

Chemical Analysis Report

NE-DIST-2016-05-25-02

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-2016-05-23-11**
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
Timothy W. Fitzpatrick
Liang-Tsair Lin, Ph.D.
Colin Wright, Ph.D.
Thekkekalathil Chandrasekhar, PhD, QA Officer
Phone (850) 245-8085

Certified by: Liang Lin, Environmental Administrator

Date Certified: 16-JUN-2016 14:57

A handwritten signature in black ink, appearing to read "Liang Lin", is shown on a light-colored background.

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: 19010021 SMR S PRONG @ US 90

Collection Date/Time: 05/24/2016 11:10

Field ID: 19010021

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1801859	EPA 180.1 Rev. 2.0	Turbidity	2.6		NTU	P305037	
	EPA 300.0 Rev. 2.1	Chloride	16	A	mg Cl/L	P305472	
		Sulfate	6.0	A	mg SO4/L	P305475	
	SM 2120 B	Color (true)	230		PCU	P305063	
	SM 2320 B-97	Total Alkalinity	20		mg CaCO3/L	P305452	
	SM 2540 C-97	TDS	114		mg/L	P305630	
	SM 2540 D-97	TSS	3	I	mg/L	P305821	RPD
	SM 4500 F-C-97	Fluoride	0.11		mg F/L	P305459	
1801862	EPA 350.1 Rev. 2.0	Ammonia-N	0.024		mg N/L	P305502	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	3.0		mg N/L	P305586	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.26		mg N/L	P305108	
	EPA 365.1 Rev. 2.0	Total-P	0.26		mg P/L	P305620	
	SM 5310 B-00	Organic Carbon	25		mg C/L	P305778	
1801865	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.20		mg P/L	P305026	

Sample Location: 19010023 SMR S PRONG @ CR 23C

Collection Date/Time: 05/24/2016 12:40

Field ID: 19010023

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1801860	EPA 180.1 Rev. 2.0	Turbidity	2.7		NTU	P305037	
	EPA 300.0 Rev. 2.1	Chloride	16		mg Cl/L	P305472	
		Sulfate	4.8		mg SO4/L	P305475	
	SM 2120 B	Color (true)	160		PCU	P305063	
	SM 2320 B-97	Total Alkalinity	29		mg CaCO3/L	P305452	
	SM 2540 C-97	TDS	111		mg/L	P305630	
	SM 2540 D-97	TSS	2	U	mg/L	P305821	RPD
	SM 4500 F-C-97	Fluoride	0.11		mg F/L	P305459	
1801863	EPA 350.1 Rev. 2.0	Ammonia-N	0.015		mg N/L	P305502	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.48		mg N/L	P305586	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.30		mg N/L	P305108	
	EPA 365.1 Rev. 2.0	Total-P	0.26		mg P/L	P305702	
	SM 5310 B-00	Organic Carbon	16		mg C/L	P305778	
1801866	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.20		mg P/L	P305026	

Sample Location: 19010042CALKINS TR@HAMP REGIST

Collection Date/Time: 05/24/2016 12:00

Field ID: 19010042

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1801861	EPA 180.1 Rev. 2.0	Turbidity	1.4	A	NTU	P305038	
	EPA 300.0 Rev. 2.1	Chloride	8.2		mg Cl/L	P305472	
		Sulfate	1.2		mg SO4/L	P305475	
	SM 2120 B	Color (true)	91		PCU	P305063	
	SM 2320 B-97	Total Alkalinity	32	A	mg CaCO3/L	P305452	

Field ID: 19010042

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1801861	SM 2540 C-97	TDS	77		mg/L	P305630	
	SM 2540 D-97	TSS	2	U	mg/L	P305821	RPD
	SM 4500 F-C-97	Fluoride	0.075	I	mg F/L	P305459	
1801864	EPA 350.1 Rev. 2.0	Ammonia-N	0.058		mg N/L	P305503	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.66		mg N/L	P305587	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.14		mg N/L	P305109	
	EPA 365.1 Rev. 2.0	Total-P	0.086		mg P/L	P305702	
	SM 5310 B-00	Organic Carbon	6.7		mg C/L	P305778	
1801867	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.029		mg P/L	P305027	

Ref. Method and Comment:

EPA 350.1 Rev. 2.0: Matrix spike recovery data is unavailable due to high analyte concentration in the QC sample.

