

Chemical Analysis Report

SO-DIST-2016-08-10-01

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

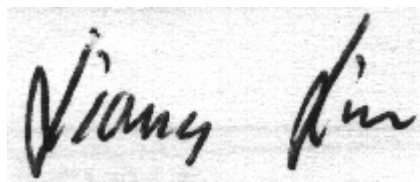
Event Description: **SMP: Platt Branch**
Request ID: **RQ-2016-07-25-07**
Customer: **SO-DIST**
Project ID: **SMP**

Send Reports to:
FL Dept. of Environmental Protection
FLDEP South District Office
2295 Victoria Ave. Suite 364
Fort Myers, FL 33901-3381
Attn: Ben Paswater

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Certified by: Liang Lin, Environmental Administrator

Date Certified: 26-AUG-2016 11:46

A handwritten signature in black ink, appearing to read "Liang Lin", is written on a light-colored, textured 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: Indian Creek @ Fruitville Rd.

Collection Date/Time: 08/09/2016 10:45

Field ID: G3SD080916-2

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1822955	EPA 180.1 Rev. 2.0	Turbidity	5.0		NTU	P309512	
	EPA 300.0 Rev. 2.1	Chloride	12		mg Cl/L	P309940	
		Sulfate	20		mg SO4/L	P309943	
	SM 2120 B	Color (true)	440		PCU	P309524	
	SM 2320 B-97	Total Alkalinity	25		mg CaCO3/L	P309624	
	SM 2540 C-97	TDS	160		mg/L	P310094	
	SM 2540 D-97	TSS	10	I	mg/L	P309998	
	SM 4500 F-C-97	Fluoride	0.21		mg F/L	P309627	
1822956	EPA 350.1 Rev. 2.0	Ammonia-N	0.024		mg N/L	P309589	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.9		mg N/L	P309790	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.014		mg N/L	P309754	
	EPA 365.1 Rev. 2.0	Total-P	0.48		mg P/L	P309802	
	SM 5310 B-00	Organic Carbon	36		mg C/L	P310048	
1822957	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.32		mg P/L	P309519	

Ref. Method and Comment:

EPA 351.2 Rev. 2.0: Batch matrix spike recoveries are unavailable because of high analyte concentration in the QC sample.

Sample Location: Howard Creek NE Branch Lot 185

Collection Date/Time: 08/09/2016 09:45

Field ID: G3SD080916-3

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1822943	EPA 180.1 Rev. 2.0	Turbidity	11		NTU	P309512	
	EPA 300.0 Rev. 2.1	Chloride	26		mg Cl/L	P309940	
		Sulfate	8.3		mg SO4/L	P309943	
	SM 2120 B	Color (true)	410		PCU	P309524	
	SM 2320 B-97	Total Alkalinity	36		mg CaCO3/L	P309623	
	SM 2540 C-97	TDS	170		mg/L	P310094	
	SM 2540 D-97	TSS	21		mg/L	P309998	
	SM 4500 F-C-97	Fluoride	0.25		mg F/L	P309626	
1822947	EPA 350.1 Rev. 2.0	Ammonia-N	0.022		mg N/L	P309589	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.8		mg N/L	P309790	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.021		mg N/L	P309754	
	EPA 365.1 Rev. 2.0	Total-P	0.63		mg P/L	P309792	
	SM 5310 B-00	Organic Carbon	30		mg C/L	P310048	
1822951	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.33		mg P/L	P309519	

Ref. Method and Comment:

EPA 351.2 Rev. 2.0: Batch matrix spike recoveries are unavailable because of high analyte concentration in the QC sample.

