

Chemical Analysis Report

NW-DIST-2016-05-17-01

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

Event Description: **WBID 275 30 27 336 28 88**

Request ID: **RQ-2016-05-16-20**

Customer: **NW-DIST**

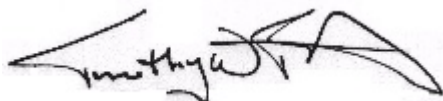
Project ID: **SMP**

Send Reports to:
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Certified by: Timothy Fitzpatrick, Program Administrator

Date Certified: 06-JUN-2016 15:03

A handwritten signature in black ink, appearing to read 'Timothy W. Fitzpatrick', with a stylized flourish at the end.

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: MARE CREEK

Collection Date/Time: 05/16/2016 14:30

Field ID: G4NW0352

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1799147	EPA 180.1 Rev. 2.0	Turbidity	4.3		NTU	P304591	
	EPA 300.0 Rev. 2.1	Chloride	2.6		mg Cl/L	P304796	
		Sulfate	3.5		mg SO4/L	P305007	
	SM 2120 B	Color (true)	75	A	PCU	P304459	
	SM 2320 B-97	Total Alkalinity	4.9		mg CaCO3/L	P304848	
	SM 2540 C-97	TDS	38		mg/L	P304894	
	SM 2540 D-97	TSS	4	I	mg/L	P304888	
	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P305056	
1799152	EPA 350.1 Rev. 2.0	Ammonia-N	0.018		mg N/L	P304946	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.24		mg N/L	P305014	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.013		mg N/L	P304650	
	EPA 365.1 Rev. 2.0	Total-P	0.028		mg P/L	P305188	
	SM 5310 B-00	Organic Carbon	3.3		mg C/L	P305076	
1799157	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.01	I	mg P/L	P304449	

Ref. Method and Comment:

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

EPA 351.2 Rev. 2.0: Matrix spike recovery data is unavailable due to high analyte concentration in the QC sample.

Sample Location: MITCHELL CREEK @ HWY 29

Collection Date/Time: 05/16/2016 11:00

Field ID: G4NW0116

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1799148	EPA 180.1 Rev. 2.0	Turbidity	2.2		NTU	P304591	
	EPA 300.0 Rev. 2.1	Chloride	3.2		mg Cl/L	P304796	
		Sulfate	0.71		mg SO4/L	P305007	
	SM 2120 B	Color (true)	46		PCU	P304459	
	SM 2320 B-97	Total Alkalinity	1.7	I	mg CaCO3/L	P304848	
	SM 2540 C-97	TDS	19	I	mg/L	P304894	
	SM 2540 D-97	TSS	2	I	mg/L	P304888	
	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P305056	
1799153	EPA 350.1 Rev. 2.0	Ammonia-N	0.022		mg N/L	P304946	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.23		mg N/L	P305014	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.14		mg N/L	P304650	
	EPA 365.1 Rev. 2.0	Total-P	0.008		mg P/L	P305188	
	SM 5310 B-00	Organic Carbon	3.0		mg C/L	P305076	
1799158	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P304449	

Ref. Method and Comment:

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

EPA 351.2 Rev. 2.0: Matrix spike recovery data is unavailable due to high analyte concentration in the QC sample.

Sample Location: MITCHELL CREEK @ CAMP RD.

Collection Date/Time: 05/16/2016 11:20

Field ID: G4NW0114

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1799149	EPA 180.1 Rev. 2.0	Turbidity	2.3	A	NTU	P304592	

Field ID: G4NW0114

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1799149	EPA 300.0 Rev. 2.1	Chloride	3.6		mg Cl/L	P304796	
		Sulfate	0.98		mg SO4/L	P305007	
	SM 2120 B	Color (true)	59		PCU	P304459	
	SM 2320 B-97	Total Alkalinity	1.6	I	mg CaCO3/L	P304848	
	SM 2540 C-97	TDS	18	I	mg/L	P304894	
	SM 2540 D-97	TSS	4	I	mg/L	P304888	
	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P305056	
1799154	EPA 350.1 Rev. 2.0	Ammonia-N	0.012		mg N/L	P304946	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.25		mg N/L	P305014	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.081		mg N/L	P304650	
	EPA 365.1 Rev. 2.0	Total-P	0.014		mg P/L	P305188	
	SM 5310 B-00	Organic Carbon	3.5		mg C/L	P305076	
1799159	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P304449	

Ref. Method and Comment:

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

EPA 351.2 Rev. 2.0: Matrix spike recovery data is unavailable due to high analyte concentration in the QC sample.

