

Chemical Analysis Report

SO-DIST-2019-09-26-01

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

Event Description: **Nowhere**
Request ID: **RQ-2019-07-08-41**
Customer: **SO-DIST**
Project ID: **SMP**

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

For additional information please contact
Colin Wright, Ph.D.
Liang-Tsair Lin, Ph.D.
Kerry Tate, Ph.D.
Dr. rer. nat. Bettina Steinbock
Thekkekalathil Chandrasekhar, Ph.D, QA Officer
Phone (850) 245-8085

Certified by: Thekkekalathil Chandrasekhar, Chemist Administrator

Date Certified: 14-OCT-2019 14:23



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: 09/25/2019 11:15

Field ID: G5SD0038

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2122476	EPA 180.1 Rev. 2.0	Turbidity	1.9		NTU	P371418	
	EPA 300.0	Bromide	69		mg Br/L	P371835	
	SM 2320 B-97	Total Alkalinity	130		mg CaCO3/L	P371988	
	SM 2540 D-97	TSS	3	U	mg/L	P371976	
	SM 4500 F-C-97	Fluoride	1.2		mg F/L	P371991	
2122484	EPA 350.1 Rev. 2.0	Ammonia-N	0.004	I	mg N/L	P371695	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.44		mg N/L	P371453	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P371539	
	EPA 365.1 Rev. 2.0	Total-P	0.017		mg P/L	P371553	MS
	SM 5310 B-00	Organic Carbon	4.3		mg C/L	P371506	
2122492	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P371404	

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: 09/25/2019 11:45

Field ID: G5SD0037

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2122477	EPA 180.1 Rev. 2.0	Turbidity	1.4		NTU	P371418	
	EPA 300.0	Bromide	70		mg Br/L	P371835	
	SM 2320 B-97	Total Alkalinity	125		mg CaCO3/L	P371988	
	SM 2540 D-97	TSS	3	U	mg/L	P371976	
	SM 4500 F-C-97	Fluoride	1.2		mg F/L	P371991	
2122485	EPA 350.1 Rev. 2.0	Ammonia-N	0.004	I	mg N/L	P371695	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.38	I	mg N/L	P371453	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P371539	
	EPA 365.1 Rev. 2.0	Total-P	0.014		mg P/L	P371553	MS
	SM 5310 B-00	Organic Carbon	4.7		mg C/L	P371506	
2122493	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P371404	

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: 09/25/2019 11:55

Field ID: G5SD0100

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2122478	EPA 180.1 Rev. 2.0	Turbidity	2.1		NTU	P371418	
	EPA 300.0	Bromide	65		mg Br/L	P371835	
	SM 2320 B-97	Total Alkalinity	128		mg CaCO3/L	P371988	
	SM 2540 D-97	TSS	3	U	mg/L	P371976	
	SM 4500 F-C-97	Fluoride	1.1		mg F/L	P371991	
2122486	EPA 350.1 Rev. 2.0	Ammonia-N	0.004	I	mg N/L	P371695	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.48		mg N/L	P371545	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P371539	
	EPA 365.1 Rev. 2.0	Total-P	0.015		mg P/L	P371553	MS
	SM 5310 B-00	Organic Carbon	5.5		mg C/L	P371506	
2122494	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P371404	

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: 09/25/2019 12:35

Field ID: G5SD0101

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2122479	EPA 180.1 Rev. 2.0	Turbidity	3.1	A	NTU	P371419	
	EPA 300.0	Bromide	64		mg Br/L	P371835	
	SM 2320 B-97	Total Alkalinity	136		mg CaCO3/L	P371988	
	SM 2540 D-97	TSS	4	I	mg/L	P371976	
	SM 4500 F-C-97	Fluoride	1.1		mg F/L	P371991	
2122487	EPA 350.1 Rev. 2.0	Ammonia-N	0.004	I	mg N/L	P371695	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.54		mg N/L	P371545	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P371539	
	EPA 365.1 Rev. 2.0	Total-P	0.018		mg P/L	P371553	MS
	SM 5310 B-00	Organic Carbon	6.3		mg C/L	P371506	
2122495	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P371404	

