

Chemical Analysis Report

NE-DIST-2018-01-26-01

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

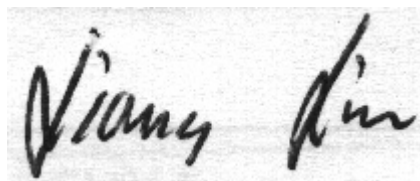
Event Description: **Interlachen 2**
Request ID: **RQ-2018-01-08-33**
Customer: **NE-DIST**
Project ID: **SMP**

Send Reports to:
FL Dept. of Environmental Protection
8800 Baymeadows Way West
Jacksonville, FL 32256-7577
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Certified by: Liang Lin, Environmental Administrator

Date Certified: 14-FEB-2018 15:49

A handwritten signature in black ink, appearing to read "Liang Lin", is shown on a light-colored background.

Case Narrative

Unless otherwise noted, all samples included in this report were received in accordance with protocols referenced in Chapter 62-160, Florida Administrative Code (F.A.C.). Results published in this report pertain only to the samples as submitted to, and received by the laboratory. All times in this report are adjusted to the applicable Eastern Time Zone (EST or EDT).

Results for the following analytical group are included in this report: Nutrients.

Scientific notation may be used in reporting very large or small values. Values reported using scientific notation will take the form of the following example: 1.3E+03, which is equivalent to 1.3×10^3 or 1300.

Unless otherwise noted, analytical values for soil and sediment samples are reported on a dry weight basis, and analytical values for waste and tissue samples are reported on a wet weight basis.

Results for TNI accredited tests met requirements established by The NELAC Institute. A double asterisk (**) is used to indicate an analyte/matrix/method for which the laboratory is not TNI accredited or where accreditation for that field of testing is not applicable.

Any significant anomalies or deviations from established protocols are documented in Non-Conformance Reports, which, where appropriate, are included within this analytical report. Additional comments related to specific analytical tests may be included as remarks following the analytical results for each sample. Such comments and remarks are for informational purposes only and are not intended to convey judgement about the usability of the reported data.

A quality control report on the performance of the test method for the submitted samples is included. Uncertainty associated with the analytical results contained in this report can be estimated from the reported quality assurance results and from published quality control acceptance limits for each analytical test. Matrix quality control results (matrix spike recoveries and matrix sample precision) pertain only to the matrix sample tested and do not necessarily reflect test method performance for other samples.

Typical matrix quality control (QC) measurements may include matrix spike recovery, matrix spike duplicate recovery, matrix spike precision and matrix sample precision. Not all matrix QC results may be available or reportable; where they are not an explanation is provided. Typical reasons for unavailable QC results include, but are not limited to, a) insufficient matrix sample to perform some or all QC measurements; b) analyte concentration in the sample replicated was too low for a meaningful measurement of precision and c) analyte concentration in the matrix sample spiked was too high (relative to the amount of analyte spiked) for a meaningful measurement of recovery. Where matrix QC results are unavailable, other method performance metrics (e.g., LCS recovery, LCS precision, surrogate recovery) may be used to assess performance of the method. Comments explaining any missing QC measurements are not intended to convey any adverse conclusions about the quality of the reported data.

Precision is reported as relative percent difference unless otherwise noted.

Quality Control codes as defined below may be used in this report to indicate results that are associated with one or more quality control elements which did not fall within established test method criteria. Such results may be qualified as estimates using a J qualifier as required by 62-160 F.A.C. Explanations are included in the report for any results that were reported as estimates for other reasons.

QC Codes used in this report may include:

- LCS – Recovery for the batch Laboratory Control Sample (LCS) was outside existing control limits;
- MS – Recovery for the batch matrix spike (MS) was outside existing control limits;
- CCV – Recovery for a continuing calibration verification (CCV) standard was outside existing control limits;
- SUR – Recovery of a surrogate (SUR) for associated analytes was outside existing control limits;
- RPD – The precision, measured as relative percent difference (RPD), of batch replicate measurements was outside existing control limits;
- RSD – The precision, measured as relative standard deviation (RSD), of batch replicate measurements was outside existing control limits;
- SMP – Sample - used precision derived from replicate analyses of a sample;

The following data qualifiers are used, where applicable, in this report as specified in 62-160 F.A.C.

