

Chemical Analysis Report

SE-DIST-2019-08-24-01

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-2019-06-10-52**
Customer: **SE-DIST**
Project ID: **SMP**

Send Reports to:
FL Dept. of Environmental Protection
FL Dept. of Environmental Protection
2199 South Rock Road
Fort Pierce, FL 34945
Attn: Matthew Sewell

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: 19-SEP-2019 12:22



NON-CONFORMANCE REPORT INCLUDED

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: C-111 WEST

Collection Date/Time: 08/22/2019 09:00

Field ID: G4SE0127

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2114713	EPA 180.1 Rev. 2.0	Turbidity	2.0	Q	NTU	P369773	
	EPA 300.0 Rev. 2.1	Chloride	48		mg Cl/L	P369925	
		Sulfate	7.4		mg SO4/L	P369928	
	SM 2120 B	Color (true)	11	Q	PCU	P369768	
	SM 2320 B-97	Total Alkalinity	203		mg CaCO3/L	P370025	
	SM 2540 C-97	TDS	279		mg/L	P370068	
	SM 2540 D-97	TSS	2	I	mg/L	P370073	
	SM 4500 F-C-97	Fluoride	0.14		mg F/L	P370029	
2114714	EPA 350.1 Rev. 2.0	Ammonia-N	0.058		mg N/L	P370234	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.57		mg N/L	P369830	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.12		mg N/L	P369939	
	EPA 365.1 Rev. 2.0	Total-P	0.004	I	mg P/L	P369870	
	SM 5310 B-00	Organic Carbon	6.0		mg C/L	P370040	
2114715	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	UQ	mg P/L	P369798	

Ref. Method and Comment:

EPA 180.1 Rev. 2.0: The sample expired prior to receipt.

SM 2120 B: The sample expired prior to receipt.

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 dissolved: O-Phosphate-P: The sample expired prior to receipt.

Sample Location: ATLANTIC OCEAN (WBID 8090 ENRG7)

Collection Date/Time: 08/22/2019 11:00

Field ID: G4SE0129

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2114716	EPA 180.1 Rev. 2.0	Turbidity	0.50	Q	NTU	P369773	
	EPA 300.0	Bromide	81		mg Br/L	P369760	
	SM 2320 B-97	Total Alkalinity	119		mg CaCO3/L	P369891	
	SM 2540 D-97	TSS	3	U	mg/L	P370077	
	SM 4500 F-C-97	Fluoride	1.2		mg F/L	P369892	
2114718	EPA 350.1 Rev. 2.0	Ammonia-N	0.004	I	mg N/L	P370097	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.18	I	mg N/L	P369919	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P369713	
	EPA 365.1 Rev. 2.0	Total-P	0.006	I	mg P/L	P369873	
	SM 5310 B-00	Organic Carbon	1.8	I	mg C/L	P370041	
2114720	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	UQ	mg P/L	P369799	

Ref. Method and Comment:

EPA 180.1 Rev. 2.0: The sample expired upon receipt.

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 dissolved: O-Phosphate-P: The sample expired upon receipt.

Sample Location: ATLANTIC OCEAN (WBID 8090 ENRG6)

Collection Date/Time: 08/22/2019 12:00

Field ID: G4SE0128

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2114717	EPA 180.1 Rev. 2.0	Turbidity	0.40	Q	NTU	P369773	
	EPA 300.0	Bromide	75		mg Br/L	P369921	
	SM 2320 B-97	Total Alkalinity	123		mg CaCO3/L	P369891	
	SM 2540 D-97	TSS	3	U	mg/L	P370077	
	SM 4500 F-C-97	Fluoride	1.2		mg F/L	P369892	
2114719	EPA 350.1 Rev. 2.0	Ammonia-N	0.002	U	mg N/L	P370097	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.16	U	mg N/L	P369919	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P369713	
	EPA 365.1 Rev. 2.0	Total-P	0.006	I	mg P/L	P369873	
	SM 5310 B-00	Organic Carbon	1.3	I	mg C/L	P370041	
2114721	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	UQ	mg P/L	P369799	

Ref. Method and Comment:

EPA 180.1 Rev. 2.0: The sample expired upon receipt.

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 dissolved: O-Phosphate-P: The sample expired upon receipt.

