

Chemical Analysis Report

CEN-DIST-2019-02-06-01

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

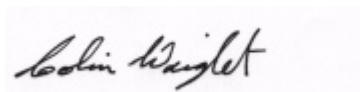
Event Description: **Up Cypress / Ingram / Lotta / Panther / Felter**
Request ID: **RQ-2019-02-04-56**
Customer: **CEN-DIST**
Project ID: **SMP**

Send Reports to:
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Certified by: Colin Wright, Program Administrator

Date Certified: 04-MAR-2019 13:49

A handwritten signature in black ink, appearing to read "Colin Wright", is displayed on a light gray rectangular background.

Case Narrative

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

Results for the following analytical 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 by the Florida Department of Health Environmental Laboratory Certification Program 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: CYPRESS CREEK @ JACARANDA

Collection Date/Time: 02/05/2019 13:06

Field ID: G4CE0157

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2060302	EPA 180.1 Rev. 2.0	Turbidity	0.65		NTU	P358459	
	EPA 300.0 Rev. 2.1	Chloride	34		mg Cl/L	P359197	
		Sulfate	18		mg SO4/L	P359199	
		Color (true)	120		PCU	P358454	
	SM 2320 B-97	Total Alkalinity	10		mg CaCO3/L	P358921	RPD
	SM 2540 C-97	TDS	126		mg/L	P359064	
	SM 2540 D-97	TSS	3	I	mg/L	P358945	
	SM 4500 F-C-97	Fluoride	0.077	I	mg F/L	P358925	
2060304	EPA 350.1 Rev. 2.0	Ammonia-N	0.003	I	mg N/L	P358797	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.58		mg N/L	P358698	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.008	I	mg N/L	P358772	
	EPA 365.1 Rev. 2.0	Total-P	0.009		mg P/L	P358617	
	SM 5310 B-00	Organic Carbon	13		mg C/L	P358672	
2060306	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P358449	
2060361	EPA 200.7 Rev. 4.4	Barium	6.0		ug/L	P358547	
		Calcium	7.43		mg/L	P358547	
		Iron	69	I	ug/L	P358547	
		Magnesium	4.21		mg/L	P358547	
		Potassium	5.9		mg/L	P358547	
		Sodium	18.9		mg/L	P358547	
		Zinc	5.0	U	ug/L	P358547	
	EPA 200.8 Rev. 5.4	Aluminum	34		ug/L	P358547	
		Antimony	0.050	U	ug/L	P358547	
		Arsenic	0.54		ug/L	P358547	
		Boron**	41.1		ug/L	P358547	
		Cadmium	0.020	U	ug/L	P358547	
		Chromium	0.40	U	ug/L	P358547	
		Copper	0.40	U	ug/L	P358547	
		Lead	0.20	U	ug/L	P358547	
		Nickel	0.50	U	ug/L	P358547	
		Selenium	0.20	U	ug/L	P358547	
		Silver	0.010	U	ug/L	P358547	
		Thallium	0.10	U	ug/L	P358547	

Ref. Method and Comment:

SM 2540 D-97: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample.

Sample Location: CYPRESS CREEK @ SR 535

Collection Date/Time: 02/05/2019 13:24

Field ID: G4CE0008

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2060303	EPA 180.1 Rev. 2.0	Turbidity	0.30		NTU	P358459	
	EPA 300.0 Rev. 2.1	Chloride	28		mg Cl/L	P359197	
		Sulfate	8.3		mg SO4/L	P359199	
	SM 2120 B	Color (true)	140		PCU	P358454	
	SM 2320 B-97	Total Alkalinity	12		mg CaCO3/L	P358921	RPD
	SM 2540 C-97	TDS	106		mg/L	P359064	
	SM 2540 D-97	TSS	2	U	mg/L	P358945	
	SM 4500 F-C-97	Fluoride	0.068	I	mg F/L	P358925	
2060305	EPA 350.1 Rev. 2.0	Ammonia-N	0.003	I	mg N/L	P358797	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.52		mg N/L	P358698	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	I	mg N/L	P358936	
	EPA 365.1 Rev. 2.0	Total-P	0.008		mg P/L	P358617	
	SM 5310 B-00	Organic Carbon	15		mg C/L	P358672	
2060307	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P358449	
2060362	EPA 200.7 Rev. 4.4	Barium	3.9	I	ug/L	P358547	
		Calcium	6.41		mg/L	P358547	
		Iron	61	I	ug/L	P358547	
		Magnesium	2.73		mg/L	P358547	
		Potassium	3.9		mg/L	P358547	
		Sodium	16.5		mg/L	P358547	
		Zinc	5.0	U	ug/L	P358547	
	EPA 200.8 Rev. 5.4	Aluminum	34		ug/L	P358547	
		Antimony	0.050	U	ug/L	P358547	
		Arsenic	0.37		ug/L	P358547	
		Boron**	32.0		ug/L	P358547	
		Cadmium	0.020	U	ug/L	P358547	
		Chromium	0.49	I	ug/L	P358547	
		Copper	0.40	U	ug/L	P358547	
		Lead	0.20	U	ug/L	P358547	
		Nickel	0.50	U	ug/L	P358547	
		Selenium	0.20	U	ug/L	P358547	
		Silver	0.010	U	ug/L	P358547	
		Thallium	0.10	U	ug/L	P358547	

Ref. Method and Comment:

SM 2540 D-97: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample.