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: 09/25/2019 12:50

Field ID: G5SD0075

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2122480	EPA 180.1 Rev. 2.0	Turbidity	3.2		NTU	P371419	
	EPA 300.0	Bromide	64		mg Br/L	P371835	
	SM 2320 B-97	Total Alkalinity	138		mg CaCO3/L	P371988	
	SM 2540 D-97	TSS	5	I	mg/L	P371976	
	SM 4500 F-C-97	Fluoride	1.1		mg F/L	P371991	
2122488	EPA 350.1 Rev. 2.0	Ammonia-N	0.006		mg N/L	P371869	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.53		mg N/L	P371545	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P371539	
	EPA 365.1 Rev. 2.0	Total-P	0.017	J	mg P/L	P371556	MS
	SM 5310 B-00	Organic Carbon	6.4		mg C/L	P371506	
2122496	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P371404	

Ref. Method and Comment:

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

EPA 365.1 Rev. 2.0: Total-P: Refer to the narrative for an explanation of QC Codes.

Sample Location: 8069 - ENRE5

Collection Date/Time: 09/25/2019 13:10

Field ID: G5SD0036

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2122481	EPA 180.1 Rev. 2.0	Turbidity	1.0		NTU	P371419	
	EPA 300.0	Bromide	64		mg Br/L	P371835	
	SM 2320 B-97	Total Alkalinity	127		mg CaCO3/L	P371988	
	SM 2540 D-97	TSS	3	UA	mg/L	P371976	
	SM 4500 F-C-97	Fluoride	1.1		mg F/L	P371991	
2122489	EPA 350.1 Rev. 2.0	Ammonia-N	0.005	I	mg N/L	P371869	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.46		mg N/L	P371545	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P371539	
	EPA 365.1 Rev. 2.0	Total-P	0.012		mg P/L	P371556	MS
	SM 5310 B-00	Organic Carbon	5.7		mg C/L	P371506	
2122497	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P371404	

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: 09/25/2019 13:30

Field ID: G5SD0076

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2122482	EPA 180.1 Rev. 2.0	Turbidity	1.7		NTU	P371419	
	EPA 300.0	Bromide	61		mg Br/L	P371835	
	SM 2320 B-97	Total Alkalinity	130		mg CaCO3/L	P371988	
	SM 2540 D-97	TSS	3	U	mg/L	P371976	
	SM 4500 F-C-97	Fluoride	1.1		mg F/L	P371991	
2122490	EPA 350.1 Rev. 2.0	Ammonia-N	0.005		mg N/L	P371869	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.50		mg N/L	P371545	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P371539	
	EPA 365.1 Rev. 2.0	Total-P	0.015		mg P/L	P371556	MS
	SM 5310 B-00	Organic Carbon	6.2		mg C/L	P371506	
2122498	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P371404	

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 SOUTH OF FT.ZACH ENRG3

Collection Date/Time: 09/25/2019 14:10

Field ID: G5SD0107

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2122483	EPA 180.1 Rev. 2.0	Turbidity	6.4		NTU	P371419	
	EPA 300.0	Bromide	65		mg Br/L	P371835	
	SM 2320 B-97	Total Alkalinity	135		mg CaCO3/L	P371988	
	SM 2540 D-97	TSS	8	I	mg/L	P371976	
	SM 4500 F-C-97	Fluoride	1.1		mg F/L	P371991	
2122491	EPA 350.1 Rev. 2.0	Ammonia-N	0.008		mg N/L	P371869	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.56		mg N/L	P371545	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P371539	
	EPA 365.1 Rev. 2.0	Total-P	0.029		mg P/L	P371556	MS
	SM 5310 B-00	Organic Carbon	5.3		mg C/L	P371644	
2122499	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P371404	

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: P371418

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P371419

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 300.0
Batch ID: P371835

Component	Result	Code	Units
Bromide	0.013	U	mg Br/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P371695

