

Chemical Analysis Report

NW-DIST-2017-01-27-02

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

Event Description: **ESC/SR co run WBID 586 534 444 531 260 537A 635**
Request ID: **RQ-2017-01-23-32**
Customer: **NW-DIST**
Project ID: **SMP**

Send Reports to:
FL Dept. of Environmental Protection
160 W Government St
Suite 208A
Pensacola, FL 32502-5794
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Certified by: Thekkekalathil Chandrasekhar, Chemist Administrator Date Certified: 20-FEB-2017 10:10



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: Clear Creek upstream of Pat Brown Road

Collection Date/Time: 01/26/2017 10:30

Field ID: G4NW0360

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1867261	EPA 180.1 Rev. 2.0	Turbidity	7.8	A	NTU	P318889	
	EPA 300.0 Rev. 2.1	Chloride	3.6		mg Cl/L	P319228	
		Sulfate	0.46	I	mg SO4/L	P319231	
	SM 2120 B	Color (true)	23		PCU	P318901	
	SM 2320 B-97	Total Alkalinity	2.9		mg CaCO3/L	P319065	
	SM 2540 C-97	TDS	18	I	mg/L	P319656	
	SM 2540 D-97	TSS	2	I	mg/L	P319119	
	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P319068	
1867268	EPA 350.1 Rev. 2.0	Ammonia-N	0.01		mg N/L	P319011	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.20	I	mg N/L	P319026	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.80		mg N/L	P319083	
	EPA 365.1 Rev. 2.0	Total-P	0.008		mg P/L	P319061	
	SM 5310 B-00	Organic Carbon	1.4		mg C/L	P318927	
1867275	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P318894	

Ref. Method and Comment:

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

Sample Location: Sandy Point Creek below Sandy Point St

Collection Date/Time: 01/26/2017 11:10

Field ID: G4NW0080

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1867262	EPA 180.1 Rev. 2.0	Turbidity	2.0		NTU	P318889	
	EPA 300.0 Rev. 2.1	Chloride	9.7		mg Cl/L	P319228	
		Sulfate	2.9		mg SO4/L	P319231	
	SM 2120 B	Color (true)	260		PCU	P318901	
	SM 2320 B-97	Total Alkalinity	2.2	I	mg CaCO3/L	P319065	
	SM 2540 C-97	TDS	51		mg/L	P319657	
	SM 2540 D-97	TSS	2	U	mg/L	P319119	
	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P319068	
1867269	EPA 350.1 Rev. 2.0	Ammonia-N	0.007		mg N/L	P319011	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.76		mg N/L	P319027	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.006	I	mg N/L	P319083	
	EPA 365.1 Rev. 2.0	Total-P	0.011		mg P/L	P319061	
	SM 5310 B-00	Organic Carbon	22		mg C/L	P318927	
1867276	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P318894	

Ref. Method and Comment:

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

Sample Location: Jakes Bayou above Robinson Point Rd

Collection Date/Time: 01/26/2017 11:35

Field ID: G4NW0394

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1867263	EPA 180.1 Rev. 2.0	Turbidity	3.4		NTU	P318889	
	EPA 300.0 Rev. 2.1	Chloride	37		mg Cl/L	P319228	
		Sulfate	7.0		mg SO4/L	P319231	

Field ID: G4NW0394

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1867263	SM 2120 B	Color (true)	88		PCU	P318901	
	SM 2320 B-97	Total Alkalinity	2.0	I	mg CaCO3/L	P319065	
	SM 2540 C-97	TDS	91		mg/L	P319657	
	SM 2540 D-97	TSS	3	I	mg/L	P319119	
	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P319068	
1867270	EPA 350.1 Rev. 2.0	Ammonia-N	0.022		mg N/L	P319037	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.45		mg N/L	P319027	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.01	I	mg N/L	P319083	
	EPA 365.1 Rev. 2.0	Total-P	0.014		mg P/L	P318965	
	SM 5310 B-00	Organic Carbon	11		mg C/L	P318927	
1867277	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P318894	

Ref. Method and Comment:

