

Chemical Analysis Report

SO-DIST-2018-09-27-01

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

Event Description: **BFWW**
Request ID: **RQ-2018-09-24-68**
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
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Certified by: Liang Lin, Environmental Administrator

Date Certified: 22-OCT-2018 13:37

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: ENRE 9 Harney River

Collection Date/Time: 09/26/2018 12:30

Field ID: G5SD0040

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2028833	EPA 180.1 Rev. 2.0	Turbidity	3.8		NTU	P352471	
	SM 2320 B-97	Total Alkalinity	175	A	mg CaCO3/L	P352885	
	SM 2540 D-97	TSS	3	UA	mg/L	P353078	
	SM 4500 F-C-97	Fluoride	0.49		mg F/L	P352888	
2028838	EPA 350.1 Rev. 2.0	Ammonia-N	0.011		mg N/L	P352625	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.78		mg N/L	P352485	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.008	I	mg N/L	P352469	
	EPA 365.1 Rev. 2.0	Total-P	0.030		mg P/L	P352463	
	SM 5310 B-00	Organic Carbon	14		mg C/L	P352977	
2028843	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.01	I	mg P/L	P352436	

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: ENRE9 Lostmans Bay W

Collection Date/Time: 09/26/2018 10:55

Field ID: G5SD0091

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2028834	EPA 180.1 Rev. 2.0	Turbidity	11		NTU	P352471	
	SM 2320 B-97	Total Alkalinity	121		mg CaCO3/L	P352908	
	SM 2540 D-97	TSS	11		mg/L	P353075	
	SM 4500 F-C-97	Fluoride	0.16		mg F/L	P353028	
2028839	EPA 350.1 Rev. 2.0	Ammonia-N	0.023		mg N/L	P353012	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.87		mg N/L	P352544	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.033		mg N/L	P352699	
	EPA 365.1 Rev. 2.0	Total-P	0.028		mg P/L	P352462	
	SM 5310 B-00	Organic Carbon	12		mg C/L	P352976	
2028844	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P352433	

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: ENRE9 Lostmans Bay

Collection Date/Time: 09/26/2018 11:10

Field ID: G5SD0041

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2028835	EPA 180.1 Rev. 2.0	Turbidity	9.1		NTU	P352471	
	SM 2320 B-97	Total Alkalinity	123		mg CaCO3/L	P352908	
	SM 2540 D-97	TSS	8	I	mg/L	P353075	
	SM 4500 F-C-97	Fluoride	0.16		mg F/L	P353028	
2028840	EPA 350.1 Rev. 2.0	Ammonia-N	0.018		mg N/L	P353012	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.87		mg N/L	P352544	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.032		mg N/L	P352699	
	EPA 365.1 Rev. 2.0	Total-P	0.025		mg P/L	P352462	
	SM 5310 B-00	Organic Carbon	12		mg C/L	P352976	
2028845	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P352433	

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: ENRE12 Lostmans Bay

Collection Date/Time: 09/26/2018 11:20

Field ID: G5SD0078

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2028836	EPA 180.1 Rev. 2.0	Turbidity	11		NTU	P352471	
	SM 2320 B-97	Total Alkalinity	120		mg CaCO3/L	P352908	
	SM 2540 D-97	TSS	12		mg/L	P353076	
	SM 4500 F-C-97	Fluoride	0.14		mg F/L	P353028	
2028841	EPA 350.1 Rev. 2.0	Ammonia-N	0.015		mg N/L	P353012	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.84		mg N/L	P352544	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.024		mg N/L	P352699	
	EPA 365.1 Rev. 2.0	Total-P	0.028		mg P/L	P352462	
	SM 5310 B-00	Organic Carbon	12		mg C/L	P352976	
2028846	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P352433	

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: ENRE12 Lostmans Bay E

Collection Date/Time: 09/26/2018 11:35

Field ID: G5SD0090

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2028837	EPA 180.1 Rev. 2.0	Turbidity	12	A	NTU	P352471	
	SM 2320 B-97	Total Alkalinity	119		mg CaCO3/L	P352908	
	SM 2540 D-97	TSS	12		mg/L	P353076	
	SM 4500 F-C-97	Fluoride	0.14		mg F/L	P353028	
2028842	EPA 350.1 Rev. 2.0	Ammonia-N	0.015		mg N/L	P353012	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.89		mg N/L	P352544	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.024		mg N/L	P352699	
	EPA 365.1 Rev. 2.0	Total-P	0.028		mg P/L	P352462	
	SM 5310 B-00	Organic Carbon	12		mg C/L	P352976	
2028847	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P352434	

