

Chemical Analysis Report

SE-DIST-2019-09-27-02

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

Event Description: **SMP- Biscayne**
Request ID: **RQ-2019-09-16-58**
Customer: **SE-DIST**
Project ID: **SMP**

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Date Certified: 16-OCT-2019 15:11



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: Atlantic Ocean (WBID 8089 ENRG7)

Collection Date/Time: 09/26/2019 11:00

Field ID: G4SE0104

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2123151	EPA 180.1 Rev. 2.0	Turbidity	1.5		NTU	P371484	
	EPA 300.0	Bromide	76		mg Br/L	P372082	
	SM 2320 B-97	Total Alkalinity	125		mg CaCO3/L	P371988	
	SM 2540 D-97	TSS	3	U	mg/L	P372073	
	SM 4500 F-C-97	Fluoride	1.2		mg F/L	P371991	
2123153	EPA 350.1 Rev. 2.0	Ammonia-N	0.007		mg N/L	P371970	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.33	I	mg N/L	P391620	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P372083	
	EPA 365.1 Rev. 2.0	Total-P	0.007	I	mg P/L	P371580	MS
	SM 5310 B-00	Organic Carbon	2.0	I	mg C/L	P371644	
2123155	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P371491	

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: Atlantic Ocean (WBID 8089 ENRG6)

Collection Date/Time: 09/26/2019 12:00

Field ID: G4SE0105

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2123152	EPA 180.1 Rev. 2.0	Turbidity	0.55		NTU	P371484	
	EPA 300.0	Bromide	78		mg Br/L	P372082	
	SM 2320 B-97	Total Alkalinity	123		mg CaCO3/L	P371988	
	SM 2540 D-97	TSS	3	U	mg/L	P372073	
	SM 4500 F-C-97	Fluoride	1.3		mg F/L	P371991	
2123154	EPA 350.1 Rev. 2.0	Ammonia-N	0.002	I	mg N/L	P371970	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.17	I	mg N/L	P371698	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P372083	
	EPA 365.1 Rev. 2.0	Total-P	0.006	I	mg P/L	P371689	
	SM 5310 B-00	Organic Carbon	1.2	I	mg C/L	P371644	
2123156	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P371491	

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: C-111 West

Collection Date/Time: 09/26/2019 14:30

Field ID: G4SE0127

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2123148	EPA 180.1 Rev. 2.0	Turbidity	1.4		NTU	P371484	
	EPA 300.0 Rev. 2.1	Chloride	45		mg Cl/L	P371980	
		Sulfate	27		mg SO4/L	P371984	
	SM 2120 B	Color (true)	2.5	U	PCU	P371487	
	SM 2320 B-97	Total Alkalinity	200		mg CaCO3/L	P371888	
	SM 2540 C-97	TDS	300		mg/L	P372029	
	SM 2540 D-97	TSS	2	I	mg/L	P372069	
	SM 4500 F-C-97	Fluoride	0.13		mg F/L	P371891	
2123149	EPA 350.1 Rev. 2.0	Ammonia-N	0.045		mg N/L	P371969	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.29		mg N/L	P371622	
	EPA 353.2 Rev. 2.0	NO2NO3-N	1.3		mg N/L	P372033	
	EPA 365.1 Rev. 2.0	Total-P	0.007		mg P/L	P371640	
	SM 5310 B-00	Organic Carbon	1.7		mg C/L	P371777	
2123150	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.005	I	mg P/L	P371490	

