

Chemical Analysis Report

CEN-DIST-2016-10-21-01

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

Event Description: **Holly Hill/Mizner's/Unmd Branch (2642)**

Request ID: **RQ-2016-10-10-66**

Customer: **CEN-DIST**

Project ID: **SMP**

Send Reports to:

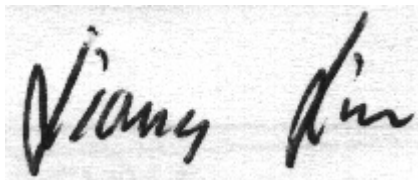
FL Dept. of Environmental Protection
FL Dept. of Environmental Protection
3319 Maguire Blvd., Suite 232
Orlando, FL 32803-3767
Attn: Mike Linger

For additional information please contact

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Phone (850) 245-8085

Certified by: Liang Lin, Environmental Administrator

Date Certified: 17-NOV-2016 15:59

A handwritten signature in black ink, appearing to read "Liang Lin", 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: Mizner's Branch @ Falls Way Drive

Collection Date/Time: 10/20/2016 11:00

Field ID: G5CE0050

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1843073	EPA 180.1 Rev. 2.0	Turbidity	0.85		NTU	P313738	
	EPA 300.0 Rev. 2.1	Chloride	50		mg Cl/L	P314694	
		Sulfate	12		mg SO4/L	P314699	
	SM 2120 B	Color (true)	130		PCU	P313667	
	SM 2320 B-97	Total Alkalinity	113		mg CaCO3/L	P313695	
	SM 2540 C-97	TDS	263		mg/L	P314270	
	SM 2540 D-97	TSS	3	I	mg/L	P314160	
	SM 4500 F-C-97	Fluoride	0.052	I	mg F/L	P313696	
1843076	EPA 350.1 Rev. 2.0	Ammonia-N	0.089		mg N/L	P314405	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.87		mg N/L	P314761	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.31		mg N/L	P314028	
	EPA 365.1 Rev. 2.0	Total-P	0.067		mg P/L	P314384	
	SM 5310 B-00	Organic Carbon	24		mg C/L	P313762	
1843079	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.046		mg P/L	P313669	

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: Holly Hill Ditch @ Ridgewood

Collection Date/Time: 10/20/2016 10:30

Field ID: G5CE0060

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1843074	EPA 180.1 Rev. 2.0	Turbidity	2.8		NTU	P313738	
	EPA 300.0 Rev. 2.1	Chloride	280		mg Cl/L	P314694	
		Sulfate	53		mg SO4/L	P314699	
	SM 2120 B	Color (true)	62		PCU	P313667	
	SM 2320 B-97	Total Alkalinity	233		mg CaCO3/L	P313695	
	SM 2540 C-97	TDS	764		mg/L	P314270	
	SM 2540 D-97	TSS	2	I	mg/L	P314160	
	SM 4500 F-C-97	Fluoride	0.14		mg F/L	P313696	
1843077	EPA 350.1 Rev. 2.0	Ammonia-N	0.21		mg N/L	P314839	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.93		mg N/L	P314761	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.13		mg N/L	P314115	
	EPA 365.1 Rev. 2.0	Total-P	0.20		mg P/L	P314384	
	SM 5310 B-00	Organic Carbon	13		mg C/L	P313762	
1843080	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.14		mg P/L	P313669	

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: Unnamed Branch @ 750m US of Confluence w/ Tomaka River

Collection Date/Time: 10/20/2016 09:50

Field ID: G5CE0017

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1843075	EPA 180.1 Rev. 2.0	Turbidity	3.4		NTU	P313738	
	EPA 300.0 Rev. 2.1	Chloride	3.4E+03		mg Cl/L	P314694	

