

Chemical Analysis Report

NW-DIST-2016-07-19-01

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

Event Description: **WBID 872A 531 624 291 494 542 489A**

Request ID: **RQ-2016-07-18-17**

Customer: **NW-DIST**

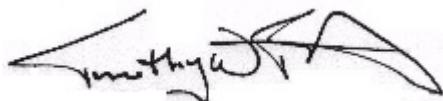
Project ID: **SMP**

Send Reports to:
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Suite 208A
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Attn: Michael King

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Certified by: Timothy Fitzpatrick, Program Administrator

Date Certified: 09-AUG-2016 11:04

A handwritten signature in black ink, appearing to read "Timothy 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: Bridge Creek @ Bridge Creek Rd.

Collection Date/Time: 07/18/2016 11:35

Field ID: G5NW0071

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1816758	EPA 180.1 Rev. 2.0	Turbidity	14		NTU	P308227	
	EPA 300.0 Rev. 2.1	Chloride	11		mg Cl/L	P309109	
		Sulfate	4.3		mg SO4/L	P309112	
	SM 2120 B	Color (true)	75		PCU	P308223	
	SM 2320 B-97	Total Alkalinity	7.0		mg CaCO3/L	P308751	
	SM 2540 C-97	TDS	35		mg/L	P308642	
	SM 2540 D-97	TSS	20		mg/L	P308618	
	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P308755	
1816764	EPA 350.1 Rev. 2.0	Ammonia-N	0.070		mg N/L	P308434	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.64		mg N/L	P308333	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.21		mg N/L	P308802	
	EPA 365.1 Rev. 2.0	Total-P	0.053		mg P/L	P308241	
	SM 5310 B-00	Organic Carbon	7.1		mg C/L	P308645	
1816770	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.008	I	mg P/L	P308217	

Ref. Method and Comment:

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

EPA 350.1 Rev. 2.0: Matrix spike recovery data is unavailable due to high analyte concentration in the QC sample.

Sample Location: Eight Mile Creek Near Bankhead Drive

Collection Date/Time: 07/18/2016 12:10

Field ID: G5NW0056

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1816759	EPA 180.1 Rev. 2.0	Turbidity	2.2		NTU	P308227	
	EPA 300.0 Rev. 2.1	Chloride	6.9	A	mg Cl/L	P309110	
		Sulfate	2.1	A	mg SO4/L	P309113	
	SM 2120 B	Color (true)	72		PCU	P308220	
	SM 2320 B-97	Total Alkalinity	27		mg CaCO3/L	P308751	
	SM 2540 C-97	TDS	52		mg/L	P308642	
	SM 2540 D-97	TSS	3	I	mg/L	P308618	
	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P308755	
1816765	EPA 350.1 Rev. 2.0	Ammonia-N	0.010		mg N/L	P308434	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.38		mg N/L	P308333	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.063		mg N/L	P308802	
	EPA 365.1 Rev. 2.0	Total-P	0.013		mg P/L	P308241	
	SM 5310 B-00	Organic Carbon	6.6		mg C/L	P308645	
1816771	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P308217	

Ref. Method and Comment:

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

EPA 350.1 Rev. 2.0: Matrix spike recovery data is unavailable due to high analyte concentration in the QC sample.

Sample Location: Rest Area Run Creek blw I-10

Collection Date/Time: 07/18/2016 13:05

Field ID: G5NW0066

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1816760	EPA 180.1 Rev. 2.0	Turbidity	19		NTU	P308227	

Field ID: G5NW0066

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1816760	EPA 300.0 Rev. 2.1	Chloride	21		mg Cl/L	P309110	
		Sulfate	5.8		mg SO4/L	P309113	
	SM 2120 B	Color (true)	120	A	PCU	P308223	
	SM 2320 B-97	Total Alkalinity	118		mg CaCO3/L	P308751	
	SM 2540 C-97	TDS	192		mg/L	P308642	
	SM 2540 D-97	TSS	20		mg/L	P308618	
	SM 4500 F-C-97	Fluoride	0.11		mg F/L	P308755	
1816766	EPA 350.1 Rev. 2.0	Ammonia-N	0.23		mg N/L	P308434	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.5		mg N/L	P308333	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.10		mg N/L	P308802	
	EPA 365.1 Rev. 2.0	Total-P	0.087		mg P/L	P308241	
	SM 5310 B-00	Organic Carbon	19		mg C/L	P308645	
1816772	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.025		mg P/L	P308217	

Ref. Method and Comment:

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

EPA 350.1 Rev. 2.0: Matrix spike recovery data is unavailable due to high analyte concentration in the QC sample.

