

Chemical Analysis Report

NW-DIST-2016-04-21-02

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

Event Description: **WBID 36 71 531 71 111**

Request ID: **RQ-2016-04-18-54**

Customer: **NW-DIST**

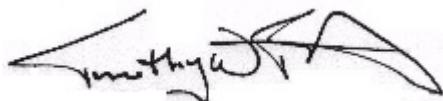
Project ID: **SMP**

Send Reports to:
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Certified by: Timothy Fitzpatrick, Program Administrator

Date Certified: 17-MAY-2016 13:38

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 groups are included in this report: Metals and 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: Yellow River @ Hwy 2

Collection Date/Time: 04/20/2016 10:55

Field ID: G4NW0261

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1791773	EPA 180.1 Rev. 2.0	Turbidity	9.4		NTU	P302753	
	EPA 300.0 Rev. 2.1	Chloride	3.3		mg Cl/L	P303318	
		Sulfate	1.2		mg SO4/L	P303321	
	SM 2120 B	Color (true)	66	A	PCU	P302780	
	SM 2320 B-97	Total Alkalinity	22		mg CaCO3/L	P302972	
	SM 2540 C-97	TDS	48		mg/L	P303548	
	SM 2540 D-97	TSS	9	I	mg/L	P303254	
	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P302976	
1791774	EPA 350.1 Rev. 2.0	Ammonia-N	0.021		mg N/L	P303592	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.32		mg N/L	P303770	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.20		mg N/L	P303525	
	EPA 365.1 Rev. 2.0	Total-P	0.028		mg P/L	P303416	
	SM 5310 B-00	Organic Carbon	4.3		mg C/L	P303737	
1791775	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.006	I	mg P/L	P302715	
1791819	EPA 200.7 Rev. 4.4	Calcium	8.09		mg/L	P302883	
		Iron	1.15E+03		ug/L	P302883	
		Magnesium	1.67		mg/L	P302883	
		Potassium	0.61	I	mg/L	P302883	
		Sodium	2.3		mg/L	P302883	
	EPA 200.8 Rev. 5.4	Zinc	6.0	I	ug/L	P302883	
		Arsenic	0.54		ug/L	P302883	
		Cadmium	0.020	U	ug/L	P302883	
		Chromium	0.74		ug/L	P303426	
		Copper	0.33	I	ug/L	P303426	
		Lead	0.30		ug/L	P302883	
		Nickel	0.43		ug/L	P303426	
		Silver	0.0050	U	ug/L	P303426	

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: Big Horse Creek Hwy 2

Collection Date/Time: 04/20/2016 11:20

Field ID: G4NW0299

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1791776	EPA 180.1 Rev. 2.0	Turbidity	4.4		NTU	P302753	
	EPA 300.0 Rev. 2.1	Chloride	3.1		mg Cl/L	P303318	
		Sulfate	0.89		mg SO4/L	P303321	
	SM 2120 B	Color (true)	41		PCU	P302780	
	SM 2320 B-97	Total Alkalinity	1.8	I	mg CaCO3/L	P302972	
	SM 2540 C-97	TDS	25		mg/L	P303548	
	SM 2540 D-97	TSS	6	I	mg/L	P303254	
	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P302976	
1791784	EPA 350.1 Rev. 2.0	Ammonia-N	0.003	I	mg N/L	P303592	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.16	I	mg N/L	P303770	

Field ID: G4NW0299

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1791784	EPA 353.2 Rev. 2.0	NO2NO3-N	0.037		mg N/L	P303525	
	EPA 365.1 Rev. 2.0	Total-P	0.027		mg P/L	P303416	
	SM 5310 B-00	Organic Carbon	3.2		mg C/L	P303652	
1791792	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.013		mg P/L	P302715	

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: Big Horse Creek Horse Creek Rd.

Collection Date/Time: 04/20/2016 11:55

Field ID: G4NW0301

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1791777	EPA 180.1 Rev. 2.0	Turbidity	4.3		NTU	P302753	
	EPA 300.0 Rev. 2.1	Chloride	3.3		mg Cl/L	P303318	
		Sulfate	0.92		mg SO4/L	P303321	
	SM 2120 B	Color (true)	43		PCU	P302780	
	SM 2320 B-97	Total Alkalinity	2.1	I	mg CaCO3/L	P303263	
	SM 2540 C-97	TDS	18	I	mg/L	P303548	
	SM 2540 D-97	TSS	4	I	mg/L	P303254	
	SM 4500 F-C-97	Fluoride	0.035	I	mg F/L	P303268	
1791785	EPA 350.1 Rev. 2.0	Ammonia-N	0.004	I	mg N/L	P303592	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.22		mg N/L	P303774	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.039		mg N/L	P303526	
	EPA 365.1 Rev. 2.0	Total-P	0.025		mg P/L	P303416	
	SM 5310 B-00	Organic Carbon	3.2		mg C/L	P303652	
1791793	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.011		mg P/L	P302715	

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: Panther Creek Upstream John Riley Barnhill Rd.

