

Chemical Analysis Report

NW-DIST-2016-06-02-01

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

Event Description: **WBID 10D 10E**
Request ID: **RQ-2016-05-09-26**
Customer: **NW-DIST**
Project ID: **SMP**

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Certified by: Thekkekalathil Chandrasekhar, Chemist Administrator Date Certified: 23-JUN-2016 10:56



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: ESCAMBIA R MOUTH WMS DITCH

Collection Date/Time: 06/01/2016 10:45

Field ID: G4NW0006

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1803985	EPA 180.1 Rev. 2.0	Turbidity	12	A	NTU	P305525	
	EPA 300.0 Rev. 2.1	Chloride	6.0	A	mg Cl/L	P305826	
		Sulfate	7.1	A	mg SO4/L	P305827	
	SM 2120 B	Color (true)	31	A	PCU	P305481	
	SM 2320 B-97	Total Alkalinity	31		mg CaCO3/L	P305781	
	SM 2540 C-97	TDS	66		mg/L	P306187	
	SM 2540 D-97	TSS	5	I	mg/L	P306038	
	SM 4500 F-C-97	Fluoride	0.037	I	mg F/L	P305784	
1803990	EPA 350.1 Rev. 2.0	Ammonia-N	0.020		mg N/L	P305874	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.17	I	mg N/L	P305674	MS
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.34		mg N/L	P305538	
	EPA 365.1 Rev. 2.0	Total-P	0.046		mg P/L	P305993	
	SM 5310 B-00	Organic Carbon	4.0		mg C/L	P306213	
1803995	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.013		mg P/L	P305483	

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: FIELD BLANK

Collection Date/Time: 06/01/2016 10:55

Field ID: FIELDBLANK

Matrix: W-FIELD-BK

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1803986	EPA 180.1 Rev. 2.0	Turbidity	0.10	U	NTU	P305525	
	EPA 300.0 Rev. 2.1	Chloride	0.20	U	mg Cl/L	P305826	
		Sulfate	0.20	U	mg SO4/L	P305827	
	SM 2120 B	Color (true)	2.5	U	PCU	P305480	
	SM 2320 B-97	Total Alkalinity	0.65	U	mg CaCO3/L	P305782	
	SM 2540 C-97	TDS	15	U	mg/L	P306187	
	SM 2540 D-97	TSS	2	U	mg/L	P306038	
	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P305785	
1803991	EPA 350.1 Rev. 2.0	Ammonia-N	0.002	U	mg N/L	P305874	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.080	U	mg N/L	P305674	MS
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P305538	
	EPA 365.1 Rev. 2.0	Total-P	0.002	I	mg P/L	P305993	
	SM 5310 B-00	Organic Carbon	0.50	U	mg C/L	P306213	
1803996	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P305483	

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 RIVER HWY 184 BR

Collection Date/Time: 06/01/2016 11:10

Field ID: G4NW0005

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1803987	EPA 180.1 Rev. 2.0	Turbidity	14		NTU	P305525	
	EPA 300.0 Rev. 2.1	Chloride	6.1		mg Cl/L	P305826	
		Sulfate	7.2		mg SO4/L	P305827	

Field ID: G4NW0005

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1803987	SM 2120 B	Color (true)	32		PCU	P305481	
	SM 2320 B-97	Total Alkalinity	32		mg CaCO3/L	P305782	
	SM 2540 C-97	TDS	66		mg/L	P306188	
	SM 2540 D-97	TSS	10		mg/L	P306039	
	SM 4500 F-C-97	Fluoride	0.036	I	mg F/L	P305785	
1803992	EPA 350.1 Rev. 2.0	Ammonia-N	0.021		mg N/L	P305874	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.32		mg N/L	P305959	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.35		mg N/L	P305538	
	EPA 365.1 Rev. 2.0	Total-P	0.052		mg P/L	P305993	
	SM 5310 B-00	Organic Carbon	4.0		mg C/L	P306213	
1803997	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.014		mg P/L	P305483	

