

Chemical Analysis Report

NW-DIST-2016-05-05-02

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

Event Description: **WBID 160A 30 30C**
Request ID: **RQ-2016-05-02-87**
Customer: **NW-DIST**
Project ID: **SMP**

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

For additional information please contact
Timothy W. Fitzpatrick
Liang-Tsair Lin, Ph.D.
Colin Wright, Ph.D.
Thekkekalathil Chandrasekhar, PhD, QA Officer
Phone (850) 245-8085

Certified by: Liang Lin, Environmental Administrator

Date Certified: 01-JUN-2016 15:41

A handwritten signature in black ink, appearing to read "Liang Lin", is shown on a light-colored background.

Case Narrative

Unless otherwise noted, all samples included in this report were received in accordance with protocols referenced in Chapter 62-160, Florida Administrative Code (F.A.C.). Results published in this report pertain only to the samples as submitted to, and received by the laboratory. All times in this report are adjusted to the applicable Eastern Time Zone (EST or EDT).

Results for the following analytical 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: Shoal River below Juniper Creek

Collection Date/Time: 05/04/2016 13:30

Field ID: G4NW0024

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1796117	EPA 180.1 Rev. 2.0	Turbidity	8.4		NTU	P303666	
	EPA 300.0 Rev. 2.1	Chloride	2.9		mg Cl/L	P304288	
		Sulfate	1.1		mg SO4/L	P304556	
	SM 2120 B	Color (true)	85		PCU	P303618	
	SM 2320 B-97	Total Alkalinity	3.5		mg CaCO3/L	P304242	
	SM 2540 C-97	TDS	18	I	mg/L	P304455	
	SM 2540 D-97	TSS	12		mg/L	P304387	
	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P304244	
1796123	EPA 350.1 Rev. 2.0	Ammonia-N	0.016		mg N/L	P304217	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.26		mg N/L	P304584	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.24		mg N/L	P304274	
	EPA 365.1 Rev. 2.0	Total-P	0.018		mg P/L	P304614	
	SM 5310 B-00	Organic Carbon	3.1		mg C/L	P304295	
1796129	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P303643	

Sample Location: Yellow River

Collection Date/Time: 05/04/2016 15:05

Field ID: G4NW0372

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1796118	EPA 180.1 Rev. 2.0	Turbidity	11		NTU	P303666	
	EPA 300.0 Rev. 2.1	Chloride	3.2		mg Cl/L	P304288	
		Sulfate	1.1		mg SO4/L	P304556	
	SM 2120 B	Color (true)	65		PCU	P303618	
	SM 2320 B-97	Total Alkalinity	11		mg CaCO3/L	P304242	
	SM 2540 C-97	TDS	35		mg/L	P304455	
	SM 2540 D-97	TSS	14		mg/L	P304387	
	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P304244	
1796124	EPA 350.1 Rev. 2.0	Ammonia-N	0.020		mg N/L	P304217	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.25		mg N/L	P304584	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.21		mg N/L	P304274	
	EPA 365.1 Rev. 2.0	Total-P	0.025		mg P/L	P304614	
	SM 5310 B-00	Organic Carbon	3.5		mg C/L	P304295	
1796130	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.005	I	mg P/L	P303644	

Sample Location: Yellow River

Collection Date/Time: 05/04/2016 15:20

Field ID: G4NW0371

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1796119	EPA 180.1 Rev. 2.0	Turbidity	11		NTU	P303666	
	EPA 300.0 Rev. 2.1	Chloride	3.2		mg Cl/L	P304288	
		Sulfate	1.1		mg SO4/L	P304556	
	SM 2120 B	Color (true)	64		PCU	P303618	
	SM 2320 B-97	Total Alkalinity	11		mg CaCO3/L	P304242	

Field ID: G4NW0371

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1796119	SM 2540 C-97	TDS	31		mg/L	P304455	
	SM 2540 D-97	TSS	15		mg/L	P304387	
	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P304244	
1796125	EPA 350.1 Rev. 2.0	Ammonia-N	0.019		mg N/L	P304217	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.27		mg N/L	P304584	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.21		mg N/L	P304274	
	EPA 365.1 Rev. 2.0	Total-P	0.026		mg P/L	P304614	
	SM 5310 B-00	Organic Carbon	3.4		mg C/L	P304295	
1796131	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	I	mg P/L	P303644	

