Chemical Analysis Report

SE-DIST-2019-04-24-01

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

Event Description: **SMP-Kevin Run**
Request ID: **RQ-2019-04-22-21**
Customer: **SE-DIST**
Project ID: **SMP**

Send Reports to:
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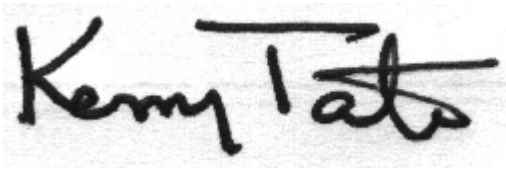
Certified by: Kerry Tate, Ph.D., Environmental Administrator

Date Certified: 10-MAY-2019 10:14



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: L-65 UPSTREAM OF S-153 **Collection Date/Time: 04/23/2019 12:30**

Field ID: G1SE0050 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2080441	EPA 180.1 Rev. 2.0	Turbidity	0.90		NTU	P362803	
	EPA 300.0 Rev. 2.1	Chloride	150		mg Cl/L	P363121	
		Sulfate	34		mg SO4/L	P363122	
	SM 2120 B	Color (true)	97		PCU	P362807	
	SM 2320 B-97	Total Alkalinity	183		mg CaCO3/L	P363359	
	SM 2540 C-97	TDS	505		mg/L	P363470	
	SM 2540 D-97	TSS	2	I	mg/L	P363413	
	SM 4500 F-C-97	Fluoride	0.23		mg F/L	P363554	
2080444	EPA 350.1 Rev. 2.0	Ammonia-N	0.033		mg N/L	P363038	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.3		mg N/L	P362995	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.022		mg N/L	P363007	
	EPA 365.1 Rev. 2.0	Total-P	0.20		mg P/L	P362937	
	SM 5310 B-00	Organic Carbon	22		mg C/L	P362984	
2080447	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.16		mg P/L	P362837	

Ref. Method and Comment:
SM 2540 D-97: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample.
EPA 351.2 Rev. 2.0: Batch matrix spike recoveries are unavailable because of high analyte concentration in the QC sample.

Sample Location: TAYLOR CREEK @ 441 **Collection Date/Time: 04/23/2019 13:35**

Field ID: G1SE0001 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2080442	EPA 180.1 Rev. 2.0	Turbidity	4.7		NTU	P362803	
	EPA 300.0 Rev. 2.1	Chloride	96		mg Cl/L	P363121	
		Sulfate	80		mg SO4/L	P363122	
	SM 2120 B	Color (true)	39	A	PCU	P362807	
	SM 2320 B-97	Total Alkalinity	146	A	mg CaCO3/L	P363359	
	SM 2540 C-97	TDS	478		mg/L	P363470	
	SM 2540 D-97	TSS	4	I	mg/L	P363413	
	SM 4500 F-C-97	Fluoride	0.16		mg F/L	P363554	
2080445	EPA 350.1 Rev. 2.0	Ammonia-N	0.005	I	mg N/L	P363038	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.89		mg N/L	P362995	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P363007	
	EPA 365.1 Rev. 2.0	Total-P	0.12		mg P/L	P362937	
	SM 5310 B-00	Organic Carbon	14		mg C/L	P362984	
2080448	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.070		mg P/L	P362837	

Ref. Method and Comment:
SM 2540 D-97: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample.
EPA 351.2 Rev. 2.0: Batch matrix spike recoveries are unavailable because of high analyte concentration in the QC sample.

