

Chemical Analysis Report

SW-DIST-2016-08-18-01

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

Event Description: **RUN 7**
Request ID: **RQ-2016-08-15-32**
Customer: **SW-DIST**
Project ID: **SMP**

Send Reports to:
FL Dept. of Environmental Protection
FL Dept. of Environmental Protection
13051 N. Telecom Parkway
Temple Terrace, FL 33637-0926
Attn: Stephen Clingerman

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Certified by: Colin Wright, Environmental Administrator

Date Certified: 09-SEP-2016 14:58

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: Anclothe @ Little

Collection Date/Time: 08/17/2016 10:20

Field ID: G5SW0110

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1824683	EPA 180.1 Rev. 2.0	Turbidity	2.7		NTU	P310012	
	EPA 300.0 Rev. 2.1	Chloride	14	A	mg Cl/L	P310539	
		Sulfate	2.3	A	mg SO4/L	P310542	
	SM 2120 B	Color (true)	280		PCU	P309987	
	SM 2320 B-97	Total Alkalinity	32		mg CaCO3/L	P310236	
	SM 2540 C-97	TDS	108		mg/L	P310610	
	SM 2540 D-97	TSS	4	I	mg/L	P310500	
	SM 4500 F-C-97	Fluoride	0.077	I	mg F/L	P310241	
1824690	EPA 350.1 Rev. 2.0	Ammonia-N	0.021		mg N/L	P310058	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.0		mg N/L	P310080	MS
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.031		mg N/L	P310617	
	EPA 365.1 Rev. 2.0	Total-P	0.057		mg P/L	P310037	
	SM 5310 B-00	Organic Carbon	24		mg C/L	P310348	
1824697	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.029		mg P/L	P309983	

Ref. Method and Comment:

SM 2540 D-97: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample.

Sample Location: ANCLOTE @ STARKEY

Collection Date/Time: 08/17/2016 11:00

Field ID: g5sw0109

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1824684	EPA 180.1 Rev. 2.0	Turbidity	2.3		NTU	P310012	
	EPA 300.0 Rev. 2.1	Chloride	14		mg Cl/L	P310539	
		Sulfate	1.9		mg SO4/L	P310542	
	SM 2120 B	Color (true)	280		PCU	P309987	
	SM 2320 B-97	Total Alkalinity	30		mg CaCO3/L	P310236	
	SM 2540 C-97	TDS	106		mg/L	P310611	
	SM 2540 D-97	TSS	4	I	mg/L	P310501	
	SM 4500 F-C-97	Fluoride	0.077	I	mg F/L	P310241	
1824691	EPA 350.1 Rev. 2.0	Ammonia-N	0.017		mg N/L	P310058	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.1		mg N/L	P310080	MS
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.023		mg N/L	P310617	
	EPA 365.1 Rev. 2.0	Total-P	0.046		mg P/L	P310037	
	SM 5310 B-00	Organic Carbon	24		mg C/L	P310348	
1824698	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.022		mg P/L	P309983	

Ref. Method and Comment:

SM 2540 D-97: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample.

Sample Location: LAKE THOMAS OUTLET

Collection Date/Time: 08/17/2016 12:40

Field ID: G1SW0050

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1824685	EPA 180.1 Rev. 2.0	Turbidity	0.95		NTU	P310012	
	EPA 300.0 Rev. 2.1	Chloride	25		mg Cl/L	P310539	
		Sulfate	3.1		mg SO4/L	P310542	

Field ID: G1SW0050

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1824685	SM 2120 B	Color (true)	76	A	PCU	P309987	
	SM 2320 B-97	Total Alkalinity	27		mg CaCO3/L	P310236	
	SM 2540 C-97	TDS	98	A	mg/L	P310611	
	SM 2540 D-97	TSS	2	U	mg/L	P310501	
	SM 4500 F-C-97	Fluoride	0.080	I	mg F/L	P310241	
1824692	EPA 350.1 Rev. 2.0	Ammonia-N	0.009		mg N/L	P310058	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.80		mg N/L	P310080	MS
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P310617	
	EPA 365.1 Rev. 2.0	Total-P	0.019		mg P/L	P310037	
	SM 5310 B-00	Organic Carbon	13		mg C/L	P310348	
1824699	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P309983	

Ref. Method and Comment:

SM 2540 D-97: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample.

