

Chemical Analysis Report

CEN-DIST-2016-03-23-01

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

Event Description: **Rosalie Canal**
Request ID: **RQ-2016-03-21-37**
Customer: **CEN-DIST**
Project ID: **SMP**

Send Reports to:
FL Dept. of Environmental Protection
FL Dept. of Environmental Protection
3319 Maguire Blvd., Suite 232
Orlando, FL 32803-3767
Attn: Mike Linger

For additional information please contact
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Certified by: Timothy Fitzpatrick, Program Administrator

Date Certified: 12-APR-2016 11:14

A handwritten signature in black ink, appearing to read 'Timothy W. Fitzpatrick', is written over a light blue rectangular background.

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: ROSALIE CANAL

Collection Date/Time: 03/22/2016 12:10

Field ID: G4CE0087

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1782552	EPA 180.1 Rev. 2.0	Turbidity	2.3		NTU	P300942	
	EPA 300.0 Rev. 2.1	Chloride	13		mg Cl/L	P301037	
		Sulfate	9.0		mg SO4/L	P301039	
	SM 2120 B	Color (true)	100		PCU	P300894	
	SM 2320 B-97	Total Alkalinity	14		mg CaCO3/L	P301090	
	SM 2540 C-97	TDS	66		mg/L	P301226	
	SM 2540 D-97	TSS	2	I	mg/L	P301154	
	SM 4500 F-C-97	Fluoride	0.078	I	mg F/L	P301093	
1782555	EPA 350.1 Rev. 2.0	Ammonia-N	0.011		mg N/L	P301334	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.65		mg N/L	P301328	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P301117	
	EPA 365.1 Rev. 2.0	Total-P	0.053		mg P/L	P301319	
	SM 5310 B-00	Organic Carbon	12		mg C/L	P301239	
1782558	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.029		mg P/L	P300916	

Ref. Method and Comment:

SM 2540 D-97: The precision data is unavailable due to the low analyte concentration in the QC sample.

Sample Location: ROSALIE CANAL

Collection Date/Time: 03/22/2016 12:30

Field ID: G4CE0088

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1782553	EPA 180.1 Rev. 2.0	Turbidity	2.6		NTU	P300942	
	EPA 300.0 Rev. 2.1	Chloride	13		mg Cl/L	P301037	
		Sulfate	9.0		mg SO4/L	P301039	
	SM 2120 B	Color (true)	100		PCU	P300894	
	SM 2320 B-97	Total Alkalinity	13		mg CaCO3/L	P301090	
	SM 2540 C-97	TDS	71		mg/L	P301226	
	SM 2540 D-97	TSS	3	I	mg/L	P301154	
	SM 4500 F-C-97	Fluoride	0.077	I	mg F/L	P301093	
1782556	EPA 350.1 Rev. 2.0	Ammonia-N	0.012		mg N/L	P301334	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.66		mg N/L	P301329	MS
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P301117	
	EPA 365.1 Rev. 2.0	Total-P	0.058		mg P/L	P301319	
	SM 5310 B-00	Organic Carbon	11		mg C/L	P301239	
1782559	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.007	I	mg P/L	P300917	

Ref. Method and Comment:

SM 2540 D-97: The precision data is unavailable due to the low analyte concentration in the QC sample.

Sample Location: ROSALIE CANAL

Collection Date/Time: 03/22/2016 11:55

Field ID: G4CE0089

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1782554	EPA 180.1 Rev. 2.0	Turbidity	2.3		NTU	P300945	
	EPA 300.0 Rev. 2.1	Chloride	13	A	mg Cl/L	P301038	
		Sulfate	9.0	A	mg SO4/L	P301040	

