mg N/L	P339104	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.050		mg N/L	P339148	
	EPA 365.1 Rev. 2.0	Total-P	0.53		mg P/L	P339154	
	SM 5310 B-00	Organic Carbon	23		mg C/L	P339267	
1963207	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.46		mg P/L	P339117	

Ref. Method and Comment:
EPA 300.0 Rev. 2.1: Sulfate: Batch relative percent difference is unavailable because of low 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.
EPA 365.1 Rev. 2.0 dissolved: O-Phosphate-P: Batch matrix spike recoveries are unavailable because of high analyte concentration in the QC sample.

Sample Location: Field Blank 01302018 **Collection Date/Time: 01/30/2018 12:10**

Field ID: FIELDBLANK013018 Matrix: W-FIELD-BK

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1963200	EPA 180.1 Rev. 2.0	Turbidity	0.10	U	NTU	P339091	
	EPA 300.0 Rev. 2.1	Sulfate	0.20	U	mg SO4/L	P339230	

Field ID: FIELDBLANK013018 Matrix: W-FIELD-BK

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1963200	SM 2320 B-97	Total Alkalinity	0.65	U	mg CaCO3/L	P339475	
	SM 2540 D-97	TSS	2	U	mg/L	P339625	
	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P339478	RPD
1963202	EPA 350.1 Rev. 2.0	Ammonia-N	0.002	U	mg N/L	P339291	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.080	U	mg N/L	P339104	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P339148	
	EPA 365.1 Rev. 2.0	Total-P	0.002	U	mg P/L	P339154	
	SM 5310 B-00	Organic Carbon	0.70	I	mg C/L	P339267	
1963204	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P339117	

Ref. Method and Comment:
EPA 300.0 Rev. 2.1: Sulfate: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample.
SM 5310 B-00: The result was confirmed on 02/07/2018.
EPA 365.1 Rev. 2.0 dissolved: O-Phosphate-P: 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: P339091

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P339092

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P339227

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P339230

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P339291

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P339675

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: P339104

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P339148

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P339154

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P339117

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

Reference Method: SM 2120 B
Batch ID: P339095

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2320 B-97
Batch ID: P339475

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

Reference Method: SM 2540 C-97
Batch ID: P339571

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P339623

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P339625

Component	Result	Code	Units
TSS	2	U	mg/L

Quality Assurance Report
Method Blank Results

Reference Method: SM 4500 F-C-97
Batch ID: P339478

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-00
Batch ID: P339267

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: P339227

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: P339230

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: P339291

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Ammonia-N	96.7		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P339675

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Ammonia-N	95.4		P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P339104

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Kjeldahl Nitrogen	96.2		P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P339148

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
NO2NO3-N	106		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P339154

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

Quality Assurance Report
Laboratory Control Sample Accuracy

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P339154

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: P339117

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

Reference Method: SM 2320 B-97
Batch ID: P339475

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	97.7		P	95 - 108

Reference Method: SM 4500 F-C-97
Batch ID: P339478

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	97.4		P	92 - 103

Reference Method: SM 5310 B-00
Batch ID: P339267

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	97.0		P	85 - 115

Quality Assurance Report
Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P339227

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1963093	Chloride	93.5		P	90 - 110
1963161	Chloride	97.4		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P339230

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1963093	Sulfate	94.5		P	90 - 110
1963161	Sulfate	100		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P339291

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1963098	Ammonia-N	100	102	P/P	90 - 110

Quality Assurance Report
Matrix Spike Accuracy

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P339675

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1963353	Ammonia-N	94.6	95.8	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P339104

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1963163	Kjeldahl Nitrogen	97.8	94.5	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P339148

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1963201	NO2NO3-N	101	100	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P339154

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1963353	Total-P	101	100	P/P	90 - 110

Reference Method: SM 4500 F-C-97
Batch ID: P339478

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1963421	Fluoride	98.3	94.1	P/P	91 - 105

