

Chemical Analysis Report

NW-DIST-2016-05-10-01

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-2016-05-09-21**
Customer: **NW-DIST**
Project ID: **SMP**

Send Reports to:
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160 W Government St
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Certified by: Timothy Fitzpatrick, Program Administrator

Date Certified: 03-JUN-2016 09:37

A handwritten signature in black ink, appearing to read "Timothy Fitzpatrick", with a stylized flourish at the end.

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: 05/09/2016 14:45

Field ID: G4NW0342

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1796915	EPA 180.1 Rev. 2.0	Turbidity	1.0		NTU	P303968	
	EPA 300.0 Rev. 2.1	Chloride	3.0		mg Cl/L	P304373	
		Sulfate	0.47	I	mg SO4/L	P304376	
	SM 2120 B	Color (true)	12		PCU	P304013	
	SM 2320 B-97	Total Alkalinity	0.65	U	mg CaCO3/L	P304482	
	SM 2540 C-97	TDS	22	I	mg/L	P304438	
	SM 2540 D-97	TSS	2	I	mg/L	P304394	
	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P304484	
1796922	EPA 350.1 Rev. 2.0	Ammonia-N	0.003	I	mg N/L	P304308	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.13	I	mg N/L	P304684	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.12		mg N/L	P304270	
	EPA 365.1 Rev. 2.0	Total-P	0.004	I	mg P/L	P304706	
	SM 5310 B-00	Organic Carbon	1.0		mg C/L	P304850	
1796929	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P303961	

Ref. Method and Comment:

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

EPA 351.2 Rev. 2.0: Matrix spike recovery data is unavailable due to high analyte concentration in the QC sample.

Sample Location: CATFISH BRANCH @ EGLIN 736

Collection Date/Time: 05/09/2016 15:30

Field ID: G4NW0104

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1796916	EPA 180.1 Rev. 2.0	Turbidity	0.45		NTU	P303968	
	EPA 300.0 Rev. 2.1	Chloride	3.7		mg Cl/L	P304373	
		Sulfate	1.3		mg SO4/L	P304376	
	SM 2120 B	Color (true)	19		PCU	P304013	
	SM 2320 B-97	Total Alkalinity	0.65	U	mg CaCO3/L	P304482	
	SM 2540 C-97	TDS	18	I	mg/L	P304438	
	SM 2540 D-97	TSS	3	I	mg/L	P304394	
	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P304484	
1796923	EPA 350.1 Rev. 2.0	Ammonia-N	0.002	U	mg N/L	P304308	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.089	I	mg N/L	P304684	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.10		mg N/L	P304270	
	EPA 365.1 Rev. 2.0	Total-P	0.003	I	mg P/L	P304706	
	SM 5310 B-00	Organic Carbon	1.4		mg C/L	P304850	
1796930	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P303961	

Ref. Method and Comment:

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

EPA 351.2 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: 05/09/2016 16:20

Field ID: G4NW0198

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1796917	EPA 180.1 Rev. 2.0	Turbidity	4.7	A	NTU	P303968	

Field ID: G4NW0198

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1796917	EPA 300.0 Rev. 2.1	Chloride	16		mg Cl/L	P304373	
		Sulfate	5.3		mg SO4/L	P304376	
	SM 2120 B	Color (true)	140		PCU	P304013	
	SM 2320 B-97	Total Alkalinity	0.65	U	mg CaCO3/L	P304482	
	SM 2540 C-97	TDS	54		mg/L	P304439	
	SM 2540 D-97	TSS	3	I	mg/L	P304395	
	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P304484	
1796924	EPA 350.1 Rev. 2.0	Ammonia-N	0.038		mg N/L	P304308	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.52		mg N/L	P304684	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.028		mg N/L	P304270	
	EPA 365.1 Rev. 2.0	Total-P	0.012		mg P/L	P304706	
	SM 5310 B-00	Organic Carbon	9.5		mg C/L	P304850	
1796931	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P303961	

Ref. Method and Comment:

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

EPA 351.2 Rev. 2.0: Matrix spike recovery data is unavailable due to high analyte concentration in the QC sample.