Sample Location: LAKE LOTTA @ CENTER OF SOUTHERN LOBE Collection Date/Time: 02/05/2019 09:23

Field ID: G2CE0093

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2060314	EPA 180.1 Rev. 2.0	Turbidity	4.1		NTU	P358459	
	EPA 300.0 Rev. 2.1	Chloride	11		mg Cl/L	P359271	
		Sulfate	10		mg SO4/L	P359274	
	SM 2120 B	Color (true)	59		PCU	P358455	
	SM 2320 B-97	Total Alkalinity	53		mg CaCO3/L	P359098	
	SM 2540 C-97	TDS	116		mg/L	P359064	
	SM 2540 D-97	TSS	6	I	mg/L	P358945	
	SM 4500 F-C-97	Fluoride	0.11		mg F/L	P359102	
	EPA 350.1 Rev. 2.0	Ammonia-N	0.004	I	mg N/L	P358797	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.1		mg N/L	P358697	
2060317	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P358936	
	EPA 365.1 Rev. 2.0	Total-P	0.051		mg P/L	P358617	
	SM 5310 B-00	Organic Carbon	9.8		mg C/L	P358672	
	EPA 365.1 Rev. 2.0	O-Phosphate-P	0.004	U	mg P/L	P358451	
	dissolved						
2060320	EPA 365.1 Rev. 2.0	O-Phosphate-P	0.004	U	mg P/L	P358451	

Ref. Method and Comment:

SM 2540 D-97: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample.

Sample Location: LAKE FELTER @ CENTER

Collection Date/Time: 02/05/2019 10:21

Field ID: G1CE0042

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2060315	EPA 180.1 Rev. 2.0	Turbidity	0.90		NTU	P358460	
	EPA 300.0 Rev. 2.1	Chloride	15		mg Cl/L	P359271	
		Sulfate	1.4		mg SO4/L	P359274	
	SM 2120 B	Color (true)	93	A	PCU	P358455	
	SM 2320 B-97	Total Alkalinity	21		mg CaCO3/L	P359098	
	SM 2540 C-97	TDS	110		mg/L	P359065	
	SM 2540 D-97	TSS	2	U	mg/L	P358946	
	SM 4500 F-C-97	Fluoride	0.071	I	mg F/L	P359102	
2060318	EPA 350.1 Rev. 2.0	Ammonia-N	0.34		mg N/L	P358908	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	2.2		mg N/L	P358697	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.049		mg N/L	P359080	
	EPA 365.1 Rev. 2.0	Total-P	0.011		mg P/L	P358618	
	SM 5310 B-00	Organic Carbon	24		mg C/L	P358672	
2060321	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P358451	

Ref. Method and Comment:

SM 2540 D-97: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample.

Sample Location: LAKE INGRAM WEST

Collection Date/Time: 02/05/2019 11:48

Field ID: G4CE0154

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2060308	EPA 180.1 Rev. 2.0	Turbidity	1.1		NTU	P358459	
	EPA 300.0 Rev. 2.1	Chloride	7.8		mg Cl/L	P359271	
		Sulfate	3.1		mg SO4/L	P359274	
	SM 2120 B	Color (true)	42	A	PCU	P358454	
	SM 2320 B-97	Total Alkalinity	8.6		mg CaCO3/L	P358921	RPD
	SM 2540 C-97	TDS	58		mg/L	P359064	
	SM 2540 D-97	TSS	2	I	mg/L	P358945	
	SM 4500 F-C-97	Fluoride	0.040	I	mg F/L	P358925	
2060310	EPA 350.1 Rev. 2.0	Ammonia-N	0.004	I	mg N/L	P358797	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.86		mg N/L	P358698	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P358936	
	EPA 365.1 Rev. 2.0	Total-P	0.012		mg P/L	P358617	
	SM 5310 B-00	Organic Carbon	11		mg C/L	P358672	
2060312	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P358449	
2060363	EPA 200.7 Rev. 4.4	Barium	3.5	I	ug/L	P358547	
		Calcium	3.19		mg/L	P358547	
		Iron	40	I	ug/L	P358547	
		Magnesium	2.57		mg/L	P358547	
		Potassium	1.3		mg/L	P358547	
		Sodium	4.1		mg/L	P358547	
		Zinc	5.0	U	ug/L	P358547	
		Aluminum	34		ug/L	P358547	
		Antimony	0.13	I	ug/L	P358547	
		Arsenic	1.32		ug/L	P358547	
	EPA 200.8 Rev. 5.4	Boron**	25.7		ug/L	P358547	
		Cadmium	0.020	U	ug/L	P358547	
		Chromium	0.40	U	ug/L	P358547	
		Copper	1.27		ug/L	P358547	
		Lead	0.20	U	ug/L	P358547	
		Nickel	0.50	U	ug/L	P358547	
		Selenium	0.20	U	ug/L	P358547	
		Silver	0.010	U	ug/L	P358547	
		Thallium	0.10	U	ug/L	P358547	

Ref. Method and Comment:

SM 2540 D-97: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample.

