

Chemical Analysis Report

SW-DIST-2016-08-17-01

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-2016-08-15-33**
Customer: **SW-DIST**
Project ID: **SMP**

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Certified by: Thekkekalathil Chandrasekhar, Chemist Administrator Date Certified: 01-SEP-2016 11:46



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

Collection Date/Time: 08/16/2016 09:30

Field ID: G5SW0102

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1824382	EPA 180.1 Rev. 2.0	Turbidity	2.4		NTU	P309891	
	EPA 300.0 Rev. 2.1	Chloride	130		mg Cl/L	P310311	
		Sulfate	39		mg SO4/L	P310314	
	SM 2120 B	Color (true)	21		PCU	P309911	
	SM 2320 B-97	Total Alkalinity	197		mg CaCO3/L	P310068	
	SM 2540 C-97	TDS	527	A	mg/L	P310530	
	SM 2540 D-97	TSS	4	I	mg/L	P310482	
	SM 4500 F-C-97	Fluoride	0.15		mg F/L	P310070	
1824386	EPA 350.1 Rev. 2.0	Ammonia-N	0.27		mg N/L	P309902	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.1	J	mg N/L	P310075	MS
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.66		mg N/L	P310343	
	EPA 365.1 Rev. 2.0	Total-P	0.096		mg P/L	P309958	
	SM 5310 B-00	Organic Carbon	4.5		mg C/L	P310368	
1824390	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.042		mg P/L	P309908	

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: MOON LAKE E

Collection Date/Time: 08/16/2016 10:45

Field ID: G5SW0101

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1824383	EPA 180.1 Rev. 2.0	Turbidity	1.4		NTU	P309891	
	EPA 300.0 Rev. 2.1	Chloride	25		mg Cl/L	P310311	
		Sulfate	2.0		mg SO4/L	P310314	
	SM 2120 B	Color (true)	26		PCU	P309911	
	SM 2320 B-97	Total Alkalinity	25		mg CaCO3/L	P310068	
	SM 2540 C-97	TDS	82		mg/L	P310530	
	SM 2540 D-97	TSS	3	I	mg/L	P310482	
	SM 4500 F-C-97	Fluoride	0.078	I	mg F/L	P310070	
1824387	EPA 350.1 Rev. 2.0	Ammonia-N	0.003	I	mg N/L	P309902	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.83		mg N/L	P310075	MS
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P310343	
	EPA 365.1 Rev. 2.0	Total-P	0.015		mg P/L	P309958	
	SM 5310 B-00	Organic Carbon	11		mg C/L	P310368	
1824391	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P309908	

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: MOON LAKE W

Collection Date/Time: 08/16/2016 10:55

Field ID: G5SW0100

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1824384	EPA 180.1 Rev. 2.0	Turbidity	1.3		NTU	P309891	
	EPA 300.0 Rev. 2.1	Chloride	25		mg Cl/L	P310311	

Field ID: G5SW0100

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1824384	EPA 300.0 Rev. 2.1	Sulfate	2.0		mg SO4/L	P310314	
	SM 2120 B	Color (true)	27		PCU	P309911	
	SM 2320 B-97	Total Alkalinity	25	A	mg CaCO3/L	P310068	
	SM 2540 C-97	TDS	87		mg/L	P310530	
	SM 2540 D-97	TSS	3	I	mg/L	P310482	
	SM 4500 F-C-97	Fluoride	0.078	I	mg F/L	P310070	
1824388	EPA 350.1 Rev. 2.0	Ammonia-N	0.004	I	mg N/L	P309902	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.86		mg N/L	P310075	MS
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P310343	
	EPA 365.1 Rev. 2.0	Total-P	0.016		mg P/L	P309959	
	SM 5310 B-00	Organic Carbon	11		mg C/L	P310368	
1824392	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P309908	

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: PIERCE LAKE

Collection Date/Time: 08/16/2016 12:00

Field ID: G5SW0104

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1824385	EPA 180.1 Rev. 2.0	Turbidity	0.80		NTU	P309891	
	EPA 300.0 Rev. 2.1	Chloride	5.2		mg Cl/L	P310311	
		Sulfate	0.83		mg SO4/L	P310314	
	SM 2120 B	Color (true)	29		PCU	P309911	
	SM 2320 B-97	Total Alkalinity	3.5		mg CaCO3/L	P310068	
	SM 2540 C-97	TDS	29		mg/L	P310530	
	SM 2540 D-97	TSS	3	I	mg/L	P310482	
	SM 4500 F-C-97	Fluoride	0.046	I	mg F/L	P310070	
1824389	EPA 350.1 Rev. 2.0	Ammonia-N	0.003	I	mg N/L	P309902	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.65		mg N/L	P310075	MS
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P310345	
	EPA 365.1 Rev. 2.0	Total-P	0.009		mg P/L	P309959	
	SM 5310 B-00	Organic Carbon	7.8		mg C/L	P310368	
1824393	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P309908	

