

Chemical Analysis Report

NW-DIST-2019-09-05-01

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

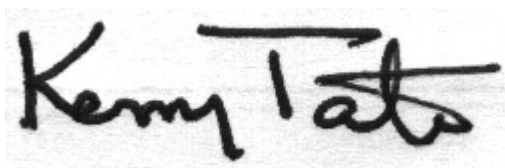
Event Description: **EGLIN RUN EAST/WEST**
Request ID: **RQ-2019-07-29-14**
Customer: **NW-DIST**
Project ID: **SMP**

Send Reports to:
FL Dept. of Environmental Protection
160 Government Center
Suite 208
Pensacola, FL 32502-5794
Attn: Cheryl Bunch

For additional information please contact
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Certified by: Kerry Tate, Ph.D., Environmental Administrator

Date Certified: 16-SEP-2019 09:46

A handwritten signature in black ink that reads "Kerry Tate". The signature is written in a cursive, flowing style with a horizontal line above the first name.

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: Alaqua Creek at Park boat ramp

Collection Date/Time: 09/03/2019 10:40

Field ID: G3NW0163

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2116553	EPA 180.1 Rev. 2.0	Turbidity	3.5	AQ	NTU	P370230	
	EPA 300.0	Bromide	2.1		mg Br/L	P370340	
	SM 2320 B-97	Total Alkalinity	6.0		mg CaCO3/L	P370392	
	SM 2540 D-97	TSS	3	I	mg/L	P370358	
	SM 4500 F-C-97	Fluoride	0.048	I	mg F/L	P370395	
2116554	EPA 350.1 Rev. 2.0	Ammonia-N	0.017		mg N/L	P370448	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.19	I	mg N/L	P370366	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.026		mg N/L	P370267	
	EPA 365.1 Rev. 2.0	Total-P	0.01		mg P/L	P370419	
	SM 5310 B-00	Organic Carbon	3.1		mg C/L	P370305	
2116555	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	UQ	mg P/L	P370271	

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: Shaw Still Branch upstream E College Blvd

Collection Date/Time: 09/03/2019 11:20

Field ID: G3NW0162

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2116544	EPA 180.1 Rev. 2.0	Turbidity	0.80		NTU	P370230	
	EPA 300.0 Rev. 2.1	Chloride	18		mg Cl/L	P370347	
		Sulfate	14		mg SO4/L	P370350	
	SM 2120 B	Color (true)	10		PCU	P370176	
	SM 2320 B-97	Total Alkalinity	47		mg CaCO3/L	P370392	
	SM 2540 C-97	TDS	112		mg/L	P370457	
	SM 2540 D-97	TSS	3	I	mg/L	P370356	
	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P370395	
2116547	EPA 350.1 Rev. 2.0	Ammonia-N	0.004	I	mg N/L	P370448	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.19	I	mg N/L	P370365	
	EPA 353.2 Rev. 2.0	NO2NO3-N	2.9		mg N/L	P370267	
	EPA 365.1 Rev. 2.0	Total-P	0.003	I	mg P/L	P370418	
	SM 5310 B-00	Organic Carbon	2.2		mg C/L	P370305	
2116550	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	UQ	mg P/L	P370271	

Ref. Method and Comment:

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

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

Sample Location: Deer Moss Creek upstream College Blvd

Collection Date/Time: 09/03/2019 11:40

Field ID: G3NW0045

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2116545	EPA 180.1 Rev. 2.0	Turbidity	3.1		NTU	P370230	
	EPA 300.0 Rev. 2.1	Chloride	16		mg Cl/L	P370347	
		Sulfate	11		mg SO4/L	P370350	
		Color (true)	5.7	I	PCU	P370176	
	SM 2320 B-97	Total Alkalinity	24		mg CaCO3/L	P370392	
	SM 2540 C-97	TDS	83		mg/L	P370457	
	SM 2540 D-97	TSS	4	I	mg/L	P370356	
	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P370395	
2116548	EPA 350.1 Rev. 2.0	Ammonia-N	0.006		mg N/L	P370448	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.25		mg N/L	P370366	
	EPA 353.2 Rev. 2.0	NO2NO3-N	2.9		mg N/L	P370267	
	EPA 365.1 Rev. 2.0	Total-P	0.040		mg P/L	P370418	
	SM 5310 B-00	Organic Carbon	1.4		mg C/L	P370305	
2116551	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.037	Q	mg P/L	P370271	

Ref. Method and Comment:

