

Chemical Analysis Report

CEN-DIST-2018-09-05-01

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

Event Description: **Starke Lk + D&B**
Request ID: **RQ-2018-09-03-61**
Customer: **CEN-DIST**
Project ID: **SMP**

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Certified by: Dr. rer. nat. Bettina Steinbock, Environmental Administrator

Date Certified: 21-SEP-2018 14:29



Case Narrative

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

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

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

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

Results for TNI accredited tests met requirements established by The NELAC Institute. A double asterisk (**) is used to indicate an analyte/matrix/method for which the laboratory is not TNI accredited or where accreditation for that field of testing is not applicable.

Any significant anomalies or deviations from established protocols are documented in Non-Conformance Reports, which, where appropriate, are included within this analytical report. Additional comments related to specific analytical tests may be included as remarks following the analytical results for each sample. Such comments and remarks are for informational purposes only and are not intended to convey judgement about the usability of the reported data.

A quality control report on the performance of the test method for the submitted samples is included. Uncertainty associated with the analytical results contained in this report can be estimated from the reported quality assurance results and from published quality control acceptance limits for each analytical test. Matrix quality control results (matrix spike recoveries and matrix sample precision) pertain only to the matrix sample tested and do not necessarily reflect test method performance for other samples.

Typical matrix quality control (QC) measurements may include matrix spike recovery, matrix spike duplicate recovery, matrix spike precision and matrix sample precision. Not all matrix QC results may be available or reportable; where they are not an explanation is provided. Typical reasons for unavailable QC results include, but are not limited to, a) insufficient matrix sample to perform some or all QC measurements; b) analyte concentration in the sample replicated was too low for a meaningful measurement of precision and c) analyte concentration in the matrix sample spiked was too high (relative to the amount of analyte spiked) for a meaningful measurement of recovery. Where matrix QC results are unavailable, other method performance metrics (e.g., LCS recovery, LCS precision, surrogate recovery) may be used to assess performance of the method. Comments explaining any missing QC measurements are not intended to convey any adverse conclusions about the quality of the reported data.

Precision is reported as relative percent difference unless otherwise noted.

Quality Control codes as defined below may be used in this report to indicate results that are associated with one or more quality control elements which did not fall within established test method criteria. Such results may be qualified as estimates using a J qualifier as required by 62-160 F.A.C. Explanations are included in the report for any results that were reported as estimates for other reasons.

QC Codes used in this report may include:

- LCS – Recovery for the batch Laboratory Control Sample (LCS) was outside existing control limits;
- MS – Recovery for the batch matrix spike (MS) was outside existing control limits;
- CCV – Recovery for a continuing calibration verification (CCV) standard was outside existing control limits;
- SUR – Recovery of a surrogate (SUR) for associated analytes was outside existing control limits;
- RPD – The precision, measured as relative percent difference (RPD), of batch replicate measurements was outside existing control limits;
- RSD – The precision, measured as relative standard deviation (RSD), of batch replicate measurements was outside existing control limits;
- SMP – Sample - used precision derived from replicate analyses of a sample;

The following data qualifiers are used, where applicable, in this report as specified in 62-160 F.A.C.

- A - Value reported is the mean of two or more determinations.
- B - Results based on colony counts outside the acceptable range.
- I - The reported value is between the laboratory method detection limit and the laboratory practical quantitation limit.
- J - Estimated value and/or the analysis did not meet established quality control criteria.
- K - Actual value is known to be less than value given.
- L - Actual value is known to be greater than value given.
- N - Presumptive evidence of presence of material.
- O - Sampled, but analysis lost or not performed.
- Q - Sample held beyond normal holding time.
- T - Value reported is less than the criterion of detection.
- U - Material was analyzed for but not detected. The reported value is the method detection limit for the sample analyzed.
- V - Analyte was detected in both sample and method blank.
- X - Too few individuals to calculate SCI value.
- Y - The laboratory analysis was from an unpreserved or improperly preserved sample. The data may not be accurate.
- Z - Colonies were too numerous to count (TNTC).

Quality control information from overflow laboratories may not be included in this report. Please refer to the associated report from the overflow laboratory for additional information.

