

Chemical Analysis Report

NE-DIST-2017-01-11-01

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-2017-01-09-17**
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

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Certified by: Colin Wright, Program Administrator

Date Certified: 31-JAN-2017 11:24

A handwritten signature in black ink, appearing to read "Colin Wright", is displayed on a light-colored rectangular 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: Thomas Creek 6mi below prison

Collection Date/Time: 01/10/2017 10:15

Field ID: G4NE0008 01102017

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1863013	EPA 180.1 Rev. 2.0	Turbidity	12		NTU	P318111	
	EPA 300.0 Rev. 2.1	Sulfate	190		mg SO4/L	P318474	
	SM 2320 B-97	Total Alkalinity	34		mg CaCO3/L	P318452	
	SM 2540 D-97	TSS	18		mg/L	P318548	
	SM 4500 F-C-97	Fluoride	0.13		mg F/L	P318456	
1863017	EPA 350.1 Rev. 2.0	Ammonia-N	0.041		mg N/L	P318211	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.2		mg N/L	P318321	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.045		mg N/L	P318481	
	EPA 365.1 Rev. 2.0	Total-P	0.14		mg P/L	P318287	MS
	SM 5310 B-00	Organic Carbon	27		mg C/L	P318260	
1863021	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.093		mg P/L	P318117	

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: Thomas Creek 6mi below prison DUP

Collection Date/Time: 01/10/2017 10:25

Field ID: G4NE0008 01102017

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1863014	EPA 180.1 Rev. 2.0	Turbidity	10	A	NTU	P318112	
	EPA 300.0 Rev. 2.1	Sulfate	180		mg SO4/L	P318474	
	SM 2320 B-97	Total Alkalinity	34		mg CaCO3/L	P318452	
	SM 2540 D-97	TSS	17		mg/L	P318548	
	SM 4500 F-C-97	Fluoride	0.13		mg F/L	P318456	
1863018	EPA 350.1 Rev. 2.0	Ammonia-N	0.041		mg N/L	P318211	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.1		mg N/L	P318321	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.043		mg N/L	P318481	
	EPA 365.1 Rev. 2.0	Total-P	0.13		mg P/L	P318287	MS
	SM 5310 B-00	Organic Carbon	27		mg C/L	P318260	
1863022	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.090		mg P/L	P318117	

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: Thomas Creek 4mi below prison

Collection Date/Time: 01/10/2017 10:50

Field ID: G4NE0224 01102017

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1863015	EPA 180.1 Rev. 2.0	Turbidity	4.9		NTU	P318112	
	EPA 300.0 Rev. 2.1	Sulfate	47		mg SO4/L	P318474	
	SM 2320 B-97	Total Alkalinity	29		mg CaCO3/L	P318452	
	SM 2540 D-97	TSS	8	I	mg/L	P318548	
	SM 4500 F-C-97	Fluoride	0.090	I	mg F/L	P318456	
1863019	EPA 350.1 Rev. 2.0	Ammonia-N	0.022		mg N/L	P318212	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.2		mg N/L	P318195	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.017		mg N/L	P318559	
	EPA 365.1 Rev. 2.0	Total-P	0.19		mg P/L	P318289	

Field ID: G4NE0224 01102017

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1863019	SM 5310 B-00	Organic Carbon	32		mg C/L	P318260	
1863023	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.14		mg P/L	P318115	

Ref. Method and Comment:

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: Total-P: Batch matrix spike recoveries are unavailable because of high analyte concentration in the QC sample.