Sample Location: Yellow River below Malone Creek

Collection Date/Time: 05/04/2016 15:30

Field ID: G4NW0373

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1796120	EPA 180.1 Rev. 2.0	Turbidity	11		NTU	P303666	
	EPA 300.0 Rev. 2.1	Chloride	3.2		mg Cl/L	P304288	
		Sulfate	1.1		mg SO4/L	P304556	
	SM 2120 B	Color (true)	64		PCU	P303618	
	SM 2320 B-97	Total Alkalinity	11		mg CaCO3/L	P304242	
	SM 2540 C-97	TDS	29		mg/L	P304455	
	SM 2540 D-97	TSS	14		mg/L	P304387	
	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P304244	
1796126	EPA 350.1 Rev. 2.0	Ammonia-N	0.020		mg N/L	P304217	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.30		mg N/L	P304584	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.21		mg N/L	P304264	
	EPA 365.1 Rev. 2.0	Total-P	0.026		mg P/L	P304614	
	SM 5310 B-00	Organic Carbon	3.5		mg C/L	P304295	
1796132	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	I	mg P/L	P303644	

Sample Location: Yellow River below Gully Branch Griffith Ferry

Collection Date/Time: 05/04/2016 11:10

Field ID: G4NW0047

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1796135	EPA 180.1 Rev. 2.0	Turbidity	8.7		NTU	P303666	
	EPA 300.0 Rev. 2.1	Chloride	3.5		mg Cl/L	P304288	
		Sulfate	1.1		mg SO4/L	P304556	
	SM 2120 B	Color (true)	63		PCU	P303618	
	SM 2320 B-97	Total Alkalinity	22		mg CaCO3/L	P304242	
	SM 2540 C-97	TDS	44	A	mg/L	P304455	
	SM 2540 D-97	TSS	11	A	mg/L	P304387	
	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P304244	
1796138	EPA 350.1 Rev. 2.0	Ammonia-N	0.016		mg N/L	P304218	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.23		mg N/L	P304584	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.21		mg N/L	P304264	
	EPA 365.1 Rev. 2.0	Total-P	0.027		mg P/L	P304614	

Field ID: G4NW0047

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1796138	SM 5310 B-00	Organic Carbon	3.9		mg C/L	P304296	
1796141	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.006	I	mg P/L	P303644	

Sample Location: Yellow River blw Trammel Creek

Collection Date/Time: 05/04/2016 11:45

Field ID: G4NW0311

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1796136	EPA 180.1 Rev. 2.0	Turbidity	9.3	A	NTU	P303667	
	EPA 300.0 Rev. 2.1	Chloride	3.5		mg Cl/L	P304288	
		Sulfate	1.1		mg SO4/L	P304556	
	SM 2120 B	Color (true)	62	A	PCU	P303619	
	SM 2320 B-97	Total Alkalinity	22		mg CaCO3/L	P304242	
	SM 2540 C-97	TDS	43		mg/L	P304455	
	SM 2540 D-97	TSS	12		mg/L	P304387	
	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P304244	
	EPA 350.1 Rev. 2.0	Ammonia-N	0.016		mg N/L	P304218	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.24		mg N/L	P304584	
1796139	EPA 353.2 Rev. 2.0	NO2NO3-N	0.21		mg N/L	P304264	
	EPA 365.1 Rev. 2.0	Total-P	0.029		mg P/L	P304614	
	SM 5310 B-00	Organic Carbon	3.9		mg C/L	P304296	
	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.006	I	mg P/L	P303644	

Sample Location: Yellow River @ Milligan Park

Collection Date/Time: 05/04/2016 11:55

Field ID: G4NW0260

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1796137	EPA 180.1 Rev. 2.0	Turbidity	8.6		NTU	P303667	
	EPA 300.0 Rev. 2.1	Chloride	3.4		mg Cl/L	P304288	
		Sulfate	1.0		mg SO4/L	P304556	
	SM 2120 B	Color (true)	61		PCU	P303619	
	SM 2320 B-97	Total Alkalinity	23		mg CaCO3/L	P304242	
	SM 2540 C-97	TDS	38		mg/L	P304455	
	SM 2540 D-97	TSS	12		mg/L	P304387	
	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P304244	
	EPA 350.1 Rev. 2.0	Ammonia-N	0.016		mg N/L	P304218	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.25		mg N/L	P304584	
1796140	EPA 353.2 Rev. 2.0	NO2NO3-N	0.22		mg N/L	P304264	
	EPA 365.1 Rev. 2.0	Total-P	0.027		mg P/L	P304614	
	SM 5310 B-00	Organic Carbon	3.8		mg C/L	P304296	
	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.007	I	mg P/L	P303644	

