

Chemical Analysis Report

NW-DIST-2016-06-23-02

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

Event Description: **TMDL Bioassessment**
Request ID: **RQ-2016-06-06-22**
Customer: **NW-DIST**
Project ID: **SMP**

Send Reports to:
FL Dept. of Environmental Protection
160 W Government St
Suite 208A
Pensacola, FL 32502-5794
Attn: Michael King

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Certified by: Liang Lin, Environmental Administrator

Date Certified: 18-JUL-2016 10:16

A handwritten signature in black ink, appearing to read "Liang Lin", is written on a light-colored, textured 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: SHOAL RIVER BELOW TITI CREEK

Collection Date/Time: 06/22/2016 12:45

Field ID: G4NW0025

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1810937	EPA 180.1 Rev. 2.0	Turbidity	4.8		NTU	P306768	
	EPA 300.0 Rev. 2.1	Chloride	3.2		mg Cl/L	P307644	
		Sulfate	1.1		mg SO4/L	P307643	
	SM 2120 B	Color (true)	58	A	PCU	P306774	
	SM 2320 B-97	Total Alkalinity	3.7		mg CaCO3/L	P307267	
	SM 2540 C-97	TDS	17	I	mg/L	P307591	
	SM 2540 D-97	TSS	7	I	mg/L	P307452	
	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P307268	
1810941	EPA 350.1 Rev. 2.0	Ammonia-N	0.012		mg N/L	P307089	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.18	I	mg N/L	P306862	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.25		mg N/L	P306926	
	EPA 365.1 Rev. 2.0	Total-P	0.015		mg P/L	P306959	
	SM 5310 B-00	Organic Carbon	3.9		mg C/L	P307215	
1810945	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P306759	

Ref. Method and Comment:

SM 2540 D-97: The precision data is unavailable due to the low analyte concentration in the QC sample.

Sample Location: UPPER ESCAMBIA RIVER @ POWER LINES

Collection Date/Time: 06/22/2016 15:10

Field ID: G4NW0185

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1810938	EPA 180.1 Rev. 2.0	Turbidity	14		NTU	P306768	
	EPA 300.0 Rev. 2.1	Chloride	10		mg Cl/L	P307644	
		Sulfate	7.8		mg SO4/L	P307643	
	SM 2120 B	Color (true)	93		PCU	P306774	
	SM 2320 B-97	Total Alkalinity	23		mg CaCO3/L	P307267	
	SM 2540 C-97	TDS	70		mg/L	P307591	
	SM 2540 D-97	TSS	7	I	mg/L	P307452	
	SM 4500 F-C-97	Fluoride	0.037	I	mg F/L	P307268	
1810942	EPA 350.1 Rev. 2.0	Ammonia-N	0.022		mg N/L	P307089	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.30		mg N/L	P306862	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.20		mg N/L	P306926	
	EPA 365.1 Rev. 2.0	Total-P	0.041		mg P/L	P306959	
	SM 5310 B-00	Organic Carbon	6.5		mg C/L	P307215	
1810946	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.009	I	mg P/L	P306759	

Ref. Method and Comment:

SM 2540 D-97: The precision data is unavailable due to the low analyte concentration in the QC sample.

Sample Location: ESCAMBIA R MOUTH WMS DITCH

Collection Date/Time: 06/22/2016 16:00

Field ID: G4NW0006

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1810939	EPA 180.1 Rev. 2.0	Turbidity	19		NTU	P306768	
	EPA 300.0 Rev. 2.1	Chloride	4.8		mg Cl/L	P307644	
		Sulfate	6.0		mg SO4/L	P307643	

Field ID: G4NW0006

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1810939	SM 2120 B	Color (true)	44		PCU	P306776	
	SM 2320 B-97	Total Alkalinity	23		mg CaCO3/L	P307267	
	SM 2540 C-97	TDS	60		mg/L	P307592	
	SM 2540 D-97	TSS	16		mg/L	P307453	
	SM 4500 F-C-97	Fluoride	0.037	I	mg F/L	P307268	
1810943	EPA 350.1 Rev. 2.0	Ammonia-N	0.023		mg N/L	P307089	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.30		mg N/L	P306862	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.23		mg N/L	P306926	
	EPA 365.1 Rev. 2.0	Total-P	0.044		mg P/L	P306959	
	SM 5310 B-00	Organic Carbon	6.3		mg C/L	P307215	
1810947	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.012		mg P/L	P306759	

Ref. Method and Comment:

SM 2540 D-97: The precision data is unavailable due to the low analyte concentration in the QC sample.

