

Chemical Analysis Report

TLH-ROC-2019-03-18-02

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

Event Description: **Run 7**
Request ID: **RQ-2019-02-18-30**
Customer: **TLH-ROC**
Project ID: **SMP**

Send Reports to:
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2600 Blair Stone Rd
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Certified by: Liang Lin, Environmental Administrator

Date Certified: 04-APR-2019 13:52

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

Case Narrative

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

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

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

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

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

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

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

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

Precision is reported as relative percent difference unless otherwise noted.

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

QC Codes used in this report may include:

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

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

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

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

Sample Location: Wards Creek @ W Lake Rd

Collection Date/Time: 03/18/2019 14:20

Field ID: G1TLHR0102

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2070884	EPA 180.1 Rev. 2.0	Turbidity	0.65		NTU	P360700	
	EPA 300.0 Rev. 2.1	Chloride	3.6		mg Cl/L	P361009	
		Sulfate	0.20	U	mg SO4/L	P361014	
	SM 2120 B	Color (true)	140		PCU	P360743	
	SM 2320 B-97	Total Alkalinity	7.4		mg CaCO3/L	P361242	
	SM 2540 C-97	TDS	38		mg/L	P361035	
	SM 2540 D-97	TSS	2	U	mg/L	P361027	
	SM 4500 F-C-97	Fluoride	0.052	I	mg F/L	P361246	
2070887	EPA 350.1 Rev. 2.0	Ammonia-N	0.005		mg N/L	P360676	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.63		mg N/L	P360876	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P360785	
	EPA 365.1 Rev. 2.0	Total-P	0.045		mg P/L	P360989	
	SM 5310 B-00	Organic Carbon	12		mg C/L	P360940	
2070890	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.016		mg P/L	P360705	

Ref. Method and Comment:

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

Sample Location: Wards Creek @ W Lake Rd

Collection Date/Time: 03/18/2019 14:26

Field ID: G1TLHR0102_DUP

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2070885	EPA 180.1 Rev. 2.0	Turbidity	0.70		NTU	P360700	
	EPA 300.0 Rev. 2.1	Chloride	3.6		mg Cl/L	P361009	
		Sulfate	0.20	U	mg SO4/L	P361014	
	SM 2120 B	Color (true)	140		PCU	P360743	
	SM 2320 B-97	Total Alkalinity	7.5		mg CaCO3/L	P361242	
	SM 2540 C-97	TDS	41		mg/L	P361035	
	SM 2540 D-97	TSS	2	I	mg/L	P361027	
	SM 4500 F-C-97	Fluoride	0.052	I	mg F/L	P361246	
	EPA 350.1 Rev. 2.0	Ammonia-N	0.005		mg N/L	P360676	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.63		mg N/L	P360876	
2070888	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P360785	
	EPA 365.1 Rev. 2.0	Total-P	0.045		mg P/L	P360989	
	SM 5310 B-00	Organic Carbon	12		mg C/L	P360940	
	EPA 365.1 Rev. 2.0	O-Phosphate-P	0.016		mg P/L	P360705	
	dissolved						
2070891	EPA 365.1 Rev. 2.0	O-Phosphate-P	0.016		mg P/L	P360705	

Ref. Method and Comment:

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

Sample Location: Wards Creek @ W Lake Rd

Collection Date/Time: 03/18/2019 14:45

Field ID: 03132019_EB

Matrix: W-EQPMT-BK

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2070886	EPA 180.1 Rev. 2.0	Turbidity	0.10	U	NTU	P360700	
	EPA 300.0 Rev. 2.1	Chloride	0.20	U	mg Cl/L	P361009	
		Sulfate	0.20	U	mg SO4/L	P361014	
	SM 2120 B	Color (true)	2.5	U	PCU	P360743	
	SM 2320 B-97	Total Alkalinity	0.65	U	mg CaCO3/L	P361242	
	SM 2540 C-97	TDS	15	U	mg/L	P361033	
	SM 2540 D-97	TSS	2	U	mg/L	P361025	
	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P361246	
2070889	EPA 350.1 Rev. 2.0	Ammonia-N	0.002	U	mg N/L	P360676	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.080	U	mg N/L	P361209	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P360785	
	EPA 365.1 Rev. 2.0	Total-P	0.002	U	mg P/L	P360989	
	SM 5310 B-00	Organic Carbon	0.73	I	mg C/L	P360940	
2070892	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P360705	

Ref. Method and Comment:

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

SM 5310 B-00: The result was confirmed on 03/27/2019.

