

Chemical Analysis Report

WQAP-2017-05-11-02

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

Event Description: **RUN 8**
Request ID: **RQ-2017-05-08-25**
Customer: **WQAP**
Project ID: **SMP**

Send Reports to:
FL Dept. of Environmental Protection
13051 N. Telecom Parkway
Tampa, FL 33637
Attn: Judy Ashton

For additional information please contact
Colin Wright, Ph.D.
Liang-Tsair Lin, Ph.D.
Thekkekalathil Chandrasekhar, Ph.D, QA Officer
Phone (850) 245-8085

Certified by: Colin Wright, Program Administrator

Date Certified: 06-JUN-2017 10:59

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: DEAD LADY

Collection Date/Time: 05/10/2017 09:10

Field ID: G1SW0021

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1898376	EPA 180.1 Rev. 2.0	Turbidity	5.0		NTU	P325127	
	EPA 300.0 Rev. 2.1	Chloride	31		mg Cl/L	P325827	
		Sulfate	3.8		mg SO4/L	P325831	
	SM 2120 B	Color (true)	68		PCU	P325132	
	SM 2320 B-97	Total Alkalinity	26		mg CaCO3/L	P325591	
	SM 2540 C-97	TDS	111		mg/L	P325652	
	SM 2540 D-97	TSS	7	I	mg/L	P325531	
	SM 4500 F-C-97	Fluoride	0.086	I	mg F/L	P325594	
1898382	EPA 350.1 Rev. 2.0	Ammonia-N	0.003	I	mg N/L	P325117	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.3		mg N/L	P325391	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P325352	
	EPA 365.1 Rev. 2.0	Total-P	0.049		mg P/L	P325213	
	SM 5310 B-00	Organic Carbon	18		mg C/L	P325516	
1898388	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P325171	

Sample Location: LAKE WASTENA

Collection Date/Time: 05/10/2017 09:40

Field ID: G1SW0020

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1898377	EPA 180.1 Rev. 2.0	Turbidity	2.6		NTU	P325127	
	EPA 300.0 Rev. 2.1	Chloride	23		mg Cl/L	P325827	
		Sulfate	4.1		mg SO4/L	P325831	
	SM 2120 B	Color (true)	28		PCU	P325132	
	SM 2320 B-97	Total Alkalinity	26		mg CaCO3/L	P325591	
	SM 2540 C-97	TDS	104		mg/L	P325652	
	SM 2540 D-97	TSS	4	I	mg/L	P325531	
	SM 4500 F-C-97	Fluoride	0.076	I	mg F/L	P325594	
1898383	EPA 350.1 Rev. 2.0	Ammonia-N	0.024		mg N/L	P325117	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.2		mg N/L	P325391	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P325352	
	EPA 365.1 Rev. 2.0	Total-P	0.038		mg P/L	P325213	
	SM 5310 B-00	Organic Carbon	14		mg C/L	P325516	
1898389	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P325171	

Sample Location: JUANITA

Collection Date/Time: 05/10/2017 10:15

Field ID: G1SW0019

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1898378	EPA 180.1 Rev. 2.0	Turbidity	1.8		NTU	P325127	
	EPA 300.0 Rev. 2.1	Chloride	27		mg Cl/L	P325827	
		Sulfate	4.5		mg SO4/L	P325831	
	SM 2120 B	Color (true)	50		PCU	P325132	
	SM 2320 B-97	Total Alkalinity	15	A	mg CaCO3/L	P325591	

Field ID: G1SW0019

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1898378	SM 2540 C-97	TDS	105		mg/L	P325652	
	SM 2540 D-97	TSS	2	I	mg/L	P325531	
	SM 4500 F-C-97	Fluoride	0.073	I	mg F/L	P325594	
1898384	EPA 350.1 Rev. 2.0	Ammonia-N	0.002	I	mg N/L	P325117	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.88		mg N/L	P325391	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P325352	
	EPA 365.1 Rev. 2.0	Total-P	0.017		mg P/L	P325213	
	SM 5310 B-00	Organic Carbon	14		mg C/L	P325516	
1898390	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P325171	

