

Chemical Analysis Report

TLH-ROC-2019-04-16-01

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

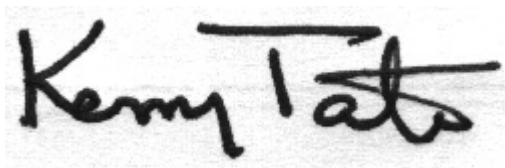
Event Description: **Run 5**
Request ID: **RQ-2019-04-15-49**
Customer: **TLH-ROC**
Project ID: **SMP**

Send Reports to:
FL Dept. of Environmental Protection
2600 Blair Stone Rd
Tallahassee, FL 32399
Attn: Michael Eckles

For additional information please contact
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Phone (850) 245-8085

Certified by: Kerry Tate, Ph.D., Environmental Administrator

Date Certified: 03-MAY-2019 12:11

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: LITTLE CREEK @ TREATMENT PLANT RD

Collection Date/Time: 04/16/2019 10:50

Field ID: G3TLHR0002

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2078426	EPA 180.1 Rev. 2.0	Turbidity	2.5		NTU	P362261	
	EPA 300.0 Rev. 2.1	Chloride	6.6		mg Cl/L	P362489	
		Sulfate	0.63		mg SO4/L	P362491	
	SM 2120 B	Color (true)	20		PCU	P362308	
	SM 2320 B-97	Total Alkalinity	130	Y	mg CaCO3/L	P362851	
	SM 2540 C-97	TDS	158	AY	mg/L	P363043	
	SM 2540 D-97	TSS	3	IAY	mg/L	P362912	
	SM 4500 F-C-97	Fluoride	0.036	I	mg F/L	P362853	
2078429	EPA 350.1 Rev. 2.0	Ammonia-N	0.063		mg N/L	P362728	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.26		mg N/L	P362582	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.032		mg N/L	P362600	
	EPA 365.1 Rev. 2.0	Total-P	0.053		mg P/L	P362531	
	SM 5310 B-00	Organic Carbon	2.9		mg C/L	P362485	
2078432	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.014		mg P/L	P362255	

Ref. Method and Comment:

SM 2320 B-97: Sample was left out at room temperature overnight, should be stored below 6 degC.

SM 2540 C-97: Sample was left out at room temperature overnight, should be stored below 6 degC.

SM 2540 D-97: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample. Sample was left out at room temperature overnight, should be stored below 6 degC.

SM 4500 F-C-97: Batch matrix spike recoveries are unavailable because of high analyte concentration in the QC sample.

Sample Location: CAMP BRANCH @ US90

Collection Date/Time: 04/16/2019 11:45

Field ID: G3TLHR0005

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2078427	EPA 180.1 Rev. 2.0	Turbidity	11		NTU	P362261	
	EPA 300.0 Rev. 2.1	Chloride	4.7		mg Cl/L	P362489	
		Sulfate	1.1		mg SO4/L	P362491	
	SM 2120 B	Color (true)	99		PCU	P362308	
	SM 2320 B-97	Total Alkalinity	27	Y	mg CaCO3/L	P362851	
	SM 2540 C-97	TDS	57	Y	mg/L	P363043	
	SM 2540 D-97	TSS	8	IY	mg/L	P362912	
	SM 4500 F-C-97	Fluoride	0.037	I	mg F/L	P362853	
2078430	EPA 350.1 Rev. 2.0	Ammonia-N	0.055		mg N/L	P362728	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.55		mg N/L	P362698	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.074		mg N/L	P362600	
	EPA 365.1 Rev. 2.0	Total-P	0.11		mg P/L	P362531	
	SM 5310 B-00	Organic Carbon	8.9		mg C/L	P362485	
2078433	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.051		mg P/L	P362255	

Ref. Method and Comment:

SM 2320 B-97: Sample was left out at room temperature overnight, should be stored below 6 degC.

SM 2540 C-97: Sample was left out at room temperature overnight, should be stored below 6 degC.

SM 2540 D-97: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample. Sample was left out at room temperature overnight, should be stored below 6 degC.

SM 4500 F-C-97: Batch matrix spike recoveries are unavailable because of high analyte concentration in the QC sample.

