

Chemical Analysis Report

NW-DIST-2016-05-26-02

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

Event Description: **WBID 321 517 683 663 864A**
Request ID: **RQ-2016-05-23-13**
Customer: **NW-DIST**
Project ID: **SMP**

Send Reports to:
FL Dept. of Environmental Protection
160 W Government St
Suite 208A
Pensacola, FL 32502-5794
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Certified by: Colin Wright, Environmental Administrator

Date Certified: 20-JUN-2016 12:25

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: Boiling Creek abv Eglin Rd 211

Collection Date/Time: 05/25/2016 11:00

Field ID: G4NW0342

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1802360	EPA 180.1 Rev. 2.0	Turbidity	0.65		NTU	P305150	
	EPA 300.0 Rev. 2.1	Chloride	3.1		mg Cl/L	P305567	
		Sulfate	0.49	I	mg SO4/L	P305570	
	SM 2120 B	Color (true)	11		PCU	P305125	
	SM 2320 B-97	Total Alkalinity	0.65	U	mg CaCO3/L	P305510	
	SM 2540 C-97	TDS	15	U	mg/L	P305891	
	SM 2540 D-97	TSS	2	U	mg/L	P305894	
	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P305512	
1802364	EPA 350.1 Rev. 2.0	Ammonia-N	0.003	I	mg N/L	P305660	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.080	U	mg N/L	P305447	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.11		mg N/L	P305187	
	EPA 365.1 Rev. 2.0	Total-P	0.004	I	mg P/L	P305743	
	SM 5310 B-00	Organic Carbon	1.2		mg C/L	P305854	
1802368	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P305119	

Ref. Method and Comment:

EPA 350.1 Rev. 2.0: Matrix spike recovery data is unavailable due to high analyte concentration in the QC sample.

Sample Location: Trammel Creek @ Hwy 4

Collection Date/Time: 05/25/2016 12:30

Field ID: G4NW0052

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1802361	EPA 180.1 Rev. 2.0	Turbidity	2.4		NTU	P305150	
	EPA 300.0 Rev. 2.1	Chloride	4.3		mg Cl/L	P305567	
		Sulfate	4.5		mg SO4/L	P305570	
	SM 2120 B	Color (true)	53		PCU	P305125	
	SM 2320 B-97	Total Alkalinity	11		mg CaCO3/L	P305510	
	SM 2540 C-97	TDS	37		mg/L	P305891	
	SM 2540 D-97	TSS	2	U	mg/L	P305894	
	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P305512	
1802365	EPA 350.1 Rev. 2.0	Ammonia-N	0.011		mg N/L	P305660	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.24		mg N/L	P305447	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.14		mg N/L	P305187	
	EPA 365.1 Rev. 2.0	Total-P	0.026		mg P/L	P305787	
	SM 5310 B-00	Organic Carbon	3.7		mg C/L	P305854	
1802369	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.012		mg P/L	P305119	

Ref. Method and Comment:

EPA 350.1 Rev. 2.0: Matrix spike recovery data is unavailable due to high analyte concentration in the QC sample.

Sample Location: Trammel Creek above CRX Train tracks

Collection Date/Time: 05/25/2016 12:45

Field ID: G4NW0383

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1802362	EPA 180.1 Rev. 2.0	Turbidity	2.5		NTU	P305150	
	EPA 300.0 Rev. 2.1	Chloride	4.3		mg Cl/L	P305567	
		Sulfate	4.5		mg SO4/L	P305570	

Field ID: G4NW0383

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1802362	SM 2120 B	Color (true)	54	A	PCU	P305125	
	SM 2320 B-97	Total Alkalinity	11		mg CaCO3/L	P305510	
	SM 2540 C-97	TDS	40		mg/L	P305891	
	SM 2540 D-97	TSS	2	U	mg/L	P305894	
	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P305512	
1802366	EPA 350.1 Rev. 2.0	Ammonia-N	0.011		mg N/L	P305660	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.30		mg N/L	P305447	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.14		mg N/L	P305187	
	EPA 365.1 Rev. 2.0	Total-P	0.026		mg P/L	P305786	
	SM 5310 B-00	Organic Carbon	3.7		mg C/L	P305854	
1802370	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.011		mg P/L	P305119	

Ref. Method and Comment:

EPA 350.1 Rev. 2.0: Matrix spike recovery data is unavailable due to high analyte concentration in the QC sample.

