

Chemical Analysis Report

SO-DIST-2019-04-25-01

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

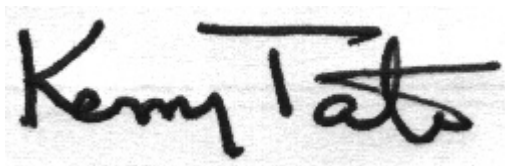
Event Description: **Nowhere**
Request ID: **RQ-2019-03-11-31**
Customer: **SO-DIST**
Project ID: **SMP**

Send Reports to:
FL Dept. of Environmental Protection
FLDEP South District Office
2295 Victoria Ave. Suite 364
Fort Myers, FL 33901-3381
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Certified by: Kerry Tate, Ph.D., Environmental Administrator

Date Certified: 08-MAY-2019 11:41

A handwritten signature in black ink that reads "Kerry Tate". The signature is written in a cursive, flowing style with a horizontal line above the "T" and a long horizontal stroke at the end.

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: 8067 @ ENRE5

Collection Date/Time: 04/24/2019 10:30

Field ID: G5SD0038

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2080736	EPA 180.1 Rev. 2.0	Turbidity	3.8		NTU	P362877	
	EPA 300.0	Bromide	67		mg Br/L	P363302	
	SM 2320 B-97	Total Alkalinity	132		mg CaCO3/L	P363248	
	SM 2540 D-97	TSS	3	IA	mg/L	P363129	
	SM 4500 F-C-97	Fluoride	1.2		mg F/L	P363251	
2080744	EPA 350.1 Rev. 2.0	Ammonia-N	0.003	I	mg N/L	P363041	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.38	I	mg N/L	P362998	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P363156	
	EPA 365.1 Rev. 2.0	Total-P	0.018		mg P/L	P362983	
	SM 5310 B-00	Organic Carbon	4.1		mg C/L	P362986	
2080752	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P362871	

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: 8068 @ ENRE5 - Middle

Collection Date/Time: 04/24/2019 11:00

Field ID: G5SD0037

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2080737	EPA 180.1 Rev. 2.0	Turbidity	4.0		NTU	P362877	
	EPA 300.0	Bromide	67		mg Br/L	P363302	
	SM 2320 B-97	Total Alkalinity	141		mg CaCO3/L	P363248	
	SM 2540 D-97	TSS	3	U	mg/L	P363129	
	SM 4500 F-C-97	Fluoride	1.2		mg F/L	P363251	
2080745	EPA 350.1 Rev. 2.0	Ammonia-N	0.009		mg N/L	P363041	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.43		mg N/L	P362998	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P363156	
	EPA 365.1 Rev. 2.0	Total-P	0.018		mg P/L	P362983	
	SM 5310 B-00	Organic Carbon	4.8		mg C/L	P362986	
2080753	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P362871	

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: WBID8068 @ENRE 5 S.Site

Collection Date/Time: 04/24/2019 11:20

Field ID: G5SD0100

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2080738	EPA 180.1 Rev. 2.0	Turbidity	5.1		NTU	P362877	
	EPA 300.0	Bromide	66		mg Br/L	P363302	
	SM 2320 B-97	Total Alkalinity	151		mg CaCO3/L	P363248	
	SM 2540 D-97	TSS	3	U	mg/L	P363129	
	SM 4500 F-C-97	Fluoride	1.2		mg F/L	P363251	
2080746	EPA 350.1 Rev. 2.0	Ammonia-N	0.012		mg N/L	P363041	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.36	I	mg N/L	P362998	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P363156	
	EPA 365.1 Rev. 2.0	Total-P	0.019		mg P/L	P362983	
	SM 5310 B-00	Organic Carbon	5.4		mg C/L	P362986	
2080754	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P362871	