Sample Location: FLAT CREEK @ DUNCAN COMMUNITY RD

Collection Date/Time: 04/16/2019 12:10

Field ID: G3TLHR0007

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2078428	EPA 180.1 Rev. 2.0	Turbidity	33	A	NTU	P362261	
	EPA 300.0 Rev. 2.1	Chloride	4.4		mg Cl/L	P362489	
		Sulfate	1.2		mg SO4/L	P362491	
	SM 2120 B	Color (true)	54		PCU	P362309	
	SM 2320 B-97	Total Alkalinity	9.9	Y	mg CaCO3/L	P362851	
	SM 2540 C-97	TDS	64	Y	mg/L	P363043	
	SM 2540 D-97	TSS	9	IY	mg/L	P362912	
	SM 4500 F-C-97	Fluoride	0.035	I	mg F/L	P362853	
2078431	EPA 350.1 Rev. 2.0	Ammonia-N	0.15		mg N/L	P362728	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.73		mg N/L	P362698	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.015		mg N/L	P362600	
	EPA 365.1 Rev. 2.0	Total-P	0.073		mg P/L	P362531	
	SM 5310 B-00	Organic Carbon	8.8		mg C/L	P362485	
2078434	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.012		mg P/L	P362255	

Ref. Method and Comment:

SM 2320 B-97: Sample was left out at room temperature overnight, should be stored below 6 degC.

SM 2540 C-97: Sample was left out at room temperature overnight, should be stored below 6 degC.

SM 2540 D-97: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample. Sample was left out at room temperature overnight, should be stored below 6 degC.

SM 4500 F-C-97: Batch matrix spike recoveries are unavailable because of high analyte concentration in the QC sample.

Non-Conformance Report

NCR ID: 7647

<u>Event(s)</u>	<u>Job(s)</u>	<u>Sample(s)</u>	<u>Test(s)</u>
TLH-ROC-2019-04-16-01	TLH-2019-04-16-58	2078426	
TLH-ROC-2019-04-16-01	TLH-2019-04-16-58	2078427	
TLH-ROC-2019-04-16-01	TLH-2019-04-16-58	2078428	

NCR Type: CUSTODY

NCR Category: General

Observation: Samples stored at room temperature overnight on 04/18/2019.

Resolution: Chemistry Administrator notified, samples returned to refrigerator on 04/19/2019 at 12:00. Data will be qualified as appropriate.

Authorized by/Date: Peter D. Kaus 5/2/2019

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: P362261

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P362489

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P362491

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P362728

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P362582

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P362698

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P362600

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P362531

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P362255

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

Quality Assurance Report

Method Blank Results

Reference Method: SM 2120 B
Batch ID: P362308

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2120 B
Batch ID: P362309

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2320 B-97
Batch ID: P362851

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

Reference Method: SM 2540 C-97
Batch ID: P363043

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P362912

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500 F-C-97
Batch ID: P362853

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-00
Batch ID: P362485

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: P362489

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

Reference Method: EPA 300.0 Rev. 2.1
 Batch ID: P362491

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

Reference Method: EPA 350.1 Rev. 2.0
 Batch ID: P362728

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

Reference Method: EPA 351.2 Rev. 2.0
 Batch ID: P362582

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

Reference Method: EPA 351.2 Rev. 2.0
 Batch ID: P362698

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

Reference Method: EPA 353.2 Rev. 2.0
 Batch ID: P362600

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

Reference Method: EPA 365.1 Rev. 2.0
 Batch ID: P362531

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
 Batch ID: P362255

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

Reference Method: SM 2120 B
 Batch ID: P362308

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Color (true)	107		P	85 - 115

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: SM 2120 B
Batch ID: P362309

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Color (true)	102		P	85 - 115

Reference Method: SM 2320 B-97
Batch ID: P362851

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	102		P	98 - 106

Reference Method: SM 4500 F-C-97
Batch ID: P362853

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	98.5		P	92 - 103

Reference Method: SM 5310 B-00
Batch ID: P362485

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: P362489

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2078411	Chloride	102		P	90 - 110
2078466	Chloride	103		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P362491

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2078411	Sulfate	103		P	90 - 110
2078466	Sulfate	103		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P362728

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2078323	Ammonia-N	103	102	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P362582

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2077759	Kjeldahl Nitrogen	109	100	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P362698

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2078452	Kjeldahl Nitrogen	110	107	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P362600

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2078328	NO2NO3-N	96.6	96.6	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P362531

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2078429	Total-P	105	102	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P362255

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2078259	O-Phosphate-P	96.5	96.5	P/P	90 - 110

