

Chemical Analysis Report

NW-DIST-2016-04-20-01

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

Event Description: **WBID 28 27 275 336**

Request ID: **RQ-2016-04-18-53**

Customer: **NW-DIST**

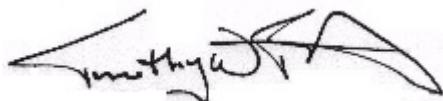
Project ID: **SMP**

Send Reports to:
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Suite 208A
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Certified by: Timothy Fitzpatrick, Program Administrator

Date Certified: 13-MAY-2016 15:57

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: Shoal River off Old Dorcas Rd Walton Co

Collection Date/Time: 04/19/2016 11:30

Field ID: G4NW0375

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1790846	EPA 180.1 Rev. 2.0	Turbidity	6.0	A	NTU	P302626	
	EPA 300.0 Rev. 2.1	Chloride	3.2		mg Cl/L	P303124	
		Sulfate	0.98		mg SO4/L	P303126	
	SM 2120 B	Color (true)	88		PCU	P302640	
	SM 2320 B-97	Total Alkalinity	2.0	I	mg CaCO3/L	P302875	
	SM 2540 C-97	TDS	28		mg/L	P303355	
	SM 2540 D-97	TSS	6	I	mg/L	P303215	
	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P302878	
1790854	EPA 350.1 Rev. 2.0	Ammonia-N	0.012		mg N/L	P303489	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.38		mg N/L	P303727	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.37		mg N/L	P303160	
	EPA 365.1 Rev. 2.0	Total-P	0.019		mg P/L	P303230	
	SM 5310 B-00	Organic Carbon	5.3		mg C/L	P303344	
1790862	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P302618	

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: Shoal River Hinote rd

Collection Date/Time: 04/19/2016 12:00

Field ID: G4NW0376

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1790847	EPA 180.1 Rev. 2.0	Turbidity	6.8		NTU	P302626	
	EPA 300.0 Rev. 2.1	Chloride	3.2		mg Cl/L	P303124	
		Sulfate	0.95		mg SO4/L	P303126	
	SM 2120 B	Color (true)	86		PCU	P302639	
	SM 2320 B-97	Total Alkalinity	2.1	I	mg CaCO3/L	P302875	
	SM 2540 C-97	TDS	27		mg/L	P303355	
	SM 2540 D-97	TSS	9	I	mg/L	P303215	
	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P302878	
1790855	EPA 350.1 Rev. 2.0	Ammonia-N	0.009		mg N/L	P303489	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.47		mg N/L	P303727	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.38		mg N/L	P303160	
	EPA 365.1 Rev. 2.0	Total-P	0.020		mg P/L	P303230	
	SM 5310 B-00	Organic Carbon	5.5		mg C/L	P303344	
1790863	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	I	mg P/L	P302618	

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: Shoal River CR-1087

Collection Date/Time: 04/19/2016 12:25

Field ID: G4NW0377

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1790848	EPA 180.1 Rev. 2.0	Turbidity	6.2		NTU	P302626	
	EPA 300.0 Rev. 2.1	Chloride	3.3		mg Cl/L	P303124	
		Sulfate	0.86		mg SO4/L	P303126	

Field ID: G4NW0377

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1790848	SM 2120 B	Color (true)	96		PCU	P302639	
	SM 2320 B-97	Total Alkalinity	1.8	I	mg CaCO3/L	P302875	
	SM 2540 C-97	TDS	33		mg/L	P303355	
	SM 2540 D-97	TSS	11		mg/L	P303215	
	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P302878	
1790856	EPA 350.1 Rev. 2.0	Ammonia-N	0.013		mg N/L	P303489	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.38	V	mg N/L	P303731	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.35		mg N/L	P303160	
	EPA 365.1 Rev. 2.0	Total-P	0.020		mg P/L	P303230	
	SM 5310 B-00	Organic Carbon	6.1		mg C/L	P303346	
1790864	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.005	I	mg P/L	P302618	

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: Kjeldahl Nitrogen detected in method blank at 0.082 I mg/L.