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 RIVER HWY 184 BR

Collection Date/Time: 06/01/2016 11:15

Field ID: G4NW0005DUPLICATE

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1803988	EPA 180.1 Rev. 2.0	Turbidity	14		NTU	P305525	
	EPA 300.0 Rev. 2.1	Chloride	6.1		mg Cl/L	P305826	
		Sulfate	7.2		mg SO4/L	P305827	
	SM 2120 B	Color (true)	31		PCU	P305481	
	SM 2320 B-97	Total Alkalinity	32		mg CaCO3/L	P305782	
	SM 2540 C-97	TDS	73		mg/L	P306188	
	SM 2540 D-97	TSS	12		mg/L	P306039	
	SM 4500 F-C-97	Fluoride	0.037	I	mg F/L	P305785	
	EPA 350.1 Rev. 2.0	Ammonia-N	0.021		mg N/L	P305906	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.34		mg N/L	P305959	
1803993	EPA 353.2 Rev. 2.0	NO2NO3-N	0.35		mg N/L	P305538	
	EPA 365.1 Rev. 2.0	Total-P	0.051		mg P/L	P305993	
	SM 5310 B-00	Organic Carbon	3.9		mg C/L	P306213	
	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.014		mg P/L	P305483	

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: 06/01/2016 12:10

Field ID: G4NW0185

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1803989	EPA 180.1 Rev. 2.0	Turbidity	9.3		NTU	P305525	
	EPA 300.0 Rev. 2.1	Chloride	29		mg Cl/L	P305826	
		Sulfate	11		mg SO4/L	P305827	
	SM 2120 B	Color (true)	59		PCU	P305480	
	SM 2320 B-97	Total Alkalinity	31		mg CaCO3/L	P305782	
	SM 2540 C-97	TDS	106		mg/L	P306188	
	SM 2540 D-97	TSS	2	I	mg/L	P306039	

Field ID: G4NW0185

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1803989	SM 4500 F-C-97	Fluoride	0.038	I	mg F/L	P305785	
1803994	EPA 350.1 Rev. 2.0	Ammonia-N	0.010		mg N/L	P305906	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.24		mg N/L	P305674	MS
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.33		mg N/L	P305538	
	EPA 365.1 Rev. 2.0	Total-P	0.040		mg P/L	P305993	
	SM 5310 B-00	Organic Carbon	4.0		mg C/L	P306213	
1803999	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.010		mg P/L	P305483	

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: P305525

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 300.0 Rev. 2.1
 Batch ID: P305826

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
 Batch ID: P305827

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 350.1 Rev. 2.0
 Batch ID: P305874

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

Reference Method: EPA 350.1 Rev. 2.0
 Batch ID: P305906

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

Reference Method: EPA 351.2 Rev. 2.0
 Batch ID: P305674

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

Reference Method: EPA 351.2 Rev. 2.0
 Batch ID: P305959

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

Quality Assurance Report Method Blank Results

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P305538

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P305993

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P305483

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

Reference Method: SM 2120 B
Batch ID: P305480

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2120 B
Batch ID: P305481

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2320 B-97
Batch ID: P305781

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

Reference Method: SM 2320 B-97
Batch ID: P305782

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

Reference Method: SM 2540 C-97
Batch ID: P306187

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 C-97
Batch ID: P306188

Component	Result	Code	Units
TDS	15	U	mg/L

Quality Assurance Report Method Blank Results

Reference Method: SM 2540 D-97
Batch ID: P306038

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P306039

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500 F-C-97
Batch ID: P305784

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 4500 F-C-97
Batch ID: P305785

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-00
Batch ID: P306213

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: P305826

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P305827

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Sulfate	97.7		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P305874

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P305906

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P305906

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P305674

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Kjeldahl Nitrogen	91.7		P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P305959

