

Chemical Analysis Report

SO-DIST-2018-02-06-01

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

Event Description: **Caloosa Creeks**
Request ID: **RQ-2018-02-05-88**
Customer: **SO-DIST**
Project ID: **BMAP**

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

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Certified by: Thekkekalathil Chandrasekhar, Chemist Administrator Date Certified: 26-FEB-2018 14:27



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: Hancock Creek

Collection Date/Time: 02/05/2018 08:55

Field ID: G3SD0130

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1964558	SM 2120 B	Color (true)	64		PCU	P339417	
	SM 2320 B-97	Total Alkalinity	131		mg CaCO3/L	P339728	
	SM 2540 D-97	TSS	4	I	mg/L	P339689	
	SM 4500 F-C-97	Fluoride	0.37		mg F/L	P339653	
1964561	SM 5310 B-00 dissolved	Organic Carbon	13		mg C/L	P340072	
1964564	EPA 350.1 Rev. 2.0	Ammonia-N	0.008		mg N/L	P339681	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.87		mg N/L	P339432	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P339693	
	EPA 365.1 Rev. 2.0	Total-P	0.13		mg P/L	P339576	
	SM 5310 B-00	Organic Carbon	13		mg C/L	P340072	
1964567	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.071		mg P/L	P339451	

Ref. Method and Comment:

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

SM 4500 F-C-97: Batch matrix spike recoveries are unavailable because of high analyte concentration in the QC sample.

Sample Location: Telegraph Creek

Collection Date/Time: 02/05/2018 09:55

Field ID: G3SD0129

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1964559	SM 2120 B	Color (true)	52		PCU	P339417	
	SM 2320 B-97	Total Alkalinity	246		mg CaCO3/L	P340122	
	SM 2540 D-97	TSS	6	I	mg/L	P339689	
	SM 4500 F-C-97	Fluoride	0.17		mg F/L	P340473	
1964562	SM 5310 B-00 dissolved	Organic Carbon	14		mg C/L	P340072	
1964565	EPA 350.1 Rev. 2.0	Ammonia-N	0.008		mg N/L	P339680	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.72		mg N/L	P339434	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.091		mg N/L	P339753	
	EPA 365.1 Rev. 2.0	Total-P	0.085		mg P/L	P339577	
	SM 5310 B-00	Organic Carbon	14		mg C/L	P340072	
1964568	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.035		mg P/L	P339447	

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: Orange River

Collection Date/Time: 02/05/2018 10:38

Field ID: G3SD0128

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1964560	SM 2120 B	Color (true)	26	A	PCU	P339417	
	SM 2320 B-97	Total Alkalinity	216		mg CaCO3/L	P340122	
	SM 2540 D-97	TSS	4	I	mg/L	P339689	
	SM 4500 F-C-97	Fluoride	0.17		mg F/L	P340473	
1964563	SM 5310 B-00 dissolved	Organic Carbon	8.2		mg C/L	P340072	
1964566	EPA 350.1 Rev. 2.0	Ammonia-N	0.007		mg N/L	P339680	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.71		mg N/L	P339560	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.061		mg N/L	P339753	

Field ID: G3SD0128

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1964566	EPA 365.1 Rev. 2.0	Total-P	0.050		mg P/L	P339577	
	SM 5310 B-00	Organic Carbon	8.3		mg C/L	P340072	
1964569	EPA 365.1 Rev. 2.0	O-Phosphate-P	0.010		mg P/L	P339447	
	dissolved						

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 350.1 Rev. 2.0
Batch ID: P339680

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P339681

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P339432

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P339434

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P339560

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P339693

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P339753

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P339576

Component	Result	Code	Units
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Quality Assurance Report

Method Blank Results

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P339576

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P339577

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P339447

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P339451

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

Reference Method: SM 2120 B
Batch ID: P339417

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2320 B-97
Batch ID: P339728

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

Reference Method: SM 2320 B-97
Batch ID: P340122

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

Reference Method: SM 2540 D-97
Batch ID: P339689

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500 F-C-97
Batch ID: P339653

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Quality Assurance Report Method Blank Results

Reference Method: SM 4500 F-C-97
Batch ID: P340473

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-00
Batch ID: P340072

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

Reference Method: SM 5310 B-00 dissolved
Batch ID: P340072

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

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P339680

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: P339681

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Ammonia-N	97.3		P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P339432

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P339434

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P339560

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Kjeldahl Nitrogen	93.9		P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P339693

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: P339693

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P339753

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: P339576

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total-P	98.8		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P339577

