

Chemical Analysis Report

NW-DIST-2018-02-01-02

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

Event Description: **Laurel Hill East**
Request ID: **RQ-2018-01-29-20**
Customer: **NW-DIST**
Project ID: **SMP**

Send Reports to:
FL Dept. of Environmental Protection
160 W Government St
Suite 208A
Pensacola, FL 32502-5794
Attn: Michael King

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Certified by: Colin Wright, Program Administrator

Date Certified: 27-FEB-2018 15:04

A handwritten signature in black ink, appearing to read "Colin Wright", is displayed on a light gray rectangular 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: EIGHTMILE CREEK UPSTREAM OF CR 181
(SOUTH OF)**

Collection Date/Time: 01/31/2018 11:05

Field ID: G3NW0136

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1963717	EPA 180.1 Rev. 2.0	Turbidity	2.0		NTU	P339173	
	EPA 300.0 Rev. 2.1	Chloride	3.4	A	mg Cl/L	P339697	
		Sulfate	0.91	A	mg SO4/L	P339702	
	SM 2120 B	Color (true)	55	A	PCU	P339195	
	SM 2320 B-97	Total Alkalinity	23		mg CaCO3/L	P339515	
	SM 2540 C-97	TDS	48		mg/L	P339636	
	SM 2540 D-97	TSS	2	U	mg/L	P339534	
	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P340385	
1963721	EPA 350.1 Rev. 2.0	Ammonia-N	0.002	I	mg N/L	P339677	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.17	I	mg N/L	P339224	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.15		mg N/L	P339332	
	EPA 365.1 Rev. 2.0	Total-P	0.006		mg P/L	P339339	
	SM 5310 B-00	Organic Carbon	5.2		mg C/L	P339521	
1963725	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P339203	

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: CANEY CREEK ABOVE HWY 2A

Collection Date/Time: 01/31/2018 11:45

Field ID: G4NW0397

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1963718	EPA 180.1 Rev. 2.0	Turbidity	2.2		NTU	P339173	
	EPA 300.0 Rev. 2.1	Chloride	6.8		mg Cl/L	P339697	
		Sulfate	0.79		mg SO4/L	P339702	
	SM 2120 B	Color (true)	32		PCU	P339195	
	SM 2320 B-97	Total Alkalinity	5.0		mg CaCO3/L	P339515	
	SM 2540 C-97	TDS	28		mg/L	P339636	
	SM 2540 D-97	TSS	2	U	mg/L	P339534	
	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P340385	
1963722	EPA 350.1 Rev. 2.0	Ammonia-N	0.004	I	mg N/L	P339677	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.18	I	mg N/L	P339224	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.16		mg N/L	P339332	
	EPA 365.1 Rev. 2.0	Total-P	0.024		mg P/L	P339339	
	SM 5310 B-00	Organic Carbon	3.2		mg C/L	P339521	
1963726	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.012		mg P/L	P339203	

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: SHOAL RIVER ABV LAIRD ROAD

Collection Date/Time: 01/31/2018 12:45

Field ID: G4NW0375

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1963719	EPA 180.1 Rev. 2.0	Turbidity	2.8		NTU	P339173	
	EPA 300.0 Rev. 2.1	Chloride	4.4		mg Cl/L	P339697	

Field ID: G4NW0375

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1963719	EPA 300.0 Rev. 2.1	Sulfate	1.2		mg SO4/L	P339702	
	SM 2120 B	Color (true)	39		PCU	P339195	
	SM 2320 B-97	Total Alkalinity	2.7		mg CaCO3/L	P339515	
	SM 2540 C-97	TDS	30		mg/L	P339636	
	SM 2540 D-97	TSS	2	I	mg/L	P339534	
	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P340385	
1963723	EPA 350.1 Rev. 2.0	Ammonia-N	0.004	I	mg N/L	P339677	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.15	I	mg N/L	P339225	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.53		mg N/L	P339332	
	EPA 365.1 Rev. 2.0	Total-P	0.009		mg P/L	P339340	
	SM 5310 B-00	Organic Carbon	3.3		mg C/L	P339521	
1963727	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P339203	

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: TURKEY CREEK ABOVE WILLIAMS ROAD
(ALSO 32010269)

Collection Date/Time: 01/31/2018 13:30

Field ID: G4NW0409

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1963720	EPA 180.1 Rev. 2.0	Turbidity	3.4		NTU	P339173	
	EPA 300.0 Rev. 2.1	Chloride	3.0		mg Cl/L	P339697	
		Sulfate	0.80		mg SO4/L	P339702	
		Color (true)	31		PCU	P339195	
	SM 2320 B-97	Total Alkalinity	2.7		mg CaCO3/L	P339515	
	SM 2540 C-97	TDS	29		mg/L	P339636	
	SM 2540 D-97	TSS	4	I	mg/L	P339535	
	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P340385	
1963724	EPA 350.1 Rev. 2.0	Ammonia-N	0.003	I	mg N/L	P339677	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.15	I	mg N/L	P339225	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.54		mg N/L	P339332	
	EPA 365.1 Rev. 2.0	Total-P	0.014		mg P/L	P339340	
	SM 5310 B-00	Organic Carbon	2.6		mg C/L	P339521	
1963728	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P339203	

