

Chemical Analysis Report

SE-DIST-2019-08-22-03

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

Event Description: **SMP-Kevin Run**
Request ID: **RQ-2019-08-19-37**
Customer: **SE-DIST**
Project ID: **SMP**

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Date Certified: 10-SEP-2019 11:21



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: Taylor Creek @ 441

Collection Date/Time: 08/21/2019 11:40

Field ID: G1SE0001

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2113656	EPA 180.1 Rev. 2.0	Turbidity	6.6		NTU	P369554	
	EPA 300.0 Rev. 2.1	Chloride	42		mg Cl/L	P369923	
		Sulfate	18		mg SO4/L	P369926	
		Color (true)	510		PCU	P369560	
	SM 2320 B-97	Total Alkalinity	50		mg CaCO3/L	P370024	
	SM 2540 C-97	TDS	240	Q	mg/L	P370070	
	SM 2540 D-97	TSS	11	Q	mg/L	P370075	
	SM 4500 F-C-97	Fluoride	0.091	I	mg F/L	P370028	
2113661	EPA 350.1 Rev. 2.0	Ammonia-N	0.19		mg N/L	P370098	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	2.1		mg N/L	P369640	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.065		mg N/L	P369826	
	EPA 365.1 Rev. 2.0	Total-P	0.64		mg P/L	P369786	
	SM 5310 B-00	Organic Carbon	35		mg C/L	P370039	
2113666	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.51		mg P/L	P369528	

Ref. Method and Comment:

SM 2540 C-97: Sample analyzed out of holding time because of analytical difficulties.

SM 2540 D-97: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample. Sample analyzed out of holding time because of analytical difficulties.

Sample Location: Taylor Creek @ 39th St.

Collection Date/Time: 08/21/2019 12:05

Field ID: G1SE0024

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2113657	EPA 180.1 Rev. 2.0	Turbidity	5.3		NTU	P369554	
	EPA 300.0 Rev. 2.1	Chloride	34		mg Cl/L	P369923	
		Sulfate	13		mg SO4/L	P369926	
		Color (true)	450		PCU	P369560	
	SM 2320 B-97	Total Alkalinity	43		mg CaCO3/L	P370024	
	SM 2540 C-97	TDS	208		mg/L	P369989	
	SM 2540 D-97	TSS	10		mg/L	P369689	
	SM 4500 F-C-97	Fluoride	0.075	I	mg F/L	P370028	
2113662	EPA 350.1 Rev. 2.0	Ammonia-N	0.17		mg N/L	P370100	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.9		mg N/L	P369640	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.053		mg N/L	P369826	
	EPA 365.1 Rev. 2.0	Total-P	0.52		mg P/L	P369786	
	SM 5310 B-00	Organic Carbon	33		mg C/L	P370039	
2113667	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.43		mg P/L	P369528	

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: Popash Slough @ 67th Dr.

Collection Date/Time: 08/21/2019 12:35

Field ID: G1SE0027

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2113653	EPA 180.1 Rev. 2.0	Turbidity	8.4	A	NTU	P369554	
	EPA 300.0 Rev. 2.1	Chloride	37		mg Cl/L	P369923	
		Sulfate	4.0		mg SO4/L	P369926	
	SM 2120 B	Color (true)	580		PCU	P369560	
	SM 2320 B-97	Total Alkalinity	65		mg CaCO3/L	P370024	
	SM 2540 C-97	TDS	248		mg/L	P369989	
	SM 2540 D-97	TSS	10		mg/L	P369689	
	SM 4500 F-C-97	Fluoride	0.068	I	mg F/L	P370028	
2113654	EPA 350.1 Rev. 2.0	Ammonia-N	0.039		mg N/L	P370098	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	2.8		mg N/L	P369640	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P369826	
	EPA 365.1 Rev. 2.0	Total-P	0.89		mg P/L	P369786	
	SM 5310 B-00	Organic Carbon	40		mg C/L	P370039	
2113655	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.64		mg P/L	P369528	

