

Chemical Analysis Report

NW-DIST-2019-05-21-01

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

Event Description: **Milton Run**
Request ID: **RQ-2019-05-13-28**
Customer: **NW-DIST**
Project ID: **SMP**

Send Reports to:
FL Dept. of Environmental Protection
160 Government Center
Suite 208
Pensacola, FL 32502-5794
Attn: Cheryl Bunch

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Certified by: Liang Lin, Environmental Administrator

Date Certified: 06-JUN-2019 11:02

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: JAKES BAYOU UPSTREAM OF ROBINSON
 POINT RD**

Collection Date/Time: 05/20/2019 10:10

Field ID: G4NW0394

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2087682	EPA 180.1 Rev. 2.0	Turbidity	2.6		NTU	P364361	
	EPA 300.0	Bromide	1.7		mg Br/L	P364503	
	SM 2320 B-97	Total Alkalinity	7.6		mg CaCO3/L	P364860	
	SM 2540 D-97	TSS	4	I	mg/L	P364886	
	SM 4500 F-C-97	Fluoride	0.060	I	mg F/L	P364871	
2087683	EPA 350.1 Rev. 2.0	Ammonia-N	0.003	I	mg N/L	P364803	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.39		mg N/L	P364746	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P364517	
	EPA 365.1 Rev. 2.0	Total-P	0.032		mg P/L	P364689	
	SM 5310 B-00	Organic Carbon	8.4		mg C/L	P364437	
2087684	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P364336	

Ref. Method and Comment:

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

Sample Location: SANDY POINT CREEK BELOW SANDY POINT STREET **Collection Date/Time: 05/20/2019 10:30**

Field ID: G4NW0080

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2087676	EPA 180.1 Rev. 2.0	Turbidity	4.6		NTU	P364361	
	EPA 300.0 Rev. 2.1	Chloride	12		mg Cl/L	P364492	
		Sulfate	0.90		mg SO4/L	P364494	
	SM 2120 B	Color (true)	460		PCU	P364333	
	SM 2320 B-97	Total Alkalinity	11		mg CaCO3/L	P364860	
	SM 2540 C-97	TDS	82		mg/L	P364923	
	SM 2540 D-97	TSS	9	I	mg/L	P364883	
	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P364871	
2087678	EPA 350.1 Rev. 2.0	Ammonia-N	0.096		mg N/L	P364552	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.3		mg N/L	P364746	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	I	mg N/L	P364515	
	EPA 365.1 Rev. 2.0	Total-P	0.015		mg P/L	P364688	
	SM 5310 B-00	Organic Carbon	28		mg C/L	P364437	
2087680	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	I	mg P/L	P364336	

Ref. Method and Comment:

SM 2540 D-97: Batch relative percent difference is unavailable because of low 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: BUCKET BRANCH END OF BUCKET CREEK RD

Collection Date/Time: 05/20/2019 11:15

Field ID: G4NW0059

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2087677	EPA 180.1 Rev. 2.0	Turbidity	1.2		NTU	P364361	
	EPA 300.0 Rev. 2.1	Chloride	4.5		mg Cl/L	P364628	
		Sulfate	0.68		mg SO4/L	P364631	
	SM 2120 B	Color (true)	48	A	PCU	P364333	
	SM 2320 B-97	Total Alkalinity	3.8		mg CaCO3/L	P364860	
	SM 2540 C-97	TDS	29		mg/L	P364923	
	SM 2540 D-97	TSS	2	I	mg/L	P364883	
	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P364871	
2087679	EPA 350.1 Rev. 2.0	Ammonia-N	0.017		mg N/L	P364552	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.20		mg N/L	P364746	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.15		mg N/L	P364517	
	EPA 365.1 Rev. 2.0	Total-P	0.013		mg P/L	P364688	
	SM 5310 B-00	Organic Carbon	3.3		mg C/L	P364437	
2087681	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	I	mg P/L	P364336	

Ref. Method and Comment:

SM 2540 D-97: Batch relative percent difference is unavailable because of low 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: P364361

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 300.0
Batch ID: P364503

Component	Result	Code	Units
Bromide	0.013	U	mg Br/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P364492

