

Chemical Analysis Report

CEN-DIST-2019-01-11-02

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

Event Description: **Ellen / Concord / Searcy / Nonmane**

Request ID: **RQ-2019-01-07-39**

Customer: **CEN-DIST**

Project ID: **SMP**

Send Reports to:

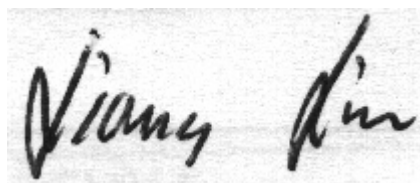
FL Dept. of Environmental Protection
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Attn: Mike Linger

For additional information please contact

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Certified by: Liang Lin, Environmental Administrator

Date Certified: 30-JAN-2019 14:45

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

Case Narrative

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

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

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

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

Results for TNI accredited tests met requirements established by The NELAC Institute. A double asterisk (**) is used to indicate an analyte/matrix/method for which the laboratory is not TNI accredited 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: NONAME LAKE @ CENTER

Collection Date/Time: 01/10/2019 09:55

Field ID: G2CE0068

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2053641	EPA 180.1 Rev. 2.0	Turbidity	3.0		NTU	P357233	
	EPA 300.0 Rev. 2.1	Chloride	17	A	mg Cl/L	P357336	
		Sulfate	9.8	A	mg SO4/L	P357338	
	SM 2120 B	Color (true)	18		PCU	P357176	
	SM 2320 B-97	Total Alkalinity	17		mg CaCO3/L	P357545	
	SM 2540 C-97	TDS	66		mg/L	P357618	
	SM 2540 D-97	TSS	2	I	mg/L	P357611	
	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P357519	
2053645	EPA 350.1 Rev. 2.0	Ammonia-N	0.003	I	mg N/L	P357365	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.54		mg N/L	P357278	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P357210	
	EPA 365.1 Rev. 2.0	Total-P	0.018		mg P/L	P357280	
	SM 5310 B-00	Organic Carbon	5.9		mg C/L	P357327	
2053649	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P357180	

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 SEARCY @ CENTER

Collection Date/Time: 01/10/2019 10:52

Field ID: G2CE0137

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2053642	EPA 180.1 Rev. 2.0	Turbidity	7.2		NTU	P357233	
	EPA 300.0 Rev. 2.1	Chloride	21		mg Cl/L	P357336	
		Sulfate	3.8		mg SO4/L	P357338	
	SM 2120 B	Color (true)	66	A	PCU	P357176	
	SM 2320 B-97	Total Alkalinity	26		mg CaCO3/L	P357545	
	SM 2540 C-97	TDS	92		mg/L	P357618	
	SM 2540 D-97	TSS	6	I	mg/L	P357611	
	SM 4500 F-C-97	Fluoride	0.076	I	mg F/L	P357519	
	EPA 350.1 Rev. 2.0	Ammonia-N	0.024		mg N/L	P357365	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.0		mg N/L	P357278	
2053646	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P357210	
	EPA 365.1 Rev. 2.0	Total-P	0.078		mg P/L	P357280	
	SM 5310 B-00	Organic Carbon	11		mg C/L	P357327	
	EPA 365.1 Rev. 2.0	O-Phosphate-P	0.005	I	mg P/L	P357180	
	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 CONCORD AT CENTER

Collection Date/Time: 01/10/2019 11:30

Field ID: G2CE0059

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2053643	EPA 180.1 Rev. 2.0	Turbidity	5.4		NTU	P357233	
	EPA 300.0 Rev. 2.1	Chloride	13		mg Cl/L	P357336	
		Sulfate	6.8		mg SO4/L	P357338	
	SM 2120 B	Color (true)	13		PCU	P357176	
	SM 2320 B-97	Total Alkalinity	72	A	mg CaCO3/L	P357545	
	SM 2540 C-97	TDS	117	A	mg/L	P357618	
	SM 2540 D-97	TSS	4	I	mg/L	P357611	
	SM 4500 F-C-97	Fluoride	0.059	I	mg F/L	P357519	
2053647	EPA 350.1 Rev. 2.0	Ammonia-N	0.003	I	mg N/L	P357365	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.69		mg N/L	P357278	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P357210	
	EPA 365.1 Rev. 2.0	Total-P	0.035		mg P/L	P357280	
	SM 5310 B-00	Organic Carbon	5.0		mg C/L	P357327	
2053651	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P357180	