Sample Location: Big Swamp Cr FLA 187

Collection Date/Time: 04/19/2016 13:00

Field ID: G4NW0378

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1790849	EPA 180.1 Rev. 2.0	Turbidity	5.2		NTU	P302626	
	EPA 300.0 Rev. 2.1	Chloride	4.3		mg Cl/L	P303124	
		Sulfate	0.65		mg SO4/L	P303126	
	SM 2120 B	Color (true)	200		PCU	P302639	
	SM 2320 B-97	Total Alkalinity	0.65	U	mg CaCO3/L	P302875	
	SM 2540 C-97	TDS	40		mg/L	P303355	
	SM 2540 D-97	TSS	6	I	mg/L	P303215	
	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P302878	
1790857	EPA 350.1 Rev. 2.0	Ammonia-N	0.020		mg N/L	P303490	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.56	V	mg N/L	P303731	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.45		mg N/L	P303160	
	EPA 365.1 Rev. 2.0	Total-P	0.026		mg P/L	P303230	
	SM 5310 B-00	Organic Carbon	12		mg C/L	P303346	
1790865	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.01	I	mg P/L	P302618	

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: Kjeldahl Nitrogen detected in method blank at 0.082 I mg/L.

Sample Location: FIELDBLANK

Collection Date/Time: 04/19/2016 13:15

Field ID: FIELDBLANK

Matrix: W-FIELD-BK

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1790850	EPA 180.1 Rev. 2.0	Turbidity	0.10	U	NTU	P302626	
	EPA 300.0 Rev. 2.1	Chloride	0.20	U	mg Cl/L	P303124	
		Sulfate	0.20	U	mg SO4/L	P303126	
	SM 2120 B	Color (true)	2.5	U	PCU	P302639	
	SM 2320 B-97	Total Alkalinity	0.65	U	mg CaCO3/L	P302875	

Field ID: FIELDBLANK

Matrix: W-FIELD-BK

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1790850	SM 2540 C-97	TDS	15	U	mg/L	P303352	
	SM 2540 D-97	TSS	2	U	mg/L	P303212	
	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P302878	
1790858	EPA 350.1 Rev. 2.0	Ammonia-N	0.002	U	mg N/L	P303490	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.080	U	mg N/L	P303731	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P303160	
	EPA 365.1 Rev. 2.0	Total-P	0.002	I	mg P/L	P303230	
	SM 5310 B-00	Organic Carbon	0.50	U	mg C/L	P303346	
1790866	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P302618	

Ref. Method and Comment:

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

EPA 365.1 Rev. 2.0: Total-P: The result was confirmed on 05/05/2016.

Sample Location: Gum Creek Hwy 83

Collection Date/Time: 04/19/2016 13:30

Field ID: G4NW0322

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1790851	EPA 180.1 Rev. 2.0	Turbidity	3.3		NTU	P302626	
	EPA 300.0 Rev. 2.1	Chloride	2.9		mg Cl/L	P303124	
		Sulfate	0.30	I	mg SO4/L	P303126	
	SM 2120 B	Color (true)	230		PCU	P302639	
	SM 2320 B-97	Total Alkalinity	0.65	U	mg CaCO3/L	P302875	
	SM 2540 C-97	TDS	36		mg/L	P303355	
	SM 2540 D-97	TSS	2	I	mg/L	P303215	
	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P302878	
1790859	EPA 350.1 Rev. 2.0	Ammonia-N	0.057		mg N/L	P303490	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.82		mg N/L	P303731	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.098		mg N/L	P303161	
	EPA 365.1 Rev. 2.0	Total-P	0.027		mg P/L	P303231	
	SM 5310 B-00	Organic Carbon	18		mg C/L	P303346	
1790867	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.009	I	mg P/L	P302618	

