

Chemical Analysis Report

SW-DIST-2016-11-08-01

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

Event Description: **RUN 6**
Request ID: **RQ-2016-11-07-48**
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: Judy Ashton

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Certified by: Thekkekalathil Chandrasekhar, Chemist Administrator Date Certified: 06-DEC-2016 09:15



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: Bear Creek @ Beacon

Collection Date/Time: 11/07/2016 10:15

Field ID: G5SW0102

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1848089	EPA 180.1 Rev. 2.0	Turbidity	2.2	A	NTU	P314868	
	EPA 300.0 Rev. 2.1	Chloride	140		mg Cl/L	P315411	
		Sulfate	38		mg SO4/L	P315414	
	SM 2120 B	Color (true)	14		PCU	P314818	
	SM 2320 B-97	Total Alkalinity	192		mg CaCO3/L	P315058	
	SM 2540 C-97	TDS	482		mg/L	P315525	
	SM 2540 D-97	TSS	4	I	mg/L	P315492	
	SM 4500 F-C-97	Fluoride	0.13		mg F/L	P315060	
1848094	EPA 350.1 Rev. 2.0	Ammonia-N	0.18		mg N/L	P315451	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.59		mg N/L	P315514	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.38		mg N/L	P314875	
	EPA 365.1 Rev. 2.0	Total-P	0.078		mg P/L	P315153	
	SM 5310 B-00	Organic Carbon	3.6		mg C/L	P314971	
1848099	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.041		mg P/L	P314834	

Ref. Method and Comment:

EPA 300.0 Rev. 2.1: Chloride: Batch matrix spike recoveries for one of two spiked samples are unavailable because of high analyte concentration in the QC sample.

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

Sample Location: Bear Creek @ Beacon Duplicate

Collection Date/Time: 11/07/2016 10:25

Field ID: G5SW0102 dup

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1848090	EPA 180.1 Rev. 2.0	Turbidity	2.2		NTU	P314868	
	EPA 300.0 Rev. 2.1	Chloride	140		mg Cl/L	P315411	
		Sulfate	38		mg SO4/L	P315414	
	SM 2120 B	Color (true)	15		PCU	P314818	
	SM 2320 B-97	Total Alkalinity	192		mg CaCO3/L	P315058	
	SM 2540 C-97	TDS	500	A	mg/L	P315525	
	SM 2540 D-97	TSS	4	I	mg/L	P315492	
	SM 4500 F-C-97	Fluoride	0.12		mg F/L	P315060	
1848095	EPA 350.1 Rev. 2.0	Ammonia-N	0.18		mg N/L	P315451	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.59		mg N/L	P315514	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.38		mg N/L	P314875	
	EPA 365.1 Rev. 2.0	Total-P	0.079		mg P/L	P315153	
	SM 5310 B-00	Organic Carbon	3.8		mg C/L	P314971	
1848100	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.042		mg P/L	P314834	

Ref. Method and Comment:

EPA 300.0 Rev. 2.1: Chloride: Batch matrix spike recoveries for one of two spiked samples are unavailable because of high analyte concentration in the QC sample.

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

Sample Location: BLANK

Collection Date/Time: 11/07/2016 10:30

Field ID: BLANK

Matrix: W-FIELD-BK

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
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Field ID: BLANK

Matrix: W-FIELD-BK

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1848091	EPA 180.1 Rev. 2.0	Turbidity	0.10	U	NTU	P314868	
	EPA 300.0 Rev. 2.1	Chloride	0.20	U	mg Cl/L	P315411	
		Sulfate	0.20	U	mg SO4/L	P315414	
	SM 2120 B	Color (true)	2.5	U	PCU	P314818	
	SM 2320 B-97	Total Alkalinity	0.65	U	mg CaCO3/L	P315136	
	SM 2540 C-97	TDS	15	U	mg/L	P315525	
	SM 2540 D-97	TSS	2	U	mg/L	P315492	
	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P315140	
1848096	EPA 350.1 Rev. 2.0	Ammonia-N	0.002	U	mg N/L	P315451	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.080	U	mg N/L	P315514	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P314875	
	EPA 365.1 Rev. 2.0	Total-P	0.002	U	mg P/L	P315153	
	SM 5310 B-00	Organic Carbon	0.50	U	mg C/L	P314971	
1848101	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P314834	

Ref. Method and Comment:

EPA 300.0 Rev. 2.1: Chloride: Batch matrix spike recoveries for one of two spiked samples are unavailable because of high analyte concentration in the QC sample.

