

Chemical Analysis Report

SO-DIST-2019-10-22-01

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

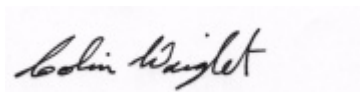
Event Description: **2019 SMP : Nowhere**
Request ID: **RQ-2019-07-29-45**
Customer: **SO-DIST**
Project ID: **SMP**

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

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: Colin Wright, Program Administrator

Date Certified: 07-NOV-2019 09:51

A handwritten signature in black ink, appearing to read "Colin Wright", is shown 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: 8070 - North

Collection Date/Time: 10/21/2019 12:30

Field ID: G5SD0075

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2130120	EPA 180.1 Rev. 2.0	Turbidity	5.8		NTU	P372957	
	EPA 300.0	Bromide	67		mg Br/L	P373398	
	SM 2320 B-97	Total Alkalinity	113		mg CaCO3/L	P373215	
	SM 2540 D-97	TSS	6	I	mg/L	P373293	
	SM 4500 F-C-97	Fluoride	1.2		mg F/L	P373220	
2130128	EPA 350.1 Rev. 2.0	Ammonia-N	0.01		mg N/L	P373045	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.42		mg N/L	P373083	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.008	I	mg N/L	P373011	
	EPA 365.1 Rev. 2.0	Total-P	0.019		mg P/L	P373002	
	SM 5310 B-00	Organic Carbon	4.0		mg C/L	P373168	
2130136	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P372951	

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: 10/21/2019 12:45

Field ID: G5SD0101

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2130121	EPA 180.1 Rev. 2.0	Turbidity	5.6		NTU	P372957	
	EPA 300.0	Bromide	66		mg Br/L	P373398	
	SM 2320 B-97	Total Alkalinity	114		mg CaCO3/L	P373215	
	SM 2540 D-97	TSS	10	I	mg/L	P373293	
	SM 4500 F-C-97	Fluoride	1.2		mg F/L	P373220	
2130129	EPA 350.1 Rev. 2.0	Ammonia-N	0.005	I	mg N/L	P373188	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.46		mg N/L	P373083	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.006	I	mg N/L	P373011	
	EPA 365.1 Rev. 2.0	Total-P	0.020		mg P/L	P373002	
	SM 5310 B-00	Organic Carbon	4.0		mg C/L	P373168	
2130137	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P372951	

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: 10/21/2019 13:25

Field ID: G5SD0076

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2130122	EPA 180.1 Rev. 2.0	Turbidity	8.5	A	NTU	P372957	
	EPA 300.0	Bromide	51		mg Br/L	P373398	
	SM 2320 B-97	Total Alkalinity	168		mg CaCO3/L	P373215	
	SM 2540 D-97	TSS	14		mg/L	P373293	
	SM 4500 F-C-97	Fluoride	1.0		mg F/L	P373220	
2130130	EPA 350.1 Rev. 2.0	Ammonia-N	0.044		mg N/L	P373188	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.70		mg N/L	P373083	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.14		mg N/L	P373011	
	EPA 365.1 Rev. 2.0	Total-P	0.030		mg P/L	P373002	
	SM 5310 B-00	Organic Carbon	8.0		mg C/L	P373168	
2130138	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.012		mg P/L	P372951	

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 ENR - 9 Near First Bay

Collection Date/Time: 10/21/2019 14:15

Field ID: G5SD0107

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2130123	EPA 180.1 Rev. 2.0	Turbidity	12		NTU	P372957	
	EPA 300.0	Bromide	46		mg Br/L	P373398	
	SM 2320 B-97	Total Alkalinity	160		mg CaCO3/L	P373215	
	SM 2540 D-97	TSS	15		mg/L	P373293	
	SM 4500 F-C-97	Fluoride	0.85		mg F/L	P373220	
2130131	EPA 350.1 Rev. 2.0	Ammonia-N	0.059		mg N/L	P373188	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.87		mg N/L	P373083	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.089		mg N/L	P373011	
	EPA 365.1 Rev. 2.0	Total-P	0.040		mg P/L	P373002	
	SM 5310 B-00	Organic Carbon	12		mg C/L	P373168	
2130139	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.019		mg P/L	P372951	