Sample Location: Phillippi Creek Tributary

Collection Date/Time: 08/09/2016 10:15

Field ID: G3SD080916-4

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1822944	EPA 180.1 Rev. 2.0	Turbidity	20		NTU	P309512	
	EPA 300.0 Rev. 2.1	Chloride	47		mg Cl/L	P309940	
		Sulfate	71		mg SO4/L	P309943	

Field ID: G3SD080916-4

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1822944	SM 2120 B	Color (true)	120	A	PCU	P309527	
	SM 2320 B-97	Total Alkalinity	125		mg CaCO3/L	P309623	
	SM 2540 C-97	TDS	349		mg/L	P310094	
	SM 2540 D-97	TSS	19		mg/L	P309998	
	SM 4500 F-C-97	Fluoride	0.30		mg F/L	P309626	
1822948	EPA 350.1 Rev. 2.0	Ammonia-N	0.36		mg N/L	P309589	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.8		mg N/L	P309790	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.099		mg N/L	P309754	
	EPA 365.1 Rev. 2.0	Total-P	0.33		mg P/L	P309792	
	SM 5310 B-00	Organic Carbon	19		mg C/L	P310048	
1822952	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.090		mg P/L	P309519	

Ref. Method and Comment:

EPA 351.2 Rev. 2.0: Batch matrix spike recoveries are unavailable because of high analyte concentration in the QC sample.

Sample Location: Walker Creek @ 32nd Street

Collection Date/Time: 08/09/2016 11:25

Field ID: G3SD080916-1

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1822945	EPA 180.1 Rev. 2.0	Turbidity	7.2		NTU	P309512	
	EPA 300.0 Rev. 2.1	Chloride	34		mg Cl/L	P309940	
		Sulfate	51		mg SO4/L	P309943	
	SM 2120 B	Color (true)	89		PCU	P309524	
	SM 2320 B-97	Total Alkalinity	102		mg CaCO3/L	P309623	
	SM 2540 C-97	TDS	277		mg/L	P310094	
	SM 2540 D-97	TSS	8	I	mg/L	P309998	
	SM 4500 F-C-97	Fluoride	0.41		mg F/L	P309626	
	EPA 350.1 Rev. 2.0	Ammonia-N	0.077		mg N/L	P309589	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.0		mg N/L	P309790	
1822949	EPA 353.2 Rev. 2.0	NO2NO3-N	0.18		mg N/L	P309754	
	EPA 365.1 Rev. 2.0	Total-P	0.39		mg P/L	P309802	
	SM 5310 B-00	Organic Carbon	15		mg C/L	P310048	
	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.25		mg P/L	P309519	

Ref. Method and Comment:

EPA 351.2 Rev. 2.0: Batch matrix spike recoveries are unavailable because of high analyte concentration in the QC sample.

Sample Location: Field Blank

Collection Date/Time: 08/09/2016 11:30

Field ID: G3SD080916-5

Matrix: W-FIELD-BK

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1822946	EPA 180.1 Rev. 2.0	Turbidity	0.10	U	NTU	P309512	
	EPA 300.0 Rev. 2.1	Chloride	0.20	U	mg Cl/L	P309940	
		Sulfate	0.20	U	mg SO4/L	P309943	
	SM 2120 B	Color (true)	2.5	U	PCU	P309524	
	SM 2320 B-97	Total Alkalinity	0.65	U	mg CaCO3/L	P309623	
	SM 2540 C-97	TDS	15	U	mg/L	P310093	
	SM 2540 D-97	TSS	2	U	mg/L	P309997	

Field ID: G3SD080916-5

Matrix: W-FIELD-BK

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1822946	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P309627	
1822950	EPA 350.1 Rev. 2.0	Ammonia-N	0.002	U	mg N/L	P309589	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.080	U	mg N/L	P309790	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P309754	
	EPA 365.1 Rev. 2.0	Total-P	0.002	U	mg P/L	P309802	
	SM 5310 B-00	Organic Carbon	0.50	U	mg C/L	P310048	
1822954	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P309519	

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: Batch matrix spike recoveries are unavailable because of high analyte concentration in the QC sample.

Quality Assurance Report

Method Blank Results

Reference Method: EPA 180.1 Rev. 2.0
 Batch ID: P309512

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 300.0 Rev. 2.1
 Batch ID: P309940

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
 Batch ID: P309943

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 350.1 Rev. 2.0
 Batch ID: P309589

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

Reference Method: EPA 351.2 Rev. 2.0
 Batch ID: P309790

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

Reference Method: EPA 353.2 Rev. 2.0
 Batch ID: P309754

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

Reference Method: EPA 365.1 Rev. 2.0
 Batch ID: P309792

Component	Result	Code	Units
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Quality Assurance Report Method Blank Results

