

Chemical Analysis Report

NW-DIST-2018-04-17-01

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

Event Description: **Choctawhatchee South run**
Request ID: **RQ-2018-04-16-25**
Customer: **NW-DIST**
Project ID: **SMP**

Send Reports to:
FL Dept. of Environmental Protection
160 Government Center
Suite 208
Pensacola, FL 32502-5794
Attn: Cheryl Bunch

For additional information please contact
Colin Wright, Ph.D.
Liang-Tsair Lin, Ph.D.
Kerry Tate, Ph.D.
Dr. rer. nat. Bettina Steinbock
Thekkekalathil Chandrasekhar, Ph.D, QA Officer
Phone (850) 245-8085

Certified by: Thekkekalathil Chandrasekhar, Chemist Administrator

Date Certified: 03-MAY-2018 11:08



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: Choctawhatchee River above Smokehouse Lake

Collection Date/Time: 04/16/2018 11:30

Field ID: G3NW0073

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1984758	EPA 180.1 Rev. 2.0	Turbidity	13		NTU	P343608	
	EPA 300.0 Rev. 2.1	Chloride	4.7	A	mg Cl/L	P343704	
		Sulfate	1.7	A	mg SO4/L	P343706	
	SM 2120 B	Color (true)	63	A	PCU	P343584	
	SM 2320 B-97	Total Alkalinity	38		mg CaCO3/L	P344070	
	SM 2540 C-97	TDS	65		mg/L	P343895	
	SM 2540 D-97	TSS	10		mg/L	P343878	
	SM 4500 F-C-97	Fluoride	0.041	I	mg F/L	P344072	
1984760	EPA 350.1 Rev. 2.0	Ammonia-N	0.026		mg N/L	P343775	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.33		mg N/L	P343640	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.31		mg N/L	P343659	
	EPA 365.1 Rev. 2.0	Total-P	0.041		mg P/L	P343712	
	SM 5310 B-00	Organic Carbon	4.2		mg C/L	P343740	
1984762	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.014		mg P/L	P343578	

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: SISTER RIVER MOUTH

Collection Date/Time: 04/16/2018 11:50

Field ID: G3NW0154

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1984759	EPA 180.1 Rev. 2.0	Turbidity	6.5		NTU	P343608	
	EPA 300.0 Rev. 2.1	Chloride	6.5		mg Cl/L	P343704	
		Sulfate	1.6		mg SO4/L	P343706	
	SM 2120 B	Color (true)	84		PCU	P343584	
	SM 2320 B-97	Total Alkalinity	30		mg CaCO3/L	P344070	
	SM 2540 C-97	TDS	56		mg/L	P343895	
	SM 2540 D-97	TSS	4	I	mg/L	P343878	
	SM 4500 F-C-97	Fluoride	0.035	I	mg F/L	P344072	
1984761	EPA 350.1 Rev. 2.0	Ammonia-N	0.019		mg N/L	P343775	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.41		mg N/L	P343640	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.14		mg N/L	P343659	
	EPA 365.1 Rev. 2.0	Total-P	0.034		mg P/L	P343712	
	SM 5310 B-00	Organic Carbon	6.0		mg C/L	P343740	
1984763	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.009	I	mg P/L	P343579	

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: BASIN BAYOU AT INLET

Collection Date/Time: 04/16/2018 13:15

Field ID: G3NW0101

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1984755	EPA 180.1 Rev. 2.0	Turbidity	1.7		NTU	P343608	
	SM 2320 B-97	Total Alkalinity	6.5		mg CaCO3/L	P344070	

Field ID: G3NW0101

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1984755	SM 2540 D-97	TSS	2	I	mg/L	P343879	
	SM 4500 F-C-97	Fluoride	0.066	I	mg F/L	P344072	
1984756	EPA 350.1 Rev. 2.0	Ammonia-N	0.002	U	mg N/L	P343775	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.29		mg N/L	P343640	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P343659	
	EPA 365.1 Rev. 2.0	Total-P	0.014		mg P/L	P343712	
	SM 5310 B-00	Organic Carbon	6.2		mg C/L	P343740	
1984757	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P343578	

Ref. Method and Comment:
 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: P343608

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 300.0 Rev. 2.1
 Batch ID: P343704

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
 Batch ID: P343706

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 350.1 Rev. 2.0
 Batch ID: P343775

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

Reference Method: EPA 351.2 Rev. 2.0
 Batch ID: P343640

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

Reference Method: EPA 353.2 Rev. 2.0
 Batch ID: P343659

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

Quality Assurance Report Method Blank Results

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P343712

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P343578

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P343579

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

Reference Method: SM 2120 B
Batch ID: P343584

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2320 B-97
Batch ID: P344070

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

Reference Method: SM 2540 C-97
Batch ID: P343895

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P343878

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P343879

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500 F-C-97
Batch ID: P344072

