

Chemical Analysis Report

SO-DIST-2018-02-01-02

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

Event Description: **B.F.**
Request ID: **RQ-2018-01-29-52**
Customer: **SO-DIST**
Project ID: **SMP**

Send Reports to:
FL Dept. of Environmental Protection
FLDEP South District Office
2295 Victoria Ave. Suite 364
Fort Myers, FL 33901-3381
Attn: Maryann Dugan

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: Colin Wright, Program Administrator

Date Certified: 28-FEB-2018 16:11



NON-CONFORMANCE REPORT INCLUDED

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: Owen Creek From Crane Park

Collection Date/Time: 01/31/2018 11:11

Field ID: G3SD0106

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1963596	EPA 180.1 Rev. 2.0	Turbidity	5.0		NTU	P339171	
	EPA 300.0 Rev. 2.1	Chloride	35		mg Cl/L	P339228	
		Sulfate	180		mg SO4/L	P339231	
	SM 2120 B	Color (true)	150		PCU	P339193	
	SM 2320 B-97	Total Alkalinity	45		mg CaCO3/L	P339515	
	SM 2540 C-97	TDS	459		mg/L	P339635	
	SM 2540 D-97	TSS	6	I	mg/L	P339533	
	SM 4500 F-C-97	Fluoride	0.18		mg F/L	P340385	
1963598	EPA 350.1 Rev. 2.0	Ammonia-N	1.6		mg N/L	P339676	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	3.1		mg N/L	P339221	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.49		mg N/L	P339244	
	EPA 365.1 Rev. 2.0	Total-P	0.59		mg P/L	P339254	
	SM 5310 B-00	Organic Carbon	21		mg C/L	P339520	
1963600	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.48		mg P/L	P339199	

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

Sample Location: Brandy Branch @ SR 70

Collection Date/Time: 01/31/2018 12:30

Field ID: G3SD0083

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1963597	EPA 180.1 Rev. 2.0	Turbidity	1.8		NTU	P339171	
	EPA 300.0 Rev. 2.1	Chloride	31		mg Cl/L	P339228	
		Sulfate	670		mg SO4/L	P339231	
	SM 2120 B	Color (true)	48		PCU	P339193	
	SM 2320 B-97	Total Alkalinity	38		mg CaCO3/L	P339514	
	SM 2540 C-97	TDS	1.17E+03		mg/L	P339635	
	SM 2540 D-97	TSS	2	I	mg/L	P339533	
	SM 4500 F-C-97	Fluoride	0.48		mg F/L	P339732	
1963599	EPA 350.1 Rev. 2.0	Ammonia-N	0.23		mg N/L	P339369	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.1		mg N/L	P339221	
	EPA 353.2 Rev. 2.0	NO2NO3-N	1.8		mg N/L	P339244	
	EPA 365.1 Rev. 2.0	Total-P	0.47		mg P/L	P339254	
	SM 5310 B-00	Organic Carbon	13		mg C/L	P339520	
1963601	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.41		mg P/L	P339200	

Ref. Method and Comment:

SM 2540 D-97: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample.

Non-Conformance Report

NCR ID: 6902

Event(s)

SO-DIST-2018-02-01-02

Job(s)

Sample(s)

Test(s)

Non-Conformance Report

NCR ID: 6902

<u>Event(s)</u>	<u>Job(s)</u>	<u>Sample(s)</u>	<u>Test(s)</u>
NCR Type: SAMPLING		NCR Category:	General
Observation:	The sample container sets were switched in the field during collection, Owen Creek containers are Brandy Branch samples and Brandy Branch containers are Owen Creek samples.		
Resolution:	Maryann Dugan was notified and confirmed that the container sets were switched during collection. Any data generated before 2/13/18 @ 1300 will need to be switched in LIMs and/ or log books. Email attached to submittal forms.		

Authorized by/Date: Joshua Ayres 2/14/2018

The Non-Conformance Report details exceptions or problems encountered with the events/jobs/samples/test.
Please address questions to:

Chemistry	Colin Wright	(850) 245-8085
Biology	Cheryl Swanson	(850) 245-8177

Quality Assurance Report Method Blank Results

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P339171

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P339228

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P339231

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P339369

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P339676

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P339221

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

Quality Assurance Report Method Blank Results

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P339244

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P339254

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P339199

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P339200

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

Reference Method: SM 2120 B
Batch ID: P339193

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2320 B-97
Batch ID: P339514

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

Reference Method: SM 2320 B-97
Batch ID: P339515

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

Reference Method: SM 2540 C-97
Batch ID: P339635

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P339533

Component	Result	Code	Units
TSS	2	U	mg/L

Quality Assurance Report Method Blank Results

Reference Method: SM 4500 F-C-97
Batch ID: P339732

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 4500 F-C-97
Batch ID: P340385