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: P339173

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Quality Assurance Report Method Blank Results

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P339697

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P339702

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P339677

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P339224

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P339225

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P339332

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P339339

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P339340

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P339203

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

Quality Assurance Report Method Blank Results

Reference Method: SM 2120 B
 Batch ID: P339195

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2320 B-97
 Batch ID: P339515

Component	Result	Code	Units
Total Alkalinity	0.65	U	mg CaCO ₃ /L

Reference Method: SM 2540 C-97
 Batch ID: P339636

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-97
 Batch ID: P339534

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 2540 D-97
 Batch ID: P339535

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500 F-C-97
 Batch ID: P340385

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-00
 Batch ID: P339521

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: P339697

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Chloride	95.7		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
 Batch ID: P339702

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P339702

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Sulfate	94.1		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P339677

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P339224

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P339225

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P339332

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: P339339

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total-P	99.6		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P339340

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P339203

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

Reference Method: SM 2320 B-97
Batch ID: P339515

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	96.0		P	95 - 108

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: SM 4500 F-C-97
Batch ID: P340385

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	97.1		P	92 - 103

Reference Method: SM 5310 B-00
Batch ID: P339521

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	94.0		P	85 - 115

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P339697

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1963717	Chloride	96.2		P	90 - 110
1963747	Chloride	95.8		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P339702

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1963717	Sulfate	94.8		P	90 - 110
1963747	Sulfate	94.8		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P339677

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1963756	Ammonia-N	99.2	103	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P339224

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1963626	Kjeldahl Nitrogen	91.6	108	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P339225

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1963724	Kjeldahl Nitrogen	95.6	98.2	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P339332

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1963626	NO2NO3-N	102	103	P/P	90 - 110

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P339339

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1963697	Total-P	95.3	98.6	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P339340

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1963757	Total-P	98.2	102	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P339203

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1963627	O-Phosphate-P	96.3	97.3	P/P	90 - 110

Reference Method: SM 4500 F-C-97
Batch ID: P340385

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1963695	Fluoride	95.8	95.2	P/P	91 - 105

Reference Method: SM 5310 B-00
Batch ID: P339521

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1963629	Organic Carbon	94.2	95.6	P/P	85 - 115

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P339173

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1963696	Turbidity	0.847	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P339697

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1963717	Chloride	0.995	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P339702

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1963717	Sulfate	1.57	Sample	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P339677

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1963756	Ammonia-N	2.97	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P339224

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1963626	Kjeldahl Nitrogen	10.6	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P339225

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1963724	Kjeldahl Nitrogen	2.39	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P339332

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1963626	NO2NO3-N	1.16	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P339339

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1963697	Total-P	3.10	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P339340

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1963757	Total-P	3.88	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P339203

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1963627	O-Phosphate-P	0.729	Spike	P	0 - 20

Reference Method: SM 2120 B
Batch ID: P339195

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1963717	Color (true)	2.70	Sample	P	0 - 20

Quality Assurance Report Precision

Reference Method: SM 2320 B-97
Batch ID: P339515

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1963824	Total Alkalinity	0.431	Sample	P	0 - 4.8

Reference Method: SM 2540 C-97
Batch ID: P339636

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1963696	TDS	1.13	Sample	P	0 - 10

Reference Method: SM 4500 F-C-97
Batch ID: P340385

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1963695	Fluoride	0.473	Spike	P	0 - 3.0

Reference Method: SM 5310 B-00
Batch ID: P339521

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1963629	Organic Carbon	0.970	Spike	P	0 - 20

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

Quality Assurance Report Calibration Verification

Reference Method: EPA 180.1 Rev. 2.0
Run ID: A81797
Included Lab Sample IDs: 1963717, 1963718, 1963719, 1963720

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

Reference Method: SM 2120 B
Run ID: A81803
Included Lab Sample IDs: 1963717, 1963718, 1963719, 1963720

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	104	104	P/P	85 - 115

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Run ID: A81805
Included Lab Sample IDs: 1963725, 1963726, 1963727, 1963728

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	100	99.9	P/P	90 - 110
O-Phosphate-P	99.9	99.1	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A81855

Included Lab Sample IDs: 1963721, 1963722, 1963723, 1963724

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO2NO3-N	100	101	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A81857

Included Lab Sample IDs: 1963721, 1963722, 1963723, 1963724

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	97.7	96.7	P/P	90 - 110
Kjeldahl Nitrogen	98.5	97.7	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A81869

Included Lab Sample IDs: 1963721, 1963722, 1963723, 1963724

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

Reference Method: SM 2320 B-97

Run ID: A81913

Included Lab Sample IDs: 1963717, 1963718, 1963719, 1963720

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	95.6	97.5	P/P	90 - 110
Total Alkalinity	97.5	94.9	P/P	90 - 110

Reference Method: SM 5310 B-00

Run ID: A81915

Included Lab Sample IDs: 1963721, 1963722, 1963723, 1963724

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	93.2	93.3	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A81964