Sample Location: Williams Creek below Frankfort Ave

Collection Date/Time: 05/25/2016 15:00

Field ID: G4NW0198

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1802363	EPA 180.1 Rev. 2.0	Turbidity	9.1		NTU	P305150	
	EPA 300.0 Rev. 2.1	Chloride	14		mg Cl/L	P305567	
		Sulfate	5.2		mg SO4/L	P305570	
	SM 2120 B	Color (true)	130		PCU	P305125	
	SM 2320 B-97	Total Alkalinity	0.65	U	mg CaCO3/L	P305510	
	SM 2540 C-97	TDS	51		mg/L	P305892	
	SM 2540 D-97	TSS	17		mg/L	P305895	
	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P305512	
	EPA 350.1 Rev. 2.0	Ammonia-N	0.035		mg N/L	P305661	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.37		mg N/L	P305447	
1802367	EPA 353.2 Rev. 2.0	NO2NO3-N	0.023		mg N/L	P305187	
	EPA 365.1 Rev. 2.0	Total-P	0.014		mg P/L	P305786	
	SM 5310 B-00	Organic Carbon	9.8		mg C/L	P305854	
	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P305119	

Ref. Method and Comment:

SM 2540 D-97: The precision data is unavailable due to the low analyte concentration in the QC sample.

Quality Assurance Report

Method Blank Results

Reference Method: EPA 180.1 Rev. 2.0

Batch ID: P305150

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 300.0 Rev. 2.1

Batch ID: P305567

Component	Result	Code	Units
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Quality Assurance Report Method Blank Results

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P305567

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P305570

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P305660

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P305661

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P305447

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P305187

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P305743

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P305786

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P305787

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 dissolved
Batch ID: P305119

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

Reference Method: SM 2120 B
Batch ID: P305125

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2320 B-97
Batch ID: P305510

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

Reference Method: SM 2540 C-97
Batch ID: P305891

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 C-97
Batch ID: P305892

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P305894

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P305895

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500 F-C-97
Batch ID: P305512

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-00
Batch ID: P305854

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: P305567

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: P305570

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Sulfate	98.0		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P305660

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Ammonia-N	98.3		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P305661

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P305447

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Kjeldahl Nitrogen	98.7		P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P305187

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
NO ₂ NO ₃ -N	100		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P305743

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P305786

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P305787

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total-P	99.8		P	90 - 110

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 365.1 Rev. 2.0 dissolved
 Batch ID: P305119

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

Reference Method: SM 2320 B-97
 Batch ID: P305510

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	101		P	95 - 105

Reference Method: SM 4500 F-C-97
 Batch ID: P305512

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	98.2		P	92 - 103

Reference Method: SM 5310 B-00
 Batch ID: P305854

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: P305567

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1802333	Chloride	100		P	90 - 110
1802562	Chloride	98.3		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
 Batch ID: P305570

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1802333	Sulfate	98.1		P	90 - 110
1802562	Sulfate	97.8		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
 Batch ID: P305661

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1802367	Ammonia-N	101	102	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
 Batch ID: P305447

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1802340	Kjeldahl Nitrogen	102	98.6	P/P	90 - 110

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P305187

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1802364	NO2NO3-N	98.5	100	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P305743

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1802335	Total-P	98.2	97.3	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P305786

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1802534	Total-P	98.8	101	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P305787

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1802548	Total-P	99.4	101	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P305119

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1802368	O-Phosphate-P	101	102	P/P	90 - 110

Reference Method: SM 4500 F-C-97
Batch ID: P305512

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1802519	Fluoride	94.7	95.3	P/P	91 - 105

Reference Method: SM 5310 B-00
Batch ID: P305854

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1802292	Organic Carbon	101	101	P/P	85 - 115

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P305150

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1802333	Turbidity	3.53	Sample	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P305567

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1802333	Chloride	0.700	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P305570

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1802333	Sulfate	2.99	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P305660

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1802339	Ammonia-N	0.631	Spike	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P305661

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1802367	Ammonia-N	0.894	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P305447

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1802340	Kjeldahl Nitrogen	3.06	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P305187