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-00
Batch ID: P339520

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: P339228

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P339231

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P339369

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P339676

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P339221

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Kjeldahl Nitrogen	98.1		P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P339244

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P339244

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: P339254

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total-P	98.7		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P339199

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
O-Phosphate-P	96.9		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P339200

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
O-Phosphate-P	98.3		P	90 - 110

Reference Method: SM 2320 B-97
Batch ID: P339514

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	97.4		P	95 - 108

Reference Method: SM 2320 B-97
Batch ID: P339515

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	96.0		P	95 - 108

Reference Method: SM 4500 F-C-97
Batch ID: P339732

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	99.6		P	91 - 105

Reference Method: SM 4500 F-C-97
Batch ID: P340385

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	97.1		P	92 - 103

Reference Method: SM 5310 B-00
Batch ID: P339520

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	93.4		P	85 - 115

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P339228

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1963420	Chloride	101		P	90 - 110
1963748	Chloride	97.2		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P339231

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1963420	Sulfate	98.0		P	90 - 110
1963748	Sulfate	96.8		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P339369

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1963500	Ammonia-N	96.2	97.9	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P339676

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1963422	Ammonia-N	101	99.0	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P339221

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1963599	Kjeldahl Nitrogen	106	103	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P339244

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1963512	NO2NO3-N	103	104	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P339254

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1963511	Total-P	98.3	101	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P339200

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1963600	O-Phosphate-P	97.8	98.1	P/P	90 - 110

Reference Method: SM 4500 F-C-97
Batch ID: P339732

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1963459	Fluoride	96.5	96.5	P/P	91 - 105

Quality Assurance Report Matrix Spike Accuracy

Reference Method: SM 4500 F-C-97
Batch ID: P340385

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1963695	Fluoride	95.8	95.2	P/P	91 - 105

Reference Method: SM 5310 B-00
Batch ID: P339520

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1963455	Organic Carbon	109		P	85 - 115

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P339171

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1963493	Turbidity	0.839	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P339228

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1963420	Chloride	1.06	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P339231

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1963420	Sulfate	0.476	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P339369

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1963500	Ammonia-N	1.45	Spike	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P339676

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1963422	Ammonia-N	1.53	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P339221

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
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Quality Assurance Report Precision

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P339221

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1963599	Kjeldahl Nitrogen	1.88	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P339244

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1963512	NO2NO3-N	0.332	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P339254

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1963511	Total-P	2.35	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P339199

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1963492	O-Phosphate-P	0.994	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P339200

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1963600	O-Phosphate-P	0.216	Spike	P	0 - 20

Reference Method: SM 2120 B
Batch ID: P339193

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1963502	Color (true)	1.56	Sample	P	0 - 20

Reference Method: SM 2320 B-97
Batch ID: P339514

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1963459	Total Alkalinity	0.238	Sample	P	0 - 4.8

Reference Method: SM 2320 B-97
Batch ID: P339515

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1963824	Total Alkalinity	0.431	Sample	P	0 - 4.8

Quality Assurance Report Precision

Reference Method: SM 2540 C-97
Batch ID: P339635

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1963502	TDS	1.28	Sample	P	0 - 10

Reference Method: SM 4500 F-C-97
Batch ID: P339732

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1963459	Fluoride	0.0	Spike	P	0 - 3.0

Reference Method: SM 4500 F-C-97
Batch ID: P340385

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1963695	Fluoride	0.473	Spike	P	0 - 3.0

Reference Method: SM 5310 B-00
Batch ID: P339520

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1963455	Organic Carbon	0.430	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: 1963596, 1963597

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	102	107	P/P	90 - 110
Sulfate	100	105	P/P	90 - 110

Reference Method: EPA 180.1 Rev. 2.0
Run ID: A81797
Included Lab Sample IDs: 1963596, 1963597

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

Reference Method: SM 2120 B
Run ID: A81803
Included Lab Sample IDs: 1963596, 1963597

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	103	102	P/P	85 - 115

Quality Assurance Report Calibration Verification

Reference Method: SM 2120 B

Run ID: A81803

Included Lab Sample IDs: 1963596, 1963597

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	104	106	P/P	85 - 115

Reference Method: EPA 365.1 Rev. 2.0 dissolved

Run ID: A81805

Included Lab Sample IDs: 1963600, 1963601

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	100	100	P/P	90 - 110
O-Phosphate-P	99.6	100	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A81821

Included Lab Sample IDs: 1963598, 1963599

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO2NO3-N	102	103	P/P	90 - 110
NO2NO3-N	103	102	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A81841

Included Lab Sample IDs: 1963598, 1963599

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

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A81847

Included Lab Sample IDs: 1963598, 1963599

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	96.9	93.8	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A81871