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P364494

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P364628

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P364631

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P364552

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P364803

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P364746

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

Quality Assurance Report Method Blank Results

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P364515

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P364517

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P364688

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P364689

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P364336

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

Reference Method: SM 2120 B
Batch ID: P364333

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2320 B-97
Batch ID: P364860

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

Reference Method: SM 2540 C-97
Batch ID: P364923

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P364883

Component	Result	Code	Units
TSS	2	U	mg/L

Quality Assurance Report

Method Blank Results

Reference Method: SM 2540 D-97
Batch ID: P364886

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500 F-C-97
Batch ID: P364871

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-00
Batch ID: P364437

Component	Result	Code	Units
Organic Carbon	0.50	U	mg C/L

Quality Assurance Report

Laboratory Control Sample Accuracy

Reference Method: EPA 300.0

Batch ID: P364503

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

Reference Method: EPA 300.0 Rev. 2.1

Batch ID: P364492

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

Reference Method: EPA 300.0 Rev. 2.1

Batch ID: P364494

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Sulfate	98.4		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1

Batch ID: P364628

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Chloride	98.4		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1

Batch ID: P364631

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Sulfate	98.0		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0

Batch ID: P364552

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

Reference Method: EPA 350.1 Rev. 2.0

Batch ID: P364803

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Ammonia-N	100		P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0

Batch ID: P364746

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: P364515

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
NO2NO3-N	99.0		P	90 - 110

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P364517

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
NO2NO3-N	98.5		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P364688

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P364689

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P364336

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
O-Phosphate-P	96.6		P	90 - 110

Reference Method: SM 2120 B
Batch ID: P364333

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Color (true)	98.4		P	85 - 115

Reference Method: SM 2320 B-97
Batch ID: P364860

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	105		P	98 - 106

Reference Method: SM 4500 F-C-97
Batch ID: P364871

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	98.9		P	92 - 103

Reference Method: SM 5310 B-00
Batch ID: P364437

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	96.2		P	85 - 115

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 300.0
Batch ID: P364503

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2088065	Bromide	99.6	99.0	P/P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P364492

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2087309	Chloride	99.5		P	90 - 110
2087676	Chloride	98.8		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P364494

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2087309	Sulfate	96.9		P	90 - 110
2087676	Sulfate	98.9		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P364628

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2087677	Chloride	99.2		P	90 - 110
2087907	Chloride	98.1		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P364631

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2087677	Sulfate	98.6		P	90 - 110
2087907	Sulfate	98.0		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P364552

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2087679	Ammonia-N	103	100	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P364803

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2087701	Ammonia-N	101	103	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P364515

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2087619	NO2NO3-N	98.0	97.5	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P364517

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P364517

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2087679	NO2NO3-N	100	100	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P364688

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2087666	Total-P	97.8	106	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P364689

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2087683	Total-P	94.9	94.8	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P364336

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2087681	O-Phosphate-P	93.8	96.1	P/P	90 - 110

Reference Method: SM 4500 F-C-97
Batch ID: P364871

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2088010	Fluoride	100	98.8	P/P	89 - 106

Reference Method: SM 5310 B-00
Batch ID: P364437

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2087630	Organic Carbon	101		P	85 - 115

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P364361

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2087629	Turbidity	1.20	Sample	P	0 - 20

Reference Method: EPA 300.0
Batch ID: P364503

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2088065	Bromide	0.394	Spike	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P364492

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2087309	Chloride	0.934	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P364494

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2087309	Sulfate	0.440	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P364628

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2087907	Chloride	0.324	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P364631

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2087907	Sulfate	0.0431	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P364552

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2087679	Ammonia-N	1.52	Spike	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P364803

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2087701	Ammonia-N	0.903	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P364746

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2087635	Kjeldahl Nitrogen	4.24	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P364515

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2087619	NO2NO3-N	0.512	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P364517

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2087679	NO2NO3-N	0.0	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P364688

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2087666	Total-P	7.14	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P364689

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2087683	Total-P	0.0490	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P364336

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2087681	O-Phosphate-P	2.32	Spike	P	0 - 20

Reference Method: SM 2120 B
Batch ID: P364333

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2087677	Color (true)	0.723	Sample	P	0 - 20