Sample Location: TRUCK

Collection Date/Time: 08/22/2019 12:30

Field ID: FIELD BLANK_22082019

Matrix: W-FIELD-BK

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2114722	EPA 180.1 Rev. 2.0	Turbidity	0.10	UQ	NTU	P369775	
	EPA 300.0 Rev. 2.1	Chloride	0.20	U	mg Cl/L	P369925	
		Sulfate	0.20	U	mg SO4/L	P369928	
	SM 2120 B	Color (true)	2.5	UQ	PCU	P369768	
	SM 2320 B-97	Total Alkalinity	0.65	U	mg CaCO3/L	P370025	
	SM 2540 C-97	TDS	15	U	mg/L	P370067	
	SM 2540 D-97	TSS	2	U	mg/L	P370072	
	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P370029	
	EPA 350.1 Rev. 2.0	Ammonia-N	0.002	U	mg N/L	P370234	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.080	U	mg N/L	P369830	
2114723	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P369939	
	EPA 365.1 Rev. 2.0	Total-P	0.002	U	mg P/L	P369870	
	SM 5310 B-00	Organic Carbon	1.3		mg C/L	P370040	
	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	UQ	mg P/L	P369798	

Ref. Method and Comment:

EPA 180.1 Rev. 2.0: The sample expired upon receipt.

SM 2120 B: The sample expired upon receipt.

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

SM 5310 B-00: The result was confirmed on 09/04/2019.

EPA 365.1 Rev. 2.0 dissolved: O-Phosphate-P: The sample expired upon receipt.

Non-Conformance Report

NCR ID: 7876

Event(s)

SE-DIST-2019-08-24-01

Job(s)

Sample(s)

Test(s)

NCR Type: SHIPPING/RECEIVING

NCR Category: Samples arrived late

Observation: Samples arrived one or more days late by FedEx (PICKED UP FROM FEDEX), samples received within the acceptable temperature range.

Resolution: Customer contacted, email correspondence attached to sample submittal forms.
Samples will be qualified as appropriate.

Authorized by/Date: Joshua Ayres 9/19/2019

The Non-Conformance Report details exceptions or problems encountered with the events/jobs/samples/test.
Please address questions to:

Chemistry	Colin Wright	(850) 245-8085
Biology	Cheryl Swanson	(850) 245-8177

Quality Assurance Report Method Blank Results

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P369773

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P369775

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 300.0
Batch ID: P369760

Component	Result	Code	Units
Bromide	0.013	U	mg Br/L

Reference Method: EPA 300.0
Batch ID: P369921

Component	Result	Code	Units
Bromide	0.013	U	mg Br/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P369925

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P369928

Component	Result	Code	Units
Sulfate	0.20	U	mg SO ₄ /L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P370097

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P370234

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P369830

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: P369919

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P369713

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P369939

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P369870

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P369873

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P369798

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P369799

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

Reference Method: SM 2120 B
Batch ID: P369768

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2320 B-97
Batch ID: P369891

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

Quality Assurance Report Method Blank Results

Reference Method: SM 2320 B-97
Batch ID: P370025

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

Reference Method: SM 2540 C-97
Batch ID: P370067

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 C-97
Batch ID: P370068

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P370072

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P370073

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P370077

Component	Result	Code	Units
TSS	3	U	mg/L

Reference Method: SM 4500 F-C-97
Batch ID: P369892

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 4500 F-C-97
Batch ID: P370029

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-00
Batch ID: P370040

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

Quality Assurance Report

Method Blank Results

Reference Method: SM 5310 B-00
Batch ID: P370041

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: P369760

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

Reference Method: EPA 300.0
Batch ID: P369921

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Bromide	96.4		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P369925

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P369928

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P370097

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P370234

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P369830

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: P369919

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P369713

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

Quality Assurance Report

Laboratory Control Sample Accuracy

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P369939

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P369870

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: P369873

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total-P	96.9		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P369798

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P369799

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

Reference Method: SM 2120 B
Batch ID: P369768

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Color (true)	101		P	85 - 115

Reference Method: SM 2320 B-97
Batch ID: P369891

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

Reference Method: SM 2320 B-97
Batch ID: P370025

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

Reference Method: SM 4500 F-C-97
Batch ID: P369892

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	96.7		P	92 - 103

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: SM 4500 F-C-97
Batch ID: P370029

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	97.1		P	92 - 103

Reference Method: SM 5310 B-00
Batch ID: P370040

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	97.0		P	85 - 115

Reference Method: SM 5310 B-00
Batch ID: P370041

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	95.7		P	85 - 115

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 300.0
Batch ID: P369760

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2113204	Bromide	94.1	96.3	P/P	90 - 110
2113615	Bromide	97.3		P	90 - 110