Field ID: G4CE0089

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1782554	SM 2120 B	Color (true)	100		PCU	P300894	
	SM 2320 B-97	Total Alkalinity	14		mg CaCO3/L	P301090	
	SM 2540 C-97	TDS	66		mg/L	P301226	
	SM 2540 D-97	TSS	4	I	mg/L	P301154	
	SM 4500 F-C-97	Fluoride	0.077	I	mg F/L	P301093	
1782557	EPA 350.1 Rev. 2.0	Ammonia-N	0.012		mg N/L	P301334	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.66	J	mg N/L	P301329	MS
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P301117	
	EPA 365.1 Rev. 2.0	Total-P	0.056		mg P/L	P301319	
	SM 5310 B-00	Organic Carbon	12		mg C/L	P301239	
1782560	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.029		mg P/L	P300917	

Ref. Method and Comment:

SM 2540 D-97: The precision data is unavailable due to the low analyte concentration in the QC sample.

EPA 351.2 Rev. 2.0: Refer to the narrative for an explanation of QC Codes.

Quality Assurance Report

Method Blank Results

Reference Method: EPA 180.1 Rev. 2.0

Batch ID: P300942

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 180.1 Rev. 2.0

Batch ID: P300945

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 300.0 Rev. 2.1

Batch ID: P301037

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1

Batch ID: P301038

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1

Batch ID: P301039

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 300.0 Rev. 2.1

Batch ID: P301040

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Quality Assurance Report Method Blank Results

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P301334

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P301328

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P301329

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P301117

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P301319

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P300916

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P300917

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

Reference Method: SM 2120 B
Batch ID: P300894

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2320 B-97
Batch ID: P301090

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

Quality Assurance Report Method Blank Results

Reference Method: SM 2540 C-97
 Batch ID: P301226

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-97
 Batch ID: P301154

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500 F-C-97
 Batch ID: P301093

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-00
 Batch ID: P301239

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: P301037

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

Reference Method: EPA 300.0 Rev. 2.1
 Batch ID: P301038

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

Reference Method: EPA 300.0 Rev. 2.1
 Batch ID: P301039

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Sulfate	97.9		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
 Batch ID: P301040

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

Reference Method: EPA 350.1 Rev. 2.0
 Batch ID: P301334

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
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Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P301334

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P301328

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Kjeldahl Nitrogen	92.7		P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P301329

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: P301117

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
NO ₂ NO ₃ -N	100		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P301319

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total-P	98.8		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P300916

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P300917

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

Reference Method: SM 2320 B-97
Batch ID: P301090

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

Reference Method: SM 4500 F-C-97
Batch ID: P301093

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	94.8		P	94 - 108

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: SM 5310 B-00
Batch ID: P301239

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	92.4		P	85 - 115

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P301037

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1782503	Chloride	101		P	90 - 110
1782869	Chloride	101	101	P/P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P301038

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1782554	Chloride	101		P	90 - 110
1782734	Chloride	101		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P301039

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1782503	Sulfate	98.9		P	90 - 110
1782869	Sulfate	97.8	98.3	P/P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P301040

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1782554	Sulfate	97.9		P	90 - 110
1782734	Sulfate	99.5		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P301334

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1782509	Ammonia-N	97.9	98.5	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P301328

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1782538	Kjeldahl Nitrogen	92.4	95.4	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P301329

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1782557	Kjeldahl Nitrogen	81.6	83.6	F/F	90 - 110

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P301117

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1782556	NO2NO3-N	102	100	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P301319

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1782540	Total-P	92.4	94.4	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P300916

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1782441	O-Phosphate-P	100	101	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P300917

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1782559	O-Phosphate-P	98.5	101	P/P	90 - 110

Reference Method: SM 4500 F-C-97
Batch ID: P301093

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1782519	Fluoride	97.8	96.6	P/P	94 - 107

Reference Method: SM 5310 B-00
Batch ID: P301239

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1782439	Organic Carbon	92.7	92.3	P/P	85 - 115

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P300942

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1782536	Turbidity	6.64	Sample	P	0 - 20

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P300945

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1782826	Turbidity	3.74	Sample	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P301037

