

Chemical Analysis Report

CEN-DIST-2019-05-23-01

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

Event Description: **Noname / Gem / Park / Hope / Yvonne**
Request ID: **RQ-2019-05-20-26**
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: Mike Linger

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

Date Certified: 07-JUN-2019 17:48



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 FLORIDA @ CENTER OF LAKE

Collection Date/Time: 05/22/2019 09:49

Field ID: G2CE0150

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2088388	EPA 180.1 Rev. 2.0	Turbidity	2.0		NTU	P364476	
	EPA 300.0 Rev. 2.1	Chloride	16		mg Cl/L	P364630	
		Sulfate	4.2		mg SO4/L	P364633	
	SM 2120 B	Color (true)	43		PCU	P364480	
	SM 2320 B-97	Total Alkalinity	50		mg CaCO3/L	P364858	
	SM 2540 C-97	TDS	113		mg/L	P364827	
	SM 2540 D-97	TSS	2	I	mg/L	P364667	
	SM 4500 F-C-97	Fluoride	0.076	I	mg F/L	P364862	
2088393	EPA 350.1 Rev. 2.0	Ammonia-N	0.005	I	mg N/L	P364814	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.83		mg N/L	P364824	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	I	mg N/L	P364647	
	EPA 365.1 Rev. 2.0	Total-P	0.034		mg P/L	P364830	
	SM 5310 B-00	Organic Carbon	11		mg C/L	P364642	
2088398	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P364461	

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: NONAME LAKE @ CENTER

Collection Date/Time: 05/22/2019 10:33

Field ID: G2CE0068

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2088389	EPA 180.1 Rev. 2.0	Turbidity	2.4		NTU	P364476	
	EPA 300.0 Rev. 2.1	Chloride	19		mg Cl/L	P364630	
		Sulfate	11		mg SO4/L	P364633	
	SM 2120 B	Color (true)	14		PCU	P364480	
	SM 2320 B-97	Total Alkalinity	21		mg CaCO3/L	P364858	
	SM 2540 C-97	TDS	82		mg/L	P364827	
	SM 2540 D-97	TSS	4	I	mg/L	P364667	
	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P364862	
2088394	EPA 350.1 Rev. 2.0	Ammonia-N	0.002	U	mg N/L	P364814	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.54		mg N/L	P364824	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P364647	
	EPA 365.1 Rev. 2.0	Total-P	0.021		mg P/L	P364830	
	SM 5310 B-00	Organic Carbon	5.4		mg C/L	P364642	
2088399	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P364461	

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 HOPE @ CENTER

Collection Date/Time: 05/22/2019 11:21

Field ID: G2CE0106

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2088390	EPA 180.1 Rev. 2.0	Turbidity	0.75		NTU	P364476	
	EPA 300.0 Rev. 2.1	Chloride	55		mg Cl/L	P364630	
		Sulfate	25		mg SO4/L	P364633	
	SM 2120 B	Color (true)	22	A	PCU	P364480	
	SM 2320 B-97	Total Alkalinity	45		mg CaCO3/L	P364858	
	SM 2540 C-97	TDS	196	A	mg/L	P364827	
	SM 2540 D-97	TSS	2	UA	mg/L	P364667	
	SM 4500 F-C-97	Fluoride	0.078	I	mg F/L	P364862	
	EPA 350.1 Rev. 2.0	Ammonia-N	0.004	I	mg N/L	P364814	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.57		mg N/L	P364824	
2088395	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P364647	
	EPA 365.1 Rev. 2.0	Total-P	0.017		mg P/L	P364831	
	SM 5310 B-00	Organic Carbon	6.6		mg C/L	P364642	
	EPA 365.1 Rev. 2.0	O-Phosphate-P	0.004	U	mg P/L	P364461	
	dissolved						
2088400	EPA 365.1 Rev. 2.0	O-Phosphate-P	0.004	U	mg P/L	P364461	