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

Sample Location: White Oak Bayou end of Aegean Dr

Collection Date/Time: 01/26/2017 12:00

Field ID: G4NW0387

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1867264	EPA 180.1 Rev. 2.0	Turbidity	3.8		NTU	P318889	
	EPA 300.0 Rev. 2.1	Chloride	210		mg Cl/L	P319228	
		Sulfate	27		mg SO4/L	P319231	
	SM 2120 B	Color (true)	78	A	PCU	P318901	
	SM 2320 B-97	Total Alkalinity	5.5		mg CaCO3/L	P319065	
	SM 2540 C-97	TDS	408	A	mg/L	P319657	
	SM 2540 D-97	TSS	2	I	mg/L	P319119	
	SM 4500 F-C-97	Fluoride	0.048	I	mg F/L	P319068	
	EPA 350.1 Rev. 2.0	Ammonia-N	0.013		mg N/L	P319037	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.42		mg N/L	P319027	
1867271	EPA 353.2 Rev. 2.0	NO2NO3-N	0.007	I	mg N/L	P319083	
	EPA 365.1 Rev. 2.0	Total-P	0.015		mg P/L	P318965	
	SM 5310 B-00	Organic Carbon	10		mg C/L	P318927	
	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P318894	

Ref. Method and Comment:

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

Sample Location: Driglers Creek abv Parkview St

Collection Date/Time: 01/26/2017 12:50

Field ID: G4NW0168

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1867265	EPA 180.1 Rev. 2.0	Turbidity	1.5		NTU	P318889	
	EPA 300.0 Rev. 2.1	Chloride	6.7		mg Cl/L	P319228	
		Sulfate	1.3		mg SO4/L	P319231	
	SM 2120 B	Color (true)	140		PCU	P318901	
	SM 2320 B-97	Total Alkalinity	0.65	U	mg CaCO3/L	P319065	
	SM 2540 C-97	TDS	43		mg/L	P319657	
	SM 2540 D-97	TSS	2	U	mg/L	P319119	

Field ID: G4NW0168

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1867265	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P319068	
1867272	EPA 350.1 Rev. 2.0	Ammonia-N	0.007		mg N/L	P319037	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.48		mg N/L	P319027	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.10		mg N/L	P319083	
	EPA 365.1 Rev. 2.0	Total-P	0.006		mg P/L	P318965	
	SM 5310 B-00	Organic Carbon	14		mg C/L	P318927	
1867279	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P318894	

Ref. Method and Comment:

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

Sample Location: Thompson Bayou @ Greenbriar Rd

Collection Date/Time: 01/26/2017 13:30

Field ID: G4NW0240

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1867266	EPA 180.1 Rev. 2.0	Turbidity	3.2		NTU	P318889	
	EPA 300.0 Rev. 2.1	Chloride	7.1		mg Cl/L	P319228	
		Sulfate	3.0		mg SO4/L	P319231	
	SM 2120 B	Color (true)	28		PCU	P318901	
	SM 2320 B-97	Total Alkalinity	10		mg CaCO3/L	P319065	
	SM 2540 C-97	TDS	37		mg/L	P319657	
	SM 2540 D-97	TSS	2	U	mg/L	P319119	
	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P319068	
1867273	EPA 350.1 Rev. 2.0	Ammonia-N	0.027		mg N/L	P319037	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.25		mg N/L	P319027	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.65		mg N/L	P319083	
	EPA 365.1 Rev. 2.0	Total-P	0.008		mg P/L	P318965	
	SM 5310 B-00	Organic Carbon	2.3		mg C/L	P318927	
1867280	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P318894	

Ref. Method and Comment:

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

Sample Location: Clear Creek Dr @ Tecumseh Trail

Collection Date/Time: 01/26/2017 13:55

Field ID: G4NW0358

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1867267	EPA 180.1 Rev. 2.0	Turbidity	3.4		NTU	P318889	
	EPA 300.0 Rev. 2.1	Chloride	7.4		mg Cl/L	P319228	
		Sulfate	5.0		mg SO4/L	P319231	
	SM 2120 B	Color (true)	38		PCU	P318901	
	SM 2320 B-97	Total Alkalinity	18		mg CaCO3/L	P319065	
	SM 2540 C-97	TDS	49		mg/L	P319657	
	SM 2540 D-97	TSS	2	U	mg/L	P319119	
	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P319068	
1867274	EPA 350.1 Rev. 2.0	Ammonia-N	0.017		mg N/L	P319037	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.24		mg N/L	P319027	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.31		mg N/L	P319084	

Field ID: G4NW0358

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1867274	EPA 365.1 Rev. 2.0	Total-P	0.009		mg P/L	P318965	
	SM 5310 B-00	Organic Carbon	3.2		mg C/L	P318927	
1867281	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P318894	

Ref. Method and Comment:

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

Quality Assurance Report Method Blank Results

Reference Method: EPA 180.1 Rev. 2.0

Batch ID: P318889

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 300.0 Rev. 2.1

Batch ID: P319228

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1

Batch ID: P319231

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 350.1 Rev. 2.0

Batch ID: P319011

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

Reference Method: EPA 350.1 Rev. 2.0

Batch ID: P319037

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

Reference Method: EPA 351.2 Rev. 2.0

Batch ID: P319026

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

Reference Method: EPA 351.2 Rev. 2.0

Batch ID: P319027

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

Reference Method: EPA 353.2 Rev. 2.0

Batch ID: P319083

Component	Result	Code	Units
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Quality Assurance Report Method Blank Results

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P319083

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P319084

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P318965

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P319061

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P318894

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

Reference Method: SM 2120 B
Batch ID: P318901

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2320 B-97
Batch ID: P319065

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

Reference Method: SM 2540 C-97
Batch ID: P319656

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 C-97
Batch ID: P319657

Component	Result	Code	Units
TDS	15	U	mg/L

Quality Assurance Report Method Blank Results

Reference Method: SM 2540 D-97
Batch ID: P319119

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500 F-C-97
Batch ID: P319068

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-00
Batch ID: P318927

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: P319228

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P319231

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P319011

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P319037

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P319026

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P319027

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: P319027

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: P319083

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P319084

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P318965

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P319061

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P318894

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

Reference Method: SM 2320 B-97
Batch ID: P319065

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

Reference Method: SM 4500 F-C-97
Batch ID: P319068

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	98.0		P	92 - 103

Reference Method: SM 5310 B-00
Batch ID: P318927

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	95.0		P	85 - 115

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P319228

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1867267	Chloride	102		P	90 - 110
1867317	Chloride	102		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P319231

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1867267	Sulfate	96.1		P	90 - 110
1867317	Sulfate	98.1		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P319011

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1867211	Ammonia-N	107	107	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P319037

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1867270	Ammonia-N	101	102	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P319026

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1867268	Kjeldahl Nitrogen	93.9	98.8	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P319027

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1867303	Kjeldahl Nitrogen	103	103	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P319083

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1867244	NO2NO3-N	106	106	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P319084

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1867306	NO2NO3-N	106	104	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P318965

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1867271	Total-P	103	98.4	P/P	90 - 110

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P319061

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1867151	Total-P	91.4	97.3	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P318894

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1867275	O-Phosphate-P	102	101	P/P	90 - 110

Reference Method: SM 4500 F-C-97
Batch ID: P319068

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1867411	Fluoride	99.7	100	P/P	91 - 105

Reference Method: SM 5310 B-00
Batch ID: P318927

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1867243	Organic Carbon	95.5	96.0	P/P	85 - 115

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P318889

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1867261	Turbidity	2.84	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P319228

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1867317	Chloride	0.393	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P319231

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1867317	Sulfate	0.402	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P319011

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1867211	Ammonia-N	0.416	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P319037

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1867270	Ammonia-N	0.347	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P319026

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1867268	Kjeldahl Nitrogen	4.32	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P319027

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1867303	Kjeldahl Nitrogen	0.0791	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P319083

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1867244	NO2NO3-N	0.0	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P319084

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1867306	NO2NO3-N	1.10	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P318965

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1867271	Total-P	4.17	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P319061

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1867151	Total-P	5.33	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P318894

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1867275	O-Phosphate-P	0.689	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: SM 2120 B
Batch ID: P318901

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1867264	Color (true)	0.663	Sample	P	0 - 20

Reference Method: SM 2320 B-97
Batch ID: P319065

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1867411	Total Alkalinity	0.500	Sample	P	0 - 4.8

Reference Method: SM 2540 C-97
Batch ID: P319656

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1867225	TDS	0.359	Sample	P	0 - 10

Reference Method: SM 2540 C-97
Batch ID: P319657

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1867264	TDS	0.490	Sample	P	0 - 10

Reference Method: SM 4500 F-C-97
Batch ID: P319068

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1867411	Fluoride	0.516	Spike	P	0 - 3.0

Reference Method: SM 5310 B-00
Batch ID: P318927

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1867243	Organic Carbon	0.491	Spike	P	0 - 20

* Sample, spike and/or laboratory control sample precision (LCS) is reported.
Replicate spike precision may be reported when sample results are below quantifiable levels.

