

Chemical Analysis Report

WAS-SECT-2019-05-01-01

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

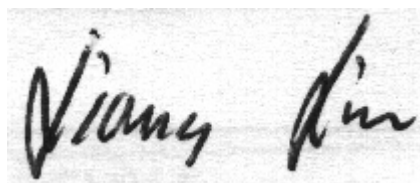
Event Description: **wacissa springs**
Request ID: **RQ-2019-04-01-25**
Customer: **WAS-SECT**
Project ID: **SMP**

Send Reports to:
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2600 Blair Stone Rd
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Certified by: Liang Lin, Environmental Administrator

Date Certified: 16-MAY-2019 15:30

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 by the Florida Department of Health Environmental Laboratory Certification Program 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: JEFFERSON BLUE SPRING

Collection Date/Time: 04/30/2019 15:24

Field ID: G1WA0081

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2081907	EPA 180.1 Rev. 2.0	Turbidity	0.25		NTU	P363179	
	EPA 300.0 Rev. 2.1	Chloride	5.7		mg Cl/L	P363393	
		Sulfate	5.3		mg SO4/L	P363395	
	SM 2120 B	Color (true)	2.5	U	PCU	P363211	
	SM 2320 B-97	Total Alkalinity	146		mg CaCO3/L	P363755	
	SM 2540 C-97	TDS	174		mg/L	P363818	
	SM 2540 D-97	TSS	2	U	mg/L	P363829	
	SM 4500 F-C-97	Fluoride	0.13		mg F/L	P363959	
2081912	EPA 350.1 Rev. 2.0	Ammonia-N	0.002	U	mg N/L	P363378	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.080	U	mg N/L	P363398	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.43		mg N/L	P363247	
	EPA 365.1 Rev. 2.0	Total-P	0.036		mg P/L	P363259	
	SM 5310 B-00	Organic Carbon	0.50	U	mg C/L	P363288	

Ref. Method and Comment:

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

SM 4500 F-C-97: Batch matrix spike recoveries are unavailable because of high analyte concentration in the QC sample.

EPA 351.2 Rev. 2.0: Batch matrix spike recoveries are unavailable because of high analyte concentration in the QC sample.

Sample Location: BIG BLUE SPRING (JEFFERSON)

Collection Date/Time: 04/30/2019 14:42

Field ID: G1WA0082

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2081908	EPA 180.1 Rev. 2.0	Turbidity	0.35		NTU	P363179	
	EPA 300.0 Rev. 2.1	Chloride	5.9		mg Cl/L	P363393	
		Sulfate	6.3		mg SO4/L	P363395	
	SM 2120 B	Color (true)	2.5	U	PCU	P363211	
	SM 2320 B-97	Total Alkalinity	162		mg CaCO3/L	P363755	
	SM 2540 C-97	TDS	177		mg/L	P363818	
	SM 2540 D-97	TSS	2	U	mg/L	P363829	
	SM 4500 F-C-97	Fluoride	0.13		mg F/L	P363959	
2081913	EPA 350.1 Rev. 2.0	Ammonia-N	0.002	U	mg N/L	P363378	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.080	U	mg N/L	P363398	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.24		mg N/L	P363247	
	EPA 365.1 Rev. 2.0	Total-P	0.054		mg P/L	P363259	
	SM 5310 B-00	Organic Carbon	0.50	U	mg C/L	P363288	

Ref. Method and Comment:

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

SM 4500 F-C-97: Batch matrix spike recoveries are unavailable because of high analyte concentration in the QC sample.

EPA 351.2 Rev. 2.0: Batch matrix spike recoveries are unavailable because of high analyte concentration in the QC sample.