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: 8067 @ ENRE5

Collection Date/Time: 10/21/2019 10:35

Field ID: G5SD0038

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2130124	EPA 180.1 Rev. 2.0	Turbidity	5.9		NTU	P372957	
	EPA 300.0	Bromide	59		mg Br/L	P373398	
	SM 2320 B-97	Total Alkalinity	142		mg CaCO3/L	P373215	
	SM 2540 D-97	TSS	6	I	mg/L	P373293	
	SM 4500 F-C-97	Fluoride	1.1		mg F/L	P373220	
2130132	EPA 350.1 Rev. 2.0	Ammonia-N	0.052		mg N/L	P373188	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.1		mg N/L	P373083	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P373011	
	EPA 365.1 Rev. 2.0	Total-P	0.020		mg P/L	P373002	
	SM 5310 B-00	Organic Carbon	5.9		mg C/L	P373168	
2130140	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P372951	

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: 10/21/2019 11:20

Field ID: G5SD0037

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2130125	EPA 180.1 Rev. 2.0	Turbidity	1.9		NTU	P372957	
	EPA 300.0	Bromide	60		mg Br/L	P373398	
	SM 2320 B-97	Total Alkalinity	135		mg CaCO3/L	P373215	
	SM 2540 D-97	TSS	5	I	mg/L	P373293	
	SM 4500 F-C-97	Fluoride	1.1		mg F/L	P373220	
2130133	EPA 350.1 Rev. 2.0	Ammonia-N	0.031		mg N/L	P373188	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.51		mg N/L	P373083	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P373011	
	EPA 365.1 Rev. 2.0	Total-P	0.017		mg P/L	P373002	
	SM 5310 B-00	Organic Carbon	5.2		mg C/L	P373168	
2130141	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P372951	

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: 10/21/2019 11:40

Field ID: G5SD0100

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2130126	EPA 180.1 Rev. 2.0	Turbidity	2.5		NTU	P372958	
	EPA 300.0	Bromide	59		mg Br/L	P373398	
	SM 2320 B-97	Total Alkalinity	143		mg CaCO3/L	P373215	
	SM 2540 D-97	TSS	4	I	mg/L	P373293	
	SM 4500 F-C-97	Fluoride	1.1		mg F/L	P373220	
2130134	EPA 350.1 Rev. 2.0	Ammonia-N	0.020		mg N/L	P373188	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.58		mg N/L	P373083	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.046		mg N/L	P373011	
	EPA 365.1 Rev. 2.0	Total-P	0.020		mg P/L	P373002	
	SM 5310 B-00	Organic Carbon	5.6		mg C/L	P373168	
2130142	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P372951	

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: 10/21/2019 12:05

Field ID: G5SD0036

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2130127	EPA 180.1 Rev. 2.0	Turbidity	6.8	A	NTU	P372958	
	EPA 300.0	Bromide	62		mg Br/L	P373398	
	SM 2320 B-97	Total Alkalinity	127		mg CaCO3/L	P373215	
	SM 2540 D-97	TSS	7	IA	mg/L	P373294	
	SM 4500 F-C-97	Fluoride	1.1		mg F/L	P373220	
2130135	EPA 350.1 Rev. 2.0	Ammonia-N	0.051		mg N/L	P373188	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.48		mg N/L	P373129	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.039		mg N/L	P373012	
	EPA 365.1 Rev. 2.0	Total-P	0.033		mg P/L	P373138	
	SM 5310 B-00	Organic Carbon	4.8		mg C/L	P373168	
2130143	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	I	mg P/L	P372951	

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: P372957

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P372958

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 300.0
Batch ID: P373398

Component	Result	Code	Units
Bromide	0.013	U	mg Br/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P373045

