Chemical Analysis Report

TLH-ROC-2018-05-23-01

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-2018-05-14-31**
Customer: **TLH-ROC**
Project ID: **SMP**

Send Reports to:
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2600 Blair Stone Rd
Tallahassee, FL 32399
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Certified by: Colin Wright, Program Administrator

Date Certified: 11-JUN-2018 12:46

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: MEARSON SPRING **Collection Date/Time: 05/23/2018 10:40**

Field ID: G1TLHR0025 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1995098	EPA 180.1 Rev. 2.0	Turbidity	0.15		NTU	P345832	
	EPA 300.0 Rev. 2.1	Chloride	7.5		mg Cl/L	P346221	
		Sulfate	19		mg SO4/L	P346225	
	SM 2120 B	Color (true)	2.5	U	PCU	P345887	
	SM 2320 B-97	Total Alkalinity	171	A	mg CaCO3/L	P346084	
	SM 2540 C-97	TDS	219		mg/L	P346320	
	SM 2540 D-97	TSS	2	I	mg/L	P346366	
	SM 4500 F-C-97	Fluoride	0.12		mg F/L	P346088	
1995101	EPA 350.1 Rev. 2.0	Ammonia-N	0.002	U	mg N/L	P346261	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.15	I	mg N/L	P346035	
	EPA 353.2 Rev. 2.0	NO2NO3-N	3.6		mg N/L	P345998	
	EPA 365.1 Rev. 2.0	Total-P	0.023		mg P/L	P345895	
	SM 5310 B-00	Organic Carbon	0.50	U	mg C/L	P346313	
1995104	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.022		mg P/L	P345827	

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: LITTLE ALAPAHA RIVER **Collection Date/Time: 05/23/2018 12:00**

Field ID: G1TLHR0037 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1995099	EPA 180.1 Rev. 2.0	Turbidity	0.90		NTU	P345832	
	EPA 300.0 Rev. 2.1	Chloride	7.3		mg Cl/L	P346221	
		Sulfate	0.29	I	mg SO4/L	P346225	
	SM 2120 B	Color (true)	760		PCU	P345887	
	SM 2320 B-97	Total Alkalinity	0.65	U	mg CaCO3/L	P346084	
	SM 2540 C-97	TDS	137		mg/L	P346320	
	SM 2540 D-97	TSS	3	I	mg/L	P346366	
	SM 4500 F-C-97	Fluoride	0.092	I	mg F/L	P346088	
1995102	EPA 350.1 Rev. 2.0	Ammonia-N	0.009		mg N/L	P346261	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.7		mg N/L	P346036	MS
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P345998	
	EPA 365.1 Rev. 2.0	Total-P	0.15		mg P/L	P345895	
	SM 5310 B-00	Organic Carbon	70		mg C/L	P346313	
1995105	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.12		mg P/L	P345827	

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: G1TLHR0045 **Collection Date/Time: 05/23/2018 13:05**

Field ID: G1TLHR0045 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1995100	EPA 180.1 Rev. 2.0	Turbidity	2.8	A	NTU	P345833	
	EPA 300.0 Rev. 2.1	Chloride	1.8		mg Cl/L	P346221	
		Sulfate	0.57		mg SO4/L	P346225	

Field ID: G1TLHR0045 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1995100	SM 2120 B	Color (true)	11	A	PCU	P345887	
	SM 2320 B-97	Total Alkalinity	65		mg CaCO3/L	P346084	
	SM 2540 C-97	TDS	79		mg/L	P346320	
	SM 2540 D-97	TSS	3	I	mg/L	P346366	
	SM 4500 F-C-97	Fluoride	0.064	I	mg F/L	P346088	
1995103	EPA 350.1 Rev. 2.0	Ammonia-N	0.005		mg N/L	P346261	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.59	J	mg N/L	P346036	MS
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P345998	
	EPA 365.1 Rev. 2.0	Total-P	0.096		mg P/L	P345924	
	SM 5310 B-00	Organic Carbon	5.2		mg C/L	P346313	
1995106	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.042		mg P/L	P345827	

Ref. Method and Comment:
SM 2540 D-97: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample.
EPA 351.2 Rev. 2.0: Refer to the narrative for an explanation of QC Codes.
EPA 365.1 Rev. 2.0: Total-P: Batch matrix spike recoveries are unavailable because of high analyte concentration in the QC sample.