Reference Method: SM 5310 B-00
Batch ID: P362485

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2078429	Organic Carbon	101	101	P/P	85 - 115

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P362261

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2078428	Turbidity	0.613	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P362489

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2078411	Chloride	1.33	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P362491

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2078411	Sulfate	0.479	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P362728

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2078323	Ammonia-N	0.577	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P362582

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2077759	Kjeldahl Nitrogen	4.51	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P362698

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2078452	Kjeldahl Nitrogen	2.90	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P362600

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2078328	NO2NO3-N	0.0	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P362531

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2078429	Total-P	2.30	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 365.1 Rev. 2.0 dissolved
 Batch ID: P362255

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2078259	O-Phosphate-P	0.0	Spike	P	0 - 20

Reference Method: SM 2120 B
 Batch ID: P362308

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2078322	Color (true)	2.20	Sample	P	0 - 20

Reference Method: SM 2120 B
 Batch ID: P362309

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2078163	Color (true)	4.99	Sample	P	0 - 20

Reference Method: SM 2320 B-97
 Batch ID: P362851

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2078704	Total Alkalinity	0.664	Sample	P	0 - 2.8

Reference Method: SM 2540 C-97
 Batch ID: P363043

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2078426	TDS	7.59	Sample	P	0 - 10

Reference Method: SM 4500 F-C-97
 Batch ID: P362853

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2078704	Fluoride	0.935	Spike	P	0 - 2.5

Reference Method: SM 5310 B-00
 Batch ID: P362485

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2078429	Organic Carbon	0.130	Spike	P	0 - 20

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

Quality Assurance Report Calibration Verification

Reference Method: EPA 365.1 Rev. 2.0 dissolved

Run ID: A90757

Included Lab Sample IDs: 2078432, 2078433, 2078434

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	98.8	97.2	P/P	90 - 110

Reference Method: EPA 180.1 Rev. 2.0

Run ID: A90758

Included Lab Sample IDs: 2078426, 2078427, 2078428

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

Reference Method: EPA 300.0 Rev. 2.1

Run ID: A90760

Included Lab Sample IDs: 2078426, 2078427, 2078428

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

Reference Method: SM 2120 B

Run ID: A90769

Included Lab Sample IDs: 2078426, 2078427, 2078428

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

Reference Method: SM 5310 B-00

Run ID: A90843

Included Lab Sample IDs: 2078429, 2078430, 2078431

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

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A90880

Included Lab Sample IDs: 2078429, 2078430, 2078431

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO2NO3-N	98.0	98.0	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A90896

Included Lab Sample IDs: 2078429, 2078430, 2078431

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	102	99.9	P/P	90 - 110
Total-P	99.9	102	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A90919

Included Lab Sample IDs: 2078429

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	106	107	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A90949

Included Lab Sample IDs: 2078429, 2078430, 2078431

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	103	105	P/P	90 - 110
Ammonia-N	104	103	P/P	90 - 110

Reference Method: SM 2320 B-97

Run ID: A90988

Included Lab Sample IDs: 2078426, 2078427, 2078428

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	99.9	102	P/P	90 - 110

Reference Method: SM 4500 F-C-97

Run ID: A90988

Included Lab Sample IDs: 2078426, 2078427, 2078428

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

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A90992

Included Lab Sample IDs: 2078430, 2078431

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	92.4	98.4	P/P	90 - 110
Kjeldahl Nitrogen	98.4	92.9	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		LCS	Precision	MS
						SMP	
EPA 180.1 Rev. 2.0	Turbidity					0.613	
EPA 300.0 Rev. 2.1	Chloride	100	102	103		1.33	
	Sulfate	103	103	103		0.479	
EPA 350.1 Rev. 2.0	Ammonia-N	105	103	102			0.577
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	108	109	100			4.51
	Kjeldahl Nitrogen	100	110	107			2.90
EPA 353.2 Rev. 2.0	NO ₂ NO ₃ -N	98.0	96.6	96.6			0.0
EPA 365.1 Rev. 2.0	Total-P	103	105	102			2.30
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	101	96.5	96.5			0.0
SM 2120 B	Color (true)	107				2.20	
	Color (true)	102				4.99	
SM 2320 B-97	Total Alkalinity	102				0.664	
SM 2540 C-97	TDS					7.59	
SM 4500 F-C-97	Fluoride	98.5					0.935
SM 5310 B-00	Organic Carbon	102	101	101			0.130