- A - Value reported is the mean of two or more determinations.
- B - Results based on colony counts outside the acceptable range.
- I - The reported value is between the laboratory method detection limit and the laboratory practical quantitation limit.
- J - Estimated value and/or the analysis did not meet established quality control criteria.
- K - Actual value is known to be less than value given.
- L - Actual value is known to be greater than value given.
- N - Presumptive evidence of presence of material.
- O - Sampled, but analysis lost or not performed.
- Q - Sample held beyond normal holding time.
- T - Value reported is less than the criterion of detection.
- U - Material was analyzed for but not detected. The reported value is the method detection limit for the sample analyzed.
- V - Analyte was detected in both sample and method blank.
- X - Too few individuals to calculate SCI value.
- Y - The laboratory analysis was from an unpreserved or improperly preserved sample. The data may not be accurate.
- Z - Colonies were too numerous to count (TNTC).

Quality control information from overflow laboratories may not be included in this report. Please refer to the associated report from the overflow laboratory for additional information.

Sample Location: South Bull Pond Center

Collection Date/Time: 01/25/2018 12:50

Field ID: G1NE0861

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1962425	EPA 180.1 Rev. 2.0	Turbidity	0.65		NTU	P338890	
	EPA 300.0 Rev. 2.1	Chloride	8.8		mg Cl/L	P339113	
		Sulfate	3.6		mg SO4/L	P339111	
	SM 2120 B	Color (true)	220		PCU	P338887	
	SM 2320 B-97	Total Alkalinity	0.65	U	mg CaCO3/L	P339302	
	SM 2540 C-97	TDS	50		mg/L	P339395	
	SM 2540 D-97	TSS	2	I	mg/L	P339382	
	SM 4500 F-C-97	Fluoride	0.045	I	mg F/L	P339305	
1962430	EPA 350.1 Rev. 2.0	Ammonia-N	0.30		mg N/L	P339186	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.2		mg N/L	P338906	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.12		mg N/L	P339033	
	EPA 365.1 Rev. 2.0	Total-P	0.026		mg P/L	P338998	
	SM 5310 B-00	Organic Carbon	20		mg C/L	P339237	
1962435	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.015		mg P/L	P338884	

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: Cowpen Lake Center

Collection Date/Time: 01/25/2018 12:15

Field ID: 20020053

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1962426	EPA 180.1 Rev. 2.0	Turbidity	0.60		NTU	P338890	
	EPA 300.0 Rev. 2.1	Chloride	8.5		mg Cl/L	P339113	
		Sulfate	3.6		mg SO4/L	P339111	
	SM 2120 B	Color (true)	14		PCU	P338887	
	SM 2320 B-97	Total Alkalinity	1.6	I	mg CaCO3/L	P339302	
	SM 2540 C-97	TDS	28		mg/L	P339395	
	SM 2540 D-97	TSS	2	I	mg/L	P339382	
	SM 4500 F-C-97	Fluoride	0.041	I	mg F/L	P339305	
1962431	EPA 350.1 Rev. 2.0	Ammonia-N	0.012		mg N/L	P339186	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.43		mg N/L	P338906	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.011		mg N/L	P339033	
	EPA 365.1 Rev. 2.0	Total-P	0.006		mg P/L	P338998	
	SM 5310 B-00	Organic Carbon	5.2		mg C/L	P339237	
1962436	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P338884	