Quality Assurance Report
Method Blank Results

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P345832

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P345833

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P346221

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P346225

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P346261

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P346035

Component	Result	Code	Units

Quality Assurance Report
Method Blank Results

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P346035

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P346036

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P345998

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P345895

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P345924

Component	Result	Code	Units
Total-P	0.005	U	mg P/L

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P345827

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

Reference Method: SM 2120 B
Batch ID: P345887

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2320 B-97
Batch ID: P346084

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

Reference Method: SM 2540 C-97
Batch ID: P346320

Component	Result	Code	Units
TDS	15	U	mg/L

Quality Assurance Report
Method Blank Results

Reference Method: SM 2540 D-97
Batch ID: P346366

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500 F-C-97
Batch ID: P346088

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-00
Batch ID: P346313

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: P346221

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P346225

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P346261

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P346035

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P346036

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P345998

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits

Quality Assurance Report
Laboratory Control Sample Accuracy

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P345998

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
NO2NO3-N	104		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P345895

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P345924

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P345827

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

Reference Method: SM 2320 B-97
Batch ID: P346084

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	103		P	98 - 107

Reference Method: SM 4500 F-C-97
Batch ID: P346088

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	95.0		P	91 - 105

Reference Method: SM 5310 B-00
Batch ID: P346313

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	95.7		P	85 - 115

Quality Assurance Report
Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P346221

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1994926	Chloride	97.9		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P346225

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits

Quality Assurance Report
Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P346225

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1994926	Sulfate	99.2		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P346261

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1994894	Ammonia-N	101	100	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P346035

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1994930	Kjeldahl Nitrogen	91.9	93.3	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P346036

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1995103	Kjeldahl Nitrogen	106	113	P/F	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P345998

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1995102	NO2NO3-N	91.5	92.0	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P345895

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1995101	Total-P	101	105	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P345827

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1994931	O-Phosphate-P	95.2	95.4	P/P	90 - 110

Reference Method: SM 4500 F-C-97
Batch ID: P346088

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1995098	Fluoride	96.2	96.2	P/P	91 - 105

Reference Method: SM 5310 B-00
Batch ID: P346313

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1994884	Organic Carbon	95.1	95.5	P/P	85 - 115

Quality Assurance Report
Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P345832

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1994891	Turbidity	4.65	Sample	P	0 - 20

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P345833

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1995100	Turbidity	7.17	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P346221

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1994926	Chloride	1.51	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P346225

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1994926	Sulfate	2.69	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P346261

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1994894	Ammonia-N	0.819	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P346035

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1994930	Kjeldahl Nitrogen	0.922	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P346036

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1995103	Kjeldahl Nitrogen	4.56	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P345998

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1995102	NO2NO3-N	0.545	Spike	P	0 - 20

Quality Assurance Report
Precision

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P345895

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1995101	Total-P	3.31	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P345924

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1995239	Total-P	0.359	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P345827

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1994931	O-Phosphate-P	0.210	Spike	P	0 - 20

Reference Method: SM 2120 B
Batch ID: P345887

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1995100	Color (true)	8.40	Sample	P	0 - 20

Reference Method: SM 2320 B-97
Batch ID: P346084

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1995098	Total Alkalinity	0.448	Sample	P	0 - 1.6

Reference Method: SM 2540 C-97
Batch ID: P346320

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1994926	TDS	3.95	Sample	P	0 - 10

Reference Method: SM 4500 F-C-97
Batch ID: P346088

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1995098	Fluoride	0.0	Spike	P	0 - 3.5