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 GEM AT CENTER

Collection Date/Time: 05/22/2019 11:56

Field ID: G2CE0204

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2088391	EPA 180.1 Rev. 2.0	Turbidity	3.1		NTU	P364476	
	EPA 300.0 Rev. 2.1	Chloride	12	A	mg Cl/L	P364874	
		Sulfate	11	A	mg SO4/L	P364875	
	SM 2120 B	Color (true)	17		PCU	P364480	
	SM 2320 B-97	Total Alkalinity	82		mg CaCO3/L	P364858	
	SM 2540 C-97	TDS	126		mg/L	P364827	
	SM 2540 D-97	TSS	5	I	mg/L	P364667	
	SM 4500 F-C-97	Fluoride	0.062	I	mg F/L	P364862	
2088396	EPA 350.1 Rev. 2.0	Ammonia-N	0.004	I	mg N/L	P364814	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.61		mg N/L	P364824	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P364647	
	EPA 365.1 Rev. 2.0	Total-P	0.038		mg P/L	P364831	
	SM 5310 B-00	Organic Carbon	6.5		mg C/L	P364642	
2088401	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P364461	

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 PARK @ CENTER

Collection Date/Time: 05/22/2019 12:07

Field ID: G2CE0009

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2088392	EPA 180.1 Rev. 2.0	Turbidity	1.9		NTU	P364476	
	EPA 300.0 Rev. 2.1	Chloride	14		mg Cl/L	P364874	
		Sulfate	11		mg SO4/L	P364875	
	SM 2120 B	Color (true)	16		PCU	P364480	
	SM 2320 B-97	Total Alkalinity	70		mg CaCO3/L	P364858	
	SM 2540 C-97	TDS	128		mg/L	P364827	
	SM 2540 D-97	TSS	4	I	mg/L	P364667	
	SM 4500 F-C-97	Fluoride	0.067	I	mg F/L	P364862	
2088397	EPA 350.1 Rev. 2.0	Ammonia-N	0.004	I	mg N/L	P364814	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.62		mg N/L	P364824	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P364647	
	EPA 365.1 Rev. 2.0	Total-P	0.021		mg P/L	P364831	
	SM 5310 B-00	Organic Carbon	6.9		mg C/L	P364642	
2088402	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P364461	

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: P364476

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P364630

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P364633

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P364874

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P364875

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P364814

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P364824

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P364647

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P364830

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
Batch ID: P364831

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P364461

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

Reference Method: SM 2120 B
Batch ID: P364480

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2320 B-97
Batch ID: P364858

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

Reference Method: SM 2540 C-97
Batch ID: P364827

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P364667

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500 F-C-97
Batch ID: P364862

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-00
Batch ID: P364642

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: P364630

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P364633

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P364874

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P364875

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Sulfate	98.3		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P364814

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: P364824

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P364647

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
NO2NO3-N	98.5		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P364830

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P364831

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

Quality Assurance Report

Laboratory Control Sample Accuracy

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P364461

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

Reference Method: SM 2120 B
Batch ID: P364480

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Color (true)	103		P	85 - 115

Reference Method: SM 2320 B-97
Batch ID: P364858

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	105		P	98 - 106

Reference Method: SM 4500 F-C-97
Batch ID: P364862

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	97.9		P	92 - 103

Reference Method: SM 5310 B-00
Batch ID: P364642

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: P364630

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2088094	Chloride	101		P	90 - 110
2088290	Chloride	100		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P364633

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2088094	Sulfate	101		P	90 - 110
2088290	Sulfate	100		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P364874

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2088391	Chloride	98.4		P	90 - 110
2088541	Chloride	96.3		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P364875

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2088391	Sulfate	96.5		P	90 - 110
2088541	Sulfate	98.1		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P364814

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2088393	Ammonia-N	107	106	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P364824

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2088354	Kjeldahl Nitrogen	101	100	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P364647