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: 8069 - ENRE5

Collection Date/Time: 04/24/2019 11:45

Field ID: G5SD0036

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2080739	EPA 180.1 Rev. 2.0	Turbidity	4.5	A	NTU	P362878	
	EPA 300.0	Bromide	67		mg Br/L	P363302	
	SM 2320 B-97	Total Alkalinity	150		mg CaCO3/L	P363248	
	SM 2540 D-97	TSS	4	I	mg/L	P363129	
	SM 4500 F-C-97	Fluoride	1.2		mg F/L	P363251	
2080747	EPA 350.1 Rev. 2.0	Ammonia-N	0.004	I	mg N/L	P363041	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.39	I	mg N/L	P362998	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P363156	
	EPA 365.1 Rev. 2.0	Total-P	0.017		mg P/L	P362983	
	SM 5310 B-00	Organic Carbon	4.9		mg C/L	P362986	
2080755	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P362871	

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: 8070 - North

Collection Date/Time: 04/24/2019 12:05

Field ID: G5SD0075

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2080740	EPA 180.1 Rev. 2.0	Turbidity	5.5		NTU	P362878	
	EPA 300.0	Bromide	69		mg Br/L	P363302	
	SM 2320 B-97	Total Alkalinity	147		mg CaCO3/L	P363248	
	SM 2540 D-97	TSS	4	I	mg/L	P363129	
	SM 4500 F-C-97	Fluoride	1.2		mg F/L	P363251	
2080748	EPA 350.1 Rev. 2.0	Ammonia-N	0.011		mg N/L	P363041	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.37	I	mg N/L	P362999	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.013		mg N/L	P363157	
	EPA 365.1 Rev. 2.0	Total-P	0.017		mg P/L	P362983	
	SM 5310 B-00	Organic Carbon	4.6		mg C/L	P362986	
2080756	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P362871	

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: 8070 ENRE 5 Site 2

Collection Date/Time: 04/24/2019 12:20

Field ID: G5SD0101

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2080741	EPA 180.1 Rev. 2.0	Turbidity	10		NTU	P362878	
	EPA 300.0	Bromide	69		mg Br/L	P363302	
	SM 2320 B-97	Total Alkalinity	150		mg CaCO3/L	P363248	
	SM 2540 D-97	TSS	8	I	mg/L	P363129	
	SM 4500 F-C-97	Fluoride	1.3		mg F/L	P363251	
2080749	EPA 350.1 Rev. 2.0	Ammonia-N	0.005	I	mg N/L	P363041	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.44		mg N/L	P362999	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P363157	
	EPA 365.1 Rev. 2.0	Total-P	0.019		mg P/L	P363057	
	SM 5310 B-00	Organic Carbon	4.8		mg C/L	P362986	
2080757	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P362871	

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: 8069 - ENRE13

Collection Date/Time: 04/24/2019 12:50

Field ID: G5SD0076

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2080742	EPA 180.1 Rev. 2.0	Turbidity	6.0		NTU	P362878	
	EPA 300.0	Bromide	64		mg Br/L	P363302	
	SM 2320 B-97	Total Alkalinity	175		mg CaCO3/L	P363248	
	SM 2540 D-97	TSS	6	I	mg/L	P363129	
	SM 4500 F-C-97	Fluoride	1.2		mg F/L	P363251	
2080750	EPA 350.1 Rev. 2.0	Ammonia-N	0.026		mg N/L	P363041	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.42		mg N/L	P362999	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.062		mg N/L	P363157	
	EPA 365.1 Rev. 2.0	Total-P	0.022		mg P/L	P363057	
	SM 5310 B-00	Organic Carbon	6.4		mg C/L	P362986	
2080758	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.005	I	mg P/L	P362871	

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: 8073#2 S of FtZachENRG3

Collection Date/Time: 04/24/2019 13:35

Field ID: G5SD0095

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2080743	EPA 180.1 Rev. 2.0	Turbidity	7.6		NTU	P362878	
	EPA 300.0	Bromide	57		mg Br/L	P363464	
	SM 2320 B-97	Total Alkalinity	158		mg CaCO3/L	P363248	
	SM 2540 D-97	TSS	6	I	mg/L	P363129	
	SM 4500 F-C-97	Fluoride	1.0		mg F/L	P363251	
2080751	EPA 350.1 Rev. 2.0	Ammonia-N	0.011		mg N/L	P363041	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.73		mg N/L	P362999	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.012		mg N/L	P363157	
	EPA 365.1 Rev. 2.0	Total-P	0.027		mg P/L	P363057	
	SM 5310 B-00	Organic Carbon	8.2		mg C/L	P362986	
2080759	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P362873	

