

Chemical Analysis Report

CEN-DIST-2019-04-18-01

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

Event Description: **Minnie + D&B / Silver / Chain / Gleason**
Request ID: **RQ-2019-03-25-32**
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: Michael Linger

For additional information please contact
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Certified by: Thekkekalathil Chandrasekhar, Chemist Administrator

Date Certified: 02-MAY-2019 13:55



NON-CONFORMANCE REPORT INCLUDED

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 Charm @ Center

Collection Date/Time: 04/17/2019 11:04

Field ID: G2CE0080

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2079159	EPA 180.1 Rev. 2.0	Turbidity	2.0		NTU	P362454	
	EPA 300.0 Rev. 2.1	Chloride	43		mg Cl/L	P362757	
		Sulfate	15	Y	mg SO4/L	P362760	
	SM 2120 B	Color (true)	22		PCU	P362410	
	SM 2320 B-97	Total Alkalinity	63	Y	mg CaCO3/L	P362948	
	SM 2540 C-97	TDS	189	Y	mg/L	P362973	
	SM 2540 D-97	TSS	3	IY	mg/L	P362749	
	SM 4500 F-C-97	Fluoride	0.23		mg F/L	P362952	
2079160	EPA 350.1 Rev. 2.0	Ammonia-N	0.007		mg N/L	P362723	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.96		mg N/L	P362842	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P362769	
	EPA 365.1 Rev. 2.0	Total-P	0.031		mg P/L	P362619	
	SM 5310 B-00	Organic Carbon	11		mg C/L	P362591	
2079161	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P362461	

Ref. Method and Comment:

EPA 300.0 Rev. 2.1: Sulfate: Sample was left out at room temperature overnight, should be stored below 6 degC.

SM 2320 B-97: Sample was left out at room temperature overnight, should be stored below 6 degC.

SM 2540 C-97: Sample was left out at room temperature overnight, should be stored below 6 degC.

SM 2540 D-97: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample. Sample was left out at room temperature overnight, should be stored below 6 degC.

Sample Location: Lake Charm @ Center

Collection Date/Time: 04/17/2019 11:08

Field ID: G2CE0080_DUP

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2079162	EPA 180.1 Rev. 2.0	Turbidity	2.0		NTU	P362454	
	EPA 300.0 Rev. 2.1	Chloride	43		mg Cl/L	P362757	
		Sulfate	16	Y	mg SO4/L	P362760	
	SM 2120 B	Color (true)	23		PCU	P362410	
	SM 2320 B-97	Total Alkalinity	63	Y	mg CaCO3/L	P362948	
	SM 2540 C-97	TDS	194	Y	mg/L	P362973	
	SM 2540 D-97	TSS	3	IY	mg/L	P362749	
	SM 4500 F-C-97	Fluoride	0.23		mg F/L	P362952	
2079163	EPA 350.1 Rev. 2.0	Ammonia-N	0.007		mg N/L	P362695	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.91		mg N/L	P362843	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P362769	
	EPA 365.1 Rev. 2.0	Total-P	0.032		mg P/L	P362619	
	SM 5310 B-00	Organic Carbon	11		mg C/L	P362591	
2079164	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P362461	

Ref. Method and Comment:

EPA 300.0 Rev. 2.1: Sulfate: Sample was left out at room temperature overnight, should be stored below 6 degC.

SM 2320 B-97: Sample was left out at room temperature overnight, should be stored below 6 degC.

SM 2540 C-97: Sample was left out at room temperature overnight, should be stored below 6 degC.

SM 2540 D-97: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample. Sample was left out at room temperature overnight, should be stored below 6 degC.

Sample Location: FB_04172019

Collection Date/Time: 04/17/2019 11:22

Field ID: FB_04172019

Matrix: W-FIELD-BK

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2079165	EPA 180.1 Rev. 2.0	Turbidity	0.10	U	NTU	P362454	
	EPA 300.0 Rev. 2.1	Chloride	0.20	U	mg Cl/L	P362757	
		Sulfate	0.20	UY	mg SO4/L	P362760	
	SM 2120 B	Color (true)	2.5	U	PCU	P362410	
	SM 2320 B-97	Total Alkalinity	0.65	UY	mg CaCO3/L	P362948	
	SM 2540 C-97	TDS	15	UY	mg/L	P362973	
	SM 2540 D-97	TSS	2	UY	mg/L	P362749	
	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P362952	
	EPA 350.1 Rev. 2.0	Ammonia-N	0.002	U	mg N/L	P362695	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.080	U	mg N/L	P362843	
2079166	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P362769	
	EPA 365.1 Rev. 2.0	Total-P	0.002	U	mg P/L	P362652	
	SM 5310 B-00	Organic Carbon	0.50	U	mg C/L	P362591	
	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P362461	
2079167	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P362461	

Ref. Method and Comment:

EPA 300.0 Rev. 2.1: Sulfate: Sample was left out at room temperature overnight, should be stored below 6 degC.