Sample Location: LAKE ANN (PARKER)

Collection Date/Time: 08/17/2016 13:20

Field ID: G1SW0018

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1824686	EPA 180.1 Rev. 2.0	Turbidity	1.8		NTU	P310012	
	EPA 300.0 Rev. 2.1	Chloride	31		mg Cl/L	P310539	
		Sulfate	5.3		mg SO4/L	P310542	
	SM 2120 B	Color (true)	26		PCU	P309987	
	SM 2320 B-97	Total Alkalinity	13		mg CaCO3/L	P310236	
	SM 2540 C-97	TDS	95		mg/L	P310611	
	SM 2540 D-97	TSS	3	I	mg/L	P310501	
	SM 4500 F-C-97	Fluoride	0.088	I	mg F/L	P310241	
	EPA 350.1 Rev. 2.0	Ammonia-N	0.002	U	mg N/L	P310058	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.73	J	mg N/L	P310080	MS
1824693	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P310617	
	EPA 365.1 Rev. 2.0	Total-P	0.017		mg P/L	P310037	
	SM 5310 B-00	Organic Carbon	9.5		mg C/L	P310348	
	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P309983	

Ref. Method and Comment:

SM 2540 D-97: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample.

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

Sample Location: Duplicate LAKE ANN (PARKER)

Collection Date/Time: 08/17/2016 13:25

Field ID: DUPLICATE

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1824687	EPA 180.1 Rev. 2.0	Turbidity	1.9		NTU	P310012	
	EPA 300.0 Rev. 2.1	Chloride	31		mg Cl/L	P310539	
		Sulfate	5.3		mg SO4/L	P310542	
	SM 2120 B	Color (true)	25		PCU	P309987	
	SM 2320 B-97	Total Alkalinity	12		mg CaCO3/L	P310236	
	SM 2540 C-97	TDS	97		mg/L	P310611	

Field ID: DUPLICATE

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1824687	SM 2540 D-97	TSS	3	I	mg/L	P310501	
	SM 4500 F-C-97	Fluoride	0.089	I	mg F/L	P310241	
1824694	EPA 350.1 Rev. 2.0	Ammonia-N	0.002	U	mg N/L	P310058	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.73		mg N/L	P310080	MS
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P310617	
	EPA 365.1 Rev. 2.0	Total-P	0.018		mg P/L	P310037	
	SM 5310 B-00	Organic Carbon	9.6		mg C/L	P310348	
1824701	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P309983	

Ref. Method and Comment:

SM 2540 D-97: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample.

Sample Location: BLANK

Collection Date/Time: 08/17/2016 15:30

Field ID: BLANK

Matrix: W-FIELD-BK

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1824688	EPA 180.1 Rev. 2.0	Turbidity	0.10	U	NTU	P310012	
	EPA 300.0 Rev. 2.1	Chloride	0.20	U	mg Cl/L	P310539	
		Sulfate	0.20	U	mg SO4/L	P310542	
	SM 2120 B	Color (true)	2.5	U	PCU	P309987	
	SM 2320 B-97	Total Alkalinity	0.65	U	mg CaCO3/L	P310236	
	SM 2540 C-97	TDS	15	U	mg/L	P310611	
	SM 2540 D-97	TSS	2	U	mg/L	P310501	
	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P310241	
1824695	EPA 350.1 Rev. 2.0	Ammonia-N	0.002	U	mg N/L	P310058	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.080	U	mg N/L	P310080	MS
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P310617	
	EPA 365.1 Rev. 2.0	Total-P	0.002	U	mg P/L	P310037	
	SM 5310 B-00	Organic Carbon	0.50	U	mg C/L	P310348	
1824702	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P309983	

Ref. Method and Comment:

SM 2540 D-97: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample.

Sample Location: LAKE DEAD LADY

Collection Date/Time: 08/17/2016 14:00

Field ID: G1SW0021

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1824689	EPA 180.1 Rev. 2.0	Turbidity	2.2		NTU	P310012	
	EPA 300.0 Rev. 2.1	Chloride	25		mg Cl/L	P310539	
		Sulfate	1.8		mg SO4/L	P310542	
	SM 2120 B	Color (true)	110		PCU	P309987	
	SM 2320 B-97	Total Alkalinity	26	A	mg CaCO3/L	P310236	
	SM 2540 C-97	TDS	113		mg/L	P310611	
	SM 2540 D-97	TSS	3	I	mg/L	P310501	
	SM 4500 F-C-97	Fluoride	0.074	I	mg F/L	P310241	
1824696	EPA 350.1 Rev. 2.0	Ammonia-N	0.002	I	mg N/L	P310058	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.0		mg N/L	P310080	MS