Sample Location: TITI CREEK @ EGLIN 214

Collection Date/Time: 05/09/2016 11:30

Field ID: G4NW0369

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1796918	EPA 180.1 Rev. 2.0	Turbidity	2.0		NTU	P303968	
	EPA 300.0 Rev. 2.1	Chloride	1.8		mg Cl/L	P304373	
		Sulfate	0.72		mg SO4/L	P304376	
	SM 2120 B	Color (true)	62		PCU	P304013	
	SM 2320 B-97	Total Alkalinity	0.65	U	mg CaCO3/L	P304482	
	SM 2540 C-97	TDS	15	U	mg/L	P304439	
	SM 2540 D-97	TSS	3	I	mg/L	P304395	
1796925	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P304484	
	EPA 350.1 Rev. 2.0	Ammonia-N	0.005		mg N/L	P304308	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.24		mg N/L	P304684	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.020		mg N/L	P304270	
	EPA 365.1 Rev. 2.0	Total-P	0.006		mg P/L	P304706	
1796932	SM 5310 B-00	Organic Carbon	3.0		mg C/L	P304851	
	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P303961	

Ref. Method and Comment:

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

EPA 351.2 Rev. 2.0: Matrix spike recovery data is unavailable due to high analyte concentration in the QC sample.

Sample Location: TITI CREEK ABOVE SR 285

Collection Date/Time: 05/09/2016 12:05

Field ID: G4NW0365

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1796919	EPA 180.1 Rev. 2.0	Turbidity	2.1		NTU	P303968	
	EPA 300.0 Rev. 2.1	Chloride	1.8		mg Cl/L	P304373	
		Sulfate	0.78		mg SO4/L	P304376	

Field ID: G4NW0365

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1796919	SM 2120 B	Color (true)	46		PCU	P304013	
	SM 2320 B-97	Total Alkalinity	0.65	U	mg CaCO3/L	P304482	
	SM 2540 C-97	TDS	15	U	mg/L	P304439	
	SM 2540 D-97	TSS	2	I	mg/L	P304395	
	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P304484	
1796926	EPA 350.1 Rev. 2.0	Ammonia-N	0.003	I	mg N/L	P304308	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.24		mg N/L	P304684	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.059		mg N/L	P304270	
	EPA 365.1 Rev. 2.0	Total-P	0.005		mg P/L	P304706	
	SM 5310 B-00	Organic Carbon	2.3		mg C/L	P304851	
1796933	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P303961	

Ref. Method and Comment:

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

EPA 351.2 Rev. 2.0: Matrix spike recovery data is unavailable due to high analyte concentration in the QC sample.

Sample Location: TITI CR @ EGLIN 220

Collection Date/Time: 05/09/2016 12:50

Field ID: G4NW0368

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1796920	EPA 180.1 Rev. 2.0	Turbidity	2.1		NTU	P303968	
	EPA 300.0 Rev. 2.1	Chloride	2.0		mg Cl/L	P304373	
		Sulfate	0.71		mg SO4/L	P304376	
	SM 2120 B	Color (true)	33		PCU	P304013	
	SM 2320 B-97	Total Alkalinity	0.65	U	mg CaCO3/L	P304482	
	SM 2540 C-97	TDS	18	I	mg/L	P304439	
	SM 2540 D-97	TSS	4	I	mg/L	P304395	
	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P304484	
1796927	EPA 350.1 Rev. 2.0	Ammonia-N	0.003	I	mg N/L	P304308	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.12	I	mg N/L	P304814	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.15		mg N/L	P304270	
	EPA 365.1 Rev. 2.0	Total-P	0.005		mg P/L	P304706	
	SM 5310 B-00	Organic Carbon	1.8		mg C/L	P304851	
1796934	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P303961	

Ref. Method and Comment:

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

EPA 351.2 Rev. 2.0: Matrix spike recovery data is unavailable due to high analyte concentration in the QC sample.

Sample Location: TITI CREEK ABV EGLIN RD 207

Collection Date/Time: 05/09/2016 13:05

Field ID: G4NW0364

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1796921	EPA 180.1 Rev. 2.0	Turbidity	3.2		NTU	P303968	
	EPA 300.0 Rev. 2.1	Chloride	2.1		mg Cl/L	P304373	
		Sulfate	0.73		mg SO4/L	P304376	
	SM 2120 B	Color (true)	33		PCU	P304013	
	SM 2320 B-97	Total Alkalinity	0.76	I	mg CaCO3/L	P304482	

Field ID: G4NW0364

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1796921	SM 2540 C-97	TDS	15	U	mg/L	P304439	
	SM 2540 D-97	TSS	3	I	mg/L	P304395	
	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P304484	
1796928	EPA 350.1 Rev. 2.0	Ammonia-N	0.003	I	mg N/L	P304308	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.092	I	mg N/L	P304814	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.20		mg N/L	P304446	
	EPA 365.1 Rev. 2.0	Total-P	0.006		mg P/L	P304706	
	SM 5310 B-00	Organic Carbon	1.8		mg C/L	P304851	
1796935	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P303961	

Ref. Method and Comment:

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

EPA 351.2 Rev. 2.0: Matrix spike recovery data is unavailable due to high analyte concentration in the QC sample.

