

Chemical Analysis Report

TLH-ROC-2018-04-30-01

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

Event Description: **kit A w/ bacteria**
Request ID: **RQ-2018-04-09-52**
Customer: **TLH-ROC**
Project ID: **SMP**

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

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Certified by: Liang Lin, Environmental Administrator

Date Certified: 15-MAY-2018 09:50

A handwritten signature in black ink, appearing to read "Liang Lin", 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 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: NEW RIVER SOUTH OF SR65

Collection Date/Time: 04/30/2018 11:10

Field ID: G2TLHR0004

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1988727	EPA 180.1 Rev. 2.0	Turbidity	2.8		NTU	P344416	
	EPA 300.0 Rev. 2.1	Chloride	4.7		mg Cl/L	P344751	
		Sulfate	0.24	I	mg SO4/L	P344754	
	SM 2120 B	Color (true)	480		PCU	P344395	
	SM 2320 B-97	Total Alkalinity	0.65	U	mg CaCO3/L	P345070	
	SM 2540 C-97	TDS	96		mg/L	P344884	
	SM 2540 D-97	TSS	2	I	mg/L	P344889	
	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P345074	
	EPA 350.1 Rev. 2.0	Ammonia-N	0.11		mg N/L	P344867	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.2		mg N/L	P344423	
1988730	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P344480	
	EPA 365.1 Rev. 2.0	Total-P	0.016		mg P/L	P344433	
	SM 5310 B-00	Organic Carbon	34		mg C/L	P344773	
	EPA 365.1 Rev. 2.0	O-Phosphate-P	0.005	I	mg P/L	P344436	
	dissolved						

Ref. Method and Comment:

EPA 300.0 Rev. 2.1: Sulfate: Batch matrix spike recoveries for one of two spiked samples are unavailable because of high analyte concentration in the QC sample.

SM 2540 C-97: The reported result is consistent with the laboratory conductivity, 48 umhos/cm.

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

Sample Location: Unnamed Branch 500m North of FR13

Collection Date/Time: 04/30/2018 11:55

Field ID: G2TLHR0005

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1988728	EPA 180.1 Rev. 2.0	Turbidity	4.0		NTU	P344416	
	EPA 300.0 Rev. 2.1	Chloride	5.3		mg Cl/L	P344751	
		Sulfate	0.21	I	mg SO4/L	P344754	
	SM 2120 B	Color (true)	290		PCU	P344395	
	SM 2320 B-97	Total Alkalinity	0.65	U	mg CaCO3/L	P345070	
	SM 2540 C-97	TDS	48		mg/L	P344884	
	SM 2540 D-97	TSS	3	I	mg/L	P344889	
	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P345074	
	EPA 350.1 Rev. 2.0	Ammonia-N	0.016		mg N/L	P344867	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.92		mg N/L	P344423	
1988731	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P344484	
	EPA 365.1 Rev. 2.0	Total-P	0.015		mg P/L	P344433	
	SM 5310 B-00	Organic Carbon	26		mg C/L	P344773	
	EPA 365.1 Rev. 2.0	O-Phosphate-P	0.004	U	mg P/L	P344436	
	dissolved						

Ref. Method and Comment:

EPA 300.0 Rev. 2.1: Sulfate: Batch matrix spike recoveries for one of two spiked samples are unavailable because of high 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: CROOKED RIVER @ POST 46