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: Taylor Creek @ 70

Collection Date/Time: 08/21/2019 13:15

Field ID: G1SE0011

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2113658	EPA 180.1 Rev. 2.0	Turbidity	7.8		NTU	P369554	
	EPA 300.0 Rev. 2.1	Chloride	40	A	mg Cl/L	P369924	
		Sulfate	32	A	mg SO4/L	P369927	
		Color (true)	270		PCU	P369560	
	SM 2320 B-97	Total Alkalinity	127		mg CaCO3/L	P370024	
	SM 2540 C-97	TDS	326	A	mg/L	P369990	
	SM 2540 D-97	TSS	9	IA	mg/L	P369690	
	SM 4500 F-C-97	Fluoride	0.097	I	mg F/L	P370028	
2113663	EPA 350.1 Rev. 2.0	Ammonia-N	0.40		mg N/L	P370100	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	2.5		mg N/L	P369656	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.46		mg N/L	P369826	
	EPA 365.1 Rev. 2.0	Total-P	0.39		mg P/L	P369786	
	SM 5310 B-00	Organic Carbon	29		mg C/L	P370039	
2113668	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.22		mg P/L	P369528	

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: L-63N canal @ SR 70

Collection Date/Time: 08/21/2019 13:35

Field ID: G1SE0023

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2113659	EPA 180.1 Rev. 2.0	Turbidity	3.3		NTU	P369555	
	EPA 300.0 Rev. 2.1	Chloride	33		mg Cl/L	P369924	
		Sulfate	13		mg SO4/L	P369927	
	SM 2120 B	Color (true)	580		PCU	P369560	
	SM 2320 B-97	Total Alkalinity	48		mg CaCO3/L	P370024	
	SM 2540 C-97	TDS	216		mg/L	P369990	
	SM 2540 D-97	TSS	5	I	mg/L	P369690	
	SM 4500 F-C-97	Fluoride	0.085	I	mg F/L	P370028	
2113664	EPA 350.1 Rev. 2.0	Ammonia-N	0.21		mg N/L	P370100	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	2.8		mg N/L	P369656	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.044		mg N/L	P369827	
	EPA 365.1 Rev. 2.0	Total-P	0.72		mg P/L	P369792	
	SM 5310 B-00	Organic Carbon	39		mg C/L	P370039	
2113669	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.60		mg P/L	P369528	

Ref. Method and Comment:

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

EPA 365.1 Rev. 2.0: Total-P: Batch matrix spike recoveries are unavailable because of high analyte concentration in the QC sample

Sample Location: L-63N canal @ SR 70

Collection Date/Time: 08/21/2019 13:40

Field ID: G1SE0023_DUP

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2113660	EPA 180.1 Rev. 2.0	Turbidity	3.1		NTU	P369555	
	EPA 300.0 Rev. 2.1	Chloride	34		mg Cl/L	P369924	
		Sulfate	13		mg SO4/L	P369927	
	SM 2120 B	Color (true)	570		PCU	P369560	
	SM 2320 B-97	Total Alkalinity	47		mg CaCO3/L	P370024	
	SM 2540 C-97	TDS	217		mg/L	P369990	
	SM 2540 D-97	TSS	4	I	mg/L	P369690	
	SM 4500 F-C-97	Fluoride	0.086	I	mg F/L	P370028	
2113665	EPA 350.1 Rev. 2.0	Ammonia-N	0.22		mg N/L	P370100	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	2.6		mg N/L	P369656	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.042		mg N/L	P369827	
	EPA 365.1 Rev. 2.0	Total-P	0.74		mg P/L	P369792	
	SM 5310 B-00	Organic Carbon	38		mg C/L	P370039	
2113670	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.60		mg P/L	P369528	

Ref. Method and Comment:

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

EPA 365.1 Rev. 2.0: Total-P: Batch matrix spike recoveries are unavailable because of high analyte concentration in the QC sample

