

Chemical Analysis Report

NW-DIST-2019-11-14-02

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

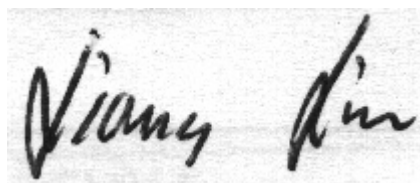
Event Description: **Navarre Run**
Request ID: **RQ-2019-11-04-54**
Customer: **NW-DIST**
Project ID: **SMP**

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

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Certified by: Liang Lin, Environmental Administrator

Date Certified: 04-DEC-2019 14:30

A handwritten signature in black ink, appearing to read "Liang Lin", is shown on a light-colored background.

Case Narrative

Unless otherwise noted, all samples included in this report were received in accordance with protocols referenced in Chapter 62-160, Florida Administrative Code (F.A.C.). Results published in this report pertain only to the samples as submitted to, and received by the laboratory. All times in this report are adjusted to the applicable Eastern Time Zone (EST or EDT).

Results for the following analytical group are included in this report: Nutrients.

Scientific notation may be used in reporting very large or small values. Values reported using scientific notation will take the form of the following example: 1.3E+03, which is equivalent to 1.3×10^3 or 1300.

Unless otherwise noted, analytical values for soil and sediment samples are reported on a dry weight basis, and analytical values for waste and tissue samples are reported on a wet weight basis.

Results for TNI accredited tests met requirements established by The NELAC Institute. A double asterisk (**) is used to indicate an analyte/matrix/method for which the laboratory is not TNI accredited by the Florida Department of Health Environmental Laboratory Certification Program or where accreditation for that field of testing is not applicable.

Any significant anomalies or deviations from established protocols are documented in Non-Conformance Reports, which, where appropriate, are included within this analytical report. Additional comments related to specific analytical tests may be included as remarks following the analytical results for each sample. Such comments and remarks are for informational purposes only and are not intended to convey judgement about the usability of the reported data.

A quality control report on the performance of the test method for the submitted samples is included. Uncertainty associated with the analytical results contained in this report can be estimated from the reported quality assurance results and from published quality control acceptance limits for each analytical test. Matrix quality control results (matrix spike recoveries and matrix sample precision) pertain only to the matrix sample tested and do not necessarily reflect test method performance for other samples.

Typical matrix quality control (QC) measurements may include matrix spike recovery, matrix spike duplicate recovery, matrix spike precision and matrix sample precision. Not all matrix QC results may be available or reportable; where they are not an explanation is provided. Typical reasons for unavailable QC results include, but are not limited to, a) insufficient matrix sample to perform some or all QC measurements; b) analyte concentration in the sample replicated was too low for a meaningful measurement of precision and c) analyte concentration in the matrix sample spiked was too high (relative to the amount of analyte spiked) for a meaningful measurement of recovery. Where matrix QC results are unavailable, other method performance metrics (e.g., LCS recovery, LCS precision, surrogate recovery) may be used to assess performance of the method. Comments explaining any missing QC measurements are not intended to convey any adverse conclusions about the quality of the reported data.

Precision is reported as relative percent difference unless otherwise noted.

Quality Control codes as defined below may be used in this report to indicate results that are associated with one or more quality control elements which did not fall within established test method criteria. Such results may be qualified as estimates using a J qualifier as required by 62-160 F.A.C. Explanations are included in the report for any results that were reported as estimates for other reasons.

QC Codes used in this report may include:

- LCS – Recovery for the batch Laboratory Control Sample (LCS) was outside existing control limits;
- MS – Recovery for the batch matrix spike (MS) was outside existing control limits;
- CCV – Recovery for a continuing calibration verification (CCV) standard was outside existing control limits;
- SUR – Recovery of a surrogate (SUR) for associated analytes was outside existing control limits;
- RPD – The precision, measured as relative percent difference (RPD), of batch replicate measurements was outside existing control limits;
- RSD – The precision, measured as relative standard deviation (RSD), of batch replicate measurements was outside existing control limits;
- SMP – Sample - used precision derived from replicate analyses of a sample;

The following data qualifiers are used, where applicable, in this report as specified in 62-160 F.A.C.