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: P362877

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P362878

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 300.0
Batch ID: P363302

Component	Result	Code	Units
Bromide	0.013	U	mg Br/L

Reference Method: EPA 300.0
Batch ID: P363464

Component	Result	Code	Units
Bromide	0.013	U	mg Br/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P363041

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P362998

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P362999

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P363156

Component	Result	Code	Units
NO ₂ NO ₃ -N	0.004	U	mg N/L

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P363157

Component	Result	Code	Units
NO ₂ NO ₃ -N	0.004	U	mg N/L

Quality Assurance Report Method Blank Results

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P362983

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P363057

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P362871

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P362873

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

Reference Method: SM 2320 B-97
Batch ID: P363248

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

Reference Method: SM 2540 D-97
Batch ID: P363129

Component	Result	Code	Units
TSS	3	U	mg/L

Reference Method: SM 4500 F-C-97
Batch ID: P363251

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-00
Batch ID: P362986

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: P363302

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Bromide	98.6		P	90 - 110

Reference Method: EPA 300.0
Batch ID: P363464

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P363041

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P362998

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: P362999

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P363156

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
NO ₂ NO ₃ -N	101		P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P363157

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
NO ₂ NO ₃ -N	102		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P362983

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P363057

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total-P	109		P	90 - 110

Quality Assurance Report

Laboratory Control Sample Accuracy

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P362871

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P362873

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
O-Phosphate-P	99.3		P	90 - 110

Reference Method: SM 2320 B-97
Batch ID: P363248

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	102		P	98 - 106

Reference Method: SM 4500 F-C-97
Batch ID: P363251

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	98.2		P	92 - 103

Reference Method: SM 5310 B-00
Batch ID: P362986

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	97.6		P	85 - 115

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 300.0
Batch ID: P363302

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2080614	Bromide	95.8	96.1	P/P	90 - 110

Reference Method: EPA 300.0
Batch ID: P363464

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2080801	Bromide	96.0	95.0	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P363041

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2080618	Ammonia-N	104	106	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P362998

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2080415	Kjeldahl Nitrogen	107	105	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P362999

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2080748	Kjeldahl Nitrogen	102	106	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P363156

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2080409	NO2NO3-N	98.2	98.2	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P363157

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2080748	NO2NO3-N	104	103	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P362983

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2080746	Total-P	93.9	99.4	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P363057

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2080830	Total-P	91.5	94.6	P/P	90 - 110

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P362871

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2080621	O-Phosphate-P	94.7	96.8	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P362873

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2080759	O-Phosphate-P	97.6	98.0	P/P	90 - 110

Reference Method: SM 4500 F-C-97
Batch ID: P363251

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2081066	Fluoride	97.2	97.2	P/P	89 - 106

Reference Method: SM 5310 B-00
Batch ID: P362986

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2080617	Organic Carbon	96.6	96.2	P/P	85 - 115

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P362877

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2080615	Turbidity	1.17	Sample	P	0 - 20

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P362878

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2080739	Turbidity	7.49	Sample	P	0 - 20

Reference Method: EPA 300.0
Batch ID: P363302

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2080614	Bromide	0.179	Spike	P	0 - 20

Reference Method: EPA 300.0
Batch ID: P363464

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2080801	Bromide	0.557	Spike	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P363041

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2080618	Ammonia-N	2.59	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P362998

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2080415	Kjeldahl Nitrogen	1.48	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P362999

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2080748	Kjeldahl Nitrogen	2.58	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P363156

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2080409	NO2NO3-N	0.0	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P363157

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2080748	NO2NO3-N	0.909	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P362983

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2080746	Total-P	5.61	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P363057

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2080830	Total-P	3.13	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P362871

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2080621	O-Phosphate-P	2.19	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P362873

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2080759	O-Phosphate-P	0.409	Spike	P	0 - 20

Reference Method: SM 2320 B-97
Batch ID: P363248

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2081066	Total Alkalinity	0.908	Sample	P	0 - 2.8

Reference Method: SM 4500 F-C-97
Batch ID: P363251

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2081066	Fluoride	0.0	Spike	P	0 - 2.5