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

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

Sample Location: Mill Creek Upstream of Bayshore Drive

Collection Date/Time: 09/03/2019 12:00

Field ID: G3NW0141

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2116546	EPA 180.1 Rev. 2.0	Turbidity	0.80		NTU	P370230	
	EPA 300.0 Rev. 2.1	Chloride	4.8		mg Cl/L	P370347	
		Sulfate	4.8		mg SO4/L	P370350	
	SM 2120 B	Color (true)	32	A	PCU	P370176	
	SM 2320 B-97	Total Alkalinity	20		mg CaCO3/L	P370392	
	SM 2540 C-97	TDS	40		mg/L	P370457	
	SM 2540 D-97	TSS	2	U	mg/L	P370356	
	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P370395	
	EPA 350.1 Rev. 2.0	Ammonia-N	0.034		mg N/L	P370448	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.24		mg N/L	P370366	
2116549	EPA 353.2 Rev. 2.0	NO2NO3-N	0.071		mg N/L	P370267	
	EPA 365.1 Rev. 2.0	Total-P	0.01		mg P/L	P370418	
	SM 5310 B-00	Organic Carbon	4.1		mg C/L	P370305	
	EPA 365.1 Rev. 2.0	O-Phosphate-P	0.004	UQ	mg P/L	P370271	
	dissolved						

Ref. Method and Comment:

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

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

Non-Conformance Report

NCR ID: 7893

Event(s)

NW-DIST-2019-09-05-01

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, samples received within the acceptable temperature range.
Tracking number: 4751 8781 7321

Resolution: Samples will be qualified as appropriate.

Authorized by/Date: Joshua Ayres 9/12/2019

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: P370230

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 300.0
Batch ID: P370340

Component	Result	Code	Units
Bromide	0.013	U	mg Br/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P370347

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P370350

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P370448

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P370365

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P370366

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P370267

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P370418

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

Quality Assurance Report Method Blank Results

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P370419

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P370271

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

Reference Method: SM 2120 B
Batch ID: P370176

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2320 B-97
Batch ID: P370392

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

Reference Method: SM 2540 C-97
Batch ID: P370457

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P370356

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P370358

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500 F-C-97
Batch ID: P370395

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-00
Batch ID: P370305

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: P370340

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Bromide	97.8		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P370347

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P370350

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P370448

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P370365

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P370366

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P370267

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: P370418

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P370419

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

Quality Assurance Report

Laboratory Control Sample Accuracy

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P370271

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

Reference Method: SM 2120 B
Batch ID: P370176

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Color (true)	103		P	85 - 115

Reference Method: SM 2320 B-97
Batch ID: P370392

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

Reference Method: SM 4500 F-C-97
Batch ID: P370395

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	99.4		P	92 - 103

Reference Method: SM 5310 B-00
Batch ID: P370305

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	103		P	85 - 115

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 300.0
Batch ID: P370340

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2116013	Bromide	93.8	94.7	P/P	90 - 110
2116078	Bromide	94.6		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P370347

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2116431	Chloride	102		P	90 - 110
2116501	Chloride	102		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P370350

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2116431	Sulfate	100		P	90 - 110
2116501	Sulfate	102		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P370448

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2116548	Ammonia-N	91.8	93.3	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P370365

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2116480	Kjeldahl Nitrogen	95.1	95.9	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P370366

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2116548	Kjeldahl Nitrogen	94.4	95.0	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P370267

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2116480	NO2NO3-N	97.8		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P370418

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2116480	Total-P	101	96.4	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P370419

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2116604	Total-P	96.8	100	P/P	90 - 110

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P370271

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2116552	O-Phosphate-P	96.1	96.6	P/P	90 - 110

Reference Method: SM 4500 F-C-97
Batch ID: P370395

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2116478	Fluoride	101	99.9	P/P	89 - 106

Reference Method: SM 5310 B-00
Batch ID: P370305

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2116466	Organic Carbon	102	102	P/P	85 - 115

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P370230

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2116553	Turbidity	1.14	Sample	P	0 - 20

Reference Method: EPA 300.0
Batch ID: P370340

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2116013	Bromide	0.722	Spike	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P370347

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2116431	Chloride	0.0169	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P370350

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2116431	Sulfate	2.50	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P370448

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2116548	Ammonia-N	1.36	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P370365

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2116480	Kjeldahl Nitrogen	0.584	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P370366

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2116548	Kjeldahl Nitrogen	0.506	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P370267

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2116480	NO2NO3-N	0.611	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P370418

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2116480	Total-P	3.45	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P370419

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2116604	Total-P	3.31	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P370271

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2116552	O-Phosphate-P	0.519	Spike	P	0 - 20

Reference Method: SM 2120 B
Batch ID: P370176

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2116546	Color (true)	6.34	Sample	P	0 - 20

Reference Method: SM 2320 B-97
Batch ID: P370392

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2116478	Total Alkalinity	0.294	Sample	P	0 - 2.8