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2088338	NO2NO3-N	97.0		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P364830

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2088353	Total-P	96.3	94.0	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P364831

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
---------------	-----------	---------	---------	-----------	----------------

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P364831

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2088395	Total-P	96.2	99.0	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P364461

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2088545	O-Phosphate-P	92.3	93.0	P/P	90 - 110

Reference Method: SM 4500 F-C-97
Batch ID: P364862

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2088894	Fluoride	98.4	98.4	P/P	89 - 106

Reference Method: SM 5310 B-00
Batch ID: P364642

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2088293	Organic Carbon	93.0	93.4	P/P	85 - 115

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P364476

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2088357	Turbidity	0.432	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P364630

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2088290	Chloride	0.368	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P364633

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2088290	Sulfate	0.196	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P364874

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2088391	Chloride	0.241	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P364875

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2088391	Sulfate	0.375	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P364814

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2088393	Ammonia-N	1.24	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P364824

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2088354	Kjeldahl Nitrogen	0.376	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P364647

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2088338	NO2NO3-N	0.412	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P364830

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2088353	Total-P	2.19	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P364831

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2088395	Total-P	2.84	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P364461

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2088545	O-Phosphate-P	0.756	Spike	P	0 - 20

Reference Method: SM 2120 B
Batch ID: P364480

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2088390	Color (true)	4.43	Sample	P	0 - 20

Reference Method: SM 2320 B-97
Batch ID: P364858

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2088894	Total Alkalinity	0.418	Sample	P	0 - 2.8

Reference Method: SM 2540 C-97
Batch ID: P364827

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2088390	TDS	0.512	Sample	P	0 - 10

Reference Method: SM 4500 F-C-97
Batch ID: P364862

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2088894	Fluoride	0.0	Spike	P	0 - 2.5

Reference Method: SM 5310 B-00
Batch ID: P364642

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2088293	Organic Carbon	0.376	Spike	P	0 - 20

Quality Assurance Report

Precision

* 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: A91629

Included Lab Sample IDs: 2088398, 2088399, 2088400, 2088401, 2088402

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	97.5	96.5	P/P	90 - 110
O-Phosphate-P	97.8	97.5	P/P	90 - 110

Reference Method: EPA 180.1 Rev. 2.0

Run ID: A91630

Included Lab Sample IDs: 2088388, 2088389, 2088390, 2088391, 2088392

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Turbidity	99.0	100	P/P	95 - 105

Reference Method: SM 2120 B

Run ID: A91631

Included Lab Sample IDs: 2088388, 2088389, 2088390, 2088391, 2088392

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	101	100	P/P	90 - 115

Reference Method: EPA 300.0 Rev. 2.1

Run ID: A91642

Included Lab Sample IDs: 2088388, 2088389, 2088390

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

Reference Method: SM 5310 B-00

Run ID: A91711

Included Lab Sample IDs: 2088393, 2088394, 2088395, 2088396, 2088397

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	95.3	95.4	P/P	90 - 110
Organic Carbon	95.4	94.5	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A91712

Included Lab Sample IDs: 2088393, 2088394, 2088395, 2088396, 2088397

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO2NO3-N	98.5	98.5	P/P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1