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: Fanny Lake Center

Collection Date/Time: 01/25/2018 11:15

Field ID: 20020100

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1962427	EPA 180.1 Rev. 2.0	Turbidity	0.75		NTU	P338890	
	EPA 300.0 Rev. 2.1	Chloride	12	A	mg Cl/L	P339113	
		Sulfate	8.3	A	mg SO4/L	P339111	

Field ID: 20020100

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1962427	SM 2120 B	Color (true)	59	A	PCU	P338887	
	SM 2320 B-97	Total Alkalinity	0.65	U	mg CaCO3/L	P339302	
	SM 2540 C-97	TDS	36		mg/L	P339395	
	SM 2540 D-97	TSS	2	I	mg/L	P339382	
	SM 4500 F-C-97	Fluoride	0.035	I	mg F/L	P339305	
1962432	EPA 350.1 Rev. 2.0	Ammonia-N	0.74		mg N/L	P339186	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.2		mg N/L	P338906	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.082		mg N/L	P339033	
	EPA 365.1 Rev. 2.0	Total-P	0.009		mg P/L	P338998	
	SM 5310 B-00	Organic Carbon	7.0		mg C/L	P339237	
1962437	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P338885	

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: Gillis Lake Center

Collection Date/Time: 01/25/2018 11:40

Field ID: G1NE0863

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1962428	EPA 180.1 Rev. 2.0	Turbidity	0.75		NTU	P338891	
	EPA 300.0 Rev. 2.1	Chloride	11		mg Cl/L	P339113	
		Sulfate	3.8		mg SO4/L	P339111	
	SM 2120 B	Color (true)	200		PCU	P338887	
	SM 2320 B-97	Total Alkalinity	0.82	I	mg CaCO3/L	P339302	
	SM 2540 C-97	TDS	40		mg/L	P339395	
	SM 2540 D-97	TSS	2	I	mg/L	P339382	
	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P339305	
	EPA 350.1 Rev. 2.0	Ammonia-N	1.7		mg N/L	P339187	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	2.7		mg N/L	P338907	
1962433	EPA 353.2 Rev. 2.0	NO2NO3-N	0.082		mg N/L	P339034	
	EPA 365.1 Rev. 2.0	Total-P	0.012		mg P/L	P339028	
	SM 5310 B-00	Organic Carbon	15		mg C/L	P339237	
	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P338885	

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: Galilee Lake Center

Collection Date/Time: 01/25/2018 10:35

Field ID: G1NE0870

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1962429	EPA 180.1 Rev. 2.0	Turbidity	0.60		NTU	P338891	
	EPA 300.0 Rev. 2.1	Chloride	6.9		mg Cl/L	P339113	
		Sulfate	3.7		mg SO4/L	P339111	
	SM 2120 B	Color (true)	26		PCU	P338887	
	SM 2320 B-97	Total Alkalinity	1.2	I	mg CaCO3/L	P339302	
	SM 2540 C-97	TDS	20	I	mg/L	P339396	
	SM 2540 D-97	TSS	2	I	mg/L	P339383	

Field ID: G1NE0870

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1962429	SM 4500 F-C-97	Fluoride	0.037	I	mg F/L	P339305	
1962434	EPA 350.1 Rev. 2.0	Ammonia-N	0.008		mg N/L	P339187	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.36		mg N/L	P338907	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.01	I	mg N/L	P339034	
	EPA 365.1 Rev. 2.0	Total-P	0.008		mg P/L	P339028	
	SM 5310 B-00	Organic Carbon	6.0		mg C/L	P339237	
1962439	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P338885	

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: P338890

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P338891

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P339111

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P339113

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P339186

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P339187

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P338906

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

Quality Assurance Report Method Blank Results

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P338907

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P339033

Component	Result	Code	Units
NO ₂ NO ₃ -N	0.004	U	mg N/L

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P339034

Component	Result	Code	Units
NO ₂ NO ₃ -N	0.004	U	mg N/L

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P338998

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P339028

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P338884

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P338885

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

Reference Method: SM 2120 B
Batch ID: P338887

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2320 B-97
Batch ID: P339302

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

Quality Assurance Report Method Blank Results

Reference Method: SM 2540 C-97
Batch ID: P339395

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 C-97
Batch ID: P339396

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P339382

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P339383

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500 F-C-97
Batch ID: P339305

