

Chemical Analysis Report

NW-DIST-2016-07-06-01

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

Event Description: **WBID 567 646 557 371 570**

Request ID: **RQ-2016-07-04-36**

Customer: **NW-DIST**

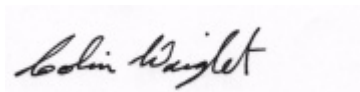
Project ID: **SMP**

Send Reports to:
FL Dept. of Environmental Protection
160 W Government st
Suite 208A
Pensacola, FL 32502-5794
Attn: Michael King

For additional information please contact
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Certified by: Colin Wright, Environmental Administrator

Date Certified: 27-JUL-2016 10:00

A handwritten signature in black ink, appearing to read "Colin Wright", is written 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: Seven Runs 7.5 MI N Bruce Hwy 81

Collection Date/Time: 07/05/2016 12:25

Field ID: G3NW0116

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1813383	EPA 180.1 Rev. 2.0	Turbidity	2.0	A	NTU	P307438	
	EPA 300.0 Rev. 2.1	Chloride	1.8		mg Cl/L	P308025	
		Sulfate	2.3		mg SO4/L	P308031	
	SM 2120 B	Color (true)	45		PCU	P307401	
	SM 2320 B-97	Total Alkalinity	0.86	I	mg CaCO3/L	P307628	
	SM 2540 C-97	TDS	15	U	mg/L	P308084	
	SM 2540 D-97	TSS	4	I	mg/L	P308072	
	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P307632	
1813389	EPA 350.1 Rev. 2.0	Ammonia-N	0.007		mg N/L	P307636	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.24		mg N/L	P307774	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.095		mg N/L	P307760	
	EPA 365.1 Rev. 2.0	Total-P	0.008		mg P/L	P307538	
	SM 5310 B-00	Organic Carbon	2.8		mg C/L	P307768	
1813395	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P307396	

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: Seven Runs

Collection Date/Time: 07/05/2016 12:45

Field ID: G3NW0115

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1813384	EPA 180.1 Rev. 2.0	Turbidity	4.7		NTU	P307438	
	EPA 300.0 Rev. 2.1	Chloride	1.9		mg Cl/L	P308025	
		Sulfate	2.3		mg SO4/L	P308031	
	SM 2120 B	Color (true)	50	A	PCU	P307401	
	SM 2320 B-97	Total Alkalinity	1.8	I	mg CaCO3/L	P307628	
	SM 2540 C-97	TDS	15	U	mg/L	P308084	
	SM 2540 D-97	TSS	8	I	mg/L	P308072	
	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P307632	
1813390	EPA 350.1 Rev. 2.0	Ammonia-N	0.014		mg N/L	P307636	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.25		mg N/L	P307774	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.086		mg N/L	P307760	
	EPA 365.1 Rev. 2.0	Total-P	0.014		mg P/L	P307538	
	SM 5310 B-00	Organic Carbon	3.0		mg C/L	P307768	
1813396	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P307396	

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: Lafayette Creek

Collection Date/Time: 07/05/2016 13:40

Field ID: G3NW0118

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1813385	EPA 180.1 Rev. 2.0	Turbidity	2.4		NTU	P307438	
	EPA 300.0 Rev. 2.1	Chloride	3.1		mg Cl/L	P308025	
		Sulfate	2.5		mg SO4/L	P308031	

Field ID: G3NW0118

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1813385	SM 2120 B	Color (true)	44		PCU	P307401	
	SM 2320 B-97	Total Alkalinity	2.2	I	mg CaCO3/L	P307628	
	SM 2540 C-97	TDS	23	I	mg/L	P308084	
	SM 2540 D-97	TSS	4	I	mg/L	P308072	
	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P307632	
1813391	EPA 350.1 Rev. 2.0	Ammonia-N	0.009		mg N/L	P307636	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.20	I	mg N/L	P308567	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.18		mg N/L	P307760	
	EPA 365.1 Rev. 2.0	Total-P	0.009		mg P/L	P307538	
	SM 5310 B-00	Organic Carbon	3.1		mg C/L	P307768	
1813397	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P307396	