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P371869

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P371453

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P371545

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P371539

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P371553

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
Batch ID: P371556

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P371404

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

Reference Method: SM 2320 B-97
Batch ID: P371988

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

Reference Method: SM 2540 D-97
Batch ID: P371976

Component	Result	Code	Units
TSS	3	U	mg/L

Reference Method: SM 4500 F-C-97
Batch ID: P371991

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-00
Batch ID: P371506

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

Reference Method: SM 5310 B-00
Batch ID: P371644

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: P371835

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P371695

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Ammonia-N	95.3		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P371869

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: P371453

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P371545

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P371539

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
NO ₂ NO ₃ -N	100		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P371553

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total-P	96.3		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P371556

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total-P	97.2		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P371404

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

Quality Assurance Report

Laboratory Control Sample Accuracy

Reference Method: SM 2320 B-97
Batch ID: P371988

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	104		P	98 - 106

Reference Method: SM 4500 F-C-97
Batch ID: P371991

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

Reference Method: SM 5310 B-00
Batch ID: P371506

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	106		P	85 - 115

Reference Method: SM 5310 B-00
Batch ID: P371644

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	95.0		P	85 - 115

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 300.0
Batch ID: P371835

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2122392	Bromide	97.4	97.1	P/P	90 - 110
2123040	Bromide	97.2		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P371695

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2122032	Ammonia-N	97.4	98.6	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P371869

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2122488	Ammonia-N	102	103	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P371453

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2122032	Kjeldahl Nitrogen	98.4	102	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P371545

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2122749	Kjeldahl Nitrogen	99.6	105	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P371539

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2122484	NO2NO3-N	100	100	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P371553

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2122278	Total-P	88.1	87.7	F/F	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P371556

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2122488	Total-P	85.9	88.2	F/F	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P371404

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2122492	O-Phosphate-P	95.2	97.0	P/P	90 - 110

Quality Assurance Report

Matrix Spike Accuracy

Reference Method: SM 4500 F-C-97
Batch ID: P371991

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2122805	Fluoride	93.6	92.1	P/P	89 - 106

Reference Method: SM 5310 B-00
Batch ID: P371506

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2121955	Organic Carbon	106	107	P/P	85 - 115

Reference Method: SM 5310 B-00
Batch ID: P371644

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2122491	Organic Carbon	92.3	91.7	P/P	85 - 115

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P371418

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2122365	Turbidity	3.65	Sample	P	0 - 20

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P371419

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2122479	Turbidity	11.3	Sample	P	0 - 20

Reference Method: EPA 300.0
Batch ID: P371835

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2122392	Bromide	0.319	Spike	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P371695

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2122032	Ammonia-N	0.878	Spike	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P371869

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2122488	Ammonia-N	0.218	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P371453

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2122032	Kjeldahl Nitrogen	3.37	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P371545

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2122749	Kjeldahl Nitrogen	4.62	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P371539

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2122484	NO2NO3-N	0.0	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 365.1 Rev. 2.0
 Batch ID: P371553

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2122278	Total-P	0.442	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
 Batch ID: P371556

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2122488	Total-P	2.61	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
 Batch ID: P371404

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2122492	O-Phosphate-P	1.87	Spike	P	0 - 20

Reference Method: SM 2320 B-97
 Batch ID: P371988

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2122805	Total Alkalinity	0.730	Sample	P	0 - 2.8

Reference Method: SM 4500 F-C-97
 Batch ID: P371991

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2122805	Fluoride	0.960	Spike	P	0 - 2.5

Reference Method: SM 5310 B-00
 Batch ID: P371506

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2121955	Organic Carbon	0.837	Spike	P	0 - 20

Reference Method: SM 5310 B-00
 Batch ID: P371644

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2122491	Organic Carbon	0.570	Spike	P	0 - 20

* Sample, spike and/or laboratory control sample precision (LCS) is reported.