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 ELLEN @ CENTER

Collection Date/Time: 01/10/2019 12:05

Field ID: G2CE0060

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2053644	EPA 180.1 Rev. 2.0	Turbidity	0.95		NTU	P357233	
	EPA 300.0 Rev. 2.1	Chloride	14		mg Cl/L	P357336	
		Sulfate	12		mg SO4/L	P357338	
	SM 2120 B	Color (true)	25		PCU	P357176	
	SM 2320 B-97	Total Alkalinity	11		mg CaCO3/L	P357545	
	SM 2540 C-97	TDS	75		mg/L	P357618	
	SM 2540 D-97	TSS	2	UA	mg/L	P357611	
	SM 4500 F-C-97	Fluoride	0.059	I	mg F/L	P357519	
2053648	EPA 350.1 Rev. 2.0	Ammonia-N	0.021		mg N/L	P357365	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.44		mg N/L	P357278	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.021		mg N/L	P357211	
	EPA 365.1 Rev. 2.0	Total-P	0.012		mg P/L	P357280	
	SM 5310 B-00	Organic Carbon	5.4		mg C/L	P357327	
2053652	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P357180	

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: P357233

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P357336

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P357338

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P357365

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P357278

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P357210

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P357211

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P357280

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P357180

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

Quality Assurance Report

Method Blank Results

Reference Method: SM 2120 B
Batch ID: P357176

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2320 B-97
Batch ID: P357545

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

Reference Method: SM 2540 C-97
Batch ID: P357618

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P357611

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500 F-C-97
Batch ID: P357519

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-00
Batch ID: P357327

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: P357336

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P357338

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P357365

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Ammonia-N	98.4		P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P357278

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P357210

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: P357211

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P357280

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: P357180

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

Reference Method: SM 2120 B
Batch ID: P357176

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

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: SM 2320 B-97
Batch ID: P357545

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

Reference Method: SM 4500 F-C-97
Batch ID: P357519

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	100		P	91 - 105

Reference Method: SM 5310 B-00
Batch ID: P357327

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	98.0		P	85 - 115

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P357336

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2053641	Chloride	94.3		P	90 - 110
2053644	Chloride	93.4		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P357338

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2053641	Sulfate	93.1		P	90 - 110
2053644	Sulfate	97.1		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P357365

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2053648	Ammonia-N	101	99.5	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P357278

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2053647	Kjeldahl Nitrogen	106	97.8	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P357210

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2053549	NO2NO3-N	102	101	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P357211

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2053648	NO2NO3-N	102	102	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P357280

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2053647	Total-P	102	98.0	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P357180

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2053649	O-Phosphate-P	92.7	93.9	P/P	90 - 110

Reference Method: SM 4500 F-C-97
Batch ID: P357519

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2053643	Fluoride	99.3	100	P/P	91 - 105

Quality Assurance Report Matrix Spike Accuracy

Reference Method: SM 5310 B-00
Batch ID: P357327

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2053623	Organic Carbon	99.8	98.2	P/P	85 - 115

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
 Batch ID: P357233

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2053678	Turbidity	3.90	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
 Batch ID: P357336

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2053641	Chloride	0.472	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
 Batch ID: P357338

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2053641	Sulfate	0.553	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
 Batch ID: P357365

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2053648	Ammonia-N	1.26	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
 Batch ID: P357278

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2053647	Kjeldahl Nitrogen	5.16	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
 Batch ID: P357210

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2053549	NO2NO3-N	0.985	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
 Batch ID: P357211

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2053648	NO2NO3-N	0.443	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
 Batch ID: P357280

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2053647	Total-P	3.60	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 365.1 Rev. 2.0 dissolved
 Batch ID: P357180

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2053649	O-Phosphate-P	1.29	Spike	P	0 - 20

Reference Method: SM 2120 B
 Batch ID: P357176

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2053642	Color (true)	3.96	Sample	P	0 - 20

Reference Method: SM 2320 B-97
 Batch ID: P357545

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2053643	Total Alkalinity	0.393	Sample	P	0 - 1.6

Reference Method: SM 2540 C-97
 Batch ID: P357618

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2053643	TDS	5.13	Sample	P	0 - 10

Reference Method: SM 4500 F-C-97
 Batch ID: P357519

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2053643	Fluoride	0.983	Spike	P	0 - 3.5

Reference Method: SM 5310 B-00
 Batch ID: P357327

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2053623	Organic Carbon	1.16	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: SM 2120 B

