

Chemical Analysis Report

SW-DIST-2016-05-10-02

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

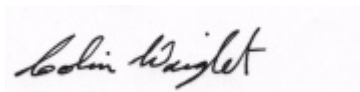
Event Description: **1329G**
Request ID: **RQ-2016-05-09-59**
Customer: **SW-DIST**
Project ID: **SMP**

Send Reports to:
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Temple Terrace, FL 33637-0926
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Certified by: Colin Wright, Environmental Administrator

Date Certified: 03-JUN-2016 10:19

A handwritten signature in black ink, appearing to read "Colin Wright", is displayed on a light-colored 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: G4SW0099

Collection Date/Time: 05/09/2016 09:30

Field ID: G4SW0099

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1797201	EPA 180.1 Rev. 2.0	Turbidity	1.0		NTU	P303971	
	EPA 300.0 Rev. 2.1	Chloride	17		mg Cl/L	P304555	
		Sulfate	0.33	I	mg SO4/L	P304558	
	SM 2120 B	Color (true)	540		PCU	P304015	
	SM 2320 B-97	Total Alkalinity	0.65	U	mg CaCO3/L	P304661	
	SM 2540 C-97	TDS	119		mg/L	P304440	
	SM 2540 D-97	TSS	2	I	mg/L	P304396	
	SM 4500 F-C-97	Fluoride	0.076	I	mg F/L	P304664	
1797205	EPA 350.1 Rev. 2.0	Ammonia-N	0.016		mg N/L	P304313	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.7		mg N/L	P304696	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P304523	
	EPA 365.1 Rev. 2.0	Total-P	0.036		mg P/L	P304770	
	SM 5310 B-00	Organic Carbon	57		mg C/L	P304851	
1797209	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.011		mg P/L	P303963	

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: Matrix spike recovery data is unavailable due to high analyte concentration in the QC sample.

Sample Location: DUPLICATE

Collection Date/Time: 05/09/2016 09:35

Field ID: G4SW0099

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1797202	EPA 180.1 Rev. 2.0	Turbidity	1.1		NTU	P303971	
	EPA 300.0 Rev. 2.1	Chloride	17		mg Cl/L	P304555	
		Sulfate	0.33	I	mg SO4/L	P304558	
	SM 2120 B	Color (true)	550		PCU	P304015	
	SM 2320 B-97	Total Alkalinity	0.65	U	mg CaCO3/L	P304661	
	SM 2540 C-97	TDS	109		mg/L	P304441	
	SM 2540 D-97	TSS	4	I	mg/L	P304397	
	SM 4500 F-C-97	Fluoride	0.077	I	mg F/L	P304664	
1797206	EPA 350.1 Rev. 2.0	Ammonia-N	0.017		mg N/L	P304313	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.8		mg N/L	P304696	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P304531	
	EPA 365.1 Rev. 2.0	Total-P	0.040		mg P/L	P304770	
	SM 5310 B-00	Organic Carbon	57		mg C/L	P304851	
1797210	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.010		mg P/L	P303963	

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: Matrix spike recovery data is unavailable due to high analyte concentration in the QC sample.

Sample Location: BLANK

Collection Date/Time: 05/09/2016 10:55

Field ID: BLANK

Matrix: W-FIELD-BK

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1797203	EPA 180.1 Rev. 2.0	Turbidity	0.10	U	NTU	P303971	

Field ID: BLANK

Matrix: W-FIELD-BK

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1797203	EPA 300.0 Rev. 2.1	Chloride	0.20	U	mg Cl/L	P304555	
		Sulfate	0.20	U	mg SO4/L	P304558	
	SM 2120 B	Color (true)	2.5	U	PCU	P304015	
	SM 2320 B-97	Total Alkalinity	0.65	U	mg CaCO3/L	P304661	
	SM 2540 C-97	TDS	15	U	mg/L	P304435	
	SM 2540 D-97	TSS	2	U	mg/L	P304391	
	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P304664	
1797207	EPA 350.1 Rev. 2.0	Ammonia-N	0.002	U	mg N/L	P304315	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.080	U	mg N/L	P304696	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P304531	
	EPA 365.1 Rev. 2.0	Total-P	0.002	U	mg P/L	P305050	
	SM 5310 B-00	Organic Carbon	0.50	U	mg C/L	P304851	
1797211	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P303963	

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: Matrix spike recovery data is unavailable due to high analyte concentration in the QC sample.