Sample Location: Muscogee Creek 200 Meters Below Beulah Rd. Collection Date/Time: 07/18/2016 13:40

Field ID: G5NW0019

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1816761	EPA 180.1 Rev. 2.0	Turbidity	45		NTU	P308227	
	EPA 300.0 Rev. 2.1	Chloride	5.0		mg Cl/L	P309110	
		Sulfate	2.6		mg SO4/L	P309113	
	SM 2120 B	Color (true)	49		PCU	P308222	
	SM 2320 B-97	Total Alkalinity	0.65	U	mg CaCO3/L	P308751	
	SM 2540 C-97	TDS	29		mg/L	P308642	
	SM 2540 D-97	TSS	148		mg/L	P308618	
1816767	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P308755	
	EPA 350.1 Rev. 2.0	Ammonia-N	0.005		mg N/L	P308434	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.40		mg N/L	P308335	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.022		mg N/L	P308802	
	EPA 365.1 Rev. 2.0	Total-P	0.012		mg P/L	P308261	
1816773	SM 5310 B-00	Organic Carbon	7.0		mg C/L	P308645	
	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P308217	

Ref. Method and Comment:

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

EPA 350.1 Rev. 2.0: Matrix spike recovery data is unavailable due to high analyte concentration in the QC sample.

Sample Location: Jack's Branch @ Jack's Branch Road (Hwy 97) Collection Date/Time: 07/18/2016 14:45

Field ID: G5NW0037

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1816762	EPA 180.1 Rev. 2.0	Turbidity	3.6		NTU	P308227	
	EPA 300.0 Rev. 2.1	Chloride	3.6		mg Cl/L	P309110	
		Sulfate	1.6		mg SO4/L	P309113	

Field ID: G5NW0037

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1816762	SM 2120 B	Color (true)	100		PCU	P308220	
	SM 2320 B-97	Total Alkalinity	1.6	I	mg CaCO3/L	P308751	
	SM 2540 C-97	TDS	36		mg/L	P308643	
	SM 2540 D-97	TSS	3	I	mg/L	P308619	
	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P308755	
1816768	EPA 350.1 Rev. 2.0	Ammonia-N	0.009		mg N/L	P308434	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.39		mg N/L	P308335	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.038		mg N/L	P308802	
	EPA 365.1 Rev. 2.0	Total-P	0.016		mg P/L	P308261	
	SM 5310 B-00	Organic Carbon	11		mg C/L	P308645	
1816774	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P308217	

Ref. Method and Comment:

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

EPA 350.1 Rev. 2.0: Matrix spike recovery data is unavailable due to high analyte concentration in the QC sample.

Sample Location: Clear Creek @ Tecumseh Trail

Collection Date/Time: 07/18/2016 14:15

Field ID: G4NW0358

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1816763	EPA 180.1 Rev. 2.0	Turbidity	3.7		NTU	P308227	
	EPA 300.0 Rev. 2.1	Chloride	7.9		mg Cl/L	P309110	
		Sulfate	3.0		mg SO4/L	P309113	
	SM 2120 B	Color (true)	47	A	PCU	P308220	
	SM 2320 B-97	Total Alkalinity	22		mg CaCO3/L	P308751	
	SM 2540 C-97	TDS	31		mg/L	P308643	
	SM 2540 D-97	TSS	2	I	mg/L	P308619	
	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P308755	
1816769	EPA 350.1 Rev. 2.0	Ammonia-N	0.027		mg N/L	P308435	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.25		mg N/L	P308335	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.22		mg N/L	P308847	
	EPA 365.1 Rev. 2.0	Total-P	0.009		mg P/L	P308261	
	SM 5310 B-00	Organic Carbon	3.0		mg C/L	P308645	
1816775	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P308217	

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: P308227

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Quality Assurance Report Method Blank Results