Sample Location: TAYLOR CREEK @ 70 **Collection Date/Time: 04/23/2019 14:10**

Field ID: G1SE0011 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2080443	EPA 180.1 Rev. 2.0	Turbidity	5.0		NTU	P362804	
	EPA 300.0 Rev. 2.1	Chloride	99		mg Cl/L	P363121	
		Sulfate	51		mg SO4/L	P363122	
	SM 2120 B	Color (true)	70		PCU	P362807	
	SM 2320 B-97	Total Alkalinity	185		mg CaCO3/L	P363359	
	SM 2540 C-97	TDS	485		mg/L	P363470	
	SM 2540 D-97	TSS	10		mg/L	P363413	
	SM 4500 F-C-97	Fluoride	0.22		mg F/L	P363554	
2080446	EPA 350.1 Rev. 2.0	Ammonia-N	0.17		mg N/L	P363039	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.6		mg N/L	P362995	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.77		mg N/L	P363007	
	EPA 365.1 Rev. 2.0	Total-P	0.20		mg P/L	P362937	
	SM 5310 B-00	Organic Carbon	19		mg C/L	P362984	
2080449	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.090		mg P/L	P362837	

Ref. Method and Comment:
SM 2540 D-97: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample.
EPA 351.2 Rev. 2.0: Batch matrix spike recoveries are unavailable because of high analyte concentration in the QC sample.

Sample Location: TAYLOR CREEK @ 70 **Collection Date/Time: 04/23/2019 14:20**

Field ID: FB_04232019 Matrix: W-FIELD-BK

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2080450	EPA 180.1 Rev. 2.0	Turbidity	0.10	UQ	NTU	P363112	
	EPA 300.0 Rev. 2.1	Chloride	0.20	U	mg Cl/L	P363121	
		Sulfate	0.20	U	mg SO4/L	P363122	
	SM 2120 B	Color (true)	2.5	U	PCU	P362807	
	SM 2320 B-97	Total Alkalinity	0.65	U	mg CaCO3/L	P363359	
	SM 2540 C-97	TDS	15	U	mg/L	P363468	
	SM 2540 D-97	TSS	2	U	mg/L	P363411	
	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P363554	
2080451	EPA 350.1 Rev. 2.0	Ammonia-N	0.002	U	mg N/L	P363039	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.080	U	mg N/L	P362996	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P363007	
	EPA 365.1 Rev. 2.0	Total-P	0.002	U	mg P/L	P362937	
	SM 5310 B-00	Organic Carbon	0.50	U	mg C/L	P362984	
2080452	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P362838	

Ref. Method and Comment:
EPA 180.1 Rev. 2.0: The sample was reanalyzed 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.

Quality Assurance Report
Method Blank Results

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P362803

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P362804

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P363112

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P363121

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P363122

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P363038

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P363039

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P362995

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P362996

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

Quality Assurance Report
Method Blank Results

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P363007

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P362937

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P362837

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P362838

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

Reference Method: SM 2120 B
Batch ID: P362807

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2320 B-97
Batch ID: P363359

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

Reference Method: SM 2540 C-97
Batch ID: P363468

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 C-97
Batch ID: P363470

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P363411

Component	Result	Code	Units
TSS	2	U	mg/L

Quality Assurance Report
Method Blank Results

Reference Method: SM 2540 D-97
Batch ID: P363413

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500 F-C-97
Batch ID: P363554

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-00
Batch ID: P362984

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: P363121

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P363122

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P363038

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P363039

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P362995

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Kjeldahl Nitrogen	109		P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P362996

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Kjeldahl Nitrogen	96.3		P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P363007

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
NO2NO3-N	103		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P362937

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P362837

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

Quality Assurance Report
Laboratory Control Sample Accuracy

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P362838

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
O-Phosphate-P	99.6		P	90 - 110

Reference Method: SM 2120 B
Batch ID: P362807

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

Reference Method: SM 2320 B-97
Batch ID: P363359

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	101		P	98 - 106

Reference Method: SM 4500 F-C-97
Batch ID: P363554

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	96.5		P	92 - 103

Reference Method: SM 5310 B-00
Batch ID: P362984

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	98.4		P	85 - 115

Quality Assurance Report
Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P363121

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2080326	Chloride	102		P	90 - 110
2080480	Chloride	103		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P363122

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2080326	Sulfate	103		P	90 - 110
2080480	Sulfate	103		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P363038