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: P343740

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: P343704

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Chloride	95.3		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
 Batch ID: P343706

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Sulfate	95.6		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
 Batch ID: P343775

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

Reference Method: EPA 351.2 Rev. 2.0
 Batch ID: P343640

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

Reference Method: EPA 353.2 Rev. 2.0
 Batch ID: P343659

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: P343712

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: P343578

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
 Batch ID: P343579

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: P343579

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

Reference Method: SM 2320 B-97
Batch ID: P344070

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	101		P	98 - 107

Reference Method: SM 4500 F-C-97
Batch ID: P344072

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	94.4		P	91 - 105

Reference Method: SM 5310 B-00
Batch ID: P343740

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	95.2		P	85 - 115

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P343704

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1984758	Chloride	96.7		P	90 - 110
1985022	Chloride	93.7		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P343706

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1984758	Sulfate	94.3		P	90 - 110
1985022	Sulfate	94.0		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P343775

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1984744	Ammonia-N	99.8	98.5	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P343640

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1984760	Kjeldahl Nitrogen	109	105	P/P	90 - 110

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P343659

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1984744	NO2NO3-N	99.8	98.8	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P343712

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1984761	Total-P	104	102	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P343578

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1984745	O-Phosphate-P	97.0	97.5	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P343579

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1984763	O-Phosphate-P	98.3	97.6	P/P	90 - 110

Reference Method: SM 4500 F-C-97
Batch ID: P344072

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1985016	Fluoride	95.3	97.2	P/P	91 - 105

Reference Method: SM 5310 B-00
Batch ID: P343740

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1984744	Organic Carbon	103		P	85 - 115

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P343608

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1984742	Turbidity	2.55	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P343704

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1984758	Chloride	0.207	Sample	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P343706

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1984758	Sulfate	1.19	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P343775

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1984744	Ammonia-N	0.902	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P343640

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1984760	Kjeldahl Nitrogen	2.68	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P343659

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1984744	NO2NO3-N	0.930	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P343712

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1984761	Total-P	1.60	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P343578

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1984745	O-Phosphate-P	0.416	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P343579

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1984763	O-Phosphate-P	0.655	Spike	P	0 - 20

Reference Method: SM 2120 B
Batch ID: P343584

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1984758	Color (true)	0.528	Sample	P	0 - 20

Quality Assurance Report Precision

Reference Method: SM 2320 B-97
Batch ID: P344070

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1985016	Total Alkalinity	1.46	Sample	P	0 - 1.6

Reference Method: SM 2540 C-97
Batch ID: P343895

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1984684	TDS	9.12	Sample	P	0 - 10

Reference Method: SM 4500 F-C-97
Batch ID: P344072

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1985016	Fluoride	1.46	Spike	P	0 - 3.5

Reference Method: SM 5310 B-00
Batch ID: P343740

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1984744	Organic Carbon	0.758	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: A83267
Included Lab Sample IDs: 1984758, 1984759

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	101	98.6	P/P	90 - 110
Sulfate	101	98.7	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Run ID: A83289
Included Lab Sample IDs: 1984757, 1984762, 1984763

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	100	99.7	P/P	90 - 110
O-Phosphate-P	99.9	99.7	P/P	90 - 110

Reference Method: SM 2120 B
Run ID: A83291
Included Lab Sample IDs: 1984758, 1984759

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
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Quality Assurance Report Calibration Verification

Reference Method: SM 2120 B

Run ID: A83291

Included Lab Sample IDs: 1984758, 1984759

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

Reference Method: EPA 180.1 Rev. 2.0

Run ID: A83304

Included Lab Sample IDs: 1984755, 1984758, 1984759

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Turbidity	98.5	99.0	P/P	95 - 105

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A83321

Included Lab Sample IDs: 1984756, 1984760, 1984761

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

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A83339

Included Lab Sample IDs: 1984756, 1984760, 1984761

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

Reference Method: SM 5310 B-00

Run ID: A83342

Included Lab Sample IDs: 1984756, 1984760, 1984761

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	98.0	99.0	P/P	90 - 110
Organic Carbon	99.0	98.0	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A83354

Included Lab Sample IDs: 1984756, 1984760, 1984761

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	103	100	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A83407

Included Lab Sample IDs: 1984756, 1984760, 1984761

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

Reference Method: SM 2320 B-97

Run ID: A83462

Included Lab Sample IDs: 1984755, 1984758, 1984759

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	104	98.2	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: SM 2320 B-97