Collection Date/Time: 04/30/2018 13:30

Field ID: G2TLHR0038

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1988729	EPA 180.1 Rev. 2.0	Turbidity	6.3	A	NTU	P344416	
	EPA 300.0 Rev. 2.1	Chloride	46		mg Cl/L	P344751	
		Sulfate	6.4		mg SO4/L	P344754	
	SM 2120 B	Color (true)	230		PCU	P344395	
	SM 2320 B-97	Total Alkalinity	14		mg CaCO3/L	P345070	
	SM 2540 C-97	TDS	140	A	mg/L	P344884	
	SM 2540 D-97	TSS	4	IA	mg/L	P344889	
	SM 4500 F-C-97	Fluoride	0.064	I	mg F/L	P345074	
1988732	EPA 350.1 Rev. 2.0	Ammonia-N	0.034		mg N/L	P344867	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.91		mg N/L	P344423	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.070		mg N/L	P344484	
	EPA 365.1 Rev. 2.0	Total-P	0.053		mg P/L	P344433	
	SM 5310 B-00	Organic Carbon	18		mg C/L	P344773	
1988735	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.016		mg P/L	P344436	

Ref. Method and Comment:

EPA 300.0 Rev. 2.1: Sulfate: Batch matrix spike recoveries for one of two spiked samples are unavailable because of high 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: P344416

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 300.0 Rev. 2.1

Batch ID: P344751

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1

Batch ID: P344754

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 350.1 Rev. 2.0

Batch ID: P344867

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

Reference Method: EPA 351.2 Rev. 2.0

Batch ID: P344423

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

Quality Assurance Report Method Blank Results

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P344480

Component	Result	Code	Units
NO ₂ NO ₃ -N	0.004	U	mg N/L

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P344484

Component	Result	Code	Units
NO ₂ NO ₃ -N	0.004	U	mg N/L

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P344433

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P344436

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

Reference Method: SM 2120 B
Batch ID: P344395

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2320 B-97
Batch ID: P345070

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

Reference Method: SM 2540 C-97
Batch ID: P344884

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P344889

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500 F-C-97
Batch ID: P345074

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: P344773

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: P344751

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P344754

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P344867

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Ammonia-N	98.3		P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P344423

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P344480

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: P344484

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: P344433

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: P344436

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
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Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P344436

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
O-Phosphate-P	96.4		P	90 - 110

Reference Method: SM 2320 B-97
Batch ID: P345070

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	102		P	98 - 107

Reference Method: SM 4500 F-C-97
Batch ID: P345074

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	95.6		P	91 - 105

Reference Method: SM 5310 B-00
Batch ID: P344773

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

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P344751

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1988403	Chloride	103		P	90 - 110
1988728	Chloride	104		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P344754

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1988728	Sulfate	105		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P344867

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1988606	Ammonia-N	102	103	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P344423

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1988760	Kjeldahl Nitrogen	103	102	P/P	90 - 110

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P344480

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1988465	NO2NO3-N	97.4	98.4	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P344484

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1988731	NO2NO3-N	95.5	94.5	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P344433

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1988747	Total-P	101	93.9	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P344436

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1988733	O-Phosphate-P	91.7	93.5	P/P	90 - 110

Reference Method: SM 4500 F-C-97
Batch ID: P345074

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1989207	Fluoride	95.8	98.5	P/P	91 - 105

Reference Method: SM 5310 B-00
Batch ID: P344773

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1988748	Organic Carbon	102	104	P/P	85 - 115

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P344416

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1988729	Turbidity	0.796	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P344751

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1988403	Chloride	0.143	Sample	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P344754

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1988403	Sulfate	0.0259	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P344867

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1988606	Ammonia-N	0.241	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P344423

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1988760	Kjeldahl Nitrogen	0.663	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P344480

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1988465	NO2NO3-N	0.787	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P344484

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1988731	NO2NO3-N	1.05	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P344433

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1988747	Total-P	5.37	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P344436

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1988733	O-Phosphate-P	1.84	Spike	P	0 - 20

Reference Method: SM 2120 B
Batch ID: P344395

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1988700	Color (true)	0.341	Sample	P	0 - 20

Quality Assurance Report Precision

Reference Method: SM 2320 B-97
Batch ID: P345070

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1989207	Total Alkalinity	0.543	Sample	P	0 - 1.6

Reference Method: SM 2540 C-97
Batch ID: P344884

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1988729	TDS	2.14	Sample	P	0 - 10

