

Chemical Analysis Report

CEN-DIST-2019-02-05-01

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

Event Description: **Hidden / Deaton / Oka**
Request ID: **RQ-2019-01-21-30**
Customer: **CEN-DIST**
Project ID: **SMP**

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

Date Certified: 26-FEB-2019 15:31



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 @ CENTER

Collection Date/Time: 02/04/2019 11:27

Field ID: G4CE0159

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2059499	EPA 180.1 Rev. 2.0	Turbidity	1.1		NTU	P358361	
	EPA 300.0 Rev. 2.1	Chloride	36	A	mg Cl/L	P359037	
		Sulfate	0.30	IA	mg SO4/L	P359039	
		Color (true)	21	A	PCU	P358350	
	SM 2320 B-97	Total Alkalinity	93		mg CaCO3/L	P358653	
	SM 2540 C-97	TDS	188		mg/L	P358787	
	SM 2540 D-97	TSS	2	I	mg/L	P358780	
	SM 4500 F-C-97	Fluoride	0.33		mg F/L	P358658	
2059502	EPA 350.1 Rev. 2.0	Ammonia-N	0.007		mg N/L	P358797	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.1		mg N/L	P358929	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P358757	
	EPA 365.1 Rev. 2.0	Total-P	0.014		mg P/L	P358430	
	SM 5310 B-00	Organic Carbon	16		mg C/L	P359053	
2059505	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P358347	

Ref. Method and Comment:

EPA 300.0 Rev. 2.1: Sulfate: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample.

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

Sample Location: LAKE DEATON @ CENTER

Collection Date/Time: 02/04/2019 12:21

Field ID: G4CE0160

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2059500	EPA 180.1 Rev. 2.0	Turbidity	1.2		NTU	P358361	
	EPA 300.0 Rev. 2.1	Chloride	30		mg Cl/L	P359037	
		Sulfate	2.3		mg SO4/L	P359039	
	SM 2120 B	Color (true)	45		PCU	P358350	
	SM 2320 B-97	Total Alkalinity	28		mg CaCO3/L	P358650	
	SM 2540 C-97	TDS	103		mg/L	P358787	
	SM 2540 D-97	TSS	2	I	mg/L	P358780	
	SM 4500 F-C-97	Fluoride	0.12		mg F/L	P358654	
2059503	EPA 350.1 Rev. 2.0	Ammonia-N	0.050		mg N/L	P358643	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.0		mg N/L	P358477	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.021		mg N/L	P358848	
	EPA 365.1 Rev. 2.0	Total-P	0.015		mg P/L	P358430	
	SM 5310 B-00	Organic Carbon	18		mg C/L	P359053	
2059506	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P358347	

Ref. Method and Comment:

EPA 300.0 Rev. 2.1: Sulfate: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample.

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

Sample Location: HIDDEN LAKE @ CENTER

Collection Date/Time: 02/04/2019 13:37

Field ID: G4CE0158

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2059501	EPA 180.1 Rev. 2.0	Turbidity	3.9		NTU	P358361	
	EPA 300.0 Rev. 2.1	Chloride	19		mg Cl/L	P359036	
		Sulfate	2.9		mg SO4/L	P359038	
	SM 2120 B	Color (true)	65		PCU	P358350	
	SM 2320 B-97	Total Alkalinity	128		mg CaCO3/L	P358920	
	SM 2540 C-97	TDS	193		mg/L	P358787	
	SM 2540 D-97	TSS	4	I	mg/L	P358780	
	SM 4500 F-C-97	Fluoride	0.14		mg F/L	P358924	
2059504	EPA 350.1 Rev. 2.0	Ammonia-N	0.023		mg N/L	P358643	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.6		mg N/L	P358477	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.037		mg N/L	P358848	
	EPA 365.1 Rev. 2.0	Total-P	0.067		mg P/L	P358430	
	SM 5310 B-00	Organic Carbon	19		mg C/L	P359053	
2059507	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P358347	

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: P358361

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P359036

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P359037

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P359038

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P359039

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P358643

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P358797

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P358477

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P358929

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

Quality Assurance Report Method Blank Results

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P358757

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P358848

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P358430

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P358347

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

Reference Method: SM 2120 B
Batch ID: P358350

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2320 B-97
Batch ID: P358650

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

Reference Method: SM 2320 B-97
Batch ID: P358653

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

Reference Method: SM 2320 B-97
Batch ID: P358920

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

Reference Method: SM 2540 C-97
Batch ID: P358787

Component	Result	Code	Units
TDS	15	U	mg/L

Quality Assurance Report Method Blank Results

Reference Method: SM 2540 D-97
Batch ID: P358780

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500 F-C-97
Batch ID: P358654