- A - Value reported is the mean of two or more determinations.
- B - Results based on colony counts outside the acceptable range.
- I - The reported value is between the laboratory method detection limit and the laboratory practical quantitation limit.
- J - Estimated value and/or the analysis did not meet established quality control criteria.
- K - Actual value is known to be less than value given.
- L - Actual value is known to be greater than value given.
- N - Presumptive evidence of presence of material.
- O - Sampled, but analysis lost or not performed.
- Q - Sample held beyond normal holding time.
- T - Value reported is less than the criterion of detection.
- U - Material was analyzed for but not detected. The reported value is the method detection limit for the sample analyzed.
- V - Analyte was detected in both sample and method blank.
- X - Too few individuals to calculate SCI value.
- Y - The laboratory analysis was from an unpreserved or improperly preserved sample. The data may not be accurate.
- Z - Colonies were too numerous to count (TNTC).

Quality control information from overflow laboratories may not be included in this report. Please refer to the associated report from the overflow laboratory for additional information.

Sample Location: Williams Creek below Frankfort Avenue

Collection Date/Time: 11/13/2019 11:36

Field ID: G4NW0198

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2136210	EPA 180.1 Rev. 2.0	Turbidity	2.0		NTU	P374248	
	EPA 300.0 Rev. 2.1	Chloride	18		mg Cl/L	P374400	
		Sulfate	11		mg SO4/L	P374403	
	SM 2120 B	Color (true)	72	A	PCU	P374266	
	SM 2320 B-97	Total Alkalinity	0.65	U	mg CaCO3/L	P374495	
	SM 2540 C-97	TDS	69		mg/L	P374860	
	SM 2540 D-97	TSS	2	I	mg/L	P374852	
	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P374500	
	EPA 350.1 Rev. 2.0	Ammonia-N	0.020		mg N/L	P374463	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.41		mg N/L	P374609	
2136211	EPA 353.2 Rev. 2.0	NO2NO3-N	0.042		mg N/L	P374286	
	EPA 365.1 Rev. 2.0	Total-P	0.006		mg P/L	P374579	
	SM 5310 B-00	Organic Carbon	14		mg C/L	P374356	
	EPA 365.1 Rev. 2.0	O-Phosphate-P	0.004	U	mg P/L	P374277	
	dissolved						

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: Discharge from Tiger Point Golf Course at
 Maplewood Drive**

Collection Date/Time: 11/13/2019 12:10

Field ID: G4NW0211

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2136213	EPA 180.1 Rev. 2.0	Turbidity	2.2	A	NTU	P374249	
	EPA 300.0	Bromide	0.066		mg Br/L	P375025	
	SM 2320 B-97	Total Alkalinity	29		mg CaCO3/L	P374495	
	SM 2540 D-97	TSS	2	U	mg/L	P374856	
	SM 4500 F-C-97	Fluoride	0.042	I	mg F/L	P374500	
2136215	EPA 350.1 Rev. 2.0	Ammonia-N	0.42		mg N/L	P374463	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.0		mg N/L	P374609	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.10		mg N/L	P374286	
	EPA 365.1 Rev. 2.0	Total-P	0.15		mg P/L	P374958	
	SM 5310 B-00	Organic Carbon	14		mg C/L	P374356	
2136217	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.11		mg P/L	P374277	

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: Discharge from Tiger Point Golf Course at
 Maplewood Drive**

Collection Date/Time: 11/13/2019 12:18

Field ID: G4NW0211_DUP

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2136214	EPA 180.1 Rev. 2.0	Turbidity	2.0		NTU	P374249	
	EPA 300.0	Bromide	0.067		mg Br/L	P375025	
	SM 2320 B-97	Total Alkalinity	29		mg CaCO3/L	P374495	
	SM 2540 D-97	TSS	2	I	mg/L	P374856	
	SM 4500 F-C-97	Fluoride	0.042	I	mg F/L	P374500	
2136216	EPA 350.1 Rev. 2.0	Ammonia-N	0.41		mg N/L	P374463	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.98		mg N/L	P374609	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.10		mg N/L	P374286	
	EPA 365.1 Rev. 2.0	Total-P	0.14		mg P/L	P374958	
	SM 5310 B-00	Organic Carbon	13		mg C/L	P374356	
2136218	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.12		mg P/L	P374277	

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: Discharge from Tiger Point Golf Course at
Maplewood Drive**