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: G4SE0127

Collection Date/Time: 09/26/2019 14:40

Field ID: FB_09262019

Matrix: W-FIELD-BK

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2123157	EPA 180.1 Rev. 2.0	Turbidity	0.10	U	NTU	P371484	
	EPA 300.0 Rev. 2.1	Chloride	0.20	U	mg Cl/L	P371980	
		Sulfate	0.20	U	mg SO4/L	P371984	
	SM 2120 B	Color (true)	2.5	U	PCU	P371487	
	SM 2320 B-97	Total Alkalinity	0.65	U	mg CaCO3/L	P371888	
	SM 2540 C-97	TDS	15	U	mg/L	P372028	
	SM 2540 D-97	TSS	2	U	mg/L	P372068	
	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P371891	
2123158	EPA 350.1 Rev. 2.0	Ammonia-N	0.002	U	mg N/L	P371969	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.080	U	mg N/L	P371624	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P372033	
	EPA 365.1 Rev. 2.0	Total-P	0.002	U	mg P/L	P371640	
	SM 5310 B-00	Organic Carbon	0.50	U	mg C/L	P371777	
2123159	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P371490	

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: P371484

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 300.0
Batch ID: P372082

Component	Result	Code	Units
Bromide	0.013	U	mg Br/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P371980

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P371984

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P371969

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P371970

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P371622

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P371624

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P371698

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

Quality Assurance Report Method Blank Results

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P391620

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P372033

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P372083

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P371580

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P371640

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P371689

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P371490

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P371491

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

Reference Method: SM 2120 B
Batch ID: P371487

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Quality Assurance Report

Method Blank Results

Reference Method: SM 2320 B-97
Batch ID: P371888

Component	Result	Code	Units
Total Alkalinity	0.65	U	mg CaCO ₃ /L

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

Component	Result	Code	Units
Total Alkalinity	0.65	U	mg CaCO ₃ /L

Reference Method: SM 2540 C-97
Batch ID: P372028

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 C-97
Batch ID: P372029

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P372068

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P372069

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P372073

Component	Result	Code	Units
TSS	3	U	mg/L

Reference Method: SM 4500 F-C-97
Batch ID: P371891

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

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

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Quality Assurance Report

Method Blank Results

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

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

Reference Method: SM 5310 B-00
Batch ID: P371777

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: P372082

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Bromide	98.9		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P371980

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P371984

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P371969

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Ammonia-N	97.6		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P371970

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P371622

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Kjeldahl Nitrogen	95.4		P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P371624

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Kjeldahl Nitrogen	92.5		P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P371698

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P391620

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Kjeldahl Nitrogen	92.4		P	90 - 110

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P372033

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P372083

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P371580

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total-P	97.0		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P371640

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P371689

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P371490

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P371491

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
O-Phosphate-P	98.4		P	90 - 110

Reference Method: SM 2120 B
Batch ID: P371487

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Color (true)	98.9		P	85 - 115

Reference Method: SM 2320 B-97
Batch ID: P371888

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	103		P	98 - 106

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: P371891

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

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: P371644

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

Reference Method: SM 5310 B-00
Batch ID: P371777

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	101		P	85 - 115

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 300.0
Batch ID: P372082

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2123747	Bromide	95.0	94.8	P/P	90 - 110
2124140	Bromide	93.9		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P371980

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2123033	Chloride	104		P	90 - 110
2123190	Chloride	104		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P371984

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2123033	Sulfate	105		P	90 - 110
2123190	Sulfate	108		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P371969

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2123149	Ammonia-N	99.1	99.5	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P371970

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2123153	Ammonia-N	101	104	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P371622

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2123149	Kjeldahl Nitrogen	90.0	101	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P371624

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2123244	Kjeldahl Nitrogen	94.7	97.3	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P371698

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2123154	Kjeldahl Nitrogen	96.1	93.1	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P391620

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2122808	Kjeldahl Nitrogen	90.3	91.2	P/P	90 - 110

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P372033

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2123196	NO2NO3-N	96.0	95.5	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P372083

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2123087	NO2NO3-N	101	100	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P371580

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2122808	Total-P	88.8	90.9	F/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P371640

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2123191	Total-P	100	98.1	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P371689

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2123627	Total-P	94.7	92.8	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P371490

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2123035	O-Phosphate-P	97.9	99.6	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P371491

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2123091	O-Phosphate-P	96.0	96.0	P/P	90 - 110

Reference Method: SM 4500 F-C-97
Batch ID: P371891

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2123040	Fluoride	97.9	97.3	P/P	89 - 106