Reference Method: SM 2540 C-97
Batch ID: P370457

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2116500	TDS	0.990	Sample	P	0 - 10

Reference Method: SM 4500 F-C-97
Batch ID: P370395

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2116478	Fluoride	0.513	Spike	P	0 - 2.5

Reference Method: SM 5310 B-00
Batch ID: P370305

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2116466	Organic Carbon	0.0666	Spike	P	0 - 20

Quality Assurance Report

Precision

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

Quality Assurance Report Calibration Verification

Reference Method: SM 2120 B

Run ID: A93994

Included Lab Sample IDs: 2116544, 2116545, 2116546

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	99.6	101	P/P	90 - 115

Reference Method: EPA 300.0 Rev. 2.1

Run ID: A94012

Included Lab Sample IDs: 2116544, 2116545, 2116546

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	101	102	P/P	90 - 110
Sulfate	102	103	P/P	90 - 110

Reference Method: EPA 180.1 Rev. 2.0

Run ID: A94017

Included Lab Sample IDs: 2116544, 2116545, 2116546, 2116553

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Turbidity	98.5	102	P/P	95 - 105

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A94033

Included Lab Sample IDs: 2116547, 2116548, 2116549, 2116554

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved

Run ID: A94035

Included Lab Sample IDs: 2116550, 2116551, 2116552, 2116555

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	100	100	P/P	90 - 110
O-Phosphate-P	97.1	100	P/P	90 - 110
O-Phosphate-P	99.5	97.1	P/P	90 - 110

Reference Method: SM 5310 B-00

Run ID: A94054

Included Lab Sample IDs: 2116547, 2116548, 2116549, 2116554

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

Reference Method: EPA 300.0

Run ID: A94066

Included Lab Sample IDs: 2116553

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

Quality Assurance Report Calibration Verification

Reference Method: SM 2320 B-97

Run ID: A94091

Included Lab Sample IDs: 2116544, 2116545, 2116546, 2116553

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

Reference Method: SM 4500 F-C-97

Run ID: A94091

Included Lab Sample IDs: 2116544, 2116545, 2116546, 2116553

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

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A94110

Included Lab Sample IDs: 2116547, 2116548, 2116549, 2116554

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	100	99.7	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A94122

Included Lab Sample IDs: 2116547, 2116548, 2116549, 2116554

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	108	97.3	P/P	90 - 110
Kjeldahl Nitrogen	97.3	96.7	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A94132

Included Lab Sample IDs: 2116547, 2116548, 2116549, 2116554

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	97.5	97.2	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					1.14	
EPA 300.0	Bromide	97.8	93.8	94.7	94.6		0.722
EPA 300.0 Rev. 2.1	Chloride	101	102	102		0.0169	
	Sulfate	101	100	102		2.50	
EPA 350.1 Rev. 2.0	Ammonia-N	97.2	91.8	93.3			1.36
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	93.1	95.1	95.9			0.584
	Kjeldahl Nitrogen	97.8	94.4	95.0			0.506
EPA 353.2 Rev. 2.0	NO2NO3-N	100	97.8				0.611
EPA 365.1 Rev. 2.0	Total-P	97.2	101	96.4			3.45
	Total-P	98.9	96.8	100			3.31
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	97.9	96.1	96.6			0.519
SM 2120 B	Color (true)	103				6.34	
SM 2320 B-97	Total Alkalinity	103				0.294	
SM 2540 C-97	TDS					0.990	
SM 4500 F-C-97	Fluoride	99.4	101	99.9			0.513
SM 5310 B-00	Organic Carbon	103	102	102			0.0666

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	2116544, 2116545, 2116546, 2116553
EPA 300.0 / E31780	Bromide in aqueous matrices	2116553
EPA 300.0 Rev. 2.1 / E31780	Chloride in aqueous matrices	2116544, 2116545, 2116546
EPA 300.0 Rev. 2.1 / E31780	Sulfate in aqueous matrices	2116544, 2116545, 2116546
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	2116547, 2116548, 2116549, 2116554
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	2116547, 2116548, 2116549, 2116554
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	2116547, 2116548, 2116549, 2116554
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	2116547, 2116548, 2116549, 2116554
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	2116550, 2116551, 2116552, 2116555
SM 2120 B / E31780	True Color measured at 450 nm	2116544, 2116545, 2116546
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO3/L	2116544, 2116545, 2116546, 2116553
SM 2540 C-97 / E31780	Total Dissolved Solids in aqueous matrices	2116544, 2116545, 2116546
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices using a maximum of 250 mL of sample	2116544, 2116545, 2116546, 2116553
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	2116544, 2116545, 2116546, 2116553
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	2116547, 2116548, 2116549, 2116554

