

Chemical Analysis Report

NW-DIST-2016-12-30-01

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

Event Description: **Holmes WBID 49 49F**
Request ID: **RQ-2016-12-05-15**
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

For additional information please contact
Colin Wright, Ph.D.
Liang-Tsair Lin, Ph.D.
Thekkekalathil Chandrasekhar, PhD, QA Officer
Phone (850) 245-8085

Certified by: Liang Lin, Environmental Administrator

Date Certified: 13-JAN-2017 15:39

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

NON-CONFORMANCE REPORT INCLUDED

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 AT HWY 90

Collection Date/Time: 12/29/2016 11:05

Field ID: G3NW0052

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1860744	EPA 180.1 Rev. 2.0	Turbidity	13		NTU	P317618	
	EPA 300.0 Rev. 2.1	Chloride	5.5	A	mg Cl/L	P317848	
		Sulfate	3.6	A	mg SO4/L	P317845	
	SM 2120 B	Color (true)	48		PCU	P317620	
	SM 2320 B-97	Total Alkalinity	31		mg CaCO3/L	P317689	
	SM 2540 C-97	TDS	54		mg/L	P318021	
	SM 2540 D-97	TSS	16		mg/L	P317944	
	SM 4500 F-C-97	Fluoride	0.040	I	mg F/L	P317690	
1860747	EPA 350.1 Rev. 2.0	Ammonia-N	0.005	IY	mg N/L	P317755	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.34	Y	mg N/L	P317673	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.58	Y	mg N/L	P317704	
	EPA 365.1 Rev. 2.0	Total-P	0.046	Y	mg P/L	P317666	
	SM 5310 B-00	Organic Carbon	3.6	Y	mg C/L	P317708	
1860750	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.017		mg P/L	P317619	

Ref. Method and Comment:

EPA 180.1 Rev. 2.0: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample.

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

EPA 350.1 Rev. 2.0: Sample was stored at room temperature for an extended period, should be stored at 4 degC. See NCR.

EPA 351.2 Rev. 2.0: Sample was stored at room temperature for an extended period, should be stored at 4 degC. See NCR.

EPA 353.2 Rev. 2.0: Sample was stored at room temperature for an extended period, should be stored at 4 degC. See NCR.

EPA 365.1 Rev. 2.0: Total-P: Sample was stored at room temperature for an extended period, should be stored at 4 degC. See NCR.

SM 5310 B-00: Sample was stored at room temperature for an extended period, should be stored at 4 degC. See NCR.

Sample Location: CHOCTAWHATCHEE RIVER ABOVE WRIGHTS

Collection Date/Time: 12/29/2016 11:25

C

Field ID: G3NW0091

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1860745	EPA 180.1 Rev. 2.0	Turbidity	11		NTU	P317618	
	EPA 300.0 Rev. 2.1	Chloride	5.7		mg Cl/L	P317848	
		Sulfate	3.8		mg SO4/L	P317845	
	SM 2120 B	Color (true)	49		PCU	P317620	
	SM 2320 B-97	Total Alkalinity	29		mg CaCO3/L	P317689	
	SM 2540 C-97	TDS	60		mg/L	P318021	
	SM 2540 D-97	TSS	16		mg/L	P317944	
	SM 4500 F-C-97	Fluoride	0.041	I	mg F/L	P317690	
1860748	EPA 350.1 Rev. 2.0	Ammonia-N	0.022	Y	mg N/L	P317755	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.25	Y	mg N/L	P317673	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.62	Y	mg N/L	P317704	
	EPA 365.1 Rev. 2.0	Total-P	0.051	Y	mg P/L	P317666	
	SM 5310 B-00	Organic Carbon	3.5	Y	mg C/L	P317708	
1860751	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.018		mg P/L	P317619	

Field ID: G3NW0091

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
Ref. Method and Comment:							
EPA 180.1 Rev. 2.0: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample.							
SM 2540 D-97: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample.							
EPA 350.1 Rev. 2.0: Sample was stored at room temperature for an extended period, should be stored at 4 degC. See NCR.							
EPA 351.2 Rev. 2.0: Sample was stored at room temperature for an extended period, should be stored at 4 degC. See NCR.							
EPA 353.2 Rev. 2.0: Sample was stored at room temperature for an extended period, should be stored at 4 degC. See NCR.							
EPA 365.1 Rev. 2.0: Total-P: Sample was stored at room temperature for an extended period, should be stored at 4 degC. See NCR.							
SM 5310 B-00: Sample was stored at room temperature for an extended period, should be stored at 4 degC. See NCR.							