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

Sample Location: Moon Lake W

Collection Date/Time: 11/07/2016 11:45

Field ID: G5SW0100

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1848092	EPA 180.1 Rev. 2.0	Turbidity	2.0		NTU	P314868	
	EPA 300.0 Rev. 2.1	Chloride	24		mg Cl/L	P315509	
		Sulfate	1.7		mg SO4/L	P315502	
	SM 2120 B	Color (true)	33	A	PCU	P314818	
	SM 2320 B-97	Total Alkalinity	24		mg CaCO3/L	P315136	
	SM 2540 C-97	TDS	77		mg/L	P315525	
	SM 2540 D-97	TSS	3	I	mg/L	P315492	
	SM 4500 F-C-97	Fluoride	0.076	I	mg F/L	P315140	
1848097	EPA 350.1 Rev. 2.0	Ammonia-N	0.011		mg N/L	P315451	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.79		mg N/L	P315514	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	I	mg N/L	P314875	
	EPA 365.1 Rev. 2.0	Total-P	0.023		mg P/L	P315153	
	SM 5310 B-00	Organic Carbon	12		mg C/L	P314971	
1848102	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P314834	

Ref. Method and Comment:

EPA 300.0 Rev. 2.1: Sulfate: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample.

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

Sample Location: Moon Lake E

Collection Date/Time: 11/07/2016 11:55

Field ID: G5SW0101

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1848093	EPA 180.1 Rev. 2.0	Turbidity	2.4		NTU	P314868	
	EPA 300.0 Rev. 2.1	Chloride	24		mg Cl/L	P315509	

Field ID: G5SW0101

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1848093	EPA 300.0 Rev. 2.1	Sulfate	1.8		mg SO4/L	P315502	
	SM 2120 B	Color (true)	32		PCU	P314818	
	SM 2320 B-97	Total Alkalinity	24		mg CaCO3/L	P315136	
	SM 2540 C-97	TDS	94		mg/L	P315525	
	SM 2540 D-97	TSS	4	I	mg/L	P315492	
	SM 4500 F-C-97	Fluoride	0.079	I	mg F/L	P315140	
1848098	EPA 350.1 Rev. 2.0	Ammonia-N	0.005	I	mg N/L	P315183	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.88		mg N/L	P315512	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P314976	
	EPA 365.1 Rev. 2.0	Total-P	0.024		mg P/L	P315445	
	SM 5310 B-00	Organic Carbon	12		mg C/L	P314971	
1848103	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P314835	

Ref. Method and Comment:

EPA 300.0 Rev. 2.1: Sulfate: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample.

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

Quality Assurance Report Method Blank Results

Reference Method: EPA 180.1 Rev. 2.0

Batch ID: P314868

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 300.0 Rev. 2.1

Batch ID: P315411

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1

Batch ID: P315414

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 300.0 Rev. 2.1

Batch ID: P315502

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 300.0 Rev. 2.1

Batch ID: P315509

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Quality Assurance Report Method Blank Results

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P315183

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P315451

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P315512

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P315514

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P314875

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P314976

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P315153

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P315445

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P314834

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

Quality Assurance Report

Method Blank Results

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P314835

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

Reference Method: SM 2120 B
Batch ID: P314818

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2320 B-97
Batch ID: P315058

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

Reference Method: SM 2320 B-97
Batch ID: P315136

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

Reference Method: SM 2540 C-97
Batch ID: P315525

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P315492

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500 F-C-97
Batch ID: P315060

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 4500 F-C-97
Batch ID: P315140

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-00
Batch ID: P314971

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: P315411

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P315414

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Sulfate	98.8		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P315502