Sample Location: LAKE INGRAM EAST

Collection Date/Time: 02/05/2019 11:39

Field ID: G4CE0155

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2060309	EPA 180.1 Rev. 2.0	Turbidity	1.0		NTU	P358459	
	EPA 300.0 Rev. 2.1	Chloride	7.9		mg Cl/L	P359271	
		Sulfate	3.2		mg SO4/L	P359274	
	SM 2120 B	Color (true)	46		PCU	P358455	
	SM 2320 B-97	Total Alkalinity	8.6		mg CaCO3/L	P359098	
	SM 2540 C-97	TDS	72		mg/L	P359064	
	SM 2540 D-97	TSS	2	I	mg/L	P358945	
	SM 4500 F-C-97	Fluoride	0.038	I	mg F/L	P359102	
2060311	EPA 350.1 Rev. 2.0	Ammonia-N	0.004	I	mg N/L	P358797	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.87		mg N/L	P358698	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P358936	
	EPA 365.1 Rev. 2.0	Total-P	0.019		mg P/L	P358617	
	SM 5310 B-00	Organic Carbon	11		mg C/L	P358672	
2060313	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P358451	
2060364	EPA 200.7 Rev. 4.4	Barium	3.5	I	ug/L	P358547	
		Calcium	3.26		mg/L	P358547	
		Iron	43	I	ug/L	P358547	
		Magnesium	2.61		mg/L	P358547	
		Potassium	1.4		mg/L	P358547	
		Sodium	4.2		mg/L	P358547	
		Zinc	5.0	U	ug/L	P358547	
		Aluminum	33		ug/L	P358547	
		Antimony	0.14	I	ug/L	P358547	
		Arsenic	1.41		ug/L	P358547	
	EPA 200.8 Rev. 5.4	Boron**	26.0		ug/L	P358547	
		Cadmium	0.020	U	ug/L	P358547	
		Chromium	0.40	U	ug/L	P358547	
		Copper	3.82		ug/L	P358547	
		Lead	0.29	I	ug/L	P358547	
		Nickel	0.50	U	ug/L	P358547	
		Selenium	0.20	U	ug/L	P358547	
		Silver	0.010	U	ug/L	P358547	
		Thallium	0.10	U	ug/L	P358547	

Ref. Method and Comment:

SM 2540 D-97: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample.

Sample Location: PANTHER LAKE @ CENTER OF CENTRAL LOBE

Collection Date/Time: 02/05/2019 12:18

Field ID: G4CE0156

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2060316	EPA 180.1 Rev. 2.0	Turbidity	1.3		NTU	P358460	
	EPA 300.0 Rev. 2.1	Chloride	29		mg Cl/L	P359271	
		Sulfate	23		mg SO4/L	P359274	
	SM 2120 B	Color (true)	22		PCU	P358455	
	SM 2320 B-97	Total Alkalinity	25		mg CaCO3/L	P359098	
	SM 2540 C-97	TDS	128	A	mg/L	P359065	
	SM 2540 D-97	TSS	2	IA	mg/L	P358946	
	SM 4500 F-C-97	Fluoride	0.054	I	mg F/L	P359102	
2060319	EPA 350.1 Rev. 2.0	Ammonia-N	0.012		mg N/L	P358908	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.66		mg N/L	P358697	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.019		mg N/L	P358936	
	EPA 365.1 Rev. 2.0	Total-P	0.012		mg P/L	P358618	
	SM 5310 B-00	Organic Carbon	7.8		mg C/L	P358672	
2060322	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P358451	

Ref. Method and Comment:

SM 2540 D-97: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample.

Quality Assurance Report Method Blank Results

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P358459

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P358460

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P358547

Component	Result	Code	Units
Barium	1.0	U	ug/L
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: P358547

Component	Result	Code	Units
Aluminum	5.0	U	ug/L
Antimony	0.050	U	ug/L
Arsenic	0.050	U	ug/L
Boron	2.0	U	ug/L
Cadmium	0.020	U	ug/L
Chromium	0.40	U	ug/L
Copper	0.40	U	ug/L
Lead	0.20	U	ug/L
Nickel	0.50	U	ug/L
Selenium	0.20	U	ug/L
Silver	0.010	U	ug/L
Thallium	0.10	U	ug/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P359197

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P359199

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Quality Assurance Report Method Blank Results

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P359271

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P359274

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P358797

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P358908

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P358697

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P358698

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P358772

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P358936

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P359080

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

Quality Assurance Report

Method Blank Results

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P358617

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P358618

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P358449

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P358451

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

Reference Method: SM 2120 B
Batch ID: P358454

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2120 B
Batch ID: P358455

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2320 B-97
Batch ID: P358921

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

Reference Method: SM 2320 B-97
Batch ID: P359098

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

Reference Method: SM 2540 C-97
Batch ID: P359064

Component	Result	Code	Units
TDS	15	U	mg/L

Quality Assurance Report

Method Blank Results

Reference Method: SM 2540 C-97
Batch ID: P359065

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P358945

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P358946

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500 F-C-97
Batch ID: P358925

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 4500 F-C-97
Batch ID: P359102

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-00
Batch ID: P358672

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: P358547

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Barium	101		P	85 - 115
Calcium	111		P	85 - 115
Iron	110		P	85 - 115
Magnesium	112		P	85 - 115
Potassium	102		P	85 - 115
Sodium	103		P	85 - 115
Zinc	102		P	85 - 115

