

Chemical Analysis Report

TLH-ROC-2019-10-30-01

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

Event Description: **Run 6**
Request ID: **RQ-2019-09-30-08**
Customer: **TLH-ROC**
Project ID: **SMP**

Send Reports to:
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Certified by: Thekkekalathil Chandrasekhar, Chemist Administrator

Date Certified: 22-NOV-2019 09:29



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: SANDY BRANCH @ SR22

Collection Date/Time: 10/30/2019 11:15

Field ID: G3TLHR0027

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2132614	EPA 180.1 Rev. 2.0	Turbidity	2.7		NTU	P373528	
	EPA 300.0 Rev. 2.1	Chloride	2.8		mg Cl/L	P374074	
		Sulfate	8.4		mg SO4/L	P374079	
	SM 2120 B	Color (true)	78		PCU	P373533	
	SM 2320 B-97	Total Alkalinity	0.65	U	mg CaCO3/L	P373970	
	SM 2540 C-97	TDS	45		mg/L	P374016	
	SM 2540 D-97	TSS	3	I	mg/L	P374012	
	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P373973	
2132615	EPA 350.1 Rev. 2.0	Ammonia-N	0.17		mg N/L	P373637	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.80		mg N/L	P373808	
	EPA 353.2 Rev. 2.0	NO2NO3-N	1.4		mg N/L	P373564	
	EPA 365.1 Rev. 2.0	Total-P	0.014		mg P/L	P373919	
	SM 5310 B-00	Organic Carbon	18		mg C/L	P373546	
2132616	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P373548	

Sample Location: PARKER CREEK @ PARK

Collection Date/Time: 10/30/2019 11:50

Field ID: G3TLHR0040

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2132617	EPA 180.1 Rev. 2.0	Turbidity	14		NTU	P373528	
	EPA 300.0 Rev. 2.1	Chloride	8.2		mg Cl/L	P374074	
		Sulfate	15		mg SO4/L	P374079	
	SM 2120 B	Color (true)	69		PCU	P373533	
	SM 2320 B-97	Total Alkalinity	34		mg CaCO3/L	P373970	
	SM 2540 C-97	TDS	91		mg/L	P374016	
	SM 2540 D-97	TSS	6	I	mg/L	P374012	
	SM 4500 F-C-97	Fluoride	0.059	I	mg F/L	P373973	
2132619	EPA 350.1 Rev. 2.0	Ammonia-N	0.11		mg N/L	P373637	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.61		mg N/L	P373808	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.11		mg N/L	P373564	
	EPA 365.1 Rev. 2.0	Total-P	0.048		mg P/L	P373919	
	SM 5310 B-00	Organic Carbon	10		mg C/L	P373546	
2132621	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.014		mg P/L	P373548	

Sample Location: Bayou George

Collection Date/Time: 10/30/2019 12:20

Field ID: G3TLHR0030

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2132618	EPA 180.1 Rev. 2.0	Turbidity	10	A	NTU	P373529	
	EPA 300.0 Rev. 2.1	Chloride	6.1		mg Cl/L	P374074	
		Sulfate	4.9		mg SO4/L	P374079	
	SM 2120 B	Color (true)	150	A	PCU	P373534	
	SM 2320 B-97	Total Alkalinity	13		mg CaCO3/L	P373970	
	SM 2540 C-97	TDS	58		mg/L	P374016	
	SM 2540 D-97	TSS	3	I	mg/L	P374012	
	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P373973	
2132620	EPA 350.1 Rev. 2.0	Ammonia-N	0.077		mg N/L	P373637	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.57		mg N/L	P373808	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.21		mg N/L	P373565	
	EPA 365.1 Rev. 2.0	Total-P	0.020		mg P/L	P373919	
	SM 5310 B-00	Organic Carbon	14		mg C/L	P373546	
2132622	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	I	mg P/L	P373549	

Sample Location: Equipment Blank

Collection Date/Time: 10/30/2019 12:30

Field ID: Equipment Blank

Matrix: W-EQPMT-BK

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2132623	EPA 180.1 Rev. 2.0	Turbidity	0.10	U	NTU	P373529	
	EPA 300.0 Rev. 2.1	Chloride	1.6		mg Cl/L	P374074	
		Sulfate	0.20	U	mg SO4/L	P374079	
	SM 2120 B	Color (true)	2.5	U	PCU	P373534	
	SM 2320 B-97	Total Alkalinity	0.65	U	mg CaCO3/L	P373971	
	SM 2540 C-97	TDS	15	U	mg/L	P374014	
	SM 2540 D-97	TSS	2	U	mg/L	P374010	
	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P373975	
	EPA 350.1 Rev. 2.0	Ammonia-N	0.002	U	mg N/L	P373637	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.080	U	mg N/L	P373809	
2132624	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P373565	
	EPA 365.1 Rev. 2.0	Total-P	0.013		mg P/L	P373919	
	SM 5310 B-00	Organic Carbon	0.91	I	mg C/L	P373546	
	EPA 365.1 Rev. 2.0	O-Phosphate-P	0.004	U	mg P/L	P373549	
	dissolved						

Ref. Method and Comment:

EPA 300.0 Rev. 2.1: Chloride: The result was confirmed on 11/14/2019.