Included Lab Sample IDs: 1963599

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	98.9	99.9	P/P	90 - 110

Reference Method: SM 2320 B-97

Run ID: A81913

Included Lab Sample IDs: 1963596, 1963597

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	96.9	95.6	P/P	90 - 110
Total Alkalinity	97.5	94.9	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: SM 5310 B-00

Run ID: A81915

Included Lab Sample IDs: 1963598, 1963599

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	94.1	93.2	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A81964

Included Lab Sample IDs: 1963598

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

Reference Method: EPA 300.0 Rev. 2.1

Run ID: A81969

Included Lab Sample IDs: 1963597

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Sulfate	99.6	97.9	P/P	90 - 110

Reference Method: SM 4500 F-C-97

Run ID: A81981

Included Lab Sample IDs: 1963597

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	100	99.5	P/P	90 - 110

Reference Method: SM 4500 F-C-97

Run ID: A82220

Included Lab Sample IDs: 1963596

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	97.2	97.1	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				0.839	
EPA 300.0 Rev. 2.1	Chloride	97.9	101	97.2	1.06	
	Sulfate	96.7	98.0	96.8	0.476	
EPA 350.1 Rev. 2.0	Ammonia-N	99.0	96.2	97.9		1.45
	Ammonia-N	95.6	101	99.0		1.53
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	98.1	106	103		1.88
EPA 353.2 Rev. 2.0	NO2NO3-N	106	103	104		0.332
EPA 365.1 Rev. 2.0	Total-P	98.7	98.3	101		2.35
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	96.9				0.994
	O-Phosphate-P	98.3	97.8	98.1		0.216
SM 2120 B	Color (true)				1.56	

Quality Assurance Report Summary

Ref. Method	Analyte	LCS % Recovery	MS % Recovery		LCS	Precision	MS
						SMP	
SM 2320 B-97	Total Alkalinity	97.4				0.238	
	Total Alkalinity	96.0				0.431	
SM 2540 C-97	TDS					1.28	
SM 4500 F-C-97	Fluoride	99.6	96.5	96.5			0.0
	Fluoride	97.1	95.8	95.2			0.473
SM 5310 B-00	Organic Carbon	93.4	109				0.430

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	1963596, 1963597
EPA 300.0 Rev. 2.1 / E31780	Chloride in aqueous matrices	1963596, 1963597
EPA 300.0 Rev. 2.1 / E31780	Sulfate in aqueous matrices	1963596, 1963597
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	1963598, 1963599
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	1963598, 1963599
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	1963598, 1963599
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	1963598, 1963599
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	1963600, 1963601
SM 2120 B / E31780	True Color measured at 450 nm	1963596, 1963597
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO ₃ /L	1963596, 1963597
SM 2540 C-97 / E31780	Total Dissolved Solids in aqueous matrices	1963596, 1963597
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices	1963596, 1963597
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	1963596, 1963597
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	1963598, 1963599

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	02/01/2018			02/01/2018 16:00	DeAsia Armster	1963596, 1963597
EPA 300.0 Rev. 2.1	02/01/2018			02/02/2018	Julia Storbeck	1963596, 1963597
	02/01/2018			02/08/2018	Julia Storbeck	1963597
EPA 350.1 Rev. 2.0	02/01/2018			02/05/2018	Ping Hua	1963599
	02/01/2018			02/09/2018	Julia Storbeck	1963598
EPA 351.2 Rev. 2.0	02/01/2018	02/02/2018	Adrian Shelby	02/05/2018	Joseph Suarez	1963598, 1963599
EPA 353.2 Rev. 2.0	02/01/2018			02/02/2018	Lauren Bottorf	1963598, 1963599
EPA 365.1 Rev. 2.0	02/01/2018	02/02/2018	Sima Feizi	02/05/2018	Beverly Y. Sanders	1963598, 1963599
EPA 365.1 Rev. 2.0 dissolved	02/01/2018			02/01/2018 15:30	Megan Treadwell	1963601
	02/01/2018			02/01/2018 16:27	Megan Treadwell	1963600
SM 2120 B	02/01/2018			02/01/2018 15:54	Tanya Welborn	1963597
	02/01/2018			02/01/2018 16:29	Tanya Welborn	1963596
SM 2320 B-97	02/01/2018			02/07/2018	Lauren Bottorf	1963597
	02/01/2018			02/08/2018	Lauren Bottorf	1963596
SM 2540 C-97	02/01/2018			02/02/2018	DeAsia Armster	1963596, 1963597
SM 2540 D-97	02/01/2018			02/02/2018	DeAsia Armster	1963596, 1963597
SM 4500 F-C-97	02/01/2018			02/10/2018	Lauren Bottorf	1963597
	02/01/2018			02/22/2018	Dale L. Simmons	1963596
SM 5310 B-00	02/01/2018			02/07/2018	Megan Treadwell	1963598, 1963599