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P309792

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P309802

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P309519

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

Reference Method: SM 2120 B
Batch ID: P309524

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2120 B
Batch ID: P309527

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2320 B-97
Batch ID: P309623

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

Reference Method: SM 2320 B-97
Batch ID: P309624

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

Reference Method: SM 2540 C-97
Batch ID: P310093

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 C-97
Batch ID: P310094

Component	Result	Code	Units
TDS	15	U	mg/L

Quality Assurance Report Method Blank Results

Reference Method: SM 2540 D-97
Batch ID: P309997

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P309998

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500 F-C-97
Batch ID: P309626

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 4500 F-C-97
Batch ID: P309627

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-00
Batch ID: P310048

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: P309940

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Chloride	97.7		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P309943

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Sulfate	94.3		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P309589

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P309790

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: P309790

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: P309754

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
NO2NO3-N	107		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P309792

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P309802

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P309519

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

Reference Method: SM 2320 B-97
Batch ID: P309623

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

Reference Method: SM 2320 B-97
Batch ID: P309624

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

Reference Method: SM 4500 F-C-97
Batch ID: P309626

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

Reference Method: SM 4500 F-C-97
Batch ID: P309627

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	99.3		P	92 - 103

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: SM 5310 B-00
 Batch ID: P310048

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	97.5		P	85 - 115

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
 Batch ID: P309940

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1822928	Chloride	96.2		P	90 - 110
1822955	Chloride	96.8		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
 Batch ID: P309943

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1822928	Sulfate	93.8		P	90 - 110
1822955	Sulfate	93.8		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
 Batch ID: P309589

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1822924	Ammonia-N	94.8	95.8	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
 Batch ID: P309754

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1822948	NO2NO3-N	102	103	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
 Batch ID: P309792

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1822931	Total-P	99.4	101	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
 Batch ID: P309802

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1822949	Total-P	92.9	96.3	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
 Batch ID: P309519

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1822983	O-Phosphate-P	102	103	P/P	90 - 110

Quality Assurance Report Matrix Spike Accuracy

Reference Method: SM 4500 F-C-97
Batch ID: P309626

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1822753	Fluoride	98.9	99.6	P/P	91 - 105

Reference Method: SM 4500 F-C-97
Batch ID: P309627

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1822973	Fluoride	99.8	100	P/P	91 - 105

Reference Method: SM 5310 B-00
Batch ID: P310048

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1822933	Organic Carbon	101	102	P/P	85 - 115

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P309512

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1822928	Turbidity	1.19	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P309940

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1822928	Chloride	0.0429	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P309943

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1822928	Sulfate	0.733	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P309589

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1822924	Ammonia-N	0.982	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P309790

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1822977	Kjeldahl Nitrogen	6.86	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P309754

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1822948	NO2NO3-N	0.328	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P309792

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1822931	Total-P	1.12	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P309802

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1822949	Total-P	1.73	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P309519

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1822983	O-Phosphate-P	0.374	Spike	P	0 - 20

Reference Method: SM 2120 B
Batch ID: P309524

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1822973	Color (true)	0.270	Sample	P	0 - 20

Reference Method: SM 2120 B
Batch ID: P309527

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1822944	Color (true)	1.65	Sample	P	0 - 20

Reference Method: SM 2320 B-97
Batch ID: P309623

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1822753	Total Alkalinity	0.684	Sample	P	0 - 4.8

Reference Method: SM 2320 B-97
Batch ID: P309624

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1822973	Total Alkalinity	0.245	Sample	P	0 - 4.8

Quality Assurance Report Precision

Reference Method: SM 2540 C-97
Batch ID: P310093

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1822753	TDS	4.19	Sample	P	0 - 10

Reference Method: SM 2540 C-97
Batch ID: P310094

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1822817	TDS	5.54	Sample	P	0 - 10

Reference Method: SM 2540 D-97
Batch ID: P309998

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1822817	TSS	5.71	Sample	P	0 - 10

Reference Method: SM 4500 F-C-97
Batch ID: P309626

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1822753	Fluoride	0.463	Spike	P	0 - 3.0

Reference Method: SM 4500 F-C-97
Batch ID: P309627

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1822973	Fluoride	0.463	Spike	P	0 - 3.0