Quality Assurance Report

Method Blank Results

Reference Method: EPA 180.1 Rev. 2.0

Batch ID: P303968

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 300.0 Rev. 2.1

Batch ID: P304373

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1

Batch ID: P304376

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 350.1 Rev. 2.0

Batch ID: P304308

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

Reference Method: EPA 351.2 Rev. 2.0

Batch ID: P304684

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

Reference Method: EPA 351.2 Rev. 2.0

Batch ID: P304814

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

Quality Assurance Report Method Blank Results

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P304270

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P304446

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P304706

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P303961

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

Reference Method: SM 2120 B
Batch ID: P304013

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2320 B-97
Batch ID: P304482

Component	Result	Code	Units
Total Alkalinity	0.65	U	mg CaCO3/L

Reference Method: SM 2540 C-97
Batch ID: P304438

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 C-97
Batch ID: P304439

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P304394

Component	Result	Code	Units
TSS	2	U	mg/L

Quality Assurance Report Method Blank Results

Reference Method: SM 2540 D-97
Batch ID: P304395

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500 F-C-97
Batch ID: P304484

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-00
Batch ID: P304850

Component	Result	Code	Units
Organic Carbon	0.50	U	mg C/L

Reference Method: SM 5310 B-00
Batch ID: P304851

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: P304373

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Chloride	98.4		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P304376

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Sulfate	96.5		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P304308

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Ammonia-N	99.6		P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P304684

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P304814

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P304814

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P304270

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P304446

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P304706

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P303961

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

Reference Method: SM 2320 B-97
Batch ID: P304482

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

Reference Method: SM 4500 F-C-97
Batch ID: P304484

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	98.8		P	92 - 103

Reference Method: SM 5310 B-00
Batch ID: P304850

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

Reference Method: SM 5310 B-00
Batch ID: P304851

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

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P304373

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1796827	Chloride	96.2		P	90 - 110
1797005	Chloride	97.7		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P304376

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1796827	Sulfate	91.4		P	90 - 110
1797005	Sulfate	96.2		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P304308

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1796926	Ammonia-N	99.5	101	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P304270

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1796683	NO2NO3-N	102	104	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P304446

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1796941	NO2NO3-N	98.5	99.0	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P304706

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1796792	Total-P	104	103	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P303961

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1796929	O-Phosphate-P	102	101	P/P	90 - 110

Reference Method: SM 4500 F-C-97
Batch ID: P304484

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1796790	Fluoride	99.8	99.0	P/P	91 - 105

Reference Method: SM 5310 B-00
Batch ID: P304850

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1794743	Organic Carbon	97.4	99.8	P/P	85 - 115

Quality Assurance Report Matrix Spike Accuracy

Reference Method: SM 5310 B-00
Batch ID: P304851

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1796925	Organic Carbon	99.2	101	P/P	85 - 115

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P303968

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1796917	Turbidity	1.06	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P304373

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1797005	Chloride	0.0197	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P304376

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1797005	Sulfate	2.99	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P304308

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1796926	Ammonia-N	1.37	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P304684

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1796828	Kjeldahl Nitrogen	2.27	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P304814

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1796939	Kjeldahl Nitrogen	0.150	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P304270

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1796683	NO2NO3-N	0.749	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P304446

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1796941	NO2NO3-N	0.310	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P304706

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1796792	Total-P	0.385	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P303961

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1796929	O-Phosphate-P	0.0986	Spike	P	0 - 20

Reference Method: SM 2120 B
Batch ID: P304013

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1796938	Color (true)	0.498	Sample	P	0 - 20

Reference Method: SM 2320 B-97
Batch ID: P304482

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1796790	Total Alkalinity	0.239	Sample	P	0 - 4.8

Reference Method: SM 2540 C-97
Batch ID: P304438

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1796744	TDS	1.73	Sample	P	0 - 10

Reference Method: SM 2540 C-97
Batch ID: P304439

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1796938	TDS	2.47	Sample	P	0 - 10

Quality Assurance Report Precision

Reference Method: SM 4500 F-C-97
Batch ID: P304484

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1796790	Fluoride	0.473	Spike	P	0 - 3.0

Reference Method: SM 5310 B-00
Batch ID: P304850

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1794743	Organic Carbon	1.33	Spike	P	0 - 20