Reference Method: SM 4500 F-C-97
Batch ID: P345074

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1989207	Fluoride	1.49	Spike	P	0 - 3.5

Reference Method: SM 5310 B-00
Batch ID: P344773

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1988748	Organic Carbon	0.923	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: SM 2120 B
Run ID: A83575
Included Lab Sample IDs: 1988727, 1988728, 1988729

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	101	102	P/P	90 - 115
Color (true)	102	101	P/P	90 - 115

Reference Method: EPA 180.1 Rev. 2.0
Run ID: A83581
Included Lab Sample IDs: 1988727, 1988728, 1988729

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Run ID: A83588
Included Lab Sample IDs: 1988733, 1988734, 1988735

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	99.2	98.1	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: EPA 365.1 Rev. 2.0 dissolved

Run ID: A83588

Included Lab Sample IDs: 1988733, 1988734, 1988735

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	99.2	98.9	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A83601

Included Lab Sample IDs: 1988730, 1988731, 1988732

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO2NO3-N	97.5	97.0	P/P	90 - 110
NO2NO3-N	99.0	98.0	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A83623

Included Lab Sample IDs: 1988730, 1988731, 1988732

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

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A83626

Included Lab Sample IDs: 1988732

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	104	102	P/P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1

Run ID: A83651

Included Lab Sample IDs: 1988727, 1988728, 1988729

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	104	104	P/P	90 - 110
Chloride	104	105	P/P	90 - 110
Chloride	104	104	P/P	90 - 110
Sulfate	105	105	P/P	90 - 110
Sulfate	105	105	P/P	90 - 110
Sulfate	105	106	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A83666

Included Lab Sample IDs: 1988730, 1988731

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	99.8	99.2	P/P	90 - 110

Reference Method: SM 5310 B-00

Run ID: A83699

Included Lab Sample IDs: 1988730, 1988731, 1988732

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

Quality Assurance Report Calibration Verification

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A83734

Included Lab Sample IDs: 1988730, 1988731, 1988732

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	102	99.8	P/P	90 - 110

Reference Method: SM 2320 B-97

Run ID: A83812

Included Lab Sample IDs: 1988727, 1988728, 1988729

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	99.1	102	P/P	90 - 110

Reference Method: SM 4500 F-C-97

Run ID: A83812

Included Lab Sample IDs: 1988727, 1988728, 1988729

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	98.1	96.7	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 SMP	MS
EPA 180.1 Rev. 2.0	Turbidity					0.796	
EPA 300.0 Rev. 2.1	Chloride	103	103	104		0.143	
	Sulfate	104	105			0.0259	
EPA 350.1 Rev. 2.0	Ammonia-N	98.3	102	103			0.241
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	99.1	103	102			0.663
EPA 353.2 Rev. 2.0	NO ₂ NO ₃ -N	98.5	97.4	98.4			0.787
	NO ₂ NO ₃ -N	102	95.5	94.5			1.05
EPA 365.1 Rev. 2.0	Total-P	102	101	93.9			5.37
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	96.4	91.7	93.5			1.84
SM 2120 B	Color (true)					0.341	
SM 2320 B-97	Total Alkalinity	102				0.543	
SM 2540 C-97	TDS					2.14	
SM 4500 F-C-97	Fluoride	95.6	95.8	98.5			1.49
SM 5310 B-00	Organic Carbon	101	102	104			0.923

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	1988727, 1988728, 1988729
EPA 300.0 Rev. 2.1 / E31780	Chloride in aqueous matrices	1988727, 1988728, 1988729
EPA 300.0 Rev. 2.1 / E31780	Sulfate in aqueous matrices	1988727, 1988728, 1988729