Reference Method: EPA 200.8 Rev. 5.4

Batch ID: P358547

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Aluminum	100		P	85 - 115
Antimony	98.2		P	85 - 115
Arsenic	104		P	85 - 115
Boron	106		P	85 - 115
Cadmium	103		P	85 - 115
Chromium	103		P	85 - 115
Copper	102		P	85 - 115
Lead	104		P	85 - 115
Nickel	102		P	85 - 115
Selenium	101		P	85 - 115
Silver	101		P	85 - 115
Thallium	102		P	85 - 115

Reference Method: EPA 300.0 Rev. 2.1

Batch ID: P359197

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

Reference Method: EPA 300.0 Rev. 2.1

Batch ID: P359199

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Sulfate	97.8		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1

Batch ID: P359271

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

Reference Method: EPA 300.0 Rev. 2.1

Batch ID: P359274

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Sulfate	95.0		P	90 - 110

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P358797

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P358908

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Ammonia-N	98.3		P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P358697

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P358698

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P358772

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P358936

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P359080

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P358617

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P358618

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

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P358449

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P358451

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

Reference Method: SM 2120 B
Batch ID: P358454

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Color (true)	102		P	85 - 115

Reference Method: SM 2120 B
Batch ID: P358455

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Color (true)	103		P	85 - 115

Reference Method: SM 2320 B-97
Batch ID: P358921

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	103		P	98 - 107

Reference Method: SM 2320 B-97
Batch ID: P359098

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	102		P	98 - 107

Reference Method: SM 4500 F-C-97
Batch ID: P358925

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	97.1		P	91 - 105

Reference Method: SM 4500 F-C-97
Batch ID: P359102

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	96.8		P	91 - 105

Reference Method: SM 5310 B-00
Batch ID: P358672

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	96.8		P	85 - 115

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P358547

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2060347	Barium	101	100	P/P	80 - 120
2060347	Calcium	108	113	P/P	80 - 120
2060347	Iron	108	113	P/P	80 - 120
2060347	Magnesium	110	115	P/P	80 - 120
2060347	Potassium	104	108	P/P	80 - 120
2060347	Sodium	97.9	98.6	P/P	80 - 120
2060347	Zinc	103	102	P/P	80 - 120
2060476	Barium	99.5		P	80 - 120
2060476	Calcium	108		P	80 - 120
2060476	Iron	108		P	80 - 120
2060476	Magnesium	104		P	80 - 120
2060476	Potassium	99.4		P	80 - 120
2060476	Sodium	98.8		P	80 - 120
2060476	Zinc	103		P	80 - 120

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P358547

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2060347	Aluminum	101	99.1	P/P	80 - 120
2060347	Antimony	101	98.5	P/P	80 - 120
2060347	Arsenic	106	106	P/P	80 - 120
2060347	Boron	109	107	P/P	80 - 120
2060347	Cadmium	105	105	P/P	80 - 120
2060347	Chromium	108	109	P/P	80 - 120
2060347	Copper	107	107	P/P	80 - 120
2060347	Lead	107	106	P/P	80 - 120
2060347	Nickel	109	109	P/P	80 - 120
2060347	Selenium	103	102	P/P	80 - 120
2060347	Silver	102	102	P/P	80 - 120
2060347	Thallium	106	107	P/P	80 - 120
2060476	Aluminum	101		P	80 - 120
2060476	Antimony	104		P	80 - 120
2060476	Arsenic	109		P	80 - 120
2060476	Boron	109		P	80 - 120
2060476	Cadmium	107		P	80 - 120
2060476	Chromium	107		P	80 - 120
2060476	Copper	104		P	80 - 120
2060476	Lead	107		P	80 - 120
2060476	Nickel	105		P	80 - 120
2060476	Selenium	104		P	80 - 120
2060476	Silver	106		P	80 - 120
2060476	Thallium	108		P	80 - 120

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P359197

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2060053	Chloride	97.7		P	90 - 110
2060208	Chloride	91.5		P	90 - 110

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P359199

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2060053	Sulfate	97.3		P	90 - 110
2060208	Sulfate	94.6		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P359271

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2059842	Chloride	98.4		P	90 - 110
2060443	Chloride	95.6		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P359274

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2059842	Sulfate	96.8		P	90 - 110
2060443	Sulfate	94.3		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P358797

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2060244	Ammonia-N	101	101	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P358908

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2060319	Ammonia-N	90.4	95.3	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P358697

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2060326	Kjeldahl Nitrogen	102	105	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P358698

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2060257	Kjeldahl Nitrogen	107	108	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P358772

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2060209	NO2NO3-N	98.9	98.4	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P358936

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2060305	NO2NO3-N	99.3	101	P/P	90 - 110

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P359080

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2060318	NO2NO3-N	98.0	97.6	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P358617

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2060259	Total-P	102	103	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P358618

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2060319	Total-P	103	100	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P358449

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2060066	O-Phosphate-P	97.0	97.7	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P358451

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2060328	O-Phosphate-P	98.4	99.0	P/P	90 - 110

Reference Method: SM 4500 F-C-97
Batch ID: P358925

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2060059	Fluoride	96.4	96.4	P/P	91 - 105

Reference Method: SM 4500 F-C-97
Batch ID: P359102

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2061033	Fluoride	96.4	97.7	P/P	91 - 105

Reference Method: SM 5310 B-00
Batch ID: P358672

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2060210	Organic Carbon	97.7		P	85 - 115

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P358459

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2060255	Turbidity	10.6	Sample	P	0 - 20