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: P352471

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P352625

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P353012

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P352485

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P352544

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P352469

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P352699

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P352462

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P352463

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

Quality Assurance Report Method Blank Results

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P352433

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P352434

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P352436

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

Reference Method: SM 2320 B-97
Batch ID: P352885

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

Reference Method: SM 2320 B-97
Batch ID: P352908

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

Reference Method: SM 2540 D-97
Batch ID: P353075

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P353076

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P353078

Component	Result	Code	Units
TSS	3	U	mg/L

Reference Method: SM 4500 F-C-97
Batch ID: P352888

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: P353028

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-00
Batch ID: P352976

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

Reference Method: SM 5310 B-00
Batch ID: P352977

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: P352625

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: P353012

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P352485

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P352544

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P352469

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: P352699

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P352462

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P352463

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P352433

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

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P352434

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P352436

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

Reference Method: SM 2320 B-97
Batch ID: P352885

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	105		P	98 - 107

Reference Method: SM 2320 B-97
Batch ID: P352908

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	103		P	98 - 107

Reference Method: SM 4500 F-C-97
Batch ID: P352888

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	100		P	91 - 105

Reference Method: SM 4500 F-C-97
Batch ID: P353028

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	99.4		P	91 - 105

Reference Method: SM 5310 B-00
Batch ID: P352976

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	97.9		P	85 - 115

Reference Method: SM 5310 B-00
Batch ID: P352977

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	99.5		P	85 - 115

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P352625

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2027433	Ammonia-N	101	99.4	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P353012

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2028862	Ammonia-N	99.5	98.6	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P352485

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2027001	Kjeldahl Nitrogen	107	104	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P352544

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2028795	Kjeldahl Nitrogen	99.0	97.7	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P352469

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2028954	NO2NO3-N	100	102	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P352699

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2028841	NO2NO3-N	101	102	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P352462

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2028842	Total-P	102	100	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P352463

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2028677	Total-P	94.7	91.7	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P352433

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2028714	O-Phosphate-P	99.1	97.7	P/P	90 - 110

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P352434

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2028895	O-Phosphate-P	98.6	99.5	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P352436

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2028679	O-Phosphate-P	96.3	98.2	P/P	90 - 110

Reference Method: SM 4500 F-C-97
Batch ID: P352888

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2028833	Fluoride	96.7	96.7	P/P	91 - 105

Reference Method: SM 4500 F-C-97
Batch ID: P353028

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2028976	Fluoride	98.3	98.3	P/P	91 - 105

Reference Method: SM 5310 B-00
Batch ID: P352976

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2028840	Organic Carbon	98.0	97.8	P/P	85 - 115

Reference Method: SM 5310 B-00
Batch ID: P352977

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2028674	Organic Carbon	94.7	96.1	P/P	85 - 115

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P352471

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2028837	Turbidity	3.39	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P352625

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2027433	Ammonia-N	0.838	Spike	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P353012

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2028862	Ammonia-N	0.792	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P352485

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2027001	Kjeldahl Nitrogen	2.72	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P352544

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2028795	Kjeldahl Nitrogen	0.746	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P352469

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2028954	NO2NO3-N	0.564	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P352699

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2028841	NO2NO3-N	0.442	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P352462

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2028842	Total-P	2.12	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P352463

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2028677	Total-P	3.22	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P352433

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2028714	O-Phosphate-P	1.00	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P352434

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2028895	O-Phosphate-P	0.719	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P352436

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2028679	O-Phosphate-P	1.95	Spike	P	0 - 20

Reference Method: SM 2320 B-97
Batch ID: P352885

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2028833	Total Alkalinity	0.108	Sample	P	0 - 1.6

Reference Method: SM 2320 B-97
Batch ID: P352908

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2028976	Total Alkalinity	1.36	Sample	P	0 - 1.6

Reference Method: SM 4500 F-C-97
Batch ID: P352888

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2028833	Fluoride	0.0	Spike	P	0 - 3.5

Reference Method: SM 4500 F-C-97
Batch ID: P353028

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2028976	Fluoride	0.0	Spike	P	0 - 3.5

Quality Assurance Report Precision

Reference Method: SM 5310 B-00
Batch ID: P352976

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2028840	Organic Carbon	0.160	Spike	P	0 - 20

Reference Method: SM 5310 B-00
Batch ID: P352977

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2028674	Organic Carbon	1.34	Spike	P	0 - 20

* Sample, spike and/or laboratory control sample precision (LCS) is reported.
Replicate spike precision may be reported when sample results are below quantifiable levels.