Field ID: G1SW0021

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1824696	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	I	mg N/L	P310617	
	EPA 365.1 Rev. 2.0	Total-P	0.034		mg P/L	P310038	
	SM 5310 B-00	Organic Carbon	17		mg C/L	P310348	
1824703	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P309983	

Ref. Method and Comment:

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: P310012

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 300.0 Rev. 2.1
 Batch ID: P310539

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
 Batch ID: P310542

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 350.1 Rev. 2.0
 Batch ID: P310058

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

Reference Method: EPA 351.2 Rev. 2.0
 Batch ID: P310080

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

Reference Method: EPA 353.2 Rev. 2.0
 Batch ID: P310617

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

Reference Method: EPA 365.1 Rev. 2.0
 Batch ID: P310037

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
Batch ID: P310038

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P309983

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

Reference Method: SM 2120 B
Batch ID: P309987

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2320 B-97
Batch ID: P310236

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

Reference Method: SM 2540 C-97
Batch ID: P310610

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 C-97
Batch ID: P310611

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P310500

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P310501

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500 F-C-97
Batch ID: P310241

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: P310348

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: P310539

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Chloride	99.7		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
 Batch ID: P310542

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

Reference Method: EPA 350.1 Rev. 2.0
 Batch ID: P310058

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: P310080

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: P310617

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

Reference Method: EPA 365.1 Rev. 2.0
 Batch ID: P310037

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

Reference Method: EPA 365.1 Rev. 2.0
 Batch ID: P310038

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
 Batch ID: P309983

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: P309983

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

Reference Method: SM 2320 B-97
Batch ID: P310236

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	103		P	95 - 108

Reference Method: SM 4500 F-C-97
Batch ID: P310241

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	99.7		P	92 - 103

Reference Method: SM 5310 B-00
Batch ID: P310348

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	98.2		P	85 - 115

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P310539

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1824683	Chloride	100		P	90 - 110
1824684	Chloride	97.8		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P310542

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1824683	Sulfate	101		P	90 - 110
1824684	Sulfate	98.5		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P310058

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1824624	Ammonia-N	101	99.5	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P310080

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1824693	Kjeldahl Nitrogen	110	114	P/F	90 - 110

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P310617

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1824690	NO2NO3-N	91.7	93.2	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P310037

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1824693	Total-P	100	98.7	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P310038

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1824770	Total-P	101	102	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P309983

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1824699	O-Phosphate-P	101	102	P/P	90 - 110

Reference Method: SM 4500 F-C-97
Batch ID: P310241

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1824689	Fluoride	98.8	99.4	P/P	91 - 105

Reference Method: SM 5310 B-00
Batch ID: P310348

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1824642	Organic Carbon	102		P	85 - 115

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P310012

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1824640	Turbidity	3.70	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P310539

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1824683	Chloride	0.0804	Sample	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P310542

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1824683	Sulfate	1.64	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P310058

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1824624	Ammonia-N	1.28	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P310080

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1824693	Kjeldahl Nitrogen	2.27	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P310617

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1824690	NO2NO3-N	1.39	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P310037

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1824693	Total-P	1.66	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P310038

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1824770	Total-P	0.926	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P309983

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1824699	O-Phosphate-P	0.886	Spike	P	0 - 20

Reference Method: SM 2120 B
Batch ID: P309987

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1824685	Color (true)	0.511	Sample	P	0 - 20

Quality Assurance Report Precision

Reference Method: SM 2320 B-97
Batch ID: P310236

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1824689	Total Alkalinity	0.233	Sample	P	0 - 4.8

Reference Method: SM 2540 C-97
Batch ID: P310610

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1824622	TDS	0.325	Sample	P	0 - 10

Reference Method: SM 2540 C-97
Batch ID: P310611

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1824685	TDS	1.03	Sample	P	0 - 10

Reference Method: SM 4500 F-C-97
Batch ID: P310241

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1824689	Fluoride	0.474	Spike	P	0 - 3.0

Reference Method: SM 5310 B-00
Batch ID: P310348

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1824642	Organic Carbon	0.601	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 365.1 Rev. 2.0 dissolved
Run ID: A71210
Included Lab Sample IDs: 1824697, 1824698, 1824699, 1824700, 1824701, 1824702, 1824703