Sample Location: CHOCTAWHATCHEE RIVER 100 YD ABOVE PA Collection Date/Time: 12/29/2016 12:30

Field ID: G3NW0124

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1860746	EPA 180.1 Rev. 2.0	Turbidity	10		NTU	P317618	
	EPA 300.0 Rev. 2.1	Chloride	5.9	A	mg Cl/L	P317849	
		Sulfate	3.8	A	mg SO4/L	P317846	
	SM 2120 B	Color (true)	49		PCU	P317620	
	SM 2320 B-97	Total Alkalinity	26		mg CaCO3/L	P317689	
	SM 2540 C-97	TDS	66		mg/L	P318021	
	SM 2540 D-97	TSS	13		mg/L	P317944	
1860749	SM 4500 F-C-97	Fluoride	0.041	I	mg F/L	P317690	
	EPA 350.1 Rev. 2.0	Ammonia-N	0.019	Y	mg N/L	P317755	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.25	Y	mg N/L	P317673	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.64	Y	mg N/L	P317704	
	EPA 365.1 Rev. 2.0	Total-P	0.055	Y	mg P/L	P317666	
1860752	SM 5310 B-00	Organic Carbon	3.4	Y	mg C/L	P317708	
	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.024		mg P/L	P317619	

Ref. Method and Comment:

EPA 180.1 Rev. 2.0: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample.

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

EPA 350.1 Rev. 2.0: Sample was stored at room temperature for an extended period, should be stored at 4 degC. See NCR.

EPA 351.2 Rev. 2.0: Sample was stored at room temperature for an extended period, should be stored at 4 degC. See NCR.

EPA 353.2 Rev. 2.0: Sample was stored at room temperature for an extended period, should be stored at 4 degC. See NCR.

EPA 365.1 Rev. 2.0: Total-P: Sample was stored at room temperature for an extended period, should be stored at 4 degC. See NCR.

SM 5310 B-00: Sample was stored at room temperature for an extended period, should be stored at 4 degC. See NCR.

Non-Conformance Report

NCR ID: 6183

Event(s)	Job(s)	Sample(s)	Test(s)
NW-DIST-2016-12-30-01	TLH-2016-12-30-14	1860747	
NW-DIST-2016-12-30-01	TLH-2016-12-30-14	1860748	
NW-DIST-2016-12-30-01	TLH-2016-12-30-14	1860749	

NCR Type: CUSTODY

NCR Category: General

Observation: Sample was stored at room temperature over the weekend due to an oversight. Should be stored in a refrigerator.

Resolution: Sample was analyzed and the results Y qualified for incorrect preservation. Customer notified by email.

Authorised by/Date: Kathy Lurding 1/10/2017

The Non-Conformance Report details exceptions or problems encountered with the events/jobs/samples/test.
Please address questions to:

Chemistry Colin Wright (850) 245-8085
Biology Cheryl Swanson (850) 245-8177

Quality Assurance Report Method Blank Results

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P317618

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P317845

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P317846

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P317848

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P317849

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P317755

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P317673

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P317704

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: P317666

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P317619

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

Reference Method: SM 2120 B
Batch ID: P317620

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2320 B-97
Batch ID: P317689

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

Reference Method: SM 2540 C-97
Batch ID: P318021

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P317944

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500 F-C-97
Batch ID: P317690

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-00
Batch ID: P317708

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: P317845

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P317845

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Sulfate	96.9		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P317846

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Sulfate	97.2		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P317848

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P317849

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P317755

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P317673

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P317704

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
NO2NO3-N	106		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P317666

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total-P	91.3		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P317619

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
O-Phosphate-P	99.3		P	90 - 110

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: SM 2320 B-97
Batch ID: P317689