Sample Location: ROCK LAKE

Collection Date/Time: 05/10/2017 11:05

Field ID: G1SW0010

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1898379	EPA 180.1 Rev. 2.0	Turbidity	4.0	A	NTU	P325128	
	EPA 300.0 Rev. 2.1	Chloride	41		mg Cl/L	P325827	
		Sulfate	10		mg SO4/L	P325831	
	SM 2120 B	Color (true)	82		PCU	P325132	
	SM 2320 B-97	Total Alkalinity	30		mg CaCO3/L	P325591	
	SM 2540 C-97	TDS	150		mg/L	P325652	
	SM 2540 D-97	TSS	4	I	mg/L	P325531	
	SM 4500 F-C-97	Fluoride	0.15		mg F/L	P325594	
1898385	EPA 350.1 Rev. 2.0	Ammonia-N	0.003	I	mg N/L	P325117	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.0		mg N/L	P325393	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P325352	
	EPA 365.1 Rev. 2.0	Total-P	0.029		mg P/L	P325213	
	SM 5310 B-00	Organic Carbon	14		mg C/L	P325516	
1898391	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P325171	

Sample Location: LAKE ESTES

Collection Date/Time: 05/10/2017 12:05

Field ID: G1SW0027

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1898380	EPA 180.1 Rev. 2.0	Turbidity	5.6		NTU	P325128	
	EPA 300.0 Rev. 2.1	Chloride	40		mg Cl/L	P325827	
		Sulfate	12		mg SO4/L	P325831	
	SM 2120 B	Color (true)	32		PCU	P325132	
	SM 2320 B-97	Total Alkalinity	55	A	mg CaCO3/L	P325592	
	SM 2540 C-97	TDS	166	A	mg/L	P325652	
	SM 2540 D-97	TSS	13	A	mg/L	P325531	
	SM 4500 F-C-97	Fluoride	0.083	IJ	mg F/L	P325595	RPD
1898386	EPA 350.1 Rev. 2.0	Ammonia-N	0.003	I	mg N/L	P325117	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.3		mg N/L	P325393	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P325352	
	EPA 365.1 Rev. 2.0	Total-P	0.056		mg P/L	P325213	

Field ID: G1SW0027

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1898386	SM 5310 B-00	Organic Carbon	13		mg C/L	P325516	
1898392	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P325171	

Ref. Method and Comment:
 SM 4500 F-C-97: Refer to the narrative for an explanation of QC Codes.

Sample Location: CHAPMAN

Collection Date/Time: 05/10/2017 12:40

Field ID: G1SW0064

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1898381	EPA 180.1 Rev. 2.0	Turbidity	6.3		NTU	P325128	
	EPA 300.0 Rev. 2.1	Chloride	64		mg Cl/L	P325827	
		Sulfate	21		mg SO4/L	P325831	
	SM 2120 B	Color (true)	30		PCU	P325132	
	SM 2320 B-97	Total Alkalinity	74		mg CaCO3/L	P325592	
	SM 2540 C-97	TDS	243		mg/L	P325652	
	SM 2540 D-97	TSS	9	I	mg/L	P325531	
	SM 4500 F-C-97	Fluoride	0.11		mg F/L	P325595	RPD
1898387	EPA 350.1 Rev. 2.0	Ammonia-N	0.004	I	mg N/L	P325117	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.3		mg N/L	P325393	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P325352	
	EPA 365.1 Rev. 2.0	Total-P	0.019		mg P/L	P325213	
	SM 5310 B-00	Organic Carbon	14		mg C/L	P325516	
1898393	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P325171	

Quality Assurance Report Method Blank Results

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P325127

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P325128

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P325827

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P325831

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: P325117

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P325391

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P325393

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P325352

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: P325213

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P325171

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

Reference Method: SM 2120 B
Batch ID: P325132

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2320 B-97
Batch ID: P325591

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

Reference Method: SM 2320 B-97
Batch ID: P325592

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: P325652

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P325531

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500 F-C-97
Batch ID: P325594