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: P309891

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Quality Assurance Report Method Blank Results

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P310311

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P310314

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P309902

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P310075

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P310343

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P310345

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P309958

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P309959

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P309908

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

Quality Assurance Report Method Blank Results

Reference Method: SM 2120 B
Batch ID: P309911

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2320 B-97
Batch ID: P310068

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

Reference Method: SM 2540 C-97
Batch ID: P310530

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P310482

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500 F-C-97
Batch ID: P310070

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-00
Batch ID: P310368

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: P310311

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P310314

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P309902

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P309902

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P310075

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P310343

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P310345

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P309958

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P309959

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total-P	98.1		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P309908

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

Reference Method: SM 2320 B-97
Batch ID: P310068

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

Reference Method: SM 4500 F-C-97
Batch ID: P310070

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	98.3		P	92 - 103

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: SM 5310 B-00
Batch ID: P310368

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	96.5		P	85 - 115

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P310311

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1824352	Chloride	102		P	90 - 110
1824383	Chloride	99.3		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P310314

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1824352	Sulfate	102		P	90 - 110
1824383	Sulfate	101		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P309902

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1824387	Ammonia-N	102	101	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P310075

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1824386	Kjeldahl Nitrogen	88.6	91.0	F/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P310343

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1824323	NO2NO3-N	98.4	96.9	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P310345

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1824389	NO2NO3-N	100	100	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P309958

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1824355	Total-P	102	100	P/P	90 - 110

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P309959

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1824388	Total-P	104	99.6	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P309908

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1824329	O-Phosphate-P	99.3	100	P/P	90 - 110

Reference Method: SM 4500 F-C-97
Batch ID: P310070

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1824384	Fluoride	97.2	98.4	P/P	91 - 105

Reference Method: SM 5310 B-00
Batch ID: P310368

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1824227	Organic Carbon	100	93.5	P/P	85 - 115

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P309891

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1824353	Turbidity	7.08	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P310311

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1824352	Chloride	0.0675	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P310314

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1824352	Sulfate	0.358	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P309902

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1824387	Ammonia-N	0.910	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P310075

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1824386	Kjeldahl Nitrogen	1.41	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P310343

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1824323	NO2NO3-N	1.35	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P310345

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1824389	NO2NO3-N	0.499	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P309958

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1824355	Total-P	1.21	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P309959

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1824388	Total-P	4.23	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P309908

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1824329	O-Phosphate-P	0.802	Spike	P	0 - 20

Reference Method: SM 2120 B
Batch ID: P309911

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1824353	Color (true)	0.244	Sample	P	0 - 20

Reference Method: SM 2320 B-97
Batch ID: P310068

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1824384	Total Alkalinity	0.391	Sample	P	0 - 4.8

Quality Assurance Report Precision

Reference Method: SM 2540 C-97
Batch ID: P310530

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1824382	TDS	2.28	Sample	P	0 - 10

Reference Method: SM 4500 F-C-97
Batch ID: P310070

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1824384	Fluoride	0.964	Spike	P	0 - 3.0

Reference Method: SM 5310 B-00
Batch ID: P310368

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1824227	Organic Carbon	4.25	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: A71180
Included Lab Sample IDs: 1824382, 1824383, 1824384, 1824385

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

Reference Method: EPA 350.1 Rev. 2.0
Run ID: A71183
Included Lab Sample IDs: 1824386, 1824387, 1824388, 1824389

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	101	102	P/P	90 - 110
Ammonia-N	102	103	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Run ID: A71188
Included Lab Sample IDs: 1824390, 1824391, 1824392, 1824393

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	100	99.8	P/P	90 - 110
O-Phosphate-P	99.8	99.7	P/P	90 - 110

Reference Method: SM 2120 B
Run ID: A71190
Included Lab Sample IDs: 1824382, 1824383, 1824384, 1824385

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: A71190

Included Lab Sample IDs: 1824382, 1824383, 1824384, 1824385

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	101	99.7	P/P	90 - 115

Reference Method: SM 2320 B-97

Run ID: A71241

Included Lab Sample IDs: 1824382, 1824383, 1824384, 1824385

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	103	99.9	P/P	90 - 110
Total Alkalinity	99.9	103	P/P	90 - 110

Reference Method: SM 4500 F-C-97

Run ID: A71241

Included Lab Sample IDs: 1824382, 1824383, 1824384, 1824385

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

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A71267

Included Lab Sample IDs: 1824386, 1824387, 1824388, 1824389

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	98.5	97.0	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A71276

Included Lab Sample IDs: 1824386, 1824387, 1824388, 1824389

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	103	102	P/P	90 - 110
Kjeldahl Nitrogen	106	103	P/P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1