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P305538

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: P305993

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: P305483

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

Reference Method: SM 2320 B-97
Batch ID: P305781

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	102		P	95 - 105

Reference Method: SM 2320 B-97
Batch ID: P305782

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	103		P	95 - 105

Reference Method: SM 4500 F-C-97
Batch ID: P305784

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	99.0		P	92 - 103

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: SM 4500 F-C-97
Batch ID: P305785

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	98.6		P	92 - 103

Reference Method: SM 5310 B-00
Batch ID: P306213

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

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P305826

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1803985	Chloride	98.8		P	90 - 110
1804038	Chloride	99.0		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P305827

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1803985	Sulfate	96.2		P	90 - 110
1804038	Sulfate	97.4		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P305874

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1803957	Ammonia-N	103	104	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P305906

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1803994	Ammonia-N	99.3	102	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P305674

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1803975	Kjeldahl Nitrogen	86.4	89.0	F/F	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P305959

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1806448	Kjeldahl Nitrogen	109	103	P/P	90 - 110

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 353.2 Rev. 2.0
 Batch ID: P305538

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1803957	NO2NO3-N	102	104	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
 Batch ID: P305993

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1803958	Total-P	96.0	97.2	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
 Batch ID: P305483

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1803999	O-Phosphate-P	98.5	101	P/P	90 - 110

Reference Method: SM 4500 F-C-97
 Batch ID: P305784

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1803691	Fluoride	99.4	99.4	P/P	91 - 105

Reference Method: SM 4500 F-C-97
 Batch ID: P305785

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1804078	Fluoride	97.0	98.6	P/P	91 - 105

Reference Method: SM 5310 B-00
 Batch ID: P306213

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1803895	Organic Carbon	96.4	102	P/P	85 - 115

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
 Batch ID: P305525

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1803985	Turbidity	0.823	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
 Batch ID: P305826

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1803985	Chloride	0.173	Sample	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P305827

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1803985	Sulfate	1.07	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P305874

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1803957	Ammonia-N	0.754	Spike	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P305906

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1803994	Ammonia-N	2.32	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P305674

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1803975	Kjeldahl Nitrogen	1.68	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P305959

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1806448	Kjeldahl Nitrogen	3.30	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P305538

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1803957	NO2NO3-N	1.95	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P305993

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1803958	Total-P	0.703	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P305483

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1803999	O-Phosphate-P	2.10	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: SM 2120 B
Batch ID: P305480

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1803953	Color (true)	19.9	Sample	P	0 - 20

Reference Method: SM 2120 B
Batch ID: P305481

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1803985	Color (true)	8.69	Sample	P	0 - 20

Reference Method: SM 2320 B-97
Batch ID: P305781

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1803691	Total Alkalinity	0.146	Sample	P	0 - 4.8

Reference Method: SM 2320 B-97
Batch ID: P305782

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1804078	Total Alkalinity	0.380	Sample	P	0 - 4.8

Reference Method: SM 2540 C-97
Batch ID: P306187

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1803889	TDS	1.20	Sample	P	0 - 10

Reference Method: SM 2540 C-97
Batch ID: P306188

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1804016	TDS	0.0	Sample	P	0 - 10

Reference Method: SM 4500 F-C-97
Batch ID: P305784

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1803691	Fluoride	0.0	Spike	P	0 - 3.0

Reference Method: SM 4500 F-C-97
Batch ID: P305785

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1804078	Fluoride	1.47	Spike	P	0 - 3.0

Quality Assurance Report Precision

Reference Method: SM 5310 B-00
Batch ID: P306213

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1803895	Organic Carbon	3.42	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: SM 2120 B
Run ID: A69816
Included Lab Sample IDs: 1803985, 1803986, 1803987, 1803988, 1803989

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	102	102	P/P	90 - 115
Color (true)	102	100	P/P	90 - 115

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Run ID: A69817
Included Lab Sample IDs: 1803995, 1803996, 1803997, 1803998, 1803999