Sample Location: LAKE STARKE AT CENTER

Collection Date/Time: 09/04/2018 11:59

Field ID: G2CE0094

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2022043	EPA 180.1 Rev. 2.0	Turbidity	7.3	A	NTU	P351160	
	EPA 300.0 Rev. 2.1	Chloride	24		mg Cl/L	P351786	
		Sulfate	19		mg SO4/L	P351788	
	SM 2120 B	Color (true)	16		PCU	P351168	
	SM 2320 B-97	Total Alkalinity	54		mg CaCO3/L	P351404	
	SM 2540 C-97	TDS	138		mg/L	P351550	
	SM 2540 D-97	TSS	6	I	mg/L	P351723	
	SM 4500 F-C-97	Fluoride	0.13		mg F/L	P351411	
	EPA 350.1 Rev. 2.0	Ammonia-N	0.088		mg N/L	P351284	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.4		mg N/L	P351176	
2022044	EPA 353.2 Rev. 2.0	NO2NO3-N	0.009	I	mg N/L	P351314	
	EPA 365.1 Rev. 2.0	Total-P	0.024		mg P/L	P351203	
	SM 5310 B-00	Organic Carbon	9.6		mg C/L	P351440	
	EPA 365.1 Rev. 2.0	O-Phosphate-P	0.004	U	mg P/L	P351135	
	dissolved						

Ref. Method and Comment:

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

Sample Location: LAKE STARKE AT CENTER

Collection Date/Time: 09/04/2018 12:03

Field ID: G2CE0094_DUP

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2022046	EPA 180.1 Rev. 2.0	Turbidity	7.2		NTU	P351160	
	EPA 300.0 Rev. 2.1	Chloride	24		mg Cl/L	P351786	
		Sulfate	19		mg SO4/L	P351788	
		Color (true)	18		PCU	P351168	
	SM 2320 B-97	Total Alkalinity	54		mg CaCO3/L	P351404	
	SM 2540 C-97	TDS	143		mg/L	P351550	
	SM 2540 D-97	TSS	6	I	mg/L	P351723	
	SM 4500 F-C-97	Fluoride	0.13		mg F/L	P351411	
2022047	EPA 350.1 Rev. 2.0	Ammonia-N	0.089		mg N/L	P351284	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.4		mg N/L	P351176	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.01	I	mg N/L	P351314	
	EPA 365.1 Rev. 2.0	Total-P	0.022		mg P/L	P351203	
	SM 5310 B-00	Organic Carbon	9.5		mg C/L	P351440	
2022048	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P351135	

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: FIELD BLANK

Collection Date/Time: 09/04/2018 12:18

Field ID: BLANK_09042018

Matrix: W-FIELD-BK

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2022049	EPA 180.1 Rev. 2.0	Turbidity	0.10	U	NTU	P351160	
	EPA 300.0 Rev. 2.1	Chloride	0.20	U	mg Cl/L	P351786	
		Sulfate	0.20	U	mg SO4/L	P351788	
	SM 2120 B	Color (true)	2.5	U	PCU	P351154	
	SM 2320 B-97	Total Alkalinity	0.65	U	mg CaCO3/L	P351404	
	SM 2540 C-97	TDS	15	U	mg/L	P351547	
	SM 2540 D-97	TSS	2	U	mg/L	P351720	
	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P351411	
	EPA 350.1 Rev. 2.0	Ammonia-N	0.002	U	mg N/L	P351294	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.080	U	mg N/L	P351176	
2022050	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P351314	
	EPA 365.1 Rev. 2.0	Total-P	0.002	U	mg P/L	P351203	
	SM 5310 B-00	Organic Carbon	0.50	U	mg C/L	P351440	
	EPA 365.1 Rev. 2.0	O-Phosphate-P	0.004	U	mg P/L	P351136	
2022051	EPA 365.1 Rev. 2.0 dissolved						

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: P351160

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P351786

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P351788

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P351284

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P351294

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P351176

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P351314

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P351203

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P351135

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

Quality Assurance Report Method Blank Results

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P351136

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

Reference Method: SM 2120 B
Batch ID: P351154

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2120 B
Batch ID: P351168

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2320 B-97
Batch ID: P351404

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

Reference Method: SM 2540 C-97
Batch ID: P351547

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 C-97
Batch ID: P351550

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P351720

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P351723

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500 F-C-97
Batch ID: P351411

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Quality Assurance Report

Method Blank Results

Reference Method: SM 5310 B-00
Batch ID: P351440

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: P351786

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P351788

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P351284

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P351294

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P351176

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: P351314

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
NO ₂ NO ₃ -N	101		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P351203

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P351135

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P351136

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
Batch ID: P351154

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Color (true)	97.4		P	90 - 110

Reference Method: SM 2120 B
Batch ID: P351168

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

Reference Method: SM 2320 B-97
Batch ID: P351404

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

Reference Method: SM 4500 F-C-97
Batch ID: P351411

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

Reference Method: SM 5310 B-00
Batch ID: P351440

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

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P351786

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2021815	Chloride	97.8		P	90 - 110
2022077	Chloride	97.7		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P351788

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2021815	Sulfate	98.2		P	90 - 110
2022077	Sulfate	99.1		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P351284

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2022025	Ammonia-N	97.1	97.9	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P351294

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2022080	Ammonia-N	104	103	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P351176

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2022025	Kjeldahl Nitrogen	98.6	102	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P351314