Quality Assurance Report

Method Blank Results

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P305037

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P305038

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P305472

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P305475

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P305502

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P305503

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: P305586

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P305587

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P305108

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P305109

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P305620

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P305702

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P305026

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P305027

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

Reference Method: SM 2120 B
Batch ID: P305063

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Quality Assurance Report Method Blank Results

Reference Method: SM 2320 B-97
Batch ID: P305452

Component	Result	Code	Units
Total Alkalinity	0.65	U	mg CaCO ₃ /L

Reference Method: SM 2540 C-97
Batch ID: P305630

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P305821

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500 F-C-97
Batch ID: P305459

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-00
Batch ID: P305778

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: P305472

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P305475

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Sulfate	97.5		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P305502

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P305503

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P305503

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Ammonia-N	99.9		P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P305586

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P305587

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P305108

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P305109

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P305620

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P305702

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: P305026

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P305027

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

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: SM 2320 B-97
Batch ID: P305452

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	103		P	95 - 105

Reference Method: SM 4500 F-C-97
Batch ID: P305459

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	98.3		P	92 - 103

Reference Method: SM 5310 B-00
Batch ID: P305778

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	99.6		P	85 - 115

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P305472

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1801859	Chloride	99.3		P	90 - 110
1801893	Chloride	99.1		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P305475

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1801859	Sulfate	98.7		P	90 - 110
1801893	Sulfate	97.4		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P305502

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1801820	Ammonia-N	98.9	101	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P305586

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1801832	Kjeldahl Nitrogen	103	98.8	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P305587

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1801907	Kjeldahl Nitrogen	92.6	101	P/P	90 - 110

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P305108

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1801715	NO2NO3-N	98.5	100	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P305109

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1801864	NO2NO3-N	97.0	99.0	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P305620

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1801832	Total-P	105	105	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P305702

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1801907	Total-P	104	102	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P305026

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1801841	O-Phosphate-P	98.0	98.5	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P305027

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1802007	O-Phosphate-P	97.4	98.8	P/P	90 - 110

Reference Method: SM 4500 F-C-97
Batch ID: P305459

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1801861	Fluoride	96.7	97.2	P/P	91 - 105

Reference Method: SM 5310 B-00
Batch ID: P305778

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1801863	Organic Carbon	100	101	P/P	85 - 115

Quality Assurance Report Precision

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P305037

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1801804	Turbidity	3.36	Sample	P	0 - 20

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P305038

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1801861	Turbidity	4.17	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P305472

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1801859	Chloride	0.00551	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P305475

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1801859	Sulfate	0.417	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P305502

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1801820	Ammonia-N	1.28	Spike	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P305503

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1801907	Ammonia-N	0.566	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P305586

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1801832	Kjeldahl Nitrogen	3.00	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P305587

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1801907	Kjeldahl Nitrogen	5.74	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P305108

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1801715	NO2NO3-N	1.51	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P305109

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1801864	NO2NO3-N	1.19	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P305620

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1801832	Total-P	0.0720	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P305702

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1801907	Total-P	1.76	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P305026

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1801841	O-Phosphate-P	0.509	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P305027

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1802007	O-Phosphate-P	1.43	Spike	P	0 - 20

Reference Method: SM 2120 B
Batch ID: P305063

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1801835	Color (true)	3.19	Sample	P	0 - 20

Reference Method: SM 2320 B-97
Batch ID: P305452

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1801861	Total Alkalinity	0.884	Sample	P	0 - 4.8

Quality Assurance Report Precision

Reference Method: SM 2540 C-97
Batch ID: P305630

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1801819	TDS	4.44	Sample	P	0 - 10

Reference Method: SM 2540 D-97
Batch ID: P305821

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1801819	TSS	10.9	Sample	F	0 - 10

Reference Method: SM 4500 F-C-97
Batch ID: P305459

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1801861	Fluoride	0.492	Spike	P	0 - 3.0

Reference Method: SM 5310 B-00
Batch ID: P305778

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1801863	Organic Carbon	0.0838	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: A69693
Included Lab Sample IDs: 1801865, 1801866, 1801867

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	101	99.4	P/P	90 - 110
O-Phosphate-P	99.5	99.7	P/P	90 - 110

Reference Method: EPA 180.1 Rev. 2.0
Run ID: A69695
Included Lab Sample IDs: 1801859, 1801860, 1801861

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Turbidity	101	100	P/P	95 - 105
Turbidity	101	101	P/P	95 - 105

Reference Method: SM 2120 B
Run ID: A69704
Included Lab Sample IDs: 1801859, 1801860, 1801861

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
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Quality Assurance Report Calibration Verification

Reference Method: SM 2120 B

Run ID: A69704

Included Lab Sample IDs: 1801859, 1801860, 1801861

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	95.6	97.1	P/P	90 - 115
Color (true)	99.3	98.4	P/P	90 - 115

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A69717

Included Lab Sample IDs: 1801862, 1801863, 1801864

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO2NO3-N	99.0	99.0	P/P	90 - 110

Reference Method: SM 2320 B-97

Run ID: A69805

Included Lab Sample IDs: 1801859, 1801860, 1801861

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

Reference Method: SM 4500 F-C-97

Run ID: A69805

Included Lab Sample IDs: 1801859, 1801860, 1801861

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	100	101	P/P	90 - 110
Fluoride	101	99.0	P/P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1

Run ID: A69814

Included Lab Sample IDs: 1801859, 1801860, 1801861

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	101	101	P/P	90 - 110
Chloride	101	101	P/P	90 - 110
Sulfate	94.1	98.2	P/P	90 - 110
Sulfate	96.7	99.1	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A69820

