

Chemical Analysis Report

CEN-DIST-2021-06-11-03

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

Event Description: **Okahumpka/Deaton/Hidden**
Request ID: **RQ-2021-06-07-24**
Customer: **CEN-DIST**
Project ID: **SMP**

Send Reports to:
FL Dept. of Environmental Protection
FL Dept. of Environmental Protection
3319 Maguire Blvd., Suite 232
Orlando, FL 32803-3767
Attn: Leif Boman

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: Kerry Tate, Ph.D., Environmental Administrator

Date Certified: 08-JUL-2021 09:12

A handwritten signature in black ink that reads "Kerry Tate". The signature is written in a cursive, flowing style with a horizontal line above the "T" and a long horizontal stroke at the end.

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: Lake Okahumpka at Center

Collection Date/Time: 06/10/2021 11:15

Field ID: G4CE0159

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2254697	EPA 180.1 Rev. 2.0	Turbidity	2.4		NTU	P399599	
	EPA 300.0 Rev. 2.1	Chloride	35		mg Cl/L	P399907	
		Sulfate	0.20	U	mg SO4/L	P399909	
	SM 2120 B-2011	Color (true)	25	A	PCU	P399596	
	SM 2320 B-2011	Total Alkalinity	55		mg CaCO3/L	P399964	
	SM 2540 C-2011	TDS	145		mg/L	P400004	
	SM 2540 D-2011	TSS	2	U	mg/L	P399857	
	SM 4500 F-C-2011	Fluoride	0.36		mg F/L	P399968	
2254700	EPA 350.1 Rev. 2.0	Ammonia-N	0.012		mg N/L	P400227	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.92		mg N/L	P400392	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P399620	
	EPA 365.1 Rev. 2.0	Total-P	0.01		mg P/L	P399996	
	SM 5310 B-2011	Organic Carbon	15		mg C/L	P400168	
2254703	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P399576	

Ref. Method and Comment:

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

Sample Location: Lake Deaton @ Center

Collection Date/Time: 06/10/2021 12:01

Field ID: G4CE0160

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2254698	EPA 180.1 Rev. 2.0	Turbidity	1.3		NTU	P399599	
	EPA 300.0 Rev. 2.1	Chloride	32		mg Cl/L	P399907	
		Sulfate	2.1		mg SO4/L	P399909	
	SM 2120 B-2011	Color (true)	26		PCU	P399596	
	SM 2320 B-2011	Total Alkalinity	32		mg CaCO3/L	P399964	
	SM 2540 C-2011	TDS	118		mg/L	P400004	
	SM 2540 D-2011	TSS	2	I	mg/L	P399857	
	SM 4500 F-C-2011	Fluoride	0.14		mg F/L	P399968	
2254701	EPA 350.1 Rev. 2.0	Ammonia-N	0.008		mg N/L	P400227	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.0		mg N/L	P400392	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P399694	
	EPA 365.1 Rev. 2.0	Total-P	0.012		mg P/L	P399996	
	SM 5310 B-2011	Organic Carbon	17		mg C/L	P400168	
2254704	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P399576	

Ref. Method and Comment:

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

Sample Location: Hidden Lake @ Center

Collection Date/Time: 06/10/2021 12:46

Field ID: G4CE0158

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2254699	EPA 180.1 Rev. 2.0	Turbidity	2.9		NTU	P399599	
	EPA 300.0 Rev. 2.1	Chloride	21		mg Cl/L	P399907	
		Sulfate	1.4		mg SO4/L	P399909	
	SM 2120 B-2011	Color (true)	48		PCU	P399596	
	SM 2320 B-2011	Total Alkalinity	146		mg CaCO3/L	P399964	
	SM 2540 C-2011	TDS	244	A	mg/L	P400004	
	SM 2540 D-2011	TSS	3	IA	mg/L	P399857	
	SM 4500 F-C-2011	Fluoride	0.17		mg F/L	P399968	
2254702	EPA 350.1 Rev. 2.0	Ammonia-N	0.014		mg N/L	P400227	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.2		mg N/L	P400318	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P399694	
	EPA 365.1 Rev. 2.0	Total-P	0.043		mg P/L	P399996	
	SM 5310 B-2011	Organic Carbon	19		mg C/L	P400168	
2254705	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P399576	

Ref. Method and Comment:

SM 2540 D-2011: 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.