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2022025	NO2NO3-N	104	104	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P351203

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2022044	Total-P	102	98.0	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P351135

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2021675	O-Phosphate-P	97.1	97.3	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P351136

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2022082	O-Phosphate-P	97.0	96.4	P/P	90 - 110

Quality Assurance Report Matrix Spike Accuracy

Reference Method: SM 4500 F-C-97
Batch ID: P351411

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2022229	Fluoride	97.6	97.6	P/P	91 - 105

Reference Method: SM 5310 B-00
Batch ID: P351440

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2021734	Organic Carbon	98.8		P	85 - 115

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P351160

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2022043	Turbidity	5.50	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P351786

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2021815	Chloride	0.143	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P351788

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2021815	Sulfate	0.167	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P351284

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2022025	Ammonia-N	0.772	Spike	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P351294

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2022080	Ammonia-N	1.11	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P351176

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2022025	Kjeldahl Nitrogen	3.08	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P351314

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2022025	NO2NO3-N	0.0	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P351203

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2022044	Total-P	3.61	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P351135

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2021675	O-Phosphate-P	0.128	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P351136

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2022082	O-Phosphate-P	0.561	Spike	P	0 - 20

Reference Method: SM 2120 B
Batch ID: P351154

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2021983	Color (true)	1.31	Sample	P	0 - 20

Reference Method: SM 2120 B
Batch ID: P351168

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2022036	Color (true)	7.98	Sample	P	0 - 20

Reference Method: SM 2320 B-97
Batch ID: P351404

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2022229	Total Alkalinity	0.574	Sample	P	0 - 1.6

Reference Method: SM 2540 C-97
Batch ID: P351547

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2021538	TDS	6.56	Sample	P	0 - 10

Reference Method: SM 2540 C-97
Batch ID: P351550

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2022125	TDS	5.33	Sample	P	0 - 10

Reference Method: SM 4500 F-C-97
Batch ID: P351411

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2022229	Fluoride	0.0	Spike	P	0 - 3.5

Quality Assurance Report Precision

Reference Method: SM 5310 B-00
Batch ID: P351440

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2021734	Organic Carbon	0.298	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: A86300
Included Lab Sample IDs: 2022045, 2022048, 2022051

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

Reference Method: SM 2120 B
Run ID: A86306
Included Lab Sample IDs: 2022049

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	99.6	98.9	P/P	85 - 115

Reference Method: EPA 180.1 Rev. 2.0
Run ID: A86309
Included Lab Sample IDs: 2022043, 2022046, 2022049

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

Reference Method: SM 2120 B
Run ID: A86310
Included Lab Sample IDs: 2022043, 2022046

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	97.7	98.2	P/P	90 - 115

Reference Method: EPA 365.1 Rev. 2.0
Run ID: A86346
Included Lab Sample IDs: 2022044, 2022047, 2022050

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	99.5	98.5	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Run ID: A86348
Included Lab Sample IDs: 2022044, 2022047

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	98.5	97.0	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Run ID: A86350
Included Lab Sample IDs: 2022050

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

Reference Method: EPA 353.2 Rev. 2.0
Run ID: A86354
Included Lab Sample IDs: 2022044, 2022047, 2022050

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

Quality Assurance Report Calibration Verification

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A86356

Included Lab Sample IDs: 2022044, 2022047, 2022050

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	97.8	98.8	P/P	90 - 110

Reference Method: SM 2320 B-97

Run ID: A86400

Included Lab Sample IDs: 2022043, 2022046, 2022049

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	104	102	P/P	90 - 110

Reference Method: SM 4500 F-C-97

Run ID: A86400

Included Lab Sample IDs: 2022043, 2022046, 2022049

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

Reference Method: SM 5310 B-00

Run ID: A86406

Included Lab Sample IDs: 2022044, 2022047, 2022050

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	91.4	92.4	P/P	90 - 110
Organic Carbon	93.0	91.4	P/P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1

Run ID: A86543

Included Lab Sample IDs: 2022043, 2022046, 2022049

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	101	102	P/P	90 - 110
Sulfate	101	101	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				5.50	
EPA 300.0 Rev. 2.1	Chloride	100	97.8	97.7	0.143	
	Sulfate	99.2	98.2	99.1	0.167	
EPA 350.1 Rev. 2.0	Ammonia-N	98.9	97.1	97.9		0.772
	Ammonia-N	101	104	103		1.11
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	105	98.6	102		3.08
EPA 353.2 Rev. 2.0	NO ₂ NO ₃ -N	101	104	104		0.0
EPA 365.1 Rev. 2.0	Total-P	100	102	98.0		3.61
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	98.2	97.1	97.3		0.128
	O-Phosphate-P	102	97.0	96.4		0.561
SM 2120 B	Color (true)	97.4			1.31	
	Color (true)	100			7.98	
SM 2320 B-97	Total Alkalinity	103			0.574	
SM 2540 C-97	TDS				6.56	
	TDS				5.33	
SM 4500 F-C-97	Fluoride	98.2	97.6	97.6		0.0
SM 5310 B-00	Organic Carbon	94.0	98.8			0.298