Field ID: G5CE0017

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1843075	EPA 300.0 Rev. 2.1	Sulfate	430		mg SO4/L	P314699	
	SM 2120 B	Color (true)	200		PCU	P313667	
	SM 2320 B-97	Total Alkalinity	156		mg CaCO3/L	P313695	
	SM 2540 C-97	TDS	5.58E+03		mg/L	P314270	
	SM 2540 D-97	TSS	5	I	mg/L	P314160	
	SM 4500 F-C-97	Fluoride	0.27		mg F/L	P313696	
1843078	EPA 350.1 Rev. 2.0	Ammonia-N	0.047		mg N/L	P314648	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.6		mg N/L	P314759	MS
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P313903	
	EPA 365.1 Rev. 2.0	Total-P	0.31		mg P/L	P314385	MS
	SM 5310 B-00	Organic Carbon	22		mg C/L	P313762	
1843081	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.22		mg P/L	P313671	

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: P313738

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P314694

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P314699

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P314405

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P314648

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P314839

Component	Result	Code	Units
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Quality Assurance Report Method Blank Results

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P314839

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P314759

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P314761

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P313903

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: P314028

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: P314115

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: P314384

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P314385

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P313669

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

Quality Assurance Report Method Blank Results

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P313671

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

Reference Method: SM 2120 B
Batch ID: P313667

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2320 B-97
Batch ID: P313695

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

Reference Method: SM 2540 C-97
Batch ID: P314270

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P314160

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500 F-C-97
Batch ID: P313696

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-00
Batch ID: P313762

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: P314694

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P314699

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: P314699

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P314405

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P314648

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P314839

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P314759

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Kjeldahl Nitrogen	99.1		P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P314761

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P313903

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: P314028

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
NO2NO3-N	105		P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P314115

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

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P314384

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P314385

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total-P	99.1		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P313669

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P313671

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

Reference Method: SM 2320 B-97
Batch ID: P313695

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	105		P	95 - 108

Reference Method: SM 4500 F-C-97
Batch ID: P313696

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	94.8		P	92 - 103

Reference Method: SM 5310 B-00
Batch ID: P313762

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

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P314694

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1842654	Chloride	101		P	90 - 110
1842999	Chloride	101		P	90 - 110

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P314699

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1842654	Sulfate	95.9		P	90 - 110
1842999	Sulfate	96.7		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P314405

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1842650	Ammonia-N	102	102	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P314648

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1842479	Ammonia-N	102	103	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P314839

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1843178	Ammonia-N	101	100	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P314759

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1843134	Kjeldahl Nitrogen	105	113	P/F	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P314761

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1843206	Kjeldahl Nitrogen	99.2	96.1	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P313903

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1843741	NO2NO3-N	102	102	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P314028

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1843001	NO2NO3-N	99.4	98.4	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P314115

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1842079	NO2NO3-N	104	102	P/P	90 - 110

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P314384

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1843178	Total-P	100	103	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P314385

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1843131	Total-P	93.3	89.1	P/F	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P313669

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1843210	O-Phosphate-P	101	102	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P313671

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1843233	O-Phosphate-P	100	101	P/P	90 - 110

Reference Method: SM 4500 F-C-97
Batch ID: P313696

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1843177	Fluoride	96.0	96.5	P/P	91 - 105

Reference Method: SM 5310 B-00
Batch ID: P313762

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1842590	Organic Carbon	95.5	97.3	P/P	85 - 115

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P313738

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1842982	Turbidity	0.664	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P314694

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1842654	Chloride	0.521	Sample	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P314699

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1842654	Sulfate	7.31	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P314405

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1842650	Ammonia-N	0.337	Spike	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P314648

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1842479	Ammonia-N	0.610	Spike	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P314839

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1843178	Ammonia-N	0.860	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P314759

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1843134	Kjeldahl Nitrogen	6.66	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P314761

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1843206	Kjeldahl Nitrogen	1.92	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P313903

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1843741	NO2NO3-N	0.491	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P314028

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1843001	NO2NO3-N	0.966	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P314115

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1842079	NO2NO3-N	1.39	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P314384

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1843178	Total-P	2.47	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P314385

