

Chemical Analysis Report

NW-DIST-2019-11-15-01

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-2019-11-11-20**
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

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Certified by: Colin Wright, Program Administrator

Date Certified: 05-DEC-2019 11:28

A handwritten signature in black ink, appearing to read "Colin Wright", is positioned on a light-colored rectangular background.

Case Narrative

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

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

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

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

Results for TNI accredited tests met requirements established by The NELAC Institute. A double asterisk (**) is used to indicate an analyte/matrix/method for which the laboratory is not TNI accredited by the Florida Department of Health Environmental Laboratory Certification Program 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: Hogtown Bayou Center

Collection Date/Time: 11/14/2019 10:15

Field ID: G3NW0181

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2136605	EPA 180.1 Rev. 2.0	Turbidity	2.7	A	NTU	P374350	
	EPA 300.0	Bromide	42		mg Br/L	P375025	
	SM 2320 B-97	Total Alkalinity	91		mg CaCO3/L	P374662	
	SM 2540 D-97	TSS	7	I	mg/L	P374858	
	SM 4500 F-C-97	Fluoride	0.78		mg F/L	P374664	
2136609	EPA 350.1 Rev. 2.0	Ammonia-N	0.009		mg N/L	P374461	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.32	I	mg N/L	P374616	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.006	I	mg N/L	P374569	
	EPA 365.1 Rev. 2.0	Total-P	0.015		mg P/L	P374587	
	SM 5310 B-00	Organic Carbon	3.8		mg C/L	P374644	
2136613	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P374380	

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: Alaqua Bayou Center

Collection Date/Time: 11/14/2019 11:00

Field ID: G3NW0180

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2136617	EPA 180.1 Rev. 2.0	Turbidity	3.2		NTU	P374350	
	EPA 300.0	Bromide	38		mg Br/L	P375025	
	SM 2320 B-97	Total Alkalinity	80		mg CaCO3/L	P374662	
	SM 2540 D-97	TSS	4	I	mg/L	P374858	
	SM 4500 F-C-97	Fluoride	0.71		mg F/L	P374664	
2136619	EPA 350.1 Rev. 2.0	Ammonia-N	0.004	I	mg N/L	P374679	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.37	I	mg N/L	P374616	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.006	I	mg N/L	P374569	
	EPA 365.1 Rev. 2.0	Total-P	0.024		mg P/L	P374587	
	SM 5310 B-00	Organic Carbon	3.4		mg C/L	P374644	
2136621	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P374380	

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: Alaqua Bayou Center

Collection Date/Time: 11/14/2019 11:05

Field ID: G3NW0180_DUP

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2136618	EPA 180.1 Rev. 2.0	Turbidity	2.7		NTU	P374350	
	EPA 300.0	Bromide	37		mg Br/L	P375025	
	SM 2320 B-97	Total Alkalinity	79		mg CaCO3/L	P374662	
	SM 2540 D-97	TSS	4	I	mg/L	P374858	
	SM 4500 F-C-97	Fluoride	0.69		mg F/L	P374664	
2136620	EPA 350.1 Rev. 2.0	Ammonia-N	0.004	I	mg N/L	P374679	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.33	I	mg N/L	P374616	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.007	I	mg N/L	P374569	
	EPA 365.1 Rev. 2.0	Total-P	0.022		mg P/L	P374587	
	SM 5310 B-00	Organic Carbon	3.1		mg C/L	P374644	
2136622	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P374380	

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: Alaqua Bayou Center

Collection Date/Time: 11/14/2019 11:10

Field ID: FB_11142019

Matrix: W-FIELD-BK

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2136623	EPA 180.1 Rev. 2.0	Turbidity	0.10	U	NTU	P374350	
	EPA 300.0	Bromide	0.013	U	mg Br/L	P375025	
	SM 2320 B-97	Total Alkalinity	0.65	U	mg CaCO3/L	P374898	
	SM 2540 D-97	TSS	2	U	mg/L	P374856	
	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P374902	
2136624	EPA 350.1 Rev. 2.0	Ammonia-N	0.002	U	mg N/L	P374677	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.080	U	mg N/L	P374752	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P374477	
	EPA 365.1 Rev. 2.0	Total-P	0.002	U	mg P/L	P374588	
	SM 5310 B-00	Organic Carbon	0.50	U	mg C/L	P374429	
2136625	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P374381	

Ref. Method and Comment:

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

EPA 351.2 Rev. 2.0: Batch matrix spike recoveries are unavailable because of high analyte concentration in the QC sample.