Collection Date/Time: 04/20/2016 12:30

Field ID: G4NW0296

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1791778	EPA 180.1 Rev. 2.0	Turbidity	4.4		NTU	P302753	
	EPA 300.0 Rev. 2.1	Chloride	2.8		mg Cl/L	P303318	
		Sulfate	1.3		mg SO4/L	P303321	
	SM 2120 B	Color (true)	34		PCU	P302780	
	SM 2320 B-97	Total Alkalinity	0.89	I	mg CaCO3/L	P303263	
	SM 2540 C-97	TDS	17	I	mg/L	P303548	
	SM 2540 D-97	TSS	4	I	mg/L	P303254	
	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P303268	
1791786	EPA 350.1 Rev. 2.0	Ammonia-N	0.002	U	mg N/L	P303592	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.13	I	mg N/L	P303774	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.060		mg N/L	P303526	
	EPA 365.1 Rev. 2.0	Total-P	0.008		mg P/L	P303416	
	SM 5310 B-00	Organic Carbon	2.9		mg C/L	P303652	

Field ID: G4NW0296

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1791794	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P302717	

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: Panther Creek Upstream of High Bridge Road **Collection Date/Time: 04/20/2016 12:50**

Field ID: G4NW0297

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1791779	EPA 180.1 Rev. 2.0	Turbidity	5.0		NTU	P302753	
	EPA 300.0 Rev. 2.1	Chloride	2.8		mg Cl/L	P303318	
		Sulfate	1.4		mg SO4/L	P303321	
	SM 2120 B	Color (true)	44		PCU	P302780	
	SM 2320 B-97	Total Alkalinity	1.2	I	mg CaCO3/L	P303263	
	SM 2540 C-97	TDS	25		mg/L	P303547	
	SM 2540 D-97	TSS	3	I	mg/L	P303253	
	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P303268	
	EPA 350.1 Rev. 2.0	Ammonia-N	0.003	I	mg N/L	P303592	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.18	I	mg N/L	P303774	
1791787	EPA 353.2 Rev. 2.0	NO2NO3-N	0.029		mg N/L	P303526	
	EPA 365.1 Rev. 2.0	Total-P	0.012		mg P/L	P303416	
	SM 5310 B-00	Organic Carbon	3.3		mg C/L	P303652	
	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P302717	

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: Panther Creek Sherman Kennedy Rd. **Collection Date/Time: 04/20/2016 13:20**

Field ID: G4NW0295

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1791780	EPA 180.1 Rev. 2.0	Turbidity	3.3		NTU	P302753	
	EPA 300.0 Rev. 2.1	Chloride	3.0		mg Cl/L	P303318	
		Sulfate	0.99		mg SO4/L	P303321	
	SM 2120 B	Color (true)	32		PCU	P302780	
	SM 2320 B-97	Total Alkalinity	1.3	I	mg CaCO3/L	P303263	
	SM 2540 C-97	TDS	17	I	mg/L	P303549	
	SM 2540 D-97	TSS	3	I	mg/L	P303255	
	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P303268	
	EPA 350.1 Rev. 2.0	Ammonia-N	0.003	I	mg N/L	P303593	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.14	I	mg N/L	P303774	
1791788	EPA 353.2 Rev. 2.0	NO2NO3-N	0.17		mg N/L	P303526	
	EPA 365.1 Rev. 2.0	Total-P	0.007		mg P/L	P303416	
	SM 5310 B-00	Organic Carbon	2.7		mg C/L	P303652	
	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P302717	

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: Baggett Creek Upstream of Keyser Mill Road **Collection Date/Time: 04/20/2016 14:05**