Sample Location: MOORE CREEK SR 197

Collection Date/Time: 05/16/2016 12:45

Field ID: G4NW0318

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1799150	EPA 180.1 Rev. 2.0	Turbidity	1.2		NTU	P304592	
	EPA 300.0 Rev. 2.1	Chloride	6.5		mg Cl/L	P304796	
		Sulfate	0.43	I	mg SO4/L	P305007	
	SM 2120 B	Color (true)	12		PCU	P304459	
	SM 2320 B-97	Total Alkalinity	4.7		mg CaCO3/L	P304848	
	SM 2540 C-97	TDS	30		mg/L	P304895	
	SM 2540 D-97	TSS	3	I	mg/L	P304889	
1799155	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P305056	
	EPA 350.1 Rev. 2.0	Ammonia-N	0.010		mg N/L	P304946	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.23		mg N/L	P305017	
	EPA 353.2 Rev. 2.0	NO2NO3-N	2.6		mg N/L	P304650	
	EPA 365.1 Rev. 2.0	Total-P	0.014		mg P/L	P305188	
1799160	SM 5310 B-00	Organic Carbon	1.3		mg C/L	P305076	
	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P304449	

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: MOORE CREEK ABOVE MINERAL SPRINGS RD

Collection Date/Time: 05/16/2016 11:45

Field ID: G4NW0355

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1799151	EPA 180.1 Rev. 2.0	Turbidity	4.7		NTU	P304592	
	EPA 300.0 Rev. 2.1	Chloride	5.8		mg Cl/L	P304796	
		Sulfate	0.66		mg SO4/L	P305007	

Field ID: G4NW0355 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1799151	SM 2120 B	Color (true)	24		PCU	P304460	
	SM 2320 B-97	Total Alkalinity	3.1		mg CaCO3/L	P304848	
	SM 2540 C-97	TDS	31		mg/L	P304895	
	SM 2540 D-97	TSS	4	I	mg/L	P304889	
	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P305056	
1799156	EPA 350.1 Rev. 2.0	Ammonia-N	0.007		mg N/L	P304946	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.17	I	mg N/L	P305017	
	EPA 353.2 Rev. 2.0	NO2NO3-N	2.0		mg N/L	P304650	
	EPA 365.1 Rev. 2.0	Total-P	0.007		mg P/L	P305188	
	SM 5310 B-00	Organic Carbon	1.5		mg C/L	P305076	
1799161	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P304449	

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: P304591

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 180.1 Rev. 2.0
 Batch ID: P304592

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 300.0 Rev. 2.1
 Batch ID: P304796

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
 Batch ID: P305007

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 350.1 Rev. 2.0
 Batch ID: P304946

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

Reference Method: EPA 351.2 Rev. 2.0
 Batch ID: P305014

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

Quality Assurance Report

Method Blank Results

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P305017

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P304650

Component	Result	Code	Units
NO ₂ NO ₃ -N	0.004	U	mg N/L

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P305188

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P304449

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

Reference Method: SM 2120 B
Batch ID: P304459

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2120 B
Batch ID: P304460

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2320 B-97
Batch ID: P304848

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

Reference Method: SM 2540 C-97
Batch ID: P304894

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 C-97
Batch ID: P304895

Component	Result	Code	Units
TDS	15	U	mg/L

Quality Assurance Report Method Blank Results

Reference Method: SM 2540 D-97
Batch ID: P304888

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P304889

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500 F-C-97
Batch ID: P305056

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-00
Batch ID: P305076

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: P304796

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P305007

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Sulfate	99.4		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P304946

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Ammonia-N	99.0		P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P305014

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: P305017

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P305017

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: P304650

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: P305188

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P304449

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
O-Phosphate-P	98.2		P	90 - 110

Reference Method: SM 2320 B-97
Batch ID: P304848

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

Reference Method: SM 4500 F-C-97
Batch ID: P305056

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	96.5		P	92 - 103

Reference Method: SM 5310 B-00
Batch ID: P305076

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	100		P	85 - 115

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P304796

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1799497	Chloride	98.5		P	90 - 110
1799525	Chloride	100		P	90 - 110

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
 Batch ID: P305007

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1799147	Sulfate	98.8		P	90 - 110
1799497	Sulfate	97.9		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
 Batch ID: P304946

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1798813	Ammonia-N	98.5	101	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
 Batch ID: P305017

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1799155	Kjeldahl Nitrogen	96.9	94.0	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
 Batch ID: P304650

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1799127	NO2NO3-N	98.4	100	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
 Batch ID: P305188

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1799127	Total-P	103	101	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
 Batch ID: P304449

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1799157	O-Phosphate-P	98.7	99.2	P/P	90 - 110

Reference Method: SM 4500 F-C-97
 Batch ID: P305056

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1798546	Fluoride	96.4	97.3	P/P	91 - 105