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: Fourmile Creek SR-20

Collection Date/Time: 07/05/2016 13:55

Field ID: G3NW0112

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1813386	EPA 180.1 Rev. 2.0	Turbidity	1.2		NTU	P307438	
	EPA 300.0 Rev. 2.1	Chloride	2.2		mg Cl/L	P308025	
		Sulfate	1.9		mg SO4/L	P308031	
	SM 2120 B	Color (true)	58		PCU	P307401	
	SM 2320 B-97	Total Alkalinity	0.65	U	mg CaCO3/L	P307628	
	SM 2540 C-97	TDS	16	I	mg/L	P308084	
	SM 2540 D-97	TSS	3	I	mg/L	P308072	
	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P307632	
	EPA 350.1 Rev. 2.0	Ammonia-N	0.005		mg N/L	P307636	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.17	I	mg N/L	P307545	
1813392	EPA 353.2 Rev. 2.0	NO2NO3-N	0.062		mg N/L	P307760	
	EPA 365.1 Rev. 2.0	Total-P	0.008		mg P/L	P307556	
	SM 5310 B-00	Organic Carbon	3.9		mg C/L	P307768	
	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P307396	

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: Magnolia Creek Owls Head Rd.

Collection Date/Time: 07/05/2016 14:30

Field ID: G3NW0099

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1813387	EPA 180.1 Rev. 2.0	Turbidity	1.8		NTU	P307438	
	EPA 300.0 Rev. 2.1	Chloride	1.8		mg Cl/L	P308025	
		Sulfate	2.0		mg SO4/L	P308031	
	SM 2120 B	Color (true)	53		PCU	P307401	
	SM 2320 B-97	Total Alkalinity	0.92	I	mg CaCO3/L	P307628	
	SM 2540 C-97	TDS	15	U	mg/L	P308084	
	SM 2540 D-97	TSS	4	I	mg/L	P308072	

Field ID: G3NW0099

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1813387	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P307632	
1813393	EPA 350.1 Rev. 2.0	Ammonia-N	0.005	I	mg N/L	P307636	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.15	I	mg N/L	P307545	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.066		mg N/L	P307760	
	EPA 365.1 Rev. 2.0	Total-P	0.007		mg P/L	P307556	
	SM 5310 B-00	Organic Carbon	4.0		mg C/L	P307768	
1813399	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P307396	

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: Magnolia Creek American Farms

Collection Date/Time: 07/05/2016 14:50

Field ID: G3NW0098

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1813388	EPA 180.1 Rev. 2.0	Turbidity	1.1		NTU	P307438	
	EPA 300.0 Rev. 2.1	Chloride	1.6		mg Cl/L	P308025	
		Sulfate	2.9		mg SO4/L	P308031	
	SM 2120 B	Color (true)	14		PCU	P307401	
	SM 2320 B-97	Total Alkalinity	0.91	I	mg CaCO3/L	P307628	
	SM 2540 C-97	TDS	15	U	mg/L	P308084	
	SM 2540 D-97	TSS	4	I	mg/L	P308072	
	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P307632	
1813394	EPA 350.1 Rev. 2.0	Ammonia-N	0.002	I	mg N/L	P307636	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.080	U	mg N/L	P307545	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.13		mg N/L	P307760	
	EPA 365.1 Rev. 2.0	Total-P	0.006		mg P/L	P307556	
	SM 5310 B-00	Organic Carbon	1.4		mg C/L	P307768	
1813400	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P307396	

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: P307438

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 300.0 Rev. 2.1

Batch ID: P308025

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Quality Assurance Report Method Blank Results