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P373188

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P373083

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P373129

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P373011

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: P373012

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: P373002

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P373138

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P372951

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

Reference Method: SM 2320 B-97
Batch ID: P373215

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

Reference Method: SM 2540 D-97
Batch ID: P373293

Component	Result	Code	Units
TSS	3	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P373294

Component	Result	Code	Units
TSS	3	U	mg/L

Reference Method: SM 4500 F-C-97
Batch ID: P373220

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-00
Batch ID: P373168

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: P373398

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Bromide	94.4		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P373045

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P373188

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Ammonia-N	97.1		P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P373083

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P373129

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P373011

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P373012

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P373002

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total-P	98.2		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P373138

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total-P	97.9		P	90 - 110

Quality Assurance Report

Laboratory Control Sample Accuracy

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P372951

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

Reference Method: SM 2320 B-97
Batch ID: P373215

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	105		P	98 - 106

Reference Method: SM 4500 F-C-97
Batch ID: P373220

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

Reference Method: SM 5310 B-00
Batch ID: P373168

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

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 300.0
Batch ID: P373398

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2129316	Bromide	92.2	93.5	P/P	90 - 110
2129766	Bromide	92.0		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P373045

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2130128	Ammonia-N	103	103	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P373188

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2130129	Ammonia-N	100	99.9	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P373083

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2130128	Kjeldahl Nitrogen	101	110	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P373129

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2130135	Kjeldahl Nitrogen	100	101	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P373011

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2129823	NO2NO3-N	106	106	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P373012

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2130135	NO2NO3-N	106	105	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P373002

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2129824	Total-P	93.2	92.8	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P373138

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2130269	Total-P	91.8	94.4	P/P	90 - 110

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P372951

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2130136	O-Phosphate-P	96.6	97.0	P/P	90 - 110

Reference Method: SM 4500 F-C-97
Batch ID: P373220

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2129383	Fluoride	93.5	95.2	P/P	89 - 106

Reference Method: SM 5310 B-00
Batch ID: P373168

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2130134	Organic Carbon	96.7	96.7	P/P	85 - 115

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P372957

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2130122	Turbidity	4.10	Sample	P	0 - 20

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P372958

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2130127	Turbidity	8.49	Sample	P	0 - 20

Reference Method: EPA 300.0
Batch ID: P373398

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2129316	Bromide	1.21	Spike	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P373045

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2130128	Ammonia-N	0.285	Spike	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P373188

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2130129	Ammonia-N	0.163	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P373083

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2130128	Kjeldahl Nitrogen	7.59	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P373129

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2130135	Kjeldahl Nitrogen	0.892	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P373011

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2129823	NO2NO3-N	0.473	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P373012

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2130135	NO2NO3-N	0.797	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P373002

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2129824	Total-P	0.316	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P373138

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2130269	Total-P	2.72	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P372951

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2130136	O-Phosphate-P	0.413	Spike	P	0 - 20

Reference Method: SM 2320 B-97
Batch ID: P373215

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2130693	Total Alkalinity	1.58	Sample	P	0 - 2.8

Reference Method: SM 4500 F-C-97
Batch ID: P373220

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2129383	Fluoride	1.00	Spike	P	0 - 2.5

Reference Method: SM 5310 B-00
Batch ID: P373168

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2130134	Organic Carbon	0.0	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: A95157

Included Lab Sample IDs: 2130136, 2130137, 2130138, 2130139, 2130140, 2130141, 2130142, 2130143

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	100	100	P/P	90 - 110
O-Phosphate-P	100	99.7	P/P	90 - 110
O-Phosphate-P	99.4	99.6	P/P	90 - 110
O-Phosphate-P	99.8	99.6	P/P	90 - 110

Reference Method: EPA 180.1 Rev. 2.0

Run ID: A95160

Included Lab Sample IDs: 2130120, 2130121, 2130122, 2130123, 2130124, 2130125, 2130126, 2130127