Sample Location: GARNER SPRING

Collection Date/Time: 04/30/2019 15:00

Field ID: G1WA0083

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2081909	EPA 180.1 Rev. 2.0	Turbidity	0.20		NTU	P363179	
	EPA 300.0 Rev. 2.1	Chloride	5.9		mg Cl/L	P363393	
		Sulfate	5.8		mg SO4/L	P363395	
	SM 2120 B	Color (true)	2.5	U	PCU	P363211	
	SM 2320 B-97	Total Alkalinity	154		mg CaCO3/L	P363755	
	SM 2540 C-97	TDS	183		mg/L	P363818	
	SM 2540 D-97	TSS	2	U	mg/L	P363829	
	SM 4500 F-C-97	Fluoride	0.13		mg F/L	P363959	
2081914	EPA 350.1 Rev. 2.0	Ammonia-N	0.002	U	mg N/L	P363378	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.080	U	mg N/L	P363398	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.33		mg N/L	P363247	
	EPA 365.1 Rev. 2.0	Total-P	0.041		mg P/L	P363259	
	SM 5310 B-00	Organic Carbon	0.50	U	mg C/L	P363288	

Ref. Method and Comment:

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

SM 4500 F-C-97: Batch matrix spike recoveries are unavailable because of high analyte concentration in the QC sample.

EPA 351.2 Rev. 2.0: Batch matrix spike recoveries are unavailable because of high analyte concentration in the QC sample.

Sample Location: ALLEN SPRING (JEFFERSON)

Collection Date/Time: 04/30/2019 16:02

Field ID: G1WA0084

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2081910	EPA 180.1 Rev. 2.0	Turbidity	0.25		NTU	P363179	
	EPA 300.0 Rev. 2.1	Chloride	6.1		mg Cl/L	P363393	
		Sulfate	5.9		mg SO4/L	P363395	
	SM 2120 B	Color (true)	2.5	U	PCU	P363211	
	SM 2320 B-97	Total Alkalinity	152		mg CaCO3/L	P363755	
	SM 2540 C-97	TDS	178		mg/L	P363819	
	SM 2540 D-97	TSS	2	U	mg/L	P363830	
	SM 4500 F-C-97	Fluoride	0.13		mg F/L	P363959	
2081915	EPA 350.1 Rev. 2.0	Ammonia-N	0.003	I	mg N/L	P363378	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.080	U	mg N/L	P363398	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.36		mg N/L	P363247	
	EPA 365.1 Rev. 2.0	Total-P	0.042		mg P/L	P363259	
	SM 5310 B-00	Organic Carbon	0.50	U	mg C/L	P363288	

Ref. Method and Comment:

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

SM 4500 F-C-97: Batch matrix spike recoveries are unavailable because of high analyte concentration in the QC sample.

EPA 351.2 Rev. 2.0: Batch matrix spike recoveries are unavailable because of high analyte concentration in the QC sample.

Sample Location: Unnamed Spring Vent 90 M Downstream of Allen Spring

Collection Date/Time: 04/30/2019 15:55

Field ID: G1WA0085

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2081911	EPA 180.1 Rev. 2.0	Turbidity	0.10	I	NTU	P363179	
	EPA 300.0 Rev. 2.1	Chloride	5.8		mg Cl/L	P363393	
		Sulfate	5.4		mg SO4/L	P363395	
	SM 2120 B	Color (true)	2.5	U	PCU	P363211	
	SM 2320 B-97	Total Alkalinity	146		mg CaCO3/L	P363755	
	SM 2540 C-97	TDS	162		mg/L	P363819	
	SM 2540 D-97	TSS	2	U	mg/L	P363830	
	SM 4500 F-C-97	Fluoride	0.15		mg F/L	P363959	
2081916	EPA 350.1 Rev. 2.0	Ammonia-N	0.002	U	mg N/L	P363378	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.080	U	mg N/L	P363398	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.44		mg N/L	P363247	
	EPA 365.1 Rev. 2.0	Total-P	0.035		mg P/L	P363259	
	SM 5310 B-00	Organic Carbon	0.50	U	mg C/L	P363288	

Ref. Method and Comment:

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

SM 4500 F-C-97: Batch matrix spike recoveries are unavailable because of high analyte concentration in the QC sample.

EPA 351.2 Rev. 2.0: Batch matrix spike recoveries are unavailable because of high analyte concentration in the QC sample.

