

Chemical Analysis Report

NW-DIST-2018-07-20-02

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

Event Description: **South SR County Run**

Request ID: **RQ-2018-07-16-23**

Customer: **NW-DIST**

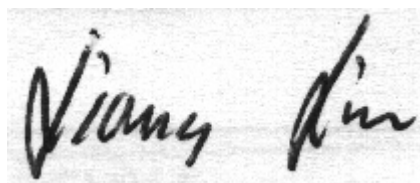
Project ID: **SMP**

Send Reports to:
FL Dept. of Environmental Protection
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Attn: Cheryl Bunch

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Certified by: Liang Lin, Environmental Administrator

Date Certified: 09-AUG-2018 15:34

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: JAKES BAYOU UPSTREAM OF ROBINSON
 POINT RD**

Collection Date/Time: 07/19/2018 10:30

Field ID: G4NW0394

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2009610	EPA 180.1 Rev. 2.0	Turbidity	1.7		NTU	P348890	
	SM 2320 B-97	Total Alkalinity	16		mg CaCO3/L	P349028	
	SM 2540 D-97	TSS	3	I	mg/L	P349120	
	SM 4500 F-C-97	Fluoride	0.11		mg F/L	P349032	
2009611	EPA 350.1 Rev. 2.0	Ammonia-N	0.004	I	mg N/L	P349213	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.25		mg N/L	P349002	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P348976	
	EPA 365.1 Rev. 2.0	Total-P	0.01		mg P/L	P349309	
	SM 5310 B-00	Organic Carbon	6.0		mg C/L	P349221	
2009612	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P348885	

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 STREET **Collection Date/Time: 07/19/2018 10:50**

Field ID: G4NW0080

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2009598	EPA 180.1 Rev. 2.0	Turbidity	4.7		NTU	P348889	
	EPA 300.0 Rev. 2.1	Chloride	11		mg Cl/L	P349260	
		Sulfate	0.75		mg SO4/L	P349264	
	SM 2120 B	Color (true)	390		PCU	P348887	
	SM 2320 B-97	Total Alkalinity	12		mg CaCO3/L	P349028	
	SM 2540 C-97	TDS	88		mg/L	P349336	
	SM 2540 D-97	TSS	9	I	mg/L	P349119	
	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P349032	
2009602	EPA 350.1 Rev. 2.0	Ammonia-N	0.30		mg N/L	P349213	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.3		mg N/L	P349288	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	I	mg N/L	P348975	
	EPA 365.1 Rev. 2.0	Total-P	0.023		mg P/L	P349309	
	SM 5310 B-00	Organic Carbon	28		mg C/L	P349221	
2009606	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P348885	

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: BOILING CREEK AT BOAT LAUNCH

Collection Date/Time: 07/19/2018 11:25

Field ID: G4NW0385

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2009599	EPA 180.1 Rev. 2.0	Turbidity	1.1	A	NTU	P348890	
	EPA 300.0 Rev. 2.1	Chloride	3.1		mg Cl/L	P349260	
		Sulfate	0.56	I	mg SO4/L	P349264	
	SM 2120 B	Color (true)	36		PCU	P348887	
	SM 2320 B-97	Total Alkalinity	0.65	U	mg CaCO3/L	P349028	
	SM 2540 C-97	TDS	15	U	mg/L	P349336	
	SM 2540 D-97	TSS	2	I	mg/L	P349119	
	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P349032	
2009603	EPA 350.1 Rev. 2.0	Ammonia-N	0.003	I	mg N/L	P349213	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.15	I	mg N/L	P349288	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.063		mg N/L	P348975	
	EPA 365.1 Rev. 2.0	Total-P	0.003	I	mg P/L	P349309	
	SM 5310 B-00	Organic Carbon	3.2		mg C/L	P349221	
2009607	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P348885	

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: DEAN CREEK UPSTREAM OF SR 87

Collection Date/Time: 07/19/2018 12:00

Field ID: G4NW0362

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2009600	EPA 180.1 Rev. 2.0	Turbidity	0.80		NTU	P348890	
	EPA 300.0 Rev. 2.1	Chloride	4.2		mg Cl/L	P349260	
		Sulfate	1.3		mg SO4/L	P349264	
	SM 2120 B	Color (true)	41		PCU	P348887	
	SM 2320 B-97	Total Alkalinity	0.65	U	mg CaCO3/L	P349028	
	SM 2540 C-97	TDS	19	I	mg/L	P349336	
	SM 2540 D-97	TSS	2	I	mg/L	P349119	
	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P349032	
2009604	EPA 350.1 Rev. 2.0	Ammonia-N	0.002	I	mg N/L	P349213	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.080	U	mg N/L	P349288	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.013		mg N/L	P348976	
	EPA 365.1 Rev. 2.0	Total-P	0.003	I	mg P/L	P349309	
	SM 5310 B-00	Organic Carbon	3.4		mg C/L	P349221	
2009608	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P348885	