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Turbidity	98.5	98.0	P/P	95 - 105
Turbidity	98.5	98.5	P/P	95 - 105

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A95178

Included Lab Sample IDs: 2130128, 2130129, 2130130, 2130131, 2130132, 2130133, 2130134, 2130135

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO2NO3-N	102	102	P/P	90 - 110
NO2NO3-N	102	103	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A95203

Included Lab Sample IDs: 2130128

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

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A95222

Included Lab Sample IDs: 2130128, 2130129, 2130130, 2130131, 2130132, 2130133, 2130134

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

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A95247

Included Lab Sample IDs: 2130128, 2130129, 2130130, 2130131, 2130132, 2130133, 2130134

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	99.1	96.8	P/P	90 - 110
Kjeldahl Nitrogen	99.6	99.1	P/P	90 - 110

Reference Method: SM 5310 B-00

Run ID: A95256

Included Lab Sample IDs: 2130128, 2130129, 2130130, 2130131, 2130132, 2130133, 2130134, 2130135

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

Quality Assurance Report Calibration Verification

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A95266

Included Lab Sample IDs: 2130129, 2130130, 2130131, 2130132, 2130133, 2130134, 2130135

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	98.0	97.5	P/P	90 - 110
Ammonia-N	98.3	98.0	P/P	90 - 110

Reference Method: SM 2320 B-97

Run ID: A95274

Included Lab Sample IDs: 2130120, 2130121, 2130122, 2130123, 2130124, 2130125, 2130126, 2130127

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	104	103	P/P	90 - 110

Reference Method: SM 4500 F-C-97

Run ID: A95274

Included Lab Sample IDs: 2130120, 2130121, 2130122, 2130123, 2130124, 2130125, 2130126, 2130127

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	99.0	98.5	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A95286

Included Lab Sample IDs: 2130135

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	101	98.4	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A95289

Included Lab Sample IDs: 2130135

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

Reference Method: EPA 300.0

Run ID: A95332

Included Lab Sample IDs: 2130120, 2130121, 2130122, 2130123, 2130124, 2130125, 2130126, 2130127

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Bromide	103	98.5	P/P	90 - 110
Bromide	98.5	102	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					4.10	
	Turbidity					8.49	
EPA 300.0	Bromide	94.4	92.2	93.5	92.0		1.21
EPA 350.1 Rev. 2.0	Ammonia-N	100	103	103			0.285
	Ammonia-N	97.1	100	99.9			0.163
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	102	101	110			7.59
	Kjeldahl Nitrogen	101	100	101			0.892
EPA 353.2 Rev. 2.0	NO2NO3-N	104	106	106			0.473
	NO2NO3-N	104	106	105			0.797
EPA 365.1 Rev. 2.0	Total-P	98.2	93.2	92.8			0.316
	Total-P	97.9	91.8	94.4			2.72
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	98.7	96.6	97.0			0.413
SM 2320 B-97	Total Alkalinity	105				1.58	
SM 4500 F-C-97	Fluoride	96.2	93.5	95.2			1.00
SM 5310 B-00	Organic Carbon	98.6	96.7	96.7			0.0

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	2130120, 2130121, 2130122, 2130123, 2130124, 2130125, 2130126, 2130127
EPA 300.0 / E31780	Bromide in aqueous matrices	2130120, 2130121, 2130122, 2130123, 2130124, 2130125, 2130126, 2130127
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	2130128, 2130129, 2130130, 2130131, 2130132, 2130133, 2130134, 2130135
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	2130128, 2130129, 2130130, 2130131, 2130132, 2130133, 2130134, 2130135
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	2130128, 2130129, 2130130, 2130131, 2130132, 2130133, 2130134, 2130135
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	2130128, 2130129, 2130130, 2130131, 2130132, 2130133, 2130134, 2130135
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	2130136, 2130137, 2130138, 2130139, 2130140, 2130141, 2130142, 2130143
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO3/L	2130120, 2130121, 2130122, 2130123, 2130124, 2130125, 2130126, 2130127
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices using a maximum of 250 mL of sample	2130120, 2130121, 2130122, 2130123, 2130124, 2130125, 2130126, 2130127
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	2130120, 2130121, 2130122, 2130123, 2130124, 2130125, 2130126, 2130127
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	2130128, 2130129, 2130130, 2130131, 2130132, 2130133, 2130134, 2130135