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-00
Batch ID: P339237

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: P339111

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P339113

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P339186

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P339186

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: P339187

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P338906

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P338907

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: P339033

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
NO ₂ NO ₃ -N	102		P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P339034

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
NO ₂ NO ₃ -N	103		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P338998

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P339028

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P338884

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
O-Phosphate-P	96.0		P	90 - 110

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P338885

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
O-Phosphate-P	96.5		P	90 - 110

Reference Method: SM 2320 B-97
Batch ID: P339302

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	97.4		P	95 - 108

Reference Method: SM 4500 F-C-97
Batch ID: P339305

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	94.3		P	92 - 103

Reference Method: SM 5310 B-00
Batch ID: P339237

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

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P339111

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1962383	Sulfate	93.3		P	90 - 110
1962427	Sulfate	94.7		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P339113

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1962383	Chloride	95.2		P	90 - 110
1962427	Chloride	95.1		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P339186

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1962407	Ammonia-N	97.4	97.5	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P339187

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1962434	Ammonia-N	99.6	99.6	P/P	90 - 110

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P338906

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1962431	Kjeldahl Nitrogen	103	104	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P338907

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1962434	Kjeldahl Nitrogen	108	108	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P339033

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1962407	NO2NO3-N	101	101	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P339034

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1962433	NO2NO3-N	101	101	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P338998

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1962431	Total-P	99.8	104	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P339028

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1962476	Total-P	102	102	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P338884

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1962390	O-Phosphate-P	95.0	95.1	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P338885

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1962437	O-Phosphate-P	95.5	96.4	P/P	90 - 110

Reference Method: SM 4500 F-C-97
Batch ID: P339305

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1962381	Fluoride	95.6	97.1	P/P	91 - 105

Quality Assurance Report Matrix Spike Accuracy

Reference Method: SM 5310 B-00
 Batch ID: P339237

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1962386	Organic Carbon	98.6	99.0	P/P	85 - 115

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
 Batch ID: P338890

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1962380	Turbidity	3.77	Sample	P	0 - 20

Reference Method: EPA 180.1 Rev. 2.0
 Batch ID: P338891

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1962443	Turbidity	2.82	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
 Batch ID: P339111

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1962427	Sulfate	1.04	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
 Batch ID: P339113

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1962427	Chloride	0.967	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
 Batch ID: P339186

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1962407	Ammonia-N	0.0448	Spike	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
 Batch ID: P339187

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1962434	Ammonia-N	0.00345	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P338906

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1962431	Kjeldahl Nitrogen	0.593	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P338907

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1962434	Kjeldahl Nitrogen	0.381	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P339033

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1962407	NO2NO3-N	0.366	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P339034

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1962433	NO2NO3-N	0.0	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P338998

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1962431	Total-P	4.45	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P339028

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1962476	Total-P	0.683	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P338884

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1962390	O-Phosphate-P	0.105	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P338885

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1962437	O-Phosphate-P	0.938	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: SM 2120 B
Batch ID: P338887

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1962427	Color (true)	0.404	Sample	P	0 - 20

Reference Method: SM 2320 B-97
Batch ID: P339302

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1962381	Total Alkalinity	0.209	Sample	P	0 - 4.8

Reference Method: SM 2540 C-97
Batch ID: P339395

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1962405	TDS	4.40	Sample	P	0 - 10

Reference Method: SM 2540 C-97
Batch ID: P339396

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1962444	TDS	8.16	Sample	P	0 - 10

Reference Method: SM 4500 F-C-97
Batch ID: P339305

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1962381	Fluoride	0.993	Spike	P	0 - 3.0

