

Chemical Analysis Report

NW-DIST-2016-08-31-01

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

Event Description: **WBID 567 646 557 371 570**

Request ID: **RQ-2016-08-29-11**

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: Liang Lin, Environmental Administrator

Date Certified: 23-SEP-2016 15:35

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

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: Lafayette Creek Hwy 20

Collection Date/Time: 08/30/2016 12:15

Field ID: G3NW0118

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1828371	EPA 180.1 Rev. 2.0	Turbidity	2.3		NTU	P310647	
	EPA 300.0 Rev. 2.1	Chloride	3.3		mg Cl/L	P311212	
		Sulfate	2.7		mg SO4/L	P311216	
		Color (true)	30		PCU	P310636	
	SM 2320 B-97	Total Alkalinity	2.3	I	mg CaCO3/L	P310789	
	SM 2540 C-97	TDS	30	Q	mg/L	P311050	
	SM 2540 D-97	TSS	4	IQ	mg/L	P310861	
	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P310791	
1828377	EPA 350.1 Rev. 2.0	Ammonia-N	0.006		mg N/L	P310655	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.18	I	mg N/L	P310707	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.20		mg N/L	P310890	
	EPA 365.1 Rev. 2.0	Total-P	0.005		mg P/L	P310899	
	SM 5310 B-00	Organic Carbon	2.5		mg C/L	P311047	
1828383	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P310642	

Ref. Method and Comment:

EPA 300.0 Rev. 2.1: Sulfate: Batch matrix spike recoveries for one of two spiked samples are unavailable because of high analyte concentration in the QC sample.

SM 2540 C-97: Sample analyzed beyond holding time due to a protracted power outage caused by hurricane Hermine.

SM 2540 D-97: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample. Sample analyzed beyond routine holding time due to a protracted power outage caused by hurricane Hermine.

Sample Location: Fourmile Creek SR-20

Collection Date/Time: 08/30/2016 12:40

Field ID: G3NW0112

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1828372	EPA 180.1 Rev. 2.0	Turbidity	1.6		NTU	P310647	
	EPA 300.0 Rev. 2.1	Chloride	2.3		mg Cl/L	P311212	
		Sulfate	2.0		mg SO4/L	P311216	
		Color (true)	37		PCU	P310636	
	SM 2320 B-97	Total Alkalinity	0.65	U	mg CaCO3/L	P310789	
	SM 2540 C-97	TDS	17	IQ	mg/L	P311050	
	SM 2540 D-97	TSS	2	IQ	mg/L	P310861	
	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P310791	
1828378	EPA 350.1 Rev. 2.0	Ammonia-N	0.003	I	mg N/L	P310655	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.16	I	mg N/L	P310707	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.078		mg N/L	P310890	
	EPA 365.1 Rev. 2.0	Total-P	0.003	I	mg P/L	P310899	
	SM 5310 B-00	Organic Carbon	3.0		mg C/L	P311047	
1828384	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P310642	

Ref. Method and Comment:

EPA 300.0 Rev. 2.1: Sulfate: Batch matrix spike recoveries for one of two spiked samples are unavailable because of high analyte concentration in the QC sample.

SM 2540 C-97: Sample analyzed beyond holding time due to a protracted power outage caused by hurricane Hermine.

SM 2540 D-97: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample. Sample analyzed beyond routine holding time due to a protracted power outage caused by hurricane Hermine.

Sample Location: Seven Runs Hwy 81

Collection Date/Time: 08/30/2016 13:15

Field ID: G3NW0116

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1828373	EPA 180.1 Rev. 2.0	Turbidity	2.1		NTU	P310647	
	EPA 300.0 Rev. 2.1	Chloride	1.9		mg Cl/L	P311212	
		Sulfate	2.5		mg SO4/L	P311216	
	SM 2120 B	Color (true)	30		PCU	P310636	
	SM 2320 B-97	Total Alkalinity	0.91	I	mg CaCO3/L	P310789	
	SM 2540 C-97	TDS	20	IQ	mg/L	P311050	
	SM 2540 D-97	TSS	5	IQ	mg/L	P310861	
	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P310791	
1828379	EPA 350.1 Rev. 2.0	Ammonia-N	0.004	I	mg N/L	P310655	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.19	I	mg N/L	P310707	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.10		mg N/L	P310891	
	EPA 365.1 Rev. 2.0	Total-P	0.006		mg P/L	P310900	
	SM 5310 B-00	Organic Carbon	2.7		mg C/L	P311047	
1828385	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P310642	

Ref. Method and Comment:

EPA 300.0 Rev. 2.1: Sulfate: Batch matrix spike recoveries for one of two spiked samples are unavailable because of high analyte concentration in the QC sample.