Collection Date/Time: 11/13/2019 12:25

Field ID: FB_13112019

Matrix: W-FIELD-BK

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2136219	EPA 180.1 Rev. 2.0	Turbidity	0.10	U	NTU	P374249	
	EPA 300.0	Bromide	0.013	U	mg Br/L	P375025	
	EPA 300.0 Rev. 2.1	Chloride	0.20	U	mg Cl/L	P374400	
		Sulfate	0.20	U	mg SO4/L	P374403	
	SM 2120 B	Color (true)	2.5	U	PCU	P374266	
	SM 2320 B-97	Total Alkalinity	0.65	U	mg CaCO3/L	P374495	
	SM 2540 C-97	TDS	15	U	mg/L	P374860	
	SM 2540 D-97	TSS	2	U	mg/L	P374852	
	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P374500	
	EPA 350.1 Rev. 2.0	Ammonia-N	0.002	U	mg N/L	P374464	
2136220	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.080	U	mg N/L	P374609	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P374286	
	EPA 365.1 Rev. 2.0	Total-P	0.002	U	mg P/L	P374579	
	SM 5310 B-00	Organic Carbon	0.50	U	mg C/L	P374356	
	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P374277	
2136221	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P374277	

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: P374248

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P374249

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 300.0
Batch ID: P375025

Component	Result	Code	Units
Bromide	0.013	U	mg Br/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P374400

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P374403

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P374463

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P374464

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P374609

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P374286

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

Quality Assurance Report Method Blank Results

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P374579

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P374958

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P374277

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

Reference Method: SM 2120 B
Batch ID: P374266

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2320 B-97
Batch ID: P374495

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

Reference Method: SM 2540 C-97
Batch ID: P374860

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P374852

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P374856

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500 F-C-97
Batch ID: P374500

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: P374356

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: P375025

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P374400

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P374403

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P374463

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P374464

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P374609

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P374286

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: P374579

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: P374958

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

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P374277

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

Reference Method: SM 2120 B
Batch ID: P374266

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

Reference Method: SM 2320 B-97
Batch ID: P374495

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	101		P	98 - 106

Reference Method: SM 4500 F-C-97
Batch ID: P374500

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	98.6		P	92 - 103

Reference Method: SM 5310 B-00
Batch ID: P374356

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: P375025

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2136213	Bromide	92.6	93.5	P/P	90 - 110
2136214	Bromide	92.7		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P374400

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2136190	Chloride	98.2		P	90 - 110
2136427	Chloride	99.9		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P374403

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2136190	Sulfate	97.2		P	90 - 110
2136427	Sulfate	99.3		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P374463

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2136211	Ammonia-N	100	100	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P374464

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2136227	Ammonia-N	99.5	97.8	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P374609

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2136211	Kjeldahl Nitrogen	95.3	97.3	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P374286

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2136191	NO2NO3-N	102	101	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P374579

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2136191	Total-P	104	109	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P374958

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2137368	Total-P	98.1	100	P/P	90 - 110

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P374277

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2136104	O-Phosphate-P	96.0	97.2	P/P	90 - 110

Reference Method: SM 4500 F-C-97
Batch ID: P374500

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2136193	Fluoride	99.4	99.4	P/P	89 - 106

Reference Method: SM 5310 B-00
Batch ID: P374356

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2136194	Organic Carbon	102	103	P/P	85 - 115

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P374248

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2136190	Turbidity	0.899	Sample	P	0 - 20

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P374249

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2136213	Turbidity	1.39	Sample	P	0 - 20

Reference Method: EPA 300.0
Batch ID: P375025

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2136213	Bromide	0.791	Spike	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P374400

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2136190	Chloride	0.582	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P374403

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2136190	Sulfate	0.327	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P374463

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2136211	Ammonia-N	0.200	Spike	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P374464

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2136227	Ammonia-N	1.74	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P374609

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2136211	Kjeldahl Nitrogen	1.54	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P374286

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2136191	NO2NO3-N	0.494	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P374579

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2136191	Total-P	4.22	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P374958

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2137368	Total-P	1.66	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P374277

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2136104	O-Phosphate-P	1.16	Spike	P	0 - 20

Reference Method: SM 2120 B
Batch ID: P374266

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2136210	Color (true)	0.885	Sample	P	0 - 20

Reference Method: SM 2320 B-97
Batch ID: P374495

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2136193	Total Alkalinity	0.393	Sample	P	0 - 2.8

Reference Method: SM 2540 C-97
Batch ID: P374860

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2136193	TDS	4.35	Sample	P	0 - 10