Sample Location: Shoal River @ Bill Dugger Park SR-85

Collection Date/Time: 05/04/2016 14:00

Field ID: G4NW0023

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
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Field ID: G4NW0023

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1796121	EPA 180.1 Rev. 2.0	Turbidity	6.7		NTU	P303666	
	EPA 300.0 Rev. 2.1	Chloride	2.9		mg Cl/L	P304288	
		Sulfate	1.1		mg SO4/L	P304556	
	SM 2120 B	Color (true)	59	A	PCU	P303618	
	SM 2320 B-97	Total Alkalinity	4.0		mg CaCO3/L	P304242	
	SM 2540 C-97	TDS	24	I	mg/L	P304455	
	SM 2540 D-97	TSS	10		mg/L	P304387	
	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P304244	
1796127	EPA 350.1 Rev. 2.0	Ammonia-N	0.014		mg N/L	P304217	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.22		mg N/L	P304584	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.26		mg N/L	P304264	
	EPA 365.1 Rev. 2.0	Total-P	0.018		mg P/L	P304614	
	SM 5310 B-00	Organic Carbon	3.2		mg C/L	P304296	
1796133	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P303644	

Sample Location: Yellow River above Metts Creek

Collection Date/Time: 05/04/2016 15:40

Field ID: G4NW0370

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1796122	EPA 180.1 Rev. 2.0	Turbidity	10		NTU	P303666	
	EPA 300.0 Rev. 2.1	Chloride	3.2		mg Cl/L	P304288	
		Sulfate	1.1		mg SO4/L	P304556	
	SM 2120 B	Color (true)	66		PCU	P303618	
	SM 2320 B-97	Total Alkalinity	11		mg CaCO3/L	P304242	
	SM 2540 C-97	TDS	32		mg/L	P304455	
	SM 2540 D-97	TSS	15		mg/L	P304387	
	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P304244	
1796128	EPA 350.1 Rev. 2.0	Ammonia-N	0.020		mg N/L	P304217	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.27		mg N/L	P304584	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.21		mg N/L	P304264	
	EPA 365.1 Rev. 2.0	Total-P	0.026		mg P/L	P304614	
	SM 5310 B-00	Organic Carbon	3.5		mg C/L	P304296	
1796134	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.005	I	mg P/L	P303644	

Sample Location: Yellow River below Gully Branch Griffith Ferry

Collection Date/Time: 05/04/2016 11:10

Field ID: G4NW0047

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1796191	EPA 200.7 Rev. 4.4	Calcium	7.68		mg/L	P303829	
		Iron	1.27E+03		ug/L	P303829	
		Magnesium	1.66		mg/L	P303829	
		Potassium	0.53	I	mg/L	P303829	
		Sodium	2.0		mg/L	P303829	
		Zinc	5.0	U	ug/L	P303829	
	EPA 200.8 Rev. 5.4	Arsenic	0.62		ug/L	P303829	

Field ID: G4NW0047

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1796191	EPA 200.8 Rev. 5.4	Cadmium	0.020	U	ug/L	P303829	
		Chromium	0.61		ug/L	P303829	
		Copper	0.30	I	ug/L	P303829	
		Lead	0.36	I	ug/L	P303829	
		Nickel	0.37		ug/L	P303829	
		Silver	0.0050	U	ug/L	P303829	

Sample Location: Yellow River blw Trammel Creek

Collection Date/Time: 05/04/2016 11:45

Field ID: G4NW0311

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1796192	EPA 200.7 Rev. 4.4	Calcium	7.79		mg/L	P303829	
		Iron	1.32E+03		ug/L	P303829	
		Magnesium	1.71		mg/L	P303829	
		Potassium	0.55	I	mg/L	P303829	
		Sodium	2.1		mg/L	P303829	
		Zinc	5.0	U	ug/L	P303829	
	EPA 200.8 Rev. 5.4	Arsenic	0.62		ug/L	P303829	
		Cadmium	0.020	U	ug/L	P303829	
		Chromium	0.61		ug/L	P303829	
		Copper	0.29	I	ug/L	P303829	
		Lead	0.38	I	ug/L	P303829	
		Nickel	0.36		ug/L	P303829	
		Silver	0.0050	U	ug/L	P303829	

