

Chemical Analysis Report

SO-DIST-2019-03-27-01

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

Event Description: **Wilderness Waterway**
Request ID: **RQ-2019-03-04-67**
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: Gary Snorek

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Certified by: Liang Lin, Environmental Administrator

Date Certified: 15-APR-2019 16:07

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 by the Florida Department of Health Environmental Laboratory Certification Program 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 10 near Boat Ramp

Collection Date/Time: 03/26/2019 10:25

Field ID: G1SD0074

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2072836	EPA 180.1 Rev. 2.0	Turbidity	11	A	NTU	P361144	
	EPA 300.0	Bromide	66		mg Br/L	P361847	
	SM 2320 B-97	Total Alkalinity	162		mg CaCO3/L	P361325	RPD
	SM 2540 D-97	TSS	9	I	mg/L	P361791	
	SM 4500 F-C-97	Fluoride	1.2		mg F/L	P361720	
2072840	EPA 350.1 Rev. 2.0	Ammonia-N	0.024		mg N/L	P361461	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.64		mg N/L	P361282	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.008	I	mg N/L	P361744	
	EPA 365.1 Rev. 2.0	Total-P	0.046		mg P/L	P361368	
	SM 5310 B-00	Organic Carbon	6.5		mg C/L	P361237	
2072844	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.015		mg P/L	P361164	

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: ENRE 10 off Chokoloskee

Collection Date/Time: 03/26/2019 10:55

Field ID: G1SD0075

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2072837	EPA 180.1 Rev. 2.0	Turbidity	6.5		NTU	P361144	
	EPA 300.0	Bromide	66		mg Br/L	P361847	
	SM 2320 B-97	Total Alkalinity	160		mg CaCO3/L	P361325	RPD
	SM 2540 D-97	TSS	6	I	mg/L	P361791	
	SM 4500 F-C-97	Fluoride	1.2		mg F/L	P361720	
2072841	EPA 350.1 Rev. 2.0	Ammonia-N	0.006		mg N/L	P361461	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.51		mg N/L	P361282	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P361745	
	EPA 365.1 Rev. 2.0	Total-P	0.030		mg P/L	P361368	
	SM 5310 B-00	Organic Carbon	6.2		mg C/L	P361237	
2072845	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.012		mg P/L	P361164	

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: ENRE10 Lopez River

Collection Date/Time: 03/26/2019 11:10

Field ID: G5SD0092

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2072848	EPA 180.1 Rev. 2.0	Turbidity	5.5	A	NTU	P361145	
	EPA 300.0	Bromide	67		mg Br/L	P361847	
	SM 2320 B-97	Total Alkalinity	162		mg CaCO3/L	P361325	RPD
	SM 2540 D-97	TSS	5	I	mg/L	P361792	
	SM 4500 F-C-97	Fluoride	1.2		mg F/L	P361720	
2072852	EPA 350.1 Rev. 2.0	Ammonia-N	0.015		mg N/L	P361461	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.39	I	mg N/L	P361369	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.008	I	mg N/L	P361745	
	EPA 365.1 Rev. 2.0	Total-P	0.036		mg P/L	P361368	
	SM 5310 B-00	Organic Carbon	6.0		mg C/L	P361237	
2072856	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.014		mg P/L	P361164	

Sample Location: ENRE9 Lopez River

Collection Date/Time: 03/26/2019 11:30

Field ID: G5SD0093

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2072849	EPA 180.1 Rev. 2.0	Turbidity	5.4		NTU	P361145	
	EPA 300.0	Bromide	63		mg Br/L	P361847	
	SM 2320 B-97	Total Alkalinity	168		mg CaCO3/L	P361325	RPD
	SM 2540 D-97	TSS	6	I	mg/L	P361792	
	SM 4500 F-C-97	Fluoride	1.2		mg F/L	P361720	
2072853	EPA 350.1 Rev. 2.0	Ammonia-N	0.024		mg N/L	P361461	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.71		mg N/L	P361369	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.012		mg N/L	P361745	
	EPA 365.1 Rev. 2.0	Total-P	0.038		mg P/L	P361368	
	SM 5310 B-00	Organic Carbon	7.8		mg C/L	P361237	
2072857	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.016		mg P/L	P361164	

