

Chemical Analysis Report

NW-DIST-2018-09-12-01

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

Event Description: **ENR B**
Request ID: **RQ-2018-09-10-32**
Customer: **NW-DIST**
Project ID: **SMP**

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Date Certified: 28-SEP-2018 16:07



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: DESTIN HARBOR ACROSS FROM AJ'S RESTAURANT

Collection Date/Time: 09/11/2018 10:42

Field ID: G3NW0127

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2024499	EPA 180.1 Rev. 2.0	Turbidity	0.55		NTU	P351636	
	SM 2320 B-97	Total Alkalinity	79		mg CaCO3/L	P351904	
	SM 2540 D-97	TSS	4	I	mg/L	P351800	
	SM 4500 F-C-97	Fluoride	0.71		mg F/L	P351907	
2024501	EPA 350.1 Rev. 2.0	Ammonia-N	0.002	I	mg N/L	P351766	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.32	I	mg N/L	P351749	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.006	I	mg N/L	P351814	
	EPA 365.1 Rev. 2.0	Total-P	0.009	I	mg P/L	P351659	
	SM 5310 B-00	Organic Carbon	3.7		mg C/L	P351880	
2024503	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P351523	

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: DESTIN HARBOR ACROSS FROM AJ'S RESTAURANT

Collection Date/Time: 09/11/2018 10:45

Field ID: G3NW0127_DUP

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2024500	EPA 180.1 Rev. 2.0	Turbidity	0.70		NTU	P351637	
	SM 2320 B-97	Total Alkalinity	80		mg CaCO3/L	P351904	
	SM 2540 D-97	TSS	4	I	mg/L	P351800	
	SM 4500 F-C-97	Fluoride	0.71		mg F/L	P351907	
2024502	EPA 350.1 Rev. 2.0	Ammonia-N	0.003	I	mg N/L	P351766	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.29	I	mg N/L	P351749	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.007	I	mg N/L	P351814	
	EPA 365.1 Rev. 2.0	Total-P	0.010		mg P/L	P351659	
	SM 5310 B-00	Organic Carbon	3.7		mg C/L	P351880	
2024504	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P351523	

Ref. Method and Comment:

EPA 180.1 Rev. 2.0: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample.

SM 2540 D-97: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample.

Sample Location: DESTIN HARBOR ACROSS FROM AJ'S RESTAURANT

Collection Date/Time: 09/11/2018 10:50

Field ID: BLANK_09112018

Matrix: W-FIELD-BK

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2024505	EPA 180.1 Rev. 2.0	Turbidity	0.10	U	NTU	P351637	
	SM 2320 B-97	Total Alkalinity	0.65	U	mg CaCO3/L	P351712	
	SM 2540 D-97	TSS	2	U	mg/L	P351982	
	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P351716	
2024506	EPA 350.1 Rev. 2.0	Ammonia-N	0.002	U	mg N/L	P351767	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.080	U	mg N/L	P351747	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P351696	
	EPA 365.1 Rev. 2.0	Total-P	0.002	U	mg P/L	P351669	
	SM 5310 B-00	Organic Carbon	0.50	U	mg C/L	P351908	
2024507	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P351520	

Ref. Method and Comment:

EPA 180.1 Rev. 2.0: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample.

SM 2540 D-97: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample.

Sample Location: CHOCTAWHATCHEE BAY LOWER SECTION C Collection Date/Time: 09/11/2018 11:20
BACKGROUND

Field ID: G3NW0089

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2024484	EPA 180.1 Rev. 2.0	Turbidity	0.45		NTU	P351636	
	SM 2320 B-97	Total Alkalinity	80		mg CaCO3/L	P351904	
	SM 2540 D-97	TSS	6	I	mg/L	P351800	
	SM 4500 F-C-97	Fluoride	0.72		mg F/L	P351907	
2024487	EPA 350.1 Rev. 2.0	Ammonia-N	0.002	I	mg N/L	P351766	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.26	I	mg N/L	P351748	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.005	I	mg N/L	P351763	
	EPA 365.1 Rev. 2.0	Total-P	0.009	I	mg P/L	P351659	
	SM 5310 B-00	Organic Carbon	3.6		mg C/L	P351877	
2024490	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P351523	