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2080332	Ammonia-N	93.9	96.2	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P363039

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2080481	Ammonia-N	102	103	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P362996

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2080481	Kjeldahl Nitrogen	104	106	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P363007

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2080343	NO2NO3-N	106	105	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P362937

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2080365	Total-P	99.8	101	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P362837

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2080336	O-Phosphate-P	97.1	99.1	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P362838

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2080482	O-Phosphate-P	100	101	P/P	90 - 110

Quality Assurance Report
Matrix Spike Accuracy

Reference Method: SM 4500 F-C-97
Batch ID: P363554

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2080442	Fluoride	97.0	97.7	P/P	89 - 106

Reference Method: SM 5310 B-00
Batch ID: P362984

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2080362	Organic Carbon	99.9	99.5	P/P	85 - 115

Quality Assurance Report
Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P362803

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2080367	Turbidity	0.306	Sample	P	0 - 20

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P362804

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2080501	Turbidity	4.12	Sample	P	0 - 20

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P363112

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2081827	Turbidity	5.68	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P363121

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2080326	Chloride	0.486	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P363122

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2080326	Sulfate	1.75	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P363038

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2080332	Ammonia-N	1.94	Spike	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P363039

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2080481	Ammonia-N	0.461	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P362995

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2080343	Kjeldahl Nitrogen	3.48	Spike	P	0 - 20

Quality Assurance Report
Precision

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P362996

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2080481	Kjeldahl Nitrogen	1.48	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P363007

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2080343	NO2NO3-N	0.475	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P362937

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2080365	Total-P	0.947	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P362837

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2080336	O-Phosphate-P	2.04	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P362838

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2080482	O-Phosphate-P	0.892	Spike	P	0 - 20

Reference Method: SM 2120 B
Batch ID: P362807

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2080442	Color (true)	0.0968	Sample	P	0 - 20

Reference Method: SM 2320 B-97
Batch ID: P363359

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2080442	Total Alkalinity	2.11	Sample	P	0 - 2.8

Reference Method: SM 2540 C-97
Batch ID: P363468

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2080207	TDS	4.44	Sample	P	0 - 10

Quality Assurance Report
Precision

Reference Method: SM 2540 C-97
Batch ID: P363470

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2080361	TDS	9.33	Sample	P	0 - 10

Reference Method: SM 4500 F-C-97
Batch ID: P363554

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2080442	Fluoride	0.513	Spike	P	0 - 2.5

Reference Method: SM 5310 B-00
Batch ID: P362984

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2080362	Organic Carbon	0.336	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 180.1 Rev. 2.0
Run ID: A90974
Included Lab Sample IDs: 2080441, 2080442, 2080443

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Turbidity	99.0	100	P/P	95 - 105
Turbidity	99.5	99.0	P/P	95 - 105

Reference Method: SM 2120 B
Run ID: A90975
Included Lab Sample IDs: 2080441, 2080442, 2080443, 2080450

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Run ID: A90987
Included Lab Sample IDs: 2080447, 2080448, 2080449, 2080452

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	95.8	95.7	P/P	90 - 110
O-Phosphate-P	97.3	95.8	P/P	90 - 110

Reference Method: SM 5310 B-00
Run ID: A91057
Included Lab Sample IDs: 2080444, 2080445, 2080446, 2080451

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	101	102	P/P	90 - 110
Organic Carbon	99.7	101	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Run ID: A91059
Included Lab Sample IDs: 2080444, 2080445, 2080446, 2080451

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO2NO3-N	103	102	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Run ID: A91072
Included Lab Sample IDs: 2080444, 2080445, 2080446, 2080451

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	102	104	P/P	90 - 110
Ammonia-N	104	103	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Run ID: A91075
Included Lab Sample IDs: 2080444, 2080445, 2080446

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

Quality Assurance Report
Calibration Verification

Reference Method: EPA 365.1 Rev. 2.0
Run ID: A91076
Included Lab Sample IDs: 2080451