Quality Assurance Report Method Blank Results

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P360700

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P361009

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P361014

Component	Result	Code	Units
Sulfate	0.20	U	mg SO ₄ /L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P360676

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P360876

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P361209

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P360785

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: P360989

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P360705

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: P360743

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2320 B-97
Batch ID: P361242

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

Reference Method: SM 2540 C-97
Batch ID: P361033

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 C-97
Batch ID: P361035

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P361025

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P361027

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500 F-C-97
Batch ID: P361246

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-00
Batch ID: P360940

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: P361009

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P361014

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P360676

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: P360876

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P361209

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: P360785

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
NO ₂ NO ₃ -N	99.0		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P360989

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total-P	96.2		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P360705

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

Reference Method: SM 2120 B
Batch ID: P360743

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Color (true)	99.9		P	85 - 115

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: SM 2320 B-97
Batch ID: P361242

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	104		P	98 - 107

Reference Method: SM 4500 F-C-97
Batch ID: P361246

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	101		P	91 - 105

Reference Method: SM 5310 B-00
Batch ID: P360940

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	97.5		P	85 - 115

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P361009

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2070482	Chloride	104		P	90 - 110
2070850	Chloride	105		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P361014

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2070482	Sulfate	105		P	90 - 110
2070850	Sulfate	107		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P360676

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2070856	Ammonia-N	102	101	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P360876

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2070674	Kjeldahl Nitrogen	92.3	95.3	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P361209

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2070916	Kjeldahl Nitrogen	100	97.4	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P360785

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2070859	NO2NO3-N	99.5	100	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P360989

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2070859	Total-P	95.4	100	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P360705

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2071019	O-Phosphate-P	94.4	95.8	P/P	90 - 110

Reference Method: SM 4500 F-C-97
Batch ID: P361246

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2071123	Fluoride	100	99.2	P/P	91 - 105

Quality Assurance Report Matrix Spike Accuracy

Reference Method: SM 5310 B-00
Batch ID: P360940

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2070856	Organic Carbon	93.9	98.1	P/P	85 - 115

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P360700

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2070855	Turbidity	2.67	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P361009

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2070482	Chloride	0.291	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P361014

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2070482	Sulfate	0.229	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P360676

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2070856	Ammonia-N	0.777	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P360876

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2070674	Kjeldahl Nitrogen	1.65	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P361209

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2070916	Kjeldahl Nitrogen	2.19	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P360785

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2070859	NO2NO3-N	0.570	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P360989

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2070859	Total-P	3.78	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P360705

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2071019	O-Phosphate-P	1.17	Spike	P	0 - 20

Reference Method: SM 2120 B
Batch ID: P360743

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2070858	Color (true)	3.62	Sample	P	0 - 20

Reference Method: SM 2320 B-97
Batch ID: P361242

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2071123	Total Alkalinity	0.972	Sample	P	0 - 1.6

Reference Method: SM 2540 C-97
Batch ID: P361033

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2070303	TDS	4.08	Sample	P	0 - 10

Reference Method: SM 2540 C-97
Batch ID: P361035

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2071014	TDS	6.55	Sample	P	0 - 10

Reference Method: SM 4500 F-C-97
Batch ID: P361246

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2071123	Fluoride	0.993	Spike	P	0 - 3.5

Reference Method: SM 5310 B-00
Batch ID: P360940

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2070856	Organic Carbon	2.88	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 300.0 Rev. 2.1

Run ID: A90071

Included Lab Sample IDs: 2070884, 2070885, 2070886

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	99.6	99.7	P/P	90 - 110
Chloride	99.7	98.9	P/P	90 - 110
Sulfate	100	100	P/P	90 - 110
Sulfate	100	99.7	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A90097

Included Lab Sample IDs: 2070887, 2070888, 2070889

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

Reference Method: EPA 180.1 Rev. 2.0

Run ID: A90100

Included Lab Sample IDs: 2070884, 2070885, 2070886

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Turbidity	99.5	100	P/P	95 - 105

Reference Method: EPA 365.1 Rev. 2.0 dissolved

Run ID: A90101

Included Lab Sample IDs: 2070890, 2070891, 2070892

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	99.4	98.7	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A90128

Included Lab Sample IDs: 2070887, 2070888, 2070889

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO2NO3-N	99.5	99.0	P/P	90 - 110

Reference Method: SM 5310 B-00

Run ID: A90206

Included Lab Sample IDs: 2070887, 2070888, 2070889

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	94.4	95.4	P/P	90 - 110
Organic Carbon	95.4	96.5	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A90221

Included Lab Sample IDs: 2070887, 2070888

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	98.3	96.5	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A90273

Included Lab Sample IDs: 2070887, 2070888, 2070889

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	100	98.8	P/P	90 - 110

Reference Method: SM 2320 B-97

Run ID: A90311

Included Lab Sample IDs: 2070884, 2070885, 2070886

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

Reference Method: SM 4500 F-C-97

Run ID: A90311

Included Lab Sample IDs: 2070884, 2070885, 2070886

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	101	105	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A90325

