

Chemical Analysis Report

CEN-DIST-2016-05-11-01

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-2016-05-16-62**
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
Timothy W. Fitzpatrick
Liang-Tsair Lin, Ph.D.
Colin Wright, Ph.D.
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Phone (850) 245-8085

Certified by: Thekkekalathil Chandrasekhar, Chemist Administrator Date Certified: 06-JUN-2016 10:38



NON-CONFORMANCE REPORT INCLUDED

Case Narrative

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

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

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

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

Results for TNI accredited tests met requirements established by The NELAC Institute. A double asterisk (**) is used to indicate an analyte/matrix/method for which the laboratory is not TNI accredited 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: 05/09/2016 11:54

Field ID: G4CE0090

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1797495	EPA 180.1 Rev. 2.0	Turbidity	3.0	Q	NTU	P304131	
	EPA 300.0 Rev. 2.1	Chloride	13		mg Cl/L	P304773	
		Sulfate	10		mg SO4/L	P304774	
	SM 2120 B	Color (true)	90	Q	PCU	P304066	
	SM 2320 B-97	Total Alkalinity	14		mg CaCO3/L	P304665	
	SM 2540 C-97	TDS	98		mg/L	P304856	
	SM 2540 D-97	TSS	3	I	mg/L	P304756	
	SM 4500 F-C-97	Fluoride	0.079	I	mg F/L	P304668	
1797500	EPA 350.1 Rev. 2.0	Ammonia-N	0.011		mg N/L	P304318	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.63		mg N/L	P305140	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P304527	
	EPA 365.1 Rev. 2.0	Total-P	0.056		mg P/L	P304915	MS
	SM 5310 B-00	Organic Carbon	12		mg C/L	P304979	
1797505	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.028	Q	mg P/L	P304078	

Ref. Method and Comment:

EPA 180.1 Rev. 2.0: The sample expired upon receipt.

SM 2120 B: The sample expired upon receipt.

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

EPA 365.1 Rev. 2.0 dissolved: O-Phosphate-P: The sample expired upon receipt.

Sample Location: ROSALIE CANAL 92M US OF BRIGE

Collection Date/Time: 05/09/2016 12:02

Field ID: 4GCE0088

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1797496	EPA 180.1 Rev. 2.0	Turbidity	2.6	AQ	NTU	P304132	
	EPA 300.0 Rev. 2.1	Chloride	13		mg Cl/L	P304773	
		Sulfate	10		mg SO4/L	P304774	
	SM 2120 B	Color (true)	91	Q	PCU	P304066	
	SM 2320 B-97	Total Alkalinity	14		mg CaCO3/L	P304666	
	SM 2540 C-97	TDS	87		mg/L	P304856	
	SM 2540 D-97	TSS	2	I	mg/L	P304756	
	SM 4500 F-C-97	Fluoride	0.078	I	mg F/L	P304669	
1797501	EPA 350.1 Rev. 2.0	Ammonia-N	0.010		mg N/L	P304318	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.62		mg N/L	P304816	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P304527	
	EPA 365.1 Rev. 2.0	Total-P	0.055		mg P/L	P304915	MS
	SM 5310 B-00	Organic Carbon	12		mg C/L	P304979	
1797506	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.028	Q	mg P/L	P304078	

Ref. Method and Comment:

EPA 180.1 Rev. 2.0: The sample expired upon receipt.

SM 2120 B: The sample expired upon receipt.

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

EPA 365.1 Rev. 2.0 dissolved: O-Phosphate-P: The sample expired upon receipt.

