Chemical Analysis Report

NW-DIST-2019-02-14-01

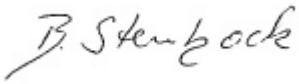
Florida Department of Environmental Protection
Central Laboratory
2600 Blair Stone Road
Tallahassee, FL 32399-2400
DOH Accreditation E31780

Event Description: **98 WHALER RUN**
Request ID: **RQ-2019-02-04-49**
Customer: **NW-DIST**
Project ID: **SMP**

Send Reports to:
FL Dept. of Environmental Protection
160 Government Center
Suite 308
Pensacola, FL 32502-5794
Attn: Cheryl Bunch

For additional information please contact
Colin Wright, Ph.D.
Liang-Tsair Lin, Ph.D.
Kerry Tate, Ph.D.
Dr. rer. nat. Bettina Steinbock
Thekkekalathil Chandrasekhar, Ph.D, QA Officer
Phone (850) 245-8085

Certified by: Dr. rer. nat. Bettina Steinbock, Environmental Administrator Date Certified: 28-FEB-2019 16:52



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: 02/13/2019 12:15**

Field ID: G3NW0181 Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2062537	EPA 180.1 Rev. 2.0	Turbidity	2.3		NTU	P358971	
	EPA 300.0	Bromide	25		mg Br/L	P359119	
	SM 2320 B-97	Total Alkalinity	56		mg CaCO3/L	P359386	
	SM 2540 D-97	TSS	3	I	mg/L	P359136	
	SM 4500 F-C-97	Fluoride	0.45	I	mg F/L	P359395	
2062540	EPA 350.1 Rev. 2.0	Ammonia-N	0.024		mg N/L	P359265	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.34	I	mg N/L	P359084	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.026		mg N/L	P359216	
	EPA 365.1 Rev. 2.0	Total-P	0.014		mg P/L	P358984	
	SM 5310 B-00	Organic Carbon	4.7		mg C/L	P359407	
2062543	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P358965	

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: 02/13/2019 13:40**

Field ID: G3NW0180 Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2062546	EPA 180.1 Rev. 2.0	Turbidity	3.8	A	NTU	P358971	
	EPA 300.0	Bromide	13		mg Br/L	P359119	
	SM 2320 B-97	Total Alkalinity	32	A	mg CaCO3/L	P359386	
	SM 2540 D-97	TSS	7	IA	mg/L	P359126	
	SM 4500 F-C-97	Fluoride	0.24		mg F/L	P359395	
2062547	EPA 350.1 Rev. 2.0	Ammonia-N	0.005		mg N/L	P359343	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.30	I	mg N/L	P359084	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.055		mg N/L	P359216	
	EPA 365.1 Rev. 2.0	Total-P	0.019		mg P/L	P358984	
	SM 5310 B-00	Organic Carbon	3.2		mg C/L	P359402	
2062548	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P358965	

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: 02/13/2019 10:35

Field ID: G3NW0127

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2062538	EPA 180.1 Rev. 2.0	Turbidity	1.6		NTU	P358971	
	EPA 300.0	Bromide	21		mg Br/L	P359119	
	SM 2320 B-97	Total Alkalinity	52		mg CaCO3/L	P359386	
	SM 2540 D-97	TSS	6	IA	mg/L	P359136	
	SM 4500 F-C-97	Fluoride	0.42	I	mg F/L	P359395	
2062541	EPA 350.1 Rev. 2.0	Ammonia-N	0.005	I	mg N/L	P359265	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.30	I	mg N/L	P359084	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.082		mg N/L	P359216	
	EPA 365.1 Rev. 2.0	Total-P	0.013		mg P/L	P358984	
	SM 5310 B-00	Organic Carbon	4.1		mg C/L	P359407	
2062544	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P358965	