Reference Method: SM 5310 B-00
 Batch ID: P305076

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1799153	Organic Carbon	99.1	100	P/P	85 - 115

Quality Assurance Report Precision

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P304591

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1799024	Turbidity	2.05	Sample	P	0 - 20

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P304592

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1799149	Turbidity	0.430	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P304796

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1799525	Chloride	0.110	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P305007

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1799497	Sulfate	2.41	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P304946

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1798813	Ammonia-N	1.56	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P305014

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1799123	Kjeldahl Nitrogen	4.33	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P305017

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1799155	Kjeldahl Nitrogen	2.46	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P304650

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1799127	NO2NO3-N	1.95	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P305188

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1799127	Total-P	1.38	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P304449

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1799157	O-Phosphate-P	0.460	Spike	P	0 - 20

Reference Method: SM 2120 B
Batch ID: P304459

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1799147	Color (true)	0.329	Sample	P	0 - 20

Reference Method: SM 2120 B
Batch ID: P304460

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1799228	Color (true)	2.71	Sample	P	0 - 20

Reference Method: SM 2320 B-97
Batch ID: P304848

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1798546	Total Alkalinity	0.220	Sample	P	0 - 4.8

Reference Method: SM 2540 C-97
Batch ID: P304894

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1798671	TDS	6.90	Sample	P	0 - 10

Reference Method: SM 2540 C-97
Batch ID: P304895

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1799228	TDS	5.01	Sample	P	0 - 10

Reference Method: SM 4500 F-C-97
Batch ID: P305056

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1798546	Fluoride	0.473	Spike	P	0 - 3.0

Quality Assurance Report Precision

Reference Method: SM 5310 B-00
Batch ID: P305076

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1799153	Organic Carbon	0.915	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 365.1 Rev. 2.0 dissolved
Run ID: A69523
Included Lab Sample IDs: 1799157, 1799158, 1799159, 1799160, 1799161

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	100	100	P/P	90 - 110
O-Phosphate-P	101	99.8	P/P	90 - 110
O-Phosphate-P	99.7	100	P/P	90 - 110

Reference Method: SM 2120 B
Run ID: A69527
Included Lab Sample IDs: 1799147, 1799148, 1799149, 1799150, 1799151

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	97.9	96.0	P/P	90 - 115
Color (true)	98.5	97.9	P/P	90 - 115

Reference Method: EPA 180.1 Rev. 2.0
Run ID: A69574
Included Lab Sample IDs: 1799147, 1799148, 1799149, 1799150, 1799151

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Turbidity	101	100	P/P	95 - 105
Turbidity	99.0	101	P/P	95 - 105

Reference Method: EPA 353.2 Rev. 2.0
Run ID: A69587
Included Lab Sample IDs: 1799152, 1799153, 1799154, 1799155, 1799156

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

Reference Method: EPA 300.0 Rev. 2.1
Run ID: A69620
Included Lab Sample IDs: 1799147, 1799148, 1799149, 1799150, 1799151

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

Quality Assurance Report Calibration Verification

Reference Method: SM 2320 B-97

Run ID: A69641

Included Lab Sample IDs: 1799147, 1799148, 1799149, 1799150, 1799151

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	98.6	102	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A69674

Included Lab Sample IDs: 1799152, 1799153, 1799154, 1799155, 1799156

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	99.2	98.8	P/P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1

Run ID: A69676

Included Lab Sample IDs: 1799147, 1799148, 1799149, 1799150, 1799151

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Sulfate	100	97.5	P/P	90 - 110
Sulfate	97.4	102	P/P	90 - 110

Reference Method: SM 4500 F-C-97

Run ID: A69701

Included Lab Sample IDs: 1799147, 1799148, 1799149, 1799150, 1799151

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	99.0	99.1	P/P	90 - 110

Reference Method: SM 5310 B-00

Run ID: A69711

Included Lab Sample IDs: 1799152, 1799153, 1799154, 1799155, 1799156

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

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A69745

Included Lab Sample IDs: 1799152, 1799153, 1799154, 1799155, 1799156

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	96.0	98.8	P/P	90 - 110
Kjeldahl Nitrogen	97.7	96.0	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A69793