Sample Location: Mack Bayou

Collection Date/Time: 11/14/2019 11:47

Field ID: G3NW0128

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2136606	EPA 180.1 Rev. 2.0	Turbidity	1.3		NTU	P374350	
	EPA 300.0	Bromide	41		mg Br/L	P375025	
	SM 2320 B-97	Total Alkalinity	90		mg CaCO3/L	P374662	
	SM 2540 D-97	TSS	3	U	mg/L	P374858	
	SM 4500 F-C-97	Fluoride	0.74		mg F/L	P374664	
2136610	EPA 350.1 Rev. 2.0	Ammonia-N	0.003	I	mg N/L	P374679	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.32	I	mg N/L	P374616	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P374569	
	EPA 365.1 Rev. 2.0	Total-P	0.016		mg P/L	P374587	
	SM 5310 B-00	Organic Carbon	3.0		mg C/L	P374644	
2136614	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P374380	

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: Joes Bayou

Collection Date/Time: 11/14/2019 13:10

Field ID: G3NW0182

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2136607	EPA 180.1 Rev. 2.0	Turbidity	0.80		NTU	P374350	
	EPA 300.0	Bromide	44		mg Br/L	P375025	
	SM 2320 B-97	Total Alkalinity	96	A	mg CaCO3/L	P374662	
	SM 2540 D-97	TSS	3	U	mg/L	P374858	
	SM 4500 F-C-97	Fluoride	0.82		mg F/L	P374664	
2136611	EPA 350.1 Rev. 2.0	Ammonia-N	0.008		mg N/L	P374679	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.32	I	mg N/L	P374616	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.009	I	mg N/L	P374569	
	EPA 365.1 Rev. 2.0	Total-P	0.013		mg P/L	P374587	
	SM 5310 B-00	Organic Carbon	2.7		mg C/L	P374644	
2136615	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P374380	

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: 11/14/2019 13:35

Field ID: G3NW0127

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2136608	EPA 180.1 Rev. 2.0	Turbidity	0.80		NTU	P374350	
	EPA 300.0	Bromide	49		mg Br/L	P375025	
	SM 2320 B-97	Total Alkalinity	101		mg CaCO3/L	P374662	
	SM 2540 D-97	TSS	3	U	mg/L	P374858	
	SM 4500 F-C-97	Fluoride	0.91		mg F/L	P374664	
2136612	EPA 350.1 Rev. 2.0	Ammonia-N	0.004	I	mg N/L	P374679	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.27	I	mg N/L	P374616	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P374569	
	EPA 365.1 Rev. 2.0	Total-P	0.011		mg P/L	P374587	
	SM 5310 B-00	Organic Carbon	2.4		mg C/L	P374644	
2136616	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P374380	

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: P374350

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 300.0
Batch ID: P375025

Component	Result	Code	Units
Bromide	0.013	U	mg Br/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P374461

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P374677

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P374679

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P374616

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P374752

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P374477

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: P374569

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

Quality Assurance Report Method Blank Results

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P374587

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P374588

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P374380

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P374381

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

Reference Method: SM 2320 B-97
Batch ID: P374662

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

Reference Method: SM 2320 B-97
Batch ID: P374898

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

Reference Method: SM 2540 D-97
Batch ID: P374856

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P374858

Component	Result	Code	Units
TSS	3	U	mg/L

Reference Method: SM 4500 F-C-97
Batch ID: P374664

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Quality Assurance Report

Method Blank Results

Reference Method: SM 4500 F-C-97
Batch ID: P374902

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-00
Batch ID: P374429

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

Reference Method: SM 5310 B-00
Batch ID: P374644

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

Quality Assurance Report

Laboratory Control Sample Accuracy

Reference Method: EPA 300.0
Batch ID: P375025

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P374461

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P374677

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P374679

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P374616

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P374752

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: P374477

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P374569

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: P374587

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

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P374588

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P374380

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
O-Phosphate-P	97.5		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P374381