Reference Method: SM 5310 B-00
Batch ID: P362986

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2080617	Organic Carbon	0.379	Spike	P	0 - 20

Quality Assurance Report Precision

* 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: A91004

Included Lab Sample IDs: 2080752, 2080753, 2080754, 2080755, 2080756, 2080757, 2080758, 2080759

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	96.6	95.7	P/P	90 - 110
O-Phosphate-P	97.5	96.6	P/P	90 - 110
O-Phosphate-P	97.8	97.2	P/P	90 - 110

Reference Method: EPA 180.1 Rev. 2.0

Run ID: A91005

Included Lab Sample IDs: 2080736, 2080737, 2080738, 2080739, 2080740, 2080741, 2080742, 2080743

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Turbidity	100	100	P/P	95 - 105
Turbidity	99.0	100	P/P	95 - 105

Reference Method: SM 5310 B-00

Run ID: A91057

Included Lab Sample IDs: 2080744, 2080745, 2080746, 2080747, 2080748, 2080749, 2080750, 2080751

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

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A91072

Included Lab Sample IDs: 2080744, 2080745, 2080746, 2080747, 2080748, 2080749, 2080750, 2080751

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

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A91103

Included Lab Sample IDs: 2080744, 2080745, 2080746, 2080747, 2080749, 2080750, 2080751

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

Reference Method: EPA 300.0

Run ID: A91122

Included Lab Sample IDs: 2080736, 2080737, 2080738, 2080739, 2080740, 2080741, 2080742, 2080743

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Bromide	96.4	99.6	P/P	90 - 110
Bromide	96.6	101	P/P	90 - 110
Bromide	99.6	100	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A91123

Included Lab Sample IDs: 2080744, 2080745, 2080746, 2080747, 2080748, 2080749, 2080750, 2080751

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

Quality Assurance Report Calibration Verification

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A91133

Included Lab Sample IDs: 2080748

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

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A91153

Included Lab Sample IDs: 2080744, 2080745, 2080746, 2080747, 2080748, 2080749, 2080750, 2080751

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	97.8	98.3	P/P	90 - 110
Kjeldahl Nitrogen	98.0	97.8	P/P	90 - 110

Reference Method: SM 2320 B-97

Run ID: A91158

Included Lab Sample IDs: 2080736, 2080737, 2080738, 2080739, 2080740, 2080741, 2080742, 2080743

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	99.9	102	P/P	90 - 110

Reference Method: SM 4500 F-C-97

Run ID: A91158

Included Lab Sample IDs: 2080736, 2080737, 2080738, 2080739, 2080740, 2080741, 2080742, 2080743

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	100	99.5	P/P	90 - 110
Fluoride	99.5	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		Precision	
					LCS	MS
EPA 180.1 Rev. 2.0	Turbidity				1.17	
	Turbidity				7.49	
EPA 300.0	Bromide	98.6	95.8	96.1		0.179
	Bromide	98.7	96.0	95.0		0.557
EPA 350.1 Rev. 2.0	Ammonia-N	104	104	106		2.59
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	100	107	105		1.48
	Kjeldahl Nitrogen	99.2	102	106		2.58
EPA 353.2 Rev. 2.0	NO2NO3-N	101	98.2	98.2		0.0
	NO2NO3-N	102	104	103		0.909
EPA 365.1 Rev. 2.0	Total-P	101	93.9	99.4		5.61
	Total-P	109	91.5	94.6		3.13
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	100	94.7	96.8		2.19
	O-Phosphate-P	99.3	97.6	98.0		0.409
SM 2320 B-97	Total Alkalinity	102			0.908	
SM 4500 F-C-97	Fluoride	98.2	97.2	97.2		0.0
SM 5310 B-00	Organic Carbon	97.6	96.6	96.2		0.379