Included Lab Sample IDs: 2070889

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	95.0	100	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					2.67	
EPA 300.0 Rev. 2.1	Chloride	107	104	105		0.291	
	Sulfate	108	105	107		0.229	
EPA 350.1 Rev. 2.0	Ammonia-N	101	102	101			0.777
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	105	92.3	95.3			1.65
	Kjeldahl Nitrogen	102	100	97.4			2.19
EPA 353.2 Rev. 2.0	NO ₂ NO ₃ -N	99.0	99.5	100			0.570
EPA 365.1 Rev. 2.0	Total-P	96.2	95.4	100			3.78
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	98.7	94.4	95.8			1.17
SM 2120 B	Color (true)	99.9				3.62	
SM 2320 B-97	Total Alkalinity	104				0.972	
SM 2540 C-97	TDS					4.08	
	TDS					6.55	
SM 4500 F-C-97	Fluoride	101	100	99.2			0.993
SM 5310 B-00	Organic Carbon	97.5	93.9	98.1			2.88

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	2070884, 2070885, 2070886
EPA 300.0 Rev. 2.1 / E31780	Chloride in aqueous matrices	2070884, 2070885, 2070886
EPA 300.0 Rev. 2.1 / E31780	Sulfate in aqueous matrices	2070884, 2070885, 2070886
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	2070887, 2070888, 2070889
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	2070887, 2070888, 2070889
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	2070887, 2070888, 2070889
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	2070887, 2070888, 2070889
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	2070890, 2070891, 2070892
SM 2120 B / E31780	True Color measured at 450 nm	2070884, 2070885, 2070886
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO ₃ /L	2070884, 2070885, 2070886
SM 2540 C-97 / E31780	Total Dissolved Solids in aqueous matrices	2070884, 2070885, 2070886
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices using a maximum of 250 mL of sample	2070884, 2070885, 2070886
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	2070884, 2070885, 2070886
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	2070887, 2070888, 2070889

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	03/18/2019			03/19/2019 15:54	Adrian Shelby	2070884, 2070885, 2070886
EPA 300.0 Rev. 2.1	03/18/2019			03/22/2019 15:12	Lipi Saha	2070884
	03/18/2019			03/22/2019 15:48	Lipi Saha	2070885
	03/18/2019			03/22/2019 16:01	Lipi Saha	2070886
EPA 350.1 Rev. 2.0	03/18/2019			03/19/2019 13:25	Ping Hua	2070889
	03/18/2019			03/19/2019 13:41	Ping Hua	2070887
	03/18/2019			03/19/2019 13:42	Ping Hua	2070888
EPA 351.2 Rev. 2.0	03/18/2019	03/21/2019 16:30	Adrian Shelby	03/22/2019 15:12	Joseph Suarez	2070887
	03/18/2019	03/21/2019 16:30	Adrian Shelby	03/22/2019 15:14	Joseph Suarez	2070888
	03/18/2019	03/27/2019 13:30	Jhamieka S. Greenwood	03/29/2019 12:14	Joseph Suarez	2070889
EPA 353.2 Rev. 2.0	03/18/2019			03/20/2019 13:54	Lauren Lees	2070887
	03/18/2019			03/20/2019 13:55	Lauren Lees	2070888
	03/18/2019			03/20/2019 13:56	Lauren Lees	2070889
EPA 365.1 Rev. 2.0	03/18/2019	03/25/2019 14:50	Adrian Shelby	03/27/2019 11:59	Rosalyn Ballman	2070887
	03/18/2019	03/25/2019 14:50	Adrian Shelby	03/27/2019 12:00	Rosalyn Ballman	2070888
	03/18/2019	03/25/2019 14:50	Adrian Shelby	03/27/2019 12:01	Rosalyn Ballman	2070889
EPA 365.1 Rev. 2.0 dissolved	03/18/2019			03/19/2019 15:32	Julia Storbeck	2070892
	03/18/2019			03/19/2019 15:33	Julia Storbeck	2070890
	03/18/2019			03/19/2019 15:34	Julia Storbeck	2070891
SM 2120 B	03/18/2019			03/19/2019 15:22	Mariam Hanna	2070884, 2070885
	03/18/2019			03/19/2019 15:23	Mariam Hanna	2070886
SM 2320 B-97	03/18/2019			03/28/2019 08:19	Dale L. Simmons	2070884
	03/18/2019			03/28/2019 08:30	Dale L. Simmons	2070885
	03/18/2019			03/28/2019 08:44	Dale L. Simmons	2070886
SM 2540 C-97	03/18/2019			03/20/2019 15:26	Yijie Li	2070884, 2070885, 2070886
SM 2540 D-97	03/18/2019			03/20/2019 15:26	Yijie Li	2070884, 2070885, 2070886
SM 4500 F-C-97	03/18/2019			03/28/2019 08:19	Dale L. Simmons	2070884
	03/18/2019			03/28/2019 08:30	Dale L. Simmons	2070885
	03/18/2019			03/28/2019 08:44	Dale L. Simmons	2070886
SM 5310 B-00	03/18/2019			03/22/2019 06:52	Lauren Lees	2070889
	03/18/2019			03/22/2019 07:36	Lauren Lees	2070887
	03/18/2019			03/22/2019 07:54	Lauren Lees	2070888