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P309109

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P309110

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P309112

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P309113

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P308434

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P308435

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P308333

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P308335

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P308802

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

Quality Assurance Report Method Blank Results

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P308847

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P308241

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P308261

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P308217

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

Reference Method: SM 2120 B
Batch ID: P308220

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2120 B
Batch ID: P308222

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2120 B
Batch ID: P308223

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2320 B-97
Batch ID: P308751

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

Reference Method: SM 2540 C-97
Batch ID: P308642

Component	Result	Code	Units
TDS	15	U	mg/L

Quality Assurance Report Method Blank Results

Reference Method: SM 2540 C-97
 Batch ID: P308643

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-97
 Batch ID: P308618

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 2540 D-97
 Batch ID: P308619

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500 F-C-97
 Batch ID: P308755

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-00
 Batch ID: P308645

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: P309109

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Chloride	98.1		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
 Batch ID: P309110

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Chloride	98.5		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
 Batch ID: P309112

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Sulfate	95.5		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
 Batch ID: P309113

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: P309113

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Sulfate	95.2		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P308434

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Ammonia-N	97.0		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P308435

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Ammonia-N	96.4		P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P308333

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P308335

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P308802

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P308847

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: P308241

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P308261

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total-P	96.1		P	90 - 110

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P308217

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

Reference Method: SM 2320 B-97
Batch ID: P308751

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

Reference Method: SM 4500 F-C-97
Batch ID: P308755

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	99.3		P	92 - 103

Reference Method: SM 5310 B-00
Batch ID: P308645

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	98.7		P	85 - 115

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P309109

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1816113	Chloride	96.4		P	90 - 110
1816202	Chloride	98.0		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P309110

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1816759	Chloride	98.5		P	90 - 110
1816762	Chloride	99.2		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P309112

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1816113	Sulfate	95.1		P	90 - 110
1816202	Sulfate	94.7		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P309113

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1816759	Sulfate	95.7		P	90 - 110
1816762	Sulfate	96.1		P	90 - 110

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P308435

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1816769	Ammonia-N	95.5	97.9	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P308333

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1816693	Kjeldahl Nitrogen	93.6	97.7	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P308335

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1816768	Kjeldahl Nitrogen	100	109	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P308802

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1816693	NO2NO3-N	96.0	97.5	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P308847

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1816769	NO2NO3-N	95.5		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P308241

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1816617	Total-P	98.4	97.8	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P308261

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1816767	Total-P	96.0	97.6	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P308217

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1816770	O-Phosphate-P	98.0	98.4	P/P	90 - 110

Reference Method: SM 4500 F-C-97
Batch ID: P308755

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1816782	Fluoride	98.3	99.4	P/P	91 - 105

Quality Assurance Report Matrix Spike Accuracy

Reference Method: SM 5310 B-00
 Batch ID: P308645

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1816765	Organic Carbon	103	103	P/P	85 - 115

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
 Batch ID: P308227

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1816755	Turbidity	0.459	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
 Batch ID: P309109

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1816113	Chloride	0.446	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
 Batch ID: P309110

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1816759	Chloride	0.677	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
 Batch ID: P309112

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1816113	Sulfate	0.203	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
 Batch ID: P309113

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1816759	Sulfate	0.328	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
 Batch ID: P308434

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1816756	Ammonia-N	1.04	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P308435

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1816769	Ammonia-N	1.58	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P308333

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1816693	Kjeldahl Nitrogen	2.96	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P308335

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1816768	Kjeldahl Nitrogen	6.48	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P308802

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1816693	NO2NO3-N	1.07	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P308847

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1816769	NO2NO3-N	0.731	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P308241

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1816617	Total-P	0.463	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P308261

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1816767	Total-P	1.61	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P308217

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1816770	O-Phosphate-P	0.377	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: SM 2120 B
Batch ID: P308220

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1816763	Color (true)	4.02	Sample	P	0 - 20

Reference Method: SM 2120 B
Batch ID: P308222

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1816979	Color (true)	0.935	Sample	P	0 - 20

Reference Method: SM 2120 B
Batch ID: P308223

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1816760	Color (true)	0.0168	Sample	P	0 - 20

Reference Method: SM 2320 B-97
Batch ID: P308751

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1816782	Total Alkalinity	0.368	Sample	P	0 - 4.8

Reference Method: SM 2540 C-97
Batch ID: P308642

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1816691	TDS	4.44	Sample	P	0 - 10

Reference Method: SM 2540 C-97
Batch ID: P308643

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1816782	TDS	6.80	Sample	P	0 - 10