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: LAKE EARL CENTER

Collection Date/Time: 09/11/2018 11:35

Field ID: G3NW0090

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2024493	EPA 180.1 Rev. 2.0	Turbidity	1.7		NTU	P351636	
	SM 2320 B-97	Total Alkalinity	73		mg CaCO3/L	P351904	
	SM 2540 D-97	TSS	3	U	mg/L	P351800	
	SM 4500 F-C-97	Fluoride	0.63		mg F/L	P351907	
2024495	EPA 350.1 Rev. 2.0	Ammonia-N	0.002	U	mg N/L	P351766	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.47		mg N/L	P351749	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.007	I	mg N/L	P351763	
	EPA 365.1 Rev. 2.0	Total-P	0.021		mg P/L	P351659	
	SM 5310 B-00	Organic Carbon	4.6		mg C/L	P351880	
2024497	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P351523	

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: POQUITO BAYOU MIDDLE

Collection Date/Time: 09/11/2018 11:55

Field ID: G3NW0086

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2024485	EPA 180.1 Rev. 2.0	Turbidity	1.2		NTU	P351636	
	SM 2320 B-97	Total Alkalinity	60		mg CaCO3/L	P351904	
	SM 2540 D-97	TSS	3	U	mg/L	P351800	
	SM 4500 F-C-97	Fluoride	0.50	I	mg F/L	P351907	
2024488	EPA 350.1 Rev. 2.0	Ammonia-N	0.003	I	mg N/L	P351766	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.30	I	mg N/L	P351748	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.010		mg N/L	P351763	
	EPA 365.1 Rev. 2.0	Total-P	0.010		mg P/L	P351659	
	SM 5310 B-00	Organic Carbon	3.7		mg C/L	P351877	
2024491	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P351523	

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: GARNIER BAYOU AT PARADISE POINT

Collection Date/Time: 09/11/2018 12:10

Field ID: G3NW0087

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2024494	EPA 180.1 Rev. 2.0	Turbidity	1.5		NTU	P351636	
	SM 2320 B-97	Total Alkalinity	59		mg CaCO3/L	P351904	
	SM 2540 D-97	TSS	3	U	mg/L	P351800	
	SM 4500 F-C-97	Fluoride	0.47	I	mg F/L	P351907	
2024496	EPA 350.1 Rev. 2.0	Ammonia-N	0.002	U	mg N/L	P351766	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.35	I	mg N/L	P351749	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.012		mg N/L	P351814	
	EPA 365.1 Rev. 2.0	Total-P	0.017		mg P/L	P351659	
	SM 5310 B-00	Organic Carbon	3.9		mg C/L	P351880	
2024498	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P351523	

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: CINCO BAYOU WEST OF CINCO BRIDGE

Collection Date/Time: 09/11/2018 12:25

Field ID: G3NW0088

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2024486	EPA 180.1 Rev. 2.0	Turbidity	0.75		NTU	P351636	
	SM 2320 B-97	Total Alkalinity	69		mg CaCO3/L	P351904	
	SM 2540 D-97	TSS	3	U	mg/L	P351800	
	SM 4500 F-C-97	Fluoride	0.59		mg F/L	P351907	
2024489	EPA 350.1 Rev. 2.0	Ammonia-N	0.003	I	mg N/L	P351766	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.30	I	mg N/L	P351748	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.007	I	mg N/L	P351763	
	EPA 365.1 Rev. 2.0	Total-P	0.011		mg P/L	P351659	
	SM 5310 B-00	Organic Carbon	4.0		mg C/L	P351880	
2024492	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P351523	

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: P351636

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P351637

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P351766

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P351767

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P351747

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P351748

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P351749

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P351696

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: P351763

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

Quality Assurance Report Method Blank Results

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P351814

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P351659

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P351669

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P351520

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P351523

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

Reference Method: SM 2320 B-97
Batch ID: P351712

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

Reference Method: SM 2320 B-97
Batch ID: P351904

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

Reference Method: SM 2540 D-97
Batch ID: P351800

Component	Result	Code	Units
TSS	3	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P351982

Component	Result	Code	Units
TSS	2	U	mg/L

Quality Assurance Report

Method Blank Results

Reference Method: SM 4500 F-C-97
Batch ID: P351716

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 4500 F-C-97
Batch ID: P351907