Sample Location: ESCAMBI RIVER HWY 184 BR

Collection Date/Time: 06/22/2016 16:15

Field ID: G4NW0005

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1810940	EPA 180.1 Rev. 2.0	Turbidity	19		NTU	P306768	
	EPA 300.0 Rev. 2.1	Chloride	4.9		mg Cl/L	P307644	
		Sulfate	6.1		mg SO4/L	P307643	
	SM 2120 B	Color (true)	45		PCU	P306776	
	SM 2320 B-97	Total Alkalinity	23		mg CaCO3/L	P307267	
	SM 2540 C-97	TDS	58		mg/L	P307592	
	SM 2540 D-97	TSS	20		mg/L	P307453	
	SM 4500 F-C-97	Fluoride	0.037	I	mg F/L	P307268	
1810944	EPA 350.1 Rev. 2.0	Ammonia-N	0.023		mg N/L	P307089	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.43		mg N/L	P306957	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.23		mg N/L	P307381	
	EPA 365.1 Rev. 2.0	Total-P	0.050		mg P/L	P306959	
	SM 5310 B-00	Organic Carbon	6.1		mg C/L	P307215	
1810948	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.011		mg P/L	P306759	

Ref. Method and Comment:

SM 2540 D-97: The precision data is unavailable due to the low analyte concentration in the QC sample.

Quality Assurance Report

Method Blank Results

Reference Method: EPA 180.1 Rev. 2.0

Batch ID: P306768

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 300.0 Rev. 2.1

Batch ID: P307643

Component	Result	Code	Units
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Quality Assurance Report Method Blank Results

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P307643

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P307644

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P307089

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P306862

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P306957

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P306926

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P307381

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P306959

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P306759

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: P306774

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2120 B
Batch ID: P306776

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2320 B-97
Batch ID: P307267

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

Reference Method: SM 2540 C-97
Batch ID: P307591

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 C-97
Batch ID: P307592

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P307452

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P307453

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500 F-C-97
Batch ID: P307268

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-00
Batch ID: P307215

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: P307643

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P307644

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P307089

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Ammonia-N	93.0		P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P306862

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: P306957

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P306926

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P307381

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P306959

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P306759

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

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: SM 2320 B-97
 Batch ID: P307267

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	103		P	95 - 108

Reference Method: SM 4500 F-C-97
 Batch ID: P307268

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	96.3		P	92 - 103

Reference Method: SM 5310 B-00
 Batch ID: P307215

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: P307643

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1811967	Sulfate	107		P	90 - 110
1811982	Sulfate	105		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
 Batch ID: P307644

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1811967	Chloride	105		P	90 - 110
1811982	Chloride	106		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
 Batch ID: P307089

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1810941	Ammonia-N	91.2	90.5	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
 Batch ID: P306862

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1810765	Kjeldahl Nitrogen	99.4	107	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
 Batch ID: P306957

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1811081	Kjeldahl Nitrogen	98.1	102	P/P	90 - 110

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P306926

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1810704	NO2NO3-N	100	102	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P307381

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1810762	NO2NO3-N	99.8		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P306959

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1810941	Total-P	98.6	97.5	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P306759

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1810947	O-Phosphate-P	100	99.5	P/P	90 - 110

Reference Method: SM 4500 F-C-97
Batch ID: P307268

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1810894	Fluoride	97.8	99.6	P/P	91 - 105

Reference Method: SM 5310 B-00
Batch ID: P307215

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1810895	Organic Carbon	107		P	85 - 115

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P306768

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1810894	Turbidity	1.32	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P307643

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1811967	Sulfate	0.0666	Sample	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P307644