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: P339447

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P339451

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

Reference Method: SM 2320 B-97
Batch ID: P339728

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	97.0		P	95 - 108

Reference Method: SM 2320 B-97
Batch ID: P340122

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	97.9		P	95 - 108

Reference Method: SM 4500 F-C-97
Batch ID: P339653

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	96.3		P	92 - 103

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: SM 4500 F-C-97
Batch ID: P340473

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	96.2		P	92 - 103

Reference Method: SM 5310 B-00
Batch ID: P340072

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	96.2		P	85 - 115

Reference Method: SM 5310 B-00 dissolved
Batch ID: P340072

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	96.2		P	85 - 115

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P339680

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1964566	Ammonia-N	97.9	100	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P339681

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1963617	Ammonia-N	107	108	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P339432

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1964500	Kjeldahl Nitrogen	101	97.9	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P339434

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1964599	Kjeldahl Nitrogen	101	105	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P339560

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1964763	Kjeldahl Nitrogen	96.8	104	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P339693

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P339693

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1964564	NO2NO3-N	99.1	98.6	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P339753

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1964318	NO2NO3-N	105	105	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P339576

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1964756	Total-P	92.2	91.8	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P339577

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1964097	Total-P	95.0	96.1	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P339447

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1964536	O-Phosphate-P	97.7	98.6	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P339451

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1964912	O-Phosphate-P	98.5	96.7	P/P	90 - 110

Reference Method: SM 4500 F-C-97
Batch ID: P340473

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1964802	Fluoride	94.9	96.1	P/P	91 - 105

Reference Method: SM 5310 B-00
Batch ID: P340072

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1964561	Organic Carbon	96.0	95.5	P/P	85 - 115

Reference Method: SM 5310 B-00 dissolved
Batch ID: P340072

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1964561	Organic Carbon	96.0	95.5	P/P	85 - 115

Quality Assurance Report Precision

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P339680

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1964566	Ammonia-N	1.94	Spike	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P339681

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1963617	Ammonia-N	0.799	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P339432

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1964500	Kjeldahl Nitrogen	2.29	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P339434

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1964599	Kjeldahl Nitrogen	3.46	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P339560

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1964763	Kjeldahl Nitrogen	4.92	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P339693

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1964564	NO2NO3-N	0.506	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P339753

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1964318	NO2NO3-N	0.0	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P339576

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1964756	Total-P	0.418	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 365.1 Rev. 2.0

Batch ID: P339577

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1964097	Total-P	1.18	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved

Batch ID: P339447

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1964536	O-Phosphate-P	0.825	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved

Batch ID: P339451

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1964912	O-Phosphate-P	1.00	Spike	P	0 - 20

Reference Method: SM 2120 B

Batch ID: P339417

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1964560	Color (true)	2.63	Sample	P	0 - 20

Reference Method: SM 2320 B-97

Batch ID: P339728

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1963860	Total Alkalinity	0.519	Sample	P	0 - 4.8

Reference Method: SM 2320 B-97

Batch ID: P340122

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1964740	Total Alkalinity	0.435	Sample	P	0 - 4.8

Reference Method: SM 4500 F-C-97

Batch ID: P339653

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1963619	Fluoride	0.986	Spike	P	0 - 3.0

Reference Method: SM 4500 F-C-97

Batch ID: P340473

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1964802	Fluoride	0.940	Spike	P	0 - 3.0

Quality Assurance Report Precision

Reference Method: SM 5310 B-00
Batch ID: P340072

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1964561	Organic Carbon	0.315	Spike	P	0 - 20

Reference Method: SM 5310 B-00 dissolved
Batch ID: P340072

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1964561	Organic Carbon	0.315	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: A81880
Included Lab Sample IDs: 1964558, 1964559, 1964560

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	100	97.4	P/P	85 - 115

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Run ID: A81897
Included Lab Sample IDs: 1964567, 1964568, 1964569

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	100	99.8	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Run ID: A81918
Included Lab Sample IDs: 1964564, 1964565

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

Reference Method: SM 4500 F-C-97
Run ID: A81946
Included Lab Sample IDs: 1964558

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	99.5	103	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Run ID: A81947
Included Lab Sample IDs: 1964566

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

Quality Assurance Report Calibration Verification

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A81952

Included Lab Sample IDs: 1964564

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO2NO3-N	99.5	100	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A81955

Included Lab Sample IDs: 1964564, 1964565

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	100	101	P/P	90 - 110
Total-P	99.7	100	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A81960

Included Lab Sample IDs: 1964566

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

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A81964

Included Lab Sample IDs: 1964564, 1964565, 1964566

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	101	103	P/P	90 - 110
Ammonia-N	103	101	P/P	90 - 110
Ammonia-N	98.8	103	P/P	90 - 110

Reference Method: SM 2320 B-97

Run ID: A81981

Included Lab Sample IDs: 1964558

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	95.5	98.7	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A81992