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	98.0	98.5	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Run ID: A91098
Included Lab Sample IDs: 2080444, 2080445, 2080446

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	99.9	105	P/P	90 - 110

Reference Method: EPA 180.1 Rev. 2.0
Run ID: A91101
Included Lab Sample IDs: 2080450

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Turbidity	100	98.0	P/P	95 - 105

Reference Method: EPA 300.0 Rev. 2.1
Run ID: A91105
Included Lab Sample IDs: 2080441, 2080442, 2080443, 2080450

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: EPA 351.2 Rev. 2.0
Run ID: A91153
Included Lab Sample IDs: 2080451

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	103	98.3	P/P	90 - 110

Reference Method: SM 2320 B-97
Run ID: A91204
Included Lab Sample IDs: 2080441, 2080442, 2080443, 2080450

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	99.2	102	P/P	90 - 110

Reference Method: SM 4500 F-C-97
Run ID: A91266
Included Lab Sample IDs: 2080441, 2080442, 2080443, 2080450

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	99.0	101	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	SMP	MS
EPA 180.1 Rev. 2.0	Turbidity					0.306	
	Turbidity					4.12	
	Turbidity					5.68	
EPA 300.0 Rev. 2.1	Chloride	101	102	103		0.486	
	Sulfate	101	103	103		1.75	
EPA 350.1 Rev. 2.0	Ammonia-N	101	93.9	96.2			1.94
	Ammonia-N	102	102	103			0.461
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	109					3.48
	Kjeldahl Nitrogen	96.3	104	106			1.48
EPA 353.2 Rev. 2.0	NO2NO3-N	103	106	105			0.475
EPA 365.1 Rev. 2.0	Total-P	102	99.8	101			0.947
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	105	97.1	99.1			2.04
	O-Phosphate-P	99.6	100	101			0.892
SM 2120 B	Color (true)	100				0.0968	
SM 2320 B-97	Total Alkalinity	101				2.11	
SM 2540 C-97	TDS					4.44	
	TDS					9.33	
SM 4500 F-C-97	Fluoride	96.5	97.0	97.7			0.513
SM 5310 B-00	Organic Carbon	98.4	99.9	99.5			0.336

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	2080441, 2080442, 2080443, 2080450
EPA 300.0 Rev. 2.1 / E31780	Chloride in aqueous matrices	2080441, 2080442, 2080443, 2080450
EPA 300.0 Rev. 2.1 / E31780	Sulfate in aqueous matrices	2080441, 2080442, 2080443, 2080450
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	2080444, 2080445, 2080446, 2080451
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	2080444, 2080445, 2080446, 2080451
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	2080444, 2080445, 2080446, 2080451
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	2080444, 2080445, 2080446, 2080451
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	2080447, 2080448, 2080449, 2080452
SM 2120 B / E31780	True Color measured at 450 nm	2080441, 2080442, 2080443, 2080450
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO3/L	2080441, 2080442, 2080443, 2080450
SM 2540 C-97 / E31780	Total Dissolved Solids in aqueous matrices	2080441, 2080442, 2080443, 2080450
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices using a maximum of 250 mL of sample	2080441, 2080442, 2080443, 2080450
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	2080441, 2080442, 2080443, 2080450
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	2080444, 2080445, 2080446, 2080451

