

Chemical Analysis Report

NE-DIST-2019-11-19-01

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

Event Description: **LSJR South West Boat**
Request ID: **RQ-2019-11-18-13**
Customer: **NE-DIST**
Project ID: **SMP**

Send Reports to:
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8800 Baymeadows Way West
Suite 100
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Date Certified: 06-DEC-2019 09:53



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: Black CR @ RR Bridge Below Mill Log CR

Collection Date/Time: 11/18/2019 10:25

Field ID: 20030204

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2137041	EPA 180.1 Rev. 2.0	Turbidity	2.4	A	NTU	P374454	
	EPA 300.0 Rev. 2.1	Chloride	11		mg Cl/L	P375156	
		Sulfate	6.1		mg SO4/L	P375160	
	SM 2120 B	Color (true)	170		PCU	P374468	
	SM 2320 B-97	Total Alkalinity	17		mg CaCO3/L	P374991	
	SM 2540 C-97	TDS	93		mg/L	P375013	
	SM 2540 D-97	TSS	2	I	mg/L	P375104	
	SM 4500 F-C-97	Fluoride	0.068	I	mg F/L	P374674	
	EPA 350.1 Rev. 2.0	Ammonia-N	0.014		mg N/L	P374720	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.54		mg N/L	P374767	
2137046	EPA 353.2 Rev. 2.0	NO2NO3-N	0.029		mg N/L	P374484	
	EPA 365.1 Rev. 2.0	Total-P	0.073		mg P/L	P374912	
	SM 5310 B-00	Organic Carbon	17		mg C/L	P374642	
	EPA 365.1 Rev. 2.0	O-Phosphate-P	0.051		mg P/L	P374447	
	dissolved						
2137051	EPA 365.1 Rev. 2.0	O-Phosphate-P	0.051		mg P/L	P374447	

Ref. Method and Comment:

EPA 300.0 Rev. 2.1: Sulfate: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample.

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

Sample Location: Mill Log CR Downstream of Test Site

Collection Date/Time: 11/18/2019 10:05

Field ID: 20030304

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2137042	EPA 180.1 Rev. 2.0	Turbidity	1.6		NTU	P374454	
	EPA 300.0 Rev. 2.1	Chloride	14		mg Cl/L	P375156	
		Sulfate	5.8		mg SO4/L	P375160	
	SM 2120 B	Color (true)	180		PCU	P374468	
	SM 2320 B-97	Total Alkalinity	20		mg CaCO3/L	P374991	
	SM 2540 C-97	TDS	86		mg/L	P375013	
	SM 2540 D-97	TSS	2	U	mg/L	P375104	
	SM 4500 F-C-97	Fluoride	0.087	I	mg F/L	P374674	
2137047	EPA 350.1 Rev. 2.0	Ammonia-N	0.009		mg N/L	P374720	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.56		mg N/L	P374767	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.013		mg N/L	P374484	
	EPA 365.1 Rev. 2.0	Total-P	0.075		mg P/L	P374912	
	SM 5310 B-00	Organic Carbon	18		mg C/L	P374642	
2137052	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.053		mg P/L	P374447	

Ref. Method and Comment:

EPA 300.0 Rev. 2.1: Sulfate: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample.

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

Sample Location: South fork Black creek upstream of North Fork Black CR **Collection Date/Time:** 11/18/2019 11:50

Field ID: G2NE1127

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2137043	EPA 180.1 Rev. 2.0	Turbidity	4.0		NTU	P374454	
	EPA 300.0 Rev. 2.1	Chloride	11		mg Cl/L	P375156	
		Sulfate	5.0		mg SO4/L	P375160	
	SM 2120 B	Color (true)	160		PCU	P374468	
	SM 2320 B-97	Total Alkalinity	6.5		mg CaCO3/L	P374991	
	SM 2540 C-97	TDS	76		mg/L	P375013	
	SM 2540 D-97	TSS	3	I	mg/L	P375104	
	SM 4500 F-C-97	Fluoride	0.067	I	mg F/L	P374674	
2137048	EPA 350.1 Rev. 2.0	Ammonia-N	0.009		mg N/L	P374720	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.48		mg N/L	P374768	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.093		mg N/L	P374484	
	EPA 365.1 Rev. 2.0	Total-P	0.11		mg P/L	P374912	
	SM 5310 B-00	Organic Carbon	17		mg C/L	P374642	
2137053	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.079		mg P/L	P374447	

Ref. Method and Comment:

EPA 300.0 Rev. 2.1: Sulfate: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample.