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P315509

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P315183

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P315451

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P315512

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: P315514

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P314875

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

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P314976

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: P315153

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P315445

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P314834

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P314835

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

Reference Method: SM 2320 B-97
Batch ID: P315058

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	101		P	95 - 108

Reference Method: SM 2320 B-97
Batch ID: P315136

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	102		P	95 - 108

Reference Method: SM 4500 F-C-97
Batch ID: P315060

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	97.0		P	92 - 103

Reference Method: SM 4500 F-C-97
Batch ID: P315140

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	98.6		P	92 - 103

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: SM 5310 B-00
Batch ID: P314971

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

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P315411

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1848593	Chloride	98.1		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P315414

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1846165	Sulfate	97.6		P	90 - 110
1848593	Sulfate	93.8		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P315502

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1847117	Sulfate	94.4		P	90 - 110
1848093	Sulfate	95.0		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P315509

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1847117	Chloride	102		P	90 - 110
1848093	Chloride	101		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P315183

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1847521	Ammonia-N	105	103	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P315451

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1848097	Ammonia-N	98.7	98.8	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P315512

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1848416	Kjeldahl Nitrogen	106	106	P/P	90 - 110

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P315514

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1848097	Kjeldahl Nitrogen	90.5	92.7	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P314875

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1847889	NO2NO3-N	104	103	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P314976

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1848098	NO2NO3-N	104	103	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P315153

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1848094	Total-P	95.1	102	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P315445

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1847122	Total-P	98.4	95.3	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P314834

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1848102	O-Phosphate-P	99.9	101	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P314835

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1848103	O-Phosphate-P	101	101	P/P	90 - 110

Reference Method: SM 4500 F-C-97
Batch ID: P315060

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1847437	Fluoride	99.8	99.8	P/P	91 - 105

Reference Method: SM 4500 F-C-97
Batch ID: P315140

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1848704	Fluoride	99.6	99.6	P/P	91 - 105

Quality Assurance Report Matrix Spike Accuracy

Reference Method: SM 5310 B-00
Batch ID: P314971

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1848094	Organic Carbon	95.7	96.1	P/P	85 - 115

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P314868

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1848089	Turbidity	0.889	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P315411

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1846165	Chloride	0.122	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P315414

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1846165	Sulfate	1.01	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P315509

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1847117	Chloride	0.0198	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P315183

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1847521	Ammonia-N	1.15	Spike	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P315451

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1848097	Ammonia-N	0.0716	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P315512

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1848416	Kjeldahl Nitrogen	0.425	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P315514

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1848097	Kjeldahl Nitrogen	1.36	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P314875

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1847889	NO2NO3-N	1.23	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P314976

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1848098	NO2NO3-N	0.966	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P315153

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1848094	Total-P	5.90	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P315445

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1847122	Total-P	2.77	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P314834

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1848102	O-Phosphate-P	1.29	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P314835

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1848103	O-Phosphate-P	0.298	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: SM 2120 B
Batch ID: P314818

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1848092	Color (true)	6.21	Sample	P	0 - 20

Reference Method: SM 2320 B-97
Batch ID: P315058

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1847437	Total Alkalinity	1.19	Sample	P	0 - 4.8

Reference Method: SM 2320 B-97
Batch ID: P315136

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1848704	Total Alkalinity	1.11	Sample	P	0 - 4.8

Reference Method: SM 2540 C-97
Batch ID: P315525

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1848090	TDS	1.40	Sample	P	0 - 10

Reference Method: SM 4500 F-C-97
Batch ID: P315060

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1847437	Fluoride	0.0	Spike	P	0 - 3.0

Reference Method: SM 4500 F-C-97
Batch ID: P315140

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1848704	Fluoride	0.0	Spike	P	0 - 3.0

Reference Method: SM 5310 B-00
Batch ID: P314971

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1848094	Organic Carbon	0.396	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

Quality Assurance Report Calibration Verification

Reference Method: EPA 365.1 Rev. 2.0 dissolved

Run ID: A72703

Included Lab Sample IDs: 1848099, 1848100, 1848101, 1848102, 1848103

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	102	99.3	P/P	90 - 110
O-Phosphate-P	99.3	99.3	P/P	90 - 110

