

Chemical Analysis Report

SO-DIST-2021-04-05-01

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

Event Description: **2021 SMP : Everglades**

Request ID: **RQ-2021-03-22-42**

Customer: **SO-DIST**

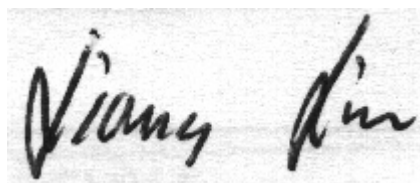
Project ID: **SMP**

Send Reports to:
FL Dept. of Environmental Protection
FLDEP South District Office
2295 Victoria Ave. Suite 364
Fort Myers, FL 33901-3381
Attn: Chris Hormuth

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: Liang Lin, Environmental Administrator

Date Certified: 23-APR-2021 15:04

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

NON-CONFORMANCE REPORT INCLUDED

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: 8069-ENRE5

Collection Date/Time: 04/01/2021 11:45

Field ID: G5SD0036

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2236173	EPA 180.1 Rev. 2.0	Turbidity	3.9	Q	NTU	P396115	
	SM 2320 B-2011	Total Alkalinity	150		mg CaCO3/L	P396087	
	SM 2540 D-2011	TSS	3	I	mg/L	P396103	
	SM 4500 F-C-2011	Fluoride	1.2		mg F/L	P396091	
2236176	EPA 350.1 Rev. 2.0	Ammonia-N	0.007		mg N/L	P396652	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.41		mg N/L	P396225	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P396058	
	EPA 365.1 Rev. 2.0	Total-P	0.016		mg P/L	P395984	
	SM 5310 B-2011	Organic Carbon	4.6		mg C/L	P396368	
2236179	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	UQ	mg P/L	P396002	

Ref. Method and Comment:

EPA 180.1 Rev. 2.0: The sample expired prior to receipt.

SM 2540 D-2011: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample.

EPA 365.1 Rev. 2.0 dissolved: O-Phosphate-P: The sample expired prior to receipt.

Sample Location: 8067 ENRE 9 Near First Bay

Collection Date/Time: 04/01/2021 12:35

Field ID: G5SD0107

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2236174	EPA 180.1 Rev. 2.0	Turbidity	4.0	Q	NTU	P396115	
	SM 2320 B-2011	Total Alkalinity	143		mg CaCO3/L	P396087	
	SM 2540 D-2011	TSS	4	I	mg/L	P396103	
	SM 4500 F-C-2011	Fluoride	1.1		mg F/L	P396091	
2236177	EPA 350.1 Rev. 2.0	Ammonia-N	0.007		mg N/L	P396652	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.43		mg N/L	P396225	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P396058	
	EPA 365.1 Rev. 2.0	Total-P	0.019		mg P/L	P396033	
	SM 5310 B-2011	Organic Carbon	4.8		mg C/L	P396300	
2236180	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	UQ	mg P/L	P396002	

Ref. Method and Comment:

EPA 180.1 Rev. 2.0: The sample expired prior to receipt.

SM 2540 D-2011: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample.

EPA 365.1 Rev. 2.0 dissolved: O-Phosphate-P: The sample expired prior to receipt.

Sample Location: 8066 @ ENRE5

Collection Date/Time: 04/01/2021 13:05

Field ID: G5SD0039

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2236175	EPA 180.1 Rev. 2.0	Turbidity	2.8	Q	NTU	P396115	
	SM 2320 B-2011	Total Alkalinity	133		mg CaCO3/L	P396087	
	SM 2540 D-2011	TSS	4	I	mg/L	P396103	
	SM 4500 F-C-2011	Fluoride	1.2		mg F/L	P396091	
2236178	EPA 350.1 Rev. 2.0	Ammonia-N	0.006		mg N/L	P396652	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.37	I	mg N/L	P396520	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P396058	
	EPA 365.1 Rev. 2.0	Total-P	0.018		mg P/L	P395984	
	SM 5310 B-2011	Organic Carbon	3.3		mg C/L	P396854	
2236181	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	UQ	mg P/L	P396005	

Ref. Method and Comment:

EPA 180.1 Rev. 2.0: The sample expired prior to receipt.