Run ID: A88775

Included Lab Sample IDs: 2053641, 2053642, 2053643, 2053644

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	99.8	101	P/P	90 - 115

Reference Method: EPA 365.1 Rev. 2.0 dissolved

Run ID: A88776

Included Lab Sample IDs: 2053649, 2053650, 2053651, 2053652

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	99.1	99.4	P/P	90 - 110
O-Phosphate-P	99.4	98.9	P/P	90 - 110
O-Phosphate-P	99.7	99.1	P/P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1

Run ID: A88788

Included Lab Sample IDs: 2053641, 2053642, 2053643, 2053644

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	101	99.8	P/P	90 - 110
Chloride	97.9	101	P/P	90 - 110
Sulfate	100	99.5	P/P	90 - 110
Sulfate	97.6	100	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A88791

Included Lab Sample IDs: 2053645, 2053646, 2053647, 2053648

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

Reference Method: EPA 180.1 Rev. 2.0

Run ID: A88797

Included Lab Sample IDs: 2053641, 2053642, 2053643, 2053644

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Turbidity	99.5	100	P/P	95 - 105

Reference Method: SM 5310 B-00

Run ID: A88833

Included Lab Sample IDs: 2053645, 2053646, 2053647, 2053648

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	100	99.9	P/P	90 - 110
Organic Carbon	101	100	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A88850

Included Lab Sample IDs: 2053645, 2053646, 2053647, 2053648

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	100	102	P/P	90 - 110
Kjeldahl Nitrogen	101	100	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A88851

Included Lab Sample IDs: 2053645, 2053646, 2053647, 2053648

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

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A88860

Included Lab Sample IDs: 2053646

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

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A88877

Included Lab Sample IDs: 2053645, 2053647, 2053648

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	100	99.0	P/P	90 - 110
Total-P	99.8	100	P/P	90 - 110

Reference Method: SM 4500 F-C-97

Run ID: A88901

Included Lab Sample IDs: 2053641, 2053642, 2053643, 2053644

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

Reference Method: SM 2320 B-97

Run ID: A88906

Included Lab Sample IDs: 2053641, 2053642, 2053643, 2053644

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	101	99.3	P/P	90 - 110
Total Alkalinity	99.3	102	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					3.90	
EPA 300.0 Rev. 2.1	Chloride	106	94.3	93.4		0.472	
	Sulfate	105	93.1	97.1		0.553	
EPA 350.1 Rev. 2.0	Ammonia-N	98.4	101	99.5			1.26
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	104	106	97.8			5.16
EPA 353.2 Rev. 2.0	NO ₂ NO ₃ -N	100	102	101			0.985
	NO ₂ NO ₃ -N	102	102	102			0.443
EPA 365.1 Rev. 2.0	Total-P	103	102	98.0			3.60
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	96.5	92.7	93.9			1.29
SM 2120 B	Color (true)	100				3.96	
SM 2320 B-97	Total Alkalinity	101				0.393	
SM 2540 C-97	TDS					5.13	
SM 4500 F-C-97	Fluoride	100	99.3	100			0.983
SM 5310 B-00	Organic Carbon	98.0	99.8	98.2			1.16

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	2053641, 2053642, 2053643, 2053644
EPA 300.0 Rev. 2.1 / E31780	Chloride in aqueous matrices	2053641, 2053642, 2053643, 2053644
EPA 300.0 Rev. 2.1 / E31780	Sulfate in aqueous matrices	2053641, 2053642, 2053643, 2053644
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	2053645, 2053646, 2053647, 2053648
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	2053645, 2053646, 2053647, 2053648
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	2053645, 2053646, 2053647, 2053648
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	2053645, 2053646, 2053647, 2053648
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	2053649, 2053650, 2053651, 2053652
SM 2120 B / E31780	True Color measured at 450 nm	2053641, 2053642, 2053643, 2053644
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO ₃ /L	2053641, 2053642, 2053643, 2053644
SM 2540 C-97 / E31780	Total Dissolved Solids in aqueous matrices	2053641, 2053642, 2053643, 2053644
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices using a maximum of 250 mL of sample	2053641, 2053642, 2053643, 2053644
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	2053641, 2053642, 2053643, 2053644
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	2053645, 2053646, 2053647, 2053648