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

Reference Method: SM 2120 B
Run ID: A71211
Included Lab Sample IDs: 1824683, 1824684, 1824685, 1824686, 1824687, 1824688, 1824689

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

Reference Method: SM 2120 B

Run ID: A71211

Included Lab Sample IDs: 1824683, 1824684, 1824685, 1824686, 1824687, 1824688, 1824689

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	98.9	98.6	P/P	90 - 115
Color (true)	99.9	98.3	P/P	90 - 115

Reference Method: EPA 180.1 Rev. 2.0

Run ID: A71225

Included Lab Sample IDs: 1824683, 1824684, 1824685, 1824686, 1824687, 1824688, 1824689

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Turbidity	99.0	99.0	P/P	95 - 105

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A71238

Included Lab Sample IDs: 1824690, 1824691, 1824692, 1824693, 1824694, 1824695, 1824696

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

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A71251

Included Lab Sample IDs: 1824690

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

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A71263

Included Lab Sample IDs: 1824691, 1824692, 1824693, 1824694, 1824695, 1824696

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	97.8	97.8	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A71276

Included Lab Sample IDs: 1824690, 1824691, 1824692, 1824693, 1824694, 1824695, 1824696

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	103	102	P/P	90 - 110
Kjeldahl Nitrogen	107	102	P/P	90 - 110
Kjeldahl Nitrogen	109	107	P/P	90 - 110

Reference Method: SM 2320 B-97

Run ID: A71291

Included Lab Sample IDs: 1824683, 1824684, 1824685, 1824686, 1824687, 1824688, 1824689

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	103	101	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: SM 4500 F-C-97

Run ID: A71291

Included Lab Sample IDs: 1824683, 1824684, 1824685, 1824686, 1824687, 1824688, 1824689

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

Reference Method: SM 5310 B-00

Run ID: A71324

Included Lab Sample IDs: 1824690, 1824691, 1824692, 1824693, 1824694, 1824695, 1824696

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	101	102	P/P	90 - 110
Organic Carbon	99.0	101	P/P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1

Run ID: A71337

Included Lab Sample IDs: 1824683, 1824684, 1824685, 1824686, 1824687, 1824688, 1824689

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	101	99.7	P/P	90 - 110
Chloride	99.4	101	P/P	90 - 110
Sulfate	101	97.2	P/P	90 - 110
Sulfate	98.0	101	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A71425

Included Lab Sample IDs: 1824690, 1824691, 1824692, 1824693, 1824694, 1824695, 1824696

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

* Pass/Fail determinations are made for each bracketing calibration verification check.
Control limits for initial calibration checks may be different from those for continuing checks, depending on method requirements.
Where they are different, both control limits are provided.

Quality Assurance Report Summary

Ref. Method	Analyte	LCS % Recovery	MS % Recovery	LCS	Precision SMP	MS
EPA 180.1 Rev. 2.0	Turbidity				3.70	
EPA 300.0 Rev. 2.1	Chloride	99.7	100	97.8	0.0804	
	Sulfate	99.0	101	98.5	1.64	
EPA 350.1 Rev. 2.0	Ammonia-N	103	101	99.5		1.28
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	102	110	114		2.27
EPA 353.2 Rev. 2.0	NO2NO3-N	102	91.7	93.2		1.39
EPA 365.1 Rev. 2.0	Total-P	99.3	100	98.7		1.66
	Total-P	99.2	101	102		0.926
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	100	101	102		0.886
SM 2120 B	Color (true)				0.511	
SM 2320 B-97	Total Alkalinity	103			0.233	
SM 2540 C-97	TDS				0.325	
	TDS				1.03	

Quality Assurance Report Summary

Ref. Method	Analyte	LCS % Recovery	MS % Recovery	Precision		
				LCS	SMP	MS
SM 4500 F-C-97	Fluoride	99.7	98.8 99.4			0.474
SM 5310 B-00	Organic Carbon	98.2	102			0.601