SM 2540 C-97: Sample analyzed beyond holding time due to a protracted power outage caused by hurricane Hermine.

SM 2540 D-97: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample. Sample analyzed beyond routine holding time due to a protracted power outage caused by hurricane Hermine.

Sample Location: Seven Runs End of Dead River Rd.

Collection Date/Time: 08/30/2016 13:30

Field ID: G3NW0115

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1828374	EPA 180.1 Rev. 2.0	Turbidity	4.0	A	NTU	P310648	
	EPA 300.0 Rev. 2.1	Chloride	1.9		mg Cl/L	P311212	
		Sulfate	2.4		mg SO4/L	P311216	
	SM 2120 B	Color (true)	38		PCU	P310636	
	SM 2320 B-97	Total Alkalinity	2.0	I	mg CaCO3/L	P310789	
	SM 2540 C-97	TDS	22	IQ	mg/L	P311050	
	SM 2540 D-97	TSS	5	IQ	mg/L	P310861	
	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P310791	
1828380	EPA 350.1 Rev. 2.0	Ammonia-N	0.013		mg N/L	P310655	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.20	I	mg N/L	P310707	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.090		mg N/L	P310891	
	EPA 365.1 Rev. 2.0	Total-P	0.009		mg P/L	P310900	
	SM 5310 B-00	Organic Carbon	3.0		mg C/L	P311047	
1828386	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P310642	

Ref. Method and Comment:

EPA 300.0 Rev. 2.1: Sulfate: Batch matrix spike recoveries for one of two spiked samples are unavailable because of high analyte concentration in the QC sample.

SM 2540 C-97: Sample analyzed beyond holding time due to a protracted power outage caused by hurricane Hermine.

SM 2540 D-97: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample. Sample analyzed beyond routine holding time due to a protracted power outage caused by hurricane Hermine.

Sample Location: Magnolia Creek Owls Head Rd.

Collection Date/Time: 08/30/2016 14:30

Field ID: G3NW0099

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1828375	EPA 180.1 Rev. 2.0	Turbidity	1.8		NTU	P310648	
	EPA 300.0 Rev. 2.1	Chloride	1.9		mg Cl/L	P311212	
		Sulfate	2.0		mg SO4/L	P311216	
	SM 2120 B	Color (true)	40		PCU	P310636	
	SM 2320 B-97	Total Alkalinity	0.86	I	mg CaCO3/L	P310789	
	SM 2540 C-97	TDS	27	Q	mg/L	P311050	
	SM 2540 D-97	TSS	3	IQ	mg/L	P310861	
	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P310791	
1828381	EPA 350.1 Rev. 2.0	Ammonia-N	0.003	I	mg N/L	P310655	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.17	I	mg N/L	P310797	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.066		mg N/L	P310891	
	EPA 365.1 Rev. 2.0	Total-P	0.004	I	mg P/L	P310900	
	SM 5310 B-00	Organic Carbon	3.5		mg C/L	P311047	
1828387	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P310642	

Ref. Method and Comment:

EPA 300.0 Rev. 2.1: Sulfate: Batch matrix spike recoveries for one of two spiked samples are unavailable because of high analyte concentration in the QC sample.

SM 2540 C-97: Sample analyzed beyond holding time due to a protracted power outage caused by hurricane Hermine.

SM 2540 D-97: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample. Sample analyzed beyond routine holding time due to a protracted power outage caused by hurricane Hermine.

Sample Location: Magnolia Creek Abv Culvert on 1st American Farms **Collection Date/Time: 08/30/2016 14:50**

Field ID: G3NW0098

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1828376	EPA 180.1 Rev. 2.0	Turbidity	2.6		NTU	P310648	
	EPA 300.0 Rev. 2.1	Chloride	1.8		mg Cl/L	P311212	
		Sulfate	1.8		mg SO4/L	P311216	
	SM 2120 B	Color (true)	46		PCU	P310636	
	SM 2320 B-97	Total Alkalinity	0.65	U	mg CaCO3/L	P310790	
	SM 2540 C-97	TDS	29	Q	mg/L	P311050	
	SM 2540 D-97	TSS	4	IQ	mg/L	P310861	
	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P310792	
1828382	EPA 350.1 Rev. 2.0	Ammonia-N	0.004	I	mg N/L	P310655	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.20	I	mg N/L	P310797	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.054		mg N/L	P310891	
	EPA 365.1 Rev. 2.0	Total-P	0.006		mg P/L	P310900	
	SM 5310 B-00	Organic Carbon	3.8		mg C/L	P311047	
1828388	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P310643	

Ref. Method and Comment:

EPA 300.0 Rev. 2.1: Sulfate: Batch matrix spike recoveries for one of two spiked samples are unavailable because of high analyte concentration in the QC sample.