Field ID: G4NW0335

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1791781	EPA 180.1 Rev. 2.0	Turbidity	2.1		NTU	P302753	
	EPA 300.0 Rev. 2.1	Chloride	4.3		mg Cl/L	P303318	
		Sulfate	0.72		mg SO4/L	P303321	
	SM 2120 B	Color (true)	21		PCU	P302781	
	SM 2320 B-97	Total Alkalinity	3.0		mg CaCO3/L	P303263	
	SM 2540 C-97	TDS	17	I	mg/L	P303549	
	SM 2540 D-97	TSS	2	I	mg/L	P303255	
	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P303268	
1791789	EPA 350.1 Rev. 2.0	Ammonia-N	0.007		mg N/L	P303593	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.13	I	mg N/L	P303774	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.86		mg N/L	P303526	
	EPA 365.1 Rev. 2.0	Total-P	0.005		mg P/L	P303416	
	SM 5310 B-00	Organic Carbon	1.9		mg C/L	P303652	
1791797	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P302717	

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: Baggett Creek Upstream of Hwy 90

Collection Date/Time: 04/20/2016 14:35

Field ID: G4NW0336

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1791782	EPA 180.1 Rev. 2.0	Turbidity	3.8		NTU	P302753	
	EPA 300.0 Rev. 2.1	Chloride	3.7		mg Cl/L	P303318	
		Sulfate	0.92		mg SO4/L	P303321	
	SM 2120 B	Color (true)	34		PCU	P302781	
	SM 2320 B-97	Total Alkalinity	6.1		mg CaCO3/L	P303263	
	SM 2540 C-97	TDS	24	I	mg/L	P303549	
	SM 2540 D-97	TSS	4	I	mg/L	P303255	
	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P303268	
1791790	EPA 350.1 Rev. 2.0	Ammonia-N	0.007		mg N/L	P303593	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.22		mg N/L	P303774	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.54		mg N/L	P303526	
	EPA 365.1 Rev. 2.0	Total-P	0.016		mg P/L	P303419	
	SM 5310 B-00	Organic Carbon	3.0		mg C/L	P303652	
1791798	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P302717	

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: Wilkinson Creek Upstream of Wilkinson Bluff Road

Collection Date/Time: 04/20/2016 14:55

Field ID: G4NW0357

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1791783	EPA 180.1 Rev. 2.0	Turbidity	1.5		NTU	P302753	
	EPA 300.0 Rev. 2.1	Chloride	3.1		mg Cl/L	P303318	
		Sulfate	1.0		mg SO4/L	P303321	

Field ID: G4NW0357

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1791783	SM 2120 B	Color (true)	31	A	PCU	P302781	
	SM 2320 B-97	Total Alkalinity	1.2	I	mg CaCO3/L	P303263	
	SM 2540 C-97	TDS	17	I	mg/L	P303549	
	SM 2540 D-97	TSS	2	U	mg/L	P303255	
	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P303268	
1791791	EPA 350.1 Rev. 2.0	Ammonia-N	0.004	I	mg N/L	P303593	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.11	I	mg N/L	P303774	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.16		mg N/L	P303526	
	EPA 365.1 Rev. 2.0	Total-P	0.007		mg P/L	P303419	
	SM 5310 B-00	Organic Carbon	1.9		mg C/L	P303652	
1791799	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P302717	

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: P302753

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 200.7 Rev. 4.4
 Batch ID: P302883

Component	Result	Code	Units
Calcium	0.075	U	mg/L
Iron	30	U	ug/L
Magnesium	0.040	U	mg/L
Potassium	0.30	U	mg/L
Sodium	0.50	U	mg/L
Zinc	5.0	U	ug/L

Reference Method: EPA 200.8 Rev. 5.4
 Batch ID: P302883

Component	Result	Code	Units
Arsenic	0.050	U	ug/L
Cadmium	0.020	U	ug/L
Lead	0.050	U	ug/L

Reference Method: EPA 200.8 Rev. 5.4
 Batch ID: P303426

Component	Result	Code	Units
Chromium	0.050	U	ug/L
Copper	0.10	U	ug/L
Nickel	0.050	U	ug/L
Silver	0.0050	U	ug/L

Quality Assurance Report Method Blank Results

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P303318

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P303321

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P303592

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P303593

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P303770

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P303774

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P303525

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P303526

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P303416

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
Batch ID: P303419

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P302715

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P302717

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

Reference Method: SM 2120 B
Batch ID: P302780

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2120 B
Batch ID: P302781

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2320 B-97
Batch ID: P302972

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

Reference Method: SM 2320 B-97
Batch ID: P303263

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

Reference Method: SM 2540 C-97
Batch ID: P303547

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 C-97
Batch ID: P303548

Component	Result	Code	Units
TDS	15	U	mg/L

Quality Assurance Report Method Blank Results

Reference Method: SM 2540 C-97
Batch ID: P303549

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P303253

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P303254

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P303255

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500 F-C-97
Batch ID: P302976