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P358460

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2059987	Turbidity	2.50	Sample	P	0 - 20

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P358547

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2060347	Barium	1.08	Spike	P	0 - 20
2060347	Calcium	4.15	Spike	P	0 - 20
2060347	Iron	4.03	Spike	P	0 - 20
2060347	Magnesium	4.55	Spike	P	0 - 20
2060347	Potassium	3.86	Spike	P	0 - 20
2060347	Sodium	0.456	Spike	P	0 - 20
2060347	Zinc	1.46	Spike	P	0 - 20

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P358547

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2060347	Aluminum	1.28	Spike	P	0 - 20
2060347	Antimony	2.01	Spike	P	0 - 20
2060347	Arsenic	0.0787	Spike	P	0 - 20
2060347	Boron	2.14	Spike	P	0 - 20
2060347	Cadmium	0.916	Spike	P	0 - 20
2060347	Chromium	0.697	Spike	P	0 - 20
2060347	Copper	0.709	Spike	P	0 - 20
2060347	Lead	0.490	Spike	P	0 - 20
2060347	Nickel	0.255	Spike	P	0 - 20
2060347	Selenium	0.653	Spike	P	0 - 20
2060347	Silver	0.630	Spike	P	0 - 20
2060347	Thallium	0.895	Spike	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P359197

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2060208	Chloride	1.05	Sample	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P359199

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2060208	Sulfate	1.14	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P359271

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2059842	Chloride	0.308	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P359274

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2059842	Sulfate	0.422	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P358797

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2060244	Ammonia-N	0.299	Spike	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P358908

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2060319	Ammonia-N	4.20	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P358697

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2060326	Kjeldahl Nitrogen	2.36	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P358698

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2060257	Kjeldahl Nitrogen	0.512	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P358772

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2060209	NO2NO3-N	0.381	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P358936

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2060305	NO2NO3-N	1.47	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P359080

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2060318	NO2NO3-N	0.409	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P358617

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2060259	Total-P	0.832	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P358618

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2060319	Total-P	3.08	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P358449

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2060066	O-Phosphate-P	0.719	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P358451

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2060328	O-Phosphate-P	0.608	Spike	P	0 - 20

Reference Method: SM 2120 B
Batch ID: P358454

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2060308	Color (true)	0.239	Sample	P	0 - 20

Reference Method: SM 2120 B
Batch ID: P358455

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2060315	Color (true)	0.863	Sample	P	0 - 20

Quality Assurance Report Precision

Reference Method: SM 2320 B-97
 Batch ID: P358921

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2060059	Total Alkalinity	2.05	Sample	F	0 - 1.6

Reference Method: SM 2320 B-97
 Batch ID: P359098

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2061033	Total Alkalinity	0.912	Sample	P	0 - 1.6

Reference Method: SM 2540 C-97
 Batch ID: P359064

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2060256	TDS	2.14	Sample	P	0 - 10

Reference Method: SM 2540 C-97
 Batch ID: P359065

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2060316	TDS	3.92	Sample	P	0 - 10

Reference Method: SM 4500 F-C-97
 Batch ID: P358925

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2060059	Fluoride	0.0	Spike	P	0 - 3.5

Reference Method: SM 4500 F-C-97
 Batch ID: P359102

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2061033	Fluoride	0.986	Spike	P	0 - 3.5

Reference Method: SM 5310 B-00
 Batch ID: P358672

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2060210	Organic Carbon	1.15	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: A89230

Included Lab Sample IDs: 2060306, 2060307, 2060312, 2060313, 2060320, 2060321, 2060322

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	99.0	98.8	P/P	90 - 110

Reference Method: SM 2120 B

Run ID: A89231

Included Lab Sample IDs: 2060302, 2060303, 2060308, 2060309, 2060314, 2060315, 2060316

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	101	102	P/P	90 - 115
Color (true)	102	102	P/P	90 - 115

Reference Method: EPA 180.1 Rev. 2.0

Run ID: A89232

Included Lab Sample IDs: 2060302, 2060303, 2060308, 2060309, 2060314, 2060315, 2060316

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Turbidity	100	100	P/P	95 - 105
Turbidity	99.5	100	P/P	95 - 105

Reference Method: SM 5310 B-00

Run ID: A89322

Included Lab Sample IDs: 2060304, 2060305, 2060310, 2060311, 2060317, 2060318, 2060319

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	92.9	92.5	P/P	90 - 110
Organic Carbon	93.4	92.9	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A89337

Included Lab Sample IDs: 2060317

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

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A89341

Included Lab Sample IDs: 2060304, 2060305, 2060310, 2060311, 2060318, 2060319

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	99.0	99.8	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A89363

Included Lab Sample IDs: 2060317, 2060318, 2060319

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

Quality Assurance Report Calibration Verification

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A89364

Included Lab Sample IDs: 2060304

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

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A89374

Included Lab Sample IDs: 2060304, 2060305, 2060310, 2060311, 2060317

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

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A89381

Included Lab Sample IDs: 2060304, 2060305, 2060310, 2060311

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

Reference Method: EPA 200.7 Rev. 4.4

Run ID: A89396

Included Lab Sample IDs: 2060361, 2060362, 2060363, 2060364

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Barium	97.1	99.9	P/P	90 - 110
Barium	98.1	97.1	P/P	90 - 110
Calcium	102	107	P/P	90 - 110
Calcium	103	102	P/P	90 - 110
Iron	102	103	P/P	90 - 110
Iron	103	105	P/P	90 - 110
Magnesium	101	102	P/P	90 - 110
Magnesium	102	104	P/P	90 - 110
Potassium	96.0	96.8	P/P	90 - 110
Potassium	96.8	97.6	P/P	90 - 110
Sodium	94.5	95.9	P/P	90 - 110
Sodium	95.1	94.5	P/P	90 - 110
Zinc	99.6	104	P/P	90 - 110
Zinc	99.6	99.6	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A89413