Quality Assurance Report Calibration Verification

Reference Method: EPA 180.1 Rev. 2.0
Run ID: A74149
Included Lab Sample IDs: 1867261, 1867262, 1867263, 1867264, 1867265, 1867266, 1867267

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

Quality Assurance Report Calibration Verification

Reference Method: EPA 365.1 Rev. 2.0 dissolved

Run ID: A74151

Included Lab Sample IDs: 1867275, 1867276, 1867277, 1867278, 1867279, 1867280, 1867281

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

Reference Method: SM 2120 B

Run ID: A74154

Included Lab Sample IDs: 1867261, 1867262, 1867263, 1867264, 1867265, 1867266, 1867267

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	102	102	P/P	85 - 115
Color (true)	99.3	101	P/P	85 - 115

Reference Method: SM 5310 B-00

Run ID: A74160

Included Lab Sample IDs: 1867268, 1867269, 1867270, 1867271, 1867272, 1867273, 1867274

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	96.1	96.6	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A74193

Included Lab Sample IDs: 1867268, 1867269

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	99.8	101	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A74202

Included Lab Sample IDs: 1867270, 1867271, 1867272, 1867273, 1867274

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

Reference Method: EPA 300.0 Rev. 2.1

Run ID: A74206

Included Lab Sample IDs: 1867261, 1867262, 1867263, 1867264, 1867265, 1867266, 1867267

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	100	101	P/P	90 - 110
Chloride	101	101	P/P	90 - 110
Chloride	101	100	P/P	90 - 110
Sulfate	92.2	96.6	P/P	90 - 110
Sulfate	95.8	96.9	P/P	90 - 110
Sulfate	96.9	92.2	P/P	90 - 110

Reference Method: SM 2320 B-97

Run ID: A74207

Included Lab Sample IDs: 1867261, 1867262, 1867263, 1867264, 1867265, 1867266, 1867267

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

Quality Assurance Report Calibration Verification

Reference Method: SM 4500 F-C-97

Run ID: A74207

Included Lab Sample IDs: 1867261, 1867262, 1867263, 1867264, 1867265, 1867266, 1867267

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

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A74209

Included Lab Sample IDs: 1867268, 1867269, 1867270, 1867271, 1867272, 1867273, 1867274

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

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A74211

Included Lab Sample IDs: 1867270, 1867271, 1867272, 1867273, 1867274

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	99.2	98.2	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A74238

Included Lab Sample IDs: 1867268, 1867269, 1867270, 1867271, 1867272, 1867273, 1867274

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	107	105	P/P	90 - 110
Kjeldahl Nitrogen	108	110	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A74243

Included Lab Sample IDs: 1867268, 1867269

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	99.0	97.0	P/P	90 - 110

* Pass/Fail determinations are made for each bracketing calibration verification check.

Control limits for initial calibration checks may be different from those for continuing checks, depending on method requirements.

Where they are different, both control limits are provided.

Quality Assurance Report Summary

Ref. Method	Analyte	LCS % Recovery	MS % Recovery	LCS	Precision SMP	MS
EPA 180.1 Rev. 2.0	Turbidity				2.84	
EPA 300.0 Rev. 2.1	Chloride	102	102	102	0.393	
	Sulfate	96.4	98.1	96.1	0.402	
EPA 350.1 Rev. 2.0	Ammonia-N	107	107	107		0.416
	Ammonia-N	107	101	102		0.347
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	104	93.9	98.8		4.32
	Kjeldahl Nitrogen	102	103	103		0.0791
EPA 353.2 Rev. 2.0	NO2NO3-N	104	106	106		0.0
	NO2NO3-N	106	106	104		1.10
EPA 365.1 Rev. 2.0	Total-P	99.0	103	98.4		4.17

Quality Assurance Report Summary

Ref. Method	Analyte	LCS % Recovery	MS % Recovery		Precision	
					LCS	MS
EPA 365.1 Rev. 2.0	Total-P	95.5	91.4	97.3		5.33
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	101	102	101		0.689
SM 2120 B	Color (true)				0.663	
SM 2320 B-97	Total Alkalinity	103			0.500	
SM 2540 C-97	TDS				0.359	
	TDS				0.490	
SM 4500 F-C-97	Fluoride	98.0	99.7	100		0.516
SM 5310 B-00	Organic Carbon	95.0	95.5	96.0		0.491