Reference Method: SM 5310 B-00
Batch ID: P304851

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1796925	Organic Carbon	1.73	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: SM 2120 B
Run ID: A69384
Included Lab Sample IDs: 1796915, 1796916, 1796917, 1796918, 1796919, 1796920, 1796921

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	99.4	98.7	P/P	90 - 115

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Run ID: A69389
Included Lab Sample IDs: 1796929, 1796930, 1796931, 1796932, 1796933, 1796934, 1796935

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	100	100	P/P	90 - 110
O-Phosphate-P	101	99.6	P/P	90 - 110
O-Phosphate-P	99.6	101	P/P	90 - 110

Reference Method: EPA 180.1 Rev. 2.0
Run ID: A69393
Included Lab Sample IDs: 1796915, 1796916, 1796917, 1796918, 1796919, 1796920, 1796921

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Turbidity	99.0	99.5	P/P	95 - 105

Reference Method: EPA 300.0 Rev. 2.1
Run ID: A69423
Included Lab Sample IDs: 1796915, 1796916, 1796917, 1796918, 1796919, 1796920, 1796921

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
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Quality Assurance Report Calibration Verification

Reference Method: EPA 300.0 Rev. 2.1

Run ID: A69423

Included Lab Sample IDs: 1796915, 1796916, 1796917, 1796918, 1796919, 1796920, 1796921

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	99.4	99.6	P/P	90 - 110
Chloride	99.6	99.9	P/P	90 - 110
Sulfate	94.6	98.0	P/P	90 - 110
Sulfate	98.2	94.6	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A69466

Included Lab Sample IDs: 1796922, 1796923, 1796924, 1796925, 1796926, 1796927

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

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A69475

Included Lab Sample IDs: 1796922, 1796923, 1796924, 1796925, 1796926, 1796927, 1796928

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

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A69519

Included Lab Sample IDs: 1796928

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

Reference Method: SM 2320 B-97

Run ID: A69535

Included Lab Sample IDs: 1796915, 1796916, 1796917, 1796918, 1796919, 1796920, 1796921

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

Reference Method: SM 4500 F-C-97

Run ID: A69535

Included Lab Sample IDs: 1796915, 1796916, 1796917, 1796918, 1796919, 1796920, 1796921

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

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A69611

Included Lab Sample IDs: 1796922, 1796923, 1796924, 1796925, 1796926

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	91.0	95.3	P/P	90 - 110
Kjeldahl Nitrogen	96.6	91.0	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A69630

Included Lab Sample IDs: 1796922, 1796923, 1796924, 1796925, 1796926, 1796927, 1796928

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	99.2	99.2	P/P	90 - 110
Total-P	99.5	99.2	P/P	90 - 110

Reference Method: SM 5310 B-00

Run ID: A69642

Included Lab Sample IDs: 1796922, 1796923, 1796924, 1796925, 1796926, 1796927, 1796928

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

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A69702

Included Lab Sample IDs: 1796927, 1796928

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	94.6	93.0	P/P	90 - 110
Kjeldahl Nitrogen	94.6	94.6	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				1.06	
EPA 300.0 Rev. 2.1	Chloride	98.4	97.7 96.2		0.0197	
	Sulfate	96.5	96.2 91.4		2.99	
EPA 350.1 Rev. 2.0	Ammonia-N	99.6	99.5 101			1.37
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	98.1				2.27
	Kjeldahl Nitrogen	98.8				0.150
EPA 353.2 Rev. 2.0	NO2NO3-N	104	102 104			0.749
	NO2NO3-N	101	98.5 99.0			0.310
EPA 365.1 Rev. 2.0	Total-P	105	104 103			0.385
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	100	102 101			0.0986
SM 2120 B	Color (true)				0.498	
SM 2320 B-97	Total Alkalinity	101			0.239	
SM 2540 C-97	TDS				1.73	
	TDS				2.47	
SM 4500 F-C-97	Fluoride	98.8	99.8 99.0			0.473
SM 5310 B-00	Organic Carbon	100	97.4 99.8			1.33
	Organic Carbon	100	99.2 101			1.73