Sample Location: ROSALIE CANAL 346M US OF BRIDGE

Collection Date/Time: 05/09/2016 12:09

Field ID: G4CE0089

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1797497	EPA 180.1 Rev. 2.0	Turbidity	2.7	Q	NTU	P304132	
	EPA 300.0 Rev. 2.1	Chloride	13		mg Cl/L	P304773	
		Sulfate	10		mg SO4/L	P304774	
		Color (true)	91	Q	PCU	P304066	
	SM 2320 B-97	Total Alkalinity	14		mg CaCO3/L	P304666	
	SM 2540 C-97	TDS	81		mg/L	P304856	
	SM 2540 D-97	TSS	4	I	mg/L	P304756	
	SM 4500 F-C-97	Fluoride	0.079	I	mg F/L	P304669	
1797502	EPA 350.1 Rev. 2.0	Ammonia-N	0.011		mg N/L	P304318	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.52		mg N/L	P304816	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P304527	
	EPA 365.1 Rev. 2.0	Total-P	0.057		mg P/L	P304915	MS
	SM 5310 B-00	Organic Carbon	12		mg C/L	P304979	
1797507	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.028	Q	mg P/L	P304078	

Ref. Method and Comment:

EPA 180.1 Rev. 2.0: The sample expired upon receipt.

SM 2120 B: The sample expired upon receipt.

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

EPA 365.1 Rev. 2.0 dissolved: O-Phosphate-P: The sample expired upon receipt.

Sample Location: ROSALIE CANAL 671M US OF BRIDGE

Collection Date/Time: 05/09/2016 12:18

Field ID: G4CE0087

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1797498	EPA 180.1 Rev. 2.0	Turbidity	3.2	Q	NTU	P304132	
	EPA 300.0 Rev. 2.1	Chloride	13		mg Cl/L	P304773	
		Sulfate	10		mg SO4/L	P304774	
		Color (true)	89	Q	PCU	P304066	
	SM 2320 B-97	Total Alkalinity	14		mg CaCO3/L	P304666	
	SM 2540 C-97	TDS	85		mg/L	P304856	
	SM 2540 D-97	TSS	4	I	mg/L	P304756	
	SM 4500 F-C-97	Fluoride	0.080	I	mg F/L	P304669	
1797503	EPA 350.1 Rev. 2.0	Ammonia-N	0.012		mg N/L	P304320	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.56		mg N/L	P304816	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P304527	
	EPA 365.1 Rev. 2.0	Total-P	0.058		mg P/L	P304915	MS
	SM 5310 B-00	Organic Carbon	12		mg C/L	P304979	
1797508	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.029	Q	mg P/L	P304078	

Ref. Method and Comment:

EPA 180.1 Rev. 2.0: The sample expired upon receipt.

SM 2120 B: The sample expired upon receipt.

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

EPA 365.1 Rev. 2.0 dissolved: O-Phosphate-P: The sample expired upon receipt.

Sample Location: ROSALIE CANAL 875M US OF BRIDGE

Collection Date/Time: 05/09/2016 12:28

Field ID: G4CE0119

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
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Field ID: G4CE0119

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1797499	EPA 180.1 Rev. 2.0	Turbidity	2.6	Q	NTU	P304132	
	EPA 300.0 Rev. 2.1	Chloride	13		mg Cl/L	P304773	
		Sulfate	9.9		mg SO4/L	P304774	
	SM 2120 B	Color (true)	90	Q	PCU	P304066	
	SM 2320 B-97	Total Alkalinity	14		mg CaCO3/L	P304666	
	SM 2540 C-97	TDS	82		mg/L	P304856	
	SM 2540 D-97	TSS	3	I	mg/L	P304756	
	SM 4500 F-C-97	Fluoride	0.079	I	mg F/L	P304669	
1797504	EPA 350.1 Rev. 2.0	Ammonia-N	0.012		mg N/L	P304320	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.55		mg N/L	P304816	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P304527	
	EPA 365.1 Rev. 2.0	Total-P	0.058		mg P/L	P304915	MS
	SM 5310 B-00	Organic Carbon	12		mg C/L	P304979	
1797509	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.029	Q	mg P/L	P304078	

Ref. Method and Comment:

EPA 180.1 Rev. 2.0: The sample expired upon receipt.

SM 2120 B: The sample expired upon receipt.

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

EPA 365.1 Rev. 2.0 dissolved: O-Phosphate-P: The sample expired upon receipt.