Included Lab Sample IDs: 2060318, 2060319

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	100	101	P/P	90 - 110
Ammonia-N	102	100	P/P	90 - 110

Reference Method: SM 2320 B-97

Run ID: A89417

Included Lab Sample IDs: 2060302, 2060303, 2060308

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	103	100	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: SM 4500 F-C-97

Run ID: A89417

Included Lab Sample IDs: 2060302, 2060303, 2060308

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

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A89422

Included Lab Sample IDs: 2060305, 2060310, 2060311, 2060317, 2060319

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO2NO3-N	100	99.0	P/P	90 - 110

Reference Method: EPA 200.8 Rev. 5.4

Run ID: A89439

Included Lab Sample IDs: 2060361, 2060362, 2060363, 2060364

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Aluminum	102	104	P/P	90 - 110
Antimony	95.4	98.0	P/P	90 - 110
Arsenic	99.6	102	P/P	90 - 110
Boron	105	105	P/P	90 - 110
Cadmium	97.1	101	P/P	90 - 110
Chromium	101	105	P/P	90 - 110
Copper	101	103	P/P	90 - 110
Lead	102	105	P/P	90 - 110
Nickel	100	104	P/P	90 - 110
Selenium	98.7	99.3	P/P	90 - 110
Silver	95.8	98.5	P/P	90 - 110
Thallium	95.8	99.9	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A89475

Included Lab Sample IDs: 2060318

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

Reference Method: SM 2320 B-97

Run ID: A89482

Included Lab Sample IDs: 2060309, 2060314, 2060315, 2060316

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

Reference Method: SM 4500 F-C-97

Run ID: A89482

Included Lab Sample IDs: 2060309, 2060314, 2060315, 2060316

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

Quality Assurance Report Calibration Verification

Reference Method: EPA 300.0 Rev. 2.1

Run ID: A89517

Included Lab Sample IDs: 2060302, 2060303, 2060308, 2060309, 2060314, 2060315, 2060316

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	96.4	101	P/P	90 - 110
Chloride	96.6	96.4	P/P	90 - 110
Chloride	98.2	98.4	P/P	90 - 110
Sulfate	96.0	101	P/P	90 - 110
Sulfate	96.2	96.0	P/P	90 - 110
Sulfate	97.7	98.0	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			Precision SMP	MS
			LCS				
EPA 180.1 Rev. 2.0	Turbidity					10.6	
	Turbidity					2.50	
EPA 200.7 Rev. 4.4	Barium	101	101	100	99.5		1.08
	Calcium	111	108	113	108		4.15
	Iron	110	108	113	108		4.03
	Magnesium	112	110	115	104		4.55
	Potassium	102	104	108	99.4		3.86
	Sodium	103	97.9	98.6	98.8		0.456
	Zinc	102	103	102	103		1.46
EPA 200.8 Rev. 5.4	Aluminum	100	101	99.1	101		1.28
	Antimony	98.2	101	98.5	104		2.01
	Arsenic	104	106	106	109		0.0787
	Boron	106	109	107	109		2.14
	Cadmium	103	105	105	107		0.916
	Chromium	103	108	109	107		0.697
	Copper	102	107	107	104		0.709
	Lead	104	107	106	107		0.490
	Nickel	102	109	109	105		0.255
	Selenium	101	103	102	104		0.653
	Silver	101	102	102	106		0.630
	Thallium	102	106	107	108		0.895
EPA 300.0 Rev. 2.1	Chloride	98.7	91.5	97.7		1.05	
	Chloride	95.5	98.4	95.6		0.308	
	Sulfate	97.8	94.6	97.3		1.14	
	Sulfate	95.0	96.8	94.3		0.422	
EPA 350.1 Rev. 2.0	Ammonia-N	99.3	101	101			0.299
	Ammonia-N	98.3	90.4	95.3			4.20
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	105	102	105			2.36
	Kjeldahl Nitrogen	103	107	108			0.512
EPA 353.2 Rev. 2.0	NO ₂ NO ₃ -N	98.0	98.9	98.4			0.381
	NO ₂ NO ₃ -N	100	99.3	101			1.47
	NO ₂ NO ₃ -N	99.0	98.0	97.6			0.409
EPA 365.1 Rev. 2.0	Total-P	105	102	103			0.832
	Total-P	105	103	100			3.08
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	98.1	97.0	97.7			0.719
	O-Phosphate-P	99.7	98.4	99.0			0.608
SM 2120 B	Color (true)	102				0.239	
	Color (true)	103				0.863	
SM 2320 B-97	Total Alkalinity	103				2.05	
	Total Alkalinity	102				0.912	
SM 2540 C-97	TDS					2.14	
	TDS					3.92	
SM 4500 F-C-97	Fluoride	97.1	96.4	96.4			0.0
	Fluoride	96.8	96.4	97.7			0.986
SM 5310 B-00	Organic Carbon	96.8	97.7				1.15