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-00
Batch ID: P351877

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

Reference Method: SM 5310 B-00
Batch ID: P351880

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

Reference Method: SM 5310 B-00
Batch ID: P351908

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: P351766

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Ammonia-N	94.9		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P351767

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Ammonia-N	92.7		P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P351747

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: P351748

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P351749

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Kjeldahl Nitrogen	97.0		P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P351696

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P351763

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: P351814

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P351659

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total-P	98.1		P	90 - 110

Quality Assurance Report

Laboratory Control Sample Accuracy

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P351669

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: P351520

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P351523

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

Reference Method: SM 2320 B-97
Batch ID: P351712

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	103		P	98 - 107

Reference Method: SM 2320 B-97
Batch ID: P351904

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	101		P	98 - 107

Reference Method: SM 4500 F-C-97
Batch ID: P351716

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

Reference Method: SM 4500 F-C-97
Batch ID: P351907

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	98.1		P	91 - 105

Reference Method: SM 5310 B-00
Batch ID: P351877

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	99.4		P	85 - 115

Reference Method: SM 5310 B-00
Batch ID: P351880

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	96.6		P	85 - 115

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: SM 5310 B-00
Batch ID: P351908

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	100		P	85 - 115

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P351766

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2024487	Ammonia-N	95.2	98.5	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P351767

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2024433	Ammonia-N	91.4	91.6	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P351747

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2024421	Kjeldahl Nitrogen	94.6	97.5	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P351748

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2024283	Kjeldahl Nitrogen	104	104	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P351749

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2024531	Kjeldahl Nitrogen	102	104	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P351696

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2024409	NO2NO3-N	99.6	101	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P351763

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2024487	NO2NO3-N	101	102	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P351814

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2024496	NO2NO3-N	98.5	99.0	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P351659

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2024489	Total-P	96.0	98.8	P/P	90 - 110

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P351669

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2024210	Total-P	102	99.3	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P351520

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2024386	O-Phosphate-P	95.5	95.0	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P351523

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2024490	O-Phosphate-P	94.5	96.6	P/P	90 - 110

Reference Method: SM 4500 F-C-97
Batch ID: P351716

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2024886	Fluoride	99.5	98.8	P/P	91 - 105

Reference Method: SM 4500 F-C-97
Batch ID: P351907

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2024923	Fluoride	96.1	96.1	P/P	91 - 105

Reference Method: SM 5310 B-00
Batch ID: P351877

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2023138	Organic Carbon	99.3	100	P/P	85 - 115

Reference Method: SM 5310 B-00
Batch ID: P351880

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2024489	Organic Carbon	95.9	94.8	P/P	85 - 115

Reference Method: SM 5310 B-00
Batch ID: P351908

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2024697	Organic Carbon	100	100	P/P	85 - 115

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P351636

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2024423	Turbidity	2.33	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P351766

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2024487	Ammonia-N	3.23	Spike	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P351767

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2024433	Ammonia-N	0.169	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P351747

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2024421	Kjeldahl Nitrogen	1.49	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P351748

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2024283	Kjeldahl Nitrogen	0.280	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P351749

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2024531	Kjeldahl Nitrogen	1.74	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P351696

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2024409	NO2NO3-N	0.707	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P351763

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2024487	NO2NO3-N	0.480	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P351814

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2024496	NO2NO3-N	0.477	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P351659

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2024489	Total-P	2.85	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P351669

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2024210	Total-P	1.73	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P351520

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2024386	O-Phosphate-P	0.525	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P351523

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2024490	O-Phosphate-P	2.20	Spike	P	0 - 20

Reference Method: SM 2320 B-97
Batch ID: P351712

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2024886	Total Alkalinity	0.425	Sample	P	0 - 1.6

Reference Method: SM 2320 B-97
Batch ID: P351904

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2024923	Total Alkalinity	0.155	Sample	P	0 - 1.6

Reference Method: SM 4500 F-C-97
Batch ID: P351716

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2024886	Fluoride	0.473	Spike	P	0 - 3.5

Quality Assurance Report Precision

Reference Method: SM 4500 F-C-97
Batch ID: P351907

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2024923	Fluoride	0.0	Spike	P	0 - 3.5

Reference Method: SM 5310 B-00
Batch ID: P351877

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2023138	Organic Carbon	1.03	Spike	P	0 - 20