Sample Location: Nassau Sound @ Fishing Bridge

Collection Date/Time: 01/10/2017 13:56

Field ID: G2NE1138 01102017

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1863016	EPA 180.1 Rev. 2.0	Turbidity	12		NTU	P318112	
	EPA 300.0 Rev. 2.1	Sulfate	2.5E+03		mg SO4/L	P318474	
	SM 2320 B-97	Total Alkalinity	117		mg CaCO3/L	P318492	
	SM 2540 D-97	TSS	24		mg/L	P318551	
	SM 4500 F-C-97	Fluoride	1.2		mg F/L	P318496	
1863020	EPA 350.1 Rev. 2.0	Ammonia-N	0.005		mg N/L	P318211	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.47		mg N/L	P318321	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P318481	
	EPA 365.1 Rev. 2.0	Total-P	0.049		mg P/L	P318287	MS
	SM 5310 B-00	Organic Carbon	2.8		mg C/L	P318262	
1863024	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.008	I	mg P/L	P318117	

Quality Assurance Report Method Blank Results

Reference Method: EPA 180.1 Rev. 2.0

Batch ID: P318111

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 180.1 Rev. 2.0

Batch ID: P318112

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 300.0 Rev. 2.1

Batch ID: P318474

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 350.1 Rev. 2.0

Batch ID: P318211

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

Quality Assurance Report Method Blank Results

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P318212

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P318195

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P318321

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P318481

Component	Result	Code	Units
NO ₂ NO ₃ -N	0.004	U	mg N/L

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P318559

Component	Result	Code	Units
NO ₂ NO ₃ -N	0.004	U	mg N/L

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P318287

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P318289

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P318115

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P318117

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

Quality Assurance Report Method Blank Results

Reference Method: SM 2320 B-97
Batch ID: P318452

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

Reference Method: SM 2320 B-97
Batch ID: P318492

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

Reference Method: SM 2540 D-97
Batch ID: P318548

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P318551

Component	Result	Code	Units
TSS	3	U	mg/L

Reference Method: SM 4500 F-C-97
Batch ID: P318456

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 4500 F-C-97
Batch ID: P318496

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-00
Batch ID: P318260

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

Reference Method: SM 5310 B-00
Batch ID: P318262

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: P318474

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P318474

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Sulfate	96.5		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P318211

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P318212

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Ammonia-N	98.5		P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P318195

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P318321

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P318481

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P318559

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: P318287

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total-P	91.2		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P318289

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total-P	95.6		P	90 - 110

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P318115

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P318117

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

Reference Method: SM 2320 B-97
Batch ID: P318452

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	103		P	95 - 108

Reference Method: SM 2320 B-97
Batch ID: P318492

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	103		P	95 - 108

Reference Method: SM 4500 F-C-97
Batch ID: P318456

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	95.5		P	92 - 103

Reference Method: SM 4500 F-C-97
Batch ID: P318496

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	97.8		P	92 - 103

Reference Method: SM 5310 B-00
Batch ID: P318260

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

Reference Method: SM 5310 B-00
Batch ID: P318262

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

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P318474

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P318474

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1863064	Sulfate	96.7		P	90 - 110
1863312	Sulfate	95.1		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P318211

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1862976	Ammonia-N	101	101	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P318212

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1863019	Ammonia-N	98.7	99.6	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P318195

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1863039	Kjeldahl Nitrogen	95.5	98.0	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P318321

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1862911	Kjeldahl Nitrogen	98.7	97.0	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P318481

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1863006	NO2NO3-N	104	103	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P318559

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1863019	NO2NO3-N	104	103	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P318287

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1863007	Total-P	88.4	87.0	F/F	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P318115

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1863073	O-Phosphate-P	98.9	102	P/P	90 - 110

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P318117

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1862977	O-Phosphate-P	101	101	P/P	90 - 110

Reference Method: SM 4500 F-C-97
Batch ID: P318456

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1863443	Fluoride	95.9	95.2	P/P	91 - 105

Reference Method: SM 4500 F-C-97
Batch ID: P318496

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1862973	Fluoride	93.6	94.3	P/P	91 - 105

Reference Method: SM 5310 B-00
Batch ID: P318260

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1863017	Organic Carbon	103		P	85 - 115

Reference Method: SM 5310 B-00
Batch ID: P318262

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1863020	Organic Carbon	103	100	P/P	85 - 115

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P318111

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1862940	Turbidity	0.683	Sample	P	0 - 20