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	2078426, 2078427, 2078428
EPA 300.0 Rev. 2.1 / E31780	Chloride in aqueous matrices	2078426, 2078427, 2078428
EPA 300.0 Rev. 2.1 / E31780	Sulfate in aqueous matrices	2078426, 2078427, 2078428
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	2078429, 2078430, 2078431
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	2078429, 2078430, 2078431
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	2078429, 2078430, 2078431
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	2078429, 2078430, 2078431
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	2078432, 2078433, 2078434
SM 2120 B / E31780	True Color measured at 450 nm	2078426, 2078427, 2078428
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO ₃ /L	2078426, 2078427, 2078428
SM 2540 C-97 / E31780	Total Dissolved Solids in aqueous matrices	2078426, 2078427, 2078428
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices using a maximum of 250 mL of sample	2078426, 2078427, 2078428
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	2078426, 2078427, 2078428
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	2078429, 2078430, 2078431

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	04/16/2019			04/16/2019 16:28	Adrian Shelby	2078426, 2078427, 2078428
EPA 300.0 Rev. 2.1	04/16/2019			04/19/2019 00:06	Lipi Saha	2078426
	04/16/2019			04/19/2019 00:18	Lipi Saha	2078427
	04/16/2019			04/19/2019 00:30	Lipi Saha	2078428
EPA 350.1 Rev. 2.0	04/16/2019			04/23/2019 12:39	Ping Hua	2078429
	04/16/2019			04/23/2019 12:51	Ping Hua	2078430
	04/16/2019			04/23/2019 12:56	Ping Hua	2078431
EPA 351.2 Rev. 2.0	04/16/2019	04/22/2019 11:30	Adrian Shelby	04/23/2019 09:56	Joseph Suarez	2078429
	04/16/2019	04/23/2019 12:00	Adrian Shelby	04/25/2019 10:07	Joseph Suarez	2078430
	04/16/2019	04/23/2019 12:00	Adrian Shelby	04/25/2019 10:11	Joseph Suarez	2078431
EPA 353.2 Rev. 2.0	04/16/2019			04/22/2019 10:34	Beverly Y. Sanders	2078429
	04/16/2019			04/22/2019 10:35	Beverly Y. Sanders	2078430
	04/16/2019			04/22/2019 10:37	Beverly Y. Sanders	2078431
EPA 365.1 Rev. 2.0	04/16/2019	04/19/2019 15:05	Sima Feizi	04/22/2019 14:24	Rosalyn Ballman	2078429
	04/16/2019	04/19/2019 15:05	Sima Feizi	04/22/2019 14:36	Rosalyn Ballman	2078430
	04/16/2019	04/19/2019 15:05	Sima Feizi	04/22/2019 14:37	Rosalyn Ballman	2078431
EPA 365.1 Rev. 2.0 dissolved	04/16/2019			04/16/2019 15:32	Jhamieka S. Greenwood	2078432
	04/16/2019			04/16/2019 15:33	Jhamieka S. Greenwood	2078433
	04/16/2019			04/16/2019 15:34	Jhamieka S. Greenwood	2078434
SM 2120 B	04/16/2019			04/16/2019 16:36	Mariam Hanna	2078426
	04/16/2019			04/16/2019 16:37	Mariam Hanna	2078427
	04/16/2019			04/16/2019 16:49	Mariam Hanna	2078428
SM 2320 B-97	04/16/2019			04/25/2019 08:34	Dale L. Simmons	2078426
	04/16/2019			04/25/2019 08:46	Dale L. Simmons	2078427
	04/16/2019			04/25/2019 08:57	Dale L. Simmons	2078428
SM 2540 C-97	04/16/2019			04/22/2019 15:58	Yijie Li	2078426, 2078427, 2078428
SM 2540 D-97	04/16/2019			04/22/2019 15:58	Yijie Li	2078426, 2078427, 2078428
SM 4500 F-C-97	04/16/2019			04/25/2019 08:34	Dale L. Simmons	2078426
	04/16/2019			04/25/2019 08:46	Dale L. Simmons	2078427
	04/16/2019			04/25/2019 08:57	Dale L. Simmons	2078428
SM 5310 B-00	04/16/2019			04/18/2019 14:48	Julia Storbeck	2078429
	04/16/2019			04/18/2019 16:05	Julia Storbeck	2078430
	04/16/2019			04/18/2019 16:19	Julia Storbeck	2078431