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

Sample Location: Little Black Creek 200m above mouth

Collection Date/Time: 11/18/2019 10:50

Field ID: G2NE1184

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2137044	EPA 180.1 Rev. 2.0	Turbidity	1.8		NTU	P374454	
	EPA 300.0 Rev. 2.1	Chloride	16		mg Cl/L	P375156	
		Sulfate	6.7		mg SO4/L	P375160	
	SM 2120 B	Color (true)	140		PCU	P374468	
	SM 2320 B-97	Total Alkalinity	25		mg CaCO3/L	P374991	
	SM 2540 C-97	TDS	93		mg/L	P375013	
	SM 2540 D-97	TSS	2	I	mg/L	P375104	
	SM 4500 F-C-97	Fluoride	0.061	I	mg F/L	P374674	
2137049	EPA 350.1 Rev. 2.0	Ammonia-N	0.009		mg N/L	P374720	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.58		mg N/L	P374768	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.011		mg N/L	P374484	
	EPA 365.1 Rev. 2.0	Total-P	0.045		mg P/L	P374912	
	SM 5310 B-00	Organic Carbon	16		mg C/L	P374642	
2137054	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.026		mg P/L	P374447	

Ref. Method and Comment:

EPA 300.0 Rev. 2.1: Sulfate: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample.

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

Sample Location: Grog branch 150m above mouth

Collection Date/Time: 11/18/2019 11:30

Field ID: G2NE1185

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2137045	EPA 180.1 Rev. 2.0	Turbidity	6.5		NTU	P374454	
	EPA 300.0 Rev. 2.1	Chloride	12		mg Cl/L	P375156	
		Sulfate	8.0		mg SO4/L	P375160	
	SM 2120 B	Color (true)	210		PCU	P374468	
	SM 2320 B-97	Total Alkalinity	13		mg CaCO3/L	P374991	
	SM 2540 C-97	TDS	101		mg/L	P375013	
	SM 2540 D-97	TSS	3	I	mg/L	P375104	
	SM 4500 F-C-97	Fluoride	0.052	I	mg F/L	P374674	
2137050	EPA 350.1 Rev. 2.0	Ammonia-N	0.009		mg N/L	P374721	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.67		mg N/L	P374768	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.031		mg N/L	P374484	
	EPA 365.1 Rev. 2.0	Total-P	0.062		mg P/L	P374912	
	SM 5310 B-00	Organic Carbon	24		mg C/L	P374642	
2137055	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.034		mg P/L	P374447	

Ref. Method and Comment:

EPA 300.0 Rev. 2.1: Sulfate: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample.

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: P374454

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P375156

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P375160

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P374720

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P374721

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P374767

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P374768

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P374484

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P374912

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 dissolved
Batch ID: P374447

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

Reference Method: SM 2120 B
Batch ID: P374468

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2320 B-97
Batch ID: P374991

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

Reference Method: SM 2540 C-97
Batch ID: P375013

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P375104

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500 F-C-97
Batch ID: P374674

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-00
Batch ID: P374642

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

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P375156

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P375160

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Sulfate	99.6		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P374720

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P374721

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P374767

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P374768

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P374484

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P374912

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P374447

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

Quality Assurance Report

Laboratory Control Sample Accuracy

Reference Method: SM 2120 B
Batch ID: P374468

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

Reference Method: SM 2320 B-97
Batch ID: P374991

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

Reference Method: SM 4500 F-C-97
Batch ID: P374674

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	94.2		P	92 - 103

Reference Method: SM 5310 B-00
Batch ID: P374642

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

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P375156

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2136953	Chloride	102		P	90 - 110
2137146	Chloride	99.5		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P375160

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2136953	Sulfate	101		P	90 - 110
2137146	Sulfate	101		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P374720

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2136963	Ammonia-N	99.7	101	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P374721