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 4500 F-C-97
Batch ID: P358658

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 4500 F-C-97
Batch ID: P358924

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-00
Batch ID: P359053

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: P359036

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P359037

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P359038

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Sulfate	95.6		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P359039

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Sulfate	95.5		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P358643

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P358797

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Ammonia-N	99.3		P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P358477

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: P358929

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P358757

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

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P358848

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P358430

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: P358347

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
O-Phosphate-P	97.8		P	90 - 110

Reference Method: SM 2120 B
Batch ID: P358350

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Color (true)	101		P	85 - 115

Reference Method: SM 2320 B-97
Batch ID: P358650

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	102		P	98 - 107

Reference Method: SM 2320 B-97
Batch ID: P358653

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	104		P	98 - 107

Reference Method: SM 2320 B-97
Batch ID: P358920

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

Reference Method: SM 4500 F-C-97
Batch ID: P358654

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	95.0		P	91 - 105

Reference Method: SM 4500 F-C-97
Batch ID: P358658

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	97.3		P	91 - 105

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: SM 4500 F-C-97
Batch ID: P358924

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	96.2		P	91 - 105

Reference Method: SM 5310 B-00
Batch ID: P359053

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	100		P	85 - 115

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P359036

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2059453	Chloride	94.7		P	90 - 110
2059501	Chloride	94.1		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P359037

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2059499	Chloride	94.1		P	90 - 110
2059618	Chloride	94.2		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P359038

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2059453	Sulfate	92.3		P	90 - 110
2059501	Sulfate	93.2		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P359039

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2059499	Sulfate	93.3		P	90 - 110
2059618	Sulfate	96.3		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P358643

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2059798	Ammonia-N	99.1	99.1	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P358797

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2060244	Ammonia-N	101	101	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P358477

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2059517	Kjeldahl Nitrogen	97.7	96.2	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P358929

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2061851	Kjeldahl Nitrogen	103	106	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P358757

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
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Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P358757

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2059800	NO2NO3-N	99.5	99.0	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P358848

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2059454	NO2NO3-N	98.2	98.2	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P358430

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2059503	Total-P	109	105	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P358347

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2059622	O-Phosphate-P	99.4	101	P/P	90 - 110

Reference Method: SM 4500 F-C-97
Batch ID: P358654

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2058659	Fluoride	97.4	97.4	P/P	91 - 105

Reference Method: SM 4500 F-C-97
Batch ID: P358658

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2059069	Fluoride	97.5	96.9	P/P	91 - 105

Reference Method: SM 4500 F-C-97
Batch ID: P358924

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2059986	Fluoride	97.1	97.1	P/P	91 - 105

Reference Method: SM 5310 B-00
Batch ID: P359053

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2059301	Organic Carbon	98.9	97.8	P/P	85 - 115

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P358361

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2059579	Turbidity	6.29	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P359036

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2059453	Chloride	0.0522	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P359037

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2059499	Chloride	0.504	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P359038

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2059453	Sulfate	0.0249	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P358643

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2059798	Ammonia-N	0.0217	Spike	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P358797

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2060244	Ammonia-N	0.299	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P358477

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2059517	Kjeldahl Nitrogen	0.928	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P358929

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2061851	Kjeldahl Nitrogen	2.33	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P358757

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2059800	NO2NO3-N	0.272	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P358848

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2059454	NO2NO3-N	0.0	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P358430

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2059503	Total-P	3.27	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P358347

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2059622	O-Phosphate-P	1.60	Spike	P	0 - 20

Reference Method: SM 2120 B
Batch ID: P358350

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2059499	Color (true)	0.934	Sample	P	0 - 20

Reference Method: SM 2320 B-97
Batch ID: P358650

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2058659	Total Alkalinity	0.562	Sample	P	0 - 1.6

Reference Method: SM 2320 B-97
Batch ID: P358653

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2059069	Total Alkalinity	0.0253	Sample	P	0 - 1.6

Reference Method: SM 2320 B-97
Batch ID: P358920

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2059986	Total Alkalinity	0.612	Sample	P	0 - 1.6

Quality Assurance Report Precision

Reference Method: SM 2540 C-97
 Batch ID: P358787

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2059453	TDS	5.07	Sample	P	0 - 10