Sample Location: ENRE11 Sunday Bay

Collection Date/Time: 03/26/2019 11:50

Field ID: G5SD0094

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2072850	EPA 180.1 Rev. 2.0	Turbidity	2.8		NTU	P361145	
	EPA 300.0	Bromide	58		mg Br/L	P361847	
	SM 2320 B-97	Total Alkalinity	169		mg CaCO3/L	P361325	RPD
	SM 2540 D-97	TSS	4	I	mg/L	P361792	
	SM 4500 F-C-97	Fluoride	1.1		mg F/L	P361720	
2072854	EPA 350.1 Rev. 2.0	Ammonia-N	0.013		mg N/L	P361461	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.42		mg N/L	P361369	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.005	I	mg N/L	P361745	
	EPA 365.1 Rev. 2.0	Total-P	0.030		mg P/L	P361368	
	SM 5310 B-00	Organic Carbon	9.9		mg C/L	P361237	
2072858	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.01	I	mg P/L	P361164	

Sample Location: ENRE 11 at Huston Bay

Collection Date/Time: 03/26/2019 12:20

Field ID: G5SD0026

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2072851	EPA 180.1 Rev. 2.0	Turbidity	2.8		NTU	P361145	
	EPA 300.0	Bromide	57		mg Br/L	P361847	
	SM 2320 B-97	Total Alkalinity	151		mg CaCO3/L	P361325	RPD
	SM 2540 D-97	TSS	7	I	mg/L	P361792	
	SM 4500 F-C-97	Fluoride	1.1		mg F/L	P361720	
2072855	EPA 350.1 Rev. 2.0	Ammonia-N	0.009		mg N/L	P361461	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.65		mg N/L	P361806	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P361745	
	EPA 365.1 Rev. 2.0	Total-P	0.025		mg P/L	P361368	
	SM 5310 B-00	Organic Carbon	10		mg C/L	P361237	
2072859	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.005	I	mg P/L	P361164	

Sample Location: ENRE9 @CopelandCauseway

Collection Date/Time: 03/26/2019 13:45

Field ID: G1SD0073

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2072838	EPA 180.1 Rev. 2.0	Turbidity	200		NTU	P361146	
	EPA 300.0	Bromide	66		mg Br/L	P361847	
	SM 2320 B-97	Total Alkalinity	174		mg CaCO3/L	P361325	RPD
	SM 2540 D-97	TSS	316		mg/L	P361792	
	SM 4500 F-C-97	Fluoride	1.2		mg F/L	P361720	
2072842	EPA 350.1 Rev. 2.0	Ammonia-N	0.012		mg N/L	P361461	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.9		mg N/L	P361282	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.006	I	mg N/L	P361745	
	EPA 365.1 Rev. 2.0	Total-P	0.47		mg P/L	P361582	
	SM 5310 B-00	Organic Carbon	11		mg C/L	P361237	
2072846	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.016		mg P/L	P361164	

Sample Location: ENRE 9

Collection Date/Time: 03/26/2019 14:05

Field ID: G1SD0090

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2072839	EPA 180.1 Rev. 2.0	Turbidity	7.1		NTU	P361144	
	EPA 300.0	Bromide	59		mg Br/L	P361847	
	SM 2320 B-97	Total Alkalinity	182		mg CaCO3/L	P361325	RPD
	SM 2540 D-97	TSS	11	A	mg/L	P361792	
	SM 4500 F-C-97	Fluoride	1.1		mg F/L	P361720	
2072843	EPA 350.1 Rev. 2.0	Ammonia-N	0.052		mg N/L	P361461	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.62		mg N/L	P361282	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.036		mg N/L	P361745	
	EPA 365.1 Rev. 2.0	Total-P	0.051		mg P/L	P361368	
	SM 5310 B-00	Organic Carbon	8.5		mg C/L	P361237	
2072847	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.025		mg P/L	P361164	