SM 2540 C-97: Sample analyzed beyond holding time due to a protracted power outage caused by hurricane Hermine.

SM 2540 D-97: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample. Sample analyzed beyond routine holding time due to a protracted power outage caused by hurricane Hermine.

Quality Assurance Report

Method Blank Results

Quality Assurance Report Method Blank Results

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P310647

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P310648

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P311212

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P311216

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P310655

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P310707

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P310797

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P310890

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P310891

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

Quality Assurance Report Method Blank Results

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P310899

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P310900

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P310642

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P310643

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

Reference Method: SM 2120 B
Batch ID: P310636

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2320 B-97
Batch ID: P310789

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

Reference Method: SM 2320 B-97
Batch ID: P310790

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

Reference Method: SM 2540 C-97
Batch ID: P311050

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P310861

Component	Result	Code	Units
TSS	2	U	mg/L

Quality Assurance Report Method Blank Results

Reference Method: SM 4500 F-C-97
Batch ID: P310791

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 4500 F-C-97
Batch ID: P310792

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-00
Batch ID: P311047

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: P311212

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P311216

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P310655

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P310707

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P310797

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: P310890

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P310890

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: P310891

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: P310899

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total-P	98.7		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P310900

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P310642

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P310643

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

Reference Method: SM 2320 B-97
Batch ID: P310789

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

Reference Method: SM 2320 B-97
Batch ID: P310790

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

Reference Method: SM 4500 F-C-97
Batch ID: P310791

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	95.4		P	92 - 103

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: SM 4500 F-C-97
Batch ID: P310792

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	97.3		P	92 - 103

Reference Method: SM 5310 B-00
Batch ID: P311047

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	99.7		P	85 - 115

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P311212

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1828414	Chloride	98.6		P	90 - 110
1828415	Chloride	99.2		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P311216

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1828415	Sulfate	101		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P310655

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1828338	Ammonia-N	107	106	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P310707

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1828339	Kjeldahl Nitrogen	98.8	101	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P310797

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1828381	Kjeldahl Nitrogen	93.8	98.8	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P310890

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1828314	NO2NO3-N	97.2	97.6	P/P	90 - 110

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P310891

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1828379	NO2NO3-N	105	104	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P310899

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1828314	Total-P	105	104	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P310900

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1828379	Total-P	106	102	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P310642

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1828369	O-Phosphate-P	96.9	98.4	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P310643

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1828388	O-Phosphate-P	99.4	99.8	P/P	90 - 110

Reference Method: SM 4500 F-C-97
Batch ID: P310791

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1828362	Fluoride	97.2	98.3	P/P	91 - 105

Reference Method: SM 4500 F-C-97
Batch ID: P310792

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1828489	Fluoride	101	99.7	P/P	91 - 105

Reference Method: SM 5310 B-00
Batch ID: P311047

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1828365	Organic Carbon	99.2	99.5	P/P	85 - 115

Quality Assurance Report Precision

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P310647

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1828337	Turbidity	1.53	Sample	P	0 - 20

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P310648

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1828374	Turbidity	2.47	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P311212

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1828415	Chloride	0.0740	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P311216

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1828415	Sulfate	6.57	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P310655

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1828338	Ammonia-N	0.917	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P310707

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1828339	Kjeldahl Nitrogen	1.34	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P310797

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1828381	Kjeldahl Nitrogen	4.54	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P310890

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1828314	NO2NO3-N	0.487	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P310891

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1828379	NO2NO3-N	0.963	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P310899

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1828314	Total-P	0.717	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P310900

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1828379	Total-P	3.57	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P310642

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1828369	O-Phosphate-P	1.40	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P310643

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1828388	O-Phosphate-P	0.402	Spike	P	0 - 20

Reference Method: SM 2120 B
Batch ID: P310636

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1828337	Color (true)	1.61	Sample	P	0 - 20

Reference Method: SM 2320 B-97
Batch ID: P310789

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1828362	Total Alkalinity	0.685	Sample	P	0 - 4.8

Reference Method: SM 2320 B-97
Batch ID: P310790

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1828489	Total Alkalinity	0.277	Sample	P	0 - 4.8