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: TOM KING CREEK

Collection Date/Time: 07/19/2018 12:25

Field ID: G4NW0193

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2009601	EPA 180.1 Rev. 2.0	Turbidity	5.3		NTU	P348890	
	EPA 300.0 Rev. 2.1	Chloride	24		mg Cl/L	P349260	
		Sulfate	9.1		mg SO4/L	P349264	
	SM 2120 B	Color (true)	43		PCU	P348887	
	SM 2320 B-97	Total Alkalinity	8.5		mg CaCO3/L	P349028	
	SM 2540 C-97	TDS	71		mg/L	P349336	
	SM 2540 D-97	TSS	3	I	mg/L	P349119	
	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P349032	
2009605	EPA 350.1 Rev. 2.0	Ammonia-N	0.009		mg N/L	P349213	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.22		mg N/L	P349288	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.76		mg N/L	P348976	
	EPA 365.1 Rev. 2.0	Total-P	0.017		mg P/L	P349309	
	SM 5310 B-00	Organic Carbon	3.6		mg C/L	P349221	
2009609	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.008	I	mg P/L	P348885	

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: P348889

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P348890

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P349260

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P349264

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P349213

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P349002

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P349288

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P348975

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P348976

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: P349309

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P348885

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

Reference Method: SM 2120 B
Batch ID: P348887

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2320 B-97
Batch ID: P349028

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

Reference Method: SM 2540 C-97
Batch ID: P349336

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P349119

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P349120

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500 F-C-97
Batch ID: P349032

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-00
Batch ID: P349221

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: P349260

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P349264

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P349213

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Ammonia-N	105		P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P349002

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Kjeldahl Nitrogen	99.1		P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P349288

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Kjeldahl Nitrogen	99.1		P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P348975

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
NO ₂ NO ₃ -N	104		P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P348976

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
NO ₂ NO ₃ -N	104		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P349309

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P348885

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
O-Phosphate-P	97.8		P	90 - 110

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: SM 2120 B
Batch ID: P348887

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Color (true)	99.5		P	85 - 115

Reference Method: SM 2320 B-97
Batch ID: P349028

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	102		P	98 - 107

Reference Method: SM 4500 F-C-97
Batch ID: P349032

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

Reference Method: SM 5310 B-00
Batch ID: P349221

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	95.2		P	85 - 115

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P349260

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2009563	Chloride	107		P	90 - 110
2009601	Chloride	100		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P349264

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2009563	Sulfate	106		P	90 - 110
2009601	Sulfate	98.6		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P349213

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2009578	Ammonia-N	97.6	101	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P349002

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2009578	Kjeldahl Nitrogen	107	105	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P349288

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2009715	Kjeldahl Nitrogen	103	102	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P348975

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2009547	NO2NO3-N	104	103	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P348976

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2009604	NO2NO3-N	103	104	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P349309

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2009714	Total-P	102	96.8	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P348885

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2009607	O-Phosphate-P	99.3	98.2	P/P	90 - 110

Quality Assurance Report Matrix Spike Accuracy

Reference Method: SM 4500 F-C-97
Batch ID: P349032

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2009576	Fluoride	95.3	95.8	P/P	91 - 105

Reference Method: SM 5310 B-00
Batch ID: P349221

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2009397	Organic Carbon	93.0	95.0	P/P	85 - 115

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P348889

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2009710	Turbidity	1.01	Sample	P	0 - 20

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P348890

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2009599	Turbidity	3.54	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P349260

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2009563	Chloride	2.47	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P349264

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2009563	Sulfate	2.19	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P349213

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2009578	Ammonia-N	3.01	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P349002

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2009578	Kjeldahl Nitrogen	1.27	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P349288

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2009715	Kjeldahl Nitrogen	0.532	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P348975

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2009547	NO2NO3-N	0.484	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P348976

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2009604	NO2NO3-N	0.456	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P349309

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2009714	Total-P	4.33	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P348885

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2009607	O-Phosphate-P	1.11	Spike	P	0 - 20

Reference Method: SM 2120 B
Batch ID: P348887

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2009575	Color (true)	2.53	Sample	P	0 - 20

Reference Method: SM 2320 B-97
Batch ID: P349028

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2009576	Total Alkalinity	0.571	Sample	P	0 - 1.6

Reference Method: SM 2540 C-97
Batch ID: P349336

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2009546	TDS	1.75	Sample	P	0 - 10

Reference Method: SM 4500 F-C-97
Batch ID: P349032

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2009576	Fluoride	0.479	Spike	P	0 - 3.5

Reference Method: SM 5310 B-00
Batch ID: P349221

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2009397	Organic Carbon	1.22	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: A85382