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P318112

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1863014	Turbidity	0.0	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P318474

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1863312	Sulfate	0.00543	Sample	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P318211

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1862976	Ammonia-N	0.601	Spike	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P318212

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1863019	Ammonia-N	0.643	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P318195

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1863039	Kjeldahl Nitrogen	1.70	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P318321

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1862911	Kjeldahl Nitrogen	1.48	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P318481

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1863006	NO2NO3-N	1.37	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P318559

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1863019	NO2NO3-N	0.889	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P318287

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1863007	Total-P	1.48	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P318289

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1863037	Total-P	0.0861	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P318115

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1863073	O-Phosphate-P	2.44	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P318117

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1862977	O-Phosphate-P	0.395	Spike	P	0 - 20

Reference Method: SM 2320 B-97
Batch ID: P318452

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1863443	Total Alkalinity	0.401	Sample	P	0 - 4.8

Reference Method: SM 2320 B-97
Batch ID: P318492

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1862973	Total Alkalinity	0.358	Sample	P	0 - 4.8

Reference Method: SM 2540 D-97
Batch ID: P318551

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1862971	TSS	6.06	Sample	P	0 - 10

Reference Method: SM 4500 F-C-97
Batch ID: P318456

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1863443	Fluoride	0.530	Spike	P	0 - 3.0

Reference Method: SM 4500 F-C-97
Batch ID: P318496

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1862973	Fluoride	0.483	Spike	P	0 - 3.0

Reference Method: SM 5310 B-00
Batch ID: P318260

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1863017	Organic Carbon	0.702	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: SM 5310 B-00
Batch ID: P318262

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1863020	Organic Carbon	2.39	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 180.1 Rev. 2.0
Run ID: A73882
Included Lab Sample IDs: 1863013, 1863014, 1863015, 1863016

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Run ID: A73883
Included Lab Sample IDs: 1863021, 1863022, 1863023, 1863024

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	96.4	97.3	P/P	90 - 110
O-Phosphate-P	97.7	96.8	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Run ID: A73916
Included Lab Sample IDs: 1863017, 1863018, 1863019, 1863020

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	95.8	95.4	P/P	90 - 110

Reference Method: SM 5310 B-00
Run ID: A73931
Included Lab Sample IDs: 1863017, 1863018, 1863019, 1863020

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	98.8	97.8	P/P	90 - 110
Organic Carbon	99.2	96.8	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Run ID: A73948
Included Lab Sample IDs: 1863019

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	96.3	100	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A73974

Included Lab Sample IDs: 1863019

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	99.8	101	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A73977

Included Lab Sample IDs: 1863020

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	97.0	97.2	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A73986

Included Lab Sample IDs: 1863017, 1863018, 1863020

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	102	99.9	P/P	90 - 110
Kjeldahl Nitrogen	99.9	102	P/P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1

Run ID: A73993

Included Lab Sample IDs: 1863013, 1863014, 1863015, 1863016

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Sulfate	96.6	92.9	P/P	90 - 110

Reference Method: SM 2320 B-97

Run ID: A74010

Included Lab Sample IDs: 1863013, 1863014, 1863015

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

Reference Method: SM 4500 F-C-97

Run ID: A74010

Included Lab Sample IDs: 1863013, 1863014, 1863015

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	98.5	99.5	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A74015

Included Lab Sample IDs: 1863017, 1863018

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

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A74017

Included Lab Sample IDs: 1863017, 1863018, 1863020

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO2NO3-N	99.0	98.0	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: SM 2320 B-97
Run ID: A74022
Included Lab Sample IDs: 1863016

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	102	104	P/P	90 - 110

Reference Method: SM 4500 F-C-97
Run ID: A74022
Included Lab Sample IDs: 1863016

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

Reference Method: EPA 353.2 Rev. 2.0
Run ID: A74046
Included Lab Sample IDs: 1863019