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	1867261, 1867262, 1867263, 1867264, 1867265, 1867266, 1867267
EPA 300.0 Rev. 2.1 / E31780	Chloride in aqueous matrices	1867261, 1867262, 1867263, 1867264, 1867265, 1867266, 1867267
EPA 300.0 Rev. 2.1 / E31780	Sulfate in aqueous matrices	1867261, 1867262, 1867263, 1867264, 1867265, 1867266, 1867267
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	1867268, 1867269, 1867270, 1867271, 1867272, 1867273, 1867274
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	1867268, 1867269, 1867270, 1867271, 1867272, 1867273, 1867274
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	1867268, 1867269, 1867270, 1867271, 1867272, 1867273, 1867274
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	1867268, 1867269, 1867270, 1867271, 1867272, 1867273, 1867274
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	1867275, 1867276, 1867277, 1867278, 1867279, 1867280, 1867281
SM 2120 B / E31780	True Color measured at 450 nm	1867261, 1867262, 1867263, 1867264, 1867265, 1867266, 1867267
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO3/L	1867261, 1867262, 1867263, 1867264, 1867265, 1867266, 1867267
SM 2540 C-97 / E31780	Total Dissolved Solids in aqueous matrices	1867261, 1867262, 1867263, 1867264, 1867265, 1867266, 1867267
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices	1867261, 1867262, 1867263, 1867264, 1867265, 1867266, 1867267
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	1867261, 1867262, 1867263, 1867264, 1867265, 1867266, 1867267
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	1867268, 1867269, 1867270, 1867271, 1867272, 1867273, 1867274

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	01/27/2017			01/27/2017 15:27	Sima Feizi	1867261, 1867262, 1867263, 1867264, 1867265, 1867266, 1867267
EPA 300.0 Rev. 2.1	01/27/2017			02/02/2017	Ping Hua	1867261, 1867262, 1867263, 1867264, 1867265, 1867266, 1867267
EPA 350.1 Rev. 2.0	01/27/2017			01/30/2017	Sofia Elnemr	1867268, 1867269
	01/27/2017			01/31/2017	Sofia Elnemr	1867270, 1867271, 1867272, 1867273, 1867274
EPA 351.2 Rev. 2.0	01/27/2017	02/01/2017	Adrian Shelby	02/02/2017	Joseph Suarez	1867268, 1867269, 1867270, 1867271, 1867272, 1867273, 1867274
EPA 353.2 Rev. 2.0	01/27/2017			02/01/2017	Beverly Y. Sanders	1867268, 1867269, 1867270, 1867271, 1867272, 1867273, 1867274
EPA 365.1 Rev. 2.0	01/27/2017	01/31/2017	Adrian Shelby	02/01/2017	Lipi Saha	1867270, 1867271, 1867272, 1867273, 1867274
	01/27/2017	02/01/2017	Vijayalakshmi Reddy	02/02/2017	Lipi Saha	1867268, 1867269
EPA 365.1 Rev. 2.0 dissolved	01/27/2017			01/27/2017 15:19	Julie Michelle Frank	1867275
	01/27/2017			01/27/2017 15:43	Julie Michelle Frank	1867276
	01/27/2017			01/27/2017 15:44	Julie Michelle Frank	1867277
	01/27/2017			01/27/2017 15:45	Julie Michelle Frank	1867278
	01/27/2017			01/27/2017 15:46	Julie Michelle Frank	1867279, 1867280
	01/27/2017			01/27/2017 15:47	Julie Michelle Frank	1867281
SM 2120 B	01/27/2017			01/27/2017 16:12	Jared I. Manley	1867264
	01/27/2017			01/27/2017 16:13	Jared I. Manley	1867261
	01/27/2017			01/27/2017 16:15	Jared I. Manley	1867263, 1867265
	01/27/2017			01/27/2017 16:16	Jared I. Manley	1867266
	01/27/2017			01/27/2017 16:17	Jared I. Manley	1867267
	01/27/2017			01/27/2017 16:38	Jared I. Manley	1867262
SM 2320 B-97	01/27/2017			02/01/2017	Dale L. Simmons	1867261, 1867262, 1867263, 1867264, 1867265, 1867266, 1867267
SM 2540 C-97	01/27/2017			02/01/2017	Blanca Fach	1867261, 1867262, 1867263, 1867264, 1867265, 1867266, 1867267
SM 2540 D-97	01/27/2017			01/30/2017	Christopher Armour	1867261, 1867262, 1867263, 1867264, 1867265, 1867266, 1867267
SM 4500 F-C-97	01/27/2017			02/01/2017	Dale L. Simmons	1867261, 1867262, 1867263, 1867264, 1867265, 1867266, 1867267
SM 5310 B-00	01/27/2017			01/27/2017	Julie Michelle Frank	1867268, 1867269, 1867270, 1867271, 1867272, 1867273
	01/27/2017			01/28/2017	Julie Michelle Frank	1867274