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: Total-P: The result was confirmed on 11/18/2019.

SM 5310 B-00: The result was confirmed on 11/01/2019.

Quality Assurance Report Method Blank Results

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P373528

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P373529

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P374074

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P374079

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P373637

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P373808

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P373809

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P373564

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P373565

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: P373919

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P373548

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P373549

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

Reference Method: SM 2120 B
Batch ID: P373533

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2120 B
Batch ID: P373534

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2320 B-97
Batch ID: P373970

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

Reference Method: SM 2320 B-97
Batch ID: P373971

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

Reference Method: SM 2540 C-97
Batch ID: P374014

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 C-97
Batch ID: P374016

Component	Result	Code	Units
TDS	15	U	mg/L

Quality Assurance Report

Method Blank Results

Reference Method: SM 2540 D-97
Batch ID: P374010

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P374012

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500 F-C-97
Batch ID: P373973

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 4500 F-C-97
Batch ID: P373975

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-00
Batch ID: P373546

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: P374074

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Chloride	98.6		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P374079

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P373637

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Ammonia-N	98.8		P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P373808

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Kjeldahl Nitrogen	107		P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P373809

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: P373564

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
NO2NO3-N	98.5		P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P373565

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P373919

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P373548

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
O-Phosphate-P	98.2		P	90 - 110

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P373549

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

Reference Method: SM 2120 B
Batch ID: P373533

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Color (true)	98.4		P	85 - 115

Reference Method: SM 2120 B
Batch ID: P373534

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Color (true)	98.3		P	85 - 115

Reference Method: SM 2320 B-97
Batch ID: P373970

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	100		P	98 - 106

Reference Method: SM 2320 B-97
Batch ID: P373971

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	100		P	98 - 106

Reference Method: SM 4500 F-C-97
Batch ID: P373973

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	97.8		P	92 - 103

Reference Method: SM 4500 F-C-97
Batch ID: P373975

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	97.8		P	92 - 103

Reference Method: SM 5310 B-00
Batch ID: P373546

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: P374074

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2132547	Chloride	99.4	99.3	P/P	90 - 110
2132648	Chloride	98.9		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P374079

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2132547	Sulfate	99.5	99.0	P/P	90 - 110
2132648	Sulfate	99.3		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P373637

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2132608	Ammonia-N	96.7	100	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P373808

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2132554	Kjeldahl Nitrogen	101	103	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P373809

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2132692	Kjeldahl Nitrogen	103	107	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P373564

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2132534	NO2NO3-N	96.2		P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P373565

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2132620	NO2NO3-N	96.2		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P373919

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2132608	Total-P	101	96.4	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P373548

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2132535	O-Phosphate-P	102	96.0	P/P	90 - 110

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P373549

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2132712	O-Phosphate-P	96.6	97.2	P/P	90 - 110

Reference Method: SM 4500 F-C-97
Batch ID: P373973

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2132826	Fluoride	98.1	98.1	P/P	89 - 106

Reference Method: SM 4500 F-C-97
Batch ID: P373975

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2132775	Fluoride	100	97.6	P/P	89 - 106

Reference Method: SM 5310 B-00
Batch ID: P373546

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2132406	Organic Carbon	99.2	98.7	P/P	85 - 115

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P373528

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2132533	Turbidity	11.4	Sample	P	0 - 20

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P373529

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2132618	Turbidity	2.96	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P374074

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2132547	Chloride	0.0781	Spike	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P374079

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2132547	Sulfate	0.518	Spike	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P373637

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2132608	Ammonia-N	1.76	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P373808

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2132554	Kjeldahl Nitrogen	0.930	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P373809

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2132692	Kjeldahl Nitrogen	2.75	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P373564

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2132534	NO2NO3-N	0.0	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P373565

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2132620	NO2NO3-N	0.245	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P373919

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2132608	Total-P	3.50	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P373548

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2132535	O-Phosphate-P	3.45	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P373549

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2132712	O-Phosphate-P	0.494	Spike	P	0 - 20

Reference Method: SM 2120 B
Batch ID: P373533

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2132553	Color (true)	2.61	Sample	P	0 - 20

Reference Method: SM 2120 B
Batch ID: P373534

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2132618	Color (true)	0.665	Sample	P	0 - 20

Reference Method: SM 2320 B-97
Batch ID: P373970

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2132826	Total Alkalinity	0.298	Sample	P	0 - 2.8