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

Quality Assurance Report Matrix Spike Accuracy

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

Reference Method: SM 5310 B-00
Batch ID: P371777

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2123636	Organic Carbon	96.4	97.4	P/P	85 - 115

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P371484

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2123102	Turbidity	6.74	Sample	P	0 - 20

Reference Method: EPA 300.0
Batch ID: P372082

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2123747	Bromide	0.184	Spike	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P371980

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2123033	Chloride	0.889	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P371984

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2123033	Sulfate	0.980	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P371969

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2123149	Ammonia-N	0.204	Spike	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P371970

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2123153	Ammonia-N	2.41	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P371622

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2123149	Kjeldahl Nitrogen	9.54	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P371624

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2123244	Kjeldahl Nitrogen	1.98	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P371698

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2123154	Kjeldahl Nitrogen	2.96	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P391620

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2122808	Kjeldahl Nitrogen	0.903	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P372033

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2123196	NO2NO3-N	0.340	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P372083

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2123087	NO2NO3-N	0.623	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P371580

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2122808	Total-P	2.37	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P371640

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2123191	Total-P	1.05	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P371689

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2123627	Total-P	1.99	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P371490

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2123035	O-Phosphate-P	0.884	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P371491

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2123091	O-Phosphate-P	0.0	Spike	P	0 - 20

Reference Method: SM 2120 B
Batch ID: P371487

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2123262	Color (true)	1.95	Sample	P	0 - 20

Reference Method: SM 2320 B-97
Batch ID: P371888

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2123040	Total Alkalinity	1.10	Sample	P	0 - 2.8

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 2540 C-97
Batch ID: P372028

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2123040	TDS	6.23	Sample	P	0 - 10

Reference Method: SM 2540 C-97
Batch ID: P372029

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2123098	TDS	5.68	Sample	P	0 - 10

Reference Method: SM 4500 F-C-97
Batch ID: P371891

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2123040	Fluoride	0.476	Spike	P	0 - 2.5

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

Quality Assurance Report Precision

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

Reference Method: SM 5310 B-00
Batch ID: P371777

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2123636	Organic Carbon	0.636	Spike	P	0 - 20

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

Quality Assurance Report Calibration Verification

Reference Method: EPA 180.1 Rev. 2.0

Run ID: A94558

Included Lab Sample IDs: 2123148, 2123151, 2123152, 2123157

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

Reference Method: SM 2120 B

Run ID: A94559

Included Lab Sample IDs: 2123148, 2123157

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	99.4	99.0	P/P	90 - 115

Reference Method: EPA 365.1 Rev. 2.0 dissolved

Run ID: A94560

Included Lab Sample IDs: 2123150, 2123155, 2123156, 2123159

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	100	99.2	P/P	90 - 110
O-Phosphate-P	99.2	98.4	P/P	90 - 110

Reference Method: SM 5310 B-00

Run ID: A94634

Included Lab Sample IDs: 2123153, 2123154

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

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A94659

Included Lab Sample IDs: 2123149, 2123153, 2123158

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

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A94665

Included Lab Sample IDs: 2123149, 2123153, 2123158

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	97.0	97.6	P/P	90 - 110
Kjeldahl Nitrogen	97.9	95.0	P/P	90 - 110
Kjeldahl Nitrogen	98.0	97.3	P/P	90 - 110

Reference Method: SM 5310 B-00

Run ID: A94678

Included Lab Sample IDs: 2123149, 2123158

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	98.6	94.7	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: EPA 300.0 Rev. 2.1

Run ID: A94686

Included Lab Sample IDs: 2123148, 2123157

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	103	102	P/P	90 - 110
Sulfate	104	103	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A94700