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 4500 F-C-97
Batch ID: P325595

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-00
Batch ID: P325516

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: P325827

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P325831

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Sulfate	97.3		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P325117

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P325391

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P325391

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P325393

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P325352

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P325213

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total-P	95.6		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P325171

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

Reference Method: SM 2320 B-97
Batch ID: P325591

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

Reference Method: SM 2320 B-97
Batch ID: P325592

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

Reference Method: SM 4500 F-C-97
Batch ID: P325594

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	94.2		P	92 - 103

Reference Method: SM 4500 F-C-97
Batch ID: P325595

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	99.1		P	92 - 103

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: SM 5310 B-00
 Batch ID: P325516

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	89.8		P	85 - 115

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
 Batch ID: P325827

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1898282	Chloride	97.0		P	90 - 110
1898283	Chloride	98.0		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
 Batch ID: P325831

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1898282	Sulfate	95.4		P	90 - 110
1898283	Sulfate	94.6		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
 Batch ID: P325117

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1898382	Ammonia-N	103	101	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
 Batch ID: P325391

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1898371	Kjeldahl Nitrogen	93.9	95.5	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
 Batch ID: P325393

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1898395	Kjeldahl Nitrogen	95.1	94.8	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
 Batch ID: P325352

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1898383	NO2NO3-N	104	102	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
 Batch ID: P325213

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1898285	Total-P	97.2	98.6	P/P	90 - 110

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P325171

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1898389	O-Phosphate-P	96.0	96.6	P/P	90 - 110

Reference Method: SM 4500 F-C-97
Batch ID: P325594

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1898378	Fluoride	98.7	95.7	P/P	91 - 105

Reference Method: SM 4500 F-C-97
Batch ID: P325595

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1898380	Fluoride	95.5	99.7	P/P	91 - 105

Reference Method: SM 5310 B-00
Batch ID: P325516

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1898243	Organic Carbon	86.1	88.0	P/P	85 - 115

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P325127

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1898282	Turbidity	4.81	Sample	P	0 - 20

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P325128

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1898379	Turbidity	2.00	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P325827

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1898282	Chloride	0.0430	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P325831

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1898282	Sulfate	0.102	Sample	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P325117

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1898382	Ammonia-N	1.67	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P325391

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1898371	Kjeldahl Nitrogen	1.45	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P325393

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1898395	Kjeldahl Nitrogen	0.200	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P325352

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1898383	NO2NO3-N	0.971	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P325213

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1898285	Total-P	1.39	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P325171

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1898389	O-Phosphate-P	0.623	Spike	P	0 - 20

Reference Method: SM 2120 B
Batch ID: P325132

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1898282	Color (true)	1.18	Sample	P	0 - 20

Reference Method: SM 2320 B-97
Batch ID: P325591

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1898378	Total Alkalinity	3.21	Sample	P	0 - 4.8

Quality Assurance Report Precision

Reference Method: SM 2320 B-97
Batch ID: P325592

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1898380	Total Alkalinity	0.354	Sample	P	0 - 4.8

Reference Method: SM 2540 C-97
Batch ID: P325652

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1898380	TDS	1.80	Sample	P	0 - 10

Reference Method: SM 2540 D-97
Batch ID: P325531

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1898380	TSS	3.17	Sample	P	0 - 10

Reference Method: SM 4500 F-C-97
Batch ID: P325594

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1898378	Fluoride	2.57	Spike	P	0 - 3.0

Reference Method: SM 4500 F-C-97
Batch ID: P325595

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1898380	Fluoride	3.58	Spike	F	0 - 3.0

Reference Method: SM 5310 B-00
Batch ID: P325516

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1898243	Organic Carbon	1.33	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: A76358
Included Lab Sample IDs: 1898382, 1898383, 1898384, 1898385, 1898386, 1898387

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	103	103	P/P	90 - 110
Ammonia-N	103	104	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: EPA 180.1 Rev. 2.0