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P308031

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P307636

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P307545

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P307774

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P308567

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P307760

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P307538

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P307556

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P307396

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: P307401

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2320 B-97
Batch ID: P307628

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

Reference Method: SM 2540 C-97
Batch ID: P308084

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P308072

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500 F-C-97
Batch ID: P307632

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-00
Batch ID: P307768

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: P308025

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Chloride	99.1		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P308031

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P307636

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: P307636

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P307545

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: P307774

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P308567

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P307760

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P307538

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: P307556

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P307396

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

Reference Method: SM 2320 B-97
Batch ID: P307628

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

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: SM 4500 F-C-97
Batch ID: P307632

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

Reference Method: SM 5310 B-00
Batch ID: P307768

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	97.7		P	85 - 115

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P308025

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1812263	Chloride	99.2		P	90 - 110
1812688	Chloride	99.2		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P308031

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1812263	Sulfate	100		P	90 - 110
1812688	Sulfate	99.0		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P307636

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1813392	Ammonia-N	96.5	98.2	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P307545

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1813392	Kjeldahl Nitrogen	97.8	101	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P307774

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1813373	Kjeldahl Nitrogen	91.6	92.2	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P308567

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1815275	Kjeldahl Nitrogen	95.3	97.0	P/P	90 - 110

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 353.2 Rev. 2.0
 Batch ID: P307760

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1813389	NO2NO3-N	101	102	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
 Batch ID: P307538

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1813374	Total-P	102	100	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
 Batch ID: P307556

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1813393	Total-P	98.4	97.0	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
 Batch ID: P307396

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1813398	O-Phosphate-P	103	103	P/P	90 - 110

Reference Method: SM 4500 F-C-97
 Batch ID: P307632

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1814122	Fluoride	97.3	97.3	P/P	91 - 105

Reference Method: SM 5310 B-00
 Batch ID: P307768

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1812895	Organic Carbon	96.7	97.8	P/P	85 - 115

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
 Batch ID: P307438

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1813383	Turbidity	1.01	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
 Batch ID: P308025

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1812688	Chloride	0.287	Sample	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P308031

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1812688	Sulfate	1.61	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P307636

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1813392	Ammonia-N	1.62	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P307545

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1813392	Kjeldahl Nitrogen	2.45	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P307774

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1813373	Kjeldahl Nitrogen	0.491	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P308567

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1815275	Kjeldahl Nitrogen	1.05	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P307760

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1813389	NO2NO3-N	1.01	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P307538

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1813374	Total-P	1.21	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P307556

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1813393	Total-P	1.33	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P307396

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1813398	O-Phosphate-P	0.389	Spike	P	0 - 20

Reference Method: SM 2120 B
Batch ID: P307401

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1813384	Color (true)	1.63	Sample	P	0 - 20

Reference Method: SM 2320 B-97
Batch ID: P307628

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1814122	Total Alkalinity	0.0450	Sample	P	0 - 4.8

Reference Method: SM 2540 C-97
Batch ID: P308084

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1813364	TDS	4.15	Sample	P	0 - 10

Reference Method: SM 4500 F-C-97
Batch ID: P307632

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1814122	Fluoride	0.0	Spike	P	0 - 3.0

Reference Method: SM 5310 B-00
Batch ID: P307768

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1812895	Organic Carbon	0.803	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: A70414
Included Lab Sample IDs: 1813395, 1813396, 1813397, 1813398, 1813399, 1813400

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	100	101	P/P	90 - 110
O-Phosphate-P	99.7	99.5	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: SM 2120 B

