

Chemical Analysis Report

NW-DIST-2018-02-07-01

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

Event Description: **Baker Run**
Request ID: **RQ-2018-02-05-25**
Customer: **NW-DIST**
Project ID: **SMP**

Send Reports to:
FL Dept. of Environmental Protection
160 W Government St
Suite 208A
Pensacola, FL 32502-5794
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Certified by: Thekkekalathil Chandrasekhar, Chemist Administrator Date Certified: 28-FEB-2018 16:22



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: YELLOW RIVER ABOVE METTS

Collection Date/Time: 02/06/2018 10:40

Field ID: G4NW0370

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1965134	EPA 180.1 Rev. 2.0	Turbidity	15		NTU	P339491	
	EPA 300.0 Rev. 2.1	Chloride	3.6		mg Cl/L	P339950	
		Sulfate	1.4		mg SO4/L	P339954	
	SM 2120 B	Color (true)	41	A	PCU	P339502	
	SM 2320 B-97	Total Alkalinity	8.2		mg CaCO3/L	P340124	
	SM 2540 C-97	TDS	48		mg/L	P339839	
	SM 2540 D-97	TSS	11		mg/L	P339803	
	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P340138	
1965138	EPA 350.1 Rev. 2.0	Ammonia-N	0.003	I	mg N/L	P339960	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.28		mg N/L	P339564	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.19		mg N/L	P339853	
	EPA 365.1 Rev. 2.0	Total-P	0.023		mg P/L	P339658	
	SM 5310 B-00	Organic Carbon	5.1		mg C/L	P340090	
1965142	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P339540	

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: YELLOW RIVER ABOVE METTS

Collection Date/Time: 02/06/2018 10:45

Field ID: G4NW0370DUP

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1965135	EPA 180.1 Rev. 2.0	Turbidity	16		NTU	P339491	
	EPA 300.0 Rev. 2.1	Chloride	3.8		mg Cl/L	P339950	
		Sulfate	1.4		mg SO4/L	P339954	
	SM 2120 B	Color (true)	41		PCU	P339502	
	SM 2320 B-97	Total Alkalinity	8.9		mg CaCO3/L	P340124	
	SM 2540 C-97	TDS	44		mg/L	P339839	
	SM 2540 D-97	TSS	10		mg/L	P339803	
	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P340138	
1965139	EPA 350.1 Rev. 2.0	Ammonia-N	0.004	I	mg N/L	P339960	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.29		mg N/L	P339564	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.19		mg N/L	P339853	
	EPA 365.1 Rev. 2.0	Total-P	0.023		mg P/L	P339658	
	SM 5310 B-00	Organic Carbon	5.1		mg C/L	P340090	
1965143	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P339540	

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: YELLOW RIVER ABOVE METTS

Collection Date/Time: 02/06/2018 10:50

Field ID: BLANK_02062018

Matrix: W-FIELD-BK

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1965136	EPA 180.1 Rev. 2.0	Turbidity	0.10	U	NTU	P339491	
	EPA 300.0 Rev. 2.1	Chloride	0.20	U	mg Cl/L	P340320	
		Sulfate	0.20	U	mg SO4/L	P339954	

Field ID: BLANK_02062018

Matrix: W-FIELD-BK

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1965136	SM 2120 B	Color (true)	2.5	U	PCU	P339497	
	SM 2320 B-97	Total Alkalinity	0.65	U	mg CaCO3/L	P340124	
	SM 2540 C-97	TDS	15	U	mg/L	P339837	
	SM 2540 D-97	TSS	2	U	mg/L	P339801	
	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P340138	
1965140	EPA 350.1 Rev. 2.0	Ammonia-N	0.002	U	mg N/L	P339961	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.080	U	mg N/L	P339564	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P339853	
	EPA 365.1 Rev. 2.0	Total-P	0.002	U	mg P/L	P339658	
	SM 5310 B-00	Organic Carbon	0.50	U	mg C/L	P340090	
1965144	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P339540	