Reference Method: SM 5310 B-00
Batch ID: P339267

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1963163	Organic Carbon	101	98.6	P/P	85 - 115

Quality Assurance Report
Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P339091

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1963094	Turbidity	1.23	Sample	P	0 - 20

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P339092

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1963205	Turbidity	0.308	Sample	P	0 - 20

Quality Assurance Report
Precision

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P339227

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1963093	Chloride	0.138	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P339291

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1963098	Ammonia-N	0.828	Spike	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P339675

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1963353	Ammonia-N	1.07	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P339104

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1963163	Kjeldahl Nitrogen	3.02	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P339148

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1963201	NO2NO3-N	0.833	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P339154

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1963353	Total-P	0.768	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P339117

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1963124	O-Phosphate-P	0.404	Spike	P	0 - 20

Reference Method: SM 2120 B
Batch ID: P339095

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1963160	Color (true)	1.24	Sample	P	0 - 20

Quality Assurance Report
Precision

Reference Method: SM 2320 B-97
Batch ID: P339475

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1963421	Total Alkalinity	0.207	Sample	P	0 - 4.8

Reference Method: SM 2540 C-97
Batch ID: P339571

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1963117	TDS	1.54	Sample	P	0 - 10

Reference Method: SM 2540 D-97
Batch ID: P339625

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1963199	TSS	7.55	Sample	P	0 - 10

Reference Method: SM 4500 F-C-97
Batch ID: P339478

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1963421	Fluoride	3.81	Spike	F	0 - 3.0

Reference Method: SM 5310 B-00
Batch ID: P339267

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1963163	Organic Carbon	1.77	Spike	P	0 - 20

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

Quality Assurance Report
Calibration Verification

Reference Method: EPA 300.0 Rev. 2.1
Run ID: 81775
Included Lab Sample IDs: 1963205

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	102	101	P/P	90 - 110
Sulfate	101	103	P/P	90 - 110
Sulfate	101	101	P/P	90 - 110

Reference Method: EPA 180.1 Rev. 2.0
Run ID: A81765
Included Lab Sample IDs: 1963199, 1963200, 1963205

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

Quality Assurance Report
Calibration Verification

Reference Method: EPA 180.1 Rev. 2.0
Run ID: A81765
Included Lab Sample IDs: 1963199, 1963200, 1963205

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

Reference Method: SM 2120 B
Run ID: A81766
Included Lab Sample IDs: 1963205

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	103	105	P/P	85 - 115

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Run ID: A81776
Included Lab Sample IDs: 1963203, 1963204, 1963207

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	99.6	99.8	P/P	90 - 110
O-Phosphate-P	99.7	98.5	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Run ID: A81787
Included Lab Sample IDs: 1963201, 1963202, 1963206

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

Reference Method: EPA 365.1 Rev. 2.0
Run ID: A81808
Included Lab Sample IDs: 1963201, 1963206

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

Reference Method: EPA 365.1 Rev. 2.0
Run ID: A81813
Included Lab Sample IDs: 1963202

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

Reference Method: SM 5310 B-00
Run ID: A81830
Included Lab Sample IDs: 1963201, 1963202, 1963206

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	98.8	97.6	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Run ID: A81838
Included Lab Sample IDs: 1963201, 1963202

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

Quality Assurance Report
Calibration Verification

Reference Method: EPA 350.1 Rev. 2.0
Run ID: A81838
Included Lab Sample IDs: 1963201, 1963202

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

Reference Method: EPA 351.2 Rev. 2.0
Run ID: A81840
Included Lab Sample IDs: 1963201, 1963202, 1963206

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	100	99.4	P/P	90 - 110

Reference Method: SM 2320 B-97
Run ID: A81901
Included Lab Sample IDs: 1963199, 1963200, 1963205

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	97.9	94.4	P/P	90 - 110

Reference Method: SM 4500 F-C-97
Run ID: A81901
Included Lab Sample IDs: 1963199, 1963200, 1963205