Quality Assurance Report Calibration Verification

Reference Method: EPA 365.1 Rev. 2.0 dissolved

Run ID: A94535

Included Lab Sample IDs: 2122492, 2122493, 2122494, 2122495, 2122496, 2122497, 2122498, 2122499

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	98.2	98.6	P/P	90 - 110
O-Phosphate-P	98.6	98.9	P/P	90 - 110

Reference Method: EPA 180.1 Rev. 2.0

Run ID: A94539

Included Lab Sample IDs: 2122476, 2122477, 2122478, 2122479, 2122480, 2122481, 2122482, 2122483

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Turbidity	99.5	99.5	P/P	95 - 105

Reference Method: SM 5310 B-00

Run ID: A94565

Included Lab Sample IDs: 2122484, 2122485, 2122486, 2122487, 2122488, 2122489, 2122490

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	105	107	P/P	90 - 110
Organic Carbon	107	109	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A94589

Included Lab Sample IDs: 2122484, 2122485, 2122486, 2122487, 2122488, 2122489, 2122490, 2122491

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO2NO3-N	99.0	99.5	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A94597

Included Lab Sample IDs: 2122484, 2122485

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	97.5	107	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A94623

Included Lab Sample IDs: 2122484, 2122485, 2122486, 2122487, 2122488, 2122489, 2122490, 2122491

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	100	98.8	P/P	90 - 110
Total-P	99.8	100	P/P	90 - 110

Reference Method: SM 5310 B-00

Run ID: A94634

Included Lab Sample IDs: 2122491

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	94.8	99.6	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A94637

Included Lab Sample IDs: 2122486, 2122487, 2122488, 2122489, 2122490, 2122491

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	101	99.2	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A94647

Included Lab Sample IDs: 2122484, 2122485, 2122486, 2122487

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	96.1	97.5	P/P	90 - 110

Reference Method: EPA 300.0

Run ID: A94704

Included Lab Sample IDs: 2122476, 2122477, 2122478, 2122479, 2122480, 2122481, 2122482, 2122483

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Bromide	104	105	P/P	90 - 110
Bromide	105	107	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A94715

Included Lab Sample IDs: 2122488, 2122489, 2122490, 2122491

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

Reference Method: SM 2320 B-97

Run ID: A94754

Included Lab Sample IDs: 2122476, 2122477, 2122478, 2122479, 2122480, 2122481, 2122482, 2122483

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

Reference Method: SM 4500 F-C-97

Run ID: A94754

Included Lab Sample IDs: 2122476, 2122477, 2122478, 2122479, 2122480, 2122481, 2122482, 2122483

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

* Pass/Fail determinations are made for each bracketing calibration verification check.

Control limits for initial calibration checks may be different from those for continuing checks, depending on method requirements.

Where they are different, both control limits are provided.

Quality Assurance Report Summary

Ref. Method	Analyte	LCS % Recovery	MS % Recovery			Precision SMP	MS
			LCS				
EPA 180.1 Rev. 2.0	Turbidity					3.65	
	Turbidity					11.3	
EPA 300.0	Bromide	99.8	97.4	97.1	97.2		0.319
EPA 350.1 Rev. 2.0	Ammonia-N	95.3	97.4	98.6			0.878
	Ammonia-N	101	102	103			0.218
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	103	102	98.4			3.37
	Kjeldahl Nitrogen	97.3	99.6	105			4.62
EPA 353.2 Rev. 2.0	NO2NO3-N	100	100	100			0.0
EPA 365.1 Rev. 2.0	Total-P	96.3	88.1	87.7			0.442
	Total-P	97.2	85.9	88.2			2.61
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	97.4	95.2	97.0			1.87
SM 2320 B-97	Total Alkalinity	104				0.730	
SM 4500 F-C-97	Fluoride	98.2	93.6	92.1			0.960
SM 5310 B-00	Organic Carbon	106	106	107			0.837
	Organic Carbon	95.0	92.3	91.7			0.570