Quality Assurance Report Method Blank Results

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P361144

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P361145

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P361146

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 300.0
Batch ID: P361847

Component	Result	Code	Units
Bromide	0.013	U	mg Br/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P361461

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P361282

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P361369

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P361806

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P361744

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

Quality Assurance Report Method Blank Results

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P361745

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P361368

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P361582

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P361164

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

Reference Method: SM 2320 B-97
Batch ID: P361325

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

Reference Method: SM 2540 D-97
Batch ID: P361791

Component	Result	Code	Units
TSS	3	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P361792

Component	Result	Code	Units
TSS	3	U	mg/L

Reference Method: SM 4500 F-C-97
Batch ID: P361720

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-00
Batch ID: P361237

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

Quality Assurance Report

Laboratory Control Sample Accuracy

Reference Method: EPA 300.0
Batch ID: P361847

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P361461

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P361282

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P361369

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P361806

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: P361744

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P361745

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P361368

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total-P	97.4		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P361582

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

Quality Assurance Report

Laboratory Control Sample Accuracy

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P361164

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

Reference Method: SM 2320 B-97
Batch ID: P361325

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	99.8		P	98 - 107

Reference Method: SM 4500 F-C-97
Batch ID: P361720

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	99.8		P	91 - 105

Reference Method: SM 5310 B-00
Batch ID: P361237

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	99.4		P	85 - 115

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 300.0
Batch ID: P361847

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2073272	Bromide	97.7	97.9	P/P	90 - 110
2074743	Bromide	99.9		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P361461

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2072840	Ammonia-N	104	105	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P361282

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2072843	Kjeldahl Nitrogen	97.4	101	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P361369

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2072921	Kjeldahl Nitrogen	95.8	97.8	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P361806

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2074953	Kjeldahl Nitrogen	101	103	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P361744

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2072387	NO2NO3-N	98.0	97.5	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P361745

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2072841	NO2NO3-N	100	100	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P361368

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2072723	Total-P	104	98.7	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P361582

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2074361	Total-P	94.1	93.8	P/P	90 - 110

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P361164

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2072859	O-Phosphate-P	94.3	96.1	P/P	90 - 110

Reference Method: SM 4500 F-C-97
Batch ID: P361720

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2071355	Fluoride	92.5	93.2	P/P	91 - 105

Reference Method: SM 5310 B-00
Batch ID: P361237

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2072840	Organic Carbon	98.6	98.4	P/P	85 - 115

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P361144

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2072836	Turbidity	11.1	Sample	P	0 - 20

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P361145

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2072848	Turbidity	1.09	Sample	P	0 - 20

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P361146

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2072978	Turbidity	1.19	Sample	P	0 - 20

Reference Method: EPA 300.0
Batch ID: P361847

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2073272	Bromide	0.117	Spike	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P361461

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2072840	Ammonia-N	0.516	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P361282

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2072843	Kjeldahl Nitrogen	2.71	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P361369

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2072921	Kjeldahl Nitrogen	1.57	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P361806

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2074953	Kjeldahl Nitrogen	1.45	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P361744

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2072387	NO2NO3-N	0.304	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P361745

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2072841	NO2NO3-N	0.499	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P361368

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2072723	Total-P	4.97	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P361582

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2074361	Total-P	0.293	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P361164

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2072859	O-Phosphate-P	1.80	Spike	P	0 - 20

Reference Method: SM 2320 B-97
Batch ID: P361325

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2072183	Total Alkalinity	8.26	Sample	F	0 - 1.6

Reference Method: SM 2540 D-97
Batch ID: P361792

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2072839	TSS	3.64	Sample	P	0 - 10

Reference Method: SM 4500 F-C-97
Batch ID: P361720

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2071355	Fluoride	0.473	Spike	P	0 - 3.5

Quality Assurance Report Precision

Reference Method: SM 5310 B-00
Batch ID: P361237

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2072840	Organic Carbon	0.174	Spike	P	0 - 20

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

Quality Assurance Report Calibration Verification

Reference Method: EPA 180.1 Rev. 2.0

Run ID: A90277

Included Lab Sample IDs: 2072836, 2072837, 2072838, 2072839, 2072848, 2072849, 2072850, 2072851