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	04/24/2019			04/24/2019 16:07	Adrian Shelby	2080441, 2080442, 2080443
	04/24/2019			04/30/2019 15:46	Adrian Shelby	2080450
EPA 300.0 Rev. 2.1	04/24/2019			04/29/2019 21:55	Jhamieka S. Greenwood	2080441
	04/24/2019			04/29/2019 22:08	Jhamieka S. Greenwood	2080442
	04/24/2019			04/29/2019 22:20	Jhamieka S. Greenwood	2080443
	04/24/2019			04/29/2019 22:32	Jhamieka S. Greenwood	2080450
EPA 350.1 Rev. 2.0	04/24/2019			04/29/2019 11:17	Ping Hua	2080444
	04/24/2019			04/29/2019 11:19	Ping Hua	2080445
	04/24/2019			04/29/2019 11:34	Ping Hua	2080451
	04/24/2019			04/29/2019 11:37	Ping Hua	2080446
EPA 351.2 Rev. 2.0	04/24/2019	04/29/2019 13:15	Adrian Shelby	04/30/2019 13:22	Joseph Suarez	2080444
	04/24/2019	04/29/2019 13:15	Adrian Shelby	04/30/2019 13:24	Joseph Suarez	2080445
	04/24/2019	04/29/2019 13:15	Adrian Shelby	04/30/2019 13:25	Joseph Suarez	2080446
	04/24/2019	04/29/2019 17:00	Adrian Shelby	05/02/2019 08:34	Joseph Suarez	2080451
EPA 353.2 Rev. 2.0	04/24/2019			04/29/2019 10:16	Beverly Y. Sanders	2080444
	04/24/2019			04/29/2019 10:17	Beverly Y. Sanders	2080445
	04/24/2019			04/29/2019 10:18	Beverly Y. Sanders	2080446
	04/24/2019			04/29/2019 10:19	Beverly Y. Sanders	2080451
EPA 365.1 Rev. 2.0	04/24/2019	04/26/2019 14:10	Sima Feizi	04/29/2019 13:55	Rosalyn Ballman	2080444
	04/24/2019	04/26/2019 14:10	Sima Feizi	04/29/2019 13:56	Rosalyn Ballman	2080445
	04/24/2019	04/26/2019 14:10	Sima Feizi	04/29/2019 13:57	Rosalyn Ballman	2080446
	04/24/2019	04/26/2019 14:10	Sima Feizi	04/29/2019 15:47	Rosalyn Ballman	2080451
EPA 365.1 Rev. 2.0 dissolved	04/24/2019			04/24/2019 19:34	Jhamieka S. Greenwood	2080452
	04/24/2019			04/24/2019 19:48	Jhamieka S. Greenwood	2080447
	04/24/2019			04/24/2019 19:49	Jhamieka S. Greenwood	2080448
	04/24/2019			04/24/2019 19:50	Jhamieka S. Greenwood	2080449
SM 2120 B	04/24/2019			04/24/2019 16:24	Mariam Hanna	2080441
	04/24/2019			04/24/2019 16:26	Mariam Hanna	2080442, 2080443
	04/24/2019			04/24/2019 16:27	Mariam Hanna	2080450
SM 2320 B-97	04/24/2019			05/04/2019 00:53	Samantha Davila	2080442
	04/24/2019			05/04/2019 01:38	Samantha Davila	2080441
	04/24/2019			05/04/2019 01:51	Samantha Davila	2080443
	04/24/2019			05/04/2019 02:05	Samantha Davila	2080450
SM 2540 C-97	04/24/2019			04/26/2019 14:16	Yijie Li	2080441, 2080442, 2080443, 2080450
SM 2540 D-97	04/24/2019			04/26/2019 14:16	Yijie Li	2080441, 2080442, 2080443, 2080450
SM 4500 F-C-97	04/24/2019			05/07/2019 15:37	Dale L. Simmons	2080442
	04/24/2019			05/07/2019 15:53	Dale L. Simmons	2080441
	04/24/2019			05/07/2019 15:57	Dale L. Simmons	2080443
	04/24/2019			05/07/2019 16:05	Dale L. Simmons	2080450
SM 5310 B-00	04/24/2019			04/26/2019 20:34	Julia Storbeck	2080445

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
SM 5310 B-00	04/24/2019			04/26/2019 21:59	Julia Storbeck	2080444
	04/24/2019			04/26/2019 22:11	Julia Storbeck	2080446
	04/24/2019			04/26/2019 22:23	Julia Storbeck	2080451