Chemical Analysis Report

SO-DIST-2018-05-31-01

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

Event Description: **Canals :C-139s, Drainage to Corkscrew**
Request ID: **RQ-2018-06-04-52**
Customer: **SO-DIST**
Project ID: **SMP**

Send Reports to:
FL Dept. of Environmental Protection
FLDEP South District Office
2295 Victoria Ave. Suite 364
Fort Myers, FL 33901-3381
Attn: Nicole Reistad

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Certified by: Colin Wright, Program Administrator

Date Certified: 15-JUN-2018 11:48

Case Narrative

Unless otherwise noted, all samples included in this report were received in accordance with protocols referenced in Chapter 62-160, Florida Administrative Code (F.A.C.). Results published in this report pertain only to the samples as submitted to, and received by the laboratory. All times in this report are adjusted to the applicable Eastern Time Zone (EST or EDT).

Results for the following analytical group are included in this report: Nutrients.

Scientific notation may be used in reporting very large or small values. Values reported using scientific notation will take the form of the following example: 1.3E+03, which is equivalent to 1.3×10^3 or 1300.

Unless otherwise noted, analytical values for soil and sediment samples are reported on a dry weight basis, and analytical values for waste and tissue samples are reported on a wet weight basis.

Results for TNI accredited tests met requirements established by The NELAC Institute. A double asterisk (**) is used to indicate an analyte/matrix/method for which the laboratory is not TNI accredited 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: DRAINAGE DITCH @ CR 850 **Collection Date/Time: 05/30/2018 10:25**

Field ID: G1SD0061 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1996251	EPA 180.1 Rev. 2.0	Turbidity	8.8		NTU	P346210	
	EPA 300.0 Rev. 2.1	Chloride	23		mg Cl/L	P346344	
		Sulfate	53		mg SO4/L	P346345	
	SM 2120 B	Color (true)	120		PCU	P346199	
	SM 2320 B-97	Total Alkalinity	172		mg CaCO3/L	P346303	
	SM 2540 C-97	TDS	377		mg/L	P346475	
	SM 2540 D-97	TSS	4	I	mg/L	P346447	
	SM 4500 F-C-97	Fluoride	0.10		mg F/L	P346304	
1996255	EPA 350.1 Rev. 2.0	Ammonia-N	0.12		mg N/L	P346624	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.6		mg N/L	P346460	
	EPA 353.2 Rev. 2.0	NO2NO3-N	2.3		mg N/L	P346266	
	EPA 365.1 Rev. 2.0	Total-P	0.16		mg P/L	P346385	
	SM 5310 B-00	Organic Carbon	22		mg C/L	P346584	
1996259	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.096		mg P/L	P346190	

Ref. Method and Comment:
EPA 300.0 Rev. 2.1: Chloride: Batch matrix spike recoveries for one of two spiked samples are unavailable because of high analyte concentration in the QC sample.
EPA 300.0 Rev. 2.1: Sulfate: Batch matrix spike recoveries for one of two spiked samples are unavailable because of high analyte concentration in the QC sample.
SM 2540 D-97: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample.

Sample Location: C-139 - SE **Collection Date/Time: 05/30/2018 11:50**

Field ID: G1SD0056 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1996252	EPA 180.1 Rev. 2.0	Turbidity	3.7		NTU	P346210	
	EPA 300.0 Rev. 2.1	Chloride	36		mg Cl/L	P346344	
		Sulfate	26		mg SO4/L	P346345	
	SM 2120 B	Color (true)	130		PCU	P346197	
	SM 2320 B-97	Total Alkalinity	203		mg CaCO3/L	P346303	
	SM 2540 C-97	TDS	366	A	mg/L	P346475	
	SM 2540 D-97	TSS	5	IA	mg/L	P346447	
	SM 4500 F-C-97	Fluoride	0.22		mg F/L	P346304	
1996256	EPA 350.1 Rev. 2.0	Ammonia-N	0.15		mg N/L	P346624	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.8		mg N/L	P346460	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.016		mg N/L	P346267	
	EPA 365.1 Rev. 2.0	Total-P	0.57		mg P/L	P346385	
	SM 5310 B-00	Organic Carbon	24		mg C/L	P346584	
1996260	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.45		mg P/L	P346190	

