

Chemical Analysis Report

NW-DIST-2016-02-10-01

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

Event Description: **WBID 663 864A 517 683**

Request ID: **RQ-2016-02-08-16**

Customer: **NW-DIST**

Project ID: **SMP**

Send Reports to:
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Date Certified: 25-FEB-2016 13:56



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: Catfish Branch @ Eglin 736

Collection Date/Time: 02/09/2016 11:30

Field ID: G4NW0104

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1770229	EPA 180.1 Rev. 2.0	Turbidity	0.65		NTU	P298418	
	EPA 300.0 Rev. 2.1	Chloride	3.7		mg Cl/L	P298613	
		Sulfate	1.4		mg SO4/L	P298615	
	SM 2120 B	Color (true)	23		PCU	P298411	
	SM 2320 B-97	Total Alkalinity	0.65	U	mg CaCO3/L	P298807	
	SM 2540 C-97	TDS	16	I	mg/L	P298991	
	SM 2540 D-97	TSS	2	I	mg/L	P298985	
	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P298797	
1770233	EPA 350.1 Rev. 2.0	Ammonia-N	0.002	U	mg N/L	P298872	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.11	I	mg N/L	P298759	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.12		mg N/L	P298658	
	EPA 365.1 Rev. 2.0	Total-P	0.003	I	mg P/L	P298638	
	SM 5310 B-00	Organic Carbon	1.8		mg C/L	P298680	
1770237	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P298404	

Ref. Method and Comment:

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

Sample Location: Dean Creek upstream of SR-87

Collection Date/Time: 02/09/2016 12:15

Field ID: G4NW0277

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1770230	EPA 180.1 Rev. 2.0	Turbidity	1.2	A	NTU	P298418	
	EPA 300.0 Rev. 2.1	Chloride	4.4		mg Cl/L	P298614	
		Sulfate	1.4		mg SO4/L	P298616	
	SM 2120 B	Color (true)	56	A	PCU	P298411	
	SM 2320 B-97	Total Alkalinity	0.65	U	mg CaCO3/L	P298807	
	SM 2540 C-97	TDS	16	I	mg/L	P298991	
	SM 2540 D-97	TSS	2	U	mg/L	P298985	
	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P298797	
1770234	EPA 350.1 Rev. 2.0	Ammonia-N	0.002	U	mg N/L	P298872	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.15	I	mg N/L	P298759	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.031		mg N/L	P298658	
	EPA 365.1 Rev. 2.0	Total-P	0.004	I	mg P/L	P298640	
	SM 5310 B-00	Organic Carbon	3.2		mg C/L	P298680	
1770238	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P298404	

Ref. Method and Comment:

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

Sample Location: West Head of Dean Cr at Natalie Ln

Collection Date/Time: 02/09/2016 12:40

Field ID: G4NW0278

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1770231	EPA 180.1 Rev. 2.0	Turbidity	0.70		NTU	P298418	
	EPA 300.0 Rev. 2.1	Chloride	3.9		mg Cl/L	P298614	
		Sulfate	1.5		mg SO4/L	P298616	

Field ID: G4NW0278

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1770231	SM 2120 B	Color (true)	45		PCU	P298411	
	SM 2320 B-97	Total Alkalinity	0.65	U	mg CaCO3/L	P298965	
	SM 2540 C-97	TDS	15	I	mg/L	P298991	
	SM 2540 D-97	TSS	2	I	mg/L	P298985	
	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P298799	
1770235	EPA 350.1 Rev. 2.0	Ammonia-N	0.002	I	mg N/L	P298872	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.16	I	mg N/L	P298759	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.030		mg N/L	P298658	
	EPA 365.1 Rev. 2.0	Total-P	0.004	I	mg P/L	P298640	
	SM 5310 B-00	Organic Carbon	2.6		mg C/L	P298680	
1770239	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P298404	

Ref. Method and Comment:

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

Sample Location: Williams Creek below frankfort ave

Collection Date/Time: 02/09/2016 13:30

Field ID: G4NW0198

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1770232	EPA 180.1 Rev. 2.0	Turbidity	3.8		NTU	P298418	
	EPA 300.0 Rev. 2.1	Chloride	12		mg Cl/L	P298614	
		Sulfate	4.7		mg SO4/L	P298616	
	SM 2120 B	Color (true)	180		PCU	P298411	
	SM 2320 B-97	Total Alkalinity	0.65	U	mg CaCO3/L	P298965	
	SM 2540 C-97	TDS	50		mg/L	P298992	
	SM 2540 D-97	TSS	2	U	mg/L	P298986	
	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P298799	
1770236	EPA 350.1 Rev. 2.0	Ammonia-N	0.028		mg N/L	P298872	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.45		mg N/L	P298759	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.020		mg N/L	P298658	
	EPA 365.1 Rev. 2.0	Total-P	0.009		mg P/L	P298640	
	SM 5310 B-00	Organic Carbon	13		mg C/L	P298680	
1770240	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P298404	

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: P298418

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 300.0 Rev. 2.1

Batch ID: P298613

Component	Result	Code	Units
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Quality Assurance Report Method Blank Results

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P298613

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P298614

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P298615

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P298616

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P298872

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P298759

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P298658

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P298638

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P298640

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: P298404

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

Reference Method: SM 2120 B
Batch ID: P298411

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2320 B-97
Batch ID: P298807

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

Reference Method: SM 2320 B-97
Batch ID: P298965

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

Reference Method: SM 2540 C-97
Batch ID: P298991

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 C-97
Batch ID: P298992

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P298985

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P298986

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500 F-C-97
Batch ID: P298797

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Quality Assurance Report Method Blank Results

Reference Method: SM 4500 F-C-97
Batch ID: P298799

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-00
Batch ID: P298680

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: P298613

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P298614

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P298615

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Sulfate	95.0		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P298616

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P298872

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P298759

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Kjeldahl Nitrogen	96.9		P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P298658

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P298658

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P298638

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: P298640

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P298404

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

Reference Method: SM 2320 B-97
Batch ID: P298807

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

Reference Method: SM 2320 B-97
Batch ID: P298965

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

Reference Method: SM 4500 F-C-97
Batch ID: P298797

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	96.5		P	94 - 108

Reference Method: SM 4500 F-C-97
Batch ID: P298799

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	97.5		P	94 - 108

Reference Method: SM 5310 B-00
Batch ID: P298680

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	93.4		P	85 - 115

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P298613

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1770164	Chloride	97.2		P	90 - 110
1770165	Chloride	98.5		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P298614

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1770428	Chloride	99.3		P	90 - 110
1770445	Chloride	101		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P298615

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1770164	Sulfate	94.4		P	90 - 110
1770165	Sulfate	93.1		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P298616

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1770428	Sulfate	97.5		P	90 - 110
1770445	Sulfate	95.4		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P298872

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1770233	Ammonia-N	100	99.7	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P298759

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1770224	Kjeldahl Nitrogen	92.3	97.1	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P298658

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1770224	NO2NO3-N	104	104	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P298638

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1770170	Total-P	97.6	100	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P298640

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P298640

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1770234	Total-P	101	104	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P298404

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1770225	O-Phosphate-P	101	103	P/P	90 - 110

Reference Method: SM 4500 F-C-97
Batch ID: P298797

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1770213	Fluoride	101	102	P/P	94 - 107

Reference Method: SM 4500 F-C-97
Batch ID: P298799

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1770515	Fluoride	98.2	99.5	P/P	94 - 107

Reference Method: SM 5310 B-00
Batch ID: P298680

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1770193	Organic Carbon	94.0	93.5	P/P	85 - 115

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P298418

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1770230	Turbidity	4.18	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P298613

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1770164	Chloride	0.100	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P298614

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1770428	Chloride	1.05	Sample	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P298615

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1770164	Sulfate	0.110	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P298616

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1770428	Sulfate	2.93	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P298872

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1770233	Ammonia-N	0.762	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P298759

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1770224	Kjeldahl Nitrogen	3.20	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P298658

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1770224	NO2NO3-N	0.471	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P298638

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1770170	Total-P	1.99	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P298640

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1770234	Total-P	3.46	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P298404