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2137147	Ammonia-N	99.0	99.6	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P374767

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2136979	Kjeldahl Nitrogen	103	100	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P374768

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2137156	Kjeldahl Nitrogen	99.7	98.2	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P374484

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2136963	NO2NO3-N	101	101	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P374912

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2136983	Total-P	102	105	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P374447

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2136965	O-Phosphate-P	100	100	P/P	90 - 110

Quality Assurance Report Matrix Spike Accuracy

Reference Method: SM 4500 F-C-97
Batch ID: P374674

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2136908	Fluoride	94.4	95.0	P/P	89 - 106

Reference Method: SM 5310 B-00
Batch ID: P374642

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2136915	Organic Carbon	104	105	P/P	85 - 115

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P374454

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2137041	Turbidity	3.29	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P375156

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2136953	Chloride	2.77	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P374720

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2136963	Ammonia-N	1.18	Spike	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P374721

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2137147	Ammonia-N	0.433	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P374767

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2136979	Kjeldahl Nitrogen	1.28	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P374768

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2137156	Kjeldahl Nitrogen	0.830	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P374484

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2136963	NO2NO3-N	0.0	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P374912

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2136983	Total-P	2.11	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 365.1 Rev. 2.0 dissolved
 Batch ID: P374447

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2136965	O-Phosphate-P	0.399	Spike	P	0 - 20

Reference Method: SM 2120 B
 Batch ID: P374468

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2136981	Color (true)	0.0219	Sample	P	0 - 20

Reference Method: SM 2320 B-97
 Batch ID: P374991

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2136909	Total Alkalinity	0.581	Sample	P	0 - 2.8

Reference Method: SM 2540 C-97
 Batch ID: P375013

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2137146	TDS	5.31	Sample	P	0 - 10

Reference Method: SM 4500 F-C-97
 Batch ID: P374674

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2136908	Fluoride	0.487	Spike	P	0 - 2.5

Reference Method: SM 5310 B-00
 Batch ID: P374642

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2136915	Organic Carbon	0.335	Spike	P	0 - 20

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

Quality Assurance Report Calibration Verification

Reference Method: EPA 365.1 Rev. 2.0 dissolved

Run ID: A95827

Included Lab Sample IDs: 2137051, 2137052, 2137053, 2137054, 2137055

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	100	99.8	P/P	90 - 110
O-Phosphate-P	101	100	P/P	90 - 110

Reference Method: EPA 180.1 Rev. 2.0

Run ID: A95832

Included Lab Sample IDs: 2137041, 2137042, 2137043, 2137044, 2137045

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

Reference Method: SM 2120 B

Run ID: A95836

Included Lab Sample IDs: 2137041, 2137042, 2137043, 2137044, 2137045

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	102	103	P/P	90 - 115
Color (true)	102	102	P/P	90 - 115
Color (true)	103	105	P/P	90 - 115

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A95842

Included Lab Sample IDs: 2137046, 2137047, 2137048, 2137049, 2137050

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

Reference Method: SM 5310 B-00

Run ID: A95899

Included Lab Sample IDs: 2137046, 2137047, 2137048, 2137049, 2137050

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	106	108	P/P	90 - 110

Reference Method: SM 4500 F-C-97

Run ID: A95902

Included Lab Sample IDs: 2137041, 2137042, 2137043, 2137044, 2137045

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	96.6	97.1	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A95920

Included Lab Sample IDs: 2137046, 2137047, 2137048, 2137049, 2137050

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	101	101	P/P	90 - 110
Ammonia-N	101	99.8	P/P	90 - 110
Ammonia-N	99.7	100	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A95977

Included Lab Sample IDs: 2137046, 2137047, 2137048, 2137049, 2137050

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	99.1	98.4	P/P	90 - 110
Kjeldahl Nitrogen	100	99.1	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A96009

Included Lab Sample IDs: 2137046, 2137047, 2137048, 2137050

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	101	99.8	P/P	90 - 110
Total-P	99.8	99.0	P/P	90 - 110

Reference Method: SM 2320 B-97

Run ID: A96025

Included Lab Sample IDs: 2137041, 2137042, 2137043, 2137044, 2137045

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	101	104	P/P	90 - 110
Total Alkalinity	104	103	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A96030

Included Lab Sample IDs: 2137049

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

Reference Method: EPA 300.0 Rev. 2.1

Run ID: A96087

Included Lab Sample IDs: 2137041, 2137042, 2137043, 2137044, 2137045

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

* Pass/Fail determinations are made for each bracketing calibration verification check.