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: DEAD RIVER UPSTREAM OF YE

Collection Date/Time: 02/06/2018 12:00

Field ID: G4NW0408

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1965137	EPA 180.1 Rev. 2.0	Turbidity	4.8		NTU	P339491	
	EPA 300.0 Rev. 2.1	Chloride	4.5		mg Cl/L	P339950	
		Sulfate	1.2		mg SO4/L	P339954	
	SM 2120 B	Color (true)	28	A	PCU	P339497	
	SM 2320 B-97	Total Alkalinity	3.2		mg CaCO3/L	P340124	
	SM 2540 C-97	TDS	26		mg/L	P339839	
	SM 2540 D-97	TSS	2	I	mg/L	P339803	
	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P340138	
	EPA 350.1 Rev. 2.0	Ammonia-N	0.011		mg N/L	P339961	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.24		mg N/L	P339556	MS
1965141	EPA 353.2 Rev. 2.0	NO2NO3-N	0.34		mg N/L	P339853	
	EPA 365.1 Rev. 2.0	Total-P	0.011		mg P/L	P339658	
	SM 5310 B-00	Organic Carbon	2.5		mg C/L	P340090	
	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P339540	

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: P339491

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 300.0 Rev. 2.1

Batch ID: P339950

Component	Result	Code	Units
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Quality Assurance Report

Method Blank Results

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P339950

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P339954

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P340320

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P339960

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P339961

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P3395565

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P339564

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P339853

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P339658

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

Quality Assurance Report Method Blank Results

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P339540

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

Reference Method: SM 2120 B
Batch ID: P339497

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2120 B
Batch ID: P339502

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2320 B-97
Batch ID: P340124

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

Reference Method: SM 2540 C-97
Batch ID: P339837

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 C-97
Batch ID: P339839

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P339801

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P339803

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500 F-C-97
Batch ID: P340138

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Quality Assurance Report Method Blank Results

Reference Method: SM 5310 B-00
Batch ID: P340090

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: P339950

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Chloride	93.7		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P339954

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P340320

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Chloride	95.3		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P339960

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P339961

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P3395565

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P339564

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P339853

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P339853

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: P339658

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P339540

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
O-Phosphate-P	96.8		P	90 - 110

Reference Method: SM 2320 B-97
Batch ID: P340124

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	98.2		P	95 - 108

Reference Method: SM 4500 F-C-97
Batch ID: P340138

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	94.5		P	92 - 103

Reference Method: SM 5310 B-00
Batch ID: P340090

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

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P339950

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1964823	Chloride	103		P	90 - 110
1965134	Chloride	104		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P339954

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1964823	Sulfate	106		P	90 - 110
1965134	Sulfate	106		P	90 - 110

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P340320

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1967645	Chloride	93.0		P	90 - 110
1967805	Chloride	94.6		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P339960

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1964928	Ammonia-N	96.8	96.0	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P339961

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1965141	Ammonia-N	99.9	98.5	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P3395565

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1965173	Kjeldahl Nitrogen	89.9	88.1	F/F	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P339564

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1965123	Kjeldahl Nitrogen	91.6	93.5	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P339853

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1964935	NO2NO3-N	103		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P339658

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1964936	Total-P	98.4	102	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P339540

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1965142	O-Phosphate-P	99.7	101	P/P	90 - 110

Reference Method: SM 4500 F-C-97
Batch ID: P340138

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1964926	Fluoride	95.7	95.1	P/P	91 - 105

Quality Assurance Report Matrix Spike Accuracy

Reference Method: SM 5310 B-00
 Batch ID: P340090

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1964906	Organic Carbon	102	102	P/P	85 - 115

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
 Batch ID: P339491

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1965118	Turbidity	1.82	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
 Batch ID: P339950

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1964823	Chloride	0.604	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
 Batch ID: P339954

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1964823	Sulfate	0.194	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
 Batch ID: P340320

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1967645	Chloride	3.08	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
 Batch ID: P339960

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1964928	Ammonia-N	0.418	Spike	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
 Batch ID: P339961

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1965141	Ammonia-N	1.12	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P3395565

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1965173	Kjeldahl Nitrogen	1.27	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P339564