Ref. Method and Comment:
EPA 300.0 Rev. 2.1: Chloride: Batch matrix spike recoveries for one of two spiked samples are unavailable because of high analyte concentration in the QC sample.
EPA 300.0 Rev. 2.1: Sulfate: Batch matrix spike recoveries for one of two spiked samples are unavailable because of high analyte concentration in the QC sample.
SM 2540 D-97: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample.

Sample Location: C-139 ANNEX @ HALF BRIDGE RD. **Collection Date/Time: 05/30/2018 12:30**

Field ID: G1SD0049 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1996253	EPA 180.1 Rev. 2.0	Turbidity	6.0		NTU	P346210	
	EPA 300.0 Rev. 2.1	Chloride	67		mg Cl/L	P346344	
		Sulfate	24		mg SO4/L	P346345	
	SM 2120 B	Color (true)	70		PCU	P346197	
	SM 2320 B-97	Total Alkalinity	174		mg CaCO3/L	P346303	
	SM 2540 C-97	TDS	378		mg/L	P346475	
	SM 2540 D-97	TSS	6	I	mg/L	P346447	
	SM 4500 F-C-97	Fluoride	0.30		mg F/L	P346304	
1996257	EPA 350.1 Rev. 2.0	Ammonia-N	0.024		mg N/L	P346624	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.5		mg N/L	P346460	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.084		mg N/L	P346267	
	EPA 365.1 Rev. 2.0	Total-P	0.038		mg P/L	P346385	
	SM 5310 B-00	Organic Carbon	21		mg C/L	P346584	
1996261	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P346190	

Ref. Method and Comment:
EPA 300.0 Rev. 2.1: Chloride: Batch matrix spike recoveries for one of two spiked samples are unavailable because of high analyte concentration in the QC sample.
EPA 300.0 Rev. 2.1: Sulfate: Batch matrix spike recoveries for one of two spiked samples are unavailable because of high analyte concentration in the QC sample.
SM 2540 D-97: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample.

Sample Location: C-139 ANNEX @ HALF BRIDGE RD. **Collection Date/Time: 05/30/2018 12:35**

Field ID: G1SD0049_DUP Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1996254	EPA 180.1 Rev. 2.0	Turbidity	6.2		NTU	P346210	
	EPA 300.0 Rev. 2.1	Chloride	67		mg Cl/L	P346344	
		Sulfate	24		mg SO4/L	P346345	
	SM 2120 B	Color (true)	70		PCU	P346197	
	SM 2320 B-97	Total Alkalinity	176		mg CaCO3/L	P346303	
	SM 2540 C-97	TDS	359		mg/L	P346475	
	SM 2540 D-97	TSS	7	I	mg/L	P346447	
	SM 4500 F-C-97	Fluoride	0.30		mg F/L	P346304	
1996258	EPA 350.1 Rev. 2.0	Ammonia-N	0.025		mg N/L	P346624	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.4		mg N/L	P346460	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.083		mg N/L	P346267	
	EPA 365.1 Rev. 2.0	Total-P	0.038		mg P/L	P346385	
	SM 5310 B-00	Organic Carbon	21		mg C/L	P346584	
1996262	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P346190	

Ref. Method and Comment:
EPA 300.0 Rev. 2.1: Chloride: Batch matrix spike recoveries for one of two spiked samples are unavailable because of high analyte concentration in the QC sample.
EPA 300.0 Rev. 2.1: Sulfate: Batch matrix spike recoveries for one of two spiked samples are unavailable because of high analyte concentration in the QC sample.
SM 2540 D-97: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample.