Quality Assurance Report Method Blank Results

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P363179

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P363393

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P363395

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P363378

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P363398

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P363247

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P363259

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

Reference Method: SM 2120 B
Batch ID: P363211

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2320 B-97
Batch ID: P363755

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

Quality Assurance Report

Method Blank Results

Reference Method: SM 2540 C-97
Batch ID: P363818

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 C-97
Batch ID: P363819

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P363829

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P363830

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500 F-C-97
Batch ID: P363959

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-00
Batch ID: P363288

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: P363393

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P363395

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P363378

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P363398

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P363247

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P363259

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

Reference Method: SM 2120 B
Batch ID: P363211

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Color (true)	103		P	85 - 115

Reference Method: SM 2320 B-97
Batch ID: P363755

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	103		P	98 - 106

Reference Method: SM 4500 F-C-97
Batch ID: P363959

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	96.6		P	92 - 103

Quality Assurance Report

Laboratory Control Sample Accuracy

Reference Method: SM 5310 B-00
Batch ID: P363288

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	99.6		P	85 - 115

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P363393

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2081827	Chloride	99.8		P	90 - 110
2081909	Chloride	101		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P363395

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2081827	Sulfate	99.6		P	90 - 110
2081909	Sulfate	101		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P363378

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2081913	Ammonia-N	101	103	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P363247

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2082089	NO2NO3-N	99.3	100	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P363259

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2081913	Total-P	103	102	P/P	90 - 110

Reference Method: SM 5310 B-00
Batch ID: P363288

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2081848	Organic Carbon	98.0	98.7	P/P	85 - 115

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P363179

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2081876	Turbidity	6.08	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P363393

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2081827	Chloride	0.207	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P363395

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2081827	Sulfate	1.93	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P363378

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2081913	Ammonia-N	1.53	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P363398

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2081965	Kjeldahl Nitrogen	2.79	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P363247

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2082089	NO2NO3-N	0.971	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P363259

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2081913	Total-P	0.559	Spike	P	0 - 20

Reference Method: SM 2120 B
Batch ID: P363211

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2081964	Color (true)	6.87	Sample	P	0 - 20

Quality Assurance Report Precision

Reference Method: SM 2320 B-97
Batch ID: P363755

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2081845	Total Alkalinity	0.904	Sample	P	0 - 2.8

Reference Method: SM 2540 C-97
Batch ID: P363818

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2081877	TDS	6.45	Sample	P	0 - 10

Reference Method: SM 2540 C-97
Batch ID: P363819

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2081964	TDS	6.90	Sample	P	0 - 10

Reference Method: SM 4500 F-C-97
Batch ID: P363959

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2081845	Fluoride	0.979	Spike	P	0 - 2.5

Reference Method: SM 5310 B-00
Batch ID: P363288

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2081848	Organic Carbon	0.561	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 300.0 Rev. 2.1

Run ID: A91105

Included Lab Sample IDs: 2081907, 2081908, 2081909, 2081910, 2081911

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

Reference Method: EPA 180.1 Rev. 2.0

Run ID: A91137

Included Lab Sample IDs: 2081907, 2081908, 2081909, 2081910, 2081911

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Turbidity	99.5	100	P/P	95 - 105

Reference Method: SM 2120 B

Run ID: A91150

Included Lab Sample IDs: 2081907, 2081908, 2081909, 2081910, 2081911

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

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A91151

Included Lab Sample IDs: 2081912, 2081913, 2081914, 2081915, 2081916

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

Reference Method: SM 5310 B-00

Run ID: A91170

Included Lab Sample IDs: 2081912, 2081913, 2081914, 2081915, 2081916

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	100	97.6	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A91210