Included Lab Sample IDs: 1799152, 1799153, 1799154, 1799155, 1799156

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	98.5	99.2	P/P	90 - 110
Total-P	99.2	98.5	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				2.05	
	Turbidity				0.430	
EPA 300.0 Rev. 2.1	Chloride	98.6	100	98.5	0.110	
	Sulfate	99.4	97.9	98.8	2.41	
EPA 350.1 Rev. 2.0	Ammonia-N	99.0	98.5	101		1.56
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	102				4.33
	Kjeldahl Nitrogen	104	96.9	94.0		2.46
EPA 353.2 Rev. 2.0	NO ₂ NO ₃ -N	101	98.4	100		1.95
EPA 365.1 Rev. 2.0	Total-P	99.9	103	101		1.38
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	98.2	98.7	99.2		0.460
SM 2120 B	Color (true)				0.329	
	Color (true)				2.71	
SM 2320 B-97	Total Alkalinity	102			0.220	
SM 2540 C-97	TDS				6.90	
	TDS				5.01	
SM 4500 F-C-97	Fluoride	96.5	96.4	97.3		0.473
SM 5310 B-00	Organic Carbon	100	99.1	100		0.915

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	1799147, 1799148, 1799149, 1799150, 1799151
EPA 300.0 Rev. 2.1 / E31780	Chloride in aqueous matrices	1799147, 1799148, 1799149, 1799150, 1799151
EPA 300.0 Rev. 2.1 / E31780	Sulfate in aqueous matrices	1799147, 1799148, 1799149, 1799150, 1799151
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	1799152, 1799153, 1799154, 1799155, 1799156
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	1799152, 1799153, 1799154, 1799155, 1799156
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	1799152, 1799153, 1799154, 1799155, 1799156
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	1799152, 1799153, 1799154, 1799155, 1799156
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	1799157, 1799158, 1799159, 1799160, 1799161
SM 2120 B / E31780	True Color measured at 450 nm	1799147, 1799148, 1799149, 1799150, 1799151
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO ₃ /L	1799147, 1799148, 1799149, 1799150, 1799151
SM 2540 C-97 / E31780	Total Dissolved Solids in aqueous matrices	1799147, 1799148, 1799149, 1799150, 1799151
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices	1799147, 1799148, 1799149, 1799150, 1799151
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	1799147, 1799148, 1799149, 1799150, 1799151
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	1799152, 1799153, 1799154, 1799155, 1799156

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
EPA 180.1 Rev. 2.0	05/17/2016			05/17/2016 18:12	Chrisoulla Rakowski	1799147, 1799148, 1799149, 1799150, 1799151
EPA 300.0 Rev. 2.1	05/17/2016			05/21/2016	Elisa J Lutz	1799147, 1799148, 1799149, 1799150, 1799151
	05/17/2016			05/25/2016	Ping Hua	1799147, 1799148, 1799149, 1799150, 1799151
EPA 350.1 Rev. 2.0	05/17/2016			05/24/2016	Diana M. Turner	1799152, 1799153, 1799154, 1799155, 1799156
EPA 351.2 Rev. 2.0	05/17/2016	05/25/2016	Sofia Elnemr	05/26/2016	Christopher Armour	1799152, 1799153, 1799154, 1799155, 1799156
EPA 353.2 Rev. 2.0	05/17/2016			05/19/2016	Peter D. Kaus	1799152, 1799153, 1799154, 1799155, 1799156
EPA 365.1 Rev. 2.0	05/17/2016	05/27/2016	Vijayalakshmi Reddy	06/01/2016	Rochelle Y Jackson	1799152, 1799153, 1799154, 1799155, 1799156
EPA 365.1 Rev. 2.0 dissolved	05/17/2016			05/17/2016 14:54	Julia Storbeck	1799157
	05/17/2016			05/17/2016 15:24	Julia Storbeck	1799159
	05/17/2016			05/17/2016 15:25	Julia Storbeck	1799160
	05/17/2016			05/17/2016 15:26	Julia Storbeck	1799161
	05/17/2016			05/17/2016 15:51	Julia Storbeck	1799158
SM 2120 B	05/17/2016			05/17/2016 14:05	Rochelle Y Jackson	1799147
	05/17/2016			05/17/2016 14:06	Rochelle Y Jackson	1799148, 1799149
	05/17/2016			05/17/2016 14:07	Rochelle Y Jackson	1799150
	05/17/2016			05/17/2016 14:10	Rochelle Y Jackson	1799151
SM 2320 B-97	05/17/2016			05/22/2016	Dale L. Simmons	1799147, 1799148, 1799149
	05/17/2016			05/23/2016	Dale L. Simmons	1799150, 1799151
SM 2540 C-97	05/17/2016			05/18/2016	Yijie Li	1799147, 1799148, 1799149, 1799150, 1799151
SM 2540 D-97	05/17/2016			05/18/2016	Yijie Li	1799147, 1799148, 1799149, 1799150, 1799151
SM 4500 F-C-97	05/17/2016			05/25/2016	Dale L. Simmons	1799147, 1799148, 1799149, 1799150, 1799151
SM 5310 B-00	05/17/2016			05/25/2016	Diana M. Turner	1799152, 1799153, 1799154, 1799155, 1799156