Reference Method: EPA 180.1 Rev. 2.0

Run ID: A72721

Included Lab Sample IDs: 1848089, 1848090, 1848091, 1848092, 1848093

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

Reference Method: SM 2120 B

Run ID: A72723

Included Lab Sample IDs: 1848089, 1848090, 1848091, 1848092, 1848093

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	100	99.7	P/P	85 - 115

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A72727

Included Lab Sample IDs: 1848094, 1848095, 1848096, 1848097

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO2NO3-N	99.5	100	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A72754

Included Lab Sample IDs: 1848098

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO2NO3-N	99.5	99.0	P/P	90 - 110

Reference Method: SM 5310 B-00

Run ID: A72755

Included Lab Sample IDs: 1848094, 1848095, 1848096, 1848097, 1848098

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	98.1	97.8	P/P	90 - 110

Reference Method: SM 2320 B-97

Run ID: A72775

Included Lab Sample IDs: 1848089, 1848090

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	102	101	P/P	90 - 110

Reference Method: SM 4500 F-C-97

Run ID: A72775

Included Lab Sample IDs: 1848089, 1848090

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

Quality Assurance Report Calibration Verification

Reference Method: SM 2320 B-97

Run ID: A72801

Included Lab Sample IDs: 1848091, 1848092, 1848093

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	101	102	P/P	90 - 110

Reference Method: SM 4500 F-C-97

Run ID: A72801

Included Lab Sample IDs: 1848091, 1848092, 1848093

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

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A72814

Included Lab Sample IDs: 1848098

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	99.9	101	P/P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1

Run ID: A72830

Included Lab Sample IDs: 1848089, 1848090, 1848091, 1848092, 1848093

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	101	103	P/P	90 - 110
Chloride	99.5	99.5	P/P	90 - 110
Sulfate	98.0	97.2	P/P	90 - 110
Sulfate	98.6	101	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A72854

Included Lab Sample IDs: 1848094, 1848095

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	103	105	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A72891

Included Lab Sample IDs: 1848096, 1848097

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

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A72892

Included Lab Sample IDs: 1848094, 1848095, 1848096, 1848097

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	99.3	100	P/P	90 - 110
Ammonia-N	100	101	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A72943

Included Lab Sample IDs: 1848094, 1848095, 1848096, 1848097

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	103	100	P/P	90 - 110
Kjeldahl Nitrogen	107	99.0	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A72955

Included Lab Sample IDs: 1848098

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	105	103	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A72959

Included Lab Sample IDs: 1848098

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	106	99.7	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					0.889	
EPA 300.0 Rev. 2.1	Chloride	102	98.1			0.122	
	Chloride	103	102	101		0.0198	
	Sulfate	98.8	97.6	93.8		1.01	
	Sulfate	99.0	94.4	95.0			
EPA 350.1 Rev. 2.0	Ammonia-N	103	105	103			1.15
	Ammonia-N	101	98.7	98.8			0.0716
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	101	106	106			0.425
	Kjeldahl Nitrogen	99.0	90.5	92.7			1.36
EPA 353.2 Rev. 2.0	NO2NO3-N	102	104	103			1.23
	NO2NO3-N	101	104	103			0.966
EPA 365.1 Rev. 2.0	Total-P	102	95.1	102			5.90
	Total-P	101	98.4	95.3			2.77
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	102	99.9	101			1.29
	O-Phosphate-P	102	101	101			0.298
SM 2120 B	Color (true)					6.21	
SM 2320 B-97	Total Alkalinity	101				1.19	
	Total Alkalinity	102				1.11	
SM 2540 C-97	TDS					1.40	
SM 4500 F-C-97	Fluoride	97.0	99.8	99.8			0.0
	Fluoride	98.6	99.6	99.6			0.0
SM 5310 B-00	Organic Carbon	101	95.7	96.1			0.396

