

Chemical Analysis Report

WQAP-2017-03-30-04

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

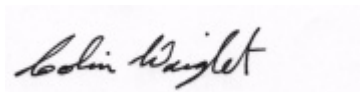
Event Description: **RUN 6**
Request ID: **RQ-2017-03-27-16**
Customer: **WQAP**
Project ID: **SMP**

Send Reports to:
FL Dept. of Environmental Protection
13051 N. Telecom Parkway
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Attn: Judy Ashton

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Certified by: Colin Wright, Program Administrator

Date Certified: 21-APR-2017 12:35

A handwritten signature in black ink, appearing to read "Colin Wright", is placed over a light gray 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: MOON

Collection Date/Time: 03/29/2017 09:40

Field ID: G5SW0100

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1884567	EPA 180.1 Rev. 2.0	Turbidity	1.0		NTU	P322542	
	EPA 300.0 Rev. 2.1	Chloride	27		mg Cl/L	P323033	
		Sulfate	2.1		mg SO4/L	P323036	
	SM 2120 B	Color (true)	25		PCU	P322522	
	SM 2320 B-97	Total Alkalinity	25		mg CaCO3/L	P323003	
	SM 2540 C-97	TDS	90		mg/L	P323099	
	SM 2540 D-97	TSS	2	I	mg/L	P322876	
	SM 4500 F-C-97	Fluoride	0.083	I	mg F/L	P323006	
1884572	EPA 350.1 Rev. 2.0	Ammonia-N	0.002	U	mg N/L	P322502	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.79		mg N/L	P322566	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P322572	
	EPA 365.1 Rev. 2.0	Total-P	0.020		mg P/L	P322671	
	SM 5310 B-00	Organic Carbon	11		mg C/L	P322582	
1884577	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P322535	

Ref. Method and Comment:

EPA 300.0 Rev. 2.1: Sulfate: Batch relative percent difference is unavailable because of low 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: PIERCE

Collection Date/Time: 03/29/2017 10:25

Field ID: G5SW0104

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1884568	EPA 180.1 Rev. 2.0	Turbidity	1.0		NTU	P322542	
	EPA 300.0 Rev. 2.1	Chloride	7.2		mg Cl/L	P323033	
		Sulfate	1.1		mg SO4/L	P323036	
	SM 2120 B	Color (true)	40		PCU	P322522	
	SM 2320 B-97	Total Alkalinity	3.8		mg CaCO3/L	P323074	
	SM 2540 C-97	TDS	30		mg/L	P323099	
	SM 2540 D-97	TSS	2	U	mg/L	P322876	
	SM 4500 F-C-97	Fluoride	0.048	I	mg F/L	P323006	
1884573	EPA 350.1 Rev. 2.0	Ammonia-N	0.002	U	mg N/L	P322502	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.65		mg N/L	P322566	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P322572	
	EPA 365.1 Rev. 2.0	Total-P	0.012		mg P/L	P322671	
	SM 5310 B-00	Organic Carbon	9.2		mg C/L	P322582	
1884578	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P322535	

Ref. Method and Comment:

EPA 300.0 Rev. 2.1: Sulfate: Batch relative percent difference is unavailable because of low 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: GREEN

Collection Date/Time: 03/29/2017 10:54

Field ID: G5SW0107

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1884569	EPA 180.1 Rev. 2.0	Turbidity	1.2		NTU	P322542	

Field ID: G5SW0107

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1884569	EPA 300.0 Rev. 2.1	Chloride	19		mg Cl/L	P323033	
		Sulfate	0.43	I	mg SO4/L	P323036	
	SM 2120 B	Color (true)	23		PCU	P322522	
	SM 2320 B-97	Total Alkalinity	22		mg CaCO3/L	P323003	
	SM 2540 C-97	TDS	65		mg/L	P323099	
	SM 2540 D-97	TSS	2	I	mg/L	P322876	
	SM 4500 F-C-97	Fluoride	0.065	I	mg F/L	P323006	
1884574	EPA 350.1 Rev. 2.0	Ammonia-N	0.002	U	mg N/L	P322502	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.83		mg N/L	P322566	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P322572	
	EPA 365.1 Rev. 2.0	Total-P	0.022		mg P/L	P322671	
	SM 5310 B-00	Organic Carbon	10		mg C/L	P322582	
1884579	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P322535	

Ref. Method and Comment:

EPA 300.0 Rev. 2.1: Sulfate: Batch relative percent difference is unavailable because of low 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: VIENNA N