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved

Run ID: A90279

Included Lab Sample IDs: 2072844, 2072845, 2072846, 2072847, 2072856, 2072857, 2072858, 2072859

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	97.6	99.1	P/P	90 - 110
O-Phosphate-P	98.8	98.4	P/P	90 - 110
O-Phosphate-P	99.1	97.0	P/P	90 - 110

Reference Method: SM 5310 B-00

Run ID: A90314

Included Lab Sample IDs: 2072840, 2072841, 2072842, 2072843, 2072852, 2072853, 2072854, 2072855

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	96.8	97.8	P/P	90 - 110
Organic Carbon	97.8	98.1	P/P	90 - 110

Reference Method: SM 2320 B-97

Run ID: A90337

Included Lab Sample IDs: 2072836, 2072837, 2072838, 2072839, 2072848, 2072849, 2072850, 2072851

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	99.4	99.4	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A90356

Included Lab Sample IDs: 2072840, 2072841, 2072842, 2072843

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	96.6	99.0	P/P	90 - 110
Kjeldahl Nitrogen	99.7	96.6	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A90396

Included Lab Sample IDs: 2072840, 2072841, 2072842, 2072843, 2072852, 2072853, 2072854, 2072855

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

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A90397

Included Lab Sample IDs: 2072840, 2072841, 2072843, 2072852, 2072853, 2072854, 2072855

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

Quality Assurance Report Calibration Verification

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A90441

Included Lab Sample IDs: 2072852, 2072853, 2072854

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	98.0	95.9	P/P	90 - 110

Reference Method: SM 4500 F-C-97

Run ID: A90507

Included Lab Sample IDs: 2072836, 2072837, 2072838, 2072839, 2072848, 2072849, 2072850, 2072851

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

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A90524

Included Lab Sample IDs: 2072840, 2072841, 2072842, 2072843, 2072852, 2072853, 2072854, 2072855

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO2NO3-N	98.0	97.5	P/P	90 - 110
NO2NO3-N	98.5	98.0	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A90527

Included Lab Sample IDs: 2072842

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	99.9	99.6	P/P	90 - 110

Reference Method: EPA 300.0

Run ID: A90561

Included Lab Sample IDs: 2072836, 2072837, 2072838, 2072839, 2072848, 2072849, 2072850, 2072851

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Bromide	99.0	99.6	P/P	90 - 110
Bromide	99.6	100	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A90591

Included Lab Sample IDs: 2072855

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	99.0	103	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			Precision	
						LCS	MS
EPA 180.1 Rev. 2.0	Turbidity					11.1	
	Turbidity					1.09	
	Turbidity					1.19	
EPA 300.0	Bromide	102	97.7	97.9	99.9		0.117
EPA 350.1 Rev. 2.0	Ammonia-N	101	104	105			0.516
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	104	97.4	101			2.71
	Kjeldahl Nitrogen	100	95.8	97.8			1.57
	Kjeldahl Nitrogen	103	101	103			1.45
EPA 353.2 Rev. 2.0	NO2NO3-N	99.5	98.0	97.5			0.304
	NO2NO3-N	100	100	100			0.499
EPA 365.1 Rev. 2.0	Total-P	97.4	104	98.7			4.97
	Total-P	102	94.1	93.8			0.293
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	102	94.3	96.1			1.80
SM 2320 B-97	Total Alkalinity	99.8				8.26	
SM 2540 D-97	TSS					3.64	
SM 4500 F-C-97	Fluoride	99.8	92.5	93.2			0.473
SM 5310 B-00	Organic Carbon	99.4	98.6	98.4			0.174