Reference Method: SM 2320 B-97
Batch ID: P364860

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2088010	Total Alkalinity	0.367	Sample	P	0 - 2.8

Quality Assurance Report Precision

Reference Method: SM 2540 C-97
Batch ID: P364923

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2087698	TDS	3.88	Sample	P	0 - 10

Reference Method: SM 2540 D-97
Batch ID: P364886

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2088082	TSS	6.90	Sample	P	0 - 10

Reference Method: SM 4500 F-C-97
Batch ID: P364871

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2088010	Fluoride	0.986	Spike	P	0 - 2.5

Reference Method: SM 5310 B-00
Batch ID: P364437

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2087630	Organic Carbon	0.191	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: A91569

Included Lab Sample IDs: 2087676, 2087677

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	100	101	P/P	90 - 115
Color (true)	103	101	P/P	90 - 115

Reference Method: EPA 365.1 Rev. 2.0 dissolved

Run ID: A91571

Included Lab Sample IDs: 2087680, 2087681, 2087684

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	97.2	97.4	P/P	90 - 110
O-Phosphate-P	99.8	97.2	P/P	90 - 110

Reference Method: EPA 180.1 Rev. 2.0

Run ID: A91590

Included Lab Sample IDs: 2087676, 2087677, 2087682

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

Reference Method: SM 5310 B-00

Run ID: A91620

Included Lab Sample IDs: 2087678, 2087679, 2087683

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	95.6	96.8	P/P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1

Run ID: A91642

Included Lab Sample IDs: 2087676, 2087677

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

Reference Method: EPA 300.0

Run ID: A91648

Included Lab Sample IDs: 2087682

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

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A91657

Included Lab Sample IDs: 2087678, 2087679, 2087683

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO2NO3-N	98.5	98.5	P/P	90 - 110
NO2NO3-N	99.5	98.5	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A91667

Included Lab Sample IDs: 2087678, 2087679

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

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A91760

Included Lab Sample IDs: 2087678, 2087679, 2087683

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

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A91777

Included Lab Sample IDs: 2087678, 2087679, 2087683

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	97.2	104	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A91780

Included Lab Sample IDs: 2087683

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

Reference Method: SM 2320 B-97

Run ID: A91798

Included Lab Sample IDs: 2087676, 2087677, 2087682

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	101	105	P/P	90 - 110
Total Alkalinity	105	102	P/P	90 - 110

Reference Method: SM 4500 F-C-97

Run ID: A91799

Included Lab Sample IDs: 2087676, 2087677, 2087682

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	101	102	P/P	90 - 110
Fluoride	102	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		Precision	
					LCS	MS
EPA 180.1 Rev. 2.0	Turbidity				1.20	
EPA 300.0	Bromide	103	99.6	99.0		0.394
EPA 300.0 Rev. 2.1	Chloride	98.5	99.5	98.8	0.934	
	Chloride	98.4	98.1	99.2	0.324	
	Sulfate	98.4	96.9	98.9	0.440	
	Sulfate	98.0	98.0	98.6	0.0431	
EPA 350.1 Rev. 2.0	Ammonia-N	101	103	100		1.52
	Ammonia-N	100	101	103		0.903
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	103				4.24
EPA 353.2 Rev. 2.0	NO2NO3-N	99.0	98.0	97.5		0.512
	NO2NO3-N	98.5	100	100		0.0
EPA 365.1 Rev. 2.0	Total-P	99.2	97.8	106		7.14
	Total-P	99.8	94.9	94.8		0.0490
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	96.6	93.8	96.1		2.32
SM 2120 B	Color (true)	98.4			0.723	
SM 2320 B-97	Total Alkalinity	105			0.367	
SM 2540 C-97	TDS				3.88	
SM 2540 D-97	TSS				6.90	
SM 4500 F-C-97	Fluoride	98.9	100	98.8		0.986
SM 5310 B-00	Organic Carbon	96.2	101			0.191