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: Gum Creek abv Bartlett Rd

Collection Date/Time: 04/19/2016 13:50

Field ID: G4NW0323

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1790852	EPA 180.1 Rev. 2.0	Turbidity	2.4		NTU	P302626	
	EPA 300.0 Rev. 2.1	Chloride	2.8		mg Cl/L	P303124	
		Sulfate	0.24	I	mg SO4/L	P303126	
	SM 2120 B	Color (true)	220		PCU	P302639	
	SM 2320 B-97	Total Alkalinity	0.65	U	mg CaCO3/L	P302875	
	SM 2540 C-97	TDS	40		mg/L	P303355	
	SM 2540 D-97	TSS	2	U	mg/L	P303215	
	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P302878	

Field ID: G4NW0323

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1790860	EPA 350.1 Rev. 2.0	Ammonia-N	0.055		mg N/L	P303490	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.81	V	mg N/L	P303731	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.087		mg N/L	P303161	
	EPA 365.1 Rev. 2.0	Total-P	0.028		mg P/L	P303231	
	SM 5310 B-00	Organic Carbon	18		mg C/L	P303346	
1790868	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.010		mg P/L	P302618	

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: Kjeldahl Nitrogen detected in method blank at 0.082 I mg/L.

Sample Location: Trammel Creek above CRX traintracks

Collection Date/Time: 04/19/2016 16:00

Field ID: G4NW0383

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1790853	EPA 180.1 Rev. 2.0	Turbidity	2.4		NTU	P302626	
	EPA 300.0 Rev. 2.1	Chloride	3.8		mg Cl/L	P303124	
		Sulfate	4.2		mg SO4/L	P303126	
		SM 2120 B	Color (true)	56	A	PCU	P302639
	SM 2320 B-97	Total Alkalinity	9.4		mg CaCO3/L	P302875	
	SM 2540 C-97	TDS	24	I	mg/L	P303355	
	SM 2540 D-97	TSS	2	I	mg/L	P303215	
	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P302878	
1790861	EPA 350.1 Rev. 2.0	Ammonia-N	0.009		mg N/L	P303490	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.24	V	mg N/L	P303731	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.14		mg N/L	P303161	
	EPA 365.1 Rev. 2.0	Total-P	0.020		mg P/L	P303231	
	SM 5310 B-00	Organic Carbon	4.0		mg C/L	P303346	
1790869	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.009	I	mg P/L	P302618	

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: Kjeldahl Nitrogen detected in method blank at 0.082 I mg/L.

Quality Assurance Report Method Blank Results

Reference Method: EPA 180.1 Rev. 2.0

Batch ID: P302626

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 300.0 Rev. 2.1

Batch ID: P303124

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: P303126

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P303489

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P303490

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P303727

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P303731

Component	Result	Code	Units
Kjeldahl Nitrogen	0.082	I	mg N/L

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P303160

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P303161

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P303230

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P303231

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: P302618

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

Reference Method: SM 2120 B
Batch ID: P302639

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2120 B
Batch ID: P302640

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2320 B-97
Batch ID: P302875

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

Reference Method: SM 2540 C-97
Batch ID: P303352

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 C-97
Batch ID: P303355

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P303212

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P303215

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500 F-C-97
Batch ID: P302878

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Quality Assurance Report Method Blank Results

Reference Method: SM 5310 B-00
Batch ID: P303344

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

Reference Method: SM 5310 B-00
Batch ID: P303346

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: P303124

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Chloride	97.9		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P303126

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Sulfate	96.2		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P303489

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P303490

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P303727

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P303731

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P303160

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: P303160

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P303161

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: P303230

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P303231

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total-P	96.7		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P302618

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

Reference Method: SM 2320 B-97
Batch ID: P302875

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	98.8		P	95 - 105

Reference Method: SM 4500 F-C-97
Batch ID: P302878

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	94.9		P	92 - 103

Reference Method: SM 5310 B-00
Batch ID: P303344

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	99.4		P	85 - 115

Reference Method: SM 5310 B-00
Batch ID: P303346

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

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P303124

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1790795	Chloride	96.7		P	90 - 110
1790897	Chloride	96.8		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P303126

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1790795	Sulfate	95.5		P	90 - 110
1790897	Sulfate	92.5		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P303489

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1790801	Ammonia-N	102	104	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P303490

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1790903	Ammonia-N	101	102	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P303727