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1802364	NO2NO3-N	0.960	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P305743

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1802335	Total-P	0.892	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P305786

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1802534	Total-P	1.76	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P305787

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1802548	Total-P	1.08	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P305119

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1802368	O-Phosphate-P	0.891	Spike	P	0 - 20

Reference Method: SM 2120 B
Batch ID: P305125

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1802362	Color (true)	0.251	Sample	P	0 - 20

Reference Method: SM 2320 B-97
Batch ID: P305510

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1802519	Total Alkalinity	0.261	Sample	P	0 - 4.8

Reference Method: SM 2540 C-97
Batch ID: P305891

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1802330	TDS	0.0	Sample	P	0 - 10

Reference Method: SM 2540 C-97
Batch ID: P305892

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1802429	TDS	2.09	Sample	P	0 - 10

Reference Method: SM 2540 D-97
Batch ID: P305894

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1802330	TSS	6.45	Sample	P	0 - 10

Reference Method: SM 4500 F-C-97
Batch ID: P305512

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1802519	Fluoride	0.536	Spike	P	0 - 3.0

Quality Assurance Report Precision

Reference Method: SM 5310 B-00
Batch ID: P305854

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1802292	Organic Carbon	0.287	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: A69721
Included Lab Sample IDs: 1802368, 1802369, 1802370, 1802371

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	98.5	98.7	P/P	90 - 110
O-Phosphate-P	99.4	100	P/P	90 - 110
O-Phosphate-P	99.4	99.4	P/P	90 - 110

Reference Method: SM 2120 B
Run ID: A69723
Included Lab Sample IDs: 1802360, 1802361, 1802362, 1802363

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	100	99.9	P/P	90 - 115

Reference Method: EPA 180.1 Rev. 2.0
Run ID: A69730
Included Lab Sample IDs: 1802360, 1802361, 1802362, 1802363

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Turbidity	100	101	P/P	95 - 105

Reference Method: EPA 353.2 Rev. 2.0
Run ID: A69735
Included Lab Sample IDs: 1802364, 1802365, 1802366, 1802367

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO2NO3-N	97.0	96.5	P/P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Run ID: A69814
Included Lab Sample IDs: 1802360, 1802361, 1802362, 1802363

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	101	101	P/P	90 - 110
Chloride	101	102	P/P	90 - 110
Sulfate	97.4	99.9	P/P	90 - 110
Sulfate	99.5	97.4	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: SM 2320 B-97

Run ID: A69825

Included Lab Sample IDs: 1802360, 1802361, 1802362, 1802363

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: A69825

Included Lab Sample IDs: 1802360, 1802361, 1802362, 1802363

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

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A69862

Included Lab Sample IDs: 1802364, 1802365, 1802366, 1802367

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

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A69880

Included Lab Sample IDs: 1802364, 1802365, 1802366, 1802367

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	97.2	97.8	P/P	90 - 110
Kjeldahl Nitrogen	97.8	95.9	P/P	90 - 110

Reference Method: SM 5310 B-00

Run ID: A69933

Included Lab Sample IDs: 1802364, 1802365, 1802366, 1802367

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	96.4	99.0	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A69970

Included Lab Sample IDs: 1802364, 1802365, 1802366, 1802367

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	97.0	97.0	P/P	90 - 110
Total-P	97.2	97.5	P/P	90 - 110
Total-P	97.5	97.5	P/P	90 - 110

* Pass/Fail determinations are made for each bracketing calibration verification check.

Control limits for initial calibration checks may be different from those for continuing checks, depending on method requirements.

Where they are different, both control limits are provided.