Reference Method: EPA 300.0
Batch ID: P369921

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2115127	Bromide	92.4	93.2	P/P	90 - 110
2115133	Bromide	94.7		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P369925

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2114406	Chloride	104		P	90 - 110
2114812	Chloride	107		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P369928

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2114406	Sulfate	104		P	90 - 110
2114812	Sulfate	106		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P370097

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2114718	Ammonia-N	101	101	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P370234

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2114408	Ammonia-N	99.0	101	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P369830

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2114768	Kjeldahl Nitrogen	97.8	99.0	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P369919

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2114718	Kjeldahl Nitrogen	98.8	98.5	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P369713

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
---------------	-----------	---------	---------	-----------	----------------

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P369713

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2114538	NO2NO3-N	101	102	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P369939

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2114544	NO2NO3-N	98.0	97.5	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P369870

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2114208	Total-P	98.2	97.2	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P369873

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2114548	Total-P	97.1	97.9	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P369798

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2114814	O-Phosphate-P	94.8	95.8	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P369799

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2114721	O-Phosphate-P	98.6	99.8	P/P	90 - 110

Reference Method: SM 4500 F-C-97
Batch ID: P369892

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2111922	Fluoride	98.7	101	P/P	89 - 106

Reference Method: SM 4500 F-C-97
Batch ID: P370029

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2114341	Fluoride	95.6	96.1	P/P	89 - 106

Reference Method: SM 5310 B-00
Batch ID: P370040

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2114328	Organic Carbon	96.2	95.1	P/P	85 - 115

Quality Assurance Report Matrix Spike Accuracy

Reference Method: SM 5310 B-00
Batch ID: P370041

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2115056	Organic Carbon	92.7	95.3	P/P	85 - 115

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P369773

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2114799	Turbidity	5.03	Sample	P	0 - 20

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P369775

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2115024	Turbidity	2.78	Sample	P	0 - 20

Reference Method: EPA 300.0
Batch ID: P369760

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2113204	Bromide	1.88	Spike	P	0 - 20

Reference Method: EPA 300.0
Batch ID: P369921

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2115127	Bromide	0.648	Spike	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P369925

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2114406	Chloride	0.288	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P369928

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2114406	Sulfate	0.0425	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P370097

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2114718	Ammonia-N	0.490	Spike	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P370234

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2114408	Ammonia-N	1.85	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P369830

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2114768	Kjeldahl Nitrogen	0.645	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P369919

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2114718	Kjeldahl Nitrogen	0.243	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P369713

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2114538	NO2NO3-N	0.869	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P369939

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2114544	NO2NO3-N	0.512	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P369870

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2114208	Total-P	0.894	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P369873

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2114548	Total-P	0.798	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P369798

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2114814	O-Phosphate-P	1.05	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P369799

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2114721	O-Phosphate-P	1.21	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: SM 2120 B
Batch ID: P369768

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2114815	Color (true)	1.05	Sample	P	0 - 20

Reference Method: SM 2320 B-97
Batch ID: P369891

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2113602	Total Alkalinity	0.622	Sample	P	0 - 2.8

Reference Method: SM 2320 B-97
Batch ID: P370025

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2114341	Total Alkalinity	0.390	Sample	P	0 - 2.8

Reference Method: SM 2540 C-97
Batch ID: P370067

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2114199	TDS	1.39	Sample	P	0 - 10

Reference Method: SM 2540 C-97
Batch ID: P370068

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2114336	TDS	1.52	Sample	P	0 - 10

Reference Method: SM 4500 F-C-97
Batch ID: P369892

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2111922	Fluoride	1.91	Spike	P	0 - 2.5

Reference Method: SM 4500 F-C-97
Batch ID: P370029

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2114341	Fluoride	0.516	Spike	P	0 - 2.5

Reference Method: SM 5310 B-00
Batch ID: P370040

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2114328	Organic Carbon	0.709	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: SM 5310 B-00
Batch ID: P370041

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2115056	Organic Carbon	2.01	Spike	P	0 - 20

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

Quality Assurance Report Calibration Verification

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A93803

Included Lab Sample IDs: 2114718, 2114719

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO2NO3-N	101	101	P/P	90 - 110

Reference Method: EPA 300.0

Run ID: A93817

Included Lab Sample IDs: 2114716, 2114717

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Bromide	101	105	P/P	90 - 110
Bromide	105	106	P/P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1