Sample Location: Yellow River @ Milligan Park

Collection Date/Time: 05/04/2016 11:55

Field ID: G4NW0260

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1796193	EPA 200.7 Rev. 4.4	Calcium	7.95		mg/L	P303829	
		Iron	1.27E+03		ug/L	P303829	
		Magnesium	1.69		mg/L	P303829	
		Potassium	0.55	I	mg/L	P303829	
		Sodium	2.0		mg/L	P303829	
		Zinc	5.0	U	ug/L	P303829	
	EPA 200.8 Rev. 5.4	Arsenic	0.61		ug/L	P303829	
		Cadmium	0.020	U	ug/L	P303829	
		Chromium	0.55		ug/L	P303829	
		Copper	0.26	I	ug/L	P303829	
		Lead	0.35	I	ug/L	P303829	
		Nickel	0.37		ug/L	P303829	
		Silver	0.0050	U	ug/L	P303829	

**Quality Assurance Report
Method Blank Results**

Quality Assurance Report Method Blank Results

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P303666

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P303667

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P303829

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: P303829

Component	Result	Code	Units
Arsenic	0.050	U	ug/L
Cadmium	0.020	U	ug/L
Chromium	0.050	U	ug/L
Copper	0.10	U	ug/L
Lead	0.20	U	ug/L
Nickel	0.050	U	ug/L
Silver	0.0050	U	ug/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P304288

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P304556

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P304217

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

Quality Assurance Report Method Blank Results

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P304218

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P304584

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P304264

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P304274

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P304614

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P303643

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P303644

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

Reference Method: SM 2120 B
Batch ID: P303618

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2120 B
Batch ID: P303619

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Quality Assurance Report Method Blank Results

Reference Method: SM 2320 B-97
Batch ID: P304242

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

Reference Method: SM 2540 C-97
Batch ID: P304455

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P304387

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500 F-C-97
Batch ID: P304244

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-00
Batch ID: P304295

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

Reference Method: SM 5310 B-00
Batch ID: P304296

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: P303829

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Calcium	104		P	85 - 115
Iron	108		P	85 - 115
Magnesium	105		P	85 - 115
Potassium	101		P	85 - 115
Sodium	101		P	85 - 115
Zinc	99.8		P	85 - 115

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P303829

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Arsenic	95.1		P	85 - 115

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P303829

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Cadmium	98.1		P	85 - 115
Chromium	96.4		P	85 - 115
Copper	93.6		P	85 - 115
Lead	101		P	85 - 115
Nickel	96.1		P	85 - 115
Silver	93.2		P	85 - 115

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P304288

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Chloride	97.4		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P304556

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P304217

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: P304218

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P304584

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P304264

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: P304274

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

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P304614

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P303643

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P303644

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

Reference Method: SM 2320 B-97
Batch ID: P304242

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

Reference Method: SM 4500 F-C-97
Batch ID: P304244

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	96.5		P	92 - 103

Reference Method: SM 5310 B-00
Batch ID: P304295

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	98.4		P	85 - 115

Reference Method: SM 5310 B-00
Batch ID: P304296

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

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P303829

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1794523	Calcium	102		P	80 - 120
1794523	Iron	107	109	P/P	80 - 120
1794523	Magnesium	105		P	80 - 120
1794523	Potassium	102	103	P/P	80 - 120
1794523	Sodium	103		P	80 - 120
1794523	Zinc	97.0	95.9	P/P	80 - 120

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P303829

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1796611	Calcium	106		P	80 - 120
1796611	Iron	107		P	80 - 120
1796611	Magnesium	109		P	80 - 120
1796611	Potassium	99.2		P	80 - 120
1796611	Sodium	101		P	80 - 120
1796611	Zinc	99.0		P	80 - 120

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P303829

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1794523	Arsenic	96.4	96.7	P/P	80 - 120
1794523	Cadmium	98.2	98.6	P/P	80 - 120
1794523	Chromium	96.2	94.2	P/P	80 - 120
1794523	Copper	91.2	91.9	P/P	80 - 120
1794523	Lead	101	102	P/P	80 - 120
1794523	Nickel	91.6	93.2	P/P	80 - 120
1794523	Silver	93.5	92.9	P/P	80 - 120
1796611	Arsenic	94.6		P	80 - 120
1796611	Cadmium	97.3		P	80 - 120
1796611	Chromium	96.2		P	80 - 120
1796611	Copper	93.1		P	80 - 120
1796611	Lead	101		P	80 - 120
1796611	Nickel	94.8		P	80 - 120
1796611	Silver	91.7		P	80 - 120