Reference Method: SM 4500 F-C-97
Batch ID: P308755

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1816782	Fluoride	0.952	Spike	P	0 - 3.0

Reference Method: SM 5310 B-00
Batch ID: P308645

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1816765	Organic Carbon	0.367	Spike	P	0 - 20

Quality Assurance Report Precision

* 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: A70627

Included Lab Sample IDs: 1816770, 1816771, 1816772, 1816773, 1816774, 1816775

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	99.5	99.8	P/P	90 - 110
O-Phosphate-P	99.8	99.1	P/P	90 - 110

Reference Method: SM 2120 B

Run ID: A70631

Included Lab Sample IDs: 1816758, 1816759, 1816760, 1816761, 1816762, 1816763

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	95.5	92.5	P/P	90 - 115
Color (true)	96.2	96.5	P/P	90 - 115

Reference Method: EPA 180.1 Rev. 2.0

Run ID: A70633

Included Lab Sample IDs: 1816758, 1816759, 1816760, 1816761, 1816762, 1816763

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

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A70671

Included Lab Sample IDs: 1816764, 1816766

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	99.8	98.6	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A70676

Included Lab Sample IDs: 1816765, 1816767, 1816768, 1816769

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	98.5	97.5	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A70695

Included Lab Sample IDs: 1816764, 1816765, 1816766, 1816767, 1816768, 1816769

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	96.5	96.7	P/P	90 - 110
Ammonia-N	96.7	97.4	P/P	90 - 110
Ammonia-N	97.1	97.1	P/P	90 - 110
Ammonia-N	97.1	97.1	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A70734

Included Lab Sample IDs: 1816764, 1816765, 1816766, 1816767, 1816768, 1816769

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	103	107	P/P	90 - 110
Kjeldahl Nitrogen	99.4	103	P/P	90 - 110

Reference Method: SM 5310 B-00

Run ID: A70768

Included Lab Sample IDs: 1816764, 1816765, 1816766, 1816767, 1816768, 1816769

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

Reference Method: SM 2320 B-97

Run ID: A70797

Included Lab Sample IDs: 1816758, 1816759, 1816760, 1816761, 1816762, 1816763

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

Reference Method: SM 4500 F-C-97

Run ID: A70797

Included Lab Sample IDs: 1816758, 1816759, 1816760, 1816761, 1816762, 1816763

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

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A70809

Included Lab Sample IDs: 1816764, 1816765, 1816766, 1816767, 1816768

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO ₂ NO ₃ -N	101	100	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A70824

Included Lab Sample IDs: 1816769

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO ₂ NO ₃ -N	100	101	P/P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1

Run ID: A70885

Included Lab Sample IDs: 1816758, 1816759, 1816760, 1816761, 1816762, 1816763

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	101	99.9	P/P	90 - 110
Chloride	99.9	101	P/P	90 - 110
Sulfate	96.8	98.5	P/P	90 - 110
Sulfate	98.5	96.8	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		Precision	
					LCS	MS
EPA 180.1 Rev. 2.0	Turbidity				0.459	
EPA 300.0 Rev. 2.1	Chloride	98.1	96.4	98.0	0.446	
	Chloride	98.5	98.5	99.2	0.677	
	Sulfate	95.5	95.1	94.7	0.203	
	Sulfate	95.2	95.7	96.1	0.328	
EPA 350.1 Rev. 2.0	Ammonia-N	97.0				1.04
	Ammonia-N	96.4	95.5	97.9		1.58
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	106	93.6	97.7		2.96
	Kjeldahl Nitrogen	103	100	109		6.48
EPA 353.2 Rev. 2.0	NO2NO3-N	103	96.0	97.5		1.07
	NO2NO3-N	104	95.5			0.731
EPA 365.1 Rev. 2.0	Total-P	102	98.4	97.8		0.463
	Total-P	96.1	96.0	97.6		1.61
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	101	98.0	98.4		0.377
SM 2120 B	Color (true)				4.02	
	Color (true)				0.935	
	Color (true)				0.0168	
SM 2320 B-97	Total Alkalinity	103			0.368	
SM 2540 C-97	TDS				4.44	
	TDS				6.80	
SM 4500 F-C-97	Fluoride	99.3	98.3	99.4		0.952
SM 5310 B-00	Organic Carbon	98.7	103	103		0.367