Run ID: A93819

Included Lab Sample IDs: 2114713, 2114722

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

Reference Method: SM 2120 B

Run ID: A93820

Included Lab Sample IDs: 2114713, 2114722

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	99.3	99.6	P/P	90 - 115

Reference Method: EPA 180.1 Rev. 2.0

Run ID: A93821

Included Lab Sample IDs: 2114713, 2114716, 2114717, 2114722

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Turbidity	100	102	P/P	95 - 105
Turbidity	101	100	P/P	95 - 105

Reference Method: EPA 365.1 Rev. 2.0 dissolved

Run ID: A93828

Included Lab Sample IDs: 2114715, 2114720, 2114721, 2114724

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	100	99.2	P/P	90 - 110
O-Phosphate-P	101	100	P/P	90 - 110
O-Phosphate-P	101	101	P/P	90 - 110
O-Phosphate-P	101	101	P/P	90 - 110

Reference Method: SM 2320 B-97

Run ID: A93863

Included Lab Sample IDs: 2114716, 2114717

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

Quality Assurance Report Calibration Verification

Reference Method: SM 4500 F-C-97

Run ID: A93863

Included Lab Sample IDs: 2114716, 2114717

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

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A93888

Included Lab Sample IDs: 2114714, 2114723

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

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A93889

Included Lab Sample IDs: 2114714, 2114723

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	102	96.5	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A93925

Included Lab Sample IDs: 2114718, 2114719

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

Reference Method: SM 2320 B-97

Run ID: A93928

Included Lab Sample IDs: 2114713, 2114722

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

Reference Method: SM 4500 F-C-97

Run ID: A93928

Included Lab Sample IDs: 2114713, 2114722

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

Reference Method: SM 5310 B-00

Run ID: A93938

Included Lab Sample IDs: 2114714, 2114718, 2114719, 2114723

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	99.0	97.7	P/P	90 - 110
Organic Carbon	99.8	99.0	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A93962

Included Lab Sample IDs: 2114718, 2114719

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

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A93978

Included Lab Sample IDs: 2114714, 2114718, 2114719, 2114723

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	100	100	P/P	90 - 110
Total-P	97.8	97.0	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A94019

Included Lab Sample IDs: 2114714, 2114723

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	102	102	P/P	90 - 110
Ammonia-N	102	95.5	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					5.03	
	Turbidity					2.78	
EPA 300.0	Bromide	98.7	94.1	96.3	97.3		1.88
	Bromide	96.4	92.4	93.2	94.7		0.648
EPA 300.0 Rev. 2.1	Chloride	103	104	107		0.288	
	Sulfate	103	104	106		0.0425	
EPA 350.1 Rev. 2.0	Ammonia-N	97.9	101	101			0.490
	Ammonia-N	99.2	99.0	101			1.85
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	102	97.8	99.0			0.645
	Kjeldahl Nitrogen	105	98.8	98.5			0.243
EPA 353.2 Rev. 2.0	NO2NO3-N	100	101	102			0.869
	NO2NO3-N	102	98.0	97.5			0.512
EPA 365.1 Rev. 2.0	Total-P	96.3	98.2	97.2			0.894
	Total-P	96.9	97.1	97.9			0.798
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	99.0	94.8	95.8			1.05
	O-Phosphate-P	103	98.6	99.8			1.21
SM 2120 B	Color (true)	101				1.05	
SM 2320 B-97	Total Alkalinity	103				0.622	
	Total Alkalinity	104				0.390	
SM 2540 C-97	TDS					1.39	
	TDS					1.52	
SM 4500 F-C-97	Fluoride	96.7	98.7	101			1.91
	Fluoride	97.1	95.6	96.1			0.516
SM 5310 B-00	Organic Carbon	97.0	96.2	95.1			0.709
	Organic Carbon	95.7	92.7	95.3			2.01

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	2114713, 2114716, 2114717, 2114722
EPA 300.0 / E31780	Bromide in aqueous matrices	2114716, 2114717
EPA 300.0 Rev. 2.1 / E31780	Chloride in aqueous matrices	2114713, 2114722
EPA 300.0 Rev. 2.1 / E31780	Sulfate in aqueous matrices	2114713, 2114722
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	2114714, 2114718, 2114719, 2114723
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	2114714, 2114718, 2114719, 2114723
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	2114714, 2114718, 2114719, 2114723
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	2114714, 2114718, 2114719, 2114723
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	2114715, 2114720, 2114721, 2114724
SM 2120 B / E31780	True Color measured at 450 nm	2114713, 2114722
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO3/L	2114713, 2114716, 2114717, 2114722
SM 2540 C-97 / E31780	Total Dissolved Solids in aqueous matrices	2114713, 2114722
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices using a maximum of 250 mL of sample	2114713, 2114716, 2114717, 2114722
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	2114713, 2114716, 2114717, 2114722
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	2114714, 2114718, 2114719, 2114723