SM 2540 D-2011: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample.

EPA 365.1 Rev. 2.0 dissolved: O-Phosphate-P: The sample expired prior to receipt.

Non-Conformance Report

NCR ID: 8754

Event(s)

SO-DIST-2021-04-05-01

Job(s)

Sample(s)

Test(s)

NCR Type: SHIPPING/RECEIVING

NCR Category: Samples arrived late

Observation: Samples arrived 3 days late by FedEx, samples received within the acceptable temperature range.

Resolution: Samples will be qualified as appropriate.

Customer contacted, email correspondence attached to sample submittal forms.

Biology and Chemistry supervisors were notified by phone and email.

Authorized by/Date: Joshua Ayres 4/12/2021

The Non-Conformance Report details exceptions or problems encountered with the events/jobs/samples/test.
Please address questions to:

Chemistry	Colin Wright	(850) 245-8085
Biology	Cheryl Swanson	(850) 245-8177

Quality Assurance Report Method Blank Results

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P396115

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P396652

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P396225

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P396520

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P396058

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P395984

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P396033

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P396002

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P396005

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

Quality Assurance Report

Method Blank Results

Reference Method: SM 2320 B-2011
Batch ID: P396087

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

Reference Method: SM 2540 D-2011
Batch ID: P396103

Component	Result	Code	Units
TSS	3	U	mg/L

Reference Method: SM 4500 F-C-2011
Batch ID: P396091

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-2011
Batch ID: P396300

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

Reference Method: SM 5310 B-2011
Batch ID: P396368

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

Reference Method: SM 5310 B-2011
Batch ID: P396854

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: P396652

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Ammonia-N	98.2		P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P396225

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Kjeldahl Nitrogen	106		P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P396520

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P396058

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: P395984

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P396033

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P396002

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P396005

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

Reference Method: SM 2320 B-2011
Batch ID: P396087

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	101		P	93 - 104

Quality Assurance Report

Laboratory Control Sample Accuracy

Reference Method: SM 4500 F-C-2011
Batch ID: P396091

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	97.9		P	90 - 106

Reference Method: SM 5310 B-2011
Batch ID: P396300

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	95.4		P	85 - 115

Reference Method: SM 5310 B-2011
Batch ID: P396368

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	97.0		P	85 - 115

Reference Method: SM 5310 B-2011
Batch ID: P396854

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: P396652

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2236300	Ammonia-N	101	101	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P396225

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2236176	Kjeldahl Nitrogen	108	108	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P396520

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2234957	Kjeldahl Nitrogen	101	96.8	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P396058

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2236176	NO2NO3-N	101	100	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P395984

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2236176	Total-P	95.4	96.9	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P396033

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2236177	Total-P	96.1	97.2	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P396002

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2236179	O-Phosphate-P	102	100	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P396005

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2236181	O-Phosphate-P	99.4	99.8	P/P	90 - 110

Reference Method: SM 4500 F-C-2011
Batch ID: P396091

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2235457	Fluoride	95.8	96.5	P/P	94 - 107

Quality Assurance Report

Matrix Spike Accuracy

Reference Method: SM 5310 B-2011
Batch ID: P396300

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2236177	Organic Carbon	92.2	92.6	P/P	85 - 115

Reference Method: SM 5310 B-2011
Batch ID: P396368

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2237178	Organic Carbon	95.9	97.2	P/P	85 - 115

Reference Method: SM 5310 B-2011
Batch ID: P396854

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2236178	Organic Carbon	97.0	98.7	P/P	85 - 115

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P396115

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2237226	Turbidity	6.25	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P396652

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2236300	Ammonia-N	0.323	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P396225

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2236176	Kjeldahl Nitrogen	0.560	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P396520

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2234957	Kjeldahl Nitrogen	3.14	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P396058

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2236176	NO2NO3-N	0.496	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P395984

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2236176	Total-P	1.56	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P396033

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2236177	Total-P	1.08	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P396002