Quality Assurance Report Precision

Reference Method: SM 2540 C-97
Batch ID: P311050

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1828337	TDS	4.76	Sample	P	0 - 10

Reference Method: SM 4500 F-C-97
Batch ID: P310791

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1828362	Fluoride	0.984	Spike	P	0 - 3.0

Reference Method: SM 4500 F-C-97
Batch ID: P310792

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1828489	Fluoride	0.986	Spike	P	0 - 3.0

Reference Method: SM 5310 B-00
Batch ID: P311047

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1828365	Organic Carbon	0.287	Spike	P	0 - 20

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

Quality Assurance Report Calibration Verification

Reference Method: SM 2120 B
Run ID: A71432
Included Lab Sample IDs: 1828371, 1828372, 1828373, 1828374, 1828375, 1828376

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	95.8	95.7	P/P	85 - 115

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Run ID: A71433
Included Lab Sample IDs: 1828383, 1828384, 1828385, 1828386, 1828387, 1828388

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	101	101	P/P	90 - 110
O-Phosphate-P	102	100	P/P	90 - 110

Reference Method: EPA 180.1 Rev. 2.0
Run ID: A71435
Included Lab Sample IDs: 1828371, 1828372, 1828373, 1828374, 1828375, 1828376

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Turbidity	99.0	99.5	P/P	95 - 105

Quality Assurance Report Calibration Verification

Reference Method: EPA 180.1 Rev. 2.0

Run ID: A71435

Included Lab Sample IDs: 1828371, 1828372, 1828373, 1828374, 1828375, 1828376

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Turbidity	99.5	99.5	P/P	95 - 105

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A71438

Included Lab Sample IDs: 1828377, 1828378, 1828379, 1828380, 1828381, 1828382

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

Reference Method: SM 2320 B-97

Run ID: A71480

Included Lab Sample IDs: 1828371, 1828372, 1828373, 1828374, 1828375, 1828376

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

Reference Method: SM 4500 F-C-97

Run ID: A71480

Included Lab Sample IDs: 1828371, 1828372, 1828373, 1828374, 1828375, 1828376

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

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A71504

Included Lab Sample IDs: 1828377, 1828378, 1828379, 1828380, 1828381, 1828382

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO2NO3-N	102	103	P/P	90 - 110
NO2NO3-N	103	96.0	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A71521

Included Lab Sample IDs: 1828377, 1828378, 1828379, 1828380

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	105	99.5	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A71565

Included Lab Sample IDs: 1828377, 1828378, 1828379, 1828380, 1828381, 1828382

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	100	100	P/P	90 - 110
Total-P	99.2	100	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A71567

Included Lab Sample IDs: 1828381, 1828382

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	93.2	94.8	P/P	90 - 110
Kjeldahl Nitrogen	95.6	95.0	P/P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1

Run ID: A71576

Included Lab Sample IDs: 1828371, 1828372, 1828373, 1828374, 1828375, 1828376

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	101	102	P/P	90 - 110
Chloride	102	102	P/P	90 - 110
Sulfate	101	99.3	P/P	90 - 110
Sulfate	99.7	101	P/P	90 - 110

Reference Method: SM 5310 B-00

Run ID: A71583

Included Lab Sample IDs: 1828377, 1828378, 1828379, 1828380, 1828381, 1828382

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

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

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

Where they are different, both control limits are provided.

Quality Assurance Report Summary

Ref. Method	Analyte	LCS % Recovery		MS % Recovery		LCS	Precision SMP	MS
EPA 180.1 Rev. 2.0	Turbidity						1.53	
	Turbidity						2.47	
EPA 300.0 Rev. 2.1	Chloride	102		99.2	98.6		0.0740	
	Sulfate	101		101			6.57	
EPA 350.1 Rev. 2.0	Ammonia-N	106		107	106			0.917
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	103		98.8	101			1.34
	Kjeldahl Nitrogen	103		93.8	98.8			4.54
EPA 353.2 Rev. 2.0	NO2NO3-N	104		97.2	97.6			0.487
	NO2NO3-N	104		105	104			0.963
EPA 365.1 Rev. 2.0	Total-P	98.7		105	104			0.717
	Total-P	103		106	102			3.57
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	102		96.9	98.4			1.40
	O-Phosphate-P	99.7		99.4	99.8			0.402
SM 2120 B	Color (true)						1.61	
SM 2320 B-97	Total Alkalinity	102					0.685	
	Total Alkalinity	103					0.277	
SM 2540 C-97	TDS						4.76	
SM 4500 F-C-97	Fluoride	95.4		97.2	98.3			0.984
	Fluoride	97.3		101	99.7			0.986
SM 5310 B-00	Organic Carbon	99.7		99.2	99.5			0.287