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 4500 F-C-97
Batch ID: P303268

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-00
Batch ID: P303652

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

Reference Method: SM 5310 B-00
Batch ID: P303737

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

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P302883

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

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P302883

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Calcium	105		P	85 - 115
Iron	108		P	85 - 115
Magnesium	105		P	85 - 115
Potassium	106		P	85 - 115
Sodium	106		P	85 - 115
Zinc	101		P	85 - 115

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P302883

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Arsenic	93.8		P	85 - 115
Cadmium	96.2		P	85 - 115
Lead	96.7		P	85 - 115

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P303426

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Chromium	96.8		P	85 - 115
Copper	95.8		P	85 - 115
Nickel	97.2		P	85 - 115
Silver	96.0		P	85 - 115

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P303318

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Chloride	98.2		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P303321

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Sulfate	95.5		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P303592

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P303593

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P303770

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: P303770

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: P303774

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P303525

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P303526

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: P303416

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: P303419

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P302715

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P302717

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

Reference Method: SM 2320 B-97
Batch ID: P302972

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	97.3		P	95 - 105

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: SM 2320 B-97
Batch ID: P303263

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	99.4		P	95 - 105

Reference Method: SM 4500 F-C-97
Batch ID: P302976

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	95.6		P	92 - 103

Reference Method: SM 4500 F-C-97
Batch ID: P303268

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	96.6		P	92 - 103

Reference Method: SM 5310 B-00
Batch ID: P303652

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	94.6		P	85 - 115

Reference Method: SM 5310 B-00
Batch ID: P303737

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	93.8		P	85 - 115

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P302883

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1791725	Calcium	103		P	80 - 120
1791725	Iron	102	104	P/P	80 - 120
1791725	Magnesium	103		P	80 - 120
1791725	Potassium	107		P	80 - 120
1791725	Sodium	106		P	80 - 120
1791725	Zinc	101	98.9	P/P	80 - 120
1791735	Calcium	105		P	80 - 120
1791735	Iron	105		P	80 - 120
1791735	Magnesium	104		P	80 - 120
1791735	Potassium	100		P	80 - 120
1791735	Sodium	107		P	80 - 120
1791735	Zinc	101		P	80 - 120

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P302883

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1791725	Arsenic	97.4	98.0	P/P	80 - 120

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P302883

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1791725	Cadmium	100	100	P/P	80 - 120
1791725	Lead	100	101	P/P	80 - 120
1791735	Arsenic	96.2		P	80 - 120
1791735	Cadmium	99.4		P	80 - 120
1791735	Lead	98.8		P	80 - 120

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P303426

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1791723	Chromium	93.7	92.9	P/P	80 - 120
1791723	Copper	93.1	92.0	P/P	80 - 120
1791723	Nickel	95.6	94.5	P/P	80 - 120
1791723	Silver	95.2	95.0	P/P	80 - 120
1791733	Chromium	95.5		P	80 - 120
1791733	Copper	93.7		P	80 - 120
1791733	Nickel	94.8		P	80 - 120
1791733	Silver	95.9		P	80 - 120

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P303318

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1791763	Chloride	95.7		P	90 - 110
1791773	Chloride	99.3		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P303321

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1791763	Sulfate	93.8		P	90 - 110
1791773	Sulfate	96.3		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P303592

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1791619	Ammonia-N	98.7	98.0	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P303593

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1791788	Ammonia-N	99.3	99.2	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P303770

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1791572	Kjeldahl Nitrogen	103	101	P/P	90 - 110

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P303774

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1791786	Kjeldahl Nitrogen	99.4	104	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P303525

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1791572	NO2NO3-N	100	102	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P303526

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1791785	NO2NO3-N	101	102	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P303416

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1791677	Total-P	96.9	92.0	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P303419

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1791790	Total-P	99.9	103	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P302715

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1791583	O-Phosphate-P	98.5	98.4	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P302717

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1791794	O-Phosphate-P	99.2	99.4	P/P	90 - 110

Reference Method: SM 4500 F-C-97
Batch ID: P302976

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1791756	Fluoride	96.4	96.4	P/P	91 - 105