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1843131	Total-P	4.53	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P313669

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1843210	O-Phosphate-P	0.886	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P313671

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1843233	O-Phosphate-P	0.854	Spike	P	0 - 20

Reference Method: SM 2120 B
Batch ID: P313667

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1843192	Color (true)	0.469	Sample	P	0 - 20

Reference Method: SM 2320 B-97
Batch ID: P313695

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1843177	Total Alkalinity	0.104	Sample	P	0 - 4.8

Reference Method: SM 2540 C-97
Batch ID: P314270

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1843177	TDS	7.69	Sample	P	0 - 10

Quality Assurance Report Precision

Reference Method: SM 4500 F-C-97
Batch ID: P313696

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1843177	Fluoride	0.495	Spike	P	0 - 3.0

Reference Method: SM 5310 B-00
Batch ID: P313762

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1842590	Organic Carbon	1.76	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: SM 2120 B
Run ID: A72372
Included Lab Sample IDs: 1843073, 1843074, 1843075

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	104	105	P/P	85 - 115
Color (true)	105	105	P/P	85 - 115

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Run ID: A72374
Included Lab Sample IDs: 1843079, 1843080, 1843081

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	97.2	97.4	P/P	90 - 110
O-Phosphate-P	97.6	97.2	P/P	90 - 110

Reference Method: SM 2320 B-97
Run ID: A72381
Included Lab Sample IDs: 1843073, 1843074, 1843075

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	101	105	P/P	90 - 110
Total Alkalinity	105	101	P/P	90 - 110

Reference Method: SM 4500 F-C-97
Run ID: A72381
Included Lab Sample IDs: 1843073, 1843074, 1843075

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	101	98.5	P/P	90 - 110
Fluoride	98.5	101	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: EPA 180.1 Rev. 2.0

Run ID: A72389

Included Lab Sample IDs: 1843073, 1843074, 1843075

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Turbidity	102	99.5	P/P	95 - 105

Reference Method: SM 5310 B-00

Run ID: A72401

Included Lab Sample IDs: 1843076, 1843077, 1843078

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

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A72436

Included Lab Sample IDs: 1843078

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO2NO3-N	98.0	96.5	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A72468

Included Lab Sample IDs: 1843076

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

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A72497

Included Lab Sample IDs: 1843077

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO2NO3-N	102	100	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A72578

Included Lab Sample IDs: 1843076

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

Reference Method: EPA 300.0 Rev. 2.1

Run ID: A72589

Included Lab Sample IDs: 1843073, 1843074, 1843075

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

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A72612

Included Lab Sample IDs: 1843076, 1843077, 1843078

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

Quality Assurance Report Calibration Verification

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A72612

Included Lab Sample IDs: 1843076, 1843077, 1843078

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

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A72636

Included Lab Sample IDs: 1843078

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	97.6	98.1	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A72704

Included Lab Sample IDs: 1843076, 1843077, 1843078

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	105	102	P/P	90 - 110
Kjeldahl Nitrogen	99.5	105	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A72705

Included Lab Sample IDs: 1843077

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	102	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		LCS	Precision SMP	MS
EPA 180.1 Rev. 2.0	Turbidity					0.664	
EPA 300.0 Rev. 2.1	Chloride	101	101	101		0.521	
	Sulfate	97.1	95.9	96.7		7.31	
EPA 350.1 Rev. 2.0	Ammonia-N	104	102	102			0.337
	Ammonia-N	103	102	103			0.610
	Ammonia-N	103	101	100			0.860
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	99.1	105	113			6.66
	Kjeldahl Nitrogen	105	99.2	96.1			1.92
EPA 353.2 Rev. 2.0	NO2NO3-N	102	102	102			0.491
	NO2NO3-N	105	99.4	98.4			0.966
	NO2NO3-N	104	104	102			1.39
EPA 365.1 Rev. 2.0	Total-P	98.9	100	103			2.47
	Total-P	99.1	93.3	89.1			4.53
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	99.6	101	102			0.886
	O-Phosphate-P	100	100	101			0.854
SM 2120 B	Color (true)					0.469	
SM 2320 B-97	Total Alkalinity	105				0.104	