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P304288

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1796059	Chloride	94.7		P	90 - 110
1796077	Chloride	95.6		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P304556

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1796062	Sulfate	97.1		P	90 - 110
1796077	Sulfate	96.0		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P304217

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1796101	Ammonia-N	100	103	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P304218

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1796138	Ammonia-N	100	103	P/P	90 - 110

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P304584

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1796102	Kjeldahl Nitrogen	102	101	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P304264

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1796126	NO2NO3-N	102		P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P304274

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1796079	NO2NO3-N	101	102	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P304614

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1796102	Total-P	106	103	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P303643

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1796033	O-Phosphate-P	101	102	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P303644

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1796134	O-Phosphate-P	98.6	101	P/P	90 - 110

Reference Method: SM 4500 F-C-97
Batch ID: P304244

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1796076	Fluoride	97.4	96.7	P/P	91 - 105

Reference Method: SM 5310 B-00
Batch ID: P304295

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1796020	Organic Carbon	97.4	94.7	P/P	85 - 115

Reference Method: SM 5310 B-00
Batch ID: P304296

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1796127	Organic Carbon	97.6	97.7	P/P	85 - 115

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P303666

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1796091	Turbidity	4.75	Sample	P	0 - 20

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P303667

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1796136	Turbidity	2.16	Sample	P	0 - 20

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P303829

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1794523	Calcium	2.23	Spike	P	0 - 20
1794523	Iron	1.80	Spike	P	0 - 20
1794523	Magnesium	2.52	Spike	P	0 - 20
1794523	Potassium	0.837	Spike	P	0 - 20
1794523	Sodium	1.73	Spike	P	0 - 20
1794523	Zinc	1.12	Spike	P	0 - 20

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P303829

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1794523	Arsenic	0.253	Spike	P	0 - 20
1794523	Cadmium	0.397	Spike	P	0 - 20
1794523	Chromium	2.06	Spike	P	0 - 20
1794523	Copper	0.821	Spike	P	0 - 20
1794523	Lead	1.41	Spike	P	0 - 20
1794523	Nickel	1.69	Spike	P	0 - 20
1794523	Silver	0.656	Spike	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P304288

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1796059	Chloride	0.376	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P304556

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1796077	Sulfate	0.636	Sample	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P304217

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1796101	Ammonia-N	2.53	Spike	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P304218

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1796138	Ammonia-N	2.32	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P304584

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1796102	Kjeldahl Nitrogen	0.945	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P304264

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1796126	NO2NO3-N	1.70	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P304274

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1796079	NO2NO3-N	0.862	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P304614

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1796102	Total-P	2.54	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P303643

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1796033	O-Phosphate-P	1.48	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P303644

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1796134	O-Phosphate-P	2.38	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: SM 2120 B
Batch ID: P303618

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1796121	Color (true)	1.07	Sample	P	0 - 20

Reference Method: SM 2120 B
Batch ID: P303619

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1796136	Color (true)	3.18	Sample	P	0 - 20

Reference Method: SM 2320 B-97
Batch ID: P304242

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1796076	Total Alkalinity	1.44	Sample	P	0 - 4.8

Reference Method: SM 2540 C-97
Batch ID: P304455

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1796135	TDS	2.25	Sample	P	0 - 10

Reference Method: SM 2540 D-97
Batch ID: P304387

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1796135	TSS	0.0	Sample	P	0 - 10

Reference Method: SM 4500 F-C-97
Batch ID: P304244

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1796076	Fluoride	0.530	Spike	P	0 - 3.0

Reference Method: SM 5310 B-00
Batch ID: P304295

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1796020	Organic Carbon	2.28	Spike	P	0 - 20

Reference Method: SM 5310 B-00
Batch ID: P304296

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1796127	Organic Carbon	0.0439	Spike	P	0 - 20

Quality Assurance Report Precision

* Sample, spike and/or laboratory control sample precision (LCS) is reported.
Replicate spike precision may be reported when sample results are below quantifiable levels.