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	2080736, 2080737, 2080738, 2080739, 2080740, 2080741, 2080742, 2080743
EPA 300.0 / E31780	Bromide in aqueous matrices	2080736, 2080737, 2080738, 2080739, 2080740, 2080741, 2080742, 2080743
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	2080744, 2080745, 2080746, 2080747, 2080748, 2080749, 2080750, 2080751
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	2080744, 2080745, 2080746, 2080747, 2080748, 2080749, 2080750, 2080751
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	2080744, 2080745, 2080746, 2080747, 2080748, 2080749, 2080750, 2080751
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	2080744, 2080745, 2080746, 2080747, 2080748, 2080749, 2080750, 2080751
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	2080752, 2080753, 2080754, 2080755, 2080756, 2080757, 2080758, 2080759
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO3/L	2080736, 2080737, 2080738, 2080739, 2080740, 2080741, 2080742, 2080743
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices using a maximum of 250 mL of sample	2080736, 2080737, 2080738, 2080739, 2080740, 2080741, 2080742, 2080743
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	2080736, 2080737, 2080738, 2080739, 2080740, 2080741, 2080742, 2080743
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	2080744, 2080745, 2080746, 2080747, 2080748, 2080749, 2080750, 2080751

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	04/25/2019			04/25/2019 18:32	Julia Storbeck	2080736, 2080737, 2080738, 2080739, 2080740, 2080741, 2080742, 2080743
EPA 300.0	04/25/2019			05/01/2019 14:54	Lipi Saha	2080736
	04/25/2019			05/01/2019 15:12	Lipi Saha	2080737
	04/25/2019			05/01/2019 15:29	Lipi Saha	2080738
	04/25/2019			05/01/2019 15:46	Lipi Saha	2080739
	04/25/2019			05/01/2019 16:37	Lipi Saha	2080740
	04/25/2019			05/01/2019 16:54	Lipi Saha	2080741
	04/25/2019			05/01/2019 17:11	Lipi Saha	2080742
	04/25/2019			05/02/2019 17:22	Lipi Saha	2080743
EPA 350.1 Rev. 2.0	04/25/2019			04/29/2019 12:35	Ping Hua	2080744
	04/25/2019			04/29/2019 12:37	Ping Hua	2080745
	04/25/2019			04/29/2019 12:38	Ping Hua	2080746
	04/25/2019			04/29/2019 12:40	Ping Hua	2080747
	04/25/2019			04/29/2019 12:41	Ping Hua	2080748
	04/25/2019			04/29/2019 12:43	Ping Hua	2080749
	04/25/2019			04/29/2019 12:44	Ping Hua	2080750
	04/25/2019			04/29/2019 12:52	Ping Hua	2080751
EPA 351.2 Rev. 2.0	04/25/2019	04/29/2019 17:00	Adrian Shelby	05/02/2019 09:11	Joseph Suarez	2080744
	04/25/2019	04/29/2019 17:00	Adrian Shelby	05/02/2019 09:12	Joseph Suarez	2080745
	04/25/2019	04/29/2019 17:00	Adrian Shelby	05/02/2019 09:14	Joseph Suarez	2080746
	04/25/2019	04/29/2019 17:00	Adrian Shelby	05/02/2019 09:16	Joseph Suarez	2080747
	04/25/2019	04/29/2019 17:00	Adrian Shelby	05/02/2019 09:23	Joseph Suarez	2080748
	04/25/2019	04/29/2019 17:00	Adrian Shelby	05/02/2019 09:28	Joseph Suarez	2080749
	04/25/2019	04/29/2019 17:00	Adrian Shelby	05/02/2019 09:30	Joseph Suarez	2080750
	04/25/2019	04/29/2019 17:00	Adrian Shelby	05/02/2019 09:31	Joseph Suarez	2080751
EPA 353.2 Rev. 2.0	04/25/2019			05/01/2019 10:12	Beverly Y. Sanders	2080744
	04/25/2019			05/01/2019 10:13	Beverly Y. Sanders	2080745
	04/25/2019			05/01/2019 10:14	Beverly Y. Sanders	2080746
	04/25/2019			05/01/2019 10:16	Beverly Y. Sanders	2080747
	04/25/2019			05/01/2019 10:23	Beverly Y. Sanders	2080748
	04/25/2019			05/01/2019 10:29	Beverly Y. Sanders	2080749
	04/25/2019			05/01/2019 10:30	Beverly Y. Sanders	2080750
	04/25/2019			05/01/2019 10:31	Beverly Y. Sanders	2080751
EPA 365.1 Rev. 2.0	04/25/2019	04/29/2019 13:45	Sima Feizi	04/30/2019 15:52	Rosalyn Ballman	2080744
	04/25/2019	04/29/2019 13:45	Sima Feizi	04/30/2019 15:53	Rosalyn Ballman	2080745
	04/25/2019	04/29/2019 13:45	Sima Feizi	04/30/2019 15:54	Rosalyn Ballman	2080746
	04/25/2019	04/29/2019 13:45	Sima Feizi	04/30/2019 15:55	Rosalyn Ballman	2080747
	04/25/2019	04/29/2019 13:45	Sima Feizi	04/30/2019 16:04	Rosalyn Ballman	2080749
	04/25/2019	04/29/2019 13:45	Sima Feizi	04/30/2019 16:05	Rosalyn Ballman	2080750