Reference Method: SM 4500 F-C-97
Batch ID: P303268

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1792242	Fluoride	95.6	95.6	P/P	91 - 105

Quality Assurance Report Matrix Spike Accuracy

Reference Method: SM 5310 B-00
Batch ID: P303652

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1791530	Organic Carbon	93.4	92.5	P/P	85 - 115

Reference Method: SM 5310 B-00
Batch ID: P303737

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1791540	Organic Carbon	95.1	94.8	P/P	85 - 115

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P302753

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1791330	Turbidity	5.53	Sample	P	0 - 20

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P302883

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1791725	Calcium	0.0611	Spike	P	0 - 20
1791725	Iron	1.29	Spike	P	0 - 20
1791725	Magnesium	0.831	Spike	P	0 - 20
1791725	Potassium	0.780	Spike	P	0 - 20
1791725	Sodium	0.580	Spike	P	0 - 20
1791725	Zinc	1.61	Spike	P	0 - 20

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P302883

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1791725	Arsenic	0.599	Spike	P	0 - 20
1791725	Cadmium	0.399	Spike	P	0 - 20
1791725	Lead	0.370	Spike	P	0 - 20

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P303426

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1791723	Chromium	0.768	Spike	P	0 - 20
1791723	Copper	1.12	Spike	P	0 - 20
1791723	Nickel	1.16	Spike	P	0 - 20
1791723	Silver	0.270	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P303318

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1791763	Chloride	0.138	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P303321

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1791763	Sulfate	1.49	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P303592

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1791619	Ammonia-N	0.559	Spike	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P303593

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1791788	Ammonia-N	0.0739	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P303770

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1791572	Kjeldahl Nitrogen	0.966	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P303774

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1791786	Kjeldahl Nitrogen	3.70	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P303525

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1791572	NO2NO3-N	1.01	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P303526

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1791785	NO2NO3-N	0.826	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P303416

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1791677	Total-P	5.13	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P303419

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1791790	Total-P	2.73	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P302715

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1791583	O-Phosphate-P	0.102	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P302717

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1791794	O-Phosphate-P	0.201	Spike	P	0 - 20

Reference Method: SM 2120 B
Batch ID: P302780

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1791773	Color (true)	0.476	Sample	P	0 - 20

Reference Method: SM 2120 B
Batch ID: P302781

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1791783	Color (true)	1.00	Sample	P	0 - 20

Reference Method: SM 2320 B-97
Batch ID: P302972

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1791756	Total Alkalinity	0.111	Sample	P	0 - 4.8

Reference Method: SM 2320 B-97
Batch ID: P303263

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1792242	Total Alkalinity	0.531	Sample	P	0 - 4.8

Quality Assurance Report Precision

Reference Method: SM 2540 C-97
Batch ID: P303547

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1791553	TDS	6.42	Sample	P	0 - 10

Reference Method: SM 2540 C-97
Batch ID: P303548

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1791558	TDS	0.293	Sample	P	0 - 10

Reference Method: SM 2540 C-97
Batch ID: P303549

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1791549	TDS	1.38	Sample	P	0 - 10

Reference Method: SM 4500 F-C-97
Batch ID: P302976

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1791756	Fluoride	0.0	Spike	P	0 - 3.0

Reference Method: SM 4500 F-C-97
Batch ID: P303268

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1792242	Fluoride	0.0	Spike	P	0 - 3.0

Reference Method: SM 5310 B-00
Batch ID: P303652

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1791530	Organic Carbon	0.535	Spike	P	0 - 20

Reference Method: SM 5310 B-00
Batch ID: P303737

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1791540	Organic Carbon	0.188	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

Quality Assurance Report Calibration Verification

Reference Method: EPA 365.1 Rev. 2.0 dissolved

Run ID: A69022

Included Lab Sample IDs: 1791775, 1791792, 1791793, 1791794, 1791795, 1791796, 1791797, 1791798, 1791799

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	98.5	98.8	P/P	90 - 110
O-Phosphate-P	98.8	98.3	P/P	90 - 110
O-Phosphate-P	99.6	98.5	P/P	90 - 110

Reference Method: EPA 180.1 Rev. 2.0

Run ID: A69033

Included Lab Sample IDs: 1791773, 1791776, 1791777, 1791778, 1791779, 1791780, 1791781, 1791782, 1791783