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1790802	Kjeldahl Nitrogen	98.3	101	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P303731

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1790860	Kjeldahl Nitrogen	106	97.7	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P303160

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1790805	NO2NO3-N	96.0	96.0	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P303161

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1790859	NO2NO3-N	100	98.0	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P303230

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1790803	Total-P	95.0	101	P/P	90 - 110

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P303231

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1790859	Total-P	99.4	95.2	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P302618

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1790862	O-Phosphate-P	102	102	P/P	90 - 110

Reference Method: SM 4500 F-C-97
Batch ID: P302878

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1790709	Fluoride	94.6	96.1	P/P	91 - 105

Reference Method: SM 5310 B-00
Batch ID: P303344

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1790741	Organic Carbon	96.2	94.8	P/P	85 - 115

Reference Method: SM 5310 B-00
Batch ID: P303346

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1790856	Organic Carbon	99.8	97.6	P/P	85 - 115

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P302626

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1790846	Turbidity	1.34	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P303124

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1790897	Chloride	0.0448	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P303126

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1790897	Sulfate	1.08	Sample	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P303489

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1790801	Ammonia-N	1.60	Spike	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P303490

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1790903	Ammonia-N	0.983	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P303727

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1790802	Kjeldahl Nitrogen	1.88	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P303731

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1790860	Kjeldahl Nitrogen	4.76	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P303160

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1790805	NO2NO3-N	0.0	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P303161

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1790859	NO2NO3-N	1.35	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P303230

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1790803	Total-P	5.46	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P303231

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1790859	Total-P	4.15	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P302618

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1790862	O-Phosphate-P	0.784	Spike	P	0 - 20

Reference Method: SM 2120 B
Batch ID: P302639

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1790853	Color (true)	0.114	Sample	P	0 - 20

Reference Method: SM 2120 B
Batch ID: P302640

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1790986	Color (true)	2.13	Sample	P	0 - 20

Reference Method: SM 2320 B-97
Batch ID: P302875

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1790709	Total Alkalinity	0.0277	Sample	P	0 - 4.8

Reference Method: SM 2540 C-97
Batch ID: P303352

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1790663	TDS	6.20	Sample	P	0 - 10

Reference Method: SM 2540 C-97
Batch ID: P303355

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1790965	TDS	4.14	Sample	P	0 - 10

Reference Method: SM 4500 F-C-97
Batch ID: P302878

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1790709	Fluoride	0.979	Spike	P	0 - 3.0

Reference Method: SM 5310 B-00
Batch ID: P303344

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1790741	Organic Carbon	0.791	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: SM 5310 B-00
Batch ID: P303346

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1790856	Organic Carbon	1.70	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: A68990

Included Lab Sample IDs: 1790862, 1790863, 1790864, 1790865, 1790866, 1790867, 1790868, 1790869

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	100	101	P/P	90 - 110
O-Phosphate-P	100	99.2	P/P	90 - 110

Reference Method: EPA 180.1 Rev. 2.0
Run ID: A68992

Included Lab Sample IDs: 1790846, 1790847, 1790848, 1790849, 1790850, 1790851, 1790852, 1790853

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

Reference Method: SM 2120 B
Run ID: A68994

Included Lab Sample IDs: 1790846, 1790847, 1790848, 1790849, 1790850, 1790851, 1790852, 1790853

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	100	100	P/P	90 - 115
Color (true)	102	100	P/P	90 - 115

Reference Method: SM 2320 B-97
Run ID: A69069

Included Lab Sample IDs: 1790846, 1790847, 1790848, 1790849, 1790850, 1790851, 1790852, 1790853

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	96.3	99.7	P/P	90 - 110

Reference Method: SM 4500 F-C-97
Run ID: A69069

Included Lab Sample IDs: 1790846, 1790847, 1790848, 1790849, 1790850, 1790851, 1790852, 1790853

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	96.7	98.0	P/P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Run ID: A69144

Included Lab Sample IDs: 1790846, 1790847, 1790848, 1790849, 1790850, 1790851, 1790852, 1790853