Non-Conformance Report

NCR ID: 5854

<u>Event(s)</u>	<u>Job(s)</u>	<u>Sample(s)</u>	<u>Test(s)</u>
CEN-DIST-2016-05-11-01			
NCR Type: SHIPPING/RECEIVING		NCR Category: Samples arrived late	
Observation: Samples arrived late by FedEx. FedEx tracking code: 809234360831.			
Resolution: Biology and Chemistry supervisors were notified by phone and email. Chlorophyll samples will be given a "Q" qualifier.			

Authorised by/Date: Kathryn Holland 5/31/2016

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

Chemistry Tim Fitzpatrick (850) 245-8085
 Biology Cheryl Swanson (850) 245-8177

Quality Assurance Report

Method Blank Results

Reference Method: EPA 180.1 Rev. 2.0
 Batch ID: P304131

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Quality Assurance Report

Method Blank Results

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P304132

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P304773

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P304774

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P304318

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P304320

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P304816

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P305140

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P304527

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P304915

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

Quality Assurance Report

Method Blank Results

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P304078

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

Reference Method: SM 2120 B
Batch ID: P304066

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2320 B-97
Batch ID: P304665

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

Reference Method: SM 2320 B-97
Batch ID: P304666

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

Reference Method: SM 2540 C-97
Batch ID: P304856

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P304756

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500 F-C-97
Batch ID: P304668

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 4500 F-C-97
Batch ID: P304669

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-00
Batch ID: P304979

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: P304773

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P304774

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Sulfate	95.2		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P304318

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P304320

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P304816

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Kjeldahl Nitrogen	96.6		P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P305140

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P304527

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
NO2NO3-N	104		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P304915

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P304078

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

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: SM 2320 B-97
 Batch ID: P304665

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	101		P	95 - 105

Reference Method: SM 2320 B-97
 Batch ID: P304666

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

Reference Method: SM 4500 F-C-97
 Batch ID: P304668

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	96.0		P	92 - 103

Reference Method: SM 4500 F-C-97
 Batch ID: P304669

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	98.4		P	92 - 103

Reference Method: SM 5310 B-00
 Batch ID: P304979

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	97.4		P	85 - 115

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
 Batch ID: P304773

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1797384	Chloride	97.6		P	90 - 110
1797564	Chloride	97.1		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
 Batch ID: P304774

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1797384	Sulfate	94.1		P	90 - 110
1797564	Sulfate	93.6		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
 Batch ID: P304318

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1797411	Ammonia-N	98.7	99.0	P/P	90 - 110

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P304320

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1797503	Ammonia-N	100	101	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P304816

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1797501	Kjeldahl Nitrogen	94.2	92.2	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P305140

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1797448	Kjeldahl Nitrogen	101	102	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P304527

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1797487	NO2NO3-N	103	103	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P304915

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1797565	Total-P	101	114	P/F	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P304078

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1797575	O-Phosphate-P	99.0	99.7	P/P	90 - 110

Reference Method: SM 4500 F-C-97
Batch ID: P304668

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1797277	Fluoride	98.5	97.9	P/P	91 - 105

Reference Method: SM 4500 F-C-97
Batch ID: P304669

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1798058	Fluoride	97.4	97.4	P/P	91 - 105

Reference Method: SM 5310 B-00
Batch ID: P304979

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1797388	Organic Carbon	104		P	85 - 115

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P304131

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1797435	Turbidity	4.46	Sample	P	0 - 20

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P304132

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1797496	Turbidity	1.56	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P304773

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1797384	Chloride	0.107	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P304774

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1797384	Sulfate	3.50	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P304318

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1797411	Ammonia-N	0.336	Spike	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P304320

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1797503	Ammonia-N	0.936	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P304816

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1797501	Kjeldahl Nitrogen	1.41	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P305140

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1797448	Kjeldahl Nitrogen	0.0695	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P304527

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1797487	NO2NO3-N	0.402	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P304915

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1797565	Total-P	11.5	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P304078

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1797575	O-Phosphate-P	0.668	Spike	P	0 - 20

Reference Method: SM 2120 B
Batch ID: P304066

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1797443	Color (true)	2.34	Sample	P	0 - 20

Reference Method: SM 2320 B-97
Batch ID: P304665

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1797277	Total Alkalinity	0.966	Sample	P	0 - 4.8