Quality Assurance Report Method Blank Results

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P369554

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P369555

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P369923

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P369924

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P369926

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P369927

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P370098

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P370100

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P369640

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

Quality Assurance Report Method Blank Results

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P369656

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P369826

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P369827

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P369786

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P369792

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P369528

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

Reference Method: SM 2120 B
Batch ID: P369560

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2320 B-97
Batch ID: P370024

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

Reference Method: SM 2540 C-97
Batch ID: P369989

Component	Result	Code	Units
TDS	15	U	mg/L

Quality Assurance Report

Method Blank Results

Reference Method: SM 2540 C-97
Batch ID: P369990

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 C-97
Batch ID: P370070

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P369689

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P369690

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P370075

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500 F-C-97
Batch ID: P370028

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-00
Batch ID: P370039

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: P369923

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Chloride	99.4		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P369924

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P369926

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P369927

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P370098

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Ammonia-N	96.7		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P370100

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Ammonia-N	97.2		P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P369640

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Kjeldahl Nitrogen	97.0		P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P369656

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P369826

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
NO2NO3-N	97.5		P	90 - 110

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P369827

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
NO2NO3-N	97.5		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P369786

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total-P	94.1		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P369792

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total-P	93.4		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P369528

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

Reference Method: SM 2120 B
Batch ID: P369560

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

Reference Method: SM 2320 B-97
Batch ID: P370024

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	103		P	98 - 106

Reference Method: SM 4500 F-C-97
Batch ID: P370028

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	98.6		P	92 - 103

Reference Method: SM 5310 B-00
Batch ID: P370039

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	94.4		P	85 - 115

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P369923

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2113514	Chloride	102		P	90 - 110
2113595	Chloride	103		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P369924

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2113658	Chloride	104		P	90 - 110
2114199	Chloride	104		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P369926

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2113514	Sulfate	100		P	90 - 110
2113595	Sulfate	102		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P369927

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2113658	Sulfate	106		P	90 - 110
2114199	Sulfate	103		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P370098

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2113617	Ammonia-N	95.1	95.2	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P370100

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2114025	Ammonia-N	94.2	94.0	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P369640

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2113616	Kjeldahl Nitrogen	95.0	91.0	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P369656

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2114024	Kjeldahl Nitrogen	100	93.9	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P369826

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: P369826

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2113616	NO2NO3-N	96.4	97.4	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P369827

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2114027	NO2NO3-N	94.5	94.0	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P369786

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2113618	Total-P	91.2	95.0	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P369528

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2113571	O-Phosphate-P	97.1	97.5	P/P	90 - 110

Reference Method: SM 4500 F-C-97
Batch ID: P370028

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2113537	Fluoride	99.4	99.4	P/P	89 - 106

Reference Method: SM 5310 B-00
Batch ID: P370039

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2114201	Organic Carbon	95.4	94.9	P/P	85 - 115

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P369554

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2113653	Turbidity	10.7	Sample	P	0 - 20

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P369555

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2113774	Turbidity	5.38	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P369923

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2113514	Chloride	0.223	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P369924

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2113658	Chloride	0.382	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P369926

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2113514	Sulfate	0.0501	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P369927

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2113658	Sulfate	0.258	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P370098

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2113617	Ammonia-N	0.0761	Spike	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P370100

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2114025	Ammonia-N	0.229	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P369640

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2113616	Kjeldahl Nitrogen	3.75	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P369656

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2114024	Kjeldahl Nitrogen	6.13	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P369826

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2113616	NO2NO3-N	0.966	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P369827

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2114027	NO2NO3-N	0.289	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P369786

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2113618	Total-P	4.02	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P369792

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2113664	Total-P	2.17	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P369528

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2113571	O-Phosphate-P	0.248	Spike	P	0 - 20

Reference Method: SM 2120 B
Batch ID: P369560

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2113615	Color (true)	0.119	Sample	P	0 - 20

Quality Assurance Report Precision

Reference Method: SM 2320 B-97
Batch ID: P370024

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2113537	Total Alkalinity	0.380	Sample	P	0 - 2.8

Reference Method: SM 2540 C-97
Batch ID: P369989

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2113595	TDS	1.69	Sample	P	0 - 10