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	10/22/2019			10/22/2019 17:00	Rosalyn Ballman	2130120, 2130121, 2130122, 2130123, 2130124, 2130125, 2130126, 2130127
EPA 300.0	10/22/2019			10/29/2019 22:55	Julia Storbeck	2130120
	10/22/2019			10/29/2019 23:13	Julia Storbeck	2130121
	10/22/2019			10/29/2019 23:30	Julia Storbeck	2130122
	10/22/2019			10/29/2019 23:47	Julia Storbeck	2130123
	10/22/2019			10/30/2019 00:38	Julia Storbeck	2130124
	10/22/2019			10/30/2019 00:55	Julia Storbeck	2130125
	10/22/2019			10/30/2019 01:12	Julia Storbeck	2130126
	10/22/2019			10/30/2019 01:29	Julia Storbeck	2130127
EPA 350.1 Rev. 2.0	10/22/2019			10/23/2019 11:40	Ping Hua	2130128
	10/22/2019			10/24/2019 13:05	Ping Hua	2130129
	10/22/2019			10/24/2019 13:09	Ping Hua	2130130
	10/22/2019			10/24/2019 13:11	Ping Hua	2130131
	10/22/2019			10/24/2019 13:12	Ping Hua	2130132
	10/22/2019			10/24/2019 13:14	Ping Hua	2130133
	10/22/2019			10/24/2019 13:21	Ping Hua	2130134
	10/22/2019			10/24/2019 13:23	Ping Hua	2130135
EPA 351.2 Rev. 2.0	10/22/2019	10/24/2019 13:26	Sima Feizi	10/25/2019 15:34	Jhamieka S. Greenwood	2130128
	10/22/2019	10/24/2019 13:26	Sima Feizi	10/25/2019 15:44	Jhamieka S. Greenwood	2130129
	10/22/2019	10/24/2019 13:26	Sima Feizi	10/25/2019 15:45	Jhamieka S. Greenwood	2130130
	10/22/2019	10/24/2019 13:26	Sima Feizi	10/25/2019 15:50	Jhamieka S. Greenwood	2130131
	10/22/2019	10/24/2019 13:26	Sima Feizi	10/25/2019 15:52	Jhamieka S. Greenwood	2130132
	10/22/2019	10/24/2019 13:26	Sima Feizi	10/25/2019 15:53	Jhamieka S. Greenwood	2130133
	10/22/2019	10/24/2019 13:26	Sima Feizi	10/25/2019 15:55	Jhamieka S. Greenwood	2130134
	10/22/2019	10/25/2019 11:38	Sima Feizi	10/28/2019 14:10	Jhamieka S. Greenwood	2130135
EPA 353.2 Rev. 2.0	10/22/2019			10/23/2019 12:06	Beverly Y. Sanders	2130128
	10/22/2019			10/23/2019 12:07	Beverly Y. Sanders	2130129
	10/22/2019			10/23/2019 12:08	Beverly Y. Sanders	2130130
	10/22/2019			10/23/2019 12:10	Beverly Y. Sanders	2130131
	10/22/2019			10/23/2019 12:11	Beverly Y. Sanders	2130132
	10/22/2019			10/23/2019 12:12	Beverly Y. Sanders	2130133
	10/22/2019			10/23/2019 12:13	Beverly Y. Sanders	2130134
	10/22/2019			10/23/2019 12:20	Beverly Y. Sanders	2130135
EPA 365.1 Rev. 2.0	10/22/2019	10/23/2019 14:30	Lipi Saha	10/24/2019 16:31	Lipi Saha	2130128
	10/22/2019	10/23/2019 14:30	Lipi Saha	10/24/2019 16:32	Lipi Saha	2130129
	10/22/2019	10/23/2019 14:30	Lipi Saha	10/24/2019 16:33	Lipi Saha	2130130
	10/22/2019	10/23/2019 14:30	Lipi Saha	10/24/2019 16:34	Lipi Saha	2130131
	10/22/2019	10/23/2019 14:30	Lipi Saha	10/24/2019 16:35	Lipi Saha	2130132
	10/22/2019	10/23/2019 14:30	Lipi Saha	10/24/2019 16:36	Lipi Saha	2130133