Run ID: A91748

Included Lab Sample IDs: 2088391, 2088392

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

Quality Assurance Report Calibration Verification

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A91783

Included Lab Sample IDs: 2088393, 2088394, 2088395, 2088396, 2088397

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

Reference Method: SM 2320 B-97

Run ID: A91798

Included Lab Sample IDs: 2088388, 2088389, 2088390, 2088391, 2088392

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

Reference Method: SM 4500 F-C-97

Run ID: A91798

Included Lab Sample IDs: 2088388, 2088389, 2088390, 2088391, 2088392

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

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A91819

Included Lab Sample IDs: 2088393, 2088394, 2088395, 2088396, 2088397

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

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A91832

Included Lab Sample IDs: 2088393, 2088394, 2088395, 2088396, 2088397

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	101	97.9	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				0.432	
EPA 300.0 Rev. 2.1	Chloride	101	100	101	0.368	
	Chloride	98.9	98.4	96.3	0.241	
	Sulfate	101	100	101	0.196	
	Sulfate	98.3	96.5	98.1	0.375	
EPA 350.1 Rev. 2.0	Ammonia-N	101	107	106		1.24
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	102	101	100		0.376
EPA 353.2 Rev. 2.0	NO ₂ NO ₃ -N	98.5	97.0			0.412
EPA 365.1 Rev. 2.0	Total-P	101	96.3	94.0		2.19
	Total-P	98.9	96.2	99.0		2.84
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	96.5	92.3	93.0		0.756
SM 2120 B	Color (true)	103			4.43	
SM 2320 B-97	Total Alkalinity	105			0.418	
SM 2540 C-97	TDS				0.512	
SM 4500 F-C-97	Fluoride	97.9	98.4	98.4		0.0
SM 5310 B-00	Organic Carbon	94.0	93.0	93.4		0.376

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	2088388, 2088389, 2088390, 2088391, 2088392
EPA 300.0 Rev. 2.1 / E31780	Chloride in aqueous matrices	2088388, 2088389, 2088390, 2088391, 2088392
EPA 300.0 Rev. 2.1 / E31780	Sulfate in aqueous matrices	2088388, 2088389, 2088390, 2088391, 2088392
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	2088393, 2088394, 2088395, 2088396, 2088397
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	2088393, 2088394, 2088395, 2088396, 2088397
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	2088393, 2088394, 2088395, 2088396, 2088397
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	2088393, 2088394, 2088395, 2088396, 2088397
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	2088398, 2088399, 2088400, 2088401, 2088402
SM 2120 B / E31780	True Color measured at 450 nm	2088388, 2088389, 2088390, 2088391, 2088392
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO ₃ /L	2088388, 2088389, 2088390, 2088391, 2088392
SM 2540 C-97 / E31780	Total Dissolved Solids in aqueous matrices	2088388, 2088389, 2088390, 2088391, 2088392
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices using a maximum of 250 mL of sample	2088388, 2088389, 2088390, 2088391, 2088392
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	2088388, 2088389, 2088390, 2088391, 2088392
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	2088393, 2088394, 2088395, 2088396, 2088397