Reference Method: SM 4500 F-C-97
 Batch ID: P358654

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2058659	Fluoride	0.0	Spike	P	0 - 3.5

Reference Method: SM 4500 F-C-97
 Batch ID: P358658

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2059069	Fluoride	0.480	Spike	P	0 - 3.5

Reference Method: SM 4500 F-C-97
 Batch ID: P358924

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2059986	Fluoride	0.0	Spike	P	0 - 3.5

Reference Method: SM 5310 B-00
 Batch ID: P359053

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2059301	Organic Carbon	0.695	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: A89199
Included Lab Sample IDs: 2059505, 2059506, 2059507

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	99.3	98.8	P/P	90 - 110

Reference Method: SM 2120 B
Run ID: A89200
Included Lab Sample IDs: 2059499, 2059500, 2059501

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	102	101	P/P	90 - 115

Reference Method: EPA 180.1 Rev. 2.0
Run ID: A89202
Included Lab Sample IDs: 2059499, 2059500, 2059501

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

Reference Method: EPA 365.1 Rev. 2.0
Run ID: A89237
Included Lab Sample IDs: 2059504

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

Reference Method: EPA 365.1 Rev. 2.0
Run ID: A89260
Included Lab Sample IDs: 2059502, 2059503

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

Reference Method: EPA 351.2 Rev. 2.0
Run ID: A89270
Included Lab Sample IDs: 2059503, 2059504

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	97.9	99.6	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Run ID: A89313
Included Lab Sample IDs: 2059503, 2059504

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

Reference Method: SM 2320 B-97
Run ID: A89314
Included Lab Sample IDs: 2059499, 2059500

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	101	106	P/P	90 - 110
Total Alkalinity	102	99.9	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: SM 4500 F-C-97

Run ID: A89314

Included Lab Sample IDs: 2059499, 2059500

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	100	99.5	P/P	90 - 110
Fluoride	97.1	100	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A89360

Included Lab Sample IDs: 2059502

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

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A89374

Included Lab Sample IDs: 2059502

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

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A89395

Included Lab Sample IDs: 2059503, 2059504

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO2NO3-N	99.5	99.0	P/P	90 - 110

Reference Method: SM 2320 B-97

Run ID: A89417

Included Lab Sample IDs: 2059501

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	101	99.9	P/P	90 - 110

Reference Method: SM 4500 F-C-97

Run ID: A89417

Included Lab Sample IDs: 2059501

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

Reference Method: EPA 300.0 Rev. 2.1

Run ID: A89435

Included Lab Sample IDs: 2059499, 2059500, 2059501

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	98.2	98.5	P/P	90 - 110
Chloride	98.9	98.2	P/P	90 - 110
Sulfate	97.7	97.9	P/P	90 - 110
Sulfate	98.6	97.7	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A89442

Included Lab Sample IDs: 2059502

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

Reference Method: SM 5310 B-00

Run ID: A89466

Included Lab Sample IDs: 2059502, 2059503, 2059504

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	96.4	97.6	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		Precision	
					LCS	MS
EPA 180.1 Rev. 2.0	Turbidity				6.29	
EPA 300.0 Rev. 2.1	Chloride	96.8	94.7	94.1	0.0522	
	Chloride	96.8	94.1	94.2	0.504	
	Sulfate	95.6	92.3	93.2	0.0249	
	Sulfate	95.5	93.3	96.3		
EPA 350.1 Rev. 2.0	Ammonia-N	97.1	99.1	99.1		0.0217
	Ammonia-N	99.3	101	101		0.299
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	106	97.7	96.2		0.928
	Kjeldahl Nitrogen	108	103	106		2.33
EPA 353.2 Rev. 2.0	NO2NO3-N	100	99.5	99.0		0.272
	NO2NO3-N	98.0	98.2	98.2		0.0
EPA 365.1 Rev. 2.0	Total-P	107	109	105		3.27
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	97.8	99.4	101		1.60
SM 2120 B	Color (true)	101			0.934	
SM 2320 B-97	Total Alkalinity	102			0.562	
	Total Alkalinity	104			0.0253	
	Total Alkalinity	101			0.612	
SM 2540 C-97	TDS				5.07	
SM 4500 F-C-97	Fluoride	95.0	97.4	97.4		0.0
	Fluoride	97.3	97.5	96.9		0.480
	Fluoride	96.2	97.1	97.1		0.0
SM 5310 B-00	Organic Carbon	100	98.9	97.8		0.695