Quality Assurance Report
Method Blank Results

Quality Assurance Report
Method Blank Results

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P346210

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P346344

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P346345

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P346624

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P346460

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P346266

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P346267

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P346385

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P346190

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

Quality Assurance Report
Method Blank Results

Reference Method: SM 2120 B
Batch ID: P346197

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2120 B
Batch ID: P346199

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2320 B-97
Batch ID: P346303

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

Reference Method: SM 2540 C-97
Batch ID: P346475

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P346447

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500 F-C-97
Batch ID: P346304

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-00
Batch ID: P346584

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: P346344

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P346345

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits

Quality Assurance Report
Laboratory Control Sample Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P346345

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P346624

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P346460

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Kjeldahl Nitrogen	94.2		P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P346266

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P346267

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P346385

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P346190

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

Reference Method: SM 2320 B-97
Batch ID: P346303

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

Reference Method: SM 4500 F-C-97
Batch ID: P346304

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	95.7		P	91 - 105

Quality Assurance Report
Laboratory Control Sample Accuracy

Reference Method: SM 5310 B-00
Batch ID: P346584

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	97.1		P	85 - 115

Quality Assurance Report
Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P346344

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1996333	Chloride	105		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P346345

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1996189	Sulfate	101		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P346624

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1995695	Ammonia-N	99.6	102	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P346460

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1996249	Kjeldahl Nitrogen	92.9	95.1	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P346266

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1996191	NO2NO3-N	101	102	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P346267

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1996256	NO2NO3-N	101	101	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P346385

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1996295	Total-P	99.8	98.0	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P346190

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

Quality Assurance Report
Matrix Spike Accuracy

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P346190

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1996250	O-Phosphate-P	98.1	98.1	P/P	90 - 110

Reference Method: SM 4500 F-C-97
Batch ID: P346304

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1996248	Fluoride	95.6	96.1	P/P	91 - 105

Reference Method: SM 5310 B-00
Batch ID: P346584

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1996054	Organic Carbon	97.9	97.7	P/P	85 - 115

Quality Assurance Report
Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P346210

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1996242	Turbidity	5.94	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P346344

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1996189	Chloride	0.228	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P346345

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1996189	Sulfate	0.222	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P346624

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1995695	Ammonia-N	1.82	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P346460

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1996249	Kjeldahl Nitrogen	1.46	Spike	P	0 - 20

Quality Assurance Report
Precision

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P346266

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1996191	NO2NO3-N	0.943	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P346267

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1996256	NO2NO3-N	0.0	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P346385

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1996295	Total-P	1.71	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P346190

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1996250	O-Phosphate-P	0.0	Spike	P	0 - 20

Reference Method: SM 2120 B
Batch ID: P346197

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1996248	Color (true)	0.474	Sample	P	0 - 20

Reference Method: SM 2120 B
Batch ID: P346199

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1996242	Color (true)	0.418	Sample	P	0 - 20

Reference Method: SM 2320 B-97
Batch ID: P346303

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1996248	Total Alkalinity	0.972	Sample	P	0 - 1.6

Reference Method: SM 2540 C-97
Batch ID: P346475

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1996252	TDS	2.46	Sample	P	0 - 10

Quality Assurance Report
Precision

Reference Method: SM 4500 F-C-97
Batch ID: P346304

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1996248	Fluoride	0.516	Spike	P	0 - 3.5

Reference Method: SM 5310 B-00
Batch ID: P346584

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1996054	Organic Carbon	0.171	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: A84266
Included Lab Sample IDs: 1996259, 1996260, 1996261, 1996262

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

Reference Method: SM 2120 B
Run ID: A84269
Included Lab Sample IDs: 1996251, 1996252, 1996253, 1996254

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	101	101	P/P	90 - 115
Color (true)	98.7	100	P/P	90 - 115

Reference Method: EPA 180.1 Rev. 2.0
Run ID: A84275
Included Lab Sample IDs: 1996251, 1996252, 1996253, 1996254

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

Reference Method: EPA 353.2 Rev. 2.0
Run ID: A84302
Included Lab Sample IDs: 1996255, 1996256, 1996257, 1996258