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

Reference Method: SM 2320 B-97
Batch ID: P374662

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	101		P	98 - 106

Reference Method: SM 2320 B-97
Batch ID: P374898

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	100		P	98 - 106

Reference Method: SM 4500 F-C-97
Batch ID: P374664

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	95.9		P	92 - 103

Reference Method: SM 4500 F-C-97
Batch ID: P374902

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	96.3		P	92 - 103

Reference Method: SM 5310 B-00
Batch ID: P374429

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	105		P	85 - 115

Reference Method: SM 5310 B-00
Batch ID: P374644

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	106		P	85 - 115

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 300.0
Batch ID: P375025

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2136213	Bromide	92.6	93.5	P/P	90 - 110
2136214	Bromide	92.7		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P374461

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2136609	Ammonia-N	102	103	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P374677

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2136680	Ammonia-N	96.8	99.4	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P374679

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2136611	Ammonia-N	102	100	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P374616

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2136481	Kjeldahl Nitrogen	93.2	98.3	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P374477

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2136628	NO2NO3-N	100	99.6	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P374569

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2136469	NO2NO3-N	100	101	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P374587

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2136469	Total-P	100	96.7	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P374588

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2136579	Total-P	101	100	P/P	90 - 110

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P374380

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2136613	O-Phosphate-P	93.6	96.0	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P374381

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2136630	O-Phosphate-P	96.5	96.6	P/P	90 - 110

Reference Method: SM 4500 F-C-97
Batch ID: P374664

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2136607	Fluoride	95.1	95.8	P/P	89 - 106

Reference Method: SM 4500 F-C-97
Batch ID: P374902

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2136671	Fluoride	98.3	97.6	P/P	89 - 106

Reference Method: SM 5310 B-00
Batch ID: P374429

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2136574	Organic Carbon	102		P	85 - 115

Reference Method: SM 5310 B-00
Batch ID: P374644

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2136609	Organic Carbon	106	103	P/P	85 - 115

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P374350

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2136605	Turbidity	10.5	Sample	P	0 - 20

Reference Method: EPA 300.0
Batch ID: P375025

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2136213	Bromide	0.791	Spike	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P374461

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2136609	Ammonia-N	0.931	Spike	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P374677

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2136680	Ammonia-N	2.20	Spike	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P374679

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2136611	Ammonia-N	1.29	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P374616

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2136481	Kjeldahl Nitrogen	4.67	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P374752

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2136580	Kjeldahl Nitrogen	1.33	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P374477

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2136628	NO2NO3-N	0.480	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P374569

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2136469	NO2NO3-N	0.367	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P374587

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2136469	Total-P	3.41	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P374588

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2136579	Total-P	0.329	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P374380

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2136613	O-Phosphate-P	2.53	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P374381

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2136630	O-Phosphate-P	0.104	Spike	P	0 - 20

Reference Method: SM 2320 B-97
Batch ID: P374662

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2136607	Total Alkalinity	0.607	Sample	P	0 - 2.8

Reference Method: SM 2320 B-97
Batch ID: P374898

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2136671	Total Alkalinity	0.0816	Sample	P	0 - 2.8

Reference Method: SM 4500 F-C-97
Batch ID: P374664

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2136607	Fluoride	0.473	Spike	P	0 - 2.5

Quality Assurance Report Precision

Reference Method: SM 4500 F-C-97
Batch ID: P374902

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2136671	Fluoride	0.473	Spike	P	0 - 2.5

Reference Method: SM 5310 B-00
Batch ID: P374429

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2136574	Organic Carbon	0.137	Spike	P	0 - 20

Reference Method: SM 5310 B-00
Batch ID: P374644

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2136609	Organic Carbon	2.50	Spike	P	0 - 20

* Sample, spike and/or laboratory control sample precision (LCS) is reported.