Collection Date/Time: 03/29/2017 11:55

Field ID: G5SW0115

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1884570	EPA 180.1 Rev. 2.0	Turbidity	1.1		NTU	P322542	
	EPA 300.0 Rev. 2.1	Chloride	29		mg Cl/L	P323033	
		Sulfate	14		mg SO4/L	P323036	
	SM 2120 B	Color (true)	27		PCU	P322522	
	SM 2320 B-97	Total Alkalinity	31		mg CaCO3/L	P323003	
	SM 2540 C-97	TDS	119		mg/L	P323099	
	SM 2540 D-97	TSS	4	I	mg/L	P322876	
1884575	SM 4500 F-C-97	Fluoride	0.080	I	mg F/L	P323006	
	EPA 350.1 Rev. 2.0	Ammonia-N	0.002	U	mg N/L	P322502	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.81		mg N/L	P322566	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P322573	
	EPA 365.1 Rev. 2.0	Total-P	0.025		mg P/L	P322671	
1884580	SM 5310 B-00	Organic Carbon	13		mg C/L	P322582	
	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P322535	

Ref. Method and Comment:

EPA 300.0 Rev. 2.1: Sulfate: Batch relative percent difference is unavailable because of low 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: BIG VIENNA

Collection Date/Time: 03/29/2017 12:15

Field ID: G5SW0113

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1884571	EPA 180.1 Rev. 2.0	Turbidity	0.50		NTU	P322542	
	EPA 300.0 Rev. 2.1	Chloride	28		mg Cl/L	P323033	
		Sulfate	14		mg SO4/L	P323036	

Field ID: G5SW0113

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1884571	SM 2120 B	Color (true)	11		PCU	P322522	
	SM 2320 B-97	Total Alkalinity	25		mg CaCO3/L	P323003	
	SM 2540 C-97	TDS	118		mg/L	P323099	
	SM 2540 D-97	TSS	3	I	mg/L	P322876	
	SM 4500 F-C-97	Fluoride	0.083	I	mg F/L	P323006	
1884576	EPA 350.1 Rev. 2.0	Ammonia-N	0.013		mg N/L	P322502	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.0		mg N/L	P322566	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P322573	
	EPA 365.1 Rev. 2.0	Total-P	0.026		mg P/L	P322671	
	SM 5310 B-00	Organic Carbon	15		mg C/L	P322582	
1884581	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P322535	

Ref. Method and Comment:
 EPA 300.0 Rev. 2.1: Sulfate: Batch relative percent difference is unavailable because of low 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

Reference Method: EPA 180.1 Rev. 2.0
 Batch ID: P322542

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 300.0 Rev. 2.1
 Batch ID: P323033

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
 Batch ID: P323036

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 350.1 Rev. 2.0
 Batch ID: P322502

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

Reference Method: EPA 351.2 Rev. 2.0
 Batch ID: P322566

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

Reference Method: EPA 353.2 Rev. 2.0
 Batch ID: P322572

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

Quality Assurance Report Method Blank Results

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P322573

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P322671

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P322535

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

Reference Method: SM 2120 B
Batch ID: P322522

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2320 B-97
Batch ID: P323003

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

Reference Method: SM 2320 B-97
Batch ID: P323074

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

Reference Method: SM 2540 C-97
Batch ID: P323099

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P322876

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500 F-C-97
Batch ID: P323006

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Quality Assurance Report Method Blank Results

Reference Method: SM 5310 B-00
 Batch ID: P322582

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: P323033

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

Reference Method: EPA 300.0 Rev. 2.1
 Batch ID: P323036

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

Reference Method: EPA 350.1 Rev. 2.0
 Batch ID: P322502

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

Reference Method: EPA 351.2 Rev. 2.0
 Batch ID: P322566

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

Reference Method: EPA 353.2 Rev. 2.0
 Batch ID: P322572

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

Reference Method: EPA 353.2 Rev. 2.0
 Batch ID: P322573

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

Reference Method: EPA 365.1 Rev. 2.0
 Batch ID: P322671

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: P322535

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P322535

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
O-Phosphate-P	98.2		P	90 - 110

Reference Method: SM 2320 B-97
Batch ID: P323003

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	104		P	95 - 108

Reference Method: SM 2320 B-97
Batch ID: P323074

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	104		P	95 - 108

Reference Method: SM 4500 F-C-97
Batch ID: P323006

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	96.4		P	92 - 103

Reference Method: SM 5310 B-00
Batch ID: P322582

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

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P323033

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1884623	Chloride	102		P	90 - 110
1884697	Chloride	103		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P323036

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1884623	Sulfate	101		P	90 - 110
1884697	Sulfate	101		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P322502

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1884572	Ammonia-N	106	106	P/P	90 - 110

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 351.2 Rev. 2.0
 Batch ID: P322566