Reference Method: SM 2320 B-97
Batch ID: P304666

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1798058	Total Alkalinity	0.887	Sample	P	0 - 4.8

Reference Method: SM 2540 C-97
Batch ID: P304856

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1797410	TDS	3.18	Sample	P	0 - 10

Reference Method: SM 4500 F-C-97
Batch ID: P304668

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1797277	Fluoride	0.477	Spike	P	0 - 3.0

Quality Assurance Report Precision

Reference Method: SM 4500 F-C-97
Batch ID: P304669

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1798058	Fluoride	0.0	Spike	P	0 - 3.0

Reference Method: SM 5310 B-00
Batch ID: P304979

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1797388	Organic Carbon	1.86	Spike	P	0 - 20

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

Quality Assurance Report Calibration Verification

Reference Method: SM 2120 B
Run ID: A69424
Included Lab Sample IDs: 1797495, 1797496, 1797497, 1797498, 1797499

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	99.3	96.8	P/P	90 - 115

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Run ID: A69429
Included Lab Sample IDs: 1797505, 1797506, 1797507, 1797508, 1797509

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	100	99.9	P/P	90 - 110
O-Phosphate-P	99.9	100	P/P	90 - 110

Reference Method: EPA 180.1 Rev. 2.0
Run ID: A69439
Included Lab Sample IDs: 1797495, 1797496, 1797497, 1797498, 1797499

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

Reference Method: EPA 350.1 Rev. 2.0
Run ID: A69475
Included Lab Sample IDs: 1797500, 1797501, 1797502, 1797503, 1797504

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

Quality Assurance Report Calibration Verification

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A69550

Included Lab Sample IDs: 1797500, 1797501, 1797502, 1797503, 1797504

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

Reference Method: SM 2320 B-97

Run ID: A69588

Included Lab Sample IDs: 1797495, 1797496, 1797497, 1797498, 1797499

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	102	97.5	P/P	90 - 110
Total Alkalinity	98.2	102	P/P	90 - 110

Reference Method: SM 4500 F-C-97

Run ID: A69588

Included Lab Sample IDs: 1797495, 1797496, 1797497, 1797498, 1797499

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	99.0	98.1	P/P	90 - 110
Fluoride	99.1	99.0	P/P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1

Run ID: A69620

Included Lab Sample IDs: 1797495, 1797496, 1797497, 1797498, 1797499

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	101	100	P/P	90 - 110
Sulfate	98.6	99.3	P/P	90 - 110

Reference Method: SM 5310 B-00

Run ID: A69683

Included Lab Sample IDs: 1797500, 1797501, 1797502, 1797503, 1797504

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

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A69685

Included Lab Sample IDs: 1797500, 1797501, 1797502, 1797503, 1797504

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	101	99.9	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A69702

Included Lab Sample IDs: 1797501, 1797502, 1797503, 1797504

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	93.0	92.9	P/P	90 - 110
Kjeldahl Nitrogen	94.6	94.6	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A69773

Included Lab Sample IDs: 1797500

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	101	98.8	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				4.46	
	Turbidity				1.56	
EPA 300.0 Rev. 2.1	Chloride	99.0	97.6 97.1		0.107	
	Sulfate	95.2	94.1 93.6		3.50	
EPA 350.1 Rev. 2.0	Ammonia-N	98.6	98.7 99.0			0.336
	Ammonia-N	100	100 101			0.936
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	96.6	94.2 92.2			1.41
	Kjeldahl Nitrogen	101	101 102			0.0695
EPA 353.2 Rev. 2.0	NO2NO3-N	104	103 103			0.402
EPA 365.1 Rev. 2.0	Total-P	104	101 114			11.5
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	101	99.0 99.7			0.668
SM 2120 B	Color (true)				2.34	
SM 2320 B-97	Total Alkalinity	101			0.966	
	Total Alkalinity	102			0.887	
SM 2540 C-97	TDS				3.18	
SM 4500 F-C-97	Fluoride	96.0	98.5 97.9			0.477
	Fluoride	98.4	97.4 97.4			0.0
SM 5310 B-00	Organic Carbon	97.4	104			1.86