Sample Location: G4SW0091

Collection Date/Time: 05/09/2016 13:07

Field ID: G4SW0091

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1797204	EPA 180.1 Rev. 2.0	Turbidity	1.8		NTU	P303971	
	EPA 300.0 Rev. 2.1	Chloride	18		mg Cl/L	P304555	
		Sulfate	10		mg SO4/L	P304558	
	SM 2120 B	Color (true)	11		PCU	P304015	
	SM 2320 B-97	Total Alkalinity	57		mg CaCO3/L	P304661	
	SM 2540 C-97	TDS	120	A	mg/L	P304441	
	SM 2540 D-97	TSS	4	I	mg/L	P304397	
1797208	SM 4500 F-C-97	Fluoride	0.23		mg F/L	P304664	
	EPA 350.1 Rev. 2.0	Ammonia-N	0.002	I	mg N/L	P304315	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.70		mg N/L	P304696	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P304531	
	EPA 365.1 Rev. 2.0	Total-P	0.017		mg P/L	P304770	
1797212	SM 5310 B-00	Organic Carbon	7.0		mg C/L	P304851	
	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P303963	

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: Matrix spike recovery data is unavailable due to high analyte concentration in the QC sample.

Quality Assurance Report

Method Blank Results

Reference Method: EPA 180.1 Rev. 2.0

Batch ID: P303971

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Quality Assurance Report Method Blank Results

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P304555

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P304558

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P304313

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P304315

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P304696

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P304523

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P304531

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P304770

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P305050

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: P303963

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

Reference Method: SM 2120 B
Batch ID: P304015

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2320 B-97
Batch ID: P304661

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

Reference Method: SM 2540 C-97
Batch ID: P304435

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 C-97
Batch ID: P304440

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 C-97
Batch ID: P304441

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P304391

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P304396

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P304397

Component	Result	Code	Units
TSS	2	U	mg/L

Quality Assurance Report Method Blank Results

Reference Method: SM 4500 F-C-97
Batch ID: P304664

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-00
Batch ID: P304851

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: P304555

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P304558

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Sulfate	97.4		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P304313

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Ammonia-N	99.3		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P304315

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P304696

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P304523

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P304531

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P304531

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P304770

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P305050

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: P303963

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

Reference Method: SM 2320 B-97
Batch ID: P304661

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

Reference Method: SM 4500 F-C-97
Batch ID: P304664

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	97.4		P	92 - 103

Reference Method: SM 5310 B-00
Batch ID: P304851

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	100		P	85 - 115

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P304555

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1797204	Chloride	97.5		P	90 - 110
1797327	Chloride	97.3		P	90 - 110

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P304558

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1797204	Sulfate	94.8		P	90 - 110
1797327	Sulfate	96.5		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P304313

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1797162	Ammonia-N	99.6	98.5	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P304315

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1797208	Ammonia-N	99.0	101	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P304523

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1797173	NO2NO3-N	95.8	96.8	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P304531

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1797208	NO2NO3-N	104	106	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P304770

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1797208	Total-P	107	106	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P305050

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1798412	Total-P	98.6	101	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P303963

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1797212	O-Phosphate-P	98.3	98.8	P/P	90 - 110

Reference Method: SM 4500 F-C-97
Batch ID: P304664

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1797407	Fluoride	97.6	99.0	P/P	91 - 105

Quality Assurance Report Matrix Spike Accuracy

Reference Method: SM 5310 B-00
Batch ID: P304851

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1796925	Organic Carbon	99.2	101	P/P	85 - 115

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P303971

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1797093	Turbidity	1.87	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P304555

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1797327	Chloride	0.556	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P304558

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1797327	Sulfate	5.61	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P304313