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	2072836, 2072837, 2072838, 2072839, 2072848, 2072849, 2072850, 2072851
EPA 300.0 / E31780	Bromide in aqueous matrices	2072836, 2072837, 2072838, 2072839, 2072848, 2072849, 2072850, 2072851
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	2072840, 2072841, 2072842, 2072843, 2072852, 2072853, 2072854, 2072855
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	2072840, 2072841, 2072842, 2072843, 2072852, 2072853, 2072854, 2072855
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	2072840, 2072841, 2072842, 2072843, 2072852, 2072853, 2072854, 2072855
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	2072840, 2072841, 2072842, 2072843, 2072852, 2072853, 2072854, 2072855
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	2072844, 2072845, 2072846, 2072847, 2072856, 2072857, 2072858, 2072859
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO3/L	2072836, 2072837, 2072838, 2072839, 2072848, 2072849, 2072850, 2072851
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices using a maximum of 250 mL of sample	2072836, 2072837, 2072838, 2072839, 2072848, 2072849, 2072850, 2072851
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	2072836, 2072837, 2072838, 2072839, 2072848, 2072849, 2072850, 2072851
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	2072840, 2072841, 2072842, 2072843, 2072852, 2072853, 2072854, 2072855

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	03/27/2019			03/27/2019 15:19	Adrian Shelby	2072836, 2072837, 2072838, 2072839, 2072848, 2072849, 2072850, 2072851
EPA 300.0	03/27/2019			04/09/2019 19:14	Lipi Saha	2072836
	03/27/2019			04/09/2019 19:31	Lipi Saha	2072837
	03/27/2019			04/09/2019 20:23	Lipi Saha	2072838
	03/27/2019			04/09/2019 20:40	Lipi Saha	2072839
	03/27/2019			04/09/2019 20:57	Lipi Saha	2072848
	03/27/2019			04/09/2019 21:14	Lipi Saha	2072849
	03/27/2019			04/09/2019 21:31	Lipi Saha	2072850
	03/27/2019			04/09/2019 21:48	Lipi Saha	2072851
EPA 350.1 Rev. 2.0	03/27/2019			04/02/2019 11:56	Ping Hua	2072840
	03/27/2019			04/02/2019 12:08	Ping Hua	2072841
	03/27/2019			04/02/2019 12:09	Ping Hua	2072842
	03/27/2019			04/02/2019 12:11	Ping Hua	2072843
	03/27/2019			04/02/2019 12:12	Ping Hua	2072852
	03/27/2019			04/02/2019 12:14	Ping Hua	2072853
	03/27/2019			04/02/2019 12:15	Ping Hua	2072854
	03/27/2019			04/02/2019 12:17	Ping Hua	2072855
EPA 351.2 Rev. 2.0	03/27/2019	03/29/2019 13:30	Jhamieka S. Greenwood	04/01/2019 13:29	Joseph Suarez	2072840
	03/27/2019	03/29/2019 13:30	Jhamieka S. Greenwood	04/01/2019 13:31	Joseph Suarez	2072841
	03/27/2019	03/29/2019 13:30	Jhamieka S. Greenwood	04/01/2019 13:35	Joseph Suarez	2072842
	03/27/2019	03/29/2019 13:30	Jhamieka S. Greenwood	04/01/2019 13:37	Joseph Suarez	2072843
	03/27/2019	04/01/2019 13:00	Adrian Shelby	04/04/2019 13:55	Joseph Suarez	2072852
	03/27/2019	04/01/2019 13:00	Adrian Shelby	04/04/2019 13:57	Joseph Suarez	2072853
	03/27/2019	04/01/2019 13:00	Adrian Shelby	04/04/2019 13:58	Joseph Suarez	2072854
	03/27/2019	04/09/2019 12:30	Adrian Shelby	04/10/2019 15:16	Joseph Suarez	2072855
EPA 353.2 Rev. 2.0	03/27/2019			04/08/2019 11:41	Beverly Y. Sanders	2072840
	03/27/2019			04/08/2019 11:48	Beverly Y. Sanders	2072841
	03/27/2019			04/08/2019 11:53	Beverly Y. Sanders	2072842
	03/27/2019			04/08/2019 11:54	Beverly Y. Sanders	2072843
	03/27/2019			04/08/2019 11:55	Beverly Y. Sanders	2072852
	03/27/2019			04/08/2019 11:56	Beverly Y. Sanders	2072853
	03/27/2019			04/08/2019 11:57	Beverly Y. Sanders	2072854
	03/27/2019			04/08/2019 11:59	Beverly Y. Sanders	2072855
EPA 365.1 Rev. 2.0	03/27/2019	04/01/2019 14:50	Sima Feizi	04/02/2019 18:41	Rosalyn Ballman	2072840
	03/27/2019	04/01/2019 14:50	Sima Feizi	04/02/2019 18:42	Rosalyn Ballman	2072841
	03/27/2019	04/01/2019 14:50	Sima Feizi	04/02/2019 18:50	Rosalyn Ballman	2072843
	03/27/2019	04/01/2019 14:50	Sima Feizi	04/02/2019 18:51	Rosalyn Ballman	2072852
	03/27/2019	04/01/2019 14:50	Sima Feizi	04/02/2019 18:52	Rosalyn Ballman	2072853, 2072854
	03/27/2019	04/01/2019 14:50	Sima Feizi	04/02/2019 18:53	Rosalyn Ballman	2072855