Included Lab Sample IDs: 2123154

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: A94711

Included Lab Sample IDs: 2123154

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	99.7	95.4	P/P	90 - 110

Reference Method: SM 2320 B-97

Run ID: A94720

Included Lab Sample IDs: 2123148, 2123157

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	104	101	P/P	90 - 110

Reference Method: SM 4500 F-C-97

Run ID: A94720

Included Lab Sample IDs: 2123148, 2123157

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

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A94727

Included Lab Sample IDs: 2123149, 2123158

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

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A94750

Included Lab Sample IDs: 2123149, 2123153, 2123154, 2123158

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	100	99.8	P/P	90 - 110
Ammonia-N	97.7	98.0	P/P	90 - 110
Ammonia-N	99.8	97.7	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: SM 2320 B-97

Run ID: A94754

Included Lab Sample IDs: 2123151, 2123152

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

Reference Method: SM 4500 F-C-97

Run ID: A94754

Included Lab Sample IDs: 2123151, 2123152

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

Reference Method: EPA 300.0

Run ID: A94790

Included Lab Sample IDs: 2123151, 2123152

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

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A94791

Included Lab Sample IDs: 2123153, 2123154

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO2NO3-N	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					6.74	
EPA 300.0	Bromide	98.9	95.0	94.8	93.9		0.184
EPA 300.0 Rev. 2.1	Chloride	102	104	104		0.889	
	Sulfate	103	105	108		0.980	
EPA 350.1 Rev. 2.0	Ammonia-N	97.6	99.1	99.5			0.204
	Ammonia-N	97.3	101	104			2.41
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	95.4	90.0	101			9.54
	Kjeldahl Nitrogen	92.5	94.7	97.3			1.98
	Kjeldahl Nitrogen	99.0	96.1	93.1			2.96
	Kjeldahl Nitrogen	92.4	90.3	91.2			0.903
EPA 353.2 Rev. 2.0	NO2NO3-N	99.5	96.0	95.5			0.340
	NO2NO3-N	100	101	100			0.623
EPA 365.1 Rev. 2.0	Total-P	97.0	88.8	90.9			2.37
	Total-P	103	100	98.1			1.05
	Total-P	102	94.7	92.8			1.99
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	98.7	97.9	99.6			0.884
	O-Phosphate-P	98.4	96.0	96.0			0.0
SM 2120 B	Color (true)	98.9				1.95	
SM 2320 B-97	Total Alkalinity	103				1.10	
	Total Alkalinity	104				0.730	
SM 2540 C-97	TDS					6.23	
	TDS					5.68	
SM 4500 F-C-97	Fluoride	98.2	97.9	97.3			0.476
	Fluoride	98.2	93.6	92.1			0.960
SM 5310 B-00	Organic Carbon	95.0	92.3	91.7			0.570
	Organic Carbon	101	96.4	97.4			0.636

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	2123148, 2123151, 2123152, 2123157
EPA 300.0 / E31780	Bromide in aqueous matrices	2123151, 2123152
EPA 300.0 Rev. 2.1 / E31780	Chloride in aqueous matrices	2123148, 2123157
EPA 300.0 Rev. 2.1 / E31780	Sulfate in aqueous matrices	2123148, 2123157
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	2123149, 2123153, 2123154, 2123158
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	2123149, 2123153, 2123154, 2123158
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	2123149, 2123153, 2123154, 2123158
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	2123149, 2123153, 2123154, 2123158
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	2123150, 2123155, 2123156, 2123159
SM 2120 B / E31780	True Color measured at 450 nm	2123148, 2123157
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO3/L	2123148, 2123151, 2123152, 2123157
SM 2540 C-97 / E31780	Total Dissolved Solids in aqueous matrices	2123148, 2123157
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices using a maximum of 250 mL of sample	2123148, 2123151, 2123152, 2123157
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	2123148, 2123151, 2123152, 2123157
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	2123149, 2123153, 2123154, 2123158