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1797162	Ammonia-N	0.842	Spike	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P304315

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1797208	Ammonia-N	1.85	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P304696

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1797179	Kjeldahl Nitrogen	1.00	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P304523

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1797173	NO2NO3-N	0.877	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P304531

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1797208	NO2NO3-N	1.90	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P304770

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1797208	Total-P	0.271	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P305050

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1798412	Total-P	1.91	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P303963

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1797212	O-Phosphate-P	0.507	Spike	P	0 - 20

Reference Method: SM 2120 B
Batch ID: P304015

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1797067	Color (true)	0.0489	Sample	P	0 - 20

Reference Method: SM 2320 B-97
Batch ID: P304661

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1797407	Total Alkalinity	0.325	Sample	P	0 - 4.8

Reference Method: SM 2540 C-97
Batch ID: P304435

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1796390	TDS	3.42	Sample	P	0 - 10

Quality Assurance Report Precision

Reference Method: SM 2540 C-97
Batch ID: P304440

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1796979	TDS	2.68	Sample	P	0 - 10

Reference Method: SM 2540 C-97
Batch ID: P304441

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1797204	TDS	5.00	Sample	P	0 - 10

Reference Method: SM 4500 F-C-97
Batch ID: P304664

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1797407	Fluoride	0.953	Spike	P	0 - 3.0

Reference Method: SM 5310 B-00
Batch ID: P304851

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1796925	Organic Carbon	1.73	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: A69384
Included Lab Sample IDs: 1797201, 1797202, 1797203, 1797204

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	98.7	99.2	P/P	90 - 115
Color (true)	99.2	98.3	P/P	90 - 115

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Run ID: A69389
Included Lab Sample IDs: 1797209, 1797210, 1797211, 1797212

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	100	101	P/P	90 - 110
O-Phosphate-P	101	99.6	P/P	90 - 110
O-Phosphate-P	99.6	101	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: EPA 180.1 Rev. 2.0

Run ID: A69393

Included Lab Sample IDs: 1797201, 1797202, 1797203, 1797204

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Turbidity	100	101	P/P	95 - 105

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A69475

Included Lab Sample IDs: 1797205, 1797206, 1797207, 1797208

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	101	99.5	P/P	90 - 110
Ammonia-N	99.5	101	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A69550

Included Lab Sample IDs: 1797205, 1797206, 1797207, 1797208

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO2NO3-N	100	102	P/P	90 - 110
NO2NO3-N	102	103	P/P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1

Run ID: A69555

Included Lab Sample IDs: 1797201, 1797202, 1797203, 1797204

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	101	100	P/P	90 - 110
Chloride	99.8	101	P/P	90 - 110
Sulfate	97.7	99.5	P/P	90 - 110
Sulfate	99.5	97.8	P/P	90 - 110

Reference Method: SM 2320 B-97

Run ID: A69588

Included Lab Sample IDs: 1797201, 1797202, 1797203, 1797204

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	99.1	102	P/P	90 - 110

Reference Method: SM 4500 F-C-97

Run ID: A69588

Included Lab Sample IDs: 1797201, 1797202, 1797203, 1797204

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	98.6	99.0	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A69634

Included Lab Sample IDs: 1797205, 1797206, 1797207, 1797208

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	96.0	99.1	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: SM 5310 B-00

Run ID: A69642

Included Lab Sample IDs: 1797205, 1797206, 1797207, 1797208

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

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A69663

Included Lab Sample IDs: 1797205, 1797206, 1797208

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	100	99.2	P/P	90 - 110
Total-P	99.2	100	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A69725