SM 2320 B-97: Sample was left out at room temperature overnight, should be stored below 6 degC.

SM 2540 C-97: Sample was left out at room temperature overnight, should be stored below 6 degC.

SM 2540 D-97: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample. Sample was left out at room temperature overnight, should be stored below 6 degC.

Sample Location: Three Island Lake @ Center of South Lobe

Collection Date/Time: 04/17/2019 12:58

Field ID: G2CE0085

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2079168	EPA 180.1 Rev. 2.0	Turbidity	1.3		NTU	P362454	
	EPA 300.0 Rev. 2.1	Chloride	20		mg Cl/L	P362757	
		Sulfate	7.6	Y	mg SO4/L	P362760	
	SM 2120 B	Color (true)	160		PCU	P362410	
	SM 2320 B-97	Total Alkalinity	5.2	Y	mg CaCO3/L	P362948	
	SM 2540 C-97	TDS	101	Y	mg/L	P362973	
	SM 2540 D-97	TSS	2	UY	mg/L	P362749	
	SM 4500 F-C-97	Fluoride	0.037	I	mg F/L	P362952	
2079171	EPA 350.1 Rev. 2.0	Ammonia-N	0.007		mg N/L	P362695	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.96		mg N/L	P362843	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.007	I	mg N/L	P362769	
	EPA 365.1 Rev. 2.0	Total-P	0.023		mg P/L	P362619	
	SM 5310 B-00	Organic Carbon	21		mg C/L	P362591	
2079174	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P362461	

Ref. Method and Comment:

EPA 300.0 Rev. 2.1: Sulfate: Sample was left out at room temperature overnight, should be stored below 6 degC.

SM 2320 B-97: Sample was left out at room temperature overnight, should be stored below 6 degC.

SM 2540 C-97: Sample was left out at room temperature overnight, should be stored below 6 degC.

SM 2540 D-97: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample. Sample was left out at room temperature overnight, should be stored below 6 degC.

Sample Location: Silver Lake @ Center

Collection Date/Time: 04/17/2019 10:09

Field ID: G2CE0122

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2079169	EPA 180.1 Rev. 2.0	Turbidity	0.60		NTU	P362454	
	EPA 300.0 Rev. 2.1	Chloride	49		mg Cl/L	P362757	
		Sulfate	24	Y	mg SO4/L	P362760	
	SM 2120 B	Color (true)	7.5	A	PCU	P362410	
	SM 2320 B-97	Total Alkalinity	8.3	Y	mg CaCO3/L	P362948	
	SM 2540 C-97	TDS	138	Y	mg/L	P362973	
	SM 2540 D-97	TSS	2	UY	mg/L	P362749	
	SM 4500 F-C-97	Fluoride	0.042	I	mg F/L	P362952	
2079172	EPA 350.1 Rev. 2.0	Ammonia-N	0.002	I	mg N/L	P362695	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.36		mg N/L	P362843	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P362769	
	EPA 365.1 Rev. 2.0	Total-P	0.007		mg P/L	P362619	
	SM 5310 B-00	Organic Carbon	4.9		mg C/L	P362591	
2079175	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P362461	

Ref. Method and Comment:

EPA 300.0 Rev. 2.1: Sulfate: Sample was left out at room temperature overnight, should be stored below 6 degC.

SM 2320 B-97: Sample was left out at room temperature overnight, should be stored below 6 degC.

SM 2540 C-97: Sample was left out at room temperature overnight, should be stored below 6 degC.

SM 2540 D-97: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample. Sample was left out at room temperature overnight, should be stored below 6 degC.

