

Chemical Analysis Report

NW-DIST-2018-03-14-01

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

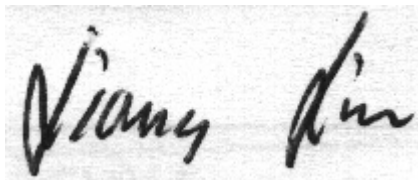
Event Description: **98 Whaler Run**
Request ID: **RQ-2018-03-12-43**
Customer: **NW-DIST**
Project ID: **SMP**

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

For additional information please contact
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Certified by: Liang Lin, Environmental Administrator

Date Certified: 02-APR-2018 15:09

A handwritten signature in black ink, appearing to read "Liang Lin", is written on a light-colored, textured 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: DIRECT RUNOFF

Collection Date/Time: 03/13/2018 10:00

Field ID: G3NW0152

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1974603	EPA 180.1 Rev. 2.0	Turbidity	6.0	A	NTU	P341553	
	SM 2320 B-97	Total Alkalinity	46		mg CaCO3/L	P342151	
	SM 2540 D-97	TSS	8	I	mg/L	P341867	
	SM 4500 F-C-97	Fluoride	0.33		mg F/L	P342288	
1974608	EPA 350.1 Rev. 2.0	Ammonia-N	0.033		mg N/L	P342063	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.46		mg N/L	P341807	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.028		mg N/L	P341697	
	EPA 365.1 Rev. 2.0	Total-P	0.019		mg P/L	P341657	
	SM 5310 B-00	Organic Carbon	6.7		mg C/L	P342043	
1974613	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P341578	

Sample Location: Mack Bayou end of Bayou Rd

Collection Date/Time: 03/13/2018 10:45

Field ID: G3NW0144

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1974604	EPA 180.1 Rev. 2.0	Turbidity	3.2		NTU	P341553	
	SM 2320 B-97	Total Alkalinity	48		mg CaCO3/L	P342151	
	SM 2540 D-97	TSS	4	I	mg/L	P341867	
	SM 4500 F-C-97	Fluoride	0.33		mg F/L	P342288	
1974609	EPA 350.1 Rev. 2.0	Ammonia-N	0.016		mg N/L	P342063	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.40		mg N/L	P341807	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.037		mg N/L	P341697	
	EPA 365.1 Rev. 2.0	Total-P	0.016		mg P/L	P341657	
	SM 5310 B-00	Organic Carbon	6.3		mg C/L	P342043	
1974614	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	UQ	mg P/L	P341703	

Ref. Method and Comment:

EPA 365.1 Rev. 2.0 dissolved: O-Phosphate-P: The sample was reanalyzed out of holding time due to analytical difficulties.

Sample Location: Destin Harbor across from AJ's Restaurant

Collection Date/Time: 03/13/2018 12:10

Field ID: G3NW0127

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1974605	EPA 180.1 Rev. 2.0	Turbidity	0.90		NTU	P341553	
	SM 2320 B-97	Total Alkalinity	78		mg CaCO3/L	P342151	
	SM 2540 D-97	TSS	3	U	mg/L	P341867	
	SM 4500 F-C-97	Fluoride	0.75		mg F/L	P342288	
1974610	EPA 350.1 Rev. 2.0	Ammonia-N	0.002	U	mg N/L	P342063	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.41		mg N/L	P341807	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P341697	
	EPA 365.1 Rev. 2.0	Total-P	0.015		mg P/L	P341657	
	SM 5310 B-00	Organic Carbon	3.8		mg C/L	P342043	
1974615	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P341578	

Sample Location: Destin Harbor across from AJ's Restaurant

Collection Date/Time: 03/13/2018 12:15

Field ID: G3NW0127DUP

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1974606	EPA 180.1 Rev. 2.0	Turbidity	1.0		NTU	P341553	
	SM 2320 B-97	Total Alkalinity	77		mg CaCO3/L	P342151	
	SM 2540 D-97	TSS	3	U	mg/L	P341867	
	SM 4500 F-C-97	Fluoride	0.75		mg F/L	P342288	
1974611	EPA 350.1 Rev. 2.0	Ammonia-N	0.002	I	mg N/L	P342063	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.42		mg N/L	P341807	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	I	mg N/L	P341697	
	EPA 365.1 Rev. 2.0	Total-P	0.014		mg P/L	P341657	
	SM 5310 B-00	Organic Carbon	3.7		mg C/L	P342043	
1974616	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P341578	