Included Lab Sample IDs: 1964565, 1964566

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

Reference Method: SM 5310 B-00

Run ID: A82106

Included Lab Sample IDs: 1964564, 1964565, 1964566

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	95.8	96.0	P/P	90 - 110
Organic Carbon	96.6	95.8	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: SM 5310 B-00 dissolved
Run ID: A82106
Included Lab Sample IDs: 1964561, 1964562, 1964563

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	96.6	95.8	P/P	90 - 110

Reference Method: SM 2320 B-97
Run ID: A82122
Included Lab Sample IDs: 1964559, 1964560

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	96.0	98.0	P/P	90 - 110

Reference Method: SM 4500 F-C-97
Run ID: A82245
Included Lab Sample IDs: 1964559, 1964560

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	98.6	98.5	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 350.1 Rev. 2.0	Ammonia-N	101	97.9	100		1.94
	Ammonia-N	97.3	107	108		0.799
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	99.5	101	97.9		2.29
	Kjeldahl Nitrogen	99.6	101	105		3.46
	Kjeldahl Nitrogen	93.9	96.8	104		4.92
EPA 353.2 Rev. 2.0	NO2NO3-N	104	99.1	98.6		0.506
	NO2NO3-N	104	105	105		0.0
EPA 365.1 Rev. 2.0	Total-P	98.8	92.2	91.8		0.418
	Total-P	98.7	95.0	96.1		1.18
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	97.7	97.7	98.6		0.825
	O-Phosphate-P	99.4	98.5	96.7		1.00
SM 2120 B	Color (true)				2.63	
SM 2320 B-97	Total Alkalinity	97.0			0.519	
	Total Alkalinity	97.9			0.435	
SM 4500 F-C-97	Fluoride	96.3				0.986
	Fluoride	96.2	94.9	96.1		0.940
SM 5310 B-00	Organic Carbon	96.2	96.0	95.5		0.315
SM 5310 B-00 dissolved	Organic Carbon	96.2	96.0	95.5		0.315

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	1964564, 1964565, 1964566

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	1964564, 1964565, 1964566
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	1964564, 1964565, 1964566
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	1964564, 1964565, 1964566
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	1964567, 1964568, 1964569
SM 2120 B / E31780	True Color measured at 450 nm	1964558, 1964559, 1964560
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO ₃ /L	1964558, 1964559, 1964560
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices	1964558, 1964559, 1964560
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	1964558, 1964559, 1964560
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	1964564, 1964565, 1964566
SM 5310 B-00 dissolved / E31780	Dissolved Nonpurgeable Organic Carbon in filtered, aqueous matrices	1964561, 1964562, 1964563

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
EPA 350.1 Rev. 2.0	02/06/2018			02/09/2018	Julia Storbeck	1964564, 1964565, 1964566
EPA 351.2 Rev. 2.0	02/06/2018	02/07/2018	Adrian Shelby	02/08/2018	Joseph Suarez	1964564, 1964565
	02/06/2018	02/08/2018	Adrian Shelby	02/09/2018	Joseph Suarez	1964566
EPA 353.2 Rev. 2.0	02/06/2018			02/09/2018	Beverly Y. Sanders	1964564
	02/06/2018			02/12/2018	Lauren Bottorf	1964565, 1964566
EPA 365.1 Rev. 2.0	02/06/2018	02/08/2018	Sima Feizi	02/09/2018	Lipi Saha	1964564, 1964565, 1964566
EPA 365.1 Rev. 2.0 dissolved	02/06/2018			02/06/2018 17:15	Megan Treadwell	1964567
	02/06/2018			02/06/2018 17:16	Megan Treadwell	1964568
	02/06/2018			02/06/2018 17:17	Megan Treadwell	1964569
SM 2120 B	02/06/2018			02/06/2018 16:26	Tanya Welborn	1964558
	02/06/2018			02/06/2018 16:27	Tanya Welborn	1964559
	02/06/2018			02/06/2018 16:29	Tanya Welborn	1964560
SM 2320 B-97	02/06/2018			02/09/2018	Lauren Bottorf	1964558
	02/06/2018			02/16/2018	Dale L. Simmons	1964559, 1964560
SM 2540 D-97	02/06/2018			02/07/2018	Yijie Li	1964558, 1964559, 1964560
SM 4500 F-C-97	02/06/2018			02/09/2018	Lauren Bottorf	1964558
	02/06/2018			02/22/2018	Dale L. Simmons	1964559, 1964560
SM 5310 B-00	02/06/2018			02/15/2018	Megan Treadwell	1964564, 1964565, 1964566
SM 5310 B-00 dissolved	02/06/2018			02/15/2018	Megan Treadwell	1964561, 1964562, 1964563