Reference Method: SM 5310 B-00
Batch ID: P346313

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1994884	Organic Carbon	0.350	Spike	P	0 - 20

Quality Assurance Report
Precision

* 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: A84113
Included Lab Sample IDs: 1995104, 1995105, 1995106

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	99.2	98.8	P/P	90 - 110
O-Phosphate-P	99.5	99.2	P/P	90 - 110

Reference Method: EPA 180.1 Rev. 2.0
Run ID: A84114
Included Lab Sample IDs: 1995098, 1995099, 1995100

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Turbidity	100	99.5	P/P	95 - 105
Turbidity	102	100	P/P	95 - 105

Reference Method: SM 2120 B
Run ID: A84140
Included Lab Sample IDs: 1995098, 1995099, 1995100

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	103	103	P/P	90 - 115
Color (true)	100	100	P/P	90 - 115

Reference Method: EPA 365.1 Rev. 2.0
Run ID: A84159
Included Lab Sample IDs: 1995102

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

Reference Method: EPA 353.2 Rev. 2.0
Run ID: A84164
Included Lab Sample IDs: 1995101, 1995102, 1995103

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO2NO3-N	104	105	P/P	90 - 110
NO2NO3-N	104	104	P/P	90 - 110

Reference Method: SM 2320 B-97
Run ID: A84181
Included Lab Sample IDs: 1995098, 1995099, 1995100

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	99.6	103	P/P	90 - 110

Quality Assurance Report
Calibration Verification

Reference Method: SM 4500 F-C-97
Run ID: A84181
Included Lab Sample IDs: 1995098, 1995099, 1995100

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	98.1	97.6	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Run ID: A84201
Included Lab Sample IDs: 1995101

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

Reference Method: EPA 300.0 Rev. 2.1
Run ID: A84230
Included Lab Sample IDs: 1995098, 1995099, 1995100

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	103	102	P/P	90 - 110
Sulfate	101	99.9	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Run ID: A84277
Included Lab Sample IDs: 1995101, 1995102, 1995103

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	91.8	95.2	P/P	90 - 110
Kjeldahl Nitrogen	95.2	91.8	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Run ID: A84301
Included Lab Sample IDs: 1995101, 1995102, 1995103

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	100	99.1	P/P	90 - 110
Ammonia-N	102	100	P/P	90 - 110

Reference Method: SM 5310 B-00
Run ID: A84324
Included Lab Sample IDs: 1995101, 1995102, 1995103

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	96.6	97.4	P/P	90 - 110
Organic Carbon	96.6	96.6	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Run ID: A84354
Included Lab Sample IDs: 1995103

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	101	104	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	SMP	MS
EPA 180.1 Rev. 2.0	Turbidity					4.65	
	Turbidity					7.17	
EPA 300.0 Rev. 2.1	Chloride	102	97.9			1.51	
	Sulfate	100	99.2			2.69	
EPA 350.1 Rev. 2.0	Ammonia-N	102	101	100			0.819
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	102	91.9	93.3			0.922
	Kjeldahl Nitrogen	101	106	113			4.56
EPA 353.2 Rev. 2.0	NO2NO3-N	104	91.5	92.0			0.545
EPA 365.1 Rev. 2.0	Total-P	103	101	105			3.31
	Total-P	98.8					0.359
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	98.0	95.2	95.4			0.210
SM 2120 B	Color (true)					8.40	
SM 2320 B-97	Total Alkalinity	103				0.448	
SM 2540 C-97	TDS					3.95	
SM 4500 F-C-97	Fluoride	95.0	96.2	96.2			0.0
SM 5310 B-00	Organic Carbon	95.7	95.1	95.5			0.350