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

Reference Method: SM 2320 B-97
Run ID: A84316
Included Lab Sample IDs: 1996251, 1996252, 1996253, 1996254

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits

Quality Assurance Report
Calibration Verification

Reference Method: SM 2320 B-97
Run ID: A84316
Included Lab Sample IDs: 1996251, 1996252, 1996253, 1996254

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	99.3	102	P/P	90 - 110

Reference Method: SM 4500 F-C-97
Run ID: A84316
Included Lab Sample IDs: 1996251, 1996252, 1996253, 1996254

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	98.6	98.1	P/P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Run ID: A84339
Included Lab Sample IDs: 1996251, 1996252, 1996253, 1996254

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	102	102	P/P	90 - 110
Sulfate	102	101	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Run ID: A84427
Included Lab Sample IDs: 1996257, 1996258

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

Reference Method: SM 5310 B-00
Run ID: A84443
Included Lab Sample IDs: 1996255, 1996256, 1996257, 1996258

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	98.0	97.0	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Run ID: A84445
Included Lab Sample IDs: 1996255, 1996256

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

Reference Method: EPA 351.2 Rev. 2.0
Run ID: A84463
Included Lab Sample IDs: 1996255, 1996256, 1996257, 1996258

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	108	104	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Run ID: A84469
Included Lab Sample IDs: 1996255, 1996256, 1996257, 1996258

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

Quality Assurance Report
Calibration Verification

* 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					5.94	
EPA 300.0 Rev. 2.1	Chloride	101	105			0.228	
	Sulfate	101	101			0.222	
EPA 350.1 Rev. 2.0	Ammonia-N	104	99.6	102			1.82
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	94.2	92.9	95.1			1.46
EPA 353.2 Rev. 2.0	NO2NO3-N	102	101	102			0.943
	NO2NO3-N	102	101	101			0.0
EPA 365.1 Rev. 2.0	Total-P	101	99.8	98.0			1.71
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	98.6	98.1	98.1			0.0
SM 2120 B	Color (true)					0.474	
	Color (true)					0.418	
SM 2320 B-97	Total Alkalinity	104				0.972	
SM 2540 C-97	TDS					2.46	
SM 4500 F-C-97	Fluoride	95.7	95.6	96.1			0.516
SM 5310 B-00	Organic Carbon	97.1	97.9	97.7			0.171

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	1996251, 1996252, 1996253, 1996254
EPA 300.0 Rev. 2.1 / E31780	Chloride in aqueous matrices	1996251, 1996252, 1996253, 1996254
EPA 300.0 Rev. 2.1 / E31780	Sulfate in aqueous matrices	1996251, 1996252, 1996253, 1996254
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	1996255, 1996256, 1996257, 1996258
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	1996255, 1996256, 1996257, 1996258
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	1996255, 1996256, 1996257, 1996258
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	1996255, 1996256, 1996257, 1996258
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	1996259, 1996260, 1996261, 1996262
SM 2120 B / E31780	True Color measured at 450 nm	1996251, 1996252, 1996253, 1996254
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO3/L	1996251, 1996252, 1996253, 1996254
SM 2540 C-97 / E31780	Total Dissolved Solids in aqueous matrices	1996251, 1996252, 1996253, 1996254
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices using a maximum of 250 mL of sample	1996251, 1996252, 1996253, 1996254
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	1996251, 1996252, 1996253, 1996254
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	1996255, 1996256, 1996257, 1996258