Run ID: A83462

Included Lab Sample IDs: 1984755, 1984758, 1984759

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	98.4	104	P/P	90 - 110

Reference Method: SM 4500 F-C-97

Run ID: A83462

Included Lab Sample IDs: 1984755, 1984758, 1984759

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	97.6	98.6	P/P	90 - 110
Fluoride	98.6	97.6	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				2.55	
EPA 300.0 Rev. 2.1	Chloride	95.3	96.7 93.7		0.207	
	Sulfate	95.6	94.3 94.0		1.19	
EPA 350.1 Rev. 2.0	Ammonia-N	98.8	99.8 98.5			0.902
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	105	109 105			2.68
EPA 353.2 Rev. 2.0	NO2NO3-N	102	99.8 98.8			0.930
EPA 365.1 Rev. 2.0	Total-P	102	104 102			1.60
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	100	97.0 97.5			0.416
	O-Phosphate-P	98.8	98.3 97.6			0.655
SM 2120 B	Color (true)				0.528	
SM 2320 B-97	Total Alkalinity	101			1.46	
SM 2540 C-97	TDS				9.12	
SM 4500 F-C-97	Fluoride	94.4	95.3 97.2			1.46
SM 5310 B-00	Organic Carbon	95.2	103			0.758

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	1984755, 1984758, 1984759
EPA 300.0 Rev. 2.1 / E31780	Chloride in aqueous matrices	1984758, 1984759
EPA 300.0 Rev. 2.1 / E31780	Sulfate in aqueous matrices	1984758, 1984759
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	1984756, 1984760, 1984761
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	1984756, 1984760, 1984761
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	1984756, 1984760, 1984761
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	1984756, 1984760, 1984761

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	1984757, 1984762, 1984763
SM 2120 B / E31780	True Color measured at 450 nm	1984758, 1984759
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO ₃ /L	1984755, 1984758, 1984759
SM 2540 C-97 / E31780	Total Dissolved Solids in aqueous matrices	1984758, 1984759
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices	1984755, 1984758, 1984759
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	1984755, 1984758, 1984759
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	1984756, 1984760, 1984761

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	04/17/2018			04/17/2018 17:41	William L. Brown IV	1984755, 1984758, 1984759
EPA 300.0 Rev. 2.1	04/17/2018			04/18/2018 14:36	Lipi Saha	1984758
	04/17/2018			04/18/2018 15:48	Lipi Saha	1984759
EPA 350.1 Rev. 2.0	04/17/2018			04/18/2018 12:33	Ping Hua	1984756
	04/17/2018			04/18/2018 12:35	Ping Hua	1984760
	04/17/2018			04/18/2018 12:36	Ping Hua	1984761
EPA 351.2 Rev. 2.0	04/17/2018	04/18/2018 11:00	Adrian Shelby	04/19/2018 12:46	Joseph Suarez	1984756
	04/17/2018	04/18/2018 11:00	Adrian Shelby	04/19/2018 12:48	Joseph Suarez	1984760
	04/17/2018	04/18/2018 11:00	Adrian Shelby	04/19/2018 12:53	Joseph Suarez	1984761
EPA 353.2 Rev. 2.0	04/17/2018			04/18/2018 14:29	Lauren Bottorf	1984756
	04/17/2018			04/18/2018 14:30	Lauren Bottorf	1984760
	04/17/2018			04/18/2018 14:31	Lauren Bottorf	1984761
EPA 365.1 Rev. 2.0	04/17/2018	04/18/2018 14:25	Sima Feizi	04/23/2018 18:14	Beverly Y. Sanders	1984756
	04/17/2018	04/18/2018 14:25	Sima Feizi	04/23/2018 18:15	Beverly Y. Sanders	1984760
	04/17/2018	04/18/2018 14:25	Sima Feizi	04/23/2018 18:16	Beverly Y. Sanders	1984761
EPA 365.1 Rev. 2.0 dissolved	04/17/2018			04/17/2018 14:59	Megan Treadwell	1984763
	04/17/2018			04/17/2018 15:24	Megan Treadwell	1984757
	04/17/2018			04/17/2018 15:25	Megan Treadwell	1984762
SM 2120 B	04/17/2018			04/17/2018 16:11	Tanya Welborn	1984758
	04/17/2018			04/17/2018 16:12	Tanya Welborn	1984759
SM 2320 B-97	04/17/2018			04/25/2018 20:54	Dale L. Simmons	1984755
	04/17/2018			04/25/2018 21:42	Dale L. Simmons	1984758
	04/17/2018			04/25/2018 21:52	Dale L. Simmons	1984759
SM 2540 C-97	04/17/2018			04/18/2018 16:03	Yijie Li	1984758, 1984759
SM 2540 D-97	04/17/2018			04/18/2018 16:03	Yijie Li	1984755, 1984758, 1984759
SM 4500 F-C-97	04/17/2018			04/25/2018 20:54	Dale L. Simmons	1984755
	04/17/2018			04/25/2018 21:42	Dale L. Simmons	1984758
	04/17/2018			04/25/2018 21:52	Dale L. Simmons	1984759
SM 5310 B-00	04/17/2018			04/19/2018 07:15	Megan Treadwell	1984756
	04/17/2018			04/19/2018 07:29	Megan Treadwell	1984760
	04/17/2018			04/19/2018 08:12	Megan Treadwell	1984761