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	1797495, 1797496, 1797497, 1797498, 1797499
EPA 300.0 Rev. 2.1 / E31780	Chloride in aqueous matrices	1797495, 1797496, 1797497, 1797498, 1797499
EPA 300.0 Rev. 2.1 / E31780	Sulfate in aqueous matrices	1797495, 1797496, 1797497, 1797498, 1797499
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	1797500, 1797501, 1797502, 1797503, 1797504
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	1797500, 1797501, 1797502, 1797503, 1797504
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	1797500, 1797501, 1797502, 1797503, 1797504
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	1797500, 1797501, 1797502, 1797503, 1797504
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	1797505, 1797506, 1797507, 1797508, 1797509
SM 2120 B / E31780	True Color measured at 450 nm	1797495, 1797496, 1797497, 1797498, 1797499

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO ₃ /L	1797495, 1797496, 1797497, 1797498, 1797499
SM 2540 C-97 / E31780	Total Dissolved Solids in aqueous matrices	1797495, 1797496, 1797497, 1797498, 1797499
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices	1797495, 1797496, 1797497, 1797498, 1797499
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	1797495, 1797496, 1797497, 1797498, 1797499
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	1797500, 1797501, 1797502, 1797503, 1797504

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	05/11/2016			05/11/2016 15:59	Sima Feizi	1797495, 1797496, 1797497, 1797498, 1797499
EPA 300.0 Rev. 2.1	05/11/2016			05/19/2016	Elisa J Lutz	1797495, 1797496, 1797497, 1797498, 1797499
EPA 350.1 Rev. 2.0	05/11/2016			05/13/2016	Diana M. Turner	1797500, 1797501, 1797502, 1797503, 1797504
EPA 351.2 Rev. 2.0	05/11/2016	05/23/2016	Sofia Elnemr	05/25/2016	Christopher Armour	1797501, 1797502, 1797503, 1797504
	05/11/2016	05/27/2016	Sofia Elnemr	05/31/2016	Vijayalakshmi Reddy	1797500
EPA 353.2 Rev. 2.0	05/11/2016			05/18/2016	Peter D. Kaus	1797500, 1797501, 1797502, 1797503, 1797504
EPA 365.1 Rev. 2.0	05/11/2016	05/24/2016	Vijayalakshmi Reddy	05/25/2016	Rochelle Y Jackson	1797500, 1797501, 1797502, 1797503, 1797504
EPA 365.1 Rev. 2.0 dissolved	05/11/2016			05/11/2016 14:55	Julia Storbeck	1797505
	05/11/2016			05/11/2016 15:00	Julia Storbeck	1797506
	05/11/2016			05/11/2016 15:01	Julia Storbeck	1797507
	05/11/2016			05/11/2016 15:02	Julia Storbeck	1797508
	05/11/2016			05/11/2016 15:03	Julia Storbeck	1797509
SM 2120 B	05/11/2016			05/11/2016 14:19	Rochelle Y Jackson	1797495, 1797496
	05/11/2016			05/11/2016 14:20	Rochelle Y Jackson	1797497
	05/11/2016			05/11/2016 14:21	Rochelle Y Jackson	1797498
	05/11/2016			05/11/2016 14:22	Rochelle Y Jackson	1797499
SM 2320 B-97	05/11/2016			05/19/2016	Dale L. Simmons	1797495, 1797496, 1797497, 1797498, 1797499
SM 2540 C-97	05/11/2016			05/13/2016	Yijie Li	1797495, 1797496, 1797497, 1797498, 1797499
SM 2540 D-97	05/11/2016			05/13/2016	Yijie Li	1797495, 1797496, 1797497, 1797498, 1797499
SM 4500 F-C-97	05/11/2016			05/19/2016	Dale L. Simmons	1797495, 1797496, 1797497, 1797498, 1797499
SM 5310 B-00	05/11/2016			05/24/2016	Diana M. Turner	1797500, 1797501, 1797502, 1797503, 1797504