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1770225	O-Phosphate-P	1.18	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: SM 2120 B
Batch ID: P298411

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1770230	Color (true)	0.938	Sample	P	0 - 20

Reference Method: SM 2320 B-97
Batch ID: P298807

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1770213	Total Alkalinity	0.869	Sample	P	0 - 4.8

Reference Method: SM 2320 B-97
Batch ID: P298965

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1770847	Total Alkalinity	0.422	Sample	P	0 - 4.8

Reference Method: SM 2540 C-97
Batch ID: P298991

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1770223	TDS	5.68	Sample	P	0 - 10

Reference Method: SM 2540 C-97
Batch ID: P298992

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1770256	TDS	1.30	Sample	P	0 - 10

Reference Method: SM 4500 F-C-97
Batch ID: P298797

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1770213	Fluoride	0.979	Spike	P	0 - 3.7

Reference Method: SM 4500 F-C-97
Batch ID: P298799

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1770515	Fluoride	0.986	Spike	P	0 - 3.7

Reference Method: SM 5310 B-00
Batch ID: P298680

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1770193	Organic Carbon	0.496	Spike	P	0 - 20

Quality Assurance Report Precision

* 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 300.0 Rev. 2.1

Run ID: A67519

Included Lab Sample IDs: 1770229, 1770230, 1770231, 1770232

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	97.6	98.3	P/P	90 - 110
Chloride	98.3	97.6	P/P	90 - 110
Sulfate	94.6	96.9	P/P	90 - 110
Sulfate	96.9	94.3	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved

Run ID: A67554

Included Lab Sample IDs: 1770237, 1770238, 1770239, 1770240

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	98.5	97.7	P/P	90 - 110

Reference Method: SM 2120 B

Run ID: A67555

Included Lab Sample IDs: 1770229, 1770230, 1770231, 1770232

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	95.9	99.9	P/P	90 - 115
Color (true)	98.8	99.0	P/P	90 - 115

Reference Method: EPA 180.1 Rev. 2.0

Run ID: A67557

Included Lab Sample IDs: 1770229, 1770230, 1770231, 1770232

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

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A67618

Included Lab Sample IDs: 1770233, 1770234, 1770235, 1770236

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

Reference Method: SM 5310 B-00

Run ID: A67629

Included Lab Sample IDs: 1770233, 1770234, 1770235, 1770236

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	92.7	93.2	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A67645

Included Lab Sample IDs: 1770233, 1770234, 1770235, 1770236

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	98.5	99.0	P/P	90 - 110
Total-P	99.0	97.0	P/P	90 - 110

Reference Method: SM 4500 F-C-97

Run ID: A67660

Included Lab Sample IDs: 1770229, 1770230, 1770231, 1770232

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

Reference Method: SM 2320 B-97

Run ID: A67665

Included Lab Sample IDs: 1770229, 1770230

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	103	98.1	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A67677

Included Lab Sample IDs: 1770233, 1770234, 1770235, 1770236

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

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A67680

Included Lab Sample IDs: 1770233, 1770234, 1770235, 1770236

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	99.4	100	P/P	90 - 110

Reference Method: SM 2320 B-97

Run ID: A67716

Included Lab Sample IDs: 1770231, 1770232

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	98.4	102	P/P	90 - 110

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

Control limits for initial calibration checks may be different from those for continuing checks, depending on method requirements.
Where they are different, both control limits are provided.

Quality Assurance Report Summary

Ref. Method	Analyte	LCS % Recovery	MS % Recovery	Precision	MS
				LCS	SMP
EPA 180.1 Rev. 2.0	Turbidity			4.18	