Included Lab Sample IDs: 1963721, 1963722, 1963723, 1963724

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

Reference Method: EPA 300.0 Rev. 2.1

Run ID: A81969

Included Lab Sample IDs: 1963717, 1963718, 1963719, 1963720

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	100	99.4	P/P	90 - 110
Chloride	99.4	98.8	P/P	90 - 110
Sulfate	97.9	99.9	P/P	90 - 110
Sulfate	99.6	97.9	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: SM 4500 F-C-97

Run ID: A82220

Included Lab Sample IDs: 1963717, 1963718, 1963719, 1963720

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	97.2	97.1	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				0.847	
EPA 300.0 Rev. 2.1	Chloride	95.7	96.2 95.8		0.995	
	Sulfate	94.1	94.8 94.8		1.57	
EPA 350.1 Rev. 2.0	Ammonia-N	104	99.2 103			2.97
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	105	91.6 108			10.6
	Kjeldahl Nitrogen	100	95.6 98.2			2.39
EPA 353.2 Rev. 2.0	NO2NO3-N	104	102 103			1.16
EPA 365.1 Rev. 2.0	Total-P	99.6	95.3 98.6			3.10
	Total-P	100	98.2 102			3.88
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	103	96.3 97.3			0.729
SM 2120 B	Color (true)				2.70	
SM 2320 B-97	Total Alkalinity	96.0			0.431	
SM 2540 C-97	TDS				1.13	
SM 4500 F-C-97	Fluoride	97.1	95.8 95.2			0.473
SM 5310 B-00	Organic Carbon	94.0	94.2 95.6			0.970

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	1963717, 1963718, 1963719, 1963720
EPA 300.0 Rev. 2.1 / E31780	Chloride in aqueous matrices	1963717, 1963718, 1963719, 1963720
EPA 300.0 Rev. 2.1 / E31780	Sulfate in aqueous matrices	1963717, 1963718, 1963719, 1963720
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	1963721, 1963722, 1963723, 1963724
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	1963721, 1963722, 1963723, 1963724
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	1963721, 1963722, 1963723, 1963724
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	1963721, 1963722, 1963723, 1963724
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	1963725, 1963726, 1963727, 1963728
SM 2120 B / E31780	True Color measured at 450 nm	1963717, 1963718, 1963719, 1963720
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO3/L	1963717, 1963718, 1963719, 1963720
SM 2540 C-97 / E31780	Total Dissolved Solids in aqueous matrices	1963717, 1963718, 1963719, 1963720
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices	1963717, 1963718, 1963719, 1963720
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	1963717, 1963718, 1963719, 1963720

Reference Method Descriptions

Method / DoH Cert #	Description	<u>Associated Samples</u>
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	1963721, 1963722, 1963723, 1963724

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	02/01/2018			02/01/2018 16:00	DeAsia Armster	1963717, 1963718, 1963719, 1963720
EPA 300.0 Rev. 2.1	02/01/2018			02/09/2018	Julia Storbeck	1963717, 1963718, 1963719, 1963720
EPA 350.1 Rev. 2.0	02/01/2018			02/09/2018	Julia Storbeck	1963721, 1963722, 1963723, 1963724
EPA 351.2 Rev. 2.0	02/01/2018	02/02/2018	Adrian Shelby	02/05/2018	Joseph Suarez	1963721, 1963722, 1963723, 1963724
EPA 353.2 Rev. 2.0	02/01/2018			02/05/2018	Lauren Bottorf	1963721, 1963722, 1963723, 1963724
EPA 365.1 Rev. 2.0	02/01/2018	02/05/2018	Sima Feizi	02/06/2018	Beverly Y. Sanders	1963721, 1963722, 1963723, 1963724
EPA 365.1 Rev. 2.0 dissolved	02/01/2018			02/01/2018 15:48	Megan Treadwell	1963725
	02/01/2018			02/01/2018 15:49	Megan Treadwell	1963726
	02/01/2018			02/01/2018 15:54	Megan Treadwell	1963727
	02/01/2018			02/01/2018 15:55	Megan Treadwell	1963728
	02/01/2018			02/01/2018 16:12	Tanya Welborn	1963717
SM 2120 B	02/01/2018			02/01/2018 16:13	Tanya Welborn	1963718
	02/01/2018			02/01/2018 16:14	Tanya Welborn	1963719
	02/01/2018			02/01/2018 16:15	Tanya Welborn	1963720
SM 2320 B-97	02/01/2018			02/08/2018	Lauren Bottorf	1963717, 1963718, 1963719, 1963720
SM 2540 C-97	02/01/2018			02/02/2018	DeAsia Armster	1963717, 1963718, 1963719, 1963720
SM 2540 D-97	02/01/2018			02/02/2018	DeAsia Armster	1963717, 1963718, 1963719, 1963720
SM 4500 F-C-97	02/01/2018			02/22/2018	Dale L. Simmons	1963717, 1963718, 1963719, 1963720
SM 5310 B-00	02/01/2018			02/07/2018	Megan Treadwell	1963721, 1963722, 1963723, 1963724