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

Reference Method: SM 2120 B

Run ID: A69040

Included Lab Sample IDs: 1791773, 1791776, 1791777, 1791778, 1791779, 1791780, 1791781, 1791782, 1791783

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	101	99.2	P/P	90 - 115
Color (true)	99.2	101	P/P	90 - 115

Reference Method: SM 2320 B-97

Run ID: A69103

Included Lab Sample IDs: 1791773, 1791776

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	99.1	96.8	P/P	90 - 110

Reference Method: SM 4500 F-C-97

Run ID: A69103

Included Lab Sample IDs: 1791773, 1791776

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	97.5	100	P/P	90 - 110

Reference Method: EPA 200.7 Rev. 4.4

Run ID: A69113

Included Lab Sample IDs: 1791819

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Calcium	100	101	P/P	90 - 110
Iron	99.6	101	P/P	90 - 110
Magnesium	100	102	P/P	90 - 110
Potassium	99.7	100	P/P	90 - 110
Sodium	103	103	P/P	90 - 110
Zinc	98.9	100	P/P	90 - 110

Reference Method: EPA 200.8 Rev. 5.4

Run ID: A69123

Included Lab Sample IDs: 1791819

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Arsenic	96.6	94.1	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: EPA 200.8 Rev. 5.4

Run ID: A69123

Included Lab Sample IDs: 1791819

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Cadmium	97.5	98.0	P/P	90 - 110
Lead	94.4	94.3	P/P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1

Run ID: A69144

Included Lab Sample IDs: 1791773, 1791776, 1791777, 1791778, 1791779, 1791780, 1791781, 1791782, 1791783

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	101	101	P/P	90 - 110
Chloride	101	101	P/P	90 - 110
Chloride	101	101	P/P	90 - 110
Sulfate	98.6	99.4	P/P	90 - 110
Sulfate	99.7	98.6	P/P	90 - 110
Sulfate	99.8	99.7	P/P	90 - 110

Reference Method: SM 2320 B-97

Run ID: A69186

Included Lab Sample IDs: 1791777, 1791778, 1791779, 1791780, 1791781, 1791782, 1791783

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	97.5	98.5	P/P	90 - 110
Total Alkalinity	99.3	97.5	P/P	90 - 110

Reference Method: SM 4500 F-C-97

Run ID: A69186

Included Lab Sample IDs: 1791777, 1791778, 1791779, 1791780, 1791781, 1791782, 1791783

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	98.0	99.5	P/P	90 - 110
Fluoride	99.5	99.5	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A69271

Included Lab Sample IDs: 1791774, 1791784, 1791785, 1791786, 1791787, 1791788, 1791789, 1791790, 1791791

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO2NO3-N	100	100	P/P	90 - 110
NO2NO3-N	100	104	P/P	90 - 110
NO2NO3-N	104	102	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A69277

Included Lab Sample IDs: 1791774, 1791784, 1791785, 1791786, 1791787, 1791788, 1791789, 1791790, 1791791

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

Quality Assurance Report Calibration Verification

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A69293

Included Lab Sample IDs: 1791774, 1791784, 1791785, 1791786, 1791787, 1791788, 1791789, 1791790, 1791791

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	100	100	P/P	90 - 110
Total-P	100	99.8	P/P	90 - 110

Reference Method: SM 5310 B-00

Run ID: A69301

Included Lab Sample IDs: 1791784, 1791785, 1791786, 1791787, 1791788, 1791789, 1791790, 1791791

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	95.2	97.0	P/P	90 - 110
Organic Carbon	97.0	97.2	P/P	90 - 110

Reference Method: SM 5310 B-00

Run ID: A69322

Included Lab Sample IDs: 1791774

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	95.0	94.8	P/P	90 - 110

Reference Method: EPA 200.8 Rev. 5.4

Run ID: A69338

Included Lab Sample IDs: 1791819

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chromium	94.3	94.6	P/P	90 - 110
Copper	94.7	94.0	P/P	90 - 110
Nickel	95.3	94.5	P/P	90 - 110
Silver	95.0	95.1	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A69369

Included Lab Sample IDs: 1791774, 1791784

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	97.2	99.9	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A69414

Included Lab Sample IDs: 1791785, 1791786, 1791787, 1791788, 1791789, 1791790, 1791791