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
EPA 180.1 Rev. 2.0	09/27/2019			09/27/2019 16:08	Samantha Davila	2123148, 2123151, 2123152, 2123157
EPA 300.0	09/27/2019			10/08/2019 04:28	Jhamieka S. Greenwood	2123151
	09/27/2019			10/08/2019 04:45	Jhamieka S. Greenwood	2123152
EPA 300.0 Rev. 2.1	09/27/2019			10/05/2019 10:06	Julia Storbeck	2123148
	09/27/2019			10/05/2019 10:18	Julia Storbeck	2123157
EPA 350.1 Rev. 2.0	09/27/2019			10/04/2019 12:21	Ping Hua	2123149
	09/27/2019			10/04/2019 12:42	Ping Hua	2123158
	09/27/2019			10/04/2019 12:48	Ping Hua	2123153
	09/27/2019			10/04/2019 13:03	Ping Hua	2123154
EPA 351.2 Rev. 2.0	09/27/2019	10/01/2019 11:12	Sima Feizi	10/02/2019 14:47	Julia Storbeck	2123153
	09/27/2019	10/01/2019 13:16	Sima Feizi	10/02/2019 15:23	Julia Storbeck	2123149
	09/27/2019	10/01/2019 13:16	Sima Feizi	10/02/2019 16:28	Julia Storbeck	2123158
	09/27/2019	10/02/2019 11:25	Sima Feizi	10/03/2019 16:25	Julia Storbeck	2123154
EPA 353.2 Rev. 2.0	09/27/2019			10/04/2019 10:17	Beverly Y. Sanders	2123149
	09/27/2019			10/04/2019 10:18	Beverly Y. Sanders	2123158
	09/27/2019			10/08/2019 10:03	Beverly Y. Sanders	2123153
	09/27/2019			10/08/2019 10:04	Beverly Y. Sanders	2123154
EPA 365.1 Rev. 2.0	09/27/2019	10/01/2019 12:41	Vijayalakshmi Reddy	10/02/2019 12:55	Lipi Saha	2123153
	09/27/2019	10/01/2019 12:41	Vijayalakshmi Reddy	10/02/2019 13:24	Lipi Saha	2123149
	09/27/2019	10/01/2019 12:41	Vijayalakshmi Reddy	10/02/2019 13:25	Lipi Saha	2123158
	09/27/2019	10/02/2019 12:14	Vijayalakshmi Reddy	10/03/2019 14:07	Lipi Saha	2123154
EPA 365.1 Rev. 2.0 dissolved	09/27/2019			09/27/2019 16:58	Virginia P. Brown	2123150
	09/27/2019			09/27/2019 16:59	Virginia P. Brown	2123155
	09/27/2019			09/27/2019 17:04	Virginia P. Brown	2123156
	09/27/2019			09/27/2019 17:05	Virginia P. Brown	2123159
SM 2120 B	09/27/2019			09/27/2019 17:04	Madeline Funaro	2123148, 2123157
SM 2320 B-97	09/27/2019			10/03/2019 08:22	Dale L. Simmons	2123148
	09/27/2019			10/03/2019 08:37	Dale L. Simmons	2123157
	09/27/2019			10/04/2019 12:29	Dale L. Simmons	2123151
	09/27/2019			10/04/2019 12:42	Dale L. Simmons	2123152
SM 2540 C-97	09/27/2019			10/02/2019 15:09	Yijie Li	2123148, 2123157
SM 2540 D-97	09/27/2019			10/02/2019 15:09	Yijie Li	2123148, 2123151, 2123152, 2123157
SM 4500 F-C-97	09/27/2019			10/03/2019 08:22	Dale L. Simmons	2123148
	09/27/2019			10/03/2019 08:37	Dale L. Simmons	2123157
	09/27/2019			10/04/2019 07:51	Dale L. Simmons	2123151
	09/27/2019			10/04/2019 07:55	Dale L. Simmons	2123152
SM 5310 B-00	09/27/2019			10/01/2019 09:53	Madeline Funaro	2123153
	09/27/2019			10/01/2019 10:05	Madeline Funaro	2123154
	09/27/2019			10/02/2019 23:50	Madeline Funaro	2123149
	09/27/2019			10/03/2019 00:02	Madeline Funaro	2123158