Reference Method: SM 2320 B-97
Batch ID: P373971

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2132775	Total Alkalinity	0.249	Sample	P	0 - 2.8

Quality Assurance Report Precision

Reference Method: SM 2540 C-97
Batch ID: P374014

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2132190	TDS	3.47	Sample	P	0 - 10

Reference Method: SM 2540 C-97
Batch ID: P374016

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2132550	TDS	0.517	Sample	P	0 - 10

Reference Method: SM 2540 D-97
Batch ID: P374012

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2132550	TSS	2.67	Sample	P	0 - 10

Reference Method: SM 4500 F-C-97
Batch ID: P373973

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2132826	Fluoride	0.0	Spike	P	0 - 2.5

Reference Method: SM 4500 F-C-97
Batch ID: P373975

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2132775	Fluoride	1.99	Spike	P	0 - 2.5

Reference Method: SM 5310 B-00
Batch ID: P373546

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2132406	Organic Carbon	0.481	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: A95384

Included Lab Sample IDs: 2132614, 2132617, 2132618, 2132623

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

Reference Method: SM 2120 B

Run ID: A95385

Included Lab Sample IDs: 2132614, 2132617, 2132618, 2132623

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	97.5	99.4	P/P	90 - 115
Color (true)	99.4	99.2	P/P	90 - 115

Reference Method: SM 5310 B-00

Run ID: A95387

Included Lab Sample IDs: 2132615, 2132619, 2132620, 2132624

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved

Run ID: A95389

Included Lab Sample IDs: 2132616, 2132621, 2132622, 2132625

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	98.7	99.0	P/P	90 - 110
O-Phosphate-P	99.1	98.7	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A95392

Included Lab Sample IDs: 2132615, 2132619, 2132620, 2132624

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

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A95438

Included Lab Sample IDs: 2132615, 2132619, 2132620, 2132624

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

Reference Method: EPA 300.0 Rev. 2.1

Run ID: A95511

Included Lab Sample IDs: 2132614, 2132617, 2132618, 2132623

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

Quality Assurance Report Calibration Verification

Reference Method: SM 2320 B-97

Run ID: A95613

Included Lab Sample IDs: 2132614, 2132617, 2132618, 2132623

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	101	98.5	P/P	90 - 110
Total Alkalinity	97.9	101	P/P	90 - 110

Reference Method: SM 4500 F-C-97

Run ID: A95613

Included Lab Sample IDs: 2132614, 2132617, 2132618, 2132623

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

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A95638

Included Lab Sample IDs: 2132615, 2132619, 2132620, 2132624

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

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A95662

Included Lab Sample IDs: 2132615, 2132619, 2132620

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	98.8	99.8	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A95745

Included Lab Sample IDs: 2132624

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	99.0	99.0	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					11.4	
	Turbidity					2.96	
EPA 300.0 Rev. 2.1	Chloride	98.6	99.4	99.3	98.9		0.0781
	Sulfate	98.4	99.5	99.0	99.3		0.518
EPA 350.1 Rev. 2.0	Ammonia-N	98.8	100	96.7			1.76
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	107	101	103			0.930
	Kjeldahl Nitrogen	102	103	107			2.75
EPA 353.2 Rev. 2.0	NO2NO3-N	98.5	96.2				0.0
	NO2NO3-N	99.5	96.2				0.245
EPA 365.1 Rev. 2.0	Total-P	99.6	101	96.4			3.50
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	98.2	102	96.0			3.45
	O-Phosphate-P	101	96.6	97.2			0.494
SM 2120 B	Color (true)	98.4				2.61	
	Color (true)	98.3				0.665	
SM 2320 B-97	Total Alkalinity	100				0.298	
	Total Alkalinity	100				0.249	
SM 2540 C-97	TDS					3.47	
	TDS					0.517	
SM 2540 D-97	TSS					2.67	
SM 4500 F-C-97	Fluoride	97.8	98.1	98.1			0.0
	Fluoride	97.8	100	97.6			1.99
SM 5310 B-00	Organic Carbon	102	99.2	98.7			0.481

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	2132614, 2132617, 2132618, 2132623
EPA 300.0 Rev. 2.1 / E31780	Chloride in aqueous matrices	2132614, 2132617, 2132618, 2132623
EPA 300.0 Rev. 2.1 / E31780	Sulfate in aqueous matrices	2132614, 2132617, 2132618, 2132623
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	2132615, 2132619, 2132620, 2132624
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	2132615, 2132619, 2132620, 2132624
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	2132615, 2132619, 2132620, 2132624
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	2132615, 2132619, 2132620, 2132624
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	2132616, 2132621, 2132622, 2132625
SM 2120 B / E31780	True Color measured at 450 nm	2132614, 2132617, 2132618, 2132623
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO3/L	2132614, 2132617, 2132618, 2132623
SM 2540 C-97 / E31780	Total Dissolved Solids in aqueous matrices	2132614, 2132617, 2132618, 2132623
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices using a maximum of 250 mL of sample	2132614, 2132617, 2132618, 2132623
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	2132614, 2132617, 2132618, 2132623
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	2132615, 2132619, 2132620, 2132624