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	1824683, 1824684, 1824685, 1824686, 1824687, 1824688, 1824689
EPA 300.0 Rev. 2.1 / E31780	Chloride in aqueous matrices	1824683, 1824684, 1824685, 1824686, 1824687, 1824688, 1824689
EPA 300.0 Rev. 2.1 / E31780	Sulfate in aqueous matrices	1824683, 1824684, 1824685, 1824686, 1824687, 1824688, 1824689
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	1824690, 1824691, 1824692, 1824693, 1824694, 1824695, 1824696
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	1824690, 1824691, 1824692, 1824693, 1824694, 1824695, 1824696
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	1824690, 1824691, 1824692, 1824693, 1824694, 1824695, 1824696
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	1824690, 1824691, 1824692, 1824693, 1824694, 1824695, 1824696
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	1824697, 1824698, 1824699, 1824700, 1824701, 1824702, 1824703
SM 2120 B / E31780	True Color measured at 450 nm	1824683, 1824684, 1824685, 1824686, 1824687, 1824688, 1824689
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO3/L	1824683, 1824684, 1824685, 1824686, 1824687, 1824688, 1824689
SM 2540 C-97 / E31780	Total Dissolved Solids in aqueous matrices	1824683, 1824684, 1824685, 1824686, 1824687, 1824688, 1824689
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices	1824683, 1824684, 1824685, 1824686, 1824687, 1824688, 1824689
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	1824683, 1824684, 1824685, 1824686, 1824687, 1824688, 1824689
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	1824690, 1824691, 1824692, 1824693, 1824694, 1824695, 1824696

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	08/18/2016			08/18/2016 16:04	Blanca Fach	1824683, 1824684, 1824685, 1824686, 1824687, 1824688, 1824689
EPA 300.0 Rev. 2.1	08/18/2016			08/26/2016	Ping Hua	1824683, 1824684, 1824685, 1824686, 1824687, 1824688, 1824689
EPA 350.1 Rev. 2.0	08/18/2016			08/21/2016	Julie Michelle Frank	1824690, 1824691, 1824692, 1824693, 1824694, 1824695, 1824696
EPA 351.2 Rev. 2.0	08/18/2016	08/22/2016	Adrian Shelby	08/23/2016	Christopher Armour	1824690, 1824691, 1824692, 1824693, 1824694, 1824695, 1824696
EPA 353.2 Rev. 2.0	08/18/2016			08/31/2016	Beverly Y. Sanders	1824690, 1824691, 1824692, 1824693, 1824694, 1824695, 1824696
EPA 365.1 Rev. 2.0	08/18/2016	08/19/2016	Vijayalakshmi Reddy	08/22/2016	Lipi Saha	1824690
	08/18/2016	08/19/2016	Vijayalakshmi Reddy	08/23/2016	Lipi Saha	1824691, 1824692, 1824693, 1824694, 1824695, 1824696
EPA 365.1 Rev. 2.0 dissolved	08/18/2016			08/18/2016 15:19	Julia Storbeck	1824699
	08/18/2016			08/18/2016 15:31	Julia Storbeck	1824702
	08/18/2016			08/18/2016 15:32	Julia Storbeck	1824700
	08/18/2016			08/18/2016 15:33	Julia Storbeck	1824701
	08/18/2016			08/18/2016 15:48	Julia Storbeck	1824697
	08/18/2016			08/18/2016 15:49	Julia Storbeck	1824698
	08/18/2016			08/18/2016 15:57	Julia Storbeck	1824703
SM 2120 B	08/18/2016			08/18/2016 16:09	Rochelle Y Jackson	1824685
	08/18/2016			08/18/2016 16:10	Rochelle Y Jackson	1824686
	08/18/2016			08/18/2016 16:11	Rochelle Y Jackson	1824687
	08/18/2016			08/18/2016 16:12	Rochelle Y Jackson	1824688, 1824689
	08/18/2016			08/18/2016 16:28	Rochelle Y Jackson	1824683
	08/18/2016			08/18/2016 16:29	Rochelle Y Jackson	1824684
SM 2320 B-97	08/18/2016			08/24/2016	Dale L. Simmons	1824683, 1824684, 1824685, 1824686, 1824687, 1824688, 1824689
SM 2540 C-97	08/18/2016			08/22/2016	Sima Feizi	1824683, 1824684, 1824685, 1824686, 1824687, 1824688, 1824689
SM 2540 D-97	08/18/2016			08/22/2016	Sima Feizi	1824683, 1824684, 1824685, 1824686, 1824687, 1824688, 1824689
SM 4500 F-C-97	08/18/2016			08/24/2016	Dale L. Simmons	1824683, 1824684, 1824685, 1824686, 1824687, 1824688, 1824689
SM 5310 B-00	08/18/2016			08/24/2016	Sofia Elnemr	1824690, 1824691, 1824692, 1824693, 1824694, 1824695, 1824696