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
EPA 365.1 Rev. 2.0	04/25/2019	04/29/2019 13:45	Sima Feizi	04/30/2019 16:06	Rosalyn Ballman	2080751
	04/25/2019	04/29/2019 13:45	Sima Feizi	05/01/2019 14:45	Rosalyn Ballman	2080748
EPA 365.1 Rev. 2.0 dissolved	04/25/2019			04/25/2019 15:19	Jhamieka S. Greenwood	2080759
	04/25/2019			04/25/2019 15:56	Jhamieka S. Greenwood	2080752
	04/25/2019			04/25/2019 15:57	Jhamieka S. Greenwood	2080753, 2080754
	04/25/2019			04/25/2019 15:58	Jhamieka S. Greenwood	2080755
	04/25/2019			04/25/2019 15:59	Jhamieka S. Greenwood	2080756
	04/25/2019			04/25/2019 16:04	Jhamieka S. Greenwood	2080757
	04/25/2019			04/25/2019 16:05	Jhamieka S. Greenwood	2080758
SM 2320 B-97	04/25/2019			05/02/2019 11:14	Dale L. Simmons	2080736
	04/25/2019			05/02/2019 11:26	Dale L. Simmons	2080737
	04/25/2019			05/02/2019 11:38	Dale L. Simmons	2080738
	04/25/2019			05/02/2019 11:50	Dale L. Simmons	2080739
	04/25/2019			05/02/2019 12:02	Dale L. Simmons	2080740
	04/25/2019			05/02/2019 12:14	Dale L. Simmons	2080741
	04/25/2019			05/02/2019 12:27	Dale L. Simmons	2080742
	04/25/2019			05/02/2019 12:39	Dale L. Simmons	2080743
SM 2540 D-97	04/25/2019			04/29/2019 20:05	Mariam Hanna	2080736, 2080737, 2080738, 2080739, 2080740, 2080741, 2080742, 2080743
SM 4500 F-C-97	04/25/2019			05/02/2019 06:30	Dale L. Simmons	2080736
	04/25/2019			05/02/2019 06:34	Dale L. Simmons	2080737
	04/25/2019			05/02/2019 06:38	Dale L. Simmons	2080738
	04/25/2019			05/02/2019 06:42	Dale L. Simmons	2080739
	04/25/2019			05/02/2019 07:41	Dale L. Simmons	2080740
	04/25/2019			05/02/2019 07:45	Dale L. Simmons	2080741
	04/25/2019			05/02/2019 07:49	Dale L. Simmons	2080742
	04/25/2019			05/02/2019 07:53	Dale L. Simmons	2080743
SM 5310 B-00	04/25/2019			04/27/2019 09:24	Julia Storbeck	2080744
	04/25/2019			04/27/2019 10:01	Julia Storbeck	2080745
	04/25/2019			04/27/2019 10:13	Julia Storbeck	2080746
	04/25/2019			04/27/2019 10:26	Julia Storbeck	2080747
	04/25/2019			04/27/2019 10:38	Julia Storbeck	2080748
	04/25/2019			04/27/2019 11:02	Julia Storbeck	2080749
	04/25/2019			04/27/2019 11:14	Julia Storbeck	2080750
	04/25/2019			04/27/2019 11:27	Julia Storbeck	2080751