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2236179	O-Phosphate-P	1.38	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 365.1 Rev. 2.0 dissolved
 Batch ID: P396005

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2236181	O-Phosphate-P	0.402	Spike	P	0 - 20

Reference Method: SM 2320 B-2011
 Batch ID: P396087

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2235457	Total Alkalinity	2.60	Sample	P	0 - 8.1

Reference Method: SM 4500 F-C-2011
 Batch ID: P396091

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2235457	Fluoride	0.495	Spike	P	0 - 2.8

Reference Method: SM 5310 B-2011
 Batch ID: P396300

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2236177	Organic Carbon	0.335	Spike	P	0 - 20

Reference Method: SM 5310 B-2011
 Batch ID: P396368

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2237178	Organic Carbon	1.18	Spike	P	0 - 20

Reference Method: SM 5310 B-2011
 Batch ID: P396854

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2236178	Organic Carbon	1.65	Spike	P	0 - 20

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

Quality Assurance Report Calibration Verification

Reference Method: EPA 365.1 Rev. 2.0 dissolved

Run ID: A104511

Included Lab Sample IDs: 2236179, 2236180, 2236181

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	99.4	99.3	P/P	90 - 110
O-Phosphate-P	99.5	99.6	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A104540

Included Lab Sample IDs: 2236176, 2236177, 2236178

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

Reference Method: SM 2320 B-2011

Run ID: A104549

Included Lab Sample IDs: 2236173, 2236174, 2236175

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	98.3	98.6	P/P	90 - 110

Reference Method: SM 4500 F-C-2011

Run ID: A104549

Included Lab Sample IDs: 2236173, 2236174, 2236175

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

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A104554

Included Lab Sample IDs: 2236176, 2236177, 2236178

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	98.2	97.5	P/P	90 - 110
Total-P	99.0	97.0	P/P	90 - 110

Reference Method: EPA 180.1 Rev. 2.0

Run ID: A104558

Included Lab Sample IDs: 2236173, 2236174, 2236175

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

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A104610

Included Lab Sample IDs: 2236176, 2236177

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

Quality Assurance Report Calibration Verification

Reference Method: SM 5310 B-2011

Run ID: A104628

Included Lab Sample IDs: 2236177

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	95.4	94.4	P/P	90 - 110

Reference Method: SM 5310 B-2011

Run ID: A104663

Included Lab Sample IDs: 2236176

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	99.4	98.2	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A104751

Included Lab Sample IDs: 2236178

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	101	106	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A104770

Included Lab Sample IDs: 2236176, 2236177, 2236178

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	97.8	98.1	P/P	90 - 110

Reference Method: SM 5310 B-2011

Run ID: A104856

Included Lab Sample IDs: 2236178

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	96.3	94.6	P/P	90 - 110

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

Control limits for initial calibration checks may be different from those for continuing checks, depending on method requirements.

Where they are different, both control limits are provided.

Quality Assurance Report Summary

Ref. Method	Analyte	LCS % Recovery	MS % Recovery		LCS	Precision	MS
						SMP	
EPA 180.1 Rev. 2.0	Turbidity					6.25	
EPA 350.1 Rev. 2.0	Ammonia-N	98.2	101	101			0.323
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	106	108	108			0.560
	Kjeldahl Nitrogen	105	101	96.8			3.14
EPA 353.2 Rev. 2.0	NO ₂ NO ₃ -N	100	101	100			0.496
EPA 365.1 Rev. 2.0	Total-P	104	95.4	96.9			1.56
	Total-P	107	96.1	97.2			1.08
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	97.0	102	100			1.38
	O-Phosphate-P	99.5	99.4	99.8			0.402
SM 2320 B-2011	Total Alkalinity	101				2.60	
SM 4500 F-C-2011	Fluoride	97.9	95.8	96.5			0.495
SM 5310 B-2011	Organic Carbon	95.4	92.2	92.6			0.335
	Organic Carbon	97.0	95.9	97.2			1.18
	Organic Carbon	100	97.0	98.7			1.65