Included Lab Sample IDs: 1797207

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	100	99.8	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					1.87	
EPA 300.0 Rev. 2.1	Chloride	99.2	97.3	97.5		0.556	
	Sulfate	97.4	96.5	94.8		5.61	
EPA 350.1 Rev. 2.0	Ammonia-N	99.3	99.6	98.5			0.842
	Ammonia-N	99.6	99.0	101			1.85
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	98.7					1.00
EPA 353.2 Rev. 2.0	NO2NO3-N	105	95.8	96.8			0.877
	NO2NO3-N	106	104	106			1.90
EPA 365.1 Rev. 2.0	Total-P	104	107	106			0.271
	Total-P	101	98.6	101			1.91
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	100	98.3	98.8			0.507
SM 2120 B	Color (true)					0.0489	
SM 2320 B-97	Total Alkalinity	102				0.325	
SM 2540 C-97	TDS					3.42	
	TDS					2.68	
	TDS					5.00	
SM 4500 F-C-97	Fluoride	97.4	97.6	99.0			0.953
SM 5310 B-00	Organic Carbon	100	99.2	101			1.73

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
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Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	1797201, 1797202, 1797203, 1797204
EPA 300.0 Rev. 2.1 / E31780	Chloride in aqueous matrices	1797201, 1797202, 1797203, 1797204
EPA 300.0 Rev. 2.1 / E31780	Sulfate in aqueous matrices	1797201, 1797202, 1797203, 1797204
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	1797205, 1797206, 1797207, 1797208
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	1797205, 1797206, 1797207, 1797208
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	1797205, 1797206, 1797207, 1797208
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	1797205, 1797206, 1797207, 1797208
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	1797209, 1797210, 1797211, 1797212
SM 2120 B / E31780	True Color measured at 450 nm	1797201, 1797202, 1797203, 1797204
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO ₃ /L	1797201, 1797202, 1797203, 1797204
SM 2540 C-97 / E31780	Total Dissolved Solids in aqueous matrices	1797201, 1797202, 1797203, 1797204
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices	1797201, 1797202, 1797203, 1797204
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	1797201, 1797202, 1797203, 1797204
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	1797205, 1797206, 1797207, 1797208

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	05/10/2016			05/10/2016 15:26	Sima Feizi	1797201, 1797202, 1797203, 1797204
EPA 300.0 Rev. 2.1	05/10/2016			05/18/2016	Elisa J Lutz	1797201, 1797202, 1797203, 1797204
EPA 350.1 Rev. 2.0	05/10/2016			05/13/2016	Diana M. Turner	1797205, 1797206, 1797207, 1797208
EPA 351.2 Rev. 2.0	05/10/2016	05/20/2016	Christopher Armour	05/23/2016	Christopher Armour	1797205, 1797206, 1797207, 1797208
EPA 353.2 Rev. 2.0	05/10/2016			05/18/2016	Peter D. Kaus	1797205, 1797206, 1797207, 1797208
EPA 365.1 Rev. 2.0	05/10/2016	05/23/2016	Vijayalakshmi Reddy	05/24/2016	Lipi Saha	1797205, 1797206, 1797208
	05/10/2016	05/26/2016	Vijayalakshmi Reddy	05/26/2016	Rochelle Y Jackson	1797207
EPA 365.1 Rev. 2.0 dissolved	05/10/2016			05/10/2016 14:42	Julia Storbeck	1797212
	05/10/2016			05/10/2016 14:56	Julia Storbeck	1797211
	05/10/2016			05/10/2016 15:07	Julia Storbeck	1797209
	05/10/2016			05/10/2016 15:08	Julia Storbeck	1797210
SM 2120 B	05/10/2016			05/10/2016 14:41	Rochelle Y Jackson	1797203, 1797204
	05/10/2016			05/10/2016 14:50	Rochelle Y Jackson	1797201
	05/10/2016			05/10/2016 14:51	Rochelle Y Jackson	1797202
SM 2320 B-97	05/10/2016			05/18/2016	Dale L. Simmons	1797201, 1797202, 1797203, 1797204
SM 2540 C-97	05/10/2016			05/11/2016	Yijie Li	1797201, 1797202, 1797203, 1797204
SM 2540 D-97	05/10/2016			05/11/2016	Yijie Li	1797201, 1797202, 1797203, 1797204
SM 4500 F-C-97	05/10/2016			05/18/2016	Dale L. Simmons	1797201, 1797202, 1797203, 1797204
SM 5310 B-00	05/10/2016			05/24/2016	Diana M. Turner	1797205, 1797206, 1797207, 1797208