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1782869	Chloride	0.463	Spike	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P301038

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1782554	Chloride	0.183	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P301039

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1782869	Sulfate	0.434	Spike	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P301040

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1782554	Sulfate	0.00625	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P301334

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1782509	Ammonia-N	0.595	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P301328

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1782538	Kjeldahl Nitrogen	2.26	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P301329

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1782557	Kjeldahl Nitrogen	1.46	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P301117

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1782556	NO2NO3-N	1.48	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P301319

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1782540	Total-P	2.02	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P300916

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1782441	O-Phosphate-P	0.596	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P300917

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1782559	O-Phosphate-P	2.16	Spike	P	0 - 20

Reference Method: SM 2120 B
Batch ID: P300894

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1782533	Color (true)	2.04	Sample	P	0 - 20

Reference Method: SM 2320 B-97
Batch ID: P301090

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1782519	Total Alkalinity	0.190	Sample	P	0 - 4.8

Reference Method: SM 2540 C-97
Batch ID: P301226

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1782247	TDS	3.80	Sample	P	0 - 10

Reference Method: SM 4500 F-C-97
Batch ID: P301093

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1782519	Fluoride	0.990	Spike	P	0 - 3.7

Reference Method: SM 5310 B-00
Batch ID: P301239

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1782439	Organic Carbon	0.323	Spike	P	0 - 20

Quality Assurance Report Precision

* Sample, spike and/or laboratory control sample precision (LCS) is reported.
Replicate spike precision may be reported when sample results are below quantifiable levels.

Quality Assurance Report Calibration Verification

Reference Method: EPA 300.0 Rev. 2.1

Run ID: A68401

Included Lab Sample IDs: 1782552, 1782553, 1782554

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	98.2	99.8	P/P	90 - 110
Sulfate	95.3	98.3	P/P	90 - 110

Reference Method: SM 2120 B

Run ID: A68402

Included Lab Sample IDs: 1782552, 1782553, 1782554

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	99.6	101	P/P	90 - 115

Reference Method: EPA 365.1 Rev. 2.0 dissolved

Run ID: A68407

Included Lab Sample IDs: 1782558, 1782559, 1782560

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	100	100	P/P	90 - 110
O-Phosphate-P	98.2	98.8	P/P	90 - 110
O-Phosphate-P	99.2	99.7	P/P	90 - 110

Reference Method: EPA 180.1 Rev. 2.0

Run ID: A68413

Included Lab Sample IDs: 1782552, 1782553, 1782554

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

Reference Method: SM 2320 B-97

Run ID: A68457

Included Lab Sample IDs: 1782552, 1782553, 1782554

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	99.5	103	P/P	90 - 110

Reference Method: SM 4500 F-C-97

Run ID: A68457

Included Lab Sample IDs: 1782552, 1782553, 1782554

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	99.1	99.5	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A68471

Included Lab Sample IDs: 1782555, 1782556, 1782557

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO2NO3-N	100	100	P/P	90 - 110

Reference Method: SM 5310 B-00

Run ID: A68516

Included Lab Sample IDs: 1782555, 1782556, 1782557

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	91.6	91.9	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A68548

Included Lab Sample IDs: 1782555, 1782556, 1782557

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

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A68579

Included Lab Sample IDs: 1782555, 1782556, 1782557

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	93.9	98.0	P/P	90 - 110
Kjeldahl Nitrogen	98.0	98.7	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A68588

Included Lab Sample IDs: 1782555, 1782556, 1782557

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	102	100	P/P	90 - 110
Total-P	102	102	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	LCS	Precision SMP	MS
EPA 180.1 Rev. 2.0	Turbidity				6.64	
	Turbidity				3.74	
EPA 300.0 Rev. 2.1	Chloride	100	101 101 101			0.463
	Chloride	102	101 101		0.183	
	Sulfate	97.9	97.8 98.3 98.9			0.434
	Sulfate	99.2	97.9 99.5		0.0062	
EPA 350.1 Rev. 2.0	Ammonia-N	101	97.9 98.5			0.595
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	92.7	92.4 95.4			2.26