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: 02/13/2019 10:05**

Field ID: G3NW0182 Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2062539	EPA 180.1 Rev. 2.0	Turbidity	1.9		NTU	P358971	
	EPA 300.0	Bromide	19		mg Br/L	P359119	
	SM 2320 B-97	Total Alkalinity	51		mg CaCO3/L	P359386	
	SM 2540 D-97	TSS	3	U	mg/L	P359136	
	SM 4500 F-C-97	Fluoride	0.37		mg F/L	P359395	
2062542	EPA 350.1 Rev. 2.0	Ammonia-N	0.013		mg N/L	P359343	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.31	I	mg N/L	P359084	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.10		mg N/L	P359216	
	EPA 365.1 Rev. 2.0	Total-P	0.028		mg P/L	P358984	
	SM 5310 B-00	Organic Carbon	4.5		mg C/L	P359407	
2062545	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.009	I	mg P/L	P358965	

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: P358971

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 300.0
Batch ID: P359119

Component	Result	Code	Units
Bromide	0.013	U	mg Br/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P359265

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P359343

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P359084

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P359216

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P358984

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P358965

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

Reference Method: SM 2320 B-97
Batch ID: P359386

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

Quality Assurance Report
Method Blank Results

Reference Method: SM 2540 D-97
Batch ID: P359126

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P359136

Component	Result	Code	Units
TSS	3	U	mg/L

Reference Method: SM 4500 F-C-97
Batch ID: P359395

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-00
Batch ID: P359402

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

Reference Method: SM 5310 B-00
Batch ID: P359407

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: P359119

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Bromide	97.9		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P359265

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P359343

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P359084

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Kjeldahl Nitrogen	107		P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P359216

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: P358984

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total-P	98.9		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P358965

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

Reference Method: SM 2320 B-97
Batch ID: P359386

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

Reference Method: SM 4500 F-C-97
Batch ID: P359395

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	96.9		P	91 - 105

Quality Assurance Report
Laboratory Control Sample Accuracy

Reference Method: SM 5310 B-00
Batch ID: P359402

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	98.4		P	85 - 115

Reference Method: SM 5310 B-00
Batch ID: P359407

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	98.2		P	85 - 115

Quality Assurance Report
Matrix Spike Accuracy

Reference Method: EPA 300.0
Batch ID: P359119

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2062615	Bromide	94.6	96.9	P/P	90 - 110
2062652	Bromide	95.4		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P359265

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2061996	Ammonia-N	102	103	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P359343

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2062547	Ammonia-N	100	101	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P359084

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2062542	Kjeldahl Nitrogen	103	100	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P359216

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2062486	NO2NO3-N	100	100	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P358984

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2062540	Total-P	99.4	103	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P358965

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2062544	O-Phosphate-P	95.1	96.8	P/P	90 - 110

Reference Method: SM 4500 F-C-97
Batch ID: P359395

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2062546	Fluoride	96.7	96.7	P/P	91 - 105

Reference Method: SM 5310 B-00
Batch ID: P359402

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2062486	Organic Carbon	95.2	94.0	P/P	85 - 115

Quality Assurance Report
Matrix Spike Accuracy

Reference Method: SM 5310 B-00
Batch ID: P359407

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2062132	Organic Carbon	97.3	96.9	P/P	85 - 115

Quality Assurance Report
Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P358971

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2062546	Turbidity	8.08	Sample	P	0 - 20

Reference Method: EPA 300.0
Batch ID: P359119

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2062615	Bromide	1.42	Spike	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P359265

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2061996	Ammonia-N	0.363	Spike	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P359343

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2062547	Ammonia-N	0.495	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P359084

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2062542	Kjeldahl Nitrogen	2.72	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P359216

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2062486	NO2NO3-N	0.319	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P358984

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2062540	Total-P	3.85	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P358965

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2062544	O-Phosphate-P	1.77	Spike	P	0 - 20

Quality Assurance Report
Precision

Reference Method: SM 2320 B-97
Batch ID: P359386

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2062546	Total Alkalinity	0.674	Sample	P	0 - 1.6

Reference Method: SM 4500 F-C-97
Batch ID: P359395

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2062546	Fluoride	0.0	Spike	P	0 - 3.5

Reference Method: SM 5310 B-00
Batch ID: P359402

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2062486	Organic Carbon	0.858	Spike	P	0 - 20