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1811967	Chloride	0.193	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P307089

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1810941	Ammonia-N	0.653	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P306862

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1810765	Kjeldahl Nitrogen	6.91	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P306957

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1811081	Kjeldahl Nitrogen	3.67	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P306926

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1810704	NO2NO3-N	0.990	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P307381

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1810762	NO2NO3-N	0.233	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P306959

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1810941	Total-P	1.08	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P306759

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1810947	O-Phosphate-P	0.536	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: SM 2120 B
Batch ID: P306774

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1810937	Color (true)	1.81	Sample	P	0 - 20

Reference Method: SM 2120 B
Batch ID: P306776

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1810671	Color (true)	1.92	Sample	P	0 - 20

Reference Method: SM 2320 B-97
Batch ID: P307267

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1810894	Total Alkalinity	0.179	Sample	P	0 - 4.8

Reference Method: SM 2540 C-97
Batch ID: P307591

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1810894	TDS	5.31	Sample	P	0 - 10

Reference Method: SM 2540 C-97
Batch ID: P307592

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1811100	TDS	1.34	Sample	P	0 - 10

Reference Method: SM 4500 F-C-97
Batch ID: P307268

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1810894	Fluoride	1.45	Spike	P	0 - 3.0

Reference Method: SM 5310 B-00
Batch ID: P307215

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1810895	Organic Carbon	0.884	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

Quality Assurance Report Calibration Verification

Reference Method: EPA 365.1 Rev. 2.0 dissolved

Run ID: A70196

Included Lab Sample IDs: 1810945, 1810946, 1810947, 1810948

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	101	99.3	P/P	90 - 110
O-Phosphate-P	97.8	98.4	P/P	90 - 110
O-Phosphate-P	98.4	98.3	P/P	90 - 110

Reference Method: EPA 180.1 Rev. 2.0

Run ID: A70197

Included Lab Sample IDs: 1810937, 1810938, 1810939, 1810940

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

Reference Method: SM 2120 B

Run ID: A70198

Included Lab Sample IDs: 1810937, 1810938, 1810939, 1810940

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	100	98.8	P/P	90 - 115
Color (true)	99.7	100	P/P	90 - 115

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A70248

Included Lab Sample IDs: 1810941, 1810942, 1810943

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO2NO3-N	103	102	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A70266

Included Lab Sample IDs: 1810941, 1810942, 1810943

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	100	99.2	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A70292

Included Lab Sample IDs: 1810944

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	97.6	100	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A70306

Included Lab Sample IDs: 1810941, 1810942, 1810943, 1810944

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	93.5	92.9	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A70345

Included Lab Sample IDs: 1810941, 1810942, 1810943, 1810944

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

Reference Method: SM 5310 B-00

Run ID: A70358

Included Lab Sample IDs: 1810941, 1810942, 1810943, 1810944

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	105	106	P/P	90 - 110

Reference Method: SM 2320 B-97

Run ID: A70370

Included Lab Sample IDs: 1810937, 1810938, 1810939, 1810940

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	99.8	103	P/P	90 - 110

Reference Method: SM 4500 F-C-97

Run ID: A70370

Included Lab Sample IDs: 1810937, 1810938, 1810939, 1810940

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

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A70411

Included Lab Sample IDs: 1810944

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

Reference Method: EPA 300.0 Rev. 2.1

Run ID: A70443

Included Lab Sample IDs: 1810937, 1810938, 1810939, 1810940

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	106	108	P/P	90 - 110
Sulfate	102	106	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				1.32	
EPA 300.0 Rev. 2.1	Chloride	107	105 106		0.193	