Sample Location: Lake Gleason @ Center

Collection Date/Time: 04/17/2019 12:13

Field ID: G2CE0114

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2079170	EPA 180.1 Rev. 2.0	Turbidity	1.3		NTU	P362454	
	EPA 300.0 Rev. 2.1	Chloride	20		mg Cl/L	P362757	
		Sulfate	2.6	Y	mg SO4/L	P362760	
	SM 2120 B	Color (true)	36		PCU	P362410	
	SM 2320 B-97	Total Alkalinity	50	Y	mg CaCO3/L	P362948	
	SM 2540 C-97	TDS	112	Y	mg/L	P362973	
	SM 2540 D-97	TSS	2	UY	mg/L	P362749	
	SM 4500 F-C-97	Fluoride	0.081	I	mg F/L	P362952	
2079173	EPA 350.1 Rev. 2.0	Ammonia-N	0.01		mg N/L	P362695	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.74		mg N/L	P362843	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P362770	
	EPA 365.1 Rev. 2.0	Total-P	0.017		mg P/L	P362619	
	SM 5310 B-00	Organic Carbon	9.8		mg C/L	P362591	
2079176	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P362461	

Ref. Method and Comment:

EPA 300.0 Rev. 2.1: Sulfate: Sample was left out at room temperature overnight, should be stored below 6 degC.

SM 2320 B-97: Sample was left out at room temperature overnight, should be stored below 6 degC.

SM 2540 C-97: Sample was left out at room temperature overnight, should be stored below 6 degC.

SM 2540 D-97: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample. Sample was left out at room temperature overnight, should be stored below 6 degC.

Non-Conformance Report

NCR ID: 7647

<u>Event(s)</u>	<u>Job(s)</u>	<u>Sample(s)</u>	<u>Test(s)</u>
CEN-DIST-2019-04-18-01	TLH-2019-04-18-17	2079159	
CEN-DIST-2019-04-18-01	TLH-2019-04-18-17	2079162	
CEN-DIST-2019-04-18-01	TLH-2019-04-18-17	2079165	
CEN-DIST-2019-04-18-01	TLH-2019-04-18-17	2079168	
CEN-DIST-2019-04-18-01	TLH-2019-04-18-17	2079169	
CEN-DIST-2019-04-18-01	TLH-2019-04-18-17	2079170	

NCR Type: CUSTODY

NCR Category: General

Observation: Samples stored at room temperature overnight on 04/18/2019.

Resolution: Chemistry Administrator notified, samples returned to refrigerator on 04/19/2019 at 12:00. Data will be qualified as appropriate.

Authorized by/Date: Peter D. Kaus 5/1/2019

The Non-Conformance Report details exceptions or problems encountered with the events/jobs/samples/test.
Please address questions to:

Chemistry	Colin Wright	(850) 245-8085
Biology	Cheryl Swanson	(850) 245-8177

Quality Assurance Report Method Blank Results

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P362454

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P362757

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P362760

Component	Result	Code	Units
Sulfate	0.20	U	mg SO ₄ /L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P362695

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P362723

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P362842

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P362843

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P362769

Component	Result	Code	Units
NO ₂ NO ₃ -N	0.004	U	mg N/L

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P362770

Component	Result	Code	Units
NO ₂ NO ₃ -N	0.004	U	mg N/L

Quality Assurance Report Method Blank Results

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P362619

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P362652

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P362461

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

Reference Method: SM 2120 B
Batch ID: P362410

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2320 B-97
Batch ID: P362948

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

Reference Method: SM 2540 C-97
Batch ID: P362973

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P362749

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500 F-C-97
Batch ID: P362952

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-00
Batch ID: P362591

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: P362757

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P362760

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Sulfate	98.7		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P362695

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P362723

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Ammonia-N	99.7		P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P362842

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P362843

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P362769

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P362770

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P362619

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

Quality Assurance Report

Laboratory Control Sample Accuracy

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P362652

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total-P	95.7		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P362461

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

Reference Method: SM 2120 B
Batch ID: P362410

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Color (true)	104		P	85 - 115

Reference Method: SM 2320 B-97
Batch ID: P362948

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	102		P	98 - 106

Reference Method: SM 4500 F-C-97
Batch ID: P362952

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	99.3		P	92 - 103

Reference Method: SM 5310 B-00
Batch ID: P362591

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	101		P	85 - 115

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P362757

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2079142	Chloride	99.3		P	90 - 110
2079243	Chloride	97.6		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P362760

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2079142	Sulfate	100		P	90 - 110
2079243	Sulfate	97.7		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P362695

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2079173	Ammonia-N	98.6	99.3	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P362723

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2078505	Ammonia-N	101	102	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P362842

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2079041	Kjeldahl Nitrogen	98.4	96.9	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P362843