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	08/24/2019			08/27/2019 16:17	Rosalyn Ballman	2114713, 2114716, 2114717, 2114722
EPA 300.0	08/24/2019			08/27/2019 08:15	Jhamieka S. Greenwood	2114716
	08/24/2019			08/28/2019 21:07	Jhamieka S. Greenwood	2114717
EPA 300.0 Rev. 2.1	08/24/2019			08/29/2019 03:06	Jhamieka S. Greenwood	2114713
	08/24/2019			08/29/2019 03:18	Jhamieka S. Greenwood	2114722
EPA 350.1 Rev. 2.0	08/24/2019			09/03/2019 11:25	Ping Hua	2114718
	08/24/2019			09/03/2019 11:44	Ping Hua	2114719
	08/24/2019			09/05/2019 11:32	Ping Hua	2114714
	08/24/2019			09/05/2019 11:50	Ping Hua	2114723
EPA 351.2 Rev. 2.0	08/24/2019	08/28/2019 12:55	Sima Feizi	08/29/2019 13:05	Julia Storbeck	2114714
	08/24/2019	08/28/2019 12:55	Sima Feizi	08/29/2019 13:07	Julia Storbeck	2114723
	08/24/2019	08/29/2019 11:55	Sima Feizi	08/30/2019 12:28	Joseph Suarez	2114718
	08/24/2019	08/29/2019 11:55	Sima Feizi	08/30/2019 12:32	Joseph Suarez	2114719
EPA 353.2 Rev. 2.0	08/24/2019			08/27/2019 10:53	Beverly Y. Sanders	2114718
	08/24/2019			08/27/2019 10:55	Beverly Y. Sanders	2114719
	08/24/2019			08/29/2019 13:44	Beverly Y. Sanders	2114714
	08/24/2019			08/29/2019 13:45	Beverly Y. Sanders	2114723
EPA 365.1 Rev. 2.0	08/24/2019	08/29/2019 07:30	Joseph Suarez	08/30/2019 12:14	Lipi Saha	2114714
	08/24/2019	08/29/2019 07:30	Joseph Suarez	08/30/2019 12:15	Lipi Saha	2114723
	08/24/2019	08/29/2019 07:30	Joseph Suarez	08/30/2019 12:50	Lipi Saha	2114718
	08/24/2019	08/29/2019 07:30	Joseph Suarez	08/30/2019 12:51	Lipi Saha	2114719
EPA 365.1 Rev. 2.0 dissolved	08/24/2019			08/27/2019 15:29	Jhamieka S. Greenwood	2114721
	08/24/2019			08/27/2019 15:40	Jhamieka S. Greenwood	2114724
	08/24/2019			08/27/2019 15:53	Jhamieka S. Greenwood	2114720
	08/24/2019			08/27/2019 16:03	Jhamieka S. Greenwood	2114715
SM 2120 B	08/24/2019			08/27/2019 16:11	Madeline Funaro	2114713
	08/24/2019			08/27/2019 16:12	Madeline Funaro	2114722
SM 2320 B-97	08/24/2019			08/29/2019 03:23	Dale L. Simmons	2114716
	08/24/2019			08/29/2019 03:35	Dale L. Simmons	2114717
	08/24/2019			08/30/2019 08:11	Dale L. Simmons	2114713
	08/24/2019			08/30/2019 09:06	Dale L. Simmons	2114722
SM 2540 C-97	08/24/2019			08/28/2019 14:52	Yijie Li	2114713, 2114722
SM 2540 D-97	08/24/2019			08/28/2019 14:52	Yijie Li	2114713, 2114716, 2114717, 2114722
SM 4500 F-C-97	08/24/2019			08/28/2019 23:14	Dale L. Simmons	2114716
	08/24/2019			08/28/2019 23:18	Dale L. Simmons	2114717
	08/24/2019			08/30/2019 08:11	Dale L. Simmons	2114713
	08/24/2019			08/30/2019 09:06	Dale L. Simmons	2114722
SM 5310 B-00	08/24/2019			08/31/2019 02:30	Madeline Funaro	2114714
	08/24/2019			08/31/2019 02:43	Madeline Funaro	2114723
	08/24/2019			08/31/2019 04:24	Madeline Funaro	2114718

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
SM 5310 B-00	08/24/2019			08/31/2019 04:41	Madeline Funaro	2114719