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	2060302, 2060303, 2060308, 2060309, 2060314, 2060315, 2060316
EPA 200.7 Rev. 4.4 / E31780	Total Recoverable Metals analysis using ICP emission spectroscopy for aqueous samples supporting Clean Water Act Projects	2060361, 2060362, 2060363, 2060364

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 200.8 Rev. 5.4 / E31780	Total Recoverable Metals analysis using ICP-MS for aqueous samples supporting Clean Water Act Projects	2060361, 2060362, 2060363, 2060364
EPA 300.0 Rev. 2.1 / E31780	Chloride in aqueous matrices	2060302, 2060303, 2060308, 2060309, 2060314, 2060315, 2060316
EPA 300.0 Rev. 2.1 / E31780	Sulfate in aqueous matrices	2060302, 2060303, 2060308, 2060309, 2060314, 2060315, 2060316
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	2060304, 2060305, 2060310, 2060311, 2060317, 2060318, 2060319
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	2060304, 2060305, 2060310, 2060311, 2060317, 2060318, 2060319
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	2060304, 2060305, 2060310, 2060311, 2060317, 2060318, 2060319
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	2060304, 2060305, 2060310, 2060311, 2060317, 2060318, 2060319
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	2060306, 2060307, 2060312, 2060313, 2060320, 2060321, 2060322
SM 2120 B / E31780	True Color measured at 450 nm	2060302, 2060303, 2060308, 2060309, 2060314, 2060315, 2060316
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO3/L	2060302, 2060303, 2060308, 2060309, 2060314, 2060315, 2060316
SM 2540 C-97 / E31780	Total Dissolved Solids in aqueous matrices	2060302, 2060303, 2060308, 2060309, 2060314, 2060315, 2060316
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices using a maximum of 250 mL of sample	2060302, 2060303, 2060308, 2060309, 2060314, 2060315, 2060316
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	2060302, 2060303, 2060308, 2060309, 2060314, 2060315, 2060316
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	2060304, 2060305, 2060310, 2060311, 2060317, 2060318, 2060319

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	02/06/2019			02/06/2019 17:47	Adrian Shelby	2060302, 2060303, 2060308, 2060309, 2060314, 2060315, 2060316
EPA 200.7 Rev. 4.4	02/06/2019	02/07/2019 18:15	Elliott D. Healy	02/13/2019 11:59	Betina Topolski	2060361
	02/06/2019	02/07/2019 18:15	Elliott D. Healy	02/13/2019 12:04	Betina Topolski	2060362
	02/06/2019	02/07/2019 18:15	Elliott D. Healy	02/13/2019 12:27	Betina Topolski	2060363
	02/06/2019	02/07/2019 18:15	Elliott D. Healy	02/13/2019 12:32	Betina Topolski	2060364
EPA 200.8 Rev. 5.4	02/06/2019	02/07/2019 18:15	Elliott D. Healy	02/15/2019 02:01	Allison Taylor	2060361
	02/06/2019	02/07/2019 18:15	Elliott D. Healy	02/15/2019 02:11	Allison Taylor	2060362
	02/06/2019	02/07/2019 18:15	Elliott D. Healy	02/15/2019 02:21	Allison Taylor	2060363
	02/06/2019	02/07/2019 18:15	Elliott D. Healy	02/15/2019 02:30	Allison Taylor	2060364
EPA 300.0 Rev. 2.1	02/06/2019			02/19/2019 13:09	Lipi Saha	2060302
	02/06/2019			02/19/2019 13:26	Lipi Saha	2060303
	02/06/2019			02/19/2019 21:39	Lipi Saha	2060308
	02/06/2019			02/19/2019 21:56	Lipi Saha	2060309
	02/06/2019			02/19/2019 22:13	Lipi Saha	2060314
	02/06/2019			02/19/2019 23:05	Lipi Saha	2060315
	02/06/2019			02/19/2019 23:22	Lipi Saha	2060316
EPA 350.1 Rev. 2.0	02/06/2019			02/12/2019 13:06	Ping Hua	2060304
	02/06/2019			02/12/2019 13:08	Ping Hua	2060305
	02/06/2019			02/12/2019 13:09	Ping Hua	2060310
	02/06/2019			02/12/2019 13:11	Ping Hua	2060311
	02/06/2019			02/12/2019 13:12	Ping Hua	2060317
	02/06/2019			02/13/2019 12:06	Ping Hua	2060319
	02/06/2019			02/13/2019 12:27	Ping Hua	2060318
EPA 351.2 Rev. 2.0	02/06/2019	02/11/2019 11:30	Adrian Shelby	02/12/2019 12:09	Joseph Suarez	2060317
	02/06/2019	02/11/2019 11:30	Adrian Shelby	02/12/2019 12:11	Joseph Suarez	2060318
	02/06/2019	02/11/2019 11:30	Adrian Shelby	02/12/2019 12:13	Joseph Suarez	2060319
	02/06/2019	02/11/2019 11:30	Adrian Shelby	02/12/2019 14:33	Joseph Suarez	2060304
	02/06/2019	02/11/2019 11:30	Adrian Shelby	02/12/2019 14:34	Joseph Suarez	2060305
	02/06/2019	02/11/2019 11:30	Adrian Shelby	02/12/2019 14:36	Joseph Suarez	2060310
	02/06/2019	02/11/2019 11:30	Adrian Shelby	02/12/2019 14:37	Joseph Suarez	2060311
EPA 353.2 Rev. 2.0	02/06/2019			02/12/2019 12:50	Lauren Lees	2060304
	02/06/2019			02/14/2019 10:05	Beverly Y. Sanders	2060305
	02/06/2019			02/14/2019 10:12	Beverly Y. Sanders	2060310
	02/06/2019			02/14/2019 10:13	Beverly Y. Sanders	2060311
	02/06/2019			02/14/2019 10:15	Beverly Y. Sanders	2060317
	02/06/2019			02/14/2019 10:16	Beverly Y. Sanders	2060319
	02/06/2019			02/18/2019 11:50	Beverly Y. Sanders	2060318
EPA 365.1 Rev. 2.0	02/06/2019	02/08/2019 15:00	Sima Feizi	02/11/2019 12:13	Rosalyn Ballman	2060317
	02/06/2019	02/08/2019 15:00	Sima Feizi	02/11/2019 17:28	Rosalyn Ballman	2060304