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	2087676, 2087677, 2087682
EPA 300.0 / E31780	Bromide in aqueous matrices	2087682
EPA 300.0 Rev. 2.1 / E31780	Chloride in aqueous matrices	2087676, 2087677
EPA 300.0 Rev. 2.1 / E31780	Sulfate in aqueous matrices	2087676, 2087677
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	2087678, 2087679, 2087683
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	2087678, 2087679, 2087683
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	2087678, 2087679, 2087683
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	2087678, 2087679, 2087683
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	2087680, 2087681, 2087684
SM 2120 B / E31780	True Color measured at 450 nm	2087676, 2087677
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO3/L	2087676, 2087677, 2087682
SM 2540 C-97 / E31780	Total Dissolved Solids in aqueous matrices	2087676, 2087677
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices using a maximum of 250 mL of sample	2087676, 2087677, 2087682
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	2087676, 2087677, 2087682
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	2087678, 2087679, 2087683

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	05/21/2019			05/21/2019 17:32	Sima Feizi	2087676, 2087677, 2087682
EPA 300.0	05/21/2019			05/23/2019 17:50	Lipi Saha	2087682
EPA 300.0 Rev. 2.1	05/21/2019			05/23/2019 21:36	Lipi Saha	2087676
	05/21/2019			05/24/2019 18:44	Lipi Saha	2087677
EPA 350.1 Rev. 2.0	05/21/2019			05/23/2019 13:27	Ping Hua	2087679
	05/21/2019			05/23/2019 13:49	Ping Hua	2087678
	05/21/2019			05/24/2019 12:17	Ping Hua	2087683
EPA 351.2 Rev. 2.0	05/21/2019	05/30/2019 13:00	Adrian Shelby	05/31/2019 10:18	Joseph Suarez	2087678
	05/21/2019	05/30/2019 13:00	Adrian Shelby	05/31/2019 10:20	Joseph Suarez	2087679
	05/21/2019	05/30/2019 13:00	Adrian Shelby	05/31/2019 10:21	Joseph Suarez	2087683
EPA 353.2 Rev. 2.0	05/21/2019			05/24/2019 09:56	Beverly Y. Sanders	2087678
	05/21/2019			05/24/2019 10:03	Beverly Y. Sanders	2087679
	05/21/2019			05/24/2019 10:09	Beverly Y. Sanders	2087683
EPA 365.1 Rev. 2.0	05/21/2019	05/29/2019 14:30	Joseph Suarez	05/30/2019 12:35	Rosalyn Ballman	2087678
	05/21/2019	05/29/2019 14:30	Joseph Suarez	05/30/2019 12:36	Rosalyn Ballman	2087679
	05/21/2019	05/29/2019 14:30	Joseph Suarez	05/30/2019 12:38	Rosalyn Ballman	2087683
EPA 365.1 Rev. 2.0 dissolved	05/21/2019			05/21/2019 15:09	Jhamieka S. Greenwood	2087681
	05/21/2019			05/21/2019 15:26	Jhamieka S. Greenwood	2087680
	05/21/2019			05/21/2019 15:27	Jhamieka S. Greenwood	2087684
SM 2120 B	05/21/2019			05/21/2019 16:21	Madeline Funaro	2087677
	05/21/2019			05/21/2019 16:41	Madeline Funaro	2087676
SM 2320 B-97	05/21/2019			06/02/2019 02:09	Dale L. Simmons	2087676
	05/21/2019			06/02/2019 02:19	Dale L. Simmons	2087677
	05/21/2019			06/02/2019 05:26	Dale L. Simmons	2087682
SM 2540 C-97	05/21/2019			05/23/2019 16:02	Yijie Li	2087676, 2087677
SM 2540 D-97	05/21/2019			05/23/2019 16:02	Yijie Li	2087676, 2087677, 2087682
SM 4500 F-C-97	05/21/2019			05/31/2019 09:27	Dale L. Simmons	2087676
	05/21/2019			05/31/2019 09:40	Dale L. Simmons	2087677
	05/21/2019			05/31/2019 13:38	Dale L. Simmons	2087682
SM 5310 B-00	05/21/2019			05/23/2019 04:43	Julia Storbeck	2087678
	05/21/2019			05/23/2019 04:56	Julia Storbeck	2087679
	05/21/2019			05/23/2019 05:09	Julia Storbeck	2087683