Quality Assurance Report Calibration Verification

Reference Method: EPA 365.1 Rev. 2.0 dissolved

Run ID: A86767

Included Lab Sample IDs: 2028843, 2028844, 2028845, 2028846, 2028847

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	98.5	99.5	P/P	90 - 110
O-Phosphate-P	99.5	97.9	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A86784

Included Lab Sample IDs: 2028838

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO2NO3-N	98.5	98.5	P/P	90 - 110

Reference Method: EPA 180.1 Rev. 2.0

Run ID: A86787

Included Lab Sample IDs: 2028833, 2028834, 2028835, 2028836, 2028837

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Turbidity	99.0	102	P/P	95 - 105

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A86819

Included Lab Sample IDs: 2028838

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	103	100	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A86831

Included Lab Sample IDs: 2028838, 2028839, 2028840, 2028841, 2028842

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	100	102	P/P	90 - 110
Total-P	102	101	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A86854

Included Lab Sample IDs: 2028838

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

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A86890

Included Lab Sample IDs: 2028839, 2028840, 2028841, 2028842

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

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A86924

Included Lab Sample IDs: 2028839, 2028840, 2028841, 2028842

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

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A86924

Included Lab Sample IDs: 2028839, 2028840, 2028841, 2028842

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

Reference Method: SM 2320 B-97

Run ID: A86959

Included Lab Sample IDs: 2028833

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	100	105	P/P	90 - 110

Reference Method: SM 4500 F-C-97

Run ID: A86959

Included Lab Sample IDs: 2028833

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	101	99.5	P/P	90 - 110

Reference Method: SM 2320 B-97

Run ID: A86962

Included Lab Sample IDs: 2028834, 2028835, 2028836, 2028837

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	103	100	P/P	90 - 110

Reference Method: SM 5310 B-00

Run ID: A86991

Included Lab Sample IDs: 2028838, 2028839, 2028840, 2028841, 2028842

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	95.4	94.4	P/P	90 - 110
Organic Carbon	95.8	95.9	P/P	90 - 110
Organic Carbon	95.9	94.4	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A87010

Included Lab Sample IDs: 2028839, 2028840, 2028841, 2028842

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	100	99.4	P/P	90 - 110

Reference Method: SM 4500 F-C-97

Run ID: A87013

Included Lab Sample IDs: 2028834, 2028835, 2028836, 2028837

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	100	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	MS
						SMP	
EPA 180.1 Rev. 2.0	Turbidity					3.39	
EPA 350.1 Rev. 2.0	Ammonia-N	101	101	99.4			0.838
	Ammonia-N	99.0	99.5	98.6			0.792
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	106	107	104			2.72
	Kjeldahl Nitrogen	103	99.0	97.7			0.746
EPA 353.2 Rev. 2.0	NO ₂ NO ₃ -N	102	100	102			0.564
	NO ₂ NO ₃ -N	99.0	101	102			0.442
EPA 365.1 Rev. 2.0	Total-P	104	102	100			2.12
	Total-P	104	94.7	91.7			3.22
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	102	99.1	97.7			1.00
	O-Phosphate-P	99.8	98.6	99.5			0.719
	O-Phosphate-P	101	96.3	98.2			1.95
SM 2320 B-97	Total Alkalinity	105				0.108	
	Total Alkalinity	103				1.36	
SM 4500 F-C-97	Fluoride	100	96.7	96.7			0.0
	Fluoride	99.4	98.3	98.3			0.0
SM 5310 B-00	Organic Carbon	97.9	98.0	97.8			0.160
	Organic Carbon	99.5	94.7	96.1			1.34

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	2028833, 2028834, 2028835, 2028836, 2028837
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	2028838, 2028839, 2028840, 2028841, 2028842
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	2028838, 2028839, 2028840, 2028841, 2028842
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	2028838, 2028839, 2028840, 2028841, 2028842
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	2028838, 2028839, 2028840, 2028841, 2028842
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	2028843, 2028844, 2028845, 2028846, 2028847
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO ₃ /L	2028833, 2028834, 2028835, 2028836, 2028837
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices using a maximum of 250 mL of sample	2028833, 2028834, 2028835, 2028836, 2028837
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	2028833, 2028834, 2028835, 2028836, 2028837
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	2028838, 2028839, 2028840, 2028841, 2028842