Run ID: A76360

Included Lab Sample IDs: 1898376, 1898377, 1898378, 1898379, 1898380, 1898381

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Turbidity	100	102	P/P	95 - 105
Turbidity	102	100	P/P	95 - 105

Reference Method: SM 2120 B

Run ID: A76361

Included Lab Sample IDs: 1898376, 1898377, 1898378, 1898379, 1898380, 1898381

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved

Run ID: A76368

Included Lab Sample IDs: 1898388, 1898389, 1898390, 1898391, 1898392, 1898393

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	96.9	98.1	P/P	90 - 110
O-Phosphate-P	99.4	97.1	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A76415

Included Lab Sample IDs: 1898386

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

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A76427

Included Lab Sample IDs: 1898382, 1898383, 1898384, 1898385, 1898387

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

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A76447

Included Lab Sample IDs: 1898383, 1898384, 1898385, 1898386, 1898387

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO2NO3-N	99.5	99.5	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A76449

Included Lab Sample IDs: 1898382

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO2NO3-N	98.5	98.5	P/P	90 - 110

Reference Method: SM 5310 B-00

Run ID: A76527

Included Lab Sample IDs: 1898382, 1898383, 1898384, 1898385, 1898386, 1898387

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
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Quality Assurance Report Calibration Verification

Reference Method: SM 5310 B-00

Run ID: A76527

Included Lab Sample IDs: 1898382, 1898383, 1898384, 1898385, 1898386, 1898387

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	92.4	93.4	P/P	90 - 110
Organic Carbon	93.4	94.0	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A76529

Included Lab Sample IDs: 1898382, 1898383, 1898384

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

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A76544

Included Lab Sample IDs: 1898385, 1898386, 1898387

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	108	109	P/P	90 - 110

Reference Method: SM 2320 B-97

Run ID: A76561

Included Lab Sample IDs: 1898376, 1898377, 1898378, 1898379, 1898380, 1898381

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	104	101	P/P	90 - 110
Total Alkalinity	105	101	P/P	90 - 110

Reference Method: SM 4500 F-C-97

Run ID: A76561

Included Lab Sample IDs: 1898376, 1898377, 1898378, 1898379, 1898380, 1898381

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	100	99.5	P/P	90 - 110
Fluoride	95.5	98.1	P/P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1

Run ID: A76672

Included Lab Sample IDs: 1898376, 1898377, 1898378, 1898379, 1898380, 1898381

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	104	102	P/P	90 - 110
Sulfate	95.7	96.9	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	Precision	MS
				LCS	SMP

Quality Assurance Report Summary

Ref. Method	Analyte	LCS % Recovery	MS % Recovery		Precision	
					LCS	MS
EPA 180.1 Rev. 2.0	Turbidity				4.81	
	Turbidity				2.00	
EPA 300.0 Rev. 2.1	Chloride	101	97.0	98.0	0.0430	
	Sulfate	97.3	95.4	94.6	0.102	
EPA 350.1 Rev. 2.0	Ammonia-N	103	103	101		1.67
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	101	93.9	95.5		1.45
	Kjeldahl Nitrogen	102	95.1	94.8		0.200
EPA 353.2 Rev. 2.0	NO2NO3-N	101	104	102		0.971
EPA 365.1 Rev. 2.0	Total-P	95.6	97.2	98.6		1.39
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	101	96.0	96.6		0.623
SM 2120 B	Color (true)				1.18	
SM 2320 B-97	Total Alkalinity	104			3.21	
	Total Alkalinity	104			0.354	
SM 2540 C-97	TDS				1.80	
SM 2540 D-97	TSS				3.17	
SM 4500 F-C-97	Fluoride	94.2	98.7	95.7		2.57
	Fluoride	99.1	95.5	99.7		3.58
SM 5310 B-00	Organic Carbon	89.8	86.1	88.0		1.33