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	2022043, 2022046, 2022049
EPA 300.0 Rev. 2.1 / E31780	Chloride in aqueous matrices	2022043, 2022046, 2022049
EPA 300.0 Rev. 2.1 / E31780	Sulfate in aqueous matrices	2022043, 2022046, 2022049
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	2022044, 2022047, 2022050
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	2022044, 2022047, 2022050
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	2022044, 2022047, 2022050
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	2022044, 2022047, 2022050
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	2022045, 2022048, 2022051
SM 2120 B / E31780	True Color measured at 450 nm	2022043, 2022046, 2022049
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO ₃ /L	2022043, 2022046, 2022049
SM 2540 C-97 / E31780	Total Dissolved Solids in aqueous matrices	2022043, 2022046, 2022049
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices using a maximum of 250 mL of sample	2022043, 2022046, 2022049
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	2022043, 2022046, 2022049
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	2022044, 2022047, 2022050

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
EPA 180.1 Rev. 2.0	09/05/2018			09/05/2018 16:03	Megan Treadwell	2022043, 2022046, 2022049
EPA 300.0 Rev. 2.1	09/05/2018			09/13/2018 16:47	Lipi Saha	2022043
	09/05/2018			09/13/2018 16:59	Lipi Saha	2022046
	09/05/2018			09/13/2018 17:11	Lipi Saha	2022049
EPA 350.1 Rev. 2.0	09/05/2018			09/06/2018 13:48	Ping Hua	2022044
	09/05/2018			09/06/2018 13:50	Ping Hua	2022047
	09/05/2018			09/07/2018 11:35	Ping Hua	2022050
EPA 351.2 Rev. 2.0	09/05/2018	09/06/2018 10:00	Adrian Shelby	09/07/2018 15:25	Joseph Suarez	2022044
	09/05/2018	09/06/2018 10:00	Adrian Shelby	09/07/2018 15:27	Joseph Suarez	2022047
	09/05/2018	09/06/2018 10:00	Adrian Shelby	09/07/2018 15:28	Joseph Suarez	2022050
EPA 353.2 Rev. 2.0	09/05/2018			09/07/2018 15:49	Lauren Bottorf	2022050
	09/05/2018			09/07/2018 15:50	Lauren Bottorf	2022044
	09/05/2018			09/07/2018 15:51	Lauren Bottorf	2022047
EPA 365.1 Rev. 2.0	09/05/2018	09/06/2018 13:35	Sima Feizi	09/07/2018 13:33	Beverly Y. Sanders	2022044
	09/05/2018	09/06/2018 13:35	Sima Feizi	09/07/2018 13:34	Beverly Y. Sanders	2022047
	09/05/2018	09/06/2018 13:35	Sima Feizi	09/07/2018 13:35	Beverly Y. Sanders	2022050
EPA 365.1 Rev. 2.0 dissolved	09/05/2018			09/05/2018 17:09	Julia Storbeck	2022051
	09/05/2018			09/05/2018 17:11	Julia Storbeck	2022045
	09/05/2018			09/05/2018 17:12	Julia Storbeck	2022048
SM 2120 B	09/05/2018			09/05/2018 14:06	DeAsia Armster	2022043
	09/05/2018			09/05/2018 14:07	DeAsia Armster	2022046
	09/05/2018			09/05/2018 15:34	Blanca Fach	2022049
SM 2320 B-97	09/05/2018			09/11/2018 02:55	Dale L. Simmons	2022043
	09/05/2018			09/11/2018 03:05	Dale L. Simmons	2022046
	09/05/2018			09/11/2018 03:18	Dale L. Simmons	2022049
SM 2540 C-97	09/05/2018			09/07/2018 15:06	Yijie Li	2022043, 2022046, 2022049
SM 2540 D-97	09/05/2018			09/07/2018 15:06	Yijie Li	2022043, 2022046, 2022049
SM 4500 F-C-97	09/05/2018			09/11/2018 02:55	Dale L. Simmons	2022043
	09/05/2018			09/11/2018 03:05	Dale L. Simmons	2022046
	09/05/2018			09/11/2018 03:18	Dale L. Simmons	2022049
SM 5310 B-00	09/05/2018			09/11/2018 05:27	Megan Treadwell	2022044
	09/05/2018			09/11/2018 06:07	Megan Treadwell	2022047
	09/05/2018			09/11/2018 06:20	Megan Treadwell	2022050