Reference Method: SM 5310 B-00
Batch ID: P310048

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1822933	Organic Carbon	1.05	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 180.1 Rev. 2.0
Run ID: A71054
Included Lab Sample IDs: 1822943, 1822944, 1822945, 1822946, 1822955

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

Quality Assurance Report Calibration Verification

Reference Method: EPA 365.1 Rev. 2.0 dissolved

Run ID: A71057

Included Lab Sample IDs: 1822951, 1822952, 1822953, 1822954, 1822957

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	100	99.3	P/P	90 - 110
O-Phosphate-P	101	99.8	P/P	90 - 110
O-Phosphate-P	101	100	P/P	90 - 110
O-Phosphate-P	99.8	100	P/P	90 - 110

Reference Method: SM 2120 B

Run ID: A71058

Included Lab Sample IDs: 1822943, 1822944, 1822945, 1822946, 1822955

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	97.8	98.0	P/P	90 - 115
Color (true)	98.7	98.8	P/P	90 - 115
Color (true)	99.4	98.7	P/P	90 - 115

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A71081

Included Lab Sample IDs: 1822947, 1822948, 1822949, 1822950, 1822956

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	97.3	97.2	P/P	90 - 110
Ammonia-N	97.5	97.3	P/P	90 - 110

Reference Method: SM 2320 B-97

Run ID: A71090

Included Lab Sample IDs: 1822943, 1822944, 1822945, 1822946, 1822955

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	100	103	P/P	90 - 110
Total Alkalinity	103	100	P/P	90 - 110

Reference Method: SM 4500 F-C-97

Run ID: A71090

Included Lab Sample IDs: 1822943, 1822944, 1822945, 1822946, 1822955

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	100	101	P/P	90 - 110
Fluoride	99.5	100	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A71125

Included Lab Sample IDs: 1822947, 1822948, 1822949, 1822950, 1822956

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

Reference Method: EPA 300.0 Rev. 2.1

Run ID: A71177

Included Lab Sample IDs: 1822943, 1822944, 1822945, 1822946, 1822955

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

Reference Method: EPA 300.0 Rev. 2.1

Run ID: A71177

Included Lab Sample IDs: 1822943, 1822944, 1822945, 1822946, 1822955

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	101	99.8	P/P	90 - 110
Chloride	99.8	101	P/P	90 - 110
Sulfate	96.2	96.5	P/P	90 - 110
Sulfate	96.5	95.9	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A71179

Included Lab Sample IDs: 1822947, 1822948, 1822949, 1822956

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	99.7	97.9	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A71192

Included Lab Sample IDs: 1822947, 1822948, 1822949, 1822950, 1822956

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

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A71219

Included Lab Sample IDs: 1822950

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	98.5	99.0	P/P	90 - 110

Reference Method: SM 5310 B-00

Run ID: A71236

Included Lab Sample IDs: 1822947, 1822948, 1822949, 1822950, 1822956

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	97.1	97.2	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				1.19	
EPA 300.0 Rev. 2.1	Chloride	97.7	96.2 96.8		0.0429	
	Sulfate	94.3	93.8 93.8		0.733	
EPA 350.1 Rev. 2.0	Ammonia-N	96.6	94.8 95.8			0.982
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	102				6.86
EPA 353.2 Rev. 2.0	NO2NO3-N	107	102 103			0.328
EPA 365.1 Rev. 2.0	Total-P	98.2	99.4 101			1.12
	Total-P	99.7	92.9 96.3			1.73

Quality Assurance Report Summary

Ref. Method	Analyte	LCS % Recovery	MS % Recovery		LCS	Precision	MS
						SMP	
EPA 365.1 Rev. 2.0 dissolved SM 2120 B	O-Phosphate-P Color (true) Color (true)	106	102	103		0.270 1.65	0.374
SM 2320 B-97	Total Alkalinity Total Alkalinity	103 103				0.684 0.245	
SM 2540 C-97	TDS TDS					4.19 5.54	
SM 2540 D-97	TSS					5.71	
SM 4500 F-C-97	Fluoride Fluoride	97.4 99.3	98.9 99.8	99.6 100			0.463 0.463
SM 5310 B-00	Organic Carbon	97.5	101	102			1.05