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO2NO3-N	101	100	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				0.683	
	Turbidity				0.0	
EPA 300.0 Rev. 2.1	Sulfate	96.5	95.1 96.7		0.0054	
EPA 350.1 Rev. 2.0	Ammonia-N	101	101 101			0.601
	Ammonia-N	98.5	98.7 99.6			0.643
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	97.9	95.5 98.0			1.70
	Kjeldahl Nitrogen	99.4	98.7 97.0			1.48
EPA 353.2 Rev. 2.0	NO2NO3-N	103	104 103			1.37
	NO2NO3-N	104	104 103			0.889
EPA 365.1 Rev. 2.0	Total-P	91.2	88.4 87.0			1.48
	Total-P	95.6				0.0861
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	102	98.9 102			2.44
	O-Phosphate-P	101	101 101			0.395
SM 2320 B-97	Total Alkalinity	103			0.401	
	Total Alkalinity	103			0.358	
SM 2540 D-97	TSS				6.06	
SM 4500 F-C-97	Fluoride	95.5	95.9 95.2			0.530
	Fluoride	97.8	93.6 94.3			0.483
SM 5310 B-00	Organic Carbon	101	103			0.702
	Organic Carbon	99.0	103 100			2.39

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	1863013, 1863014, 1863015, 1863016
EPA 300.0 Rev. 2.1 / E31780	Sulfate in aqueous matrices	1863013, 1863014, 1863015, 1863016
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	1863017, 1863018, 1863019, 1863020
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	1863017, 1863018, 1863019, 1863020
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	1863017, 1863018, 1863019, 1863020
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	1863017, 1863018, 1863019, 1863020
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	1863021, 1863022, 1863023, 1863024
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO ₃ /L	1863013, 1863014, 1863015, 1863016
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices	1863013, 1863014, 1863015, 1863016
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	1863013, 1863014, 1863015, 1863016
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	1863017, 1863018, 1863019, 1863020

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	01/11/2017			01/11/2017 15:58	Sima Feizi	1863013, 1863014, 1863015, 1863016
EPA 300.0 Rev. 2.1	01/11/2017			01/19/2017	Ping Hua	1863013, 1863014, 1863015, 1863016
EPA 350.1 Rev. 2.0	01/11/2017			01/12/2017	Sofia Elnemr	1863017, 1863018, 1863019, 1863020
EPA 351.2 Rev. 2.0	01/11/2017	01/13/2017	Adrian Shelby	01/17/2017	Joseph Suarez	1863019
	01/11/2017	01/18/2017	Adrian Shelby	01/18/2017	Joseph Suarez	1863017, 1863018, 1863020
EPA 353.2 Rev. 2.0	01/11/2017			01/20/2017	Beverly Y. Sanders	1863017, 1863018, 1863020
	01/11/2017			01/23/2017	Beverly Y. Sanders	1863019
EPA 365.1 Rev. 2.0	01/11/2017	01/17/2017	Vijayalakshmi Reddy	01/18/2017	Lipi Saha	1863017, 1863018, 1863019, 1863020
EPA 365.1 Rev. 2.0 dissolved	01/11/2017			01/11/2017 15:55	Julia Storbeck	1863023
	01/11/2017			01/11/2017 15:56	Julia Storbeck	1863021, 1863022
	01/11/2017			01/11/2017 16:18	Julia Storbeck	1863024
SM 2320 B-97	01/11/2017			01/19/2017	Dale L. Simmons	1863013, 1863014, 1863015
	01/11/2017			01/20/2017	Dale L. Simmons	1863016
SM 2540 D-97	01/11/2017			01/13/2017	Yijie Li	1863013, 1863014, 1863015, 1863016
SM 4500 F-C-97	01/11/2017			01/19/2017	Dale L. Simmons	1863013, 1863014, 1863015
	01/11/2017			01/20/2017	Dale L. Simmons	1863016
SM 5310 B-00	01/11/2017			01/12/2017	Julie Michelle Frank	1863017, 1863018, 1863019
	01/11/2017			01/13/2017	Julie Michelle Frank	1863020