Reference Method: SM 5310 B-00
Batch ID: P351880

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2024489	Organic Carbon	1.09	Spike	P	0 - 20

Reference Method: SM 5310 B-00
Batch ID: P351908

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2024697	Organic Carbon	0.299	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: A86443

Included Lab Sample IDs: 2024490, 2024491, 2024492, 2024497, 2024498, 2024503, 2024504, 2024507

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	100	98.9	P/P	90 - 110
O-Phosphate-P	98.9	97.2	P/P	90 - 110
O-Phosphate-P	98.9	98.9	P/P	90 - 110
O-Phosphate-P	98.9	99.2	P/P	90 - 110

Reference Method: EPA 180.1 Rev. 2.0

Run ID: A86474

Included Lab Sample IDs: 2024484, 2024485, 2024486, 2024493, 2024494, 2024499, 2024500, 2024505

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Turbidity	102	104	P/P	95 - 105
Turbidity	104	102	P/P	95 - 105

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A86506

Included Lab Sample IDs: 2024506

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

Reference Method: SM 2320 B-97

Run ID: A86512

Included Lab Sample IDs: 2024505

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	100	103	P/P	90 - 110

Reference Method: SM 4500 F-C-97

Run ID: A86512

Included Lab Sample IDs: 2024505

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

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A86525

Included Lab Sample IDs: 2024487, 2024488, 2024489, 2024495, 2024496, 2024501, 2024502, 2024506

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	100	98.8	P/P	90 - 110
Total-P	99.8	98.8	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A86530

Included Lab Sample IDs: 2024487, 2024488, 2024489, 2024495

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

Quality Assurance Report Calibration Verification

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A86531

Included Lab Sample IDs: 2024487, 2024488, 2024489, 2024495, 2024496, 2024501, 2024502, 2024506

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	101	99.6	P/P	90 - 110
Ammonia-N	97.9	101	P/P	90 - 110
Ammonia-N	99.6	98.5	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A86551

Included Lab Sample IDs: 2024487, 2024488, 2024489, 2024495, 2024496, 2024501, 2024502, 2024506

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	101	97.5	P/P	90 - 110
Kjeldahl Nitrogen	102	102	P/P	90 - 110
Kjeldahl Nitrogen	102	97.9	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A86553

Included Lab Sample IDs: 2024496, 2024501, 2024502

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

Reference Method: SM 5310 B-00

Run ID: A86572

Included Lab Sample IDs: 2024487, 2024488

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	98.8	99.9	P/P	90 - 110

Reference Method: SM 5310 B-00

Run ID: A86574

Included Lab Sample IDs: 2024489, 2024495, 2024496, 2024501, 2024502

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	94.9	95.0	P/P	90 - 110
Organic Carbon	95.0	94.6	P/P	90 - 110

Reference Method: SM 2320 B-97

Run ID: A86586

Included Lab Sample IDs: 2024484, 2024485, 2024486, 2024493, 2024494, 2024499, 2024500

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	99.3	100	P/P	90 - 110
Total Alkalinity	100	100	P/P	90 - 110

Reference Method: SM 4500 F-C-97

Run ID: A86586

Included Lab Sample IDs: 2024484, 2024485, 2024486, 2024493, 2024494, 2024499, 2024500

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	98.6	99.0	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: SM 5310 B-00
Run ID: A86587
Included Lab Sample IDs: 2024506

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	98.4	98.2	P/P	90 - 110

* Pass/Fail determinations are made for each bracketing calibration verification check.
Control limits for initial calibration checks may be different from those for continuing checks, depending on method requirements.
Where they are different, both control limits are provided.