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	09/27/2018			09/27/2018 15:54	Megan Treadwell	2028833, 2028834, 2028835, 2028836, 2028837
EPA 350.1 Rev. 2.0	09/27/2018			10/01/2018 13:07	Ping Hua	2028838
	09/27/2018			10/03/2018 12:10	Ping Hua	2028839
	09/27/2018			10/03/2018 12:12	Ping Hua	2028840
	09/27/2018			10/03/2018 12:13	Ping Hua	2028841
	09/27/2018			10/03/2018 12:15	Ping Hua	2028842
EPA 351.2 Rev. 2.0	09/27/2018	09/28/2018 12:45	Adrian Shelby	10/01/2018 12:31	Joseph Suarez	2028838
	09/27/2018	10/01/2018 11:45	Adrian Shelby	10/04/2018 15:52	Joseph Suarez	2028839
	09/27/2018	10/01/2018 11:45	Adrian Shelby	10/04/2018 15:53	Joseph Suarez	2028840
	09/27/2018	10/01/2018 11:45	Adrian Shelby	10/04/2018 15:55	Joseph Suarez	2028841
	09/27/2018	10/01/2018 11:45	Adrian Shelby	10/04/2018 15:57	Joseph Suarez	2028842
EPA 353.2 Rev. 2.0	09/27/2018			09/28/2018 11:31	Lauren Bottorf	2028838
	09/27/2018			10/03/2018 11:58	Lauren Bottorf	2028841
	09/27/2018			10/03/2018 12:07	Lauren Bottorf	2028839
	09/27/2018			10/03/2018 12:08	Lauren Bottorf	2028840
	09/27/2018			10/03/2018 12:09	Lauren Bottorf	2028842
EPA 365.1 Rev. 2.0	09/27/2018	09/28/2018 12:15	Sima Feizi	10/01/2018 14:22	Beverly Y. Sanders	2028839
	09/27/2018	09/28/2018 12:15	Sima Feizi	10/01/2018 14:23	Beverly Y. Sanders	2028840
	09/27/2018	09/28/2018 12:15	Sima Feizi	10/01/2018 14:24	Beverly Y. Sanders	2028841
	09/27/2018	09/28/2018 12:15	Sima Feizi	10/01/2018 14:25	Beverly Y. Sanders	2028842
	09/27/2018	09/28/2018 12:15	Sima Feizi	10/01/2018 14:41	Beverly Y. Sanders	2028838
EPA 365.1 Rev. 2.0 dissolved	09/27/2018			09/27/2018 15:59	Julia Storbeck	2028844
	09/27/2018			09/27/2018 16:00	Julia Storbeck	2028845
	09/27/2018			09/27/2018 16:01	Julia Storbeck	2028846, 2028847
	09/27/2018			09/27/2018 16:10	Julia Storbeck	2028843
SM 2320 B-97	09/27/2018			10/06/2018 07:07	Dale L. Simmons	2028833
	09/27/2018			10/08/2018 03:39	Dale L. Simmons	2028834
	09/27/2018			10/08/2018 03:48	Dale L. Simmons	2028835
	09/27/2018			10/08/2018 03:56	Dale L. Simmons	2028836
	09/27/2018			10/08/2018 04:04	Dale L. Simmons	2028837
SM 2540 D-97	09/27/2018			10/01/2018 11:35	DeAsia Armster	2028833, 2028834, 2028835, 2028836, 2028837
SM 4500 F-C-97	09/27/2018			10/06/2018 05:46	Dale L. Simmons	2028833
	09/27/2018			10/09/2018 16:33	Dale L. Simmons	2028837
	09/27/2018			10/09/2018 16:37	Dale L. Simmons	2028836
	09/27/2018			10/09/2018 16:41	Dale L. Simmons	2028835
	09/27/2018			10/09/2018 16:45	Dale L. Simmons	2028834
SM 5310 B-00	09/27/2018			10/04/2018 03:49	Megan Treadwell	2028840
	09/27/2018			10/04/2018 06:21	Megan Treadwell	2028839

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
SM 5310 B-00	09/27/2018			10/04/2018 06:34	Megan Treadwell	2028841
	09/27/2018			10/04/2018 06:47	Megan Treadwell	2028842
	09/27/2018			10/04/2018 13:37	Megan Treadwell	2028838