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	1988730, 1988731, 1988732
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	1988730, 1988731, 1988732
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	1988730, 1988731, 1988732
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	1988730, 1988731, 1988732
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	1988733, 1988734, 1988735
SM 2120 B / E31780	True Color measured at 450 nm	1988727, 1988728, 1988729
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO ₃ /L	1988727, 1988728, 1988729
SM 2540 C-97 / E31780	Total Dissolved Solids in aqueous matrices	1988727, 1988728, 1988729
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices	1988727, 1988728, 1988729
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	1988727, 1988728, 1988729
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	1988730, 1988731, 1988732

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	04/30/2018			05/01/2018 16:50	William L. Brown IV	1988727, 1988728, 1988729
EPA 300.0 Rev. 2.1	04/30/2018			05/05/2018 06:23	Lipi Saha	1988728
	04/30/2018			05/05/2018 09:23	Lipi Saha	1988727
	04/30/2018			05/05/2018 09:58	Lipi Saha	1988729
	04/30/2018			05/05/2018 14:34	Lipi Saha	1988727
EPA 350.1 Rev. 2.0	04/30/2018			05/07/2018 11:07	Ping Hua	1988730
	04/30/2018			05/07/2018 11:08	Ping Hua	1988731
	04/30/2018			05/07/2018 11:10	Ping Hua	1988732
EPA 351.2 Rev. 2.0	04/30/2018	05/02/2018 10:30	Adrian Shelby	05/03/2018 10:13	Joseph Suarez	1988730
	04/30/2018	05/02/2018 10:30	Adrian Shelby	05/03/2018 10:14	Joseph Suarez	1988731
	04/30/2018	05/02/2018 10:30	Adrian Shelby	05/03/2018 10:19	Joseph Suarez	1988732
EPA 353.2 Rev. 2.0	04/30/2018			05/02/2018 12:35	Lauren Bottorf	1988730
	04/30/2018			05/02/2018 14:02	Lauren Bottorf	1988731
	04/30/2018			05/02/2018 14:08	Lauren Bottorf	1988732
EPA 365.1 Rev. 2.0	04/30/2018	05/02/2018 13:00	Sima Feizi	05/03/2018 10:05	Beverly Y. Sanders	1988732
	04/30/2018	05/02/2018 13:00	Sima Feizi	05/04/2018 11:07	Beverly Y. Sanders	1988730
	04/30/2018	05/02/2018 13:00	Sima Feizi	05/04/2018 11:08	Beverly Y. Sanders	1988731
EPA 365.1 Rev. 2.0 dissolved	04/30/2018			05/01/2018 15:13	Megan Treadwell	1988733
	04/30/2018			05/01/2018 15:39	Megan Treadwell	1988734
	04/30/2018			05/01/2018 15:40	Megan Treadwell	1988735
SM 2120 B	04/30/2018			05/01/2018 14:40	Tanya Welborn	1988727
	04/30/2018			05/01/2018 14:42	Tanya Welborn	1988728
	04/30/2018			05/01/2018 14:43	Tanya Welborn	1988729
SM 2320 B-97	04/30/2018			05/09/2018 19:24	Dale L. Simmons	1988727
	04/30/2018			05/09/2018 19:32	Dale L. Simmons	1988728
	04/30/2018			05/09/2018 19:41	Dale L. Simmons	1988729
SM 2540 C-97	04/30/2018			05/02/2018 15:06	Yijie Li	1988727, 1988728, 1988729
SM 2540 D-97	04/30/2018			05/02/2018 15:06	Yijie Li	1988727, 1988728, 1988729
SM 4500 F-C-97	04/30/2018			05/09/2018 19:24	Dale L. Simmons	1988727
	04/30/2018			05/09/2018 19:32	Dale L. Simmons	1988728
	04/30/2018			05/09/2018 19:41	Dale L. Simmons	1988729
SM 5310 B-00	04/30/2018			05/05/2018 06:39	Julia Storbeck	1988730
	04/30/2018			05/05/2018 06:51	Julia Storbeck	1988731
	04/30/2018			05/05/2018 07:04	Julia Storbeck	1988732