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	10/30/2019			10/31/2019 16:52	Rosalyn Ballman	2132614, 2132617, 2132618, 2132623
EPA 300.0 Rev. 2.1	10/30/2019			11/06/2019 22:55	Jhamieka S. Greenwood	2132614
	10/30/2019			11/06/2019 23:07	Jhamieka S. Greenwood	2132617
	10/30/2019			11/06/2019 23:19	Jhamieka S. Greenwood	2132618
	10/30/2019			11/06/2019 23:31	Jhamieka S. Greenwood	2132623
EPA 350.1 Rev. 2.0	10/30/2019			11/01/2019 13:08	Ping Hua	2132615
	10/30/2019			11/01/2019 13:10	Ping Hua	2132619
	10/30/2019			11/01/2019 13:11	Ping Hua	2132620
	10/30/2019			11/01/2019 14:26	Ping Hua	2132624
EPA 351.2 Rev. 2.0	10/30/2019	11/06/2019 12:52	Sima Feizi	11/07/2019 20:47	Jhamieka S. Greenwood	2132615
	10/30/2019	11/06/2019 12:52	Sima Feizi	11/07/2019 20:49	Jhamieka S. Greenwood	2132619
	10/30/2019	11/06/2019 12:52	Sima Feizi	11/07/2019 20:50	Jhamieka S. Greenwood	2132620
	10/30/2019	11/06/2019 12:52	Sima Feizi	11/07/2019 21:00	Jhamieka S. Greenwood	2132624
EPA 353.2 Rev. 2.0	10/30/2019			11/01/2019 10:07	Beverly Y. Sanders	2132620
	10/30/2019			11/01/2019 10:13	Beverly Y. Sanders	2132624
	10/30/2019			11/01/2019 11:01	Beverly Y. Sanders	2132615
	10/30/2019			11/01/2019 11:02	Beverly Y. Sanders	2132619
EPA 365.1 Rev. 2.0	10/30/2019	11/08/2019 13:00	Lipi Saha	11/12/2019 15:23	Benjamin T. Nordmann	2132615
	10/30/2019	11/08/2019 13:00	Lipi Saha	11/12/2019 15:24	Benjamin T. Nordmann	2132619
	10/30/2019	11/08/2019 13:00	Lipi Saha	11/12/2019 15:25	Benjamin T. Nordmann	2132620
	10/30/2019	11/08/2019 13:00	Lipi Saha	11/14/2019 18:45	Benjamin T. Nordmann	2132624
EPA 365.1 Rev. 2.0 dissolved	10/30/2019			10/31/2019 16:10	Samantha Davila	2132616
	10/30/2019			10/31/2019 16:11	Samantha Davila	2132621
	10/30/2019			10/31/2019 16:12	Samantha Davila	2132622
	10/30/2019			10/31/2019 16:17	Samantha Davila	2132625
SM 2120 B	10/30/2019			10/31/2019 16:53	Madeline Funaro	2132614, 2132617
	10/30/2019			10/31/2019 16:58	Madeline Funaro	2132618
	10/30/2019			10/31/2019 16:59	Madeline Funaro	2132623
SM 2320 B-97	10/30/2019			11/08/2019 03:43	Dale L. Simmons	2132614
	10/30/2019			11/08/2019 04:21	Dale L. Simmons	2132617
	10/30/2019			11/08/2019 04:33	Dale L. Simmons	2132618
	10/30/2019			11/08/2019 05:40	Dale L. Simmons	2132623
SM 2540 C-97	10/30/2019			11/01/2019 14:21	Yijie Li	2132614, 2132617, 2132618, 2132623
SM 2540 D-97	10/30/2019			11/01/2019 14:21	Yijie Li	2132614, 2132617, 2132618, 2132623
SM 4500 F-C-97	10/30/2019			11/08/2019 03:43	Dale L. Simmons	2132614
	10/30/2019			11/08/2019 04:21	Dale L. Simmons	2132617
	10/30/2019			11/08/2019 04:33	Dale L. Simmons	2132618
	10/30/2019			11/08/2019 05:40	Dale L. Simmons	2132623
SM 5310 B-00	10/30/2019			11/01/2019 03:23	Lauren Lees	2132615
	10/30/2019			11/01/2019 03:40	Lauren Lees	2132619

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
SM 5310 B-00	10/30/2019			11/01/2019 03:56	Lauren Lees	2132620
	10/30/2019			11/01/2019 04:12	Lauren Lees	2132624