Quality Assurance Report Calibration Verification

Reference Method: SM 2120 B

Run ID: A69297

Included Lab Sample IDs: 1796117, 1796118, 1796119, 1796120, 1796121, 1796122, 1796135, 1796136, 1796137

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	97.8	99.2	P/P	90 - 115
Color (true)	99.2	100	P/P	90 - 115

Reference Method: EPA 365.1 Rev. 2.0 dissolved

Run ID: A69300

Included Lab Sample IDs: 1796129, 1796130, 1796131, 1796132, 1796133, 1796134, 1796141, 1796142, 1796143

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	100	100	P/P	90 - 110
O-Phosphate-P	100	100	P/P	90 - 110
O-Phosphate-P	99.9	100	P/P	90 - 110

Reference Method: EPA 180.1 Rev. 2.0

Run ID: A69305

Included Lab Sample IDs: 1796117, 1796118, 1796119, 1796120, 1796121, 1796122, 1796135, 1796136, 1796137

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

Reference Method: EPA 300.0 Rev. 2.1

Run ID: A69423

Included Lab Sample IDs: 1796117, 1796118, 1796119, 1796120, 1796121, 1796122, 1796135, 1796136, 1796137

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	99.0	99.6	P/P	90 - 110

Reference Method: EPA 200.7 Rev. 4.4

Run ID: A69435

Included Lab Sample IDs: 1796191, 1796192, 1796193

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Calcium	99.6	98.3	P/P	90 - 110
Iron	101	101	P/P	90 - 110
Magnesium	102	101	P/P	90 - 110
Potassium	98.8	97.8	P/P	90 - 110
Sodium	99.8	99.0	P/P	90 - 110
Zinc	99.9	97.6	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A69447

Included Lab Sample IDs: 1796123, 1796124, 1796125, 1796126, 1796127, 1796128, 1796138, 1796139, 1796140

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

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A69447

Included Lab Sample IDs: 1796123, 1796124, 1796125, 1796126, 1796127, 1796128, 1796138, 1796139, 1796140

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	100	101	P/P	90 - 110
Ammonia-N	101	99.7	P/P	90 - 110

Reference Method: EPA 200.8 Rev. 5.4

Run ID: A69460

Included Lab Sample IDs: 1796191, 1796192, 1796193

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Arsenic	96.1	97.7	P/P	90 - 110
Arsenic	96.5	96.1	P/P	90 - 110
Cadmium	97.3	97.9	P/P	90 - 110
Cadmium	97.9	97.5	P/P	90 - 110
Chromium	95.8	97.2	P/P	90 - 110
Chromium	97.2	97.3	P/P	90 - 110
Copper	95.6	97.3	P/P	90 - 110
Copper	95.7	95.6	P/P	90 - 110
Nickel	95.0	96.0	P/P	90 - 110
Nickel	96.0	98.5	P/P	90 - 110
Silver	93.9	95.1	P/P	90 - 110
Silver	95.1	95.0	P/P	90 - 110

Reference Method: SM 2320 B-97

Run ID: A69463

Included Lab Sample IDs: 1796117, 1796118, 1796119, 1796120, 1796121, 1796122, 1796135, 1796136, 1796137

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	99.4	102	P/P	90 - 110

Reference Method: SM 4500 F-C-97

Run ID: A69463

Included Lab Sample IDs: 1796117, 1796118, 1796119, 1796120, 1796121, 1796122, 1796135, 1796136, 1796137

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	99.5	97.5	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A69466

Included Lab Sample IDs: 1796123, 1796124, 1796125, 1796126, 1796127, 1796128, 1796138, 1796139, 1796140

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

Reference Method: SM 5310 B-00

Run ID: A69473

Included Lab Sample IDs: 1796123, 1796124, 1796125, 1796126, 1796127, 1796128, 1796138, 1796139, 1796140

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	97.0	97.3	P/P	90 - 110
Organic Carbon	97.3	97.0	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: EPA 200.8 Rev. 5.4

Run ID: A69500

Included Lab Sample IDs: 1796191, 1796192, 1796193

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

Reference Method: EPA 300.0 Rev. 2.1

Run ID: A69555

Included Lab Sample IDs: 1796117, 1796118, 1796119, 1796120, 1796121, 1796122, 1796135, 1796136, 1796137

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Sulfate	97.6	98.6	P/P	90 - 110
Sulfate	98.8	97.6	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A69607

Included Lab Sample IDs: 1796123, 1796124, 1796125, 1796126, 1796127, 1796128, 1796138, 1796139, 1796140

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	95.9	95.7	P/P	90 - 110
Kjeldahl Nitrogen	96.6	95.9	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A69622

Included Lab Sample IDs: 1796123, 1796124, 1796125, 1796126, 1796127, 1796128, 1796138, 1796139, 1796140