Sample Location: Pensacola ICE ROOM

Collection Date/Time: 03/13/2018 12:20

Field ID: BLANK_03122018

Matrix: W-FIELD-BK

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1974607	EPA 180.1 Rev. 2.0	Turbidity	0.10	U	NTU	P341553	
	SM 2320 B-97	Total Alkalinity	0.65	U	mg CaCO3/L	P341929	
	SM 2540 D-97	TSS	2	U	mg/L	P341866	
	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P342153	
1974612	EPA 350.1 Rev. 2.0	Ammonia-N	0.002	U	mg N/L	P342073	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.080	U	mg N/L	P341754	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P341732	
	EPA 365.1 Rev. 2.0	Total-P	0.002	U	mg P/L	P341687	
	SM 5310 B-00	Organic Carbon	0.50	U	mg C/L	P342180	
1974617	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P341843	MS

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: P341553

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 350.1 Rev. 2.0

Batch ID: P342063

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

Reference Method: EPA 350.1 Rev. 2.0

Batch ID: P342073

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

Quality Assurance Report Method Blank Results

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P341754

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P341807

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P341697

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P341732

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P341657

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P341687

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P341578

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P341703

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P341843

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

Quality Assurance Report Method Blank Results

Reference Method: SM 2320 B-97
 Batch ID: P341929

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

Reference Method: SM 2320 B-97
 Batch ID: P342151

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

Reference Method: SM 2540 D-97
 Batch ID: P341866

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 2540 D-97
 Batch ID: P341867

Component	Result	Code	Units
TSS	3	U	mg/L

Reference Method: SM 4500 F-C-97
 Batch ID: P342153

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 4500 F-C-97
 Batch ID: P342288

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-00
 Batch ID: P342043

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

Reference Method: SM 5310 B-00
 Batch ID: P342180

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

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 350.1 Rev. 2.0
 Batch ID: P342063

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: P342063

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Ammonia-N	91.0		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P342073

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Ammonia-N	90.9		P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P341754

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Kjeldahl Nitrogen	96.3		P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P341807

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P341697

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P341732

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P341657

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P341687

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P341578

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
O-Phosphate-P	93.3		P	90 - 110

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P341703

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P341843

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

Reference Method: SM 2320 B-97
Batch ID: P341929

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	99.6		P	98 - 107

Reference Method: SM 2320 B-97
Batch ID: P342151

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	105		P	98 - 107

Reference Method: SM 4500 F-C-97
Batch ID: P342153

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	96.3		P	91 - 105

Reference Method: SM 4500 F-C-97
Batch ID: P342288

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	98.2		P	91 - 105

Reference Method: SM 5310 B-00
Batch ID: P342043

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

Reference Method: SM 5310 B-00
Batch ID: P342180

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

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P342063

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P342063

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1974555	Ammonia-N	96.4	95.9	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P342073

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1974635	Ammonia-N	92.2	91.0	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P341754

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1974706	Kjeldahl Nitrogen	96.4	92.9	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P341807

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1974611	Kjeldahl Nitrogen	95.2	93.6	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P341697

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1974608	NO2NO3-N	102	102	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P341732

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1974635	NO2NO3-N	104	103	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P341657

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1974555	Total-P	94.0	96.6	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P341687

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1974646	Total-P	104	104	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P341578

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1974516	O-Phosphate-P	95.3	95.4	P/P	90 - 110

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 365.1 Rev. 2.0 dissolved
 Batch ID: P341703

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1974614	O-Phosphate-P	103	104	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
 Batch ID: P341843

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1974591	O-Phosphate-P	88.6	88.4	F/F	90 - 110

Reference Method: SM 4500 F-C-97
 Batch ID: P342153

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1974477	Fluoride	96.2	98.7	P/P	91 - 105

Reference Method: SM 4500 F-C-97
 Batch ID: P342288

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1975351	Fluoride	93.9	94.4	P/P	91 - 105

Reference Method: SM 5310 B-00
 Batch ID: P342043

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1974514	Organic Carbon	99.1	98.7	P/P	85 - 115