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: A69144

Included Lab Sample IDs: 1790846, 1790847, 1790848, 1790849, 1790850, 1790851, 1790852, 1790853

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	100	101	P/P	90 - 110
Sulfate	97.6	99.8	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A69154

Included Lab Sample IDs: 1790854, 1790855, 1790856, 1790857, 1790858, 1790859, 1790860, 1790861

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO2NO3-N	100	99.5	P/P	90 - 110
NO2NO3-N	99.5	100	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A69204

Included Lab Sample IDs: 1790854, 1790855, 1790856, 1790857, 1790858, 1790859, 1790860, 1790861

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	97.0	98.0	P/P	90 - 110
Total-P	98.0	97.8	P/P	90 - 110

Reference Method: SM 5310 B-00

Run ID: A69209

Included Lab Sample IDs: 1790854, 1790855

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	96.8	97.2	P/P	90 - 110

Reference Method: SM 5310 B-00

Run ID: A69211

Included Lab Sample IDs: 1790856, 1790857, 1790858, 1790859, 1790860, 1790861

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	99.2	98.8	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A69238

Included Lab Sample IDs: 1790854, 1790855, 1790856, 1790857, 1790858, 1790859, 1790860, 1790861

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	102	102	P/P	90 - 110
Ammonia-N	102	103	P/P	90 - 110
Ammonia-N	104	102	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A69329

Included Lab Sample IDs: 1790854, 1790855

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	97.1	96.2	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A69343

Included Lab Sample IDs: 1790856, 1790857, 1790858, 1790859, 1790860, 1790861

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	90.3	92.7	P/P	90 - 110
Kjeldahl Nitrogen	92.7	96.1	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				1.34	
EPA 300.0 Rev. 2.1	Chloride	97.9	96.7 96.8		0.0448	
	Sulfate	96.2	95.5 92.5		1.08	
EPA 350.1 Rev. 2.0	Ammonia-N	103	102 104			1.60
	Ammonia-N	101	101 102			0.983
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	102	98.3 101			1.88
	Kjeldahl Nitrogen	105	106 97.7			4.76
EPA 353.2 Rev. 2.0	NO2NO3-N	102	96.0 96.0			0.0
	NO2NO3-N	102	100 98.0			1.35
EPA 365.1 Rev. 2.0	Total-P	99.4	95.0 101			5.46
	Total-P	96.7	99.4 95.2			4.15
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	101	102 102			0.784
SM 2120 B	Color (true)				0.114	
	Color (true)				2.13	
SM 2320 B-97	Total Alkalinity	98.8			0.0277	
SM 2540 C-97	TDS				6.20	
	TDS				4.14	
SM 4500 F-C-97	Fluoride	94.9	94.6 96.1			0.979
SM 5310 B-00	Organic Carbon	99.4	96.2 94.8			0.791
	Organic Carbon	97.8	99.8 97.6			1.70

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	1790846, 1790847, 1790848, 1790849, 1790850, 1790851, 1790852, 1790853
EPA 300.0 Rev. 2.1 / E31780	Chloride in aqueous matrices	1790846, 1790847, 1790848, 1790849, 1790850, 1790851, 1790852, 1790853
EPA 300.0 Rev. 2.1 / E31780	Sulfate in aqueous matrices	1790846, 1790847, 1790848, 1790849, 1790850, 1790851, 1790852, 1790853
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	1790854, 1790855, 1790856, 1790857, 1790858, 1790859, 1790860, 1790861
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	1790854, 1790855, 1790856, 1790857, 1790858, 1790859, 1790860, 1790861
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	1790854, 1790855, 1790856, 1790857, 1790858, 1790859, 1790860, 1790861
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	1790854, 1790855, 1790856, 1790857, 1790858, 1790859, 1790860, 1790861