Reference Method: SM 2540 C-97
Batch ID: P369990

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2113658	TDS	0.922	Sample	P	0 - 10

Reference Method: SM 2540 C-97
Batch ID: P370070

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2114818	TDS	0.905	Sample	P	0 - 10

Reference Method: SM 4500 F-C-97
Batch ID: P370028

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2113537	Fluoride	0.0	Spike	P	0 - 2.5

Reference Method: SM 5310 B-00
Batch ID: P370039

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2114201	Organic Carbon	0.353	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: A93725

Included Lab Sample IDs: 2113655, 2113666, 2113667, 2113668, 2113669, 2113670

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

Reference Method: EPA 180.1 Rev. 2.0

Run ID: A93736

Included Lab Sample IDs: 2113653, 2113656, 2113657, 2113658, 2113659, 2113660

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

Reference Method: SM 2120 B

Run ID: A93738

Included Lab Sample IDs: 2113653, 2113656, 2113657, 2113658, 2113659, 2113660

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	102	102	P/P	90 - 115
Color (true)	102	104	P/P	90 - 115

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A93818

Included Lab Sample IDs: 2113654, 2113661, 2113662, 2113663, 2113664, 2113665

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	96.2	95.7	P/P	90 - 110
Kjeldahl Nitrogen	99.1	96.2	P/P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1

Run ID: A93819

Included Lab Sample IDs: 2113653, 2113656, 2113657, 2113658, 2113659, 2113660

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	102	103	P/P	90 - 110
Chloride	102	102	P/P	90 - 110
Sulfate	103	104	P/P	90 - 110
Sulfate	104	105	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A93836

Included Lab Sample IDs: 2113654, 2113661, 2113662, 2113663, 2113664, 2113665

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO2NO3-N	97.5	96.5	P/P	90 - 110
NO2NO3-N	98.0	97.5	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A93860

Included Lab Sample IDs: 2113654, 2113661, 2113662, 2113663, 2113664, 2113665

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	101	99.7	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A93860

Included Lab Sample IDs: 2113654, 2113661, 2113662, 2113663, 2113664, 2113665

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	99.7	102	P/P	90 - 110

Reference Method: SM 2320 B-97

Run ID: A93928

Included Lab Sample IDs: 2113653, 2113656, 2113657, 2113658, 2113659, 2113660

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

Reference Method: SM 4500 F-C-97

Run ID: A93928

Included Lab Sample IDs: 2113653, 2113656, 2113657, 2113658, 2113659, 2113660

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

Reference Method: SM 5310 B-00

Run ID: A93938

Included Lab Sample IDs: 2113654, 2113661, 2113662, 2113663, 2113664, 2113665

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	98.1	100	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A93962

Included Lab Sample IDs: 2113654, 2113661, 2113662, 2113663, 2113664, 2113665

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	101	101	P/P	90 - 110
Ammonia-N	98.3	99.9	P/P	90 - 110
Ammonia-N	99.2	99.6	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				10.7	
	Turbidity				5.38	
EPA 300.0 Rev. 2.1	Chloride	99.4	102	103	0.223	
	Chloride	102	104	104	0.382	
	Sulfate	99.8	100	102	0.0501	
	Sulfate	103	106	103	0.258	
EPA 350.1 Rev. 2.0	Ammonia-N	96.7	95.1	95.2		0.0761
	Ammonia-N	97.2	94.2	94.0		0.229
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	97.0	95.0	91.0		3.75
	Kjeldahl Nitrogen	95.7	100	93.9		6.13
EPA 353.2 Rev. 2.0	NO2NO3-N	97.5	96.4	97.4		0.966
	NO2NO3-N	97.5	94.5	94.0		0.289
EPA 365.1 Rev. 2.0	Total-P	94.1	91.2	95.0		4.02
	Total-P	93.4				2.17
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	101	97.1	97.5		0.248
SM 2120 B	Color (true)	103			0.119	
SM 2320 B-97	Total Alkalinity	103			0.380	
SM 2540 C-97	TDS				1.69	
	TDS				0.922	
	TDS				0.905	
SM 4500 F-C-97	Fluoride	98.6	99.4	99.4		0.0
SM 5310 B-00	Organic Carbon	94.4	95.4	94.9		0.353