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	98.2	99.0	P/P	90 - 110
Total-P	99.0	98.2	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						4.75	
	Turbidity						2.16	
EPA 200.7 Rev. 4.4	Calcium	104		102	106			2.23
	Iron	108		107	109	107		1.80
	Magnesium	105		105	109			2.52
	Potassium	101		102	103	99.2		0.837
	Sodium	101		103	101			1.73
	Zinc	99.8		97.0	95.9	99.0		1.12
EPA 200.8 Rev. 5.4	Arsenic	95.1		96.4	96.7	94.6		0.253
	Cadmium	98.1		98.2	98.6	97.3		0.397
	Chromium	96.4		96.2	94.2	96.2		2.06
	Copper	93.6		91.2	91.9	93.1		0.821
	Lead	101		101	102	101		1.41
	Nickel	96.1		91.6	93.2	94.8		1.69
	Silver	93.2		93.5	92.9	91.7		0.656

Quality Assurance Report Summary

Ref. Method	Analyte	LCS % Recovery	MS % Recovery		Precision	
					LCS	MS
EPA 300.0 Rev. 2.1	Chloride	97.4	94.7	95.6	0.376	
	Sulfate	97.5	96.0	97.1	0.636	
EPA 350.1 Rev. 2.0	Ammonia-N	100	100	103		2.53
	Ammonia-N	100	100	103		2.32
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	102	102	101		0.945
EPA 353.2 Rev. 2.0	NO2NO3-N	104	102			1.70
	NO2NO3-N	103	101	102		0.862
EPA 365.1 Rev. 2.0	Total-P	99.4	106	103		2.54
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	104	101	102		1.48
	O-Phosphate-P	100	98.6	101		2.38
SM 2120 B	Color (true)				1.07	
	Color (true)				3.18	
SM 2320 B-97	Total Alkalinity	101			1.44	
SM 2540 C-97	TDS				2.25	
SM 2540 D-97	TSS				0.0	
SM 4500 F-C-97	Fluoride	96.5	97.4	96.7		0.530
SM 5310 B-00	Organic Carbon	98.4	97.4	94.7		2.28
	Organic Carbon	97.6	97.6	97.7		0.0439

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	1796117, 1796118, 1796119, 1796120, 1796121, 1796122, 1796135, 1796136, 1796137
EPA 200.7 Rev. 4.4 / E31780	Total Recoverable Metals analysis using ICP emission spectroscopy for aqueous samples supporting Clean Water Act Projects	1796191, 1796192, 1796193
EPA 200.8 Rev. 5.4 / E31780	Total Recoverable Metals analysis using ICP-MS for aqueous samples supporting Clean Water Act Projects	1796191, 1796192, 1796193
EPA 300.0 Rev. 2.1 / E31780	Chloride in aqueous matrices	1796117, 1796118, 1796119, 1796120, 1796121, 1796122, 1796135, 1796136, 1796137
EPA 300.0 Rev. 2.1 / E31780	Sulfate in aqueous matrices	1796117, 1796118, 1796119, 1796120, 1796121, 1796122, 1796135, 1796136, 1796137
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	1796123, 1796124, 1796125, 1796126, 1796127, 1796128, 1796138, 1796139, 1796140
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	1796123, 1796124, 1796125, 1796126, 1796127, 1796128, 1796138, 1796139, 1796140
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	1796123, 1796124, 1796125, 1796126, 1796127, 1796128, 1796138, 1796139, 1796140
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	1796123, 1796124, 1796125, 1796126, 1796127, 1796128, 1796138, 1796139, 1796140
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	1796129, 1796130, 1796131, 1796132, 1796133, 1796134, 1796141, 1796142, 1796143
SM 2120 B / E31780	True Color measured at 450 nm	1796117, 1796118, 1796119, 1796120, 1796121, 1796122, 1796135, 1796136, 1796137
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO3/L	1796117, 1796118, 1796119, 1796120, 1796121, 1796122, 1796135, 1796136, 1796137

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
SM 2540 C-97 / E31780	Total Dissolved Solids in aqueous matrices	1796117, 1796118, 1796119, 1796120, 1796121, 1796122, 1796135, 1796136, 1796137
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices	1796117, 1796118, 1796119, 1796120, 1796121, 1796122, 1796135, 1796136, 1796137
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	1796117, 1796118, 1796119, 1796120, 1796121, 1796122, 1796135, 1796136, 1796137
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	1796123, 1796124, 1796125, 1796126, 1796127, 1796128, 1796138, 1796139, 1796140