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2079163	Kjeldahl Nitrogen	91.4	97.8	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P362769

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2079144	NO2NO3-N	100	98.6	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P362770

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2079173	NO2NO3-N	100	99.5	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P362619

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2079172	Total-P	100	95.1	P/P	90 - 110

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P362652

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2079223	Total-P	101	104	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P362461

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2079175	O-Phosphate-P	95.8	97.6	P/P	90 - 110

Reference Method: SM 4500 F-C-97
Batch ID: P362952

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2079060	Fluoride	98.5	98.5	P/P	89 - 106

Reference Method: SM 5310 B-00
Batch ID: P362591

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2079061	Organic Carbon	99.8	100	P/P	85 - 115

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P362454

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2079142	Turbidity	2.43	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P362757

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2079243	Chloride	0.375	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P362760

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2079243	Sulfate	0.0690	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P362695

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2079173	Ammonia-N	0.554	Spike	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P362723

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2078505	Ammonia-N	0.669	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P362842

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2079041	Kjeldahl Nitrogen	1.40	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P362843

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2079163	Kjeldahl Nitrogen	3.77	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P362769

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2079144	NO2NO3-N	1.11	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P362770

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2079173	NO2NO3-N	0.501	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P362619

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2079172	Total-P	5.35	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P362652

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2079223	Total-P	2.25	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P362461

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2079175	O-Phosphate-P	1.86	Spike	P	0 - 20

Reference Method: SM 2120 B
Batch ID: P362410

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2079169	Color (true)	0.426	Sample	P	0 - 20

Reference Method: SM 2320 B-97
Batch ID: P362948

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2079060	Total Alkalinity	0.265	Sample	P	0 - 2.8

Reference Method: SM 2540 C-97
Batch ID: P362973

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2079222	TDS	0.272	Sample	P	0 - 10

Reference Method: SM 4500 F-C-97
Batch ID: P362952

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2079060	Fluoride	0.0	Spike	P	0 - 2.5

Quality Assurance Report Precision

Reference Method: SM 5310 B-00
Batch ID: P362591

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2079061	Organic Carbon	0.243	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: A90814

Included Lab Sample IDs: 2079159, 2079162, 2079165, 2079168, 2079169, 2079170

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	102	103	P/P	90 - 115
Color (true)	103	102	P/P	90 - 115

Reference Method: EPA 180.1 Rev. 2.0

Run ID: A90832

Included Lab Sample IDs: 2079159, 2079162, 2079165, 2079168, 2079169, 2079170

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved

Run ID: A90833

Included Lab Sample IDs: 2079161, 2079164, 2079167, 2079174, 2079175, 2079176

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	100	101	P/P	90 - 110
O-Phosphate-P	100	99.6	P/P	90 - 110
O-Phosphate-P	99.0	98.8	P/P	90 - 110
O-Phosphate-P	99.6	100	P/P	90 - 110

Reference Method: SM 5310 B-00

Run ID: A90876

Included Lab Sample IDs: 2079160, 2079163, 2079166, 2079171, 2079172, 2079173

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	101	102	P/P	90 - 110
Organic Carbon	102	103	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A90934

Included Lab Sample IDs: 2079160, 2079163, 2079171, 2079172, 2079173

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	99.0	99.2	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A90940

Included Lab Sample IDs: 2079163, 2079166, 2079171, 2079172, 2079173

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

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A90949

Included Lab Sample IDs: 2079160

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

Quality Assurance Report Calibration Verification

Reference Method: EPA 300.0 Rev. 2.1

Run ID: A90961

Included Lab Sample IDs: 2079159, 2079162, 2079165, 2079168, 2079169, 2079170

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

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A90968

Included Lab Sample IDs: 2079160, 2079163, 2079166, 2079171, 2079172, 2079173

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

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A91017

Included Lab Sample IDs: 2079166

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

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A91020

Included Lab Sample IDs: 2079160, 2079163, 2079166, 2079171, 2079172, 2079173

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	98.0	96.9	P/P	90 - 110
Kjeldahl Nitrogen	98.6	98.0	P/P	90 - 110