Reference Method: SM 5310 B-00
Batch ID: P339237

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1962386	Organic Carbon	0.304	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 365.1 Rev. 2.0 dissolved
Run ID: A81678
Included Lab Sample IDs: 1962435, 1962436, 1962437, 1962438, 1962439

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	97.8	99.1	P/P	90 - 110
O-Phosphate-P	99.1	99.5	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: SM 2120 B

Run ID: A81679

Included Lab Sample IDs: 1962425, 1962426, 1962427, 1962428, 1962429

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	104	105	P/P	85 - 115
Color (true)	105	104	P/P	85 - 115

Reference Method: EPA 180.1 Rev. 2.0

Run ID: A81680

Included Lab Sample IDs: 1962425, 1962426, 1962427, 1962428, 1962429

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Turbidity	98.0	99.5	P/P	95 - 105
Turbidity	99.5	99.5	P/P	95 - 105

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A81735

Included Lab Sample IDs: 1962430, 1962431, 1962432, 1962433, 1962434

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	103	98.8	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A81760

Included Lab Sample IDs: 1962430, 1962431, 1962432, 1962433, 1962434

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	103	104	P/P	90 - 110
Total-P	104	103	P/P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1

Run ID: A81775

Included Lab Sample IDs: 1962425, 1962426, 1962427, 1962428, 1962429

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	101	101	P/P	90 - 110
Chloride	100	101	P/P	90 - 110
Sulfate	100	99.8	P/P	90 - 110
Sulfate	99.8	101	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A81788

Included Lab Sample IDs: 1962430, 1962431, 1962432, 1962433, 1962434

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

Reference Method: SM 5310 B-00

Run ID: A81820

Included Lab Sample IDs: 1962430, 1962431, 1962432, 1962433, 1962434

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	97.2	98.2	P/P	90 - 110
Organic Carbon	98.2	98.8	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A81837

Included Lab Sample IDs: 1962430, 1962431, 1962432, 1962433, 1962434

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

Reference Method: SM 2320 B-97

Run ID: A81839

Included Lab Sample IDs: 1962425, 1962426, 1962427, 1962428, 1962429

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	96.3	97.9	P/P	90 - 110
Total Alkalinity	98.4	96.3	P/P	90 - 110

Reference Method: SM 4500 F-C-97

Run ID: A81839

Included Lab Sample IDs: 1962425, 1962426, 1962427, 1962428, 1962429

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	97.6	99.5	P/P	90 - 110
Fluoride	99.5	99.5	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		LCS	Precision SMP	MS
EPA 180.1 Rev. 2.0	Turbidity					3.77	
	Turbidity					2.82	
EPA 300.0 Rev. 2.1	Chloride	99.8	95.1	95.2		0.967	
	Sulfate	98.5	94.7	93.3		1.04	
EPA 350.1 Rev. 2.0	Ammonia-N	101	97.4	97.5			0.0448
	Ammonia-N	102	99.6	99.6			0.0034
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	102	103	104			0.593
	Kjeldahl Nitrogen	100	108	108			0.381
EPA 353.2 Rev. 2.0	NO ₂ NO ₃ -N	102	101	101			0.366
	NO ₂ NO ₃ -N	103	101	101			0.0
EPA 365.1 Rev. 2.0	Total-P	101	104	99.8			4.45
	Total-P	102	102	102			0.683
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	96.0	95.0	95.1			0.105
	O-Phosphate-P	96.5	95.5	96.4			0.938
SM 2120 B	Color (true)					0.404	
SM 2320 B-97	Total Alkalinity	97.4				0.209	
SM 2540 C-97	TDS					4.40	
	TDS					8.16	
SM 4500 F-C-97	Fluoride	94.3	95.6	97.1			0.993
SM 5310 B-00	Organic Carbon	95.6	98.6	99.0			0.304