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1884628	Kjeldahl Nitrogen	102	94.7	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
 Batch ID: P322572

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1884510	NO2NO3-N	99.3	99.8	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
 Batch ID: P322573

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1884575	NO2NO3-N	100	99.0	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
 Batch ID: P322671

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1884573	Total-P	104	104	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
 Batch ID: P322535

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1884516	O-Phosphate-P	97.6	98.7	P/P	90 - 110

Reference Method: SM 4500 F-C-97
 Batch ID: P323006

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1884504	Fluoride	101	101	P/P	91 - 105

Reference Method: SM 5310 B-00
 Batch ID: P322582

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1884420	Organic Carbon	99.6		P	85 - 115

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
 Batch ID: P322542

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1884506	Turbidity	2.22	Sample	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P323033

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1884697	Chloride	0.409	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P322502

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1884572	Ammonia-N	0.232	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P322566

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1884628	Kjeldahl Nitrogen	3.86	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P322572

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1884510	NO2NO3-N	0.468	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P322573

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1884575	NO2NO3-N	1.01	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P322671

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1884573	Total-P	0.164	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P322535

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1884516	O-Phosphate-P	1.12	Spike	P	0 - 20

Reference Method: SM 2120 B
Batch ID: P322522

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1884518	Color (true)	1.46	Sample	P	0 - 20

Quality Assurance Report Precision

Reference Method: SM 2320 B-97
Batch ID: P323003

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1884504	Total Alkalinity	0.300	Sample	P	0 - 4.8

Reference Method: SM 2320 B-97
Batch ID: P323074

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1884625	Total Alkalinity	0.172	Sample	P	0 - 4.8

Reference Method: SM 2540 C-97
Batch ID: P323099

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1884518	TDS	1.34	Sample	P	0 - 10

Reference Method: SM 4500 F-C-97
Batch ID: P323006

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1884504	Fluoride	0.0	Spike	P	0 - 3.0

Reference Method: SM 5310 B-00
Batch ID: P322582

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1884420	Organic Carbon	0.0206	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 350.1 Rev. 2.0
Run ID: A75470
Included Lab Sample IDs: 1884572, 1884573, 1884574, 1884575, 1884576

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

Reference Method: SM 2120 B
Run ID: A75477
Included Lab Sample IDs: 1884567, 1884568, 1884569, 1884570, 1884571

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	102	102	P/P	85 - 115

Quality Assurance Report Calibration Verification

Reference Method: EPA 365.1 Rev. 2.0 dissolved

Run ID: A75479

Included Lab Sample IDs: 1884577, 1884578, 1884579, 1884580, 1884581

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	98.7	99.8	P/P	90 - 110
O-Phosphate-P	99.0	98.2	P/P	90 - 110
O-Phosphate-P	99.8	99.8	P/P	90 - 110

Reference Method: EPA 180.1 Rev. 2.0

Run ID: A75482

Included Lab Sample IDs: 1884567, 1884568, 1884569, 1884570, 1884571

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: A75490

Included Lab Sample IDs: 1884572, 1884573, 1884574, 1884575, 1884576

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO2NO3-N	96.5	96.0	P/P	90 - 110
NO2NO3-N	96.5	96.5	P/P	90 - 110

Reference Method: SM 5310 B-00

Run ID: A75496

Included Lab Sample IDs: 1884572, 1884573, 1884574, 1884575, 1884576

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	96.3	97.6	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A75533

Included Lab Sample IDs: 1884572, 1884573, 1884574, 1884575, 1884576

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	101	99.6	P/P	90 - 110
Kjeldahl Nitrogen	99.6	99.7	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A75554

Included Lab Sample IDs: 1884572, 1884573, 1884574, 1884575, 1884576

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

Reference Method: SM 2320 B-97

Run ID: A75665

Included Lab Sample IDs: 1884567, 1884569, 1884570, 1884571

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	104	107	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: SM 4500 F-C-97

Run ID: A75665

Included Lab Sample IDs: 1884567, 1884568, 1884569, 1884570, 1884571

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

Reference Method: EPA 300.0 Rev. 2.1

Run ID: A75672

Included Lab Sample IDs: 1884567, 1884568, 1884569, 1884570, 1884571

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	103	104	P/P	90 - 110
Chloride	104	103	P/P	90 - 110
Sulfate	102	97.9	P/P	90 - 110
Sulfate	97.9	104	P/P	90 - 110