Quality Assurance Report Calibration Verification

Reference Method: EPA 180.1 Rev. 2.0

Run ID: A95786

Included Lab Sample IDs: 2136605, 2136606, 2136607, 2136608, 2136617, 2136618, 2136623

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved

Run ID: A95799

Included Lab Sample IDs: 2136613, 2136614, 2136615, 2136616, 2136621, 2136622, 2136625

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	96.7	97.3	P/P	90 - 110
O-Phosphate-P	97.8	97.2	P/P	90 - 110
O-Phosphate-P	98.1	97.8	P/P	90 - 110

Reference Method: SM 5310 B-00

Run ID: A95823

Included Lab Sample IDs: 2136624

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	106	105	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A95834

Included Lab Sample IDs: 2136609

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	102	99.8	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A95835

Included Lab Sample IDs: 2136624

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

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A95875

Included Lab Sample IDs: 2136609, 2136610, 2136611, 2136612, 2136619, 2136620

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

Reference Method: SM 5310 B-00

Run ID: A95899

Included Lab Sample IDs: 2136609, 2136610, 2136611, 2136612, 2136619, 2136620

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	104	103	P/P	90 - 110
Organic Carbon	96.0	104	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: SM 2320 B-97

Run ID: A95901

Included Lab Sample IDs: 2136605, 2136606, 2136607, 2136608, 2136617, 2136618

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	100	98.6	P/P	90 - 110
Total Alkalinity	98.1	100	P/P	90 - 110

Reference Method: SM 4500 F-C-97

Run ID: A95901

Included Lab Sample IDs: 2136605, 2136606, 2136607, 2136608, 2136617, 2136618

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	98.5	99.0	P/P	90 - 110
Fluoride	99.0	98.5	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A95904

Included Lab Sample IDs: 2136610, 2136611, 2136612, 2136619, 2136620, 2136624

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	99.2	98.8	P/P	90 - 110
Ammonia-N	99.5	99.8	P/P	90 - 110
Ammonia-N	99.6	99.6	P/P	90 - 110
Ammonia-N	99.8	99.2	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A95908

Included Lab Sample IDs: 2136609, 2136610, 2136611, 2136612, 2136619, 2136620

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	97.2	103	P/P	90 - 110
Kjeldahl Nitrogen	98.7	97.2	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A95945

Included Lab Sample IDs: 2136609, 2136610, 2136611, 2136612, 2136619, 2136620, 2136624

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

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A95975

Included Lab Sample IDs: 2136624

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	98.8	108	P/P	90 - 110

Reference Method: SM 2320 B-97

Run ID: A95978

Included Lab Sample IDs: 2136623

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	101	98.4	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: SM 4500 F-C-97

Run ID: A95978

Included Lab Sample IDs: 2136623

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	99.0	100	P/P	90 - 110

Reference Method: EPA 300.0

Run ID: A96041

Included Lab Sample IDs: 2136605, 2136606, 2136607, 2136608, 2136617, 2136618, 2136623

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Bromide	98.0	98.4	P/P	90 - 110
Bromide	98.2	98.0	P/P	90 - 110

* Pass/Fail determinations are made for each bracketing calibration verification check.

Control limits for initial calibration checks may be different from those for continuing checks, depending on method requirements.
Where they are different, both control limits are provided.

Quality Assurance Report Summary

Ref. Method	Analyte	LCS % Recovery	MS % Recovery			Precision SMP	MS
			LCS				
EPA 180.1 Rev. 2.0	Turbidity					10.5	
EPA 300.0	Bromide	96.3	92.6	93.5	92.7		0.791
EPA 350.1 Rev. 2.0	Ammonia-N	99.5	102	103			0.931
	Ammonia-N	96.8	96.8	99.4			2.20
	Ammonia-N	100	102	100			1.29
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	96.7	93.2	98.3			4.67
	Kjeldahl Nitrogen	102					1.33
EPA 353.2 Rev. 2.0	NO2NO3-N	99.0	100	99.6			0.480
	NO2NO3-N	100	100	101			0.367
EPA 365.1 Rev. 2.0	Total-P	101	100	96.7			3.41
	Total-P	105	101	100			0.329
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	97.5	93.6	96.0			2.53
	O-Phosphate-P	102	96.5	96.6			0.104
SM 2320 B-97	Total Alkalinity	101				0.607	
	Total Alkalinity	100				0.0816	
SM 4500 F-C-97	Fluoride	95.9	95.1	95.8			0.473
	Fluoride	96.3	98.3	97.6			0.473
SM 5310 B-00	Organic Carbon	105	102				0.137
	Organic Carbon	106	106	103			2.50