Quality Assurance Report

Method Blank Results

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P399599

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P399907

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P399909

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P400227

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P400318

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P400392

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P399620

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P399694

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P399996

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

Quality Assurance Report

Method Blank Results

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P399576

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

Reference Method: SM 2120 B-2011
Batch ID: P399596

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2320 B-2011
Batch ID: P399964

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

Reference Method: SM 2540 C-2011
Batch ID: P400004

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-2011
Batch ID: P399857

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500 F-C-2011
Batch ID: P399968

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-2011
Batch ID: P400168

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

Quality Assurance Report

Laboratory Control Sample Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P399907

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P399909

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P400227

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Ammonia-N	99.2		P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P400318

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P400392

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P399620

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: P399694

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: P399996

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P399576

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

Quality Assurance Report

Laboratory Control Sample Accuracy

Reference Method: SM 2120 B-2011
Batch ID: P399596

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Color (true)	100		P	85 - 115

Reference Method: SM 2320 B-2011
Batch ID: P399964

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	102		P	94 - 106

Reference Method: SM 4500 F-C-2011
Batch ID: P399968

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	99.8		P	93 - 104

Reference Method: SM 5310 B-2011
Batch ID: P400168

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	95.3		P	85 - 115

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P399907

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2253748	Chloride	91.9		P	90 - 110
2254815	Chloride	94.1		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P399909

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2253748	Sulfate	94.5		P	90 - 110
2254815	Sulfate	94.4		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P400227

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2254646	Ammonia-N	97.6	98.8	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P400392

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2253359	Kjeldahl Nitrogen	104	93.5	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P399620

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2254599	NO2NO3-N	99.5	99.5	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P399694

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2254523	NO2NO3-N	99.8	98.3	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P399996

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2254819	Total-P	102	103	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P399576

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2254613	O-Phosphate-P	96.3	97.0	P/P	90 - 110

Reference Method: SM 4500 F-C-2011
Batch ID: P399968

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2254812	Fluoride	98.0	98.6	P/P	92 - 107

Quality Assurance Report Matrix Spike Accuracy

Reference Method: SM 5310 B-2011
Batch ID: P400168

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2254700	Organic Carbon	102	102	P/P	85 - 115

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P399599

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2254598	Turbidity	7.43	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P399907

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2253748	Chloride	0.349	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P399909

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2253748	Sulfate	0.407	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P400227

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2254646	Ammonia-N	1.06	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P400318

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2254666	Kjeldahl Nitrogen	1.03	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P400392

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2253359	Kjeldahl Nitrogen	9.41	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P399620

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2254599	NO2NO3-N	0.0	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P399694

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2254523	NO2NO3-N	1.22	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 365.1 Rev. 2.0

Batch ID: P399996

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2254819	Total-P	1.17	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved

Batch ID: P399576

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2254613	O-Phosphate-P	0.724	Spike	P	0 - 20

Reference Method: SM 2120 B-2011

Batch ID: P399596

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2254697	Color (true)	1.34	Sample	P	0 - 20

Reference Method: SM 2320 B-2011

Batch ID: P399964

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2254812	Total Alkalinity	0.966	Sample	P	0 - 5.2

Reference Method: SM 2540 C-2011

Batch ID: P400004

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2254699	TDS	4.10	Sample	P	0 - 10

Reference Method: SM 4500 F-C-2011

Batch ID: P399968

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2254812	Fluoride	0.454	Spike	P	0 - 2.1

Reference Method: SM 5310 B-2011

Batch ID: P400168

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2254700	Organic Carbon	0.255	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: A106023
Included Lab Sample IDs: 2254703, 2254704, 2254705