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1965123	Kjeldahl Nitrogen	1.31	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P339853

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1964935	NO2NO3-N	0.197	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P339658

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1964936	Total-P	2.54	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P339540

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1965142	O-Phosphate-P	1.30	Spike	P	0 - 20

Reference Method: SM 2120 B
Batch ID: P339497

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1965137	Color (true)	8.42	Sample	P	0 - 20

Reference Method: SM 2120 B
Batch ID: P339502

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1965134	Color (true)	5.06	Sample	P	0 - 20

Reference Method: SM 2320 B-97
Batch ID: P340124

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1964926	Total Alkalinity	0.822	Sample	P	0 - 4.8

Quality Assurance Report Precision

Reference Method: SM 2540 C-97
Batch ID: P339837

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1964801	TDS	4.17	Sample	P	0 - 10

Reference Method: SM 2540 C-97
Batch ID: P339839

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1964934	TDS	5.30	Sample	P	0 - 10

Reference Method: SM 4500 F-C-97
Batch ID: P340138

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1964926	Fluoride	0.473	Spike	P	0 - 3.0

Reference Method: SM 5310 B-00
Batch ID: P340090

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1964906	Organic Carbon	0.0608	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: A81904
Included Lab Sample IDs: 1965134, 1965135, 1965136, 1965137

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	98.5	96.9	P/P	85 - 115
Color (true)	99.4	101	P/P	85 - 115

Reference Method: EPA 180.1 Rev. 2.0
Run ID: A81905
Included Lab Sample IDs: 1965134, 1965135, 1965136, 1965137

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Run ID: A81920
Included Lab Sample IDs: 1965142, 1965143, 1965144, 1965145

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	100	99.6	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: EPA 365.1 Rev. 2.0 dissolved

Run ID: A81920

Included Lab Sample IDs: 1965142, 1965143, 1965144, 1965145

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	98.5	100	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A81959

Included Lab Sample IDs: 1965138, 1965139, 1965140

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	99.2	105	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A81968

Included Lab Sample IDs: 1965141

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	106	102	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A81985

Included Lab Sample IDs: 1965138, 1965139, 1965140, 1965141

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

Reference Method: EPA 300.0 Rev. 2.1

Run ID: A82003

Included Lab Sample IDs: 1965134, 1965135, 1965137

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	103	103	P/P	90 - 110
Chloride	107	103	P/P	90 - 110
Sulfate	103	106	P/P	90 - 110
Sulfate	107	103	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A82028

Included Lab Sample IDs: 1965138, 1965139, 1965140, 1965141

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

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A82064

Included Lab Sample IDs: 1965138, 1965139, 1965140, 1965141

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

Quality Assurance Report Calibration Verification

Reference Method: SM 5310 B-00

Run ID: A82117

Included Lab Sample IDs: 1965138, 1965139, 1965140, 1965141

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	98.8	98.2	P/P	90 - 110

Reference Method: SM 2320 B-97

Run ID: A82122

Included Lab Sample IDs: 1965134, 1965135, 1965136, 1965137

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	96.1	99.2	P/P	90 - 110
Total Alkalinity	99.2	97.4	P/P	90 - 110

Reference Method: SM 4500 F-C-97

Run ID: A82122

Included Lab Sample IDs: 1965134, 1965135, 1965136, 1965137

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	97.1	98.1	P/P	90 - 110
Fluoride	98.1	98.6	P/P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1

Run ID: A82190

Included Lab Sample IDs: 1965136

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	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 SMP	MS
					LCS	
EPA 180.1 Rev. 2.0	Turbidity				1.82	
EPA 300.0 Rev. 2.1	Chloride	93.7	103	104	0.604	
	Chloride	95.3	93.0	94.6	3.08	
	Sulfate	106	106	106	0.194	
EPA 350.1 Rev. 2.0	Ammonia-N	102	96.8	96.0		0.418
	Ammonia-N	98.5	99.9	98.5		1.12
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	98.8	89.9	88.1		1.27
	Kjeldahl Nitrogen	104	91.6	93.5		1.31
EPA 353.2 Rev. 2.0	NO2NO3-N	104	103			0.197
EPA 365.1 Rev. 2.0	Total-P	101	98.4	102		2.54
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	96.8	99.7	101		1.30
SM 2120 B	Color (true)				8.42	
	Color (true)				5.06	
SM 2320 B-97	Total Alkalinity	98.2			0.822	
SM 2540 C-97	TDS				4.17	
	TDS				5.30	