Reference Method: SM 5310 B-00
 Batch ID: P342180

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1974420	Organic Carbon	107	108	P/P	85 - 115

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
 Batch ID: P341553

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1974603	Turbidity	0.0	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
 Batch ID: P342063

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1974555	Ammonia-N	0.395	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P342073

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1974635	Ammonia-N	1.25	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P341754

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1974706	Kjeldahl Nitrogen	2.78	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P341807

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1974611	Kjeldahl Nitrogen	1.39	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P341697

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1974608	NO2NO3-N	0.0	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P341732

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1974635	NO2NO3-N	0.484	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P341657

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1974555	Total-P	2.63	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P341687

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1974646	Total-P	0.142	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P341578

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1974516	O-Phosphate-P	0.334	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P341703

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1974614	O-Phosphate-P	0.193	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P341843

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1974591	O-Phosphate-P	0.226	Spike	P	0 - 20

Reference Method: SM 2320 B-97
Batch ID: P341929

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1974477	Total Alkalinity	0.129	Sample	P	0 - 1.6

Reference Method: SM 2320 B-97
Batch ID: P342151

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1975959	Total Alkalinity	0.163	Sample	P	0 - 1.6

Reference Method: SM 2540 D-97
Batch ID: P341867

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1974513	TSS	6.25	Sample	P	0 - 10

Reference Method: SM 4500 F-C-97
Batch ID: P342153

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1974477	Fluoride	1.91	Spike	P	0 - 3.5

Reference Method: SM 4500 F-C-97
Batch ID: P342288

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1975351	Fluoride	0.474	Spike	P	0 - 3.5

Reference Method: SM 5310 B-00
Batch ID: P342043

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1974514	Organic Carbon	0.289	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: SM 5310 B-00
Batch ID: P342180

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1974420	Organic Carbon	0.934	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: A82609
Included Lab Sample IDs: 1974603, 1974604, 1974605, 1974606, 1974607

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Turbidity	99.5	99.0	P/P	95 - 105

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Run ID: A82614
Included Lab Sample IDs: 1974613, 1974615, 1974616, 1974617

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	96.3	99.3	P/P	90 - 110
O-Phosphate-P	99.3	103	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Run ID: A82663
Included Lab Sample IDs: 1974608, 1974609, 1974610, 1974611

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Run ID: A82664
Included Lab Sample IDs: 1974614

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

Reference Method: EPA 353.2 Rev. 2.0
Run ID: A82687
Included Lab Sample IDs: 1974612

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO2NO3-N	100	99.5	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Run ID: A82735
Included Lab Sample IDs: 1974608, 1974609, 1974610, 1974611, 1974612

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	98.0	97.8	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A82735

Included Lab Sample IDs: 1974608, 1974609, 1974610, 1974611, 1974612

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	98.2	98.0	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A82757

Included Lab Sample IDs: 1974612

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	96.3	97.9	P/P	90 - 110

Reference Method: SM 2320 B-97

Run ID: A82760

Included Lab Sample IDs: 1974607

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	99.8	97.4	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A82769

Included Lab Sample IDs: 1974608, 1974609, 1974610, 1974611

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	94.1	99.4	P/P	90 - 110
Kjeldahl Nitrogen	94.4	94.1	P/P	90 - 110

Reference Method: SM 5310 B-00

Run ID: A82791

Included Lab Sample IDs: 1974608, 1974609, 1974610, 1974611

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	99.8	98.2	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A82797

Included Lab Sample IDs: 1974608, 1974609, 1974610, 1974611, 1974612

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	102	101	P/P	90 - 110
Ammonia-N	99.7	101	P/P	90 - 110

Reference Method: SM 2320 B-97

Run ID: A82826

Included Lab Sample IDs: 1974603, 1974604, 1974605, 1974606

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	96.8	99.2	P/P	90 - 110

Reference Method: SM 4500 F-C-97

Run ID: A82826

Included Lab Sample IDs: 1974607

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
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Quality Assurance Report Calibration Verification

Reference Method: SM 4500 F-C-97
 Run ID: A82826
 Included Lab Sample IDs: 1974607

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	99.0	101	P/P	90 - 110

Reference Method: SM 5310 B-00
 Run ID: A82841
 Included Lab Sample IDs: 1974612

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

Reference Method: SM 4500 F-C-97
 Run ID: A82882
 Included Lab Sample IDs: 1974603, 1974604, 1974605, 1974606