Quality Assurance Report Summary

Ref. Method	Analyte	LCS % Recovery	MS % Recovery		Precision	
					LCS	MS
EPA 300.0 Rev. 2.1	Chloride	99.3	97.2	98.5	0.100	
	Chloride	101	99.3	101	1.05	
	Sulfate	95.0	94.4	93.1	0.110	
	Sulfate	98.7	97.5	95.4	2.93	
EPA 350.1 Rev. 2.0	Ammonia-N	98.3	100	99.7		0.762
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	96.9	92.3	97.1		3.20
EPA 353.2 Rev. 2.0	NO2NO3-N	104	104	104		0.471
EPA 365.1 Rev. 2.0	Total-P	102	97.6	100		1.99
	Total-P	99.5	101	104		3.46
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	103	101	103		1.18
SM 2120 B	Color (true)				0.938	
SM 2320 B-97	Total Alkalinity	101			0.869	
	Total Alkalinity	101			0.422	
SM 2540 C-97	TDS				5.68	
	TDS				1.30	
SM 4500 F-C-97	Fluoride	96.5	101	102		0.979
	Fluoride	97.5	98.2	99.5		0.986
SM 5310 B-00	Organic Carbon	93.4	94.0	93.5		0.496

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	1770229, 1770230, 1770231, 1770232
EPA 300.0 Rev. 2.1 / E31780	Chloride in aqueous matrices	1770229, 1770230, 1770231, 1770232
EPA 300.0 Rev. 2.1 / E31780	Sulfate in aqueous matrices	1770229, 1770230, 1770231, 1770232
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	1770233, 1770234, 1770235, 1770236
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	1770233, 1770234, 1770235, 1770236
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	1770233, 1770234, 1770235, 1770236
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	1770233, 1770234, 1770235, 1770236
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	1770237, 1770238, 1770239, 1770240
SM 2120 B / E31780	True Color measured at 450 nm	1770229, 1770230, 1770231, 1770232
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO3/L	1770229, 1770230, 1770231, 1770232
SM 2540 C-97 / E31780	Total Dissolved Solids in aqueous matrices	1770229, 1770230, 1770231, 1770232
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices	1770229, 1770230, 1770231, 1770232
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	1770229, 1770230, 1770231, 1770232
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	1770233, 1770234, 1770235, 1770236

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	02/10/2016			02/10/2016 15:11	Sima Feizi	1770229, 1770230, 1770231, 1770232
EPA 300.0 Rev. 2.1	02/10/2016			02/12/2016	Ping Hua	1770229, 1770230, 1770231, 1770232
EPA 350.1 Rev. 2.0	02/10/2016			02/18/2016	Diana M. Turner	1770233, 1770234, 1770235, 1770236
EPA 351.2 Rev. 2.0	02/10/2016	02/17/2016	Sofia Elnemr	02/18/2016	Bryan A. Werth	1770233, 1770234, 1770235, 1770236
EPA 353.2 Rev. 2.0	02/10/2016			02/16/2016	Peter D. Kaus	1770233, 1770234, 1770235, 1770236
EPA 365.1 Rev. 2.0	02/10/2016	02/16/2016	Christopher Armour	02/17/2016	Lipi Saha	1770233, 1770234, 1770235, 1770236
EPA 365.1 Rev. 2.0 dissolved	02/10/2016			02/10/2016 14:08	Bryan A. Werth	1770237
	02/10/2016			02/10/2016 14:09	Bryan A. Werth	1770238
	02/10/2016			02/10/2016 14:10	Bryan A. Werth	1770239
	02/10/2016			02/10/2016 14:11	Bryan A. Werth	1770240
	02/10/2016			02/10/2016 13:35	Rochelle Y Jackson	1770229
SM 2120 B	02/10/2016			02/10/2016 13:36	Rochelle Y Jackson	1770230
	02/10/2016			02/10/2016 13:37	Rochelle Y Jackson	1770231
	02/10/2016			02/10/2016 13:53	Rochelle Y Jackson	1770232
SM 2320 B-97	02/10/2016			02/15/2016	Dale L. Simmons	1770229, 1770230
	02/10/2016			02/21/2016	Dale L. Simmons	1770231, 1770232
SM 2540 C-97	02/10/2016			02/12/2016	Yijie Li	1770229, 1770230, 1770231, 1770232
SM 2540 D-97	02/10/2016			02/12/2016	Yijie Li	1770229, 1770230, 1770231, 1770232
SM 4500 F-C-97	02/10/2016			02/15/2016	Dale L. Simmons	1770229, 1770230, 1770231, 1770232
SM 5310 B-00	02/10/2016			02/16/2016	Sofia Elnemr	1770233, 1770234, 1770235, 1770236