Quality Assurance Report Summary

Ref. Method	Analyte	LCS % Recovery	MS % Recovery	Precision SMP	MS
				LCS	

Quality Assurance Report Summary

Ref. Method	Analyte	LCS % Recovery	MS % Recovery		LCS	Precision	MS
						SMP	
EPA 180.1 Rev. 2.0	Turbidity					3.53	
EPA 300.0 Rev. 2.1	Chloride	99.7	100	98.3		0.700	
	Sulfate	98.0	98.1	97.8		2.99	
EPA 350.1 Rev. 2.0	Ammonia-N	98.3					0.631
	Ammonia-N	98.8	101	102			0.894
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	98.7	102	98.6			3.06
EPA 353.2 Rev. 2.0	NO ₂ NO ₃ -N	100	98.5	100			0.960
EPA 365.1 Rev. 2.0	Total-P	106	98.2	97.3			0.892
	Total-P	97.8	98.8	101			1.76
	Total-P	99.8	99.4	101			1.08
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	104	101	102			0.891
SM 2120 B	Color (true)					0.251	
SM 2320 B-97	Total Alkalinity	101				0.261	
SM 2540 C-97	TDS					0.0	
	TDS					2.09	
SM 2540 D-97	TSS					6.45	
SM 4500 F-C-97	Fluoride	98.2	94.7	95.3			0.536
SM 5310 B-00	Organic Carbon	101	101	101			0.287

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	1802360, 1802361, 1802362, 1802363
EPA 300.0 Rev. 2.1 / E31780	Chloride in aqueous matrices	1802360, 1802361, 1802362, 1802363
EPA 300.0 Rev. 2.1 / E31780	Sulfate in aqueous matrices	1802360, 1802361, 1802362, 1802363
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	1802364, 1802365, 1802366, 1802367
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	1802364, 1802365, 1802366, 1802367
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	1802364, 1802365, 1802366, 1802367
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	1802364, 1802365, 1802366, 1802367
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	1802368, 1802369, 1802370, 1802371
SM 2120 B / E31780	True Color measured at 450 nm	1802360, 1802361, 1802362, 1802363
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO ₃ /L	1802360, 1802361, 1802362, 1802363
SM 2540 C-97 / E31780	Total Dissolved Solids in aqueous matrices	1802360, 1802361, 1802362, 1802363
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices	1802360, 1802361, 1802362, 1802363
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	1802360, 1802361, 1802362, 1802363
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	1802364, 1802365, 1802366, 1802367

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
EPA 180.1 Rev. 2.0	05/26/2016			05/26/2016 16:42	Blanca Fach	1802360, 1802361, 1802362, 1802363
EPA 300.0 Rev. 2.1	05/26/2016			06/03/2016	Elisa J Lutz	1802360, 1802361, 1802362, 1802363
EPA 350.1 Rev. 2.0	05/26/2016			06/06/2016	Diana M. Turner	1802364, 1802365, 1802366, 1802367
EPA 351.2 Rev. 2.0	05/26/2016	06/02/2016	Sofia Elnemr	06/06/2016	Christopher Armour	1802364, 1802365, 1802366, 1802367
EPA 353.2 Rev. 2.0	05/26/2016			05/27/2016	Peter D. Kaus	1802364, 1802365, 1802366, 1802367
EPA 365.1 Rev. 2.0	05/26/2016	06/08/2016	Vijayalakshmi Reddy	06/10/2016	Virginia P. Brown	1802364, 1802365, 1802366, 1802367
EPA 365.1 Rev. 2.0 dissolved	05/26/2016			05/26/2016 14:47	Julia Storbeck	1802368
	05/26/2016			05/26/2016 15:01	Julia Storbeck	1802369
	05/26/2016			05/26/2016 15:23	Julia Storbeck	1802370
	05/26/2016			05/26/2016 15:24	Julia Storbeck	1802371
SM 2120 B	05/26/2016			05/26/2016 17:03	Chrisoulla Rakowski	1802360
	05/26/2016			05/26/2016 17:06	Chrisoulla Rakowski	1802362
	05/26/2016			05/26/2016 17:07	Chrisoulla Rakowski	1802363
	05/26/2016			05/26/2016 17:09	Chrisoulla Rakowski	1802361
SM 2320 B-97	05/26/2016			06/03/2016	Dale L. Simmons	1802360, 1802361, 1802362, 1802363
SM 2540 C-97	05/26/2016			05/31/2016	Blanca Fach	1802360, 1802361, 1802362, 1802363
SM 2540 D-97	05/26/2016			05/31/2016	Blanca Fach	1802360, 1802361, 1802362, 1802363
SM 4500 F-C-97	05/26/2016			06/03/2016	Dale L. Simmons	1802360, 1802361, 1802362, 1802363
SM 5310 B-00	05/26/2016			06/08/2016	Diana M. Turner	1802364, 1802365, 1802366, 1802367