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
EPA 365.1 Rev. 2.0	02/06/2019	02/08/2019 15:00	Sima Feizi	02/11/2019 17:29	Rosalyn Ballman	2060305
	02/06/2019	02/08/2019 15:00	Sima Feizi	02/11/2019 17:30	Rosalyn Ballman	2060310
	02/06/2019	02/08/2019 15:00	Sima Feizi	02/11/2019 17:31	Rosalyn Ballman	2060311
	02/06/2019	02/08/2019 15:00	Sima Feizi	02/11/2019 17:33	Rosalyn Ballman	2060318
	02/06/2019	02/08/2019 15:00	Sima Feizi	02/11/2019 17:34	Rosalyn Ballman	2060319
EPA 365.1 Rev. 2.0 dissolved	02/06/2019			02/06/2019 16:17	Jhamieka S. Greenwood	2060306
	02/06/2019			02/06/2019 16:18	Jhamieka S. Greenwood	2060307
	02/06/2019			02/06/2019 16:19	Jhamieka S. Greenwood	2060312
	02/06/2019			02/06/2019 16:20	Jhamieka S. Greenwood	2060313
	02/06/2019			02/06/2019 16:21	Jhamieka S. Greenwood	2060320
	02/06/2019			02/06/2019 16:22	Jhamieka S. Greenwood	2060321
SM 2120 B	02/06/2019			02/06/2019 16:23	Jhamieka S. Greenwood	2060322
	02/06/2019			02/06/2019 16:55	Chelsea Hernandez	2060302, 2060303
	02/06/2019			02/06/2019 16:57	Chelsea Hernandez	2060308
	02/06/2019			02/06/2019 17:01	Chelsea Hernandez	2060309
	02/06/2019			02/06/2019 17:02	Chelsea Hernandez	2060314
	02/06/2019			02/06/2019 17:03	Chelsea Hernandez	2060315
SM 2320 B-97	02/06/2019			02/06/2019 17:04	Chelsea Hernandez	2060316
	02/06/2019			02/13/2019 09:26	Dale L. Simmons	2060302
	02/06/2019			02/13/2019 09:37	Dale L. Simmons	2060303
	02/06/2019			02/13/2019 09:48	Dale L. Simmons	2060308
	02/06/2019			02/14/2019 21:39	Dale L. Simmons	2060309
	02/06/2019			02/14/2019 21:51	Dale L. Simmons	2060314
SM 2540 C-97	02/06/2019			02/14/2019 22:03	Dale L. Simmons	2060315
	02/06/2019			02/14/2019 22:14	Dale L. Simmons	2060316
	02/06/2019			02/08/2019 15:25	Yijie Li	2060302, 2060303, 2060308, 2060309, 2060314, 2060315, 2060316
	02/06/2019			02/08/2019 15:25	Yijie Li	2060302, 2060303, 2060308, 2060309, 2060314, 2060315, 2060316
	02/06/2019			02/13/2019 09:26	Dale L. Simmons	2060302
	02/06/2019			02/13/2019 09:37	Dale L. Simmons	2060303
SM 4500 F-C-97	02/06/2019			02/13/2019 09:48	Dale L. Simmons	2060308
	02/06/2019			02/14/2019 21:39	Dale L. Simmons	2060309
	02/06/2019			02/14/2019 21:51	Dale L. Simmons	2060314
	02/06/2019			02/14/2019 22:03	Dale L. Simmons	2060315
	02/06/2019			02/14/2019 22:14	Dale L. Simmons	2060316
	02/06/2019			02/08/2019 21:00	Chelsea Hernandez	2060304
SM 5310 B-00	02/06/2019			02/08/2019 21:12	Chelsea Hernandez	2060305
	02/06/2019			02/08/2019 21:25	Chelsea Hernandez	2060310
	02/06/2019			02/08/2019 21:39	Chelsea Hernandez	2060311
	02/06/2019			02/08/2019 21:39	Chelsea Hernandez	2060311

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
SM 5310 B-00	02/06/2019			02/08/2019 22:15	Chelsea Hernandez	2060317
	02/06/2019			02/08/2019 22:28	Chelsea Hernandez	2060318
	02/06/2019			02/08/2019 22:40	Chelsea Hernandez	2060319