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	1848089, 1848090, 1848091, 1848092, 1848093
EPA 300.0 Rev. 2.1 / E31780	Chloride in aqueous matrices	1848089, 1848090, 1848091, 1848092, 1848093
EPA 300.0 Rev. 2.1 / E31780	Sulfate in aqueous matrices	1848089, 1848090, 1848091, 1848092, 1848093
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	1848094, 1848095, 1848096, 1848097, 1848098
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	1848094, 1848095, 1848096, 1848097, 1848098
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	1848094, 1848095, 1848096, 1848097, 1848098
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	1848094, 1848095, 1848096, 1848097, 1848098
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	1848099, 1848100, 1848101, 1848102, 1848103
SM 2120 B / E31780	True Color measured at 450 nm	1848089, 1848090, 1848091, 1848092, 1848093
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO ₃ /L	1848089, 1848090, 1848091, 1848092, 1848093
SM 2540 C-97 / E31780	Total Dissolved Solids in aqueous matrices	1848089, 1848090, 1848091, 1848092, 1848093
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices	1848089, 1848090, 1848091, 1848092, 1848093
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	1848089, 1848090, 1848091, 1848092, 1848093
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	1848094, 1848095, 1848096, 1848097, 1848098

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	11/08/2016			11/08/2016 16:50	Blanca Fach	1848089, 1848090, 1848091, 1848092, 1848093
EPA 300.0 Rev. 2.1	11/08/2016			11/17/2016	Ping Hua	1848089, 1848090, 1848091
	11/08/2016			11/18/2016	Ping Hua	1848092, 1848093
EPA 350.1 Rev. 2.0	11/08/2016			11/15/2016	Julie Michelle Frank	1848098
	11/08/2016			11/17/2016	Sofia Elnemr	1848094, 1848095, 1848096, 1848097
EPA 351.2 Rev. 2.0	11/08/2016	11/21/2016	Adrian Shelby	11/22/2016	Joseph Suarez	1848094, 1848095, 1848096, 1848097
	11/08/2016	11/21/2016	Martin Acosta	11/22/2016	Joseph Suarez	1848098
EPA 353.2 Rev. 2.0	11/08/2016			11/09/2016	Beverly Y. Sanders	1848094, 1848095, 1848096, 1848097
	11/08/2016			11/10/2016	Beverly Y. Sanders	1848098
EPA 365.1 Rev. 2.0	11/08/2016	11/15/2016	Adrian Shelby	11/16/2016	Lipi Saha	1848094, 1848095
	11/08/2016	11/15/2016	Adrian Shelby	11/18/2016	Lipi Saha	1848096, 1848097
	11/08/2016	11/18/2016	Adrian Shelby	11/22/2016	Lipi Saha	1848098
EPA 365.1 Rev. 2.0 dissolved	11/08/2016			11/08/2016 16:00	Julia Storbeck	1848102
	11/08/2016			11/08/2016 16:05	Julia Storbeck	1848103
	11/08/2016			11/08/2016 16:11	Julia Storbeck	1848101
	11/08/2016			11/08/2016 16:13	Julia Storbeck	1848099
	11/08/2016			11/08/2016 16:14	Julia Storbeck	1848100
SM 2120 B	11/08/2016			11/08/2016 15:31	Jared I. Manley	1848092
	11/08/2016			11/08/2016 15:34	Jared I. Manley	1848089
	11/08/2016			11/08/2016 15:35	Jared I. Manley	1848090
	11/08/2016			11/08/2016 15:36	Jared I. Manley	1848091
	11/08/2016			11/08/2016 15:37	Jared I. Manley	1848093
SM 2320 B-97	11/08/2016			11/10/2016	Dale L. Simmons	1848089, 1848090
	11/08/2016			11/15/2016	Dale L. Simmons	1848091, 1848092, 1848093
SM 2540 C-97	11/08/2016			11/11/2016	Yijie Li	1848089, 1848090, 1848091, 1848092, 1848093
SM 2540 D-97	11/08/2016			11/11/2016	Yijie Li	1848089, 1848090, 1848091, 1848092, 1848093
SM 4500 F-C-97	11/08/2016			11/10/2016	Dale L. Simmons	1848089, 1848090
	11/08/2016			11/15/2016	Dale L. Simmons	1848091, 1848092, 1848093
SM 5310 B-00	11/08/2016			11/09/2016	Julie Michelle Frank	1848094, 1848095, 1848096, 1848097, 1848098