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	99.9	99.5	P/P	90 - 110

Reference Method: SM 2120 B-2011
Run ID: A106026
Included Lab Sample IDs: 2254697, 2254698, 2254699

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	100	100	P/P	90 - 115

Reference Method: EPA 180.1 Rev. 2.0
Run ID: A106027
Included Lab Sample IDs: 2254697, 2254698, 2254699

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

Reference Method: EPA 353.2 Rev. 2.0
Run ID: A106034
Included Lab Sample IDs: 2254700

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

Reference Method: EPA 353.2 Rev. 2.0
Run ID: A106065
Included Lab Sample IDs: 2254701, 2254702

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

Reference Method: EPA 300.0 Rev. 2.1
Run ID: A106105
Included Lab Sample IDs: 2254697, 2254698, 2254699

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	101	101	P/P	90 - 110
Chloride	99.5	101	P/P	90 - 110
Sulfate	99.0	99.9	P/P	90 - 110
Sulfate	99.9	100	P/P	90 - 110

Reference Method: SM 2320 B-2011
Run ID: A106182
Included Lab Sample IDs: 2254697, 2254698, 2254699

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	98.4	99.8	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: SM 4500 F-C-2011

Run ID: A106182

Included Lab Sample IDs: 2254697, 2254698, 2254699

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	101	104	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A106217

Included Lab Sample IDs: 2254700, 2254701, 2254702

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

Reference Method: SM 5310 B-2011

Run ID: A106258

Included Lab Sample IDs: 2254700, 2254701, 2254702

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

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A106295

Included Lab Sample IDs: 2254700, 2254701, 2254702

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	98.8	98.1	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A106393

Included Lab Sample IDs: 2254702

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	100	104	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A106429

Included Lab Sample IDs: 2254700, 2254701

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	96.9	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				7.43	
EPA 300.0 Rev. 2.1	Chloride	97.0	91.9	94.1	0.349	
	Sulfate	97.6	94.5	94.4	0.407	
EPA 350.1 Rev. 2.0	Ammonia-N	99.2	97.6	98.8		1.06
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	108				1.03
	Kjeldahl Nitrogen	109	104	93.5		9.41
EPA 353.2 Rev. 2.0	NO2NO3-N	100	99.5	99.5		0.0
	NO2NO3-N	100	99.8	98.3		1.22
EPA 365.1 Rev. 2.0	Total-P	103	102	103		1.17
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	102	96.3	97.0		0.724
SM 2120 B-2011	Color (true)	100			1.34	
SM 2320 B-2011	Total Alkalinity	102			0.966	
SM 2540 C-2011	TDS				4.10	
SM 4500 F-C-2011	Fluoride	99.8	98.0	98.6		0.454
SM 5310 B-2011	Organic Carbon	95.3	102	102		0.255

Reference Method Descriptions

Method	Description	Associated Samples
EPA 180.1 Rev. 2.0	Turbidity in aqueous matrices	2254697, 2254698, 2254699
EPA 300.0 Rev. 2.1	Chloride in aqueous matrices	2254697, 2254698, 2254699
EPA 300.0 Rev. 2.1	Sulfate in aqueous matrices	2254697, 2254698, 2254699
EPA 350.1 Rev. 2.0	Ammonia in aqueous matrices as mg N/L	2254700, 2254701, 2254702
EPA 351.2 Rev. 2.0	Total Kjeldahl Nitrogen in aqueous matrices	2254700, 2254701, 2254702
EPA 353.2 Rev. 2.0	Nitrite/Nitrate in aqueous matrices as mg N/L	2254700, 2254701, 2254702
EPA 365.1 Rev. 2.0	Total Phosphorus in aqueous matrices as mg P/L	2254700, 2254701, 2254702
EPA 365.1 Rev. 2.0 dissolved	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	2254703, 2254704, 2254705
SM 2120 B-2011	True Color measured at 450 nm (not valid for NPDES monitoring)	2254697, 2254698, 2254699
SM 2320 B-2011	Alkalinity in aqueous matrices as mg CaCO3/L	2254697, 2254698, 2254699
SM 2540 C-2011	Total Dissolved Solids in aqueous matrices	2254697, 2254698, 2254699
SM 2540 D-2011	Total Suspended Solids in aqueous matrices using a maximum of 250 mL of sample	2254697, 2254698, 2254699
SM 4500 F-C-2011	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	2254697, 2254698, 2254699
SM 5310 B-2011	Nonpurgeable Organic Carbon in aqueous matrices	2254700, 2254701, 2254702