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	2122476, 2122477, 2122478, 2122479, 2122480, 2122481, 2122482, 2122483
EPA 300.0 / E31780	Bromide in aqueous matrices	2122476, 2122477, 2122478, 2122479, 2122480, 2122481, 2122482, 2122483
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	2122484, 2122485, 2122486, 2122487, 2122488, 2122489, 2122490, 2122491
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	2122484, 2122485, 2122486, 2122487, 2122488, 2122489, 2122490, 2122491
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	2122484, 2122485, 2122486, 2122487, 2122488, 2122489, 2122490, 2122491
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	2122484, 2122485, 2122486, 2122487, 2122488, 2122489, 2122490, 2122491
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	2122492, 2122493, 2122494, 2122495, 2122496, 2122497, 2122498, 2122499
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO3/L	2122476, 2122477, 2122478, 2122479, 2122480, 2122481, 2122482, 2122483
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices using a maximum of 250 mL of sample	2122476, 2122477, 2122478, 2122479, 2122480, 2122481, 2122482, 2122483
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	2122476, 2122477, 2122478, 2122479, 2122480, 2122481, 2122482, 2122483
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	2122484, 2122485, 2122486, 2122487, 2122488, 2122489, 2122490, 2122491

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	09/26/2019			09/26/2019 16:38	Rosalyn Ballman	2122476, 2122477, 2122478, 2122479, 2122480, 2122481, 2122482, 2122483
EPA 300.0	09/26/2019			10/03/2019 09:23	Julia Storbeck	2122476
	09/26/2019			10/03/2019 09:40	Julia Storbeck	2122477
	09/26/2019			10/03/2019 10:31	Julia Storbeck	2122478
	09/26/2019			10/03/2019 10:48	Julia Storbeck	2122479
	09/26/2019			10/03/2019 11:05	Julia Storbeck	2122480
	09/26/2019			10/03/2019 11:22	Julia Storbeck	2122481
	09/26/2019			10/03/2019 11:40	Julia Storbeck	2122482
	09/26/2019			10/03/2019 11:57	Julia Storbeck	2122483
EPA 350.1 Rev. 2.0	09/26/2019			10/01/2019 14:29	Ping Hua	2122484
	09/26/2019			10/01/2019 14:31	Ping Hua	2122485
	09/26/2019			10/01/2019 14:32	Ping Hua	2122486
	09/26/2019			10/01/2019 14:34	Ping Hua	2122487
	09/26/2019			10/03/2019 12:24	Ping Hua	2122488
	09/26/2019			10/03/2019 12:29	Ping Hua	2122489
	09/26/2019			10/03/2019 12:30	Ping Hua	2122490
	09/26/2019			10/03/2019 12:32	Ping Hua	2122491
EPA 351.2 Rev. 2.0	09/26/2019	09/27/2019 12:10	Jhamieka S. Greenwood	09/30/2019 15:59	Virginia P. Brown	2122484
	09/26/2019	09/27/2019 12:10	Jhamieka S. Greenwood	09/30/2019 16:01	Virginia P. Brown	2122485
	09/26/2019	09/30/2019 13:30	Jhamieka S. Greenwood	10/01/2019 15:22	Julia Storbeck	2122486
	09/26/2019	09/30/2019 13:30	Jhamieka S. Greenwood	10/01/2019 15:23	Julia Storbeck	2122487
	09/26/2019	09/30/2019 13:30	Jhamieka S. Greenwood	10/01/2019 15:25	Julia Storbeck	2122488
	09/26/2019	09/30/2019 13:30	Jhamieka S. Greenwood	10/01/2019 15:26	Julia Storbeck	2122489
	09/26/2019	09/30/2019 13:30	Jhamieka S. Greenwood	10/01/2019 15:28	Julia Storbeck	2122490
	09/26/2019	09/30/2019 13:30	Jhamieka S. Greenwood	10/01/2019 15:30	Julia Storbeck	2122491
EPA 353.2 Rev. 2.0	09/26/2019			09/30/2019 11:15	Beverly Y. Sanders	2122484
	09/26/2019			09/30/2019 11:24	Beverly Y. Sanders	2122485
	09/26/2019			09/30/2019 11:25	Beverly Y. Sanders	2122486
	09/26/2019			09/30/2019 11:26	Beverly Y. Sanders	2122487
	09/26/2019			09/30/2019 11:27	Beverly Y. Sanders	2122488
	09/26/2019			09/30/2019 11:28	Beverly Y. Sanders	2122489
	09/26/2019			09/30/2019 11:30	Beverly Y. Sanders	2122490
	09/26/2019			09/30/2019 11:31	Beverly Y. Sanders	2122491
EPA 365.1 Rev. 2.0	09/26/2019	09/30/2019 14:39	Vijayalakshmi Reddy	10/01/2019 12:16	Lipi Saha	2122484
	09/26/2019	09/30/2019 14:39	Vijayalakshmi Reddy	10/01/2019 12:17	Lipi Saha	2122485
	09/26/2019	09/30/2019 14:39	Vijayalakshmi Reddy	10/01/2019 12:18	Lipi Saha	2122486
	09/26/2019	09/30/2019 14:39	Vijayalakshmi Reddy	10/01/2019 12:19	Lipi Saha	2122487
	09/26/2019	09/30/2019 14:39	Vijayalakshmi Reddy	10/01/2019 12:46	Lipi Saha	2122488
	09/26/2019	09/30/2019 14:39	Vijayalakshmi Reddy	10/01/2019 12:47	Lipi Saha	2122489