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	1828371, 1828372, 1828373, 1828374, 1828375, 1828376
EPA 300.0 Rev. 2.1 / E31780	Chloride in aqueous matrices	1828371, 1828372, 1828373, 1828374, 1828375, 1828376
EPA 300.0 Rev. 2.1 / E31780	Sulfate in aqueous matrices	1828371, 1828372, 1828373, 1828374, 1828375, 1828376
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	1828377, 1828378, 1828379, 1828380, 1828381, 1828382
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	1828377, 1828378, 1828379, 1828380, 1828381, 1828382
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	1828377, 1828378, 1828379, 1828380, 1828381, 1828382
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	1828377, 1828378, 1828379, 1828380, 1828381, 1828382
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	1828383, 1828384, 1828385, 1828386, 1828387, 1828388
SM 2120 B / E31780	True Color measured at 450 nm	1828371, 1828372, 1828373, 1828374, 1828375, 1828376
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO ₃ /L	1828371, 1828372, 1828373, 1828374, 1828375, 1828376
SM 2540 C-97 / E31780	Total Dissolved Solids in aqueous matrices	1828371, 1828372, 1828373, 1828374, 1828375, 1828376
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices	1828371, 1828372, 1828373, 1828374, 1828375, 1828376
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	1828371, 1828372, 1828373, 1828374, 1828375, 1828376
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	1828377, 1828378, 1828379, 1828380, 1828381, 1828382

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	08/31/2016			08/31/2016 16:44	Sima Feizi	1828371, 1828372, 1828373, 1828374, 1828375, 1828376
EPA 300.0 Rev. 2.1	08/31/2016			09/15/2016	Ping Hua	1828371, 1828372, 1828373, 1828374, 1828375, 1828376
EPA 350.1 Rev. 2.0	08/31/2016			08/31/2016	Joseph Suarez	1828377, 1828378, 1828379, 1828380, 1828381, 1828382
EPA 351.2 Rev. 2.0	08/31/2016	09/07/2016	Adrian Shelby	09/08/2016	Virginia P. Brown	1828377, 1828378, 1828379, 1828380
	08/31/2016	09/08/2016	Adrian Shelby	09/10/2016	Virginia P. Brown	1828381, 1828382
EPA 353.2 Rev. 2.0	08/31/2016			09/09/2016	Beverly Y. Sanders	1828377, 1828378, 1828379, 1828380, 1828381, 1828382
EPA 365.1 Rev. 2.0	08/31/2016	09/09/2016	Vijayalakshmi Reddy	09/13/2016	Lipi Saha	1828377, 1828378, 1828379, 1828380, 1828381, 1828382
EPA 365.1 Rev. 2.0 dissolved	08/31/2016			08/31/2016 15:15	Julia Storbeck	1828388
	08/31/2016			08/31/2016 15:53	Julia Storbeck	1828383
	08/31/2016			08/31/2016 15:54	Julia Storbeck	1828384
	08/31/2016			08/31/2016 15:55	Julia Storbeck	1828385
	08/31/2016			08/31/2016 15:56	Julia Storbeck	1828386
	08/31/2016			08/31/2016 15:57	Julia Storbeck	1828387
SM 2120 B	08/31/2016			08/31/2016 15:24	Blanca Fach	1828371, 1828372
	08/31/2016			08/31/2016 15:25	Blanca Fach	1828373
	08/31/2016			08/31/2016 15:26	Blanca Fach	1828374
	08/31/2016			08/31/2016 15:27	Blanca Fach	1828375, 1828376
SM 2320 B-97	08/31/2016			09/07/2016	Dale L. Simmons	1828371, 1828372, 1828373, 1828374, 1828375, 1828376
SM 2540 C-97	08/31/2016			09/07/2016	Yijie Li	1828371, 1828372, 1828373, 1828374, 1828375, 1828376
SM 2540 D-97	08/31/2016			09/07/2016	Yijie Li	1828371, 1828372, 1828373, 1828374, 1828375, 1828376
SM 4500 F-C-97	08/31/2016			09/07/2016	Dale L. Simmons	1828371, 1828372, 1828373, 1828374, 1828375, 1828376
SM 5310 B-00	08/31/2016			09/13/2016	Sofia Elnemr	1828377, 1828378, 1828379, 1828380, 1828381, 1828382