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	1995098, 1995099, 1995100
EPA 300.0 Rev. 2.1 / E31780	Chloride in aqueous matrices	1995098, 1995099, 1995100
EPA 300.0 Rev. 2.1 / E31780	Sulfate in aqueous matrices	1995098, 1995099, 1995100
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	1995101, 1995102, 1995103
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	1995101, 1995102, 1995103
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	1995101, 1995102, 1995103
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	1995101, 1995102, 1995103
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	1995104, 1995105, 1995106
SM 2120 B / E31780	True Color measured at 450 nm	1995098, 1995099, 1995100
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO3/L	1995098, 1995099, 1995100
SM 2540 C-97 / E31780	Total Dissolved Solids in aqueous matrices	1995098, 1995099, 1995100
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices using a maximum of 250 mL of sample	1995098, 1995099, 1995100
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	1995098, 1995099, 1995100
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	1995101, 1995102, 1995103

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	05/23/2018			05/23/2018 17:13	William L. Brown IV	1995098, 1995099, 1995100
EPA 300.0 Rev. 2.1	05/23/2018			06/01/2018 02:51	Lipi Saha	1995098
	05/23/2018			06/01/2018 03:03	Lipi Saha	1995099
	05/23/2018			06/01/2018 03:15	Lipi Saha	1995100
EPA 350.1 Rev. 2.0	05/23/2018			06/01/2018 12:42	Ping Hua	1995101
	05/23/2018			06/01/2018 12:44	Ping Hua	1995102
	05/23/2018			06/01/2018 12:51	Ping Hua	1995103
EPA 351.2 Rev. 2.0	05/23/2018	05/29/2018 16:00	Adrian Shelby	05/31/2018 15:39	Joseph Suarez	1995101
	05/23/2018	05/29/2018 16:00	Adrian Shelby	05/31/2018 15:47	Joseph Suarez	1995102
	05/23/2018	05/29/2018 16:00	Adrian Shelby	05/31/2018 15:48	Joseph Suarez	1995103
EPA 353.2 Rev. 2.0	05/23/2018			05/25/2018 14:17	Lauren Bottorf	1995102
	05/23/2018			05/25/2018 14:58	Lauren Bottorf	1995101
	05/23/2018			05/25/2018 14:59	Lauren Bottorf	1995103
EPA 365.1 Rev. 2.0	05/23/2018	05/24/2018 13:10	Sima Feizi	05/25/2018 12:47	Beverly Y. Sanders	1995102
	05/23/2018	05/24/2018 13:10	Sima Feizi	05/29/2018 12:50	Lipi Saha	1995101
	05/23/2018	05/25/2018 11:55	Sima Feizi	06/05/2018 12:30	Beverly Y. Sanders	1995103
EPA 365.1 Rev. 2.0 dissolved	05/23/2018			05/23/2018 16:38	Megan Treadwell	1995104
	05/23/2018			05/23/2018 16:39	Megan Treadwell	1995105
	05/23/2018			05/23/2018 16:44	Megan Treadwell	1995106
SM 2120 B	05/23/2018			05/24/2018 14:18	Tanya Welborn	1995098
	05/23/2018			05/24/2018 14:21	Tanya Welborn	1995100
	05/23/2018			05/24/2018 14:47	Tanya Welborn	1995099
SM 2320 B-97	05/23/2018			05/25/2018 23:08	Dale L. Simmons	1995098
	05/23/2018			05/25/2018 23:35	Dale L. Simmons	1995099
	05/23/2018			05/25/2018 23:46	Dale L. Simmons	1995100
SM 2540 C-97	05/23/2018			05/25/2018 16:24	Yijie Li	1995098, 1995099, 1995100
SM 2540 D-97	05/23/2018			05/25/2018 16:24	Yijie Li	1995098, 1995099, 1995100
SM 4500 F-C-97	05/23/2018			05/25/2018 23:00	Dale L. Simmons	1995098
	05/23/2018			05/25/2018 23:35	Dale L. Simmons	1995099
	05/23/2018			05/25/2018 23:46	Dale L. Simmons	1995100
SM 5310 B-00	05/23/2018			06/02/2018 06:30	Megan Treadwell	1995101
	05/23/2018			06/02/2018 06:43	Megan Treadwell	1995102
	05/23/2018			06/02/2018 07:27	Megan Treadwell	1995103