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	1898376, 1898377, 1898378, 1898379, 1898380, 1898381
EPA 300.0 Rev. 2.1 / E31780	Chloride in aqueous matrices	1898376, 1898377, 1898378, 1898379, 1898380, 1898381
EPA 300.0 Rev. 2.1 / E31780	Sulfate in aqueous matrices	1898376, 1898377, 1898378, 1898379, 1898380, 1898381
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	1898382, 1898383, 1898384, 1898385, 1898386, 1898387
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	1898382, 1898383, 1898384, 1898385, 1898386, 1898387
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	1898382, 1898383, 1898384, 1898385, 1898386, 1898387
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	1898382, 1898383, 1898384, 1898385, 1898386, 1898387
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	1898388, 1898389, 1898390, 1898391, 1898392, 1898393
SM 2120 B / E31780	True Color measured at 450 nm	1898376, 1898377, 1898378, 1898379, 1898380, 1898381
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO3/L	1898376, 1898377, 1898378, 1898379, 1898380, 1898381
SM 2540 C-97 / E31780	Total Dissolved Solids in aqueous matrices	1898376, 1898377, 1898378, 1898379, 1898380, 1898381
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices	1898376, 1898377, 1898378, 1898379, 1898380, 1898381
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	1898376, 1898377, 1898378, 1898379, 1898380, 1898381
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	1898382, 1898383, 1898384, 1898385, 1898386, 1898387

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	05/11/2017			05/11/2017 15:50	Sima Feizi	1898376, 1898377, 1898378, 1898379, 1898380, 1898381
EPA 300.0 Rev. 2.1	05/11/2017			05/25/2017	Ping Hua	1898376, 1898377, 1898378, 1898379, 1898380, 1898381
EPA 350.1 Rev. 2.0	05/11/2017			05/11/2017	Julie Michelle Frank	1898382, 1898383, 1898384, 1898385, 1898386, 1898387
EPA 351.2 Rev. 2.0	05/11/2017	05/17/2017	Adrian Shelby	05/18/2017	Joseph Suarez	1898382, 1898383, 1898384
	05/11/2017	05/17/2017	Adrian Shelby	05/19/2017	Joseph Suarez	1898385, 1898386, 1898387
EPA 353.2 Rev. 2.0	05/11/2017			05/16/2017	Beverly Y. Sanders	1898382, 1898383, 1898384, 1898385, 1898386, 1898387
EPA 365.1 Rev. 2.0	05/11/2017	05/12/2017	Vijayalakshmi Reddy	05/15/2017	Lipi Saha	1898382, 1898383, 1898384, 1898385, 1898386, 1898387
EPA 365.1 Rev. 2.0 dissolved	05/11/2017			05/11/2017 14:47	Anthony C. Onicha	1898389
	05/11/2017			05/11/2017 15:24	Anthony C. Onicha	1898390
	05/11/2017			05/11/2017 15:25	Anthony C. Onicha	1898391
	05/11/2017			05/11/2017 15:26	Anthony C. Onicha	1898392, 1898393
	05/11/2017			05/11/2017 15:27	Anthony C. Onicha	1898388
SM 2120 B	05/11/2017			05/11/2017 16:20	Julia Storbeck	1898376
	05/11/2017			05/11/2017 16:21	Julia Storbeck	1898377
	05/11/2017			05/11/2017 16:22	Julia Storbeck	1898378, 1898379
	05/11/2017			05/11/2017 16:23	Julia Storbeck	1898380
	05/11/2017			05/11/2017 16:24	Julia Storbeck	1898381
SM 2320 B-97	05/11/2017			05/20/2017	Dale L. Simmons	1898376, 1898377, 1898378, 1898379, 1898380, 1898381
SM 2540 C-97	05/11/2017			05/15/2017	Sima Feizi	1898376, 1898377, 1898378, 1898379, 1898380, 1898381
SM 2540 D-97	05/11/2017			05/15/2017	Sima Feizi	1898376, 1898377, 1898378, 1898379, 1898380, 1898381
SM 4500 F-C-97	05/11/2017			05/20/2017	Dale L. Simmons	1898376, 1898377, 1898378, 1898379, 1898380, 1898381
SM 5310 B-00	05/11/2017			05/16/2017	Christopher Armour	1898382, 1898383, 1898384, 1898385, 1898386, 1898387