Run ID: A71280

Included Lab Sample IDs: 1824382, 1824383, 1824384, 1824385

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	101	100	P/P	90 - 110
Sulfate	99.3	95.8	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A71323

Included Lab Sample IDs: 1824386, 1824387, 1824388, 1824389

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO2NO3-N	96.5	96.0	P/P	90 - 110
NO2NO3-N	97.5	96.5	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: SM 5310 B-00

Run ID: A71332

Included Lab Sample IDs: 1824386, 1824387, 1824388, 1824389

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	96.8	92.6	P/P	90 - 110
Organic Carbon	97.1	96.8	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				7.08	
EPA 300.0 Rev. 2.1	Chloride	101	102 99.3		0.0675	
	Sulfate	100	102 101		0.358	
EPA 350.1 Rev. 2.0	Ammonia-N	104	102 101			0.910
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	103	88.6 91.0			1.41
EPA 353.2 Rev. 2.0	NO2NO3-N	99.0	98.4 96.9			1.35
	NO2NO3-N	100	100 100			0.499
EPA 365.1 Rev. 2.0	Total-P	101	102 100			1.21
	Total-P	98.1	104 99.6			4.23
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	99.4	99.3 100			0.802
SM 2120 B	Color (true)				0.244	
SM 2320 B-97	Total Alkalinity	103			0.391	
SM 2540 C-97	TDS				2.28	
SM 4500 F-C-97	Fluoride	98.3	97.2 98.4			0.964
SM 5310 B-00	Organic Carbon	96.5	100 93.5			4.25

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	1824382, 1824383, 1824384, 1824385
EPA 300.0 Rev. 2.1 / E31780	Chloride in aqueous matrices	1824382, 1824383, 1824384, 1824385
EPA 300.0 Rev. 2.1 / E31780	Sulfate in aqueous matrices	1824382, 1824383, 1824384, 1824385
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	1824386, 1824387, 1824388, 1824389
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	1824386, 1824387, 1824388, 1824389
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	1824386, 1824387, 1824388, 1824389
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	1824386, 1824387, 1824388, 1824389
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	1824390, 1824391, 1824392, 1824393
SM 2120 B / E31780	True Color measured at 450 nm	1824382, 1824383, 1824384, 1824385
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO3/L	1824382, 1824383, 1824384, 1824385
SM 2540 C-97 / E31780	Total Dissolved Solids in aqueous matrices	1824382, 1824383, 1824384, 1824385
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices	1824382, 1824383, 1824384, 1824385

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	1824382, 1824383, 1824384, 1824385
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	1824386, 1824387, 1824388, 1824389

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	08/17/2016			08/17/2016 15:44	Sima Feizi	1824382, 1824383, 1824384, 1824385
EPA 300.0 Rev. 2.1	08/17/2016			08/25/2016	Ping Hua	1824382, 1824383, 1824384, 1824385
EPA 350.1 Rev. 2.0	08/17/2016			08/17/2016	Julie Michelle Frank	1824386, 1824387, 1824388, 1824389
EPA 351.2 Rev. 2.0	08/17/2016	08/22/2016	Adrian Shelby	08/23/2016	Christopher Armour	1824386, 1824387, 1824388, 1824389
EPA 353.2 Rev. 2.0	08/17/2016			08/25/2016	Beverly Y. Sanders	1824386, 1824387, 1824388, 1824389
EPA 365.1 Rev. 2.0	08/17/2016	08/18/2016	Vijayalakshmi Reddy	08/23/2016	Lipi Saha	1824386, 1824387, 1824388, 1824389
EPA 365.1 Rev. 2.0 dissolved	08/17/2016			08/17/2016 15:30	Julia Storbeck	1824390
	08/17/2016			08/17/2016 15:35	Julia Storbeck	1824391
	08/17/2016			08/17/2016 15:36	Julia Storbeck	1824392, 1824393
SM 2120 B	08/17/2016			08/17/2016 17:24	Rochelle Y Jackson	1824382
	08/17/2016			08/17/2016 17:25	Rochelle Y Jackson	1824383, 1824384
	08/17/2016			08/17/2016 17:26	Rochelle Y Jackson	1824385
SM 2320 B-97	08/17/2016			08/18/2016	Dale L. Simmons	1824382, 1824383, 1824384, 1824385
SM 2540 C-97	08/17/2016			08/19/2016	Yijie Li	1824382, 1824383, 1824384, 1824385
SM 2540 D-97	08/17/2016			08/19/2016	Yijie Li	1824382, 1824383, 1824384, 1824385
SM 4500 F-C-97	08/17/2016			08/18/2016	Dale L. Simmons	1824382, 1824383, 1824384, 1824385
SM 5310 B-00	08/17/2016			08/25/2016	Sofia Elnemr	1824386, 1824387, 1824388, 1824389