Included Lab Sample IDs: 1801862, 1801863, 1801864

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	99.7	99.5	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A69899

Included Lab Sample IDs: 1801862, 1801863, 1801864

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	98.6	103	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: SM 5310 B-00

Run ID: A69914

Included Lab Sample IDs: 1801862, 1801863, 1801864

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	98.6	97.8	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A69917

Included Lab Sample IDs: 1801862

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	99.6	102	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A69951

Included Lab Sample IDs: 1801863, 1801864

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	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	LCS	Precision SMP	MS
EPA 180.1 Rev. 2.0	Turbidity				3.36	
	Turbidity				4.17	
EPA 300.0 Rev. 2.1	Chloride	100	99.3 99.1		0.0055	
	Sulfate	97.5	98.7 97.4		0.417	
EPA 350.1 Rev. 2.0	Ammonia-N	102	98.9 101			1.28
	Ammonia-N	99.9				0.566
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	97.2	103 98.8			3.00
	Kjeldahl Nitrogen	99.5	92.6 101			5.74
EPA 353.2 Rev. 2.0	NO2NO3-N	102	98.5 100			1.51
	NO2NO3-N	100	97.0 99.0			1.19
EPA 365.1 Rev. 2.0	Total-P	103	105 105			0.0720
	Total-P	103	104 102			1.76
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	101	98.0 98.5			0.509
	O-Phosphate-P	100	97.4 98.8			1.43
SM 2120 B	Color (true)				3.19	
SM 2320 B-97	Total Alkalinity	103			0.884	
SM 2540 C-97	TDS				4.44	
SM 2540 D-97	TSS				10.9	
SM 4500 F-C-97	Fluoride	98.3	96.7 97.2			0.492
SM 5310 B-00	Organic Carbon	99.6	100 101			0.0838

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
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Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	1801859, 1801860, 1801861
EPA 300.0 Rev. 2.1 / E31780	Chloride in aqueous matrices	1801859, 1801860, 1801861
EPA 300.0 Rev. 2.1 / E31780	Sulfate in aqueous matrices	1801859, 1801860, 1801861
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	1801862, 1801863, 1801864
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	1801862, 1801863, 1801864
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	1801862, 1801863, 1801864
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	1801862, 1801863, 1801864
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	1801865, 1801866, 1801867
SM 2120 B / E31780	True Color measured at 450 nm	1801859, 1801860, 1801861
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO ₃ /L	1801859, 1801860, 1801861
SM 2540 C-97 / E31780	Total Dissolved Solids in aqueous matrices	1801859, 1801860, 1801861
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices	1801859, 1801860, 1801861
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	1801859, 1801860, 1801861
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	1801862, 1801863, 1801864

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	05/25/2016			05/25/2016 16:22	Sima Feizi	1801859, 1801860, 1801861
EPA 300.0 Rev. 2.1	05/25/2016			06/01/2016	Elisa J Lutz	1801859
	05/25/2016			06/02/2016	Elisa J Lutz	1801860, 1801861
EPA 350.1 Rev. 2.0	05/25/2016			06/02/2016	Diana M. Turner	1801862, 1801863, 1801864
EPA 351.2 Rev. 2.0	05/25/2016	06/06/2016	Sofia Elnemr	06/07/2016	Christopher Armour	1801862, 1801863, 1801864
EPA 353.2 Rev. 2.0	05/25/2016			05/26/2016	Peter D. Kaus	1801862, 1801863, 1801864
EPA 365.1 Rev. 2.0	05/25/2016	06/06/2016	Vijayalakshmi Reddy	06/08/2016	Rochelle Y Jackson	1801862
	05/25/2016	06/07/2016	Vijayalakshmi Reddy	06/09/2016	Rochelle Y Jackson	1801863, 1801864
EPA 365.1 Rev. 2.0 dissolved	05/25/2016			05/25/2016 14:26	Julia Storbeck	1801865
	05/25/2016			05/25/2016 14:27	Julia Storbeck	1801866
	05/25/2016			05/25/2016 15:03	Julia Storbeck	1801867
SM 2120 B	05/25/2016			05/25/2016 17:15	Chrisoulla Rakowski	1801861
	05/25/2016			05/25/2016 17:54	Chrisoulla Rakowski	1801859
	05/25/2016			05/25/2016 17:55	Chrisoulla Rakowski	1801860
SM 2320 B-97	05/25/2016			06/01/2016	Dale L. Simmons	1801859, 1801860, 1801861
SM 2540 C-97	05/25/2016			05/27/2016	Yijie Li	1801859, 1801860, 1801861
SM 2540 D-97	05/25/2016			05/27/2016	Yijie Li	1801859, 1801860, 1801861
SM 4500 F-C-97	05/25/2016			06/01/2016	Dale L. Simmons	1801859, 1801860, 1801861
SM 5310 B-00	05/25/2016			06/07/2016	Diana M. Turner	1801862, 1801863, 1801864