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	2113653, 2113656, 2113657, 2113658, 2113659, 2113660
EPA 300.0 Rev. 2.1 / E31780	Chloride in aqueous matrices	2113653, 2113656, 2113657, 2113658, 2113659, 2113660
EPA 300.0 Rev. 2.1 / E31780	Sulfate in aqueous matrices	2113653, 2113656, 2113657, 2113658, 2113659, 2113660
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	2113654, 2113661, 2113662, 2113663, 2113664, 2113665
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	2113654, 2113661, 2113662, 2113663, 2113664, 2113665
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	2113654, 2113661, 2113662, 2113663, 2113664, 2113665
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	2113654, 2113661, 2113662, 2113663, 2113664, 2113665
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	2113655, 2113666, 2113667, 2113668, 2113669, 2113670
SM 2120 B / E31780	True Color measured at 450 nm	2113653, 2113656, 2113657, 2113658, 2113659, 2113660
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO3/L	2113653, 2113656, 2113657, 2113658, 2113659, 2113660
SM 2540 C-97 / E31780	Total Dissolved Solids in aqueous matrices	2113653, 2113656, 2113657, 2113658, 2113659, 2113660
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices using a maximum of 250 mL of sample	2113653, 2113656, 2113657, 2113658, 2113659, 2113660
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	2113653, 2113656, 2113657, 2113658, 2113659, 2113660
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	2113654, 2113661, 2113662, 2113663, 2113664, 2113665

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	08/22/2019			08/22/2019 15:30	Rosalyn Ballman	2113653, 2113656, 2113657, 2113658, 2113659, 2113660
EPA 300.0 Rev. 2.1	08/22/2019			08/28/2019 17:36	Jhamieka S. Greenwood	2113653
	08/22/2019			08/28/2019 17:48	Jhamieka S. Greenwood	2113656
	08/22/2019			08/28/2019 18:00	Jhamieka S. Greenwood	2113657
	08/22/2019			08/28/2019 19:13	Jhamieka S. Greenwood	2113658
	08/22/2019			08/28/2019 20:01	Jhamieka S. Greenwood	2113659
EPA 350.1 Rev. 2.0	08/22/2019			08/28/2019 20:14	Jhamieka S. Greenwood	2113660
	08/22/2019			09/03/2019 12:12	Ping Hua	2113654
	08/22/2019			09/03/2019 12:14	Ping Hua	2113661
	08/22/2019			09/03/2019 13:03	Ping Hua	2113662
	08/22/2019			09/03/2019 14:09	Ping Hua	2113663
EPA 351.2 Rev. 2.0	08/22/2019			09/03/2019 14:11	Ping Hua	2113664
	08/22/2019			09/03/2019 14:12	Ping Hua	2113665
	08/22/2019	08/26/2019 12:50	Sima Feizi	08/26/2019 20:58	Julia Storbeck	2113654
	08/22/2019	08/26/2019 12:50	Sima Feizi	08/26/2019 21:00	Julia Storbeck	2113661
	08/22/2019	08/26/2019 12:50	Sima Feizi	08/26/2019 21:01	Julia Storbeck	2113662
EPA 353.2 Rev. 2.0	08/22/2019	08/26/2019 12:50	Sima Feizi	08/26/2019 21:14	Julia Storbeck	2113663
	08/22/2019	08/26/2019 12:50	Sima Feizi	08/26/2019 21:15	Julia Storbeck	2113664
	08/22/2019	08/26/2019 12:50	Sima Feizi	08/26/2019 21:17	Julia Storbeck	2113665
	08/22/2019			08/28/2019 11:32	Beverly Y. Sanders	2113654
	08/22/2019			08/28/2019 11:33	Beverly Y. Sanders	2113661
EPA 365.1 Rev. 2.0	08/22/2019			08/28/2019 11:35	Beverly Y. Sanders	2113662
	08/22/2019			08/28/2019 11:36	Beverly Y. Sanders	2113663
	08/22/2019			08/28/2019 11:50	Beverly Y. Sanders	2113664
	08/22/2019			08/28/2019 11:51	Beverly Y. Sanders	2113665
	08/22/2019	08/28/2019 09:14	Joseph Suarez	08/29/2019 10:07	Lipi Saha	2113654
EPA 365.1 Rev. 2.0 dissolved	08/22/2019	08/28/2019 09:14	Joseph Suarez	08/29/2019 10:08	Lipi Saha	2113661
	08/22/2019	08/28/2019 09:14	Joseph Suarez	08/29/2019 10:10	Lipi Saha	2113662
	08/22/2019	08/28/2019 09:14	Joseph Suarez	08/29/2019 10:11	Lipi Saha	2113663
	08/22/2019	08/28/2019 09:14	Joseph Suarez	08/29/2019 10:14	Lipi Saha	2113664
	08/22/2019	08/28/2019 09:14	Joseph Suarez	08/29/2019 10:20	Lipi Saha	2113665
SM 2120 B	08/22/2019			08/22/2019 14:16	Ping Hua	2113655
	08/22/2019			08/22/2019 14:17	Ping Hua	2113666, 2113667
	08/22/2019			08/22/2019 14:18	Ping Hua	2113668
	08/22/2019			08/22/2019 14:23	Ping Hua	2113669
	08/22/2019			08/22/2019 14:24	Ping Hua	2113670
	08/22/2019			08/22/2019 18:14	Madeline Funaro	2113653
	08/22/2019			08/22/2019 18:15	Madeline Funaro	2113656
	08/22/2019			08/22/2019 18:16	Madeline Funaro	2113657