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	101	101	P/P	90 - 110
O-Phosphate-P	98.6	97.8	P/P	90 - 110
O-Phosphate-P	99.4	102	P/P	90 - 110

Reference Method: EPA 180.1 Rev. 2.0
Run ID: A69828
Included Lab Sample IDs: 1803985, 1803986, 1803987, 1803988, 1803989

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Turbidity	100	101	P/P	95 - 105

Reference Method: EPA 353.2 Rev. 2.0
Run ID: A69831
Included Lab Sample IDs: 1803990, 1803991, 1803992, 1803993, 1803994

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO2NO3-N	101	102	P/P	90 - 110

Reference Method: SM 2320 B-97
Run ID: A69913
Included Lab Sample IDs: 1803985, 1803986, 1803987, 1803988, 1803989

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	101	103	P/P	90 - 110
Total Alkalinity	103	100	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: SM 4500 F-C-97

Run ID: A69913

Included Lab Sample IDs: 1803985, 1803986, 1803987, 1803988, 1803989

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	101	101	P/P	90 - 110
Fluoride	99.1	101	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A69916

Included Lab Sample IDs: 1803990, 1803991, 1803994

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	101	104	P/P	90 - 110
Kjeldahl Nitrogen	99.5	101	P/P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1

Run ID: A69924

Included Lab Sample IDs: 1803985, 1803986, 1803987, 1803988, 1803989

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	100	100	P/P	90 - 110
Chloride	100	101	P/P	90 - 110
Sulfate	98.5	99.3	P/P	90 - 110
Sulfate	99.3	97.8	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A69935

Included Lab Sample IDs: 1803990, 1803991, 1803992

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

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A69948

Included Lab Sample IDs: 1803993, 1803994

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

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A69991

Included Lab Sample IDs: 1803993

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	99.2	101	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A70000

Included Lab Sample IDs: 1803992, 1803993

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	96.8	100	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A70015

Included Lab Sample IDs: 1803990, 1803991, 1803992, 1803994

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	100	100	P/P	90 - 110
Total-P	99.0	100	P/P	90 - 110

Reference Method: SM 5310 B-00

Run ID: A70048

Included Lab Sample IDs: 1803990, 1803991, 1803992, 1803993, 1803994

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	102	101	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	MS
EPA 180.1 Rev. 2.0	Turbidity				0.823	
EPA 300.0 Rev. 2.1	Chloride	100	98.8	99.0	0.173	
	Sulfate	97.7	96.2	97.4	1.07	
EPA 350.1 Rev. 2.0	Ammonia-N	101	103	104		0.754
	Ammonia-N	99.9	99.3	102		2.32
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	91.7	86.4	89.0		1.68
	Kjeldahl Nitrogen	102	109	103		3.30
EPA 353.2 Rev. 2.0	NO2NO3-N	104	102	104		1.95
EPA 365.1 Rev. 2.0	Total-P	98.8	96.0	97.2		0.703
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	102	98.5	101		2.10
SM 2120 B	Color (true)				19.9	
	Color (true)				8.69	
SM 2320 B-97	Total Alkalinity	102			0.146	
	Total Alkalinity	103			0.380	
SM 2540 C-97	TDS				1.20	
	TDS				0.0	
SM 4500 F-C-97	Fluoride	99.0	99.4	99.4		0.0
	Fluoride	98.6	97.0	98.6		1.47
SM 5310 B-00	Organic Carbon	103	96.4	102		3.42

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	1803985, 1803986, 1803987, 1803988, 1803989
EPA 300.0 Rev. 2.1 / E31780	Chloride in aqueous matrices	1803985, 1803986, 1803987, 1803988, 1803989
EPA 300.0 Rev. 2.1 / E31780	Sulfate in aqueous matrices	1803985, 1803986, 1803987, 1803988, 1803989
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	1803990, 1803991, 1803992, 1803993, 1803994