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	2136605, 2136606, 2136607, 2136608, 2136617, 2136618, 2136623
EPA 300.0 / E31780	Bromide in aqueous matrices	2136605, 2136606, 2136607, 2136608, 2136617, 2136618, 2136623
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	2136609, 2136610, 2136611, 2136612, 2136619, 2136620, 2136624
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	2136609, 2136610, 2136611, 2136612, 2136619, 2136620, 2136624
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	2136609, 2136610, 2136611, 2136612, 2136619, 2136620, 2136624
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	2136609, 2136610, 2136611, 2136612, 2136619, 2136620, 2136624
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	2136613, 2136614, 2136615, 2136616, 2136621, 2136622, 2136625
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO3/L	2136605, 2136606, 2136607, 2136608, 2136617, 2136618, 2136623
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices using a maximum of 250 mL of sample	2136605, 2136606, 2136607, 2136608, 2136617, 2136618, 2136623
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	2136605, 2136606, 2136607, 2136608, 2136617, 2136618, 2136623
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	2136609, 2136610, 2136611, 2136612, 2136619, 2136620, 2136624

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	11/15/2019			11/15/2019 17:09	Samantha Davila	2136605, 2136606, 2136607, 2136608, 2136617, 2136618, 2136623
EPA 300.0	11/15/2019			11/27/2019 12:08	Julia Storbeck	2136605
	11/15/2019			11/27/2019 12:26	Julia Storbeck	2136606
	11/15/2019			11/27/2019 12:43	Julia Storbeck	2136607
	11/15/2019			11/27/2019 13:00	Julia Storbeck	2136608
	11/15/2019			11/27/2019 13:59	Julia Storbeck	2136617
	11/15/2019			11/27/2019 14:16	Julia Storbeck	2136618
	11/15/2019			11/27/2019 14:33	Julia Storbeck	2136623
EPA 350.1 Rev. 2.0	11/15/2019			11/19/2019 11:39	Ping Hua	2136609
	11/15/2019			11/21/2019 12:50	Ping Hua	2136624
	11/15/2019			11/21/2019 13:44	Ping Hua	2136620
	11/15/2019			11/21/2019 14:10	Ping Hua	2136611
	11/15/2019			11/21/2019 14:16	Ping Hua	2136610
	11/15/2019			11/21/2019 14:23	Ping Hua	2136612
	11/15/2019			11/21/2019 14:25	Ping Hua	2136619
EPA 351.2 Rev. 2.0	11/15/2019	11/21/2019 12:25	Sima Feizi	11/22/2019 13:06	Jhamieka S. Greenwood	2136609
	11/15/2019	11/21/2019 12:25	Sima Feizi	11/22/2019 13:08	Jhamieka S. Greenwood	2136610
	11/15/2019	11/21/2019 12:25	Sima Feizi	11/22/2019 13:09	Jhamieka S. Greenwood	2136611
	11/15/2019	11/21/2019 12:25	Sima Feizi	11/22/2019 13:14	Jhamieka S. Greenwood	2136612
	11/15/2019	11/21/2019 12:25	Sima Feizi	11/22/2019 13:16	Jhamieka S. Greenwood	2136619
	11/15/2019	11/21/2019 12:25	Sima Feizi	11/22/2019 13:17	Jhamieka S. Greenwood	2136620
	11/15/2019	11/25/2019 11:28	Sima Feizi	11/26/2019 11:21	Jhamieka S. Greenwood	2136624
EPA 353.2 Rev. 2.0	11/15/2019			11/19/2019 10:19	Beverly Y. Sanders	2136624
	11/15/2019			11/21/2019 10:19	Beverly Y. Sanders	2136609
	11/15/2019			11/21/2019 10:20	Beverly Y. Sanders	2136610
	11/15/2019			11/21/2019 10:21	Beverly Y. Sanders	2136611
	11/15/2019			11/21/2019 10:23	Beverly Y. Sanders	2136612
	11/15/2019			11/21/2019 10:24	Beverly Y. Sanders	2136619
	11/15/2019			11/21/2019 10:25	Beverly Y. Sanders	2136620
EPA 365.1 Rev. 2.0	11/15/2019	11/21/2019 13:00	Yen Ta	11/25/2019 15:02	Benjamin T. Nordmann	2136609
	11/15/2019	11/21/2019 13:00	Yen Ta	11/25/2019 15:03	Benjamin T. Nordmann	2136610
	11/15/2019	11/21/2019 13:00	Yen Ta	11/25/2019 15:04	Benjamin T. Nordmann	2136611
	11/15/2019	11/21/2019 13:00	Yen Ta	11/25/2019 15:05	Benjamin T. Nordmann	2136612
	11/15/2019	11/21/2019 13:00	Yen Ta	11/25/2019 15:06	Benjamin T. Nordmann	2136619
	11/15/2019	11/21/2019 13:00	Yen Ta	11/25/2019 15:13	Benjamin T. Nordmann	2136620
	11/15/2019	11/21/2019 13:00	Yen Ta	11/25/2019 15:20	Benjamin T. Nordmann	2136624
EPA 365.1 Rev. 2.0 dissolved	11/15/2019			11/15/2019 14:39	Ping Hua	2136613
	11/15/2019			11/15/2019 15:21	Ping Hua	2136614
	11/15/2019			11/15/2019 15:22	Ping Hua	2136615