Quality Assurance Report Summary

Ref. Method	Analyte	LCS % Recovery	MS % Recovery		Precision	
					LCS	MS
EPA 180.1 Rev. 2.0	Turbidity				2.33	
EPA 350.1 Rev. 2.0	Ammonia-N	94.9	95.2	98.5		3.23
	Ammonia-N	92.7	91.4	91.6		0.169
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	102	94.6	97.5		1.49
	Kjeldahl Nitrogen	103	104	104		0.280
	Kjeldahl Nitrogen	97.0	102	104		1.74
EPA 353.2 Rev. 2.0	NO2NO3-N	100	99.6	101		0.707
	NO2NO3-N	102	101	102		0.480
	NO2NO3-N	100	98.5	99.0		0.477
EPA 365.1 Rev. 2.0	Total-P	98.1	96.0	98.8		2.85
	Total-P	102	102	99.3		1.73
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	101	95.5	95.0		0.525
	O-Phosphate-P	99.8	94.5	96.6		2.20
SM 2320 B-97	Total Alkalinity	103			0.425	
	Total Alkalinity	101			0.155	
SM 4500 F-C-97	Fluoride	98.2	99.5	98.8		0.473
	Fluoride	98.1	96.1	96.1		0.0
SM 5310 B-00	Organic Carbon	99.4	99.3	100		1.03
	Organic Carbon	96.6	95.9	94.8		1.09
	Organic Carbon	100	100	100		0.299

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	2024484, 2024485, 2024486, 2024493, 2024494, 2024499, 2024500, 2024505
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	2024487, 2024488, 2024489, 2024495, 2024496, 2024501, 2024502, 2024506
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	2024487, 2024488, 2024489, 2024495, 2024496, 2024501, 2024502, 2024506
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	2024487, 2024488, 2024489, 2024495, 2024496, 2024501, 2024502, 2024506
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	2024487, 2024488, 2024489, 2024495, 2024496, 2024501, 2024502, 2024506
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	2024490, 2024491, 2024492, 2024497, 2024498, 2024503, 2024504, 2024507
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO3/L	2024484, 2024485, 2024486, 2024493, 2024494, 2024499, 2024500, 2024505
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices using a maximum of 250 mL of sample	2024484, 2024485, 2024486, 2024493, 2024494, 2024499, 2024500, 2024505
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	2024484, 2024485, 2024486, 2024493, 2024494, 2024499, 2024500, 2024505
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	2024487, 2024488, 2024489, 2024495, 2024496, 2024501, 2024502, 2024506

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	09/12/2018			09/12/2018 17:42	Megan Treadwell	2024484, 2024485, 2024486, 2024493, 2024494, 2024499, 2024500, 2024505
EPA 350.1 Rev. 2.0	09/12/2018			09/17/2018 14:48	Ping Hua	2024487
	09/12/2018			09/17/2018 14:52	Ping Hua	2024488
	09/12/2018			09/17/2018 15:00	Ping Hua	2024489
	09/12/2018			09/17/2018 15:01	Ping Hua	2024495
	09/12/2018			09/17/2018 15:03	Ping Hua	2024496
	09/12/2018			09/17/2018 15:04	Ping Hua	2024501
	09/12/2018			09/17/2018 15:06	Ping Hua	2024502
	09/12/2018			09/17/2018 15:31	Ping Hua	2024506
EPA 351.2 Rev. 2.0	09/12/2018	09/17/2018 15:30	Adrian Shelby	09/18/2018 12:10	Joseph Suarez	2024506
	09/12/2018	09/17/2018 15:30	Adrian Shelby	09/18/2018 12:46	Joseph Suarez	2024487
	09/12/2018	09/17/2018 15:30	Adrian Shelby	09/18/2018 12:47	Joseph Suarez	2024488
	09/12/2018	09/17/2018 15:30	Adrian Shelby	09/18/2018 12:49	Joseph Suarez	2024489
	09/12/2018	09/17/2018 15:30	Adrian Shelby	09/18/2018 12:57	Joseph Suarez	2024495
	09/12/2018	09/17/2018 15:30	Adrian Shelby	09/18/2018 12:58	Joseph Suarez	2024496
	09/12/2018	09/17/2018 15:30	Adrian Shelby	09/18/2018 13:00	Joseph Suarez	2024501
	09/12/2018	09/17/2018 15:30	Adrian Shelby	09/18/2018 13:01	Joseph Suarez	2024502
EPA 353.2 Rev. 2.0	09/12/2018			09/14/2018 12:50	Lauren Bottorf	2024506
	09/12/2018			09/17/2018 13:54	Lauren Bottorf	2024487
	09/12/2018			09/17/2018 14:07	Lauren Bottorf	2024488
	09/12/2018			09/17/2018 14:08	Lauren Bottorf	2024489
	09/12/2018			09/17/2018 14:09	Lauren Bottorf	2024495
	09/12/2018			09/18/2018 14:14	Lauren Bottorf	2024496
	09/12/2018			09/18/2018 14:22	Lauren Bottorf	2024501
	09/12/2018			09/18/2018 14:24	Lauren Bottorf	2024502
EPA 365.1 Rev. 2.0	09/12/2018	09/14/2018 11:50	Sima Feizi	09/17/2018 11:32	Beverly Y. Sanders	2024487
	09/12/2018	09/14/2018 11:50	Sima Feizi	09/17/2018 11:33	Beverly Y. Sanders	2024488
	09/12/2018	09/14/2018 11:50	Sima Feizi	09/17/2018 11:34	Beverly Y. Sanders	2024489
	09/12/2018	09/14/2018 11:50	Sima Feizi	09/17/2018 11:35	Beverly Y. Sanders	2024495
	09/12/2018	09/14/2018 11:50	Sima Feizi	09/17/2018 11:36	Beverly Y. Sanders	2024496, 2024501
	09/12/2018	09/14/2018 11:50	Sima Feizi	09/17/2018 11:37	Beverly Y. Sanders	2024502
	09/12/2018	09/14/2018 11:50	Sima Feizi	09/17/2018 12:07	Beverly Y. Sanders	2024506
EPA 365.1 Rev. 2.0 dissolved	09/12/2018			09/12/2018 15:36	Julia Storbeck	2024490
	09/12/2018			09/12/2018 15:40	Julia Storbeck	2024503
	09/12/2018			09/12/2018 15:41	Julia Storbeck	2024504
	09/12/2018			09/12/2018 15:47	Julia Storbeck	2024507
	09/12/2018			09/12/2018 16:20	Julia Storbeck	2024491
	09/12/2018			09/12/2018 16:25	Julia Storbeck	2024492
	09/12/2018			09/12/2018 16:26	Julia Storbeck	2024497