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	10/22/2019	10/23/2019 14:30	Lipi Saha	10/24/2019 16:37	Lipi Saha	2130134
	10/22/2019	10/25/2019 14:30	Lipi Saha	10/28/2019 16:33	Lipi Saha	2130135
EPA 365.1 Rev. 2.0 dissolved	10/22/2019			10/22/2019 14:52	Virginia P. Brown	2130136
	10/22/2019			10/22/2019 15:20	Virginia P. Brown	2130137
	10/22/2019			10/22/2019 15:25	Virginia P. Brown	2130138
	10/22/2019			10/22/2019 15:26	Virginia P. Brown	2130140
	10/22/2019			10/22/2019 15:27	Virginia P. Brown	2130141
	10/22/2019			10/22/2019 15:28	Virginia P. Brown	2130142
	10/22/2019			10/22/2019 15:29	Virginia P. Brown	2130143
	10/22/2019			10/22/2019 15:54	Virginia P. Brown	2130139
	10/22/2019			10/26/2019 16:10	Dale L. Simmons	2130120
SM 2320 B-97	10/22/2019			10/26/2019 16:21	Dale L. Simmons	2130121
	10/22/2019			10/26/2019 16:33	Dale L. Simmons	2130122
	10/22/2019			10/26/2019 16:45	Dale L. Simmons	2130123
	10/22/2019			10/26/2019 16:58	Dale L. Simmons	2130124
	10/22/2019			10/26/2019 17:10	Dale L. Simmons	2130125
	10/22/2019			10/26/2019 17:23	Dale L. Simmons	2130126
	10/22/2019			10/26/2019 17:35	Dale L. Simmons	2130127
	10/22/2019			10/23/2019 14:58	Yijie Li	2130120, 2130121, 2130122, 2130123, 2130124, 2130125, 2130126, 2130127
SM 2540 D-97	10/22/2019					
SM 4500 F-C-97	10/22/2019			10/26/2019 13:43	Dale L. Simmons	2130120
	10/22/2019			10/26/2019 13:47	Dale L. Simmons	2130121
	10/22/2019			10/26/2019 13:51	Dale L. Simmons	2130122
	10/22/2019			10/26/2019 13:56	Dale L. Simmons	2130123
	10/22/2019			10/26/2019 14:00	Dale L. Simmons	2130124
	10/22/2019			10/26/2019 14:04	Dale L. Simmons	2130125
	10/22/2019			10/26/2019 14:08	Dale L. Simmons	2130126
	10/22/2019			10/26/2019 14:12	Dale L. Simmons	2130127
SM 5310 B-00	10/22/2019			10/25/2019 05:28	Madeline Funaro	2130134
	10/22/2019			10/25/2019 06:18	Madeline Funaro	2130128
	10/22/2019			10/25/2019 06:30	Madeline Funaro	2130129
	10/22/2019			10/25/2019 06:58	Madeline Funaro	2130130
	10/22/2019			10/25/2019 07:45	Madeline Funaro	2130131
	10/22/2019			10/25/2019 08:00	Madeline Funaro	2130132
	10/22/2019			10/25/2019 08:15	Madeline Funaro	2130133
	10/22/2019			10/25/2019 08:28	Madeline Funaro	2130135