Quality Assurance Report Summary

Ref. Method	Analyte	LCS % Recovery	MS % Recovery		LCS	Precision	MS
						SMP	
SM 2540 C-97	TDS					7.69	
SM 4500 F-C-97	Fluoride	94.8	96.0	96.5			0.495
SM 5310 B-00	Organic Carbon	101	95.5	97.3			1.76

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	1843073, 1843074, 1843075
EPA 300.0 Rev. 2.1 / E31780	Chloride in aqueous matrices	1843073, 1843074, 1843075
EPA 300.0 Rev. 2.1 / E31780	Sulfate in aqueous matrices	1843073, 1843074, 1843075
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	1843076, 1843077, 1843078
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	1843076, 1843077, 1843078
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	1843076, 1843077, 1843078
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	1843076, 1843077, 1843078
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	1843079, 1843080, 1843081
SM 2120 B / E31780	True Color measured at 450 nm	1843073, 1843074, 1843075
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO3/L	1843073, 1843074, 1843075
SM 2540 C-97 / E31780	Total Dissolved Solids in aqueous matrices	1843073, 1843074, 1843075
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices	1843073, 1843074, 1843075
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	1843073, 1843074, 1843075
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	1843076, 1843077, 1843078

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	10/21/2016			10/21/2016 15:29	Blanca Fach	1843073, 1843074, 1843075
EPA 300.0 Rev. 2.1	10/21/2016			11/05/2016	Elisa J Lutz	1843073, 1843074, 1843075
EPA 350.1 Rev. 2.0	10/21/2016			11/01/2016	Sofia Elnemr	1843076
	10/21/2016			11/04/2016	Sofia Elnemr	1843078
	10/21/2016			11/08/2016	Sofia Elnemr	1843077
EPA 351.2 Rev. 2.0	10/21/2016	11/08/2016	Adrian Shelby	11/08/2016	Joseph Suarez	1843076, 1843077, 1843078
EPA 353.2 Rev. 2.0	10/21/2016			10/26/2016	Beverly Y. Sanders	1843078
	10/21/2016			10/27/2016	Beverly Y. Sanders	1843076
	10/21/2016			10/28/2016	Beverly Y. Sanders	1843077
EPA 365.1 Rev. 2.0	10/21/2016	11/02/2016	Vijayalakshmi Reddy	11/03/2016	Lipi Saha	1843076, 1843077, 1843078
EPA 365.1 Rev. 2.0 dissolved	10/21/2016			10/21/2016 16:47	Julia Storbeck	1843079
	10/21/2016			10/21/2016 16:48	Julia Storbeck	1843080
	10/21/2016			10/21/2016 17:00	Julia Storbeck	1843081
SM 2120 B	10/21/2016			10/21/2016 15:33	Julie Michelle Frank	1843073
	10/21/2016			10/21/2016 15:34	Julie Michelle Frank	1843074
	10/21/2016			10/21/2016 15:42	Julie Michelle Frank	1843075
SM 2320 B-97	10/21/2016			10/23/2016	Dale L. Simmons	1843073
	10/21/2016			10/24/2016	Dale L. Simmons	1843074, 1843075
SM 2540 C-97	10/21/2016			10/26/2016	Yijie Li	1843073, 1843074, 1843075
SM 2540 D-97	10/21/2016			10/26/2016	Yijie Li	1843073, 1843074, 1843075
SM 4500 F-C-97	10/21/2016			10/23/2016	Dale L. Simmons	1843073
	10/21/2016			10/24/2016	Dale L. Simmons	1843074, 1843075
SM 5310 B-00	10/21/2016			10/25/2016	Julie Michelle Frank	1843076, 1843077, 1843078