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	01/11/2019			01/11/2019 17:41	Megan Treadwell	2053641, 2053642, 2053643, 2053644
EPA 300.0 Rev. 2.1	01/11/2019			01/15/2019 14:56	Lipi Saha	2053641
	01/11/2019			01/15/2019 15:21	Lipi Saha	2053644
	01/11/2019			01/15/2019 17:33	Lipi Saha	2053642
	01/11/2019			01/15/2019 17:45	Lipi Saha	2053643
EPA 350.1 Rev. 2.0	01/11/2019			01/16/2019 11:47	Ping Hua	2053648
	01/11/2019			01/16/2019 11:54	Ping Hua	2053645
	01/11/2019			01/16/2019 11:56	Ping Hua	2053646
	01/11/2019			01/16/2019 11:57	Ping Hua	2053647
EPA 351.2 Rev. 2.0	01/11/2019	01/15/2019 11:30	Adrian Shelby	01/16/2019 12:31	Joseph Suarez	2053645
	01/11/2019	01/15/2019 11:30	Adrian Shelby	01/16/2019 12:32	Joseph Suarez	2053646
	01/11/2019	01/15/2019 11:30	Adrian Shelby	01/16/2019 12:34	Joseph Suarez	2053647
	01/11/2019	01/15/2019 11:30	Adrian Shelby	01/16/2019 12:42	Joseph Suarez	2053648
EPA 353.2 Rev. 2.0	01/11/2019			01/14/2019 09:55	Beverly Y. Sanders	2053645
	01/11/2019			01/14/2019 09:56	Beverly Y. Sanders	2053646
	01/11/2019			01/14/2019 09:57	Beverly Y. Sanders	2053647
	01/11/2019			01/14/2019 10:04	Beverly Y. Sanders	2053648
EPA 365.1 Rev. 2.0	01/11/2019	01/15/2019 12:00	Sima Feizi	01/16/2019 17:02	Rosalyn Ballman	2053646
	01/11/2019	01/15/2019 12:00	Sima Feizi	01/17/2019 13:01	Rosalyn Ballman	2053645
	01/11/2019	01/15/2019 12:00	Sima Feizi	01/17/2019 13:02	Rosalyn Ballman	2053647
	01/11/2019	01/15/2019 12:00	Sima Feizi	01/17/2019 13:09	Rosalyn Ballman	2053648
EPA 365.1 Rev. 2.0 dissolved	01/11/2019			01/11/2019 15:32	Jhamieka S. Greenwood	2053649
	01/11/2019			01/11/2019 15:50	Jhamieka S. Greenwood	2053650
	01/11/2019			01/11/2019 15:51	Jhamieka S. Greenwood	2053651
	01/11/2019			01/11/2019 15:58	Jhamieka S. Greenwood	2053652
SM 2120 B	01/11/2019			01/11/2019 15:53	Chelsea Hernandez	2053641
	01/11/2019			01/11/2019 15:54	Chelsea Hernandez	2053642
	01/11/2019			01/11/2019 15:55	Chelsea Hernandez	2053643
	01/11/2019			01/11/2019 15:56	Chelsea Hernandez	2053644
SM 2320 B-97	01/11/2019			01/18/2019 09:53	Dale L. Simmons	2053643
	01/11/2019			01/18/2019 13:03	Dale L. Simmons	2053641
	01/11/2019			01/18/2019 13:13	Dale L. Simmons	2053642
	01/11/2019			01/18/2019 13:21	Dale L. Simmons	2053644
SM 2540 C-97	01/11/2019			01/14/2019 14:21	Yijie Li	2053641, 2053642, 2053643, 2053644
SM 2540 D-97	01/11/2019			01/14/2019 14:21	Yijie Li	2053641, 2053642, 2053643, 2053644
SM 4500 F-C-97	01/11/2019			01/17/2019 14:21	Dale L. Simmons	2053643
	01/11/2019			01/17/2019 15:45	Dale L. Simmons	2053641
	01/11/2019			01/17/2019 15:57	Dale L. Simmons	2053642
	01/11/2019			01/17/2019 16:37	Dale L. Simmons	2053644
SM 5310 B-00	01/11/2019			01/15/2019 15:50	Megan Treadwell	2053645

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
SM 5310 B-00	01/11/2019			01/15/2019 16:27	Megan Treadwell	2053646
	01/11/2019			01/15/2019 16:39	Megan Treadwell	2053647
	01/11/2019			01/15/2019 16:53	Megan Treadwell	2053648