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	1803990, 1803991, 1803992, 1803993, 1803994
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	1803990, 1803991, 1803992, 1803993, 1803994
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	1803990, 1803991, 1803992, 1803993, 1803994
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	1803995, 1803996, 1803997, 1803998, 1803999
SM 2120 B / E31780	True Color measured at 450 nm	1803985, 1803986, 1803987, 1803988, 1803989
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO3/L	1803985, 1803986, 1803987, 1803988, 1803989
SM 2540 C-97 / E31780	Total Dissolved Solids in aqueous matrices	1803985, 1803986, 1803987, 1803988, 1803989
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices	1803985, 1803986, 1803987, 1803988, 1803989
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	1803985, 1803986, 1803987, 1803988, 1803989
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	1803990, 1803991, 1803992, 1803993, 1803994

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	06/02/2016			06/02/2016 16:44	Blanca Fach	1803985, 1803986, 1803987, 1803988, 1803989
EPA 300.0 Rev. 2.1	06/02/2016			06/07/2016	Elisa J Lutz	1803985
	06/02/2016			06/08/2016	Elisa J Lutz	1803986, 1803987, 1803988, 1803989
EPA 350.1 Rev. 2.0	06/02/2016			06/08/2016	Diana M. Turner	1803990, 1803991, 1803992
	06/02/2016			06/09/2016	Diana M. Turner	1803993, 1803994
EPA 351.2 Rev. 2.0	06/02/2016	06/07/2016	Sofia Elnemr	06/08/2016	Christopher Armour	1803990, 1803991, 1803994
	06/02/2016	06/07/2016	Sofia Elnemr	06/13/2016	Christopher Armour	1803993
	06/02/2016	06/10/2016	Sofia Elnemr	06/13/2016	Christopher Armour	1803992
EPA 353.2 Rev. 2.0	06/02/2016			06/03/2016	Peter D. Kaus	1803990, 1803991, 1803992, 1803993, 1803994
EPA 365.1 Rev. 2.0	06/02/2016	06/10/2016	Vijayalakshmi Reddy	06/13/2016	Peter D. Kaus	1803993
	06/02/2016	06/10/2016	Vijayalakshmi Reddy	06/14/2016	Lipi Saha	1803990, 1803991, 1803992, 1803994
EPA 365.1 Rev. 2.0 dissolved	06/02/2016			06/02/2016 16:45	Julia Storbeck	1803999
	06/02/2016			06/02/2016 17:08	Julia Storbeck	1803996
	06/02/2016			06/02/2016 17:16	Julia Storbeck	1803995
	06/02/2016			06/02/2016 18:25	Julia Storbeck	1803997
	06/02/2016			06/02/2016 18:26	Julia Storbeck	1803998
SM 2120 B	06/02/2016			06/02/2016 17:00	Chrisoulla Rakowski	1803986
	06/02/2016			06/02/2016 17:02	Chrisoulla Rakowski	1803989
	06/02/2016			06/02/2016 17:06	Chrisoulla Rakowski	1803985
	06/02/2016			06/02/2016 17:07	Chrisoulla Rakowski	1803987
	06/02/2016			06/02/2016 17:08	Chrisoulla Rakowski	1803988
SM 2320 B-97	06/02/2016			06/08/2016	Dale L. Simmons	1803985, 1803986, 1803987, 1803988, 1803989
SM 2540 C-97	06/02/2016			06/06/2016	Blanca Fach	1803985, 1803986, 1803987, 1803988, 1803989
SM 2540 D-97	06/02/2016			06/06/2016	Blanca Fach	1803985, 1803986, 1803987, 1803988, 1803989
SM 4500 F-C-97	06/02/2016			06/08/2016	Dale L. Simmons	1803985, 1803986, 1803987, 1803988, 1803989
SM 5310 B-00	06/02/2016			06/14/2016	Diana M. Turner	1803990, 1803991, 1803992, 1803993, 1803994