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	06/11/2021			06/11/2021 15:10	Sarah A Nixon	2254697, 2254698, 2254699
EPA 300.0 Rev. 2.1	06/11/2021			06/17/2021 17:19	Lipi Saha	2254697
	06/11/2021			06/17/2021 17:55	Lipi Saha	2254698
	06/11/2021			06/17/2021 18:07	Lipi Saha	2254699
EPA 350.1 Rev. 2.0	06/11/2021			06/25/2021 12:47	Ping Hua	2254700
	06/11/2021			06/25/2021 12:48	Ping Hua	2254701
	06/11/2021			06/25/2021 12:49	Ping Hua	2254702
EPA 351.2 Rev. 2.0	06/11/2021	06/29/2021 12:54	Benjamin T. Nordmann	06/30/2021 12:43	Letuzia M De Oliveira	2254702
	06/11/2021	06/30/2021 12:03	Benjamin T. Nordmann	07/01/2021 17:12	Letuzia M De Oliveira	2254700
	06/11/2021	06/30/2021 12:03	Benjamin T. Nordmann	07/01/2021 17:13	Letuzia M De Oliveira	2254701
EPA 353.2 Rev. 2.0	06/11/2021			06/14/2021 10:02	Beverly Y. Sanders	2254700
	06/11/2021			06/15/2021 10:54	Beverly Y. Sanders	2254701
	06/11/2021			06/15/2021 10:56	Beverly Y. Sanders	2254702
EPA 365.1 Rev. 2.0	06/11/2021	06/21/2021 16:53	Madeline Gruver	06/22/2021 13:58	Shengyu Ding	2254700
	06/11/2021	06/21/2021 16:53	Madeline Gruver	06/22/2021 13:59	Shengyu Ding	2254701
	06/11/2021	06/21/2021 16:53	Madeline Gruver	06/22/2021 14:00	Shengyu Ding	2254702
EPA 365.1 Rev. 2.0 dissolved	06/11/2021			06/11/2021 14:17	Ping Hua	2254703
	06/11/2021			06/11/2021 14:18	Ping Hua	2254704
	06/11/2021			06/11/2021 14:19	Ping Hua	2254705
SM 2120 B-2011	06/11/2021			06/11/2021 16:06	Sarah A Nixon	2254697
	06/11/2021			06/11/2021 16:08	Sarah A Nixon	2254698
	06/11/2021			06/11/2021 16:09	Sarah A Nixon	2254699
SM 2320 B-2011	06/11/2021			06/19/2021 01:24	Dale L. Simmons	2254697
	06/11/2021			06/19/2021 01:38	Dale L. Simmons	2254698
	06/11/2021			06/19/2021 01:53	Dale L. Simmons	2254699
SM 2540 C-2011	06/11/2021			06/15/2021 14:12	Yijie Li	2254697, 2254698, 2254699
SM 2540 D-2011	06/11/2021			06/15/2021 14:12	Yijie Li	2254697, 2254698, 2254699
SM 4500 F-C-2011	06/11/2021			06/19/2021 01:24	Dale L. Simmons	2254697
	06/11/2021			06/19/2021 01:38	Dale L. Simmons	2254698
	06/11/2021			06/19/2021 01:53	Dale L. Simmons	2254699
SM 5310 B-2011	06/11/2021			06/23/2021 02:49	Madeline Gruver	2254700
	06/11/2021			06/23/2021 06:38	Madeline Gruver	2254701
	06/11/2021			06/23/2021 06:51	Madeline Gruver	2254702