Reference Method: SM 5310 B-00
Batch ID: P359407

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2062132	Organic Carbon	0.328	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: A89426
Included Lab Sample IDs: 2062543, 2062544, 2062545, 2062548

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	98.0	98.4	P/P	90 - 110
O-Phosphate-P	99.3	99.0	P/P	90 - 110

Reference Method: EPA 180.1 Rev. 2.0
Run ID: A89430
Included Lab Sample IDs: 2062537, 2062538, 2062539, 2062546

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Turbidity	100	101	P/P	95 - 105

Reference Method: EPA 300.0
Run ID: A89435
Included Lab Sample IDs: 2062537, 2062538, 2062539, 2062546

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Bromide	96.6	97.6	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Run ID: A89484
Included Lab Sample IDs: 2062540, 2062541, 2062542, 2062547

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

Reference Method: EPA 351.2 Rev. 2.0
Run ID: A89494
Included Lab Sample IDs: 2062540, 2062541, 2062542, 2062547

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	107	105	P/P	90 - 110
Kjeldahl Nitrogen	109	107	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Run ID: A89525
Included Lab Sample IDs: 2062540, 2062541, 2062542, 2062547

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO2NO3-N	98.0	98.5	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Run ID: A89542
Included Lab Sample IDs: 2062540, 2062541

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

Reference Method: EPA 350.1 Rev. 2.0
Run ID: A89577
Included Lab Sample IDs: 2062542, 2062547

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits

Quality Assurance Report
Calibration Verification

Reference Method: EPA 350.1 Rev. 2.0
Run ID: A89577
Included Lab Sample IDs: 2062542, 2062547

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	99.1	100	P/P	90 - 110

Reference Method: SM 2320 B-97
Run ID: A89593
Included Lab Sample IDs: 2062537, 2062538, 2062539, 2062546

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	102	99.7	P/P	90 - 110
Total Alkalinity	99.7	103	P/P	90 - 110

Reference Method: SM 4500 F-C-97
Run ID: A89593
Included Lab Sample IDs: 2062537, 2062538, 2062539, 2062546

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	99.0	99.5	P/P	90 - 110

Reference Method: SM 5310 B-00
Run ID: A89596
Included Lab Sample IDs: 2062547

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	96.6	93.4	P/P	90 - 110

Reference Method: SM 5310 B-00
Run ID: A89598
Included Lab Sample IDs: 2062540, 2062541, 2062542

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	97.4	98.4	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	SMP	MS
EPA 180.1 Rev. 2.0	Turbidity						8.08	
EPA 300.0	Bromide	97.9	94.6	96.9	95.4			1.42
EPA 350.1 Rev. 2.0	Ammonia-N	100	102	103				0.363
	Ammonia-N	96.8	100	101				0.495
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	107	103	100				2.72
EPA 353.2 Rev. 2.0	NO2NO3-N	100	100	100				0.319
EPA 365.1 Rev. 2.0	Total-P	98.9	99.4	103				3.85
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	102	95.1	96.8				1.77
SM 2320 B-97	Total Alkalinity	101					0.674	
SM 4500 F-C-97	Fluoride	96.9	96.7	96.7				0.0
SM 5310 B-00	Organic Carbon	98.4	95.2	94.0				0.858
	Organic Carbon	98.2	97.3	96.9				0.328

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	2062537, 2062538, 2062539, 2062546
EPA 300.0 / E31780	Bromide in aqueous matrices	2062537, 2062538, 2062539, 2062546
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	2062540, 2062541, 2062542, 2062547
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	2062540, 2062541, 2062542, 2062547
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	2062540, 2062541, 2062542, 2062547
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	2062540, 2062541, 2062542, 2062547
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	2062543, 2062544, 2062545, 2062548
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO3/L	2062537, 2062538, 2062539, 2062546
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices using a maximum of 250 mL of sample	2062537, 2062538, 2062539, 2062546
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	2062537, 2062538, 2062539, 2062546
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	2062540, 2062541, 2062542, 2062547