Reference Method: SM 2320 B-97

Run ID: A75710

Included Lab Sample IDs: 1884568

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	101	104	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				2.22	
EPA 300.0 Rev. 2.1	Chloride	103	103 102		0.409	
	Sulfate	101	101 101			
EPA 350.1 Rev. 2.0	Ammonia-N	105	106 106			0.232
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	98.0	102 94.7			3.86
EPA 353.2 Rev. 2.0	NO2NO3-N	101	99.3 99.8			0.468
	NO2NO3-N	100	100 99.0			1.01
EPA 365.1 Rev. 2.0	Total-P	104	104 104			0.164
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	98.2	97.6 98.7			1.12
SM 2120 B	Color (true)				1.46	
SM 2320 B-97	Total Alkalinity	104			0.300	
	Total Alkalinity	104			0.172	
SM 2540 C-97	TDS				1.34	
SM 4500 F-C-97	Fluoride	96.4	101 101			0.0
SM 5310 B-00	Organic Carbon	99.9	99.6			0.0206

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	1884567, 1884568, 1884569, 1884570, 1884571

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 300.0 Rev. 2.1 / E31780	Chloride in aqueous matrices	1884567, 1884568, 1884569, 1884570, 1884571
EPA 300.0 Rev. 2.1 / E31780	Sulfate in aqueous matrices	1884567, 1884568, 1884569, 1884570, 1884571
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	1884572, 1884573, 1884574, 1884575, 1884576
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	1884572, 1884573, 1884574, 1884575, 1884576
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	1884572, 1884573, 1884574, 1884575, 1884576
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	1884572, 1884573, 1884574, 1884575, 1884576
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	1884577, 1884578, 1884579, 1884580, 1884581
SM 2120 B / E31780	True Color measured at 450 nm	1884567, 1884568, 1884569, 1884570, 1884571
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO ₃ /L	1884567, 1884568, 1884569, 1884570, 1884571
SM 2540 C-97 / E31780	Total Dissolved Solids in aqueous matrices	1884567, 1884568, 1884569, 1884570, 1884571
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices	1884567, 1884568, 1884569, 1884570, 1884571
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	1884567, 1884568, 1884569, 1884570, 1884571
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	1884572, 1884573, 1884574, 1884575, 1884576

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	03/30/2017			03/30/2017 15:54	Blanca Fach	1884567, 1884568, 1884569, 1884570, 1884571
EPA 300.0 Rev. 2.1	03/30/2017			04/08/2017	Ping Hua	1884567, 1884568, 1884569, 1884570, 1884571
EPA 350.1 Rev. 2.0	03/30/2017			03/30/2017	Julie Michelle Frank	1884572, 1884573, 1884574, 1884575, 1884576
EPA 351.2 Rev. 2.0	03/30/2017	03/31/2017	Adrian Shelby	04/03/2017	Joseph Suarez	1884572, 1884573, 1884574, 1884575, 1884576
EPA 353.2 Rev. 2.0	03/30/2017			03/31/2017	Beverly Y. Sanders	1884572, 1884573, 1884574, 1884575, 1884576
EPA 365.1 Rev. 2.0	03/30/2017	04/03/2017	Vijayalakshmi Reddy	04/04/2017	Lipi Saha	1884572, 1884573, 1884574, 1884575, 1884576
EPA 365.1 Rev. 2.0 dissolved	03/30/2017			03/30/2017 16:15	Anthony C. Onicha	1884577
	03/30/2017			03/30/2017 16:16	Anthony C. Onicha	1884578
	03/30/2017			03/30/2017 16:17	Anthony C. Onicha	1884579
	03/30/2017			03/30/2017 16:22	Anthony C. Onicha	1884580
	03/30/2017			03/30/2017 16:55	Anthony C. Onicha	1884581
SM 2120 B	03/30/2017			03/30/2017 19:16	Julie Michelle Frank	1884567
	03/30/2017			03/30/2017 19:17	Julie Michelle Frank	1884568, 1884569
	03/30/2017			03/30/2017 19:18	Julie Michelle Frank	1884570
	03/30/2017			03/30/2017 19:19	Julie Michelle Frank	1884571
SM 2320 B-97	03/30/2017			04/07/2017	Dale L. Simmons	1884567, 1884569, 1884570, 1884571
	03/30/2017			04/10/2017	Dale L. Simmons	1884568
SM 2540 C-97	03/30/2017			04/03/2017	Sima Feizi	1884567, 1884568, 1884569, 1884570, 1884571
SM 2540 D-97	03/30/2017			04/03/2017	Sima Feizi	1884567, 1884568, 1884569, 1884570, 1884571
SM 4500 F-C-97	03/30/2017			04/07/2017	Dale L. Simmons	1884567, 1884568, 1884569, 1884570, 1884571
SM 5310 B-00	03/30/2017			03/30/2017	Julie Michelle Frank	1884572, 1884573, 1884574, 1884575, 1884576