Reference Method: SM 2320 B-97

Run ID: A91045

Included Lab Sample IDs: 2079159, 2079162, 2079165, 2079168, 2079169, 2079170

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	99.9	107	P/P	90 - 110

Reference Method: SM 4500 F-C-97

Run ID: A91045

Included Lab Sample IDs: 2079159, 2079162, 2079165, 2079168, 2079169, 2079170

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	98.6	100	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				2.43	
EPA 300.0 Rev. 2.1	Chloride	98.0	97.6	99.3	0.375	
	Sulfate	98.7	97.7	100	0.0690	
EPA 350.1 Rev. 2.0	Ammonia-N	103	98.6	99.3		0.554
	Ammonia-N	99.7	101	102		0.669
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	98.9	98.4	96.9		1.40
	Kjeldahl Nitrogen	98.6	91.4	97.8		3.77
EPA 353.2 Rev. 2.0	NO2NO3-N	99.0	100	98.6		1.11
	NO2NO3-N	99.0	100	99.5		0.501
EPA 365.1 Rev. 2.0	Total-P	105	100	95.1		5.35
	Total-P	95.7	101	104		2.25
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	98.9	95.8	97.6		1.86
SM 2120 B	Color (true)	104			0.426	
SM 2320 B-97	Total Alkalinity	102			0.265	
SM 2540 C-97	TDS				0.272	
SM 4500 F-C-97	Fluoride	99.3	98.5	98.5		0.0
SM 5310 B-00	Organic Carbon	101	99.8	100		0.243

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	2079159, 2079162, 2079165, 2079168, 2079169, 2079170
EPA 300.0 Rev. 2.1 / E31780	Chloride in aqueous matrices	2079159, 2079162, 2079165, 2079168, 2079169, 2079170
EPA 300.0 Rev. 2.1 / E31780	Sulfate in aqueous matrices	2079159, 2079162, 2079165, 2079168, 2079169, 2079170
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	2079160, 2079163, 2079166, 2079171, 2079172, 2079173
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	2079160, 2079163, 2079166, 2079171, 2079172, 2079173
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	2079160, 2079163, 2079166, 2079171, 2079172, 2079173
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	2079160, 2079163, 2079166, 2079171, 2079172, 2079173
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	2079161, 2079164, 2079167, 2079174, 2079175, 2079176
SM 2120 B / E31780	True Color measured at 450 nm	2079159, 2079162, 2079165, 2079168, 2079169, 2079170
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO3/L	2079159, 2079162, 2079165, 2079168, 2079169, 2079170
SM 2540 C-97 / E31780	Total Dissolved Solids in aqueous matrices	2079159, 2079162, 2079165, 2079168, 2079169, 2079170
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices using a maximum of 250 mL of sample	2079159, 2079162, 2079165, 2079168, 2079169, 2079170
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	2079159, 2079162, 2079165, 2079168, 2079169, 2079170
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	2079160, 2079163, 2079166, 2079171, 2079172, 2079173