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
EPA 365.1 Rev. 2.0	03/27/2019	04/04/2019 13:35	Sima Feizi	04/05/2019 14:08	Rosalyn Ballman	2072842
EPA 365.1 Rev. 2.0 dissolved	03/27/2019			03/27/2019 17:57	Jhamieka S. Greenwood	2072859
	03/27/2019			03/27/2019 18:21	Jhamieka S. Greenwood	2072844
	03/27/2019			03/27/2019 18:22	Jhamieka S. Greenwood	2072845
	03/27/2019			03/27/2019 18:23	Jhamieka S. Greenwood	2072846
	03/27/2019			03/27/2019 18:24	Jhamieka S. Greenwood	2072847
	03/27/2019			03/27/2019 18:29	Jhamieka S. Greenwood	2072856
	03/27/2019			03/27/2019 18:30	Jhamieka S. Greenwood	2072857
	03/27/2019			03/27/2019 18:31	Jhamieka S. Greenwood	2072858
SM 2320 B-97	03/27/2019			03/30/2019 14:50	Samantha Davila	2072836
	03/27/2019			03/30/2019 15:02	Samantha Davila	2072837
	03/27/2019			03/30/2019 15:14	Samantha Davila	2072838
	03/27/2019			03/30/2019 15:26	Samantha Davila	2072839
	03/27/2019			03/30/2019 15:38	Samantha Davila	2072848
	03/27/2019			03/30/2019 15:51	Samantha Davila	2072849
	03/27/2019			03/30/2019 16:03	Samantha Davila	2072850
	03/27/2019			03/30/2019 16:14	Samantha Davila	2072851
SM 2540 D-97	03/27/2019			03/29/2019 15:26	Yijie Li	2072836, 2072837, 2072838, 2072839, 2072848, 2072849, 2072850, 2072851
SM 4500 F-C-97	03/27/2019			04/06/2019 12:13	Dale L. Simmons	2072836
	03/27/2019			04/06/2019 12:17	Dale L. Simmons	2072837
	03/27/2019			04/06/2019 12:21	Dale L. Simmons	2072838
	03/27/2019			04/06/2019 12:25	Dale L. Simmons	2072839
	03/27/2019			04/06/2019 12:29	Dale L. Simmons	2072848
	03/27/2019			04/06/2019 12:33	Dale L. Simmons	2072849
	03/27/2019			04/06/2019 12:37	Dale L. Simmons	2072850
	03/27/2019			04/06/2019 12:41	Dale L. Simmons	2072851
SM 5310 B-00	03/27/2019			03/28/2019 21:24	Julia Storbeck	2072840
	03/27/2019			03/28/2019 22:25	Julia Storbeck	2072841
	03/27/2019			03/28/2019 22:37	Julia Storbeck	2072842
	03/27/2019			03/28/2019 23:02	Julia Storbeck	2072843
	03/27/2019			03/28/2019 23:15	Julia Storbeck	2072852
	03/27/2019			03/28/2019 23:27	Julia Storbeck	2072853
	03/27/2019			03/28/2019 23:39	Julia Storbeck	2072854
	03/27/2019			03/28/2019 23:51	Julia Storbeck	2072855