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
EPA 365.1 Rev. 2.0 dissolved	11/15/2019			11/15/2019 15:23	Ping Hua	2136616
	11/15/2019			11/15/2019 15:24	Ping Hua	2136621
	11/15/2019			11/15/2019 15:29	Ping Hua	2136622
	11/15/2019			11/15/2019 15:30	Ping Hua	2136625
SM 2320 B-97	11/15/2019			11/21/2019 02:15	Dale L. Simmons	2136607
	11/15/2019			11/21/2019 05:27	Dale L. Simmons	2136605
	11/15/2019			11/21/2019 05:38	Dale L. Simmons	2136606
	11/15/2019			11/21/2019 05:50	Dale L. Simmons	2136608
	11/15/2019			11/21/2019 06:01	Dale L. Simmons	2136617
	11/15/2019			11/21/2019 06:12	Dale L. Simmons	2136618
	11/15/2019			11/25/2019 21:04	Dale L. Simmons	2136623
	11/15/2019			11/19/2019 15:21	Yijie Li	2136605, 2136606, 2136607, 2136608, 2136617, 2136618, 2136623
SM 4500 F-C-97	11/15/2019			11/20/2019 23:52	Dale L. Simmons	2136607
	11/15/2019			11/21/2019 01:39	Dale L. Simmons	2136605
	11/15/2019			11/21/2019 01:43	Dale L. Simmons	2136606
	11/15/2019			11/21/2019 01:47	Dale L. Simmons	2136608
	11/15/2019			11/21/2019 01:51	Dale L. Simmons	2136617
	11/15/2019			11/21/2019 01:55	Dale L. Simmons	2136618
	11/15/2019			11/25/2019 21:04	Dale L. Simmons	2136623
SM 5310 B-00	11/15/2019			11/19/2019 00:55	Lauren Lees	2136624
	11/15/2019			11/22/2019 03:30	Lauren Lees	2136609
	11/15/2019			11/22/2019 06:07	Lauren Lees	2136610
	11/15/2019			11/22/2019 06:19	Lauren Lees	2136611
	11/15/2019			11/22/2019 06:47	Lauren Lees	2136612
	11/15/2019			11/22/2019 06:59	Lauren Lees	2136619
	11/15/2019			11/22/2019 07:16	Lauren Lees	2136620