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
EPA 180.1 Rev. 2.0	05/31/2018			05/31/2018 15:23	William L. Brown IV	1996251, 1996252, 1996253, 1996254
EPA 300.0 Rev. 2.1	05/31/2018			06/04/2018 19:06	Lipi Saha	1996251
	05/31/2018			06/04/2018 19:18	Lipi Saha	1996252
	05/31/2018			06/04/2018 19:30	Lipi Saha	1996253
	05/31/2018			06/04/2018 19:42	Lipi Saha	1996254
EPA 350.1 Rev. 2.0	05/31/2018			06/08/2018 12:13	Adrian Shelby	1996255
	05/31/2018			06/08/2018 12:15	Adrian Shelby	1996256
	05/31/2018			06/08/2018 12:16	Adrian Shelby	1996257
	05/31/2018			06/08/2018 12:18	Adrian Shelby	1996258
EPA 351.2 Rev. 2.0	05/31/2018	06/06/2018 10:40	Adrian Shelby	06/08/2018 13:49	Joseph Suarez	1996255
	05/31/2018	06/06/2018 10:40	Adrian Shelby	06/08/2018 13:51	Joseph Suarez	1996256
	05/31/2018	06/06/2018 10:40	Adrian Shelby	06/08/2018 13:52	Joseph Suarez	1996257
	05/31/2018	06/06/2018 10:40	Adrian Shelby	06/08/2018 13:54	Joseph Suarez	1996258
EPA 353.2 Rev. 2.0	05/31/2018			06/01/2018 13:13	Lauren Bottorf	1996256
	05/31/2018			06/01/2018 13:20	Lauren Bottorf	1996257
	05/31/2018			06/01/2018 13:21	Lauren Bottorf	1996258
	05/31/2018			06/01/2018 13:57	Lauren Bottorf	1996255
EPA 365.1 Rev. 2.0	05/31/2018	06/05/2018 11:00	Sima Feizi	06/07/2018 11:40	Beverly Y. Sanders	1996257
	05/31/2018	06/05/2018 11:00	Sima Feizi	06/07/2018 11:41	Beverly Y. Sanders	1996258
	05/31/2018	06/05/2018 11:00	Sima Feizi	06/07/2018 15:51	Beverly Y. Sanders	1996255
	05/31/2018	06/05/2018 11:00	Sima Feizi	06/07/2018 15:53	Beverly Y. Sanders	1996256
EPA 365.1 Rev. 2.0 dissolved	05/31/2018			05/31/2018 13:35	Megan Treadwell	1996259
	05/31/2018			05/31/2018 13:36	Megan Treadwell	1996260
	05/31/2018			05/31/2018 13:37	Megan Treadwell	1996261
	05/31/2018			05/31/2018 13:38	Megan Treadwell	1996262
SM 2120 B	05/31/2018			05/31/2018 14:55	Tanya Welborn	1996252, 1996253
	05/31/2018			05/31/2018 14:56	Tanya Welborn	1996254
	05/31/2018			05/31/2018 15:12	Tanya Welborn	1996251
SM 2320 B-97	05/31/2018			06/01/2018 16:59	Dale L. Simmons	1996251
	05/31/2018			06/01/2018 17:10	Dale L. Simmons	1996252
	05/31/2018			06/01/2018 17:20	Dale L. Simmons	1996253
	05/31/2018			06/01/2018 17:31	Dale L. Simmons	1996254
SM 2540 C-97	05/31/2018			06/01/2018 15:40	William L. Brown IV	1996251, 1996252, 1996253, 1996254
SM 2540 D-97	05/31/2018			06/01/2018 14:30	William L. Brown IV	1996251, 1996252, 1996253, 1996254
SM 4500 F-C-97	05/31/2018			06/01/2018 16:59	Dale L. Simmons	1996251
	05/31/2018			06/01/2018 17:10	Dale L. Simmons	1996252
	05/31/2018			06/01/2018 17:20	Dale L. Simmons	1996253
	05/31/2018			06/01/2018 17:31	Dale L. Simmons	1996254
SM 5310 B-00	05/31/2018			06/07/2018 01:54	Megan Treadwell	1996255
	05/31/2018			06/07/2018 02:09	Megan Treadwell	1996256

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
SM 5310 B-00	05/31/2018			06/07/2018 02:24	Megan Treadwell	1996257
	05/31/2018			06/07/2018 02:39	Megan Treadwell	1996258