Quality Assurance Report Summary

Ref. Method	Analyte	LCS % Recovery	MS % Recovery		Precision	
					LCS	MS
SM 4500 F-C-97	Fluoride	94.5	95.7	95.1		0.473
SM 5310 B-00	Organic Carbon	101	102	102		0.0608

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	1965134, 1965135, 1965136, 1965137
EPA 300.0 Rev. 2.1 / E31780	Chloride in aqueous matrices	1965134, 1965135, 1965136, 1965137
EPA 300.0 Rev. 2.1 / E31780	Sulfate in aqueous matrices	1965134, 1965135, 1965136, 1965137
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	1965138, 1965139, 1965140, 1965141
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	1965138, 1965139, 1965140, 1965141
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	1965138, 1965139, 1965140, 1965141
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	1965138, 1965139, 1965140, 1965141
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	1965142, 1965143, 1965144, 1965145
SM 2120 B / E31780	True Color measured at 450 nm	1965134, 1965135, 1965136, 1965137
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO ₃ /L	1965134, 1965135, 1965136, 1965137
SM 2540 C-97 / E31780	Total Dissolved Solids in aqueous matrices	1965134, 1965135, 1965136, 1965137
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices	1965134, 1965135, 1965136, 1965137
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	1965134, 1965135, 1965136, 1965137
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	1965138, 1965139, 1965140, 1965141

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	02/07/2018			02/07/2018 16:34	DeAsia Armster	1965134, 1965135, 1965136, 1965137
EPA 300.0 Rev. 2.1	02/07/2018			02/14/2018	Julia Storbeck	1965134, 1965135, 1965136, 1965137
	02/07/2018			02/20/2018	Julia Storbeck	1965136
EPA 350.1 Rev. 2.0	02/07/2018			02/14/2018	Ping Hua	1965138, 1965139, 1965140, 1965141
EPA 351.2 Rev. 2.0	02/07/2018	02/08/2018	Adrian Shelby	02/09/2018	Joseph Suarez	1965138, 1965139, 1965140, 1965141
EPA 353.2 Rev. 2.0	02/07/2018			02/13/2018	Lauren Bottorf	1965138, 1965139, 1965140, 1965141
EPA 365.1 Rev. 2.0	02/07/2018	02/09/2018	Sima Feizi	02/12/2018	Beverly Y. Sanders	1965138, 1965139, 1965140, 1965141
EPA 365.1 Rev. 2.0 dissolved	02/07/2018			02/07/2018 15:11	Megan Treadwell	1965142
	02/07/2018			02/07/2018 15:27	Megan Treadwell	1965143
	02/07/2018			02/07/2018 15:28	Megan Treadwell	1965144, 1965145
SM 2120 B	02/07/2018			02/07/2018 15:47	Tanya Welborn	1965136
	02/07/2018			02/07/2018 15:48	Tanya Welborn	1965137
	02/07/2018			02/07/2018 16:37	Tanya Welborn	1965134, 1965135
SM 2320 B-97	02/07/2018			02/16/2018	Dale L. Simmons	1965134, 1965135, 1965136, 1965137
SM 2540 C-97	02/07/2018			02/09/2018	Yijie Li	1965134, 1965135, 1965136, 1965137
SM 2540 D-97	02/07/2018			02/09/2018	Yijie Li	1965134, 1965135, 1965136, 1965137
SM 4500 F-C-97	02/07/2018			02/16/2018	Dale L. Simmons	1965134, 1965135, 1965136, 1965137
SM 5310 B-00	02/07/2018			02/15/2018	Megan Treadwell	1965138, 1965139, 1965140, 1965141