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
EPA 180.1 Rev. 2.0	02/14/2019			02/14/2019 17:36	Adrian Shelby	2062537, 2062538, 2062539, 2062546
EPA 300.0	02/14/2019			02/15/2019 18:29	Lipi Saha	2062537
	02/14/2019			02/15/2019 18:46	Lipi Saha	2062538
	02/14/2019			02/15/2019 19:03	Lipi Saha	2062539
	02/14/2019			02/15/2019 19:20	Lipi Saha	2062546
EPA 350.1 Rev. 2.0	02/14/2019			02/20/2019 12:19	Ping Hua	2062540
	02/14/2019			02/20/2019 12:21	Ping Hua	2062541
	02/14/2019			02/21/2019 11:15	Ping Hua	2062547
	02/14/2019			02/21/2019 11:20	Ping Hua	2062542
EPA 351.2 Rev. 2.0	02/14/2019	02/18/2019 13:50	Adrian Shelby	02/19/2019 10:14	Joseph Suarez	2062540
	02/14/2019	02/18/2019 13:50	Adrian Shelby	02/19/2019 10:16	Joseph Suarez	2062541
	02/14/2019	02/18/2019 13:50	Adrian Shelby	02/19/2019 10:17	Joseph Suarez	2062542
	02/14/2019	02/18/2019 13:50	Adrian Shelby	02/19/2019 10:25	Joseph Suarez	2062547
EPA 353.2 Rev. 2.0	02/14/2019			02/20/2019 10:29	Beverly Y. Sanders	2062540
	02/14/2019			02/20/2019 10:30	Beverly Y. Sanders	2062541
	02/14/2019			02/20/2019 10:31	Beverly Y. Sanders	2062542
	02/14/2019			02/20/2019 10:33	Beverly Y. Sanders	2062547
EPA 365.1 Rev. 2.0	02/14/2019	02/15/2019 13:25	Sima Feizi	02/18/2019 16:05	Rosalyn Ballman	2062540
	02/14/2019	02/15/2019 13:25	Sima Feizi	02/18/2019 16:06	Rosalyn Ballman	2062541
	02/14/2019	02/15/2019 13:25	Sima Feizi	02/18/2019 16:07	Rosalyn Ballman	2062542
	02/14/2019	02/15/2019 13:25	Sima Feizi	02/18/2019 16:08	Rosalyn Ballman	2062547
EPA 365.1 Rev. 2.0 dissolved	02/14/2019			02/14/2019 15:01	Jhamieka S. Greenwood	2062544
	02/14/2019			02/14/2019 15:47	Jhamieka S. Greenwood	2062543
	02/14/2019			02/14/2019 15:48	Jhamieka S. Greenwood	2062545
	02/14/2019			02/14/2019 15:49	Jhamieka S. Greenwood	2062548
SM 2320 B-97	02/14/2019			02/21/2019 12:25	Dale L. Simmons	2062546
	02/14/2019			02/21/2019 13:03	Dale L. Simmons	2062539
	02/14/2019			02/21/2019 13:15	Dale L. Simmons	2062538
	02/14/2019			02/21/2019 14:48	Dale L. Simmons	2062537
SM 2540 D-97	02/14/2019			02/15/2019 16:00	Mariam Hanna	2062546
	02/14/2019			02/18/2019 16:00	Mariam Hanna	2062537, 2062538, 2062539
SM 4500 F-C-97	02/14/2019			02/21/2019 09:56	Dale L. Simmons	2062546
	02/14/2019			02/21/2019 10:16	Dale L. Simmons	2062539
	02/14/2019			02/21/2019 10:25	Dale L. Simmons	2062538
	02/14/2019			02/21/2019 10:37	Dale L. Simmons	2062537
SM 5310 B-00	02/14/2019			02/20/2019 11:15	Julia Storbeck	2062547
	02/14/2019			02/23/2019 09:00	Julia Storbeck	2062540
	02/14/2019			02/23/2019 09:15	Julia Storbeck	2062541
	02/14/2019			02/23/2019 09:46	Julia Storbeck	2062542