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	1816758, 1816759, 1816760, 1816761, 1816762, 1816763
EPA 300.0 Rev. 2.1 / E31780	Chloride in aqueous matrices	1816758, 1816759, 1816760, 1816761, 1816762, 1816763
EPA 300.0 Rev. 2.1 / E31780	Sulfate in aqueous matrices	1816758, 1816759, 1816760, 1816761, 1816762, 1816763
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	1816764, 1816765, 1816766, 1816767, 1816768, 1816769
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	1816764, 1816765, 1816766, 1816767, 1816768, 1816769
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	1816764, 1816765, 1816766, 1816767, 1816768, 1816769
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	1816764, 1816765, 1816766, 1816767, 1816768, 1816769
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	1816770, 1816771, 1816772, 1816773, 1816774, 1816775
SM 2120 B / E31780	True Color measured at 450 nm	1816758, 1816759, 1816760, 1816761, 1816762, 1816763
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO3/L	1816758, 1816759, 1816760, 1816761, 1816762, 1816763
SM 2540 C-97 / E31780	Total Dissolved Solids in aqueous matrices	1816758, 1816759, 1816760, 1816761, 1816762, 1816763
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices	1816758, 1816759, 1816760, 1816761, 1816762, 1816763
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	1816758, 1816759, 1816760, 1816761, 1816762, 1816763
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	1816764, 1816765, 1816766, 1816767, 1816768, 1816769

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	07/19/2016			07/19/2016 15:19	Rochelle Y Jackson	1816758, 1816759, 1816760, 1816761, 1816762, 1816763
EPA 300.0 Rev. 2.1	07/19/2016			08/02/2016	Ping Hua	1816758, 1816759, 1816760, 1816761, 1816762, 1816763
EPA 350.1 Rev. 2.0	07/19/2016			07/21/2016	Diana M. Turner	1816764, 1816765, 1816766, 1816767, 1816768, 1816769
EPA 351.2 Rev. 2.0	07/19/2016	07/21/2016	Sofia Elnemr	07/22/2016	Christopher Armour	1816764, 1816765, 1816766, 1816767, 1816768, 1816769
EPA 353.2 Rev. 2.0	07/19/2016			07/28/2016	Beverly Y. Sanders	1816764, 1816765, 1816766, 1816767, 1816768
	07/19/2016			07/29/2016	Beverly Y. Sanders	1816769
EPA 365.1 Rev. 2.0	07/19/2016	07/20/2016	Vijayalakshmi Reddy	07/21/2016	Lipi Saha	1816764, 1816765, 1816766, 1816767, 1816768, 1816769
EPA 365.1 Rev. 2.0 dissolved	07/19/2016			07/19/2016 14:24	Julia Storbeck	1816770
	07/19/2016			07/19/2016 14:39	Julia Storbeck	1816771
	07/19/2016			07/19/2016 14:40	Julia Storbeck	1816772
	07/19/2016			07/19/2016 14:41	Julia Storbeck	1816773, 1816774
	07/19/2016			07/19/2016 14:42	Julia Storbeck	1816775
SM 2120 B	07/19/2016			07/19/2016 15:53	Rochelle Y Jackson	1816759
	07/19/2016			07/19/2016 15:55	Rochelle Y Jackson	1816762
	07/19/2016			07/19/2016 15:57	Rochelle Y Jackson	1816763
	07/19/2016			07/19/2016 16:16	Rochelle Y Jackson	1816758
	07/19/2016			07/19/2016 16:17	Rochelle Y Jackson	1816760
	07/19/2016			07/19/2016 16:18	Rochelle Y Jackson	1816761
SM 2320 B-97	07/19/2016			07/27/2016	Dale L. Simmons	1816758, 1816759, 1816760, 1816761, 1816762, 1816763
SM 2540 C-97	07/19/2016			07/21/2016	Yijie Li	1816758, 1816759, 1816760, 1816761, 1816762, 1816763
SM 2540 D-97	07/19/2016			07/21/2016	Yijie Li	1816758, 1816759, 1816760, 1816761, 1816762, 1816763
SM 4500 F-C-97	07/19/2016			07/27/2016	Dale L. Simmons	1816758, 1816759, 1816760, 1816761, 1816762, 1816763
SM 5310 B-00	07/19/2016			07/25/2016	Sofia Elnemr	1816764, 1816765, 1816766, 1816767, 1816768, 1816769