Quality Assurance Report Summary

Ref. Method	Analyte	LCS % Recovery	MS % Recovery		Precision	
					LCS	MS
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	96.3	81.6	83.6		1.46
EPA 353.2 Rev. 2.0	NO ₂ NO ₃ -N	100	102	100		1.48
EPA 365.1 Rev. 2.0	Total-P	98.8	92.4	94.4		2.02
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	99.6	100	101		0.596
	O-Phosphate-P	102	98.5	101		2.16
	Color (true)				2.04	
SM 2120 B	Total Alkalinity	102			0.190	
SM 2320 B-97	TDS				3.80	
SM 2540 C-97	Fluoride	94.8	97.8	96.6		0.990
SM 4500 F-C-97	Organic Carbon	92.4	92.7	92.3		0.323

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	1782552, 1782553, 1782554
EPA 300.0 Rev. 2.1 / E31780	Chloride in aqueous matrices	1782552, 1782553, 1782554
EPA 300.0 Rev. 2.1 / E31780	Sulfate in aqueous matrices	1782552, 1782553, 1782554
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	1782555, 1782556, 1782557
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	1782555, 1782556, 1782557
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	1782555, 1782556, 1782557
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	1782555, 1782556, 1782557
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	1782558, 1782559, 1782560
SM 2120 B / E31780	True Color measured at 450 nm	1782552, 1782553, 1782554
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO ₃ /L	1782552, 1782553, 1782554
SM 2540 C-97 / E31780	Total Dissolved Solids in aqueous matrices	1782552, 1782553, 1782554
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices	1782552, 1782553, 1782554
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	1782552, 1782553, 1782554
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	1782555, 1782556, 1782557

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	03/23/2016			03/23/2016 17:04	Blanca Fach	1782552, 1782553, 1782554
EPA 300.0 Rev. 2.1	03/23/2016			03/24/2016	Julia Storbeck	1782552, 1782553, 1782554
EPA 350.1 Rev. 2.0	03/23/2016			03/30/2016	Diana M. Turner	1782555, 1782556, 1782557
EPA 351.2 Rev. 2.0	03/23/2016	03/31/2016	Sofia Elnemr	04/01/2016	Christopher Armour	1782555, 1782556, 1782557
EPA 353.2 Rev. 2.0	03/23/2016			03/25/2016	Diana M. Turner	1782555, 1782556, 1782557
EPA 365.1 Rev. 2.0	03/23/2016	03/31/2016	Christopher Armour	04/01/2016	Lipi Saha	1782555, 1782556, 1782557
EPA 365.1 Rev. 2.0 dissolved	03/23/2016			03/23/2016 14:22	Ping Hua	1782559
	03/23/2016			03/23/2016 14:49	Ping Hua	1782560
	03/23/2016			03/23/2016 15:25	Ping Hua	1782558
	03/23/2016			03/23/2016 13:35	Rochelle Y Jackson	1782552
SM 2120 B	03/23/2016			03/23/2016 13:36	Rochelle Y Jackson	1782553
	03/23/2016			03/23/2016 13:37	Rochelle Y Jackson	1782554
	03/23/2016			03/26/2016	Dale L. Simmons	1782552, 1782553, 1782554
SM 2320 B-97	03/23/2016			03/24/2016	Yijie Li	1782552, 1782553, 1782554
SM 2540 C-97	03/23/2016			03/24/2016	Yijie Li	1782552, 1782553, 1782554
SM 2540 D-97	03/23/2016			03/26/2016	Dale L. Simmons	1782552, 1782553, 1782554
SM 4500 F-C-97	03/23/2016			03/29/2016	Sofia Elnemr	1782555, 1782556, 1782557
SM 5310 B-00	03/23/2016					