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	1790862, 1790863, 1790864, 1790865, 1790866, 1790867, 1790868, 1790869
SM 2120 B / E31780	True Color measured at 450 nm	1790846, 1790847, 1790848, 1790849, 1790850, 1790851, 1790852, 1790853
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO3/L	1790846, 1790847, 1790848, 1790849, 1790850, 1790851, 1790852, 1790853
SM 2540 C-97 / E31780	Total Dissolved Solids in aqueous matrices	1790846, 1790847, 1790848, 1790849, 1790850, 1790851, 1790852, 1790853
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices	1790846, 1790847, 1790848, 1790849, 1790850, 1790851, 1790852, 1790853
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	1790846, 1790847, 1790848, 1790849, 1790850, 1790851, 1790852, 1790853
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	1790854, 1790855, 1790856, 1790857, 1790858, 1790859, 1790860, 1790861

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	04/20/2016			04/20/2016 14:20	Sima Feizi	1790846, 1790847, 1790848, 1790849, 1790850, 1790851, 1790852, 1790853
EPA 300.0 Rev. 2.1	04/20/2016			04/28/2016	Elisa J Lutz	1790846, 1790847, 1790848, 1790849, 1790850, 1790851, 1790852, 1790853
EPA 350.1 Rev. 2.0	04/20/2016			05/03/2016	Diana M. Turner	1790854, 1790855, 1790856, 1790857, 1790858, 1790859, 1790860, 1790861
EPA 351.2 Rev. 2.0	04/20/2016	05/06/2016	Sofia Elnemr	05/09/2016	Christopher Armour	1790854, 1790855, 1790856, 1790857, 1790858, 1790859, 1790860, 1790861
EPA 353.2 Rev. 2.0	04/20/2016			04/28/2016	Diana M. Turner	1790854, 1790855, 1790856, 1790857, 1790858, 1790859, 1790860, 1790861
EPA 365.1 Rev. 2.0	04/20/2016	04/29/2016	Christopher Armour	05/02/2016	Lipi Saha	1790854, 1790855, 1790856, 1790857, 1790858, 1790859, 1790860, 1790861
EPA 365.1 Rev. 2.0 dissolved	04/20/2016			04/20/2016 13:47	Ping Hua	1790862
	04/20/2016			04/20/2016 14:39	Ping Hua	1790863
	04/20/2016			04/20/2016 14:40	Ping Hua	1790864
	04/20/2016			04/20/2016 14:41	Ping Hua	1790865
	04/20/2016			04/20/2016 14:42	Ping Hua	1790866, 1790867
	04/20/2016			04/20/2016 14:43	Ping Hua	1790868
	04/20/2016			04/20/2016 14:44	Ping Hua	1790869
	04/20/2016			04/20/2016 14:20	Rochelle Y Jackson	1790847
	04/20/2016			04/20/2016 14:21	Rochelle Y Jackson	1790848, 1790849
	04/20/2016			04/20/2016 14:22	Rochelle Y Jackson	1790850
	04/20/2016			04/20/2016 14:23	Rochelle Y Jackson	1790851
	04/20/2016			04/20/2016 14:24	Rochelle Y Jackson	1790852
	04/20/2016			04/20/2016 14:25	Rochelle Y Jackson	1790853
	04/20/2016			04/20/2016 14:31	Rochelle Y Jackson	1790846
SM 2120 B	04/20/2016			04/22/2016	Dale L. Simmons	1790846, 1790847, 1790848, 1790849, 1790850, 1790851, 1790852, 1790853
SM 2320 B-97	04/20/2016			04/22/2016	Yijie Li	1790846, 1790847, 1790848, 1790849, 1790850, 1790851, 1790852, 1790853
SM 2540 C-97	04/20/2016			04/22/2016	Yijie Li	1790846, 1790847, 1790848, 1790849, 1790850, 1790851, 1790852, 1790853
SM 2540 D-97	04/20/2016			04/22/2016	Dale L. Simmons	1790846, 1790847, 1790848, 1790849, 1790850, 1790851, 1790852, 1790853
SM 4500 F-C-97	04/20/2016			04/22/2016	Sofia Elnemr	1790856, 1790857, 1790858, 1790859, 1790860, 1790861
SM 5310 B-00	04/20/2016			04/29/2016	Sofia Elnemr	1790854, 1790855
	04/20/2016			04/30/2016	Sofia Elnemr	