Reference Method Descriptions

Method	Description	Associated Samples
EPA 180.1 Rev. 2.0	Turbidity in aqueous matrices	2236173, 2236174, 2236175
EPA 350.1 Rev. 2.0	Ammonia in aqueous matrices as mg N/L	2236176, 2236177, 2236178
EPA 351.2 Rev. 2.0	Total Kjeldahl Nitrogen in aqueous matrices	2236176, 2236177, 2236178
EPA 353.2 Rev. 2.0	Nitrite/Nitrate in aqueous matrices as mg N/L	2236176, 2236177, 2236178
EPA 365.1 Rev. 2.0	Total Phosphorus in aqueous matrices as mg P/L	2236176, 2236177, 2236178
EPA 365.1 Rev. 2.0 dissolved	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	2236179, 2236180, 2236181
SM 2320 B-2011	Alkalinity in aqueous matrices as mg CaCO ₃ /L	2236173, 2236174, 2236175
SM 2540 D-2011	Total Suspended Solids in aqueous matrices using a maximum of 250 mL of sample	2236173, 2236174, 2236175
SM 4500 F-C-2011	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	2236173, 2236174, 2236175
SM 5310 B-2011	Nonpurgeable Organic Carbon in aqueous matrices	2236176, 2236177, 2236178

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	04/05/2021			04/07/2021 16:02	Yen Ta	2236173, 2236174, 2236175
EPA 350.1 Rev. 2.0	04/05/2021			04/15/2021 20:08	Ping Hua	2236176
	04/05/2021			04/15/2021 20:09	Ping Hua	2236177
	04/05/2021			04/15/2021 20:10	Ping Hua	2236178
EPA 351.2 Rev. 2.0	04/05/2021	04/08/2021 14:20	Yen Ta	04/09/2021 11:09	Virginia P. Brown	2236176
	04/05/2021	04/08/2021 14:20	Yen Ta	04/09/2021 11:17	Virginia P. Brown	2236177
	04/05/2021	04/14/2021 16:53	Benjamin T. Nordmann	04/15/2021 10:32	Virginia P. Brown	2236178
EPA 353.2 Rev. 2.0	04/05/2021			04/06/2021 12:45	Beverly Y. Sanders	2236176
	04/05/2021			04/06/2021 12:51	Beverly Y. Sanders	2236177
	04/05/2021			04/06/2021 12:52	Beverly Y. Sanders	2236178
EPA 365.1 Rev. 2.0	04/05/2021	04/06/2021 20:10	Madeline Gruver	04/07/2021 13:07	Shengyu Ding	2236176
	04/05/2021	04/06/2021 20:10	Madeline Gruver	04/07/2021 13:08	Shengyu Ding	2236178
	04/05/2021	04/06/2021 20:10	Madeline Gruver	04/07/2021 13:59	Shengyu Ding	2236177
EPA 365.1 Rev. 2.0 dissolved	04/05/2021			04/06/2021 12:45	Lipi Saha	2236179
	04/05/2021			04/06/2021 12:48	Lipi Saha	2236180
	04/05/2021			04/06/2021 13:12	Lipi Saha	2236181
SM 2320 B-2011	04/05/2021			04/07/2021 01:24	Dale L. Simmons	2236173
	04/05/2021			04/07/2021 01:38	Dale L. Simmons	2236174
	04/05/2021			04/07/2021 01:54	Dale L. Simmons	2236175
SM 2540 D-2011	04/05/2021			04/06/2021 15:05	Yijie Li	2236173, 2236174, 2236175
SM 4500 F-C-2011	04/05/2021			04/06/2021 21:51	Dale L. Simmons	2236173
	04/05/2021			04/06/2021 21:56	Dale L. Simmons	2236174
	04/05/2021			04/06/2021 22:02	Dale L. Simmons	2236175
SM 5310 B-2011	04/05/2021			04/08/2021 03:24	Touraj Touran	2236177
	04/05/2021			04/10/2021 04:23	Touraj Touran	2236176
	04/05/2021			04/19/2021 23:34	Lauren Lees	2236178