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	1822943, 1822944, 1822945, 1822946, 1822955
EPA 300.0 Rev. 2.1 / E31780	Chloride in aqueous matrices	1822943, 1822944, 1822945, 1822946, 1822955
EPA 300.0 Rev. 2.1 / E31780	Sulfate in aqueous matrices	1822943, 1822944, 1822945, 1822946, 1822955
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	1822947, 1822948, 1822949, 1822950, 1822956
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	1822947, 1822948, 1822949, 1822950, 1822956
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	1822947, 1822948, 1822949, 1822950, 1822956
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	1822947, 1822948, 1822949, 1822950, 1822956
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	1822951, 1822952, 1822953, 1822954, 1822957
SM 2120 B / E31780	True Color measured at 450 nm	1822943, 1822944, 1822945, 1822946, 1822955
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO3/L	1822943, 1822944, 1822945, 1822946, 1822955
SM 2540 C-97 / E31780	Total Dissolved Solids in aqueous matrices	1822943, 1822944, 1822945, 1822946, 1822955
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices	1822943, 1822944, 1822945, 1822946, 1822955
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	1822943, 1822944, 1822945, 1822946, 1822955
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	1822947, 1822948, 1822949, 1822950, 1822956

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	08/10/2016			08/10/2016 14:56	Sima Feizi	1822943, 1822944, 1822945, 1822946, 1822955
EPA 300.0 Rev. 2.1	08/10/2016			08/17/2016	Ping Hua	1822955
	08/10/2016			08/18/2016	Ping Hua	1822943, 1822944, 1822945, 1822946
EPA 350.1 Rev. 2.0	08/10/2016			08/11/2016	Joseph Suarez	1822947, 1822948, 1822949, 1822950, 1822956
EPA 351.2 Rev. 2.0	08/10/2016	08/16/2016	Sofia Elnemr	08/17/2016	Christopher Armour	1822947, 1822948, 1822949, 1822950, 1822956
EPA 353.2 Rev. 2.0	08/10/2016			08/15/2016	Beverly Y. Sanders	1822947, 1822948, 1822949, 1822950, 1822956
EPA 365.1 Rev. 2.0	08/10/2016	08/16/2016	Vijayalakshmi Reddy	08/17/2016	Lipi Saha	1822947, 1822948, 1822949, 1822956
	08/10/2016	08/16/2016	Vijayalakshmi Reddy	08/19/2016	Lipi Saha	1822950
EPA 365.1 Rev. 2.0 dissolved	08/10/2016			08/10/2016 16:08	Julia Storbeck	1822954
	08/10/2016			08/10/2016 16:30	Julia Storbeck	1822953
	08/10/2016			08/10/2016 16:46	Julia Storbeck	1822952
	08/10/2016			08/10/2016 16:53	Julia Storbeck	1822951
	08/10/2016			08/10/2016 16:55	Julia Storbeck	1822957
SM 2120 B	08/10/2016			08/10/2016 17:31	Rochelle Y Jackson	1822945
	08/10/2016			08/10/2016 17:32	Rochelle Y Jackson	1822946
	08/10/2016			08/10/2016 17:57	Rochelle Y Jackson	1822943
	08/10/2016			08/10/2016 17:58	Rochelle Y Jackson	1822955
	08/10/2016			08/10/2016 18:06	Rochelle Y Jackson	1822944
SM 2320 B-97	08/10/2016			08/11/2016	Dale L. Simmons	1822943, 1822944, 1822945
	08/10/2016			08/12/2016	Dale L. Simmons	1822946, 1822955
SM 2540 C-97	08/10/2016			08/11/2016	Yijie Li	1822943, 1822944, 1822945, 1822946, 1822955
SM 2540 D-97	08/10/2016			08/11/2016	Yijie Li	1822943, 1822944, 1822945, 1822946, 1822955
SM 4500 F-C-97	08/10/2016			08/11/2016	Dale L. Simmons	1822943, 1822944, 1822945
	08/10/2016			08/12/2016	Dale L. Simmons	1822946, 1822955
SM 5310 B-00	08/10/2016			08/19/2016	Sofia Elnemr	1822947, 1822948, 1822949, 1822950, 1822956