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	09/05/2019			09/05/2019 10:39	Rosalyn Ballman	2116545
	09/05/2019			09/05/2019 10:45	Rosalyn Ballman	2116546
	09/05/2019			09/05/2019 10:48	Rosalyn Ballman	2116544
	09/05/2019			09/05/2019 13:01	Rosalyn Ballman	2116553
EPA 300.0	09/05/2019			09/06/2019 21:42	Jhamieka S. Greenwood	2116553
EPA 300.0 Rev. 2.1	09/05/2019			09/07/2019 05:06	Jhamieka S. Greenwood	2116544
	09/05/2019			09/07/2019 05:18	Jhamieka S. Greenwood	2116545
	09/05/2019			09/07/2019 05:30	Jhamieka S. Greenwood	2116546
EPA 350.1 Rev. 2.0	09/05/2019			09/10/2019 12:56	Ping Hua	2116548
	09/05/2019			09/10/2019 13:00	Ping Hua	2116547
	09/05/2019			09/10/2019 13:02	Ping Hua	2116549
	09/05/2019			09/10/2019 13:03	Ping Hua	2116554
EPA 351.2 Rev. 2.0	09/05/2019	09/09/2019 11:56	Sima Feizi	09/10/2019 14:33	Julia Storbeck	2116547
	09/05/2019	09/09/2019 11:56	Sima Feizi	09/10/2019 14:41	Julia Storbeck	2116548
	09/05/2019	09/09/2019 11:56	Sima Feizi	09/10/2019 14:46	Julia Storbeck	2116549
	09/05/2019	09/09/2019 11:56	Sima Feizi	09/10/2019 14:47	Julia Storbeck	2116554
EPA 353.2 Rev. 2.0	09/05/2019			09/06/2019 10:39	Beverly Y. Sanders	2116554
	09/05/2019			09/06/2019 11:33	Beverly Y. Sanders	2116547
	09/05/2019			09/06/2019 11:34	Beverly Y. Sanders	2116548
	09/05/2019			09/06/2019 11:35	Beverly Y. Sanders	2116549
EPA 365.1 Rev. 2.0	09/05/2019	09/10/2019 09:48	Lipi Saha	09/11/2019 13:00	Rosalyn Ballman	2116547
	09/05/2019	09/10/2019 09:48	Lipi Saha	09/11/2019 13:01	Rosalyn Ballman	2116548
	09/05/2019	09/10/2019 09:48	Lipi Saha	09/11/2019 13:02	Rosalyn Ballman	2116549
	09/05/2019	09/10/2019 09:48	Lipi Saha	09/11/2019 13:06	Rosalyn Ballman	2116554
EPA 365.1 Rev. 2.0 dissolved	09/05/2019			09/05/2019 15:30	Jhamieka S. Greenwood	2116552
	09/05/2019			09/05/2019 15:47	Jhamieka S. Greenwood	2116550
	09/05/2019			09/05/2019 15:48	Jhamieka S. Greenwood	2116555
	09/05/2019			09/05/2019 15:56	Jhamieka S. Greenwood	2116551
SM 2120 B	09/05/2019			09/05/2019 11:04	Madeline Funaro	2116545
	09/05/2019			09/05/2019 11:05	Madeline Funaro	2116546
	09/05/2019			09/05/2019 11:06	Madeline Funaro	2116544
SM 2320 B-97	09/05/2019			09/06/2019 19:55	Dale L. Simmons	2116546
	09/05/2019			09/06/2019 20:34	Dale L. Simmons	2116545
	09/05/2019			09/06/2019 21:02	Dale L. Simmons	2116544
	09/05/2019			09/06/2019 21:14	Dale L. Simmons	2116553
SM 2540 C-97	09/05/2019			09/06/2019 17:30	Rosalyn Ballman	2116544, 2116545, 2116546
SM 2540 D-97	09/05/2019			09/06/2019 17:30	Rosalyn Ballman	2116544, 2116545, 2116546, 2116553
SM 4500 F-C-97	09/05/2019			09/06/2019 19:55	Dale L. Simmons	2116546
	09/05/2019			09/06/2019 20:34	Dale L. Simmons	2116545
	09/05/2019			09/06/2019 21:02	Dale L. Simmons	2116544

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
SM 4500 F-C-97	09/05/2019			09/06/2019 21:14	Dale L. Simmons	2116553
SM 5310 B-00	09/05/2019			09/06/2019 18:14	Madeline Funaro	2116547
	09/05/2019			09/06/2019 18:27	Madeline Funaro	2116548
	09/05/2019			09/06/2019 18:39	Madeline Funaro	2116549
	09/05/2019			09/06/2019 18:51	Madeline Funaro	2116554