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
EPA 365.1 Rev. 2.0 dissolved SM 2320 B-97	09/12/2018			09/12/2018 16:27	Julia Storbeck	2024498
	09/12/2018			09/14/2018 20:34	Dale L. Simmons	2024505
	09/12/2018			09/19/2018 06:50	Dale L. Simmons	2024494
	09/12/2018			09/19/2018 07:09	Dale L. Simmons	2024484
	09/12/2018			09/19/2018 08:07	Dale L. Simmons	2024485
	09/12/2018			09/19/2018 08:17	Dale L. Simmons	2024486
	09/12/2018			09/19/2018 08:26	Dale L. Simmons	2024493
	09/12/2018			09/19/2018 08:36	Dale L. Simmons	2024499
	09/12/2018			09/19/2018 08:46	Dale L. Simmons	2024500
SM 2540 D-97	09/12/2018			09/14/2018 15:32	Yijie Li	2024484, 2024485, 2024486, 2024493, 2024494, 2024499, 2024500, 2024505
SM 4500 F-C-97	09/12/2018			09/14/2018 20:34	Dale L. Simmons	2024505
	09/12/2018			09/19/2018 05:47	Dale L. Simmons	2024494
	09/12/2018			09/19/2018 05:54	Dale L. Simmons	2024484
	09/12/2018			09/19/2018 05:58	Dale L. Simmons	2024485
	09/12/2018			09/19/2018 06:02	Dale L. Simmons	2024486
	09/12/2018			09/19/2018 06:06	Dale L. Simmons	2024493
	09/12/2018			09/19/2018 06:09	Dale L. Simmons	2024499
	09/12/2018			09/19/2018 06:13	Dale L. Simmons	2024500
SM 5310 B-00	09/12/2018			09/18/2018 07:26	Megan Treadwell	2024489
	09/12/2018			09/18/2018 08:11	Megan Treadwell	2024495
	09/12/2018			09/18/2018 08:24	Megan Treadwell	2024496
	09/12/2018			09/18/2018 08:53	Megan Treadwell	2024501
	09/12/2018			09/18/2018 09:31	Megan Treadwell	2024506
	09/12/2018			09/18/2018 09:36	Megan Treadwell	2024502
	09/12/2018			09/18/2018 12:09	Megan Treadwell	2024487
	09/12/2018			09/18/2018 12:21	Megan Treadwell	2024488