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	102		P	95 - 108

Reference Method: SM 4500 F-C-97
Batch ID: P317690

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	97.0		P	92 - 103

Reference Method: SM 5310 B-00
Batch ID: P317708

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	92.6		P	85 - 115

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P317845

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1860744	Sulfate	96.9		P	90 - 110
1860745	Sulfate	93.3		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P317846

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1860246	Sulfate	95.4		P	90 - 110
1860746	Sulfate	96.8		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P317848

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1860744	Chloride	101		P	90 - 110
1860745	Chloride	102		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P317849

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1860246	Chloride	99.3		P	90 - 110
1860746	Chloride	100		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P317755

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1860740	Ammonia-N	100	101	P/P	90 - 110

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P317673

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1860748	Kjeldahl Nitrogen	99.3	101	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P317704

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1860738	NO2NO3-N	104	97.5	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P317666

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1860770	Total-P	98.1	93.7	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P317619

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1860741	O-Phosphate-P	99.3	97.3	P/P	90 - 110

Reference Method: SM 4500 F-C-97
Batch ID: P317690

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1860768	Fluoride	98.2	99.0	P/P	91 - 105

Reference Method: SM 5310 B-00
Batch ID: P317708

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1860726	Organic Carbon	101		P	85 - 115

Quality Assurance Report Precision

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P317845

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1860744	Sulfate	0.473	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P317846

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1860746	Sulfate	0.248	Sample	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P317848

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1860744	Chloride	0.289	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P317849

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1860746	Chloride	0.0155	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P317755

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1860740	Ammonia-N	0.333	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P317673

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1860748	Kjeldahl Nitrogen	1.17	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P317704

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1860738	NO2NO3-N	6.93	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P317666

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1860770	Total-P	4.34	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P317619

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1860741	O-Phosphate-P	1.43	Spike	P	0 - 20

Reference Method: SM 2120 B
Batch ID: P317620

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1860725	Color (true)	1.24	Sample	P	0 - 20

Quality Assurance Report Precision

Reference Method: SM 2320 B-97
Batch ID: P317689

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1860768	Total Alkalinity	0.0514	Sample	P	0 - 4.8

Reference Method: SM 2540 C-97
Batch ID: P318021

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1860737	TDS	2.48	Sample	P	0 - 10

Reference Method: SM 4500 F-C-97
Batch ID: P317690

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1860768	Fluoride	0.520	Spike	P	0 - 3.0

Reference Method: SM 5310 B-00
Batch ID: P317708

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1860726	Organic Carbon	0.162	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 180.1 Rev. 2.0
Run ID: A73678
Included Lab Sample IDs: 1860744, 1860745, 1860746

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Run ID: A73680
Included Lab Sample IDs: 1860750, 1860751, 1860752

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	100	99.3	P/P	90 - 110

Reference Method: SM 2120 B
Run ID: A73681
Included Lab Sample IDs: 1860744, 1860745, 1860746

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	104	104	P/P	85 - 115

Quality Assurance Report Calibration Verification

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A73715

Included Lab Sample IDs: 1860748, 1860749

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

Reference Method: SM 2320 B-97

Run ID: A73717

Included Lab Sample IDs: 1860744, 1860745, 1860746

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

Reference Method: SM 4500 F-C-97

Run ID: A73717

Included Lab Sample IDs: 1860744, 1860745, 1860746

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	97.5	100	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A73729

Included Lab Sample IDs: 1860747, 1860748, 1860749

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO2NO3-N	100	101	P/P	90 - 110

Reference Method: SM 5310 B-00

Run ID: A73731

Included Lab Sample IDs: 1860747, 1860748, 1860749

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

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A73734

Included Lab Sample IDs: 1860747, 1860748, 1860749

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	100	104	P/P	90 - 110
Kjeldahl Nitrogen	105	101	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A73745

Included Lab Sample IDs: 1860747, 1860748, 1860749

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	99.6	99.9	P/P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1

Run ID: A73754

Included Lab Sample IDs: 1860744, 1860745, 1860746

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

Quality Assurance Report Calibration Verification

Reference Method: EPA 300.0 Rev. 2.1

Run ID: A73754

Included Lab Sample IDs: 1860744, 1860745, 1860746

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	103	103	P/P	90 - 110
Chloride	103	103	P/P	90 - 110
Sulfate	95.9	99.1	P/P	90 - 110
Sulfate	96.0	100	P/P	90 - 110
Sulfate	96.1	96.0	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A73812