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	2059499, 2059500, 2059501
EPA 300.0 Rev. 2.1 / E31780	Chloride in aqueous matrices	2059499, 2059500, 2059501
EPA 300.0 Rev. 2.1 / E31780	Sulfate in aqueous matrices	2059499, 2059500, 2059501
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	2059502, 2059503, 2059504
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	2059502, 2059503, 2059504
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	2059502, 2059503, 2059504
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	2059502, 2059503, 2059504
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	2059505, 2059506, 2059507
SM 2120 B / E31780	True Color measured at 450 nm	2059499, 2059500, 2059501
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO3/L	2059499, 2059500, 2059501
SM 2540 C-97 / E31780	Total Dissolved Solids in aqueous matrices	2059499, 2059500, 2059501
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices using a maximum of 250 mL of sample	2059499, 2059500, 2059501
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	2059499, 2059500, 2059501
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	2059502, 2059503, 2059504

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
EPA 180.1 Rev. 2.0	02/05/2019			02/05/2019 17:23	Adrian Shelby	2059499, 2059500, 2059501
EPA 300.0 Rev. 2.1	02/05/2019			02/15/2019 23:19	Lipi Saha	2059501
	02/05/2019			02/16/2019 07:00	Lipi Saha	2059499
	02/05/2019			02/16/2019 08:08	Lipi Saha	2059500
EPA 350.1 Rev. 2.0	02/05/2019			02/08/2019 12:02	Ping Hua	2059503
	02/05/2019			02/08/2019 12:03	Ping Hua	2059504
	02/05/2019			02/12/2019 13:24	Ping Hua	2059502
EPA 351.2 Rev. 2.0	02/05/2019	02/06/2019 16:30	Adrian Shelby	02/07/2019 14:34	Joseph Suarez	2059503
	02/05/2019	02/06/2019 16:30	Adrian Shelby	02/07/2019 14:36	Joseph Suarez	2059504
	02/05/2019	02/14/2019 12:45	Adrian Shelby	02/15/2019 10:34	Joseph Suarez	2059502
EPA 353.2 Rev. 2.0	02/05/2019			02/12/2019 12:25	Beverly Y. Sanders	2059502
	02/05/2019			02/13/2019 09:29	Beverly Y. Sanders	2059503
	02/05/2019			02/13/2019 09:30	Beverly Y. Sanders	2059504
EPA 365.1 Rev. 2.0	02/05/2019	02/06/2019 14:00	Sima Feizi	02/06/2019 18:50	Rosalyn Ballman	2059504
	02/05/2019	02/06/2019 14:00	Sima Feizi	02/07/2019 12:53	Rosalyn Ballman	2059502
	02/05/2019	02/06/2019 14:00	Sima Feizi	02/07/2019 12:54	Rosalyn Ballman	2059503
EPA 365.1 Rev. 2.0 dissolved	02/05/2019			02/05/2019 15:18	Jhamieka S. Greenwood	2059505
	02/05/2019			02/05/2019 15:19	Jhamieka S. Greenwood	2059506
	02/05/2019			02/05/2019 15:20	Jhamieka S. Greenwood	2059507
SM 2120 B	02/05/2019			02/05/2019 15:35	Chelsea Hernandez	2059499
	02/05/2019			02/05/2019 15:36	Chelsea Hernandez	2059500, 2059501
SM 2320 B-97	02/05/2019			02/09/2019 00:10	Dale L. Simmons	2059500
	02/05/2019			02/09/2019 21:55	Dale L. Simmons	2059499
	02/05/2019			02/13/2019 02:41	Dale L. Simmons	2059501
SM 2540 C-97	02/05/2019			02/06/2019 15:36	Yijie Li	2059499, 2059500, 2059501
SM 2540 D-97	02/05/2019			02/06/2019 15:36	Yijie Li	2059499, 2059500, 2059501
SM 4500 F-C-97	02/05/2019			02/09/2019 00:10	Dale L. Simmons	2059500
	02/05/2019			02/09/2019 21:55	Dale L. Simmons	2059499
	02/05/2019			02/13/2019 02:41	Dale L. Simmons	2059501
SM 5310 B-00	02/05/2019			02/15/2019 20:31	Chelsea Hernandez	2059502
	02/05/2019			02/15/2019 20:43	Chelsea Hernandez	2059503
	02/05/2019			02/15/2019 20:55	Chelsea Hernandez	2059504