Reference Method: SM 4500 F-C-97
Batch ID: P374500

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2136193	Fluoride	0.0	Spike	P	0 - 2.5

Quality Assurance Report Precision

Reference Method: SM 5310 B-00
Batch ID: P374356

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2136194	Organic Carbon	0.218	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: A95743

Included Lab Sample IDs: 2136210, 2136213, 2136214, 2136219

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Turbidity	100	100	P/P	95 - 105
Turbidity	98.5	100	P/P	95 - 105

Reference Method: SM 2120 B

Run ID: A95748

Included Lab Sample IDs: 2136210, 2136219

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	102	102	P/P	90 - 115

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A95752

Included Lab Sample IDs: 2136211, 2136215, 2136216, 2136220

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved

Run ID: A95753

Included Lab Sample IDs: 2136212, 2136217, 2136218, 2136221

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	99.7	97.9	P/P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1

Run ID: A95765

Included Lab Sample IDs: 2136210, 2136219

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

Reference Method: SM 5310 B-00

Run ID: A95788

Included Lab Sample IDs: 2136211, 2136215, 2136216, 2136220

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

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A95834

Included Lab Sample IDs: 2136211, 2136215, 2136216, 2136220

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	99.4	99.9	P/P	90 - 110
Ammonia-N	99.7	99.4	P/P	90 - 110
Ammonia-N	99.9	99.6	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: SM 2320 B-97

Run ID: A95843

Included Lab Sample IDs: 2136210, 2136213, 2136214, 2136219

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

Reference Method: SM 4500 F-C-97

Run ID: A95843

Included Lab Sample IDs: 2136210, 2136213, 2136214, 2136219

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

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A95908

Included Lab Sample IDs: 2136211, 2136215, 2136216, 2136220

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	103	95.4	P/P	90 - 110
Kjeldahl Nitrogen	97.2	103	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A95945

Included Lab Sample IDs: 2136220

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

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A95989

Included Lab Sample IDs: 2136211

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

Reference Method: EPA 300.0

Run ID: A96041

Included Lab Sample IDs: 2136213, 2136214, 2136219

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Bromide	97.9	98.2	P/P	90 - 110
Bromide	98.2	98.0	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A96048

Included Lab Sample IDs: 2136215, 2136216

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	101	99.9	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					0.899	
	Turbidity					1.39	
EPA 300.0	Bromide	96.3	92.6	93.5	92.7		0.791
EPA 300.0 Rev. 2.1	Chloride	100	98.2	99.9		0.582	
	Sulfate	100	97.2	99.3		0.327	
EPA 350.1 Rev. 2.0	Ammonia-N	98.4	100	100			0.200
	Ammonia-N	98.7	99.5	97.8			1.74
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	108	95.3	97.3			1.54
EPA 353.2 Rev. 2.0	NO ₂ NO ₃ -N	102	102	101			0.494
EPA 365.1 Rev. 2.0	Total-P	103	104	109			4.22
	Total-P	102	98.1	100			1.66
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	102	96.0	97.2			1.16
SM 2120 B	Color (true)	101				0.885	
SM 2320 B-97	Total Alkalinity	101				0.393	
SM 2540 C-97	TDS					4.35	
SM 4500 F-C-97	Fluoride	98.6	99.4	99.4			0.0
SM 5310 B-00	Organic Carbon	103	102	103			0.218

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	2136210, 2136213, 2136214, 2136219
EPA 300.0 / E31780	Bromide in aqueous matrices	2136213, 2136214, 2136219
EPA 300.0 Rev. 2.1 / E31780	Chloride in aqueous matrices	2136210, 2136219
EPA 300.0 Rev. 2.1 / E31780	Sulfate in aqueous matrices	2136210, 2136219
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	2136211, 2136215, 2136216, 2136220
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	2136211, 2136215, 2136216, 2136220
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	2136211, 2136215, 2136216, 2136220
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	2136211, 2136215, 2136216, 2136220
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	2136212, 2136217, 2136218, 2136221
SM 2120 B / E31780	True Color measured at 450 nm	2136210, 2136219
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO ₃ /L	2136210, 2136213, 2136214, 2136219
SM 2540 C-97 / E31780	Total Dissolved Solids in aqueous matrices	2136210, 2136219
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices using a maximum of 250 mL of sample	2136210, 2136213, 2136214, 2136219
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	2136210, 2136213, 2136214, 2136219
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	2136211, 2136215, 2136216, 2136220