Included Lab Sample IDs: 1860747

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	98.0	97.8	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 300.0 Rev. 2.1	Chloride	102	101	102		0.289	
	Chloride	102	100	99.3		0.0155	
	Sulfate	96.9	96.9	93.3		0.473	
	Sulfate	97.2	96.8	95.4		0.248	
EPA 350.1 Rev. 2.0	Ammonia-N	104	100	101			0.333
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	104	99.3	101			1.17
EPA 353.2 Rev. 2.0	NO2NO3-N	106	104	97.5			6.93
EPA 365.1 Rev. 2.0	Total-P	91.3	98.1	93.7			4.34
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	99.3	99.3	97.3			1.43
SM 2120 B	Color (true)					1.24	
SM 2320 B-97	Total Alkalinity	102				0.0514	
SM 2540 C-97	TDS					2.48	
SM 4500 F-C-97	Fluoride	97.0	98.2	99.0			0.520
SM 5310 B-00	Organic Carbon	92.6	101				0.162

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	1860744, 1860745, 1860746
EPA 300.0 Rev. 2.1 / E31780	Chloride in aqueous matrices	1860744, 1860745, 1860746
EPA 300.0 Rev. 2.1 / E31780	Sulfate in aqueous matrices	1860744, 1860745, 1860746
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	1860747, 1860748, 1860749
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	1860747, 1860748, 1860749

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	1860747, 1860748, 1860749
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	1860747, 1860748, 1860749
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	1860750, 1860751, 1860752
SM 2120 B / E31780	True Color measured at 450 nm	1860744, 1860745, 1860746
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO ₃ /L	1860744, 1860745, 1860746
SM 2540 C-97 / E31780	Total Dissolved Solids in aqueous matrices	1860744, 1860745, 1860746
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices	1860744, 1860745, 1860746
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	1860744, 1860745, 1860746
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	1860747, 1860748, 1860749

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	12/30/2016			12/30/2016 15:48	Julie Michelle Frank	1860744, 1860745, 1860746
EPA 300.0 Rev. 2.1	12/30/2016			01/05/2017	Ping Hua	1860746
	12/30/2016			01/06/2017	Ping Hua	1860744, 1860745
EPA 350.1 Rev. 2.0	12/30/2016			01/04/2017	Sofia Elnemr	1860747, 1860748, 1860749
EPA 351.2 Rev. 2.0	12/30/2016	01/04/2017	Adrian Shelby	01/04/2017	Joseph Suarez	1860747, 1860748, 1860749
EPA 353.2 Rev. 2.0	12/30/2016			01/04/2017	Beverly Y. Sanders	1860747, 1860748, 1860749
EPA 365.1 Rev. 2.0	12/30/2016	01/03/2017	Vijayalakshmi Reddy	01/04/2017	Beverly Y. Sanders	1860748, 1860749
	12/30/2016	01/03/2017	Vijayalakshmi Reddy	01/05/2017	Lipi Saha	1860747
EPA 365.1 Rev. 2.0 dissolved	12/30/2016			12/30/2016 16:17	Lipi Saha	1860750
	12/30/2016			12/30/2016 16:18	Lipi Saha	1860751, 1860752
SM 2120 B	12/30/2016			12/30/2016 16:31	Julie Michelle Frank	1860744
	12/30/2016			12/30/2016 16:32	Julie Michelle Frank	1860745
	12/30/2016			12/30/2016 16:33	Julie Michelle Frank	1860746
SM 2320 B-97	12/30/2016			01/03/2017	Dale L. Simmons	1860744, 1860745, 1860746
SM 2540 C-97	12/30/2016			01/04/2017	Yijie Li	1860744, 1860745, 1860746
SM 2540 D-97	12/30/2016			01/04/2017	Yijie Li	1860744, 1860745, 1860746
SM 4500 F-C-97	12/30/2016			01/03/2017	Dale L. Simmons	1860744, 1860745, 1860746
SM 5310 B-00	12/30/2016			01/03/2017	Julie Michelle Frank	1860747, 1860748, 1860749