Included Lab Sample IDs: 2009606, 2009607, 2009608, 2009609, 2009612

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	98.5	99.5	P/P	90 - 110
O-Phosphate-P	99.5	97.5	P/P	90 - 110

Reference Method: SM 2120 B

Run ID: A85384

Included Lab Sample IDs: 2009598, 2009599, 2009600, 2009601

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	101	101	P/P	90 - 115
Color (true)	101	103	P/P	90 - 115

Reference Method: EPA 180.1 Rev. 2.0

Run ID: A85387

Included Lab Sample IDs: 2009598, 2009599, 2009600, 2009601, 2009610

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Turbidity	100	100	P/P	95 - 105
Turbidity	98.5	100	P/P	95 - 105

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A85414

Included Lab Sample IDs: 2009602, 2009603, 2009604, 2009605, 2009611

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

Reference Method: EPA 300.0 Rev. 2.1

Run ID: A85417

Included Lab Sample IDs: 2009598, 2009599, 2009600, 2009601

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	100	104	P/P	90 - 110
Chloride	104	99.7	P/P	90 - 110
Sulfate	101	107	P/P	90 - 110
Sulfate	107	102	P/P	90 - 110

Reference Method: SM 2320 B-97

Run ID: A85430

Included Lab Sample IDs: 2009598, 2009599, 2009600, 2009601, 2009610

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

Reference Method: SM 4500 F-C-97

Run ID: A85430

Included Lab Sample IDs: 2009598, 2009599, 2009600, 2009601, 2009610

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	98.5	99.0	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A85448

Included Lab Sample IDs: 2009611

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	97.7	106	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A85497

Included Lab Sample IDs: 2009602, 2009603, 2009604, 2009605, 2009611

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	101	104	P/P	90 - 110
Ammonia-N	104	102	P/P	90 - 110
Ammonia-N	104	103	P/P	90 - 110
Ammonia-N	105	104	P/P	90 - 110

Reference Method: SM 5310 B-00

Run ID: A85504

Included Lab Sample IDs: 2009602, 2009603, 2009604, 2009605, 2009611

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	96.4	96.2	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A85551

Included Lab Sample IDs: 2009602, 2009603, 2009604, 2009605

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	98.5	99.1	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A85564

Included Lab Sample IDs: 2009602, 2009603, 2009604, 2009605, 2009611

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	100	100	P/P	90 - 110
Total-P	100	100	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				1.01	
	Turbidity				3.54	
EPA 300.0 Rev. 2.1	Chloride	101	107	100	2.47	
	Sulfate	103	106	98.6	2.19	
EPA 350.1 Rev. 2.0	Ammonia-N	105	97.6	101		3.01
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	99.1	107	105		1.27
	Kjeldahl Nitrogen	99.1	103	102		0.532
EPA 353.2 Rev. 2.0	NO2NO3-N	104	104	103		0.484
	NO2NO3-N	104	103	104		0.456
EPA 365.1 Rev. 2.0	Total-P	102	102	96.8		4.33
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	97.8	99.3	98.2		1.11
SM 2120 B	Color (true)	99.5			2.53	
SM 2320 B-97	Total Alkalinity	102			0.571	
SM 2540 C-97	TDS				1.75	
SM 4500 F-C-97	Fluoride	97.0	95.3	95.8		0.479
SM 5310 B-00	Organic Carbon	95.2	93.0	95.0		1.22

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	2009598, 2009599, 2009600, 2009601, 2009610
EPA 300.0 Rev. 2.1 / E31780	Chloride in aqueous matrices	2009598, 2009599, 2009600, 2009601
EPA 300.0 Rev. 2.1 / E31780	Sulfate in aqueous matrices	2009598, 2009599, 2009600, 2009601
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	2009602, 2009603, 2009604, 2009605, 2009611
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	2009602, 2009603, 2009604, 2009605, 2009611
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	2009602, 2009603, 2009604, 2009605, 2009611
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	2009602, 2009603, 2009604, 2009605, 2009611
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	2009606, 2009607, 2009608, 2009609, 2009612
SM 2120 B / E31780	True Color measured at 450 nm	2009598, 2009599, 2009600, 2009601
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO3/L	2009598, 2009599, 2009600, 2009601, 2009610
SM 2540 C-97 / E31780	Total Dissolved Solids in aqueous matrices	2009598, 2009599, 2009600, 2009601
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices using a maximum of 250 mL of sample	2009598, 2009599, 2009600, 2009601, 2009610
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	2009598, 2009599, 2009600, 2009601, 2009610
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	2009602, 2009603, 2009604, 2009605, 2009611