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	11/14/2019			11/14/2019 17:30	Blanca Fach	2136210, 2136213, 2136214, 2136219
EPA 300.0	11/14/2019			11/27/2019 07:00	Julia Storbeck	2136213
	11/14/2019			11/27/2019 07:52	Julia Storbeck	2136214
	11/14/2019			11/27/2019 11:17	Julia Storbeck	2136219
EPA 300.0 Rev. 2.1	11/14/2019			11/18/2019 22:36	Lipi Saha	2136210
	11/14/2019			11/18/2019 22:48	Lipi Saha	2136219
EPA 350.1 Rev. 2.0	11/14/2019			11/19/2019 12:39	Ping Hua	2136211
	11/14/2019			11/19/2019 12:58	Ping Hua	2136215
	11/14/2019			11/19/2019 13:00	Ping Hua	2136216
	11/14/2019			11/19/2019 13:27	Ping Hua	2136220
EPA 351.2 Rev. 2.0	11/14/2019	11/21/2019 12:36	Sima Feizi	11/22/2019 13:27	Jhamieka S. Greenwood	2136211
	11/14/2019	11/21/2019 12:36	Sima Feizi	11/22/2019 13:36	Jhamieka S. Greenwood	2136215
	11/14/2019	11/21/2019 12:36	Sima Feizi	11/22/2019 13:38	Jhamieka S. Greenwood	2136216
	11/14/2019	11/21/2019 12:36	Sima Feizi	11/22/2019 13:39	Jhamieka S. Greenwood	2136220
EPA 353.2 Rev. 2.0	11/14/2019			11/15/2019 09:29	Beverly Y. Sanders	2136211
	11/14/2019			11/15/2019 09:30	Beverly Y. Sanders	2136215
	11/14/2019			11/15/2019 09:31	Beverly Y. Sanders	2136216
	11/14/2019			11/15/2019 09:32	Beverly Y. Sanders	2136220
EPA 365.1 Rev. 2.0	11/14/2019	11/21/2019 13:00	Yen Ta	11/25/2019 14:29	Benjamin T. Nordmann	2136220
	11/14/2019	11/21/2019 13:00	Yen Ta	11/26/2019 15:13	Benjamin T. Nordmann	2136211
	11/14/2019	11/27/2019 13:48	Yen Ta	12/02/2019 13:58	Benjamin T. Nordmann	2136215
	11/14/2019	11/27/2019 13:48	Yen Ta	12/02/2019 14:00	Benjamin T. Nordmann	2136216
EPA 365.1 Rev. 2.0 dissolved	11/14/2019			11/14/2019 16:33	Samantha Davila	2136212
	11/14/2019			11/14/2019 16:34	Samantha Davila	2136217
	11/14/2019			11/14/2019 16:35	Samantha Davila	2136218
	11/14/2019			11/14/2019 16:36	Samantha Davila	2136221
SM 2120 B	11/14/2019			11/14/2019 16:33	Madeline Funaro	2136210
	11/14/2019			11/14/2019 16:34	Madeline Funaro	2136219
SM 2320 B-97	11/14/2019			11/16/2019 10:42	Dale L. Simmons	2136210
	11/14/2019			11/16/2019 10:54	Dale L. Simmons	2136213
	11/14/2019			11/16/2019 11:05	Dale L. Simmons	2136214
	11/14/2019			11/16/2019 11:16	Dale L. Simmons	2136219
SM 2540 C-97	11/14/2019			11/19/2019 15:21	Yijie Li	2136210, 2136219
SM 2540 D-97	11/14/2019			11/19/2019 15:21	Yijie Li	2136210, 2136213, 2136214, 2136219
SM 4500 F-C-97	11/14/2019			11/16/2019 10:42	Dale L. Simmons	2136210
	11/14/2019			11/16/2019 10:54	Dale L. Simmons	2136213
	11/14/2019			11/16/2019 11:05	Dale L. Simmons	2136214
	11/14/2019			11/16/2019 11:16	Dale L. Simmons	2136219
SM 5310 B-00	11/14/2019			11/15/2019 23:32	Lauren Lees	2136211
	11/14/2019			11/15/2019 23:44	Lauren Lees	2136215

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
SM 5310 B-00	11/14/2019			11/15/2019 23:56	Lauren Lees	2136216
	11/14/2019			11/16/2019 00:37	Lauren Lees	2136220