Included Lab Sample IDs: 2081912, 2081913, 2081914, 2081915, 2081916

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

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A91269

Included Lab Sample IDs: 2081913

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

Quality Assurance Report Calibration Verification

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A91270

Included Lab Sample IDs: 2081912, 2081914, 2081915, 2081916

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

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A91272

Included Lab Sample IDs: 2081912, 2081913, 2081914, 2081915, 2081916

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

Reference Method: SM 2320 B-97

Run ID: A91346

Included Lab Sample IDs: 2081907, 2081908, 2081909, 2081910, 2081911

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	100	102	P/P	90 - 110

Reference Method: SM 4500 F-C-97

Run ID: A91436

Included Lab Sample IDs: 2081907, 2081908, 2081909, 2081910, 2081911

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	98.5	98.1	P/P	90 - 110
Fluoride	99.0	98.5	P/P	90 - 110

* Pass/Fail determinations are made for each bracketing calibration verification check.
Control limits for initial calibration checks may be different from those for continuing checks, depending on method requirements.
Where they are different, both control limits are provided.

Quality Assurance Report Summary

Ref. Method	Analyte	LCS % Recovery	MS % Recovery		Precision	
					LCS	MS
EPA 180.1 Rev. 2.0	Turbidity				6.08	
EPA 300.0 Rev. 2.1	Chloride	98.7	99.8	101	0.207	
	Sulfate	99.1	99.6	101	1.93	
EPA 350.1 Rev. 2.0	Ammonia-N	101	101	103		1.53
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	105				2.79
EPA 353.2 Rev. 2.0	NO ₂ NO ₃ -N	102	99.3	100		0.971
EPA 365.1 Rev. 2.0	Total-P	107	103	102		0.559
SM 2120 B	Color (true)	103			6.87	
SM 2320 B-97	Total Alkalinity	103			0.904	
SM 2540 C-97	TDS				6.45	
	TDS				6.90	
SM 4500 F-C-97	Fluoride	96.6				0.979
SM 5310 B-00	Organic Carbon	99.6	98.0	98.7		0.561

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	2081907, 2081908, 2081909, 2081910, 2081911
EPA 300.0 Rev. 2.1 / E31780	Chloride in aqueous matrices	2081907, 2081908, 2081909, 2081910, 2081911
EPA 300.0 Rev. 2.1 / E31780	Sulfate in aqueous matrices	2081907, 2081908, 2081909, 2081910, 2081911
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	2081912, 2081913, 2081914, 2081915, 2081916
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	2081912, 2081913, 2081914, 2081915, 2081916
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	2081912, 2081913, 2081914, 2081915, 2081916
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	2081912, 2081913, 2081914, 2081915, 2081916
SM 2120 B / E31780	True Color measured at 450 nm	2081907, 2081908, 2081909, 2081910, 2081911
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO ₃ /L	2081907, 2081908, 2081909, 2081910, 2081911
SM 2540 C-97 / E31780	Total Dissolved Solids in aqueous matrices	2081907, 2081908, 2081909, 2081910, 2081911
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices using a maximum of 250 mL of sample	2081907, 2081908, 2081909, 2081910, 2081911
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	2081907, 2081908, 2081909, 2081910, 2081911
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	2081912, 2081913, 2081914, 2081915, 2081916