Quality Assurance Report Summary

Ref. Method	Analyte	LCS % Recovery	MS % Recovery		LCS	Precision SMP	MS
EPA 300.0 Rev. 2.1	Sulfate	105	107	105		0.0666	
EPA 350.1 Rev. 2.0	Ammonia-N	93.0	91.2	90.5			0.653
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	102	99.4	107			6.91
	Kjeldahl Nitrogen	107	98.1	102			3.67
EPA 353.2 Rev. 2.0	NO2NO3-N	100	100	102			0.990
	NO2NO3-N	101	99.8				0.233
EPA 365.1 Rev. 2.0	Total-P	103	98.6	97.5			1.08
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	104	100	99.5			0.536
SM 2120 B	Color (true)					1.81	
	Color (true)					1.92	
SM 2320 B-97	Total Alkalinity	103				0.179	
SM 2540 C-97	TDS					5.31	
	TDS					1.34	
SM 4500 F-C-97	Fluoride	96.3	97.8	99.6			1.45
SM 5310 B-00	Organic Carbon	101	107				0.884

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	1810937, 1810938, 1810939, 1810940
EPA 300.0 Rev. 2.1 / E31780	Chloride in aqueous matrices	1810937, 1810938, 1810939, 1810940
EPA 300.0 Rev. 2.1 / E31780	Sulfate in aqueous matrices	1810937, 1810938, 1810939, 1810940
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	1810941, 1810942, 1810943, 1810944
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	1810941, 1810942, 1810943, 1810944
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	1810941, 1810942, 1810943, 1810944
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	1810941, 1810942, 1810943, 1810944
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	1810945, 1810946, 1810947, 1810948
SM 2120 B / E31780	True Color measured at 450 nm	1810937, 1810938, 1810939, 1810940
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO3/L	1810937, 1810938, 1810939, 1810940
SM 2540 C-97 / E31780	Total Dissolved Solids in aqueous matrices	1810937, 1810938, 1810939, 1810940
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices	1810937, 1810938, 1810939, 1810940
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	1810937, 1810938, 1810939, 1810940
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	1810941, 1810942, 1810943, 1810944

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	06/23/2016			06/23/2016 15:44	Sima Feizi	1810937, 1810938, 1810939, 1810940
EPA 300.0 Rev. 2.1	06/23/2016			07/08/2016	Ping Hua	1810937, 1810938, 1810939, 1810940
EPA 350.1 Rev. 2.0	06/23/2016			06/29/2016	Diana M. Turner	1810941, 1810942, 1810943, 1810944
EPA 351.2 Rev. 2.0	06/23/2016	06/27/2016	Sofia Elnemr	06/28/2016	Christopher Armour	1810941, 1810942, 1810943
	06/23/2016	06/28/2016	Sofia Elnemr	06/29/2016	Christopher Armour	1810944
EPA 353.2 Rev. 2.0	06/23/2016			06/27/2016	Peter D. Kaus	1810941, 1810942, 1810943
	06/23/2016			07/06/2016	Beverly Y. Sanders	1810944
EPA 365.1 Rev. 2.0	06/23/2016	06/28/2016	Vijayalakshmi Reddy	06/29/2016	Lipi Saha	1810941, 1810942, 1810943, 1810944
EPA 365.1 Rev. 2.0 dissolved	06/23/2016			06/23/2016 14:17	Julia Storbeck	1810947
	06/23/2016			06/23/2016 15:22	Julia Storbeck	1810945
	06/23/2016			06/23/2016 15:27	Julia Storbeck	1810946
	06/23/2016			06/23/2016 15:28	Julia Storbeck	1810948
SM 2120 B	06/23/2016			06/23/2016 16:55	Rochelle Y Jackson	1810937
	06/23/2016			06/23/2016 16:56	Rochelle Y Jackson	1810938
	06/23/2016			06/23/2016 17:11	Rochelle Y Jackson	1810939, 1810940
SM 2320 B-97	06/23/2016			06/30/2016	Dale L. Simmons	1810937, 1810938, 1810939, 1810940
SM 2540 C-97	06/23/2016			06/27/2016	Sima Feizi	1810937, 1810938, 1810939, 1810940
SM 2540 D-97	06/23/2016			06/27/2016	Sima Feizi	1810937, 1810938, 1810939, 1810940
SM 4500 F-C-97	06/23/2016			06/30/2016	Dale L. Simmons	1810937, 1810938, 1810939, 1810940
SM 5310 B-00	06/23/2016			06/30/2016	Sofia Elnemr	1810941, 1810942, 1810943, 1810944