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
SM 2120 B	08/22/2019			08/22/2019 18:17	Madeline Funaro	2113658, 2113659
	08/22/2019			08/22/2019 18:20	Madeline Funaro	2113660
SM 2320 B-97	08/22/2019			08/30/2019 02:26	Dale L. Simmons	2113653
	08/22/2019			08/30/2019 02:39	Dale L. Simmons	2113656
	08/22/2019			08/30/2019 02:51	Dale L. Simmons	2113657
	08/22/2019			08/30/2019 03:05	Dale L. Simmons	2113658
	08/22/2019			08/30/2019 03:17	Dale L. Simmons	2113659
	08/22/2019			08/30/2019 03:29	Dale L. Simmons	2113660
SM 2540 C-97	08/22/2019			08/23/2019 18:44	Rosalyn Ballman	2113653, 2113657, 2113658, 2113659, 2113660
	08/22/2019			08/28/2019 14:52	Yijie Li	2113656
SM 2540 D-97	08/22/2019			08/23/2019 18:44	Rosalyn Ballman	2113653, 2113657, 2113658, 2113659, 2113660
	08/22/2019			08/28/2019 14:52	Yijie Li	2113656
SM 4500 F-C-97	08/22/2019			08/30/2019 02:26	Dale L. Simmons	2113653
	08/22/2019			08/30/2019 02:39	Dale L. Simmons	2113656
	08/22/2019			08/30/2019 02:51	Dale L. Simmons	2113657
	08/22/2019			08/30/2019 03:05	Dale L. Simmons	2113658
	08/22/2019			08/30/2019 03:17	Dale L. Simmons	2113659
	08/22/2019			08/30/2019 03:29	Dale L. Simmons	2113660
SM 5310 B-00	08/22/2019			08/30/2019 17:26	Madeline Funaro	2113654
	08/22/2019			08/30/2019 17:38	Madeline Funaro	2113661
	08/22/2019			08/30/2019 17:50	Madeline Funaro	2113662
	08/22/2019			08/30/2019 18:02	Madeline Funaro	2113663
	08/22/2019			08/30/2019 18:15	Madeline Funaro	2113664
	08/22/2019			08/30/2019 18:27	Madeline Funaro	2113665