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	05/23/2019			05/23/2019 15:53	Sima Feizi	2088388, 2088389, 2088390, 2088391, 2088392
EPA 300.0 Rev. 2.1	05/23/2019			05/25/2019 11:44	Lipi Saha	2088388
	05/23/2019			05/25/2019 11:56	Lipi Saha	2088389
	05/23/2019			05/25/2019 12:08	Lipi Saha	2088390
	05/23/2019			05/30/2019 17:06	Lipi Saha	2088391
	05/23/2019			05/30/2019 17:54	Lipi Saha	2088392
EPA 350.1 Rev. 2.0	05/23/2019			05/30/2019 12:11	Ping Hua	2088393
	05/23/2019			05/30/2019 12:16	Ping Hua	2088394
	05/23/2019			05/30/2019 12:17	Ping Hua	2088395
	05/23/2019			05/30/2019 12:19	Ping Hua	2088396
	05/23/2019			05/30/2019 12:20	Ping Hua	2088397
EPA 351.2 Rev. 2.0	05/23/2019	05/31/2019 13:15	Adrian Shelby	06/03/2019 15:00	Joseph Suarez	2088393
	05/23/2019	05/31/2019 13:15	Adrian Shelby	06/03/2019 15:02	Joseph Suarez	2088394
	05/23/2019	05/31/2019 13:15	Adrian Shelby	06/03/2019 15:03	Joseph Suarez	2088395
	05/23/2019	05/31/2019 13:15	Adrian Shelby	06/03/2019 15:05	Joseph Suarez	2088396
	05/23/2019	05/31/2019 13:15	Adrian Shelby	06/03/2019 15:06	Joseph Suarez	2088397
EPA 353.2 Rev. 2.0	05/23/2019			05/29/2019 10:19	Beverly Y. Sanders	2088393
	05/23/2019			05/29/2019 10:20	Beverly Y. Sanders	2088394
	05/23/2019			05/29/2019 10:22	Beverly Y. Sanders	2088395
	05/23/2019			05/29/2019 10:23	Beverly Y. Sanders	2088396
	05/23/2019			05/29/2019 10:24	Beverly Y. Sanders	2088397
EPA 365.1 Rev. 2.0	05/23/2019	05/31/2019 15:15	Adrian Shelby	06/03/2019 14:53	Julia Storbeck	2088393
	05/23/2019	05/31/2019 15:15	Adrian Shelby	06/03/2019 14:54	Julia Storbeck	2088394
	05/23/2019	05/31/2019 15:15	Adrian Shelby	06/03/2019 14:56	Julia Storbeck	2088395
	05/23/2019	05/31/2019 15:15	Adrian Shelby	06/03/2019 15:03	Julia Storbeck	2088396
	05/23/2019	05/31/2019 15:15	Adrian Shelby	06/03/2019 15:04	Julia Storbeck	2088397
EPA 365.1 Rev. 2.0 dissolved	05/23/2019			05/23/2019 15:08	Jhamieka S. Greenwood	2088398
	05/23/2019			05/23/2019 15:13	Jhamieka S. Greenwood	2088399
	05/23/2019			05/23/2019 15:14	Jhamieka S. Greenwood	2088400
	05/23/2019			05/23/2019 15:15	Jhamieka S. Greenwood	2088401
	05/23/2019			05/23/2019 15:16	Jhamieka S. Greenwood	2088402
SM 2120 B	05/23/2019			05/23/2019 16:08	Madeline Funaro	2088388
	05/23/2019			05/23/2019 16:09	Madeline Funaro	2088389
	05/23/2019			05/23/2019 16:11	Madeline Funaro	2088390, 2088391
	05/23/2019			05/23/2019 16:12	Madeline Funaro	2088392
SM 2320 B-97	05/23/2019			06/01/2019 15:32	Dale L. Simmons	2088388
	05/23/2019			06/01/2019 15:43	Dale L. Simmons	2088389
	05/23/2019			06/01/2019 16:37	Dale L. Simmons	2088390
	05/23/2019			06/01/2019 16:49	Dale L. Simmons	2088391

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
SM 2320 B-97	05/23/2019			06/01/2019 17:01	Dale L. Simmons	2088392
SM 2540 C-97	05/23/2019			05/28/2019 15:10	Sima Feizi	2088388, 2088389, 2088390, 2088391, 2088392
SM 2540 D-97	05/23/2019			05/28/2019 15:10	Sima Feizi	2088388, 2088389, 2088390, 2088391, 2088392
SM 4500 F-C-97	05/23/2019			06/01/2019 15:32	Dale L. Simmons	2088388
	05/23/2019			06/01/2019 15:43	Dale L. Simmons	2088389
	05/23/2019			06/01/2019 16:37	Dale L. Simmons	2088390
	05/23/2019			06/01/2019 16:49	Dale L. Simmons	2088391
	05/23/2019			06/01/2019 17:01	Dale L. Simmons	2088392
SM 5310 B-00	05/23/2019			05/28/2019 09:01	Julia Storbeck	2088393
	05/23/2019			05/28/2019 09:14	Julia Storbeck	2088394
	05/23/2019			05/28/2019 09:54	Julia Storbeck	2088395
	05/23/2019			05/28/2019 10:08	Julia Storbeck	2088396
	05/23/2019			05/28/2019 10:21	Julia Storbeck	2088397