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	04/18/2019			04/18/2019 16:29	Adrian Shelby	2079159, 2079162, 2079165, 2079168, 2079169, 2079170
EPA 300.0 Rev. 2.1	04/18/2019			04/23/2019 20:52	Jhamieka S. Greenwood	2079159
	04/18/2019			04/23/2019 21:04	Jhamieka S. Greenwood	2079162
	04/18/2019			04/23/2019 21:16	Jhamieka S. Greenwood	2079165
	04/18/2019			04/23/2019 21:28	Jhamieka S. Greenwood	2079168
	04/18/2019			04/23/2019 21:41	Jhamieka S. Greenwood	2079169
	04/18/2019			04/23/2019 21:53	Jhamieka S. Greenwood	2079170
EPA 350.1 Rev. 2.0	04/18/2019			04/23/2019 10:20	Ping Hua	2079160
	04/18/2019			04/23/2019 15:39	Julia Storbeck	2079173
	04/18/2019			04/23/2019 15:43	Julia Storbeck	2079163
	04/18/2019			04/23/2019 15:45	Julia Storbeck	2079166
	04/18/2019			04/23/2019 15:52	Julia Storbeck	2079171
	04/18/2019			04/23/2019 15:54	Julia Storbeck	2079172
EPA 351.2 Rev. 2.0	04/18/2019	04/25/2019 12:15	Adrian Shelby	04/26/2019 10:24	Joseph Suarez	2079163
	04/18/2019	04/25/2019 12:15	Adrian Shelby	04/26/2019 10:32	Joseph Suarez	2079166
	04/18/2019	04/25/2019 12:15	Adrian Shelby	04/26/2019 10:34	Joseph Suarez	2079171
	04/18/2019	04/25/2019 12:15	Adrian Shelby	04/26/2019 10:35	Joseph Suarez	2079172
	04/18/2019	04/25/2019 12:15	Adrian Shelby	04/26/2019 10:37	Joseph Suarez	2079173
	04/18/2019	04/25/2019 12:20	Adrian Shelby	04/26/2019 10:17	Joseph Suarez	2079160
EPA 353.2 Rev. 2.0	04/18/2019			04/24/2019 10:24	Beverly Y. Sanders	2079160
	04/18/2019			04/24/2019 10:25	Beverly Y. Sanders	2079163
	04/18/2019			04/24/2019 10:26	Beverly Y. Sanders	2079166
	04/18/2019			04/24/2019 10:27	Beverly Y. Sanders	2079171
	04/18/2019			04/24/2019 10:29	Beverly Y. Sanders	2079172
	04/18/2019			04/24/2019 10:36	Beverly Y. Sanders	2079173
EPA 365.1 Rev. 2.0	04/18/2019	04/22/2019 15:10	Sima Feizi	04/23/2019 15:09	Rosalyn Ballman	2079160
	04/18/2019	04/22/2019 15:10	Sima Feizi	04/23/2019 15:10	Rosalyn Ballman	2079163
	04/18/2019	04/22/2019 15:10	Sima Feizi	04/23/2019 15:11	Rosalyn Ballman	2079171
	04/18/2019	04/22/2019 15:10	Sima Feizi	04/23/2019 15:12	Rosalyn Ballman	2079172, 2079173
	04/18/2019	04/24/2019 15:26	Sima Feizi	04/25/2019 18:52	Rosalyn Ballman	2079166
	04/18/2019			04/18/2019 16:22	Julia Storbeck	2079175
EPA 365.1 Rev. 2.0 dissolved	04/18/2019			04/18/2019 16:50	Julia Storbeck	2079174
	04/18/2019			04/18/2019 16:51	Julia Storbeck	2079167
	04/18/2019			04/18/2019 16:59	Julia Storbeck	2079161
	04/18/2019			04/18/2019 17:00	Julia Storbeck	2079164
	04/18/2019			04/18/2019 17:19	Julia Storbeck	2079176
	04/18/2019			04/18/2019 12:13	Mariam Hanna	2079159
SM 2120 B	04/18/2019			04/18/2019 12:14	Mariam Hanna	2079162, 2079165
	04/18/2019			04/18/2019 12:17	Mariam Hanna	2079169

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
SM 2120 B	04/18/2019			04/18/2019 12:18	Mariam Hanna	2079170
	04/18/2019			04/18/2019 12:23	Mariam Hanna	2079168
SM 2320 B-97	04/18/2019			04/26/2019 09:33	Dale L. Simmons	2079159
	04/18/2019			04/26/2019 09:45	Dale L. Simmons	2079162
	04/18/2019			04/26/2019 10:00	Dale L. Simmons	2079165
	04/18/2019			04/26/2019 10:11	Dale L. Simmons	2079168
	04/18/2019			04/26/2019 10:22	Dale L. Simmons	2079169
	04/18/2019			04/26/2019 10:34	Dale L. Simmons	2079170
SM 2540 C-97	04/18/2019			04/22/2019 18:03	Mariam Hanna	2079159, 2079162, 2079165, 2079168, 2079169, 2079170
SM 2540 D-97	04/18/2019			04/22/2019 18:35	Mariam Hanna	2079159, 2079162, 2079165, 2079168, 2079169, 2079170
SM 4500 F-C-97	04/18/2019			04/26/2019 09:33	Dale L. Simmons	2079159
	04/18/2019			04/26/2019 09:45	Dale L. Simmons	2079162
	04/18/2019			04/26/2019 10:00	Dale L. Simmons	2079165
	04/18/2019			04/26/2019 10:11	Dale L. Simmons	2079168
	04/18/2019			04/26/2019 10:22	Dale L. Simmons	2079169
	04/18/2019			04/26/2019 10:34	Dale L. Simmons	2079170
SM 5310 B-00	04/18/2019			04/19/2019 23:06	Julia Storbeck	2079160
	04/18/2019			04/19/2019 23:18	Julia Storbeck	2079163
	04/18/2019			04/19/2019 23:30	Julia Storbeck	2079166
	04/18/2019			04/19/2019 23:43	Julia Storbeck	2079171
	04/18/2019			04/19/2019 23:55	Julia Storbeck	2079172
	04/18/2019			04/20/2019 00:31	Julia Storbeck	2079173