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
EPA 180.1 Rev. 2.0	05/01/2019			05/01/2019 16:13	Adrian Shelby	2081907, 2081908, 2081909, 2081910, 2081911
EPA 300.0 Rev. 2.1	05/01/2019			05/02/2019 21:48	Lipi Saha	2081909
	05/01/2019			05/03/2019 00:00	Lipi Saha	2081907
	05/01/2019			05/03/2019 00:12	Lipi Saha	2081908
	05/01/2019			05/03/2019 00:24	Lipi Saha	2081910
	05/01/2019			05/03/2019 00:36	Lipi Saha	2081911
EPA 350.1 Rev. 2.0	05/01/2019			05/03/2019 11:06	Ping Hua	2081913
	05/01/2019			05/03/2019 11:20	Ping Hua	2081912
	05/01/2019			05/03/2019 11:21	Ping Hua	2081914
	05/01/2019			05/03/2019 11:23	Ping Hua	2081915
	05/01/2019			05/03/2019 11:24	Ping Hua	2081916
EPA 351.2 Rev. 2.0	05/01/2019	05/06/2019 12:50	Jhamieka S. Greenwood	05/07/2019 15:39	Joseph Suarez	2081912
	05/01/2019	05/06/2019 12:50	Jhamieka S. Greenwood	05/07/2019 15:40	Joseph Suarez	2081913
	05/01/2019	05/06/2019 12:50	Jhamieka S. Greenwood	05/07/2019 15:42	Joseph Suarez	2081914
	05/01/2019	05/06/2019 12:50	Jhamieka S. Greenwood	05/07/2019 15:43	Joseph Suarez	2081915
	05/01/2019	05/06/2019 12:50	Jhamieka S. Greenwood	05/07/2019 15:45	Joseph Suarez	2081916
EPA 353.2 Rev. 2.0	05/01/2019			05/02/2019 10:19	Beverly Y. Sanders	2081912
	05/01/2019			05/02/2019 10:26	Beverly Y. Sanders	2081913
	05/01/2019			05/02/2019 10:27	Beverly Y. Sanders	2081914
	05/01/2019			05/02/2019 10:28	Beverly Y. Sanders	2081915
	05/01/2019			05/02/2019 10:30	Beverly Y. Sanders	2081916
EPA 365.1 Rev. 2.0	05/01/2019	05/02/2019 13:35	Sima Feizi	05/03/2019 13:01	Rosalyn Ballman	2081913
	05/01/2019	05/02/2019 13:35	Sima Feizi	05/03/2019 16:34	Rosalyn Ballman	2081912
	05/01/2019	05/02/2019 13:35	Sima Feizi	05/03/2019 16:35	Rosalyn Ballman	2081914
	05/01/2019	05/02/2019 13:35	Sima Feizi	05/03/2019 16:36	Rosalyn Ballman	2081915
	05/01/2019	05/02/2019 13:35	Sima Feizi	05/03/2019 16:37	Rosalyn Ballman	2081916
SM 2120 B	05/01/2019			05/01/2019 16:44	Mariam Hanna	2081907
	05/01/2019			05/01/2019 16:45	Mariam Hanna	2081908, 2081909
	05/01/2019			05/01/2019 16:46	Mariam Hanna	2081910
	05/01/2019			05/01/2019 16:47	Mariam Hanna	2081911
SM 2320 B-97	05/01/2019			05/09/2019 02:50	Dale L. Simmons	2081907
	05/01/2019			05/09/2019 03:03	Dale L. Simmons	2081908
	05/01/2019			05/09/2019 03:16	Dale L. Simmons	2081909
	05/01/2019			05/09/2019 03:29	Dale L. Simmons	2081910
	05/01/2019			05/09/2019 03:43	Dale L. Simmons	2081911
SM 2540 C-97	05/01/2019			05/03/2019 15:19	Yijie Li	2081907, 2081908, 2081909, 2081910, 2081911
SM 2540 D-97	05/01/2019			05/03/2019 15:19	Yijie Li	2081907, 2081908, 2081909, 2081910, 2081911
SM 4500 F-C-97	05/01/2019			05/14/2019 21:43	Dale L. Simmons	2081907

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
SM 4500 F-C-97	05/01/2019			05/14/2019 21:48	Dale L. Simmons	2081908
	05/01/2019			05/14/2019 22:04	Dale L. Simmons	2081909
	05/01/2019			05/14/2019 22:09	Dale L. Simmons	2081910
	05/01/2019			05/14/2019 22:14	Dale L. Simmons	2081911
SM 5310 B-00	05/01/2019			05/03/2019 00:35	Lauren Lees	2081912
	05/01/2019			05/03/2019 00:48	Lauren Lees	2081913
	05/01/2019			05/03/2019 01:00	Lauren Lees	2081914
	05/01/2019			05/03/2019 01:12	Lauren Lees	2081915
	05/01/2019			05/03/2019 01:24	Lauren Lees	2081916