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	98.6	98.6	P/P	90 - 110
Fluoride	99.1	98.6	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					0.0	
EPA 350.1 Rev. 2.0	Ammonia-N	91.0	96.4	95.9			0.395
	Ammonia-N	90.9	92.2	91.0			1.25
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	96.3	96.4	92.9			2.78
	Kjeldahl Nitrogen	102	95.2	93.6			1.39
EPA 353.2 Rev. 2.0	NO2NO3-N	102	102	102			0.0
	NO2NO3-N	103	104	103			0.484
EPA 365.1 Rev. 2.0	Total-P	103	94.0	96.6			2.63
	Total-P	104	104	104			0.142
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	93.3	95.3	95.4			0.334
	O-Phosphate-P	102	103	104			0.193
	O-Phosphate-P	97.2	88.6	88.4			0.226
SM 2320 B-97	Total Alkalinity	99.6				0.129	
	Total Alkalinity	105				0.163	
SM 2540 D-97	TSS					6.25	
SM 4500 F-C-97	Fluoride	96.3	96.2	98.7			1.91
	Fluoride	98.2	93.9	94.4			0.474
SM 5310 B-00	Organic Carbon	99.0	99.1	98.7			0.289
	Organic Carbon	102	107	108			0.934

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
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Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	1974603, 1974604, 1974605, 1974606, 1974607
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	1974608, 1974609, 1974610, 1974611, 1974612
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	1974608, 1974609, 1974610, 1974611, 1974612
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	1974608, 1974609, 1974610, 1974611, 1974612
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	1974608, 1974609, 1974610, 1974611, 1974612
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	1974613, 1974614, 1974615, 1974616, 1974617
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO ₃ /L	1974603, 1974604, 1974605, 1974606, 1974607
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices	1974603, 1974604, 1974605, 1974606, 1974607
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	1974603, 1974604, 1974605, 1974606, 1974607
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	1974608, 1974609, 1974610, 1974611, 1974612

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	03/14/2018			03/14/2018 16:12	DeAsia Armster	1974603, 1974604, 1974605, 1974606, 1974607
EPA 350.1 Rev. 2.0	03/14/2018			03/22/2018	Ping Hua	1974608, 1974609, 1974610, 1974611, 1974612
EPA 351.2 Rev. 2.0	03/14/2018	03/19/2018	Adrian Shelby	03/21/2018	Joseph Suarez	1974612
	03/14/2018	03/20/2018	Adrian Shelby	03/21/2018	Joseph Suarez	1974608, 1974609, 1974610, 1974611
EPA 353.2 Rev. 2.0	03/14/2018			03/16/2018	Beverly Y. Sanders	1974608, 1974609, 1974610, 1974611
	03/14/2018			03/19/2018	Beverly Y. Sanders	1974612
EPA 365.1 Rev. 2.0	03/14/2018	03/16/2018	Adrian Shelby	03/20/2018	Lipi Saha	1974608, 1974609, 1974610, 1974611, 1974612
EPA 365.1 Rev. 2.0 dissolved	03/14/2018			03/14/2018 16:18	Lipi Saha	1974613, 1974615
	03/14/2018			03/14/2018 16:19	Lipi Saha	1974616
	03/14/2018			03/14/2018 16:26	Lipi Saha	1974617
	03/14/2018			03/16/2018 11:36	Megan Treadwell	1974614
SM 2320 B-97	03/14/2018			03/21/2018	Dale L. Simmons	1974607
	03/14/2018			03/23/2018	Dale L. Simmons	1974603, 1974604, 1974605, 1974606
SM 2540 D-97	03/14/2018			03/17/2018	Yijie Li	1974603, 1974604, 1974605, 1974606, 1974607
SM 4500 F-C-97	03/14/2018			03/24/2018	Dale L. Simmons	1974607
	03/14/2018			03/26/2018	Dale L. Simmons	1974603, 1974604, 1974605, 1974606
SM 5310 B-00	03/14/2018			03/22/2018	Megan Treadwell	1974608, 1974609, 1974610, 1974611
	03/14/2018			03/24/2018	Julia Storbeck	1974612