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	1962425, 1962426, 1962427, 1962428, 1962429
EPA 300.0 Rev. 2.1 / E31780	Chloride in aqueous matrices	1962425, 1962426, 1962427, 1962428, 1962429
EPA 300.0 Rev. 2.1 / E31780	Sulfate in aqueous matrices	1962425, 1962426, 1962427, 1962428, 1962429
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	1962430, 1962431, 1962432, 1962433, 1962434
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	1962430, 1962431, 1962432, 1962433, 1962434
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	1962430, 1962431, 1962432, 1962433, 1962434
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	1962430, 1962431, 1962432, 1962433, 1962434
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	1962435, 1962436, 1962437, 1962438, 1962439
SM 2120 B / E31780	True Color measured at 450 nm	1962425, 1962426, 1962427, 1962428, 1962429
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO ₃ /L	1962425, 1962426, 1962427, 1962428, 1962429
SM 2540 C-97 / E31780	Total Dissolved Solids in aqueous matrices	1962425, 1962426, 1962427, 1962428, 1962429
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices	1962425, 1962426, 1962427, 1962428, 1962429
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	1962425, 1962426, 1962427, 1962428, 1962429
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	1962430, 1962431, 1962432, 1962433, 1962434

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	01/26/2018			01/26/2018 15:09	Tanya Welborn	1962425, 1962426, 1962427, 1962428, 1962429
EPA 300.0 Rev. 2.1	01/26/2018			01/31/2018	Julia Storbeck	1962425, 1962426, 1962427, 1962428, 1962429
EPA 350.1 Rev. 2.0	01/26/2018			02/01/2018	Ping Hua	1962430, 1962431, 1962432, 1962433, 1962434
EPA 351.2 Rev. 2.0	01/26/2018	01/29/2018	Adrian Shelby	01/30/2018	Joseph Suarez	1962430, 1962431, 1962432, 1962433, 1962434
EPA 353.2 Rev. 2.0	01/26/2018			01/30/2018	Lauren Bottorf	1962430, 1962431, 1962432, 1962433, 1962434
EPA 365.1 Rev. 2.0	01/26/2018	01/30/2018	Sima Feizi	01/31/2018	Lipi Saha	1962430, 1962431, 1962432, 1962433, 1962434
EPA 365.1 Rev. 2.0 dissolved	01/26/2018			01/26/2018 15:27	Megan Treadwell	1962437
	01/26/2018			01/26/2018 15:37	Megan Treadwell	1962435
	01/26/2018			01/26/2018 15:38	Megan Treadwell	1962436
	01/26/2018			01/26/2018 15:39	Megan Treadwell	1962438, 1962439
	01/26/2018			01/26/2018 16:13	Tanya Welborn	1962426
SM 2120 B	01/26/2018			01/26/2018 16:15	Tanya Welborn	1962427
	01/26/2018			01/26/2018 16:16	Tanya Welborn	1962429
	01/26/2018			01/26/2018 16:30	Tanya Welborn	1962425
	01/26/2018			01/26/2018 16:31	Tanya Welborn	1962428
	01/26/2018			02/02/2018	Dale L. Simmons	1962425, 1962426
SM 2320 B-97	01/26/2018			02/03/2018	Dale L. Simmons	1962427, 1962428, 1962429
SM 2540 C-97	01/26/2018			01/31/2018	Yijie Li	1962425, 1962426, 1962427, 1962428, 1962429
SM 2540 D-97	01/26/2018			01/31/2018	Yijie Li	1962425, 1962426, 1962427, 1962428, 1962429
SM 4500 F-C-97	01/26/2018			02/02/2018	Dale L. Simmons	1962425, 1962426
	01/26/2018			02/03/2018	Dale L. Simmons	1962427, 1962428, 1962429
SM 5310 B-00	01/26/2018			02/01/2018	Megan Treadwell	1962430, 1962431, 1962432, 1962433, 1962434