Control limits for initial calibration checks may be different from those for continuing checks, depending on method requirements.
Where they are different, both control limits are provided.

Quality Assurance Report Summary

Ref. Method	Analyte	LCS % Recovery	MS % Recovery		Precision	
					LCS	MS
EPA 180.1 Rev. 2.0	Turbidity				3.29	
EPA 300.0 Rev. 2.1	Chloride	102	102	99.5	2.77	
	Sulfate	99.6	101	101		
EPA 350.1 Rev. 2.0	Ammonia-N	99.5	99.7	101		1.18
	Ammonia-N	101	99.0	99.6		0.433
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	100	103	100		1.28
	Kjeldahl Nitrogen	102	99.7	98.2		0.830
EPA 353.2 Rev. 2.0	NO ₂ NO ₃ -N	101	101	101		0.0
EPA 365.1 Rev. 2.0	Total-P	102	102	105		2.11
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	104	100	100		0.399
SM 2120 B	Color (true)	101			0.0219	
SM 2320 B-97	Total Alkalinity	104			0.581	
SM 2540 C-97	TDS				5.31	
SM 4500 F-C-97	Fluoride	94.2	94.4	95.0		0.487
SM 5310 B-00	Organic Carbon	102	104	105		0.335

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	2137041, 2137042, 2137043, 2137044, 2137045
EPA 300.0 Rev. 2.1 / E31780	Chloride in aqueous matrices	2137041, 2137042, 2137043, 2137044, 2137045
EPA 300.0 Rev. 2.1 / E31780	Sulfate in aqueous matrices	2137041, 2137042, 2137043, 2137044, 2137045
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	2137046, 2137047, 2137048, 2137049, 2137050
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	2137046, 2137047, 2137048, 2137049, 2137050
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	2137046, 2137047, 2137048, 2137049, 2137050
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	2137046, 2137047, 2137048, 2137049, 2137050
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	2137051, 2137052, 2137053, 2137054, 2137055
SM 2120 B / E31780	True Color measured at 450 nm	2137041, 2137042, 2137043, 2137044, 2137045
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO ₃ /L	2137041, 2137042, 2137043, 2137044, 2137045
SM 2540 C-97 / E31780	Total Dissolved Solids in aqueous matrices	2137041, 2137042, 2137043, 2137044, 2137045
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices using a maximum of 250 mL of sample	2137041, 2137042, 2137043, 2137044, 2137045
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	2137041, 2137042, 2137043, 2137044, 2137045
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	2137046, 2137047, 2137048, 2137049, 2137050