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	97.2	97.6	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Run ID: A81964
Included Lab Sample IDs: 1963206

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	99.4	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					1.23	
	Turbidity					0.308	
EPA 300.0 Rev. 2.1	Chloride	98.8	93.5	97.4		0.138	
	Sulfate	97.6	94.5	100			
EPA 350.1 Rev. 2.0	Ammonia-N	96.7	100	102			0.828
	Ammonia-N	95.4	94.6	95.8			1.07
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	96.2	97.8	94.5			3.02
EPA 353.2 Rev. 2.0	NO2NO3-N	106	101	100			0.833
EPA 365.1 Rev. 2.0	Total-P	101	101	100			0.768
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	101					0.404
SM 2120 B	Color (true)					1.24	

Quality Assurance Report
Summary

Ref. Method	Analyte	LCS % Recovery	MS % Recovery		Precision		
					LCS	SMP	MS
SM 2320 B-97	Total Alkalinity	97.7				0.207	
SM 2540 C-97	TDS					1.54	
SM 2540 D-97	TSS					7.55	
SM 4500 F-C-97	Fluoride	97.4	98.3	94.1			3.81
SM 5310 B-00	Organic Carbon	97.0	101	98.6			1.77

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	1963199, 1963200, 1963205
EPA 300.0 Rev. 2.1 / E31780	Chloride in aqueous matrices	1963205
EPA 300.0 Rev. 2.1 / E31780	Sulfate in aqueous matrices	1963199, 1963200, 1963205
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	1963201, 1963202, 1963206
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	1963201, 1963202, 1963206
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	1963201, 1963202, 1963206
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	1963201, 1963202, 1963206
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	1963203, 1963204, 1963207
SM 2120 B / E31780	True Color measured at 450 nm	1963205
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO3/L	1963199, 1963200, 1963205
SM 2540 C-97 / E31780	Total Dissolved Solids in aqueous matrices	1963205
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices	1963199, 1963200, 1963205
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	1963199, 1963200, 1963205
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	1963201, 1963202, 1963206

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	01/31/2018			01/31/2018 15:52	DeAsia Armster	1963199, 1963200, 1963205
EPA 300.0 Rev. 2.1	01/31/2018			02/01/2018	Julia Storbeck	1963205
	01/31/2018			02/02/2018	Julia Storbeck	1963199, 1963200
EPA 350.1 Rev. 2.0	01/31/2018			02/02/2018	Ping Hua	1963201, 1963202
	01/31/2018			02/09/2018	Julia Storbeck	1963206
EPA 351.2 Rev. 2.0	01/31/2018	02/01/2018	Adrian Shelby	02/05/2018	Joseph Suarez	1963201, 1963202, 1963206
EPA 353.2 Rev. 2.0	01/31/2018			02/01/2018	Beverly Y. Sanders	1963201, 1963202, 1963206
EPA 365.1 Rev. 2.0	01/31/2018	02/01/2018	Sima Feizi	02/02/2018	Beverly Y. Sanders	1963201, 1963202, 1963206
EPA 365.1 Rev. 2.0 dissolved	01/31/2018			01/31/2018 17:14	Megan Treadwell	1963203
	01/31/2018			01/31/2018 17:15	Megan Treadwell	1963204
	01/31/2018			01/31/2018 17:39	Megan Treadwell	1963207
SM 2120 B	01/31/2018			01/31/2018 16:27	Julia Storbeck	1963205
SM 2320 B-97	01/31/2018			02/07/2018	Lauren Bottorf	1963199, 1963200, 1963205
SM 2540 C-97	01/31/2018			02/03/2018	Yijie Li	1963205
SM 2540 D-97	01/31/2018			02/03/2018	Yijie Li	1963199, 1963200, 1963205
SM 4500 F-C-97	01/31/2018			02/07/2018	Lauren Bottorf	1963199, 1963200, 1963205
SM 5310 B-00	01/31/2018			02/03/2018	Megan Treadwell	1963201, 1963202, 1963206