Run ID: A70415

Included Lab Sample IDs: 1813383, 1813384, 1813385, 1813386, 1813387, 1813388

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	95.7	95.2	P/P	90 - 115

Reference Method: EPA 180.1 Rev. 2.0

Run ID: A70428

Included Lab Sample IDs: 1813383, 1813384, 1813385, 1813386, 1813387, 1813388

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

Reference Method: SM 2320 B-97

Run ID: A70476

Included Lab Sample IDs: 1813383, 1813384, 1813385, 1813386, 1813387, 1813388

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	101	103	P/P	90 - 110

Reference Method: SM 4500 F-C-97

Run ID: A70476

Included Lab Sample IDs: 1813383, 1813384, 1813385, 1813386, 1813387, 1813388

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

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A70478

Included Lab Sample IDs: 1813389, 1813390, 1813391, 1813392, 1813393, 1813394

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

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A70492

Included Lab Sample IDs: 1813392, 1813393, 1813394

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	103	99.2	P/P	90 - 110
Kjeldahl Nitrogen	97.0	99.7	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A70498

Included Lab Sample IDs: 1813389, 1813390, 1813391, 1813392, 1813393, 1813394

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	100	98.5	P/P	90 - 110
Total-P	101	99.0	P/P	90 - 110
Total-P	98.5	101	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A70499

Included Lab Sample IDs: 1813389, 1813390, 1813391, 1813392, 1813393, 1813394

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO2NO3-N	99.5	102	P/P	90 - 110

Reference Method: SM 5310 B-00

Run ID: A70509

Included Lab Sample IDs: 1813389, 1813390, 1813391, 1813392, 1813393, 1813394

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

Reference Method: EPA 300.0 Rev. 2.1

Run ID: A70540

Included Lab Sample IDs: 1813383, 1813384, 1813385, 1813386, 1813387, 1813388

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	99.1	98.3	P/P	90 - 110
Sulfate	99.0	95.1	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A70552

Included Lab Sample IDs: 1813389, 1813390

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	105	102	P/P	90 - 110
Kjeldahl Nitrogen	106	105	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A70755

Included Lab Sample IDs: 1813391

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

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

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

Where they are different, both control limits are provided.

Quality Assurance Report Summary

Ref. Method	Analyte	LCS % Recovery	MS % Recovery	LCS	Precision SMP	MS
EPA 180.1 Rev. 2.0	Turbidity				1.01	
EPA 300.0 Rev. 2.1	Chloride	99.1	99.2 99.2		0.287	
	Sulfate	99.0	99.0 100		1.61	
EPA 350.1 Rev. 2.0	Ammonia-N	97.7	96.5 98.2			1.62
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	101	97.8 101			2.45
	Kjeldahl Nitrogen	98.6	91.6 92.2			0.491
	Kjeldahl Nitrogen	104	95.3 97.0			1.05
EPA 353.2 Rev. 2.0	NO2NO3-N	102	101 102			1.01
EPA 365.1 Rev. 2.0	Total-P	101	102 100			1.21

Quality Assurance Report Summary

Ref. Method	Analyte	LCS % Recovery	MS % Recovery		Precision	
					LCS	MS
EPA 365.1 Rev. 2.0	Total-P	102	98.4	97.0		1.33
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	102	103	103		0.389
SM 2120 B	Color (true)				1.63	
SM 2320 B-97	Total Alkalinity	103			0.0450	
SM 2540 C-97	TDS				4.15	
SM 4500 F-C-97	Fluoride	98.6	97.3	97.3		0.0
SM 5310 B-00	Organic Carbon	97.7	96.7	97.8		0.803