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	07/20/2018			07/20/2018 14:59	Tanya Welborn	2009598, 2009599, 2009600, 2009601, 2009610
EPA 300.0 Rev. 2.1	07/20/2018			07/26/2018 00:32	Lipi Saha	2009601
	07/20/2018			07/26/2018 01:44	Lipi Saha	2009598
	07/20/2018			07/26/2018 02:20	Lipi Saha	2009599
	07/20/2018			07/26/2018 02:32	Lipi Saha	2009600
EPA 350.1 Rev. 2.0	07/20/2018			07/26/2018 10:58	Ping Hua	2009604
	07/20/2018			07/26/2018 10:59	Ping Hua	2009605
	07/20/2018			07/26/2018 11:07	Ping Hua	2009611
	07/20/2018			07/26/2018 12:53	Ping Hua	2009603
	07/20/2018			07/26/2018 13:04	Ping Hua	2009602
EPA 351.2 Rev. 2.0	07/20/2018	07/24/2018 08:13	Adrian Shelby	07/25/2018 10:07	Joseph Suarez	2009611
	07/20/2018	07/27/2018 12:00	Adrian Shelby	07/30/2018 10:54	Joseph Suarez	2009602
	07/20/2018	07/27/2018 12:00	Adrian Shelby	07/30/2018 10:55	Joseph Suarez	2009603
	07/20/2018	07/27/2018 12:00	Adrian Shelby	07/30/2018 10:57	Joseph Suarez	2009604
	07/20/2018	07/27/2018 12:00	Adrian Shelby	07/30/2018 10:59	Joseph Suarez	2009605
EPA 353.2 Rev. 2.0	07/20/2018			07/23/2018 13:52	Lauren Bottorf	2009602
	07/20/2018			07/23/2018 13:53	Lauren Bottorf	2009603
	07/20/2018			07/23/2018 14:03	Lauren Bottorf	2009604
	07/20/2018			07/23/2018 14:09	Lauren Bottorf	2009605
	07/20/2018			07/23/2018 14:10	Lauren Bottorf	2009611
EPA 365.1 Rev. 2.0	07/20/2018	07/27/2018 12:35	Sima Feizi	07/30/2018 12:59	Beverly Y. Sanders	2009602
	07/20/2018	07/27/2018 12:35	Sima Feizi	07/30/2018 13:00	Beverly Y. Sanders	2009603
	07/20/2018	07/27/2018 12:35	Sima Feizi	07/30/2018 13:01	Beverly Y. Sanders	2009604
	07/20/2018	07/27/2018 12:35	Sima Feizi	07/30/2018 13:02	Beverly Y. Sanders	2009605
	07/20/2018	07/27/2018 12:35	Sima Feizi	07/30/2018 13:10	Beverly Y. Sanders	2009611
EPA 365.1 Rev. 2.0 dissolved	07/20/2018			07/20/2018 14:27	Julia Storbeck	2009607
	07/20/2018			07/20/2018 14:42	Julia Storbeck	2009606, 2009608
	07/20/2018			07/20/2018 14:43	Julia Storbeck	2009609
	07/20/2018			07/20/2018 14:44	Julia Storbeck	2009612
SM 2120 B	07/20/2018			07/20/2018 14:23	Tanya Welborn	2009599, 2009600
	07/20/2018			07/20/2018 14:24	Tanya Welborn	2009601
	07/20/2018			07/20/2018 14:28	Tanya Welborn	2009598
SM 2320 B-97	07/20/2018			07/24/2018 05:37	Dale L. Simmons	2009598
	07/20/2018			07/24/2018 05:48	Dale L. Simmons	2009599
	07/20/2018			07/24/2018 05:59	Dale L. Simmons	2009600
	07/20/2018			07/24/2018 06:08	Dale L. Simmons	2009601
	07/20/2018			07/24/2018 06:20	Dale L. Simmons	2009610
SM 2540 C-97	07/20/2018			07/24/2018 13:55	Yijie Li	2009598, 2009599, 2009600, 2009601

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
SM 2540 D-97	07/20/2018			07/24/2018 13:55	Yijie Li	2009598, 2009599, 2009600, 2009601, 2009610
SM 4500 F-C-97	07/20/2018			07/24/2018 05:37	Dale L. Simmons	2009598
	07/20/2018			07/24/2018 05:48	Dale L. Simmons	2009599
	07/20/2018			07/24/2018 05:59	Dale L. Simmons	2009600
	07/20/2018			07/24/2018 06:08	Dale L. Simmons	2009601
SM 5310 B-00	07/20/2018			07/24/2018 06:20	Dale L. Simmons	2009610
	07/20/2018			07/25/2018 19:08	Megan Treadwell	2009602
	07/20/2018			07/25/2018 19:22	Megan Treadwell	2009603
	07/20/2018			07/25/2018 19:40	Megan Treadwell	2009604
	07/20/2018			07/25/2018 19:55	Megan Treadwell	2009605
	07/20/2018			07/25/2018 20:11	Megan Treadwell	2009611