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
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Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	1796915, 1796916, 1796917, 1796918, 1796919, 1796920, 1796921
EPA 300.0 Rev. 2.1 / E31780	Chloride in aqueous matrices	1796915, 1796916, 1796917, 1796918, 1796919, 1796920, 1796921
EPA 300.0 Rev. 2.1 / E31780	Sulfate in aqueous matrices	1796915, 1796916, 1796917, 1796918, 1796919, 1796920, 1796921
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	1796922, 1796923, 1796924, 1796925, 1796926, 1796927, 1796928
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	1796922, 1796923, 1796924, 1796925, 1796926, 1796927, 1796928
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	1796922, 1796923, 1796924, 1796925, 1796926, 1796927, 1796928
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	1796922, 1796923, 1796924, 1796925, 1796926, 1796927, 1796928
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	1796929, 1796930, 1796931, 1796932, 1796933, 1796934, 1796935
SM 2120 B / E31780	True Color measured at 450 nm	1796915, 1796916, 1796917, 1796918, 1796919, 1796920, 1796921
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO ₃ /L	1796915, 1796916, 1796917, 1796918, 1796919, 1796920, 1796921
SM 2540 C-97 / E31780	Total Dissolved Solids in aqueous matrices	1796915, 1796916, 1796917, 1796918, 1796919, 1796920, 1796921
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices	1796915, 1796916, 1796917, 1796918, 1796919, 1796920, 1796921
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	1796915, 1796916, 1796917, 1796918, 1796919, 1796920, 1796921
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	1796922, 1796923, 1796924, 1796925, 1796926, 1796927, 1796928

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	05/10/2016			05/10/2016 15:26	Sima Feizi	1796915, 1796916, 1796917, 1796918, 1796919, 1796920, 1796921
EPA 300.0 Rev. 2.1	05/10/2016			05/14/2016	Elisa J Lutz	1796915, 1796916, 1796917, 1796918, 1796919, 1796920, 1796921
EPA 350.1 Rev. 2.0	05/10/2016			05/13/2016	Diana M. Turner	1796922, 1796923, 1796924, 1796925, 1796926, 1796927, 1796928
EPA 351.2 Rev. 2.0	05/10/2016	05/19/2016	Sofia Elnemr	05/20/2016	Christopher Armour	1796922, 1796923, 1796924, 1796925, 1796926
	05/10/2016	05/23/2016	Sofia Elnemr	05/25/2016	Christopher Armour	1796927, 1796928
EPA 353.2 Rev. 2.0	05/10/2016			05/13/2016	Peter D. Kaus	1796922, 1796923, 1796924, 1796925, 1796926, 1796927
	05/10/2016			05/17/2016	Peter D. Kaus	1796928
EPA 365.1 Rev. 2.0	05/10/2016	05/20/2016	Lipi Saha	05/23/2016	Lipi Saha	1796922, 1796923, 1796924, 1796925, 1796926, 1796927, 1796928
EPA 365.1 Rev. 2.0 dissolved	05/10/2016			05/10/2016 14:29	Julia Storbeck	1796929
	05/10/2016			05/10/2016 15:00	Julia Storbeck	1796930
	05/10/2016			05/10/2016 15:01	Julia Storbeck	1796931
	05/10/2016			05/10/2016 15:08	Julia Storbeck	1796932
	05/10/2016			05/10/2016 15:09	Julia Storbeck	1796933
	05/10/2016			05/10/2016 15:10	Julia Storbeck	1796934
	05/10/2016			05/10/2016 15:11	Julia Storbeck	1796935
SM 2120 B	05/10/2016			05/10/2016 14:12	Rochelle Y Jackson	1796915
	05/10/2016			05/10/2016 14:13	Rochelle Y Jackson	1796916
	05/10/2016			05/10/2016 14:14	Rochelle Y Jackson	1796917, 1796918
	05/10/2016			05/10/2016 14:15	Rochelle Y Jackson	1796919
	05/10/2016			05/10/2016 14:16	Rochelle Y Jackson	1796920
	05/10/2016			05/10/2016 14:17	Rochelle Y Jackson	1796921
SM 2320 B-97	05/10/2016			05/17/2016	Dale L. Simmons	1796915, 1796916, 1796917, 1796918, 1796919, 1796920, 1796921
SM 2540 C-97	05/10/2016			05/11/2016	Yijie Li	1796915, 1796916, 1796917, 1796918, 1796919, 1796920, 1796921
SM 2540 D-97	05/10/2016			05/11/2016	Yijie Li	1796915, 1796916, 1796917, 1796918, 1796919, 1796920, 1796921
SM 4500 F-C-97	05/10/2016			05/17/2016	Dale L. Simmons	1796915, 1796916, 1796917, 1796918, 1796919, 1796920, 1796921
SM 5310 B-00	05/10/2016			05/23/2016	Diana M. Turner	1796922, 1796923, 1796924, 1796925, 1796926
	05/10/2016			05/24/2016	Diana M. Turner	1796927, 1796928