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	95.6	95.5	P/P	90 - 110
Kjeldahl Nitrogen	97.4	100	P/P	90 - 110
Kjeldahl Nitrogen	98.5	97.4	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						5.53	
EPA 200.7 Rev. 4.4	Calcium	105	103	105				0.0611
	Iron	108	102	104	105			1.29
	Magnesium	105	103	104				0.831
	Potassium	106	107	100				0.780
	Sodium	106	106	107				0.580
	Zinc	101	101	98.9	101			1.61
EPA 200.8 Rev. 5.4	Arsenic	93.8	97.4	98.0	96.2			0.599
	Cadmium	96.2	100	100	99.4			0.399
	Chromium	96.8	93.7	92.9	95.5			0.768
	Copper	95.8	93.1	92.0	93.7			1.12
	Lead	96.7	100	101	98.8			0.370
	Nickel	97.2	95.6	94.5	94.8			1.16
	Silver	96.0	95.2	95.0	95.9			0.270
EPA 300.0 Rev. 2.1	Chloride	98.2	95.7	99.3			0.138	
	Sulfate	95.5	93.8	96.3			1.49	
EPA 350.1 Rev. 2.0	Ammonia-N	100	98.7	98.0				0.559
	Ammonia-N	99.7	99.3	99.2				0.0739
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	102	103	101				0.966
	Kjeldahl Nitrogen	98.7	99.4	104				3.70
EPA 353.2 Rev. 2.0	NO2NO3-N	101	100	102				1.01
	NO2NO3-N	102	101	102				0.826
EPA 365.1 Rev. 2.0	Total-P	99.4	96.9	92.0				5.13
	Total-P	97.7	99.9	103				2.73
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	103	98.5	98.4				0.102
	O-Phosphate-P	102	99.2	99.4				0.201
SM 2120 B	Color (true)						0.476	
	Color (true)						1.00	
SM 2320 B-97	Total Alkalinity	97.3					0.111	
	Total Alkalinity	99.4					0.531	
SM 2540 C-97	TDS						6.42	
	TDS						0.293	
	TDS						1.38	
SM 4500 F-C-97	Fluoride	95.6	96.4	96.4				0.0
	Fluoride	96.6	95.6	95.6				0.0
SM 5310 B-00	Organic Carbon	94.6	93.4	92.5				0.535
	Organic Carbon	93.8	95.1	94.8				0.188

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	1791773, 1791776, 1791777, 1791778, 1791779, 1791780, 1791781, 1791782, 1791783
EPA 200.7 Rev. 4.4 / E31780	Total Recoverable Metals analysis using ICP emission spectroscopy for aqueous samples supporting Clean Water Act Projects	1791819
EPA 200.8 Rev. 5.4 / E31780	Total Recoverable Metals analysis using ICP-MS for aqueous samples supporting Clean Water Act Projects	1791819
EPA 300.0 Rev. 2.1 / E31780	Chloride in aqueous matrices	1791773, 1791776, 1791777, 1791778, 1791779, 1791780, 1791781, 1791782, 1791783
EPA 300.0 Rev. 2.1 / E31780	Sulfate in aqueous matrices	1791773, 1791776, 1791777, 1791778, 1791779, 1791780, 1791781, 1791782, 1791783

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	1791774, 1791784, 1791785, 1791786, 1791787, 1791788, 1791789, 1791790, 1791791
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	1791774, 1791784, 1791785, 1791786, 1791787, 1791788, 1791789, 1791790, 1791791
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	1791774, 1791784, 1791785, 1791786, 1791787, 1791788, 1791789, 1791790, 1791791
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	1791774, 1791784, 1791785, 1791786, 1791787, 1791788, 1791789, 1791790, 1791791
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	1791775, 1791792, 1791793, 1791794, 1791795, 1791796, 1791797, 1791798, 1791799
SM 2120 B / E31780	True Color measured at 450 nm	1791773, 1791776, 1791777, 1791778, 1791779, 1791780, 1791781, 1791782, 1791783
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO ₃ /L	1791773, 1791776, 1791777, 1791778, 1791779, 1791780, 1791781, 1791782, 1791783
SM 2540 C-97 / E31780	Total Dissolved Solids in aqueous matrices	1791773, 1791776, 1791777, 1791778, 1791779, 1791780, 1791781, 1791782, 1791783
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices	1791773, 1791776, 1791777, 1791778, 1791779, 1791780, 1791781, 1791782, 1791783
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	1791773, 1791776, 1791777, 1791778, 1791779, 1791780, 1791781, 1791782, 1791783
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	1791774, 1791784, 1791785, 1791786, 1791787, 1791788, 1791789, 1791790, 1791791