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	05/05/2016			05/05/2016 16:25	Blanca Fach	1796117, 1796118, 1796119, 1796120, 1796121, 1796122, 1796135, 1796136, 1796137
EPA 200.7 Rev. 4.4	05/05/2016	05/09/2016	Elliott D. Healy	05/11/2016	Joshua Ayres	1796191, 1796192, 1796193
EPA 200.8 Rev. 5.4	05/05/2016	05/09/2016	Elliott D. Healy	05/12/2016	Charles J. Peterson	1796191, 1796192, 1796193
	05/05/2016	05/09/2016	Elliott D. Healy	05/16/2016	Robert K Palmer	1796191, 1796192, 1796193
EPA 300.0 Rev. 2.1	05/05/2016			05/13/2016	Elisa J Lutz	1796117, 1796118, 1796119, 1796120, 1796121, 1796122, 1796135, 1796136, 1796137
	05/05/2016			05/17/2016	Elisa J Lutz	1796117, 1796118, 1796119, 1796120, 1796121, 1796122, 1796135, 1796136, 1796137
EPA 350.1 Rev. 2.0	05/05/2016			05/12/2016	Diana M. Turner	1796123, 1796124, 1796125, 1796126, 1796127, 1796128, 1796138, 1796139, 1796140
EPA 351.2 Rev. 2.0	05/05/2016	05/19/2016	Sofia Elnemr	05/20/2016	Christopher Armour	1796123, 1796124, 1796125, 1796126, 1796127, 1796128, 1796138, 1796139, 1796140
EPA 353.2 Rev. 2.0	05/05/2016			05/13/2016	Peter D. Kaus	1796123, 1796124, 1796125, 1796126, 1796127, 1796128, 1796138, 1796139, 1796140
EPA 365.1 Rev. 2.0	05/05/2016	05/19/2016	Vijayalakshmi Reddy	05/23/2016	Lipi Saha	1796123, 1796124, 1796125, 1796126, 1796127, 1796128, 1796138, 1796139, 1796140
EPA 365.1 Rev. 2.0 dissolved	05/05/2016			05/05/2016 15:39	Julia Storbeck	1796134
	05/05/2016			05/05/2016 16:09	Julia Storbeck	1796129
	05/05/2016			05/05/2016 16:10	Julia Storbeck	1796130, 1796131
	05/05/2016			05/05/2016 16:16	Julia Storbeck	1796132, 1796133
	05/05/2016			05/05/2016 16:17	Julia Storbeck	1796141
	05/05/2016			05/05/2016 16:18	Julia Storbeck	1796142
	05/05/2016			05/05/2016 16:19	Julia Storbeck	1796143
SM 2120 B	05/05/2016			05/05/2016 13:19	Rochelle Y Jackson	1796117, 1796118
	05/05/2016			05/05/2016 13:20	Rochelle Y Jackson	1796119
	05/05/2016			05/05/2016 13:21	Rochelle Y Jackson	1796120
	05/05/2016			05/05/2016 13:22	Rochelle Y Jackson	1796121
	05/05/2016			05/05/2016 13:23	Rochelle Y Jackson	1796122
	05/05/2016			05/05/2016 13:24	Rochelle Y Jackson	1796135
	05/05/2016			05/05/2016 13:28	Rochelle Y Jackson	1796136
	05/05/2016			05/05/2016 13:29	Rochelle Y Jackson	1796137
SM 2320 B-97	05/05/2016			05/13/2016	Dale L. Simmons	1796117, 1796118, 1796119, 1796120, 1796121, 1796122, 1796135, 1796136, 1796137

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
SM 2540 C-97	05/05/2016			05/09/2016	Sima Feizi	1796117, 1796118, 1796119, 1796120, 1796121, 1796122, 1796135, 1796136, 1796137
SM 2540 D-97	05/05/2016			05/09/2016	Sima Feizi	1796117, 1796118, 1796119, 1796120, 1796121, 1796122, 1796135, 1796136, 1796137
SM 4500 F-C-97	05/05/2016			05/13/2016	Dale L. Simmons	1796117, 1796118, 1796119, 1796120, 1796121, 1796122, 1796135, 1796136, 1796137
SM 5310 B-00	05/05/2016			05/12/2016	Diana M. Turner	1796123
	05/05/2016			05/13/2016	Diana M. Turner	1796124, 1796125, 1796126, 1796127, 1796128, 1796138, 1796139, 1796140