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	11/19/2019			11/19/2019 16:22	Samantha Davila	2137041, 2137042, 2137043, 2137044, 2137045
EPA 300.0 Rev. 2.1	11/19/2019			12/03/2019 02:08	Lipi Saha	2137041
	11/19/2019			12/03/2019 02:44	Lipi Saha	2137042
	11/19/2019			12/03/2019 02:56	Lipi Saha	2137043
	11/19/2019			12/03/2019 03:08	Lipi Saha	2137044
	11/19/2019			12/03/2019 03:20	Lipi Saha	2137045
EPA 350.1 Rev. 2.0	11/19/2019			11/22/2019 11:12	Ping Hua	2137047
	11/19/2019			11/22/2019 11:13	Ping Hua	2137048
	11/19/2019			11/22/2019 11:15	Ping Hua	2137049
	11/19/2019			11/22/2019 11:30	Ping Hua	2137050
	11/19/2019			11/22/2019 13:50	Ping Hua	2137046
EPA 351.2 Rev. 2.0	11/19/2019	11/25/2019 11:47	Sima Feizi	11/26/2019 15:47	Jhamieka S. Greenwood	2137046
	11/19/2019	11/25/2019 11:47	Sima Feizi	11/26/2019 15:48	Jhamieka S. Greenwood	2137047
	11/19/2019	11/25/2019 11:47	Sima Feizi	11/26/2019 16:01	Jhamieka S. Greenwood	2137048
	11/19/2019	11/25/2019 11:47	Sima Feizi	11/26/2019 16:03	Jhamieka S. Greenwood	2137049
	11/19/2019	11/25/2019 11:47	Sima Feizi	11/26/2019 16:04	Jhamieka S. Greenwood	2137050
EPA 353.2 Rev. 2.0	11/19/2019			11/20/2019 09:45	Beverly Y. Sanders	2137046
	11/19/2019			11/20/2019 09:46	Beverly Y. Sanders	2137047
	11/19/2019			11/20/2019 09:47	Beverly Y. Sanders	2137048
	11/19/2019			11/20/2019 09:49	Beverly Y. Sanders	2137049
	11/19/2019			11/20/2019 09:50	Beverly Y. Sanders	2137050
EPA 365.1 Rev. 2.0	11/19/2019	11/26/2019 14:09	Yen Ta	11/27/2019 12:05	Benjamin T. Nordmann	2137046
	11/19/2019	11/26/2019 14:09	Yen Ta	11/27/2019 12:06	Benjamin T. Nordmann	2137047
	11/19/2019	11/26/2019 14:09	Yen Ta	11/27/2019 12:08	Benjamin T. Nordmann	2137048
	11/19/2019	11/26/2019 14:09	Yen Ta	11/27/2019 12:12	Benjamin T. Nordmann	2137050
	11/19/2019	11/26/2019 14:09	Yen Ta	11/27/2019 14:23	Benjamin T. Nordmann	2137049
EPA 365.1 Rev. 2.0 dissolved	11/19/2019			11/19/2019 14:15	Lipi Saha	2137051
	11/19/2019			11/19/2019 14:16	Lipi Saha	2137052
	11/19/2019			11/19/2019 14:17	Lipi Saha	2137053
	11/19/2019			11/19/2019 14:18	Lipi Saha	2137054
	11/19/2019			11/19/2019 14:23	Lipi Saha	2137055
SM 2120 B	11/19/2019			11/19/2019 15:58	Blanca Fach	2137044
	11/19/2019			11/19/2019 16:13	Blanca Fach	2137041
	11/19/2019			11/19/2019 16:14	Blanca Fach	2137042
	11/19/2019			11/19/2019 16:20	Blanca Fach	2137043
	11/19/2019			11/19/2019 16:21	Blanca Fach	2137045
SM 2320 B-97	11/19/2019			11/27/2019 23:36	Dale L. Simmons	2137041
	11/19/2019			11/27/2019 23:46	Dale L. Simmons	2137042
	11/19/2019			11/27/2019 23:55	Dale L. Simmons	2137043

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
SM 2320 B-97	11/19/2019			11/28/2019 00:04	Dale L. Simmons	2137044
	11/19/2019			11/28/2019 00:41	Dale L. Simmons	2137045
SM 2540 C-97	11/19/2019			11/22/2019 15:46	Yijie Li	2137041, 2137042, 2137043, 2137044, 2137045
SM 2540 D-97	11/19/2019			11/22/2019 15:21	Yijie Li	2137041, 2137042, 2137043, 2137044, 2137045
SM 4500 F-C-97	11/19/2019			11/22/2019 04:37	Dale L. Simmons	2137041
	11/19/2019			11/22/2019 04:48	Dale L. Simmons	2137042
	11/19/2019			11/22/2019 04:58	Dale L. Simmons	2137043
	11/19/2019			11/22/2019 05:10	Dale L. Simmons	2137044
	11/19/2019			11/22/2019 05:20	Dale L. Simmons	2137045
SM 5310 B-00	11/19/2019			11/21/2019 18:44	Lauren Lees	2137046
	11/19/2019			11/21/2019 18:58	Lauren Lees	2137047
	11/19/2019			11/21/2019 19:13	Lauren Lees	2137048
	11/19/2019			11/21/2019 19:25	Lauren Lees	2137049
	11/19/2019			11/21/2019 19:39	Lauren Lees	2137050