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	04/21/2016			04/21/2016 15:48	Blanca Fach	1791773, 1791776, 1791777, 1791778, 1791779, 1791780, 1791781, 1791782, 1791783
EPA 200.7 Rev. 4.4	04/21/2016	04/25/2016	Elliott D. Healy	04/26/2016	Joshua Ayres	1791819
EPA 200.8 Rev. 5.4	04/21/2016	04/25/2016	Elliott D. Healy	04/27/2016	Charles J. Peterson	1791819
	04/21/2016	05/03/2016	Elliott D. Healy	05/06/2016	Charles J. Peterson	1791819
EPA 300.0 Rev. 2.1	04/21/2016			04/29/2016	Elisa J Lutz	1791773, 1791776, 1791777, 1791778, 1791779, 1791780, 1791781, 1791782, 1791783
EPA 350.1 Rev. 2.0	04/21/2016			05/04/2016	Diana M. Turner	1791774, 1791784, 1791785, 1791786, 1791787, 1791788, 1791789, 1791790, 1791791
EPA 351.2 Rev. 2.0	04/21/2016	05/09/2016	Sofia Elnemr	05/10/2016	Christopher Armour	1791774, 1791784, 1791785, 1791786, 1791787, 1791788, 1791789, 1791790, 1791791
EPA 353.2 Rev. 2.0	04/21/2016			05/04/2016	Peter D. Kaus	1791774, 1791784, 1791785, 1791786, 1791787, 1791788, 1791789, 1791790, 1791791
EPA 365.1 Rev. 2.0	04/21/2016	05/03/2016	Vijayalakshmi Reddy	05/04/2016	Lipi Saha	1791774, 1791784, 1791785, 1791786, 1791787, 1791788, 1791789, 1791790, 1791791
EPA 365.1 Rev. 2.0 dissolved	04/21/2016			04/21/2016 14:43	Ping Hua	1791794
	04/21/2016			04/21/2016 14:52	Ping Hua	1791775, 1791792
	04/21/2016			04/21/2016 14:53	Ping Hua	1791793
	04/21/2016			04/21/2016 14:54	Ping Hua	1791795
	04/21/2016			04/21/2016 14:55	Ping Hua	1791796
	04/21/2016			04/21/2016 14:56	Ping Hua	1791797
	04/21/2016			04/21/2016 14:57	Ping Hua	1791798
	04/21/2016			04/21/2016 15:02	Ping Hua	1791799
SM 2120 B	04/21/2016			04/21/2016 15:33	Chrisoulla Rakowski	1791773
	04/21/2016			04/21/2016 15:34	Chrisoulla Rakowski	1791776
	04/21/2016			04/21/2016 15:35	Chrisoulla Rakowski	1791777
	04/21/2016			04/21/2016 15:36	Chrisoulla Rakowski	1791778, 1791779
	04/21/2016			04/21/2016 15:37	Chrisoulla Rakowski	1791780
	04/21/2016			04/21/2016 15:40	Chrisoulla Rakowski	1791781
	04/21/2016			04/21/2016 15:41	Chrisoulla Rakowski	1791782
	04/21/2016			04/21/2016 15:42	Chrisoulla Rakowski	1791783
SM 2320 B-97	04/21/2016			04/25/2016	Dale L. Simmons	1791773, 1791776
	04/21/2016			04/28/2016	Dale L. Simmons	1791777, 1791778, 1791779, 1791780, 1791781, 1791782, 1791783
SM 2540 C-97	04/21/2016			04/25/2016	Sima Feizi	1791773, 1791776, 1791777, 1791778, 1791779, 1791780, 1791781, 1791782, 1791783

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
SM 2540 D-97	04/21/2016			04/25/2016	Sima Feizi	1791773, 1791776, 1791777, 1791778, 1791779, 1791780, 1791781, 1791782, 1791783
SM 4500 F-C-97	04/21/2016			04/25/2016	Dale L. Simmons	1791773, 1791776
	04/21/2016			04/28/2016	Dale L. Simmons	1791777, 1791778, 1791779, 1791780, 1791781, 1791782, 1791783
SM 5310 B-00	04/21/2016			05/04/2016	Sofia Elnemr	1791784, 1791785, 1791786, 1791787, 1791788, 1791789, 1791790, 1791791
	04/21/2016			05/06/2016	Sofia Elnemr	1791774