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	1813383, 1813384, 1813385, 1813386, 1813387, 1813388
EPA 300.0 Rev. 2.1 / E31780	Chloride in aqueous matrices	1813383, 1813384, 1813385, 1813386, 1813387, 1813388
EPA 300.0 Rev. 2.1 / E31780	Sulfate in aqueous matrices	1813383, 1813384, 1813385, 1813386, 1813387, 1813388
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	1813389, 1813390, 1813391, 1813392, 1813393, 1813394
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	1813389, 1813390, 1813391, 1813392, 1813393, 1813394
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	1813389, 1813390, 1813391, 1813392, 1813393, 1813394
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	1813389, 1813390, 1813391, 1813392, 1813393, 1813394
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	1813395, 1813396, 1813397, 1813398, 1813399, 1813400
SM 2120 B / E31780	True Color measured at 450 nm	1813383, 1813384, 1813385, 1813386, 1813387, 1813388
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO3/L	1813383, 1813384, 1813385, 1813386, 1813387, 1813388
SM 2540 C-97 / E31780	Total Dissolved Solids in aqueous matrices	1813383, 1813384, 1813385, 1813386, 1813387, 1813388
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices	1813383, 1813384, 1813385, 1813386, 1813387, 1813388
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	1813383, 1813384, 1813385, 1813386, 1813387, 1813388
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	1813389, 1813390, 1813391, 1813392, 1813393, 1813394

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	07/06/2016			07/06/2016 16:07	Sima Feizi	1813383, 1813384, 1813385, 1813386, 1813387, 1813388
EPA 300.0 Rev. 2.1	07/06/2016			07/15/2016	Ping Hua	1813383, 1813384, 1813385, 1813386, 1813387, 1813388
EPA 350.1 Rev. 2.0	07/06/2016			07/08/2016	Diana M. Turner	1813389, 1813390, 1813391, 1813392, 1813393, 1813394
EPA 351.2 Rev. 2.0	07/06/2016	07/08/2016	Martin Acosta	07/11/2016	Christopher Armour	1813392, 1813393, 1813394
	07/06/2016	07/13/2016	Sofia Elnemr	07/14/2016	Christopher Armour	1813389, 1813390
	07/06/2016	07/25/2016	Martin Acosta	07/26/2016	Christopher Armour	1813391
EPA 353.2 Rev. 2.0	07/06/2016			07/12/2016	Beverly Y. Sanders	1813389, 1813390, 1813391, 1813392, 1813393, 1813394
EPA 365.1 Rev. 2.0	07/06/2016	07/08/2016	Vijayalakshmi Reddy	07/12/2016	Lipi Saha	1813389, 1813390, 1813391, 1813392, 1813393, 1813394
EPA 365.1 Rev. 2.0 dissolved	07/06/2016			07/06/2016 14:17	Julia Storbeck	1813398
	07/06/2016			07/06/2016 15:05	Julia Storbeck	1813395
	07/06/2016			07/06/2016 15:06	Julia Storbeck	1813396
	07/06/2016			07/06/2016 15:07	Julia Storbeck	1813397
	07/06/2016			07/06/2016 15:08	Julia Storbeck	1813399
	07/06/2016			07/06/2016 15:09	Julia Storbeck	1813400
SM 2120 B	07/06/2016			07/06/2016 15:05	Rochelle Y Jackson	1813383
	07/06/2016			07/06/2016 15:06	Rochelle Y Jackson	1813384
	07/06/2016			07/06/2016 15:07	Rochelle Y Jackson	1813385
	07/06/2016			07/06/2016 15:08	Rochelle Y Jackson	1813386
	07/06/2016			07/06/2016 15:09	Rochelle Y Jackson	1813387, 1813388
SM 2320 B-97	07/06/2016			07/09/2016	Dale L. Simmons	1813383, 1813384, 1813385, 1813386, 1813387, 1813388
SM 2540 C-97	07/06/2016			07/08/2016	Yijie Li	1813383, 1813384, 1813385, 1813386, 1813387, 1813388
SM 2540 D-97	07/06/2016			07/08/2016	Yijie Li	1813383, 1813384, 1813385, 1813386, 1813387, 1813388
SM 4500 F-C-97	07/06/2016			07/09/2016	Dale L. Simmons	1813383, 1813384, 1813385, 1813386, 1813387, 1813388
SM 5310 B-00	07/06/2016			07/11/2016	Diana M. Turner	1813389, 1813390, 1813391, 1813392, 1813393
	07/06/2016			07/12/2016	Diana M. Turner	1813394