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
EPA 365.1 Rev. 2.0	09/26/2019	09/30/2019 14:39	Vijayalakshmi Reddy	10/01/2019 12:48	Lipi Saha	2122490
	09/26/2019	09/30/2019 14:39	Vijayalakshmi Reddy	10/01/2019 12:49	Lipi Saha	2122491
EPA 365.1 Rev. 2.0 dissolved	09/26/2019			09/26/2019 14:23	Ping Hua	2122492
	09/26/2019			09/26/2019 14:49	Ping Hua	2122493, 2122494
	09/26/2019			09/26/2019 14:50	Ping Hua	2122495
	09/26/2019			09/26/2019 14:51	Ping Hua	2122496
	09/26/2019			09/26/2019 14:52	Ping Hua	2122497
	09/26/2019			09/26/2019 14:53	Ping Hua	2122498
	09/26/2019			09/26/2019 14:54	Ping Hua	2122499
SM 2320 B-97	09/26/2019			10/04/2019 08:39	Dale L. Simmons	2122476
	09/26/2019			10/04/2019 08:52	Dale L. Simmons	2122477
	09/26/2019			10/04/2019 09:03	Dale L. Simmons	2122478
	09/26/2019			10/04/2019 09:16	Dale L. Simmons	2122479
	09/26/2019			10/04/2019 09:28	Dale L. Simmons	2122480
	09/26/2019			10/04/2019 09:41	Dale L. Simmons	2122481
	09/26/2019			10/04/2019 10:51	Dale L. Simmons	2122482
	09/26/2019			10/04/2019 11:03	Dale L. Simmons	2122483
SM 2540 D-97	09/26/2019			09/27/2019 17:15	Rosalyn Ballman	2122476, 2122477, 2122478, 2122479, 2122480, 2122481, 2122482, 2122483
SM 4500 F-C-97	09/26/2019			10/04/2019 05:57	Dale L. Simmons	2122476
	09/26/2019			10/04/2019 06:02	Dale L. Simmons	2122477
	09/26/2019			10/04/2019 06:06	Dale L. Simmons	2122478
	09/26/2019			10/04/2019 06:10	Dale L. Simmons	2122479
	09/26/2019			10/04/2019 06:14	Dale L. Simmons	2122480
	09/26/2019			10/04/2019 06:18	Dale L. Simmons	2122481
	09/26/2019			10/04/2019 06:22	Dale L. Simmons	2122482
	09/26/2019			10/04/2019 06:27	Dale L. Simmons	2122483
SM 5310 B-00	09/26/2019			09/28/2019 07:21	Madeline Funaro	2122484
	09/26/2019			09/28/2019 07:34	Madeline Funaro	2122485
	09/26/2019			09/28/2019 07:46	Madeline Funaro	2122486
	09/26/2019			09/28/2019 07:58	Madeline Funaro	2122487
	09/26/2019			09/28/2019 08:39	Madeline Funaro	2122488
	09/26/2019			09/28/2019 09:05	Madeline Funaro	2122489
	09/26/2019			09/28/2019 09:19	Madeline Funaro	2122490
	09/26/2019			10/01/2019 06:47	Madeline Funaro	2122491