

Chemical Analysis Report

SE-DIST-2018-10-30-01

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

Event Description: **SMP- WPB Run**
Request ID: **RQ-2018-10-29-18**
Customer: **SE-DIST**
Project ID: **SMP**

Send Reports to:
FL Dept. of Environmental Protection
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2199 South Rock Road
Fort Pierce, FL 34945
Attn: Matthew Sewell

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Certified by: Dr. rer. nat. Bettina Steinbock, Environmental Administrator

Date Certified: 04-DEC-2018 17:17



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: C-16N West of Bellaggio

Collection Date/Time: 10/29/2018 10:30

Field ID: G3SE0031

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2037339	EPA 180.1 Rev. 2.0	Turbidity	3.8		NTU	P353927	
	EPA 300.0 Rev. 2.1	Chloride	73		mg Cl/L	P354898	MS
		Sulfate	33		mg SO4/L	P354901	MS
	SM 2120 B	Color (true)	33		PCU	P353972	
	SM 2320 B-97	Total Alkalinity	205		mg CaCO3/L	P354136	
	SM 2540 C-97	TDS	386		mg/L	P354571	
	SM 2540 D-97	TSS	4	I	mg/L	P354494	
	SM 4500 F-C-97	Fluoride	0.17		mg F/L	P354138	
	EPA 350.1 Rev. 2.0	Ammonia-N	0.030		mg N/L	P354386	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.87		mg N/L	P354213	
2037340	EPA 353.2 Rev. 2.0	NO2NO3-N	0.22		mg N/L	P354372	
	EPA 365.1 Rev. 2.0	Total-P	0.051		mg P/L	P354062	
	SM 5310 B-00	Organic Carbon	11		mg C/L	P354203	
	EPA 365.1 Rev. 2.0	O-Phosphate-P	0.028		mg P/L	P353930	
	dissolved						

Ref. Method and Comment:

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

EPA 351.2 Rev. 2.0: Batch matrix spike recoveries are unavailable because of high analyte concentration in the QC sample.

Sample Location: South Shore Blvd 2 "ACME North"

Collection Date/Time: 10/29/2018 11:00

Field ID: G3SE0004

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2037342	EPA 180.1 Rev. 2.0	Turbidity	1.6		NTU	P353927	
	EPA 300.0 Rev. 2.1	Chloride	47		mg Cl/L	P354898	MS
		Sulfate	27		mg SO4/L	P354901	MS
	SM 2120 B	Color (true)	35		PCU	P353972	
	SM 2320 B-97	Total Alkalinity	242		mg CaCO3/L	P354136	
	SM 2540 C-97	TDS	395		mg/L	P354571	
	SM 2540 D-97	TSS	2	I	mg/L	P354494	
	SM 4500 F-C-97	Fluoride	0.16		mg F/L	P354138	
	EPA 350.1 Rev. 2.0	Ammonia-N	0.12		mg N/L	P354386	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.99		mg N/L	P354213	
2037344	EPA 353.2 Rev. 2.0	NO2NO3-N	0.058		mg N/L	P354372	
	EPA 365.1 Rev. 2.0	Total-P	0.040		mg P/L	P354062	
	SM 5310 B-00	Organic Carbon	10		mg C/L	P354203	
	EPA 365.1 Rev. 2.0	O-Phosphate-P	0.009	I	mg P/L	P353930	
	dissolved						

Ref. Method and Comment:

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

EPA 351.2 Rev. 2.0: Batch matrix spike recoveries are unavailable because of high analyte concentration in the QC sample.

Sample Location: ACME South

Collection Date/Time: 10/29/2018 11:20

Field ID: G3SE0038

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2037348	EPA 180.1 Rev. 2.0	Turbidity	5.6	A	NTU	P353927	
	EPA 300.0 Rev. 2.1	Chloride	54		mg Cl/L	P354898	MS
		Sulfate	12		mg SO4/L	P354901	MS
	SM 2120 B	Color (true)	81	A	PCU	P353972	
	SM 2320 B-97	Total Alkalinity	213		mg CaCO3/L	P354355	
	SM 2540 C-97	TDS	380		mg/L	P354572	
	SM 2540 D-97	TSS	6	I	mg/L	P354495	
	SM 4500 F-C-97	Fluoride	0.12		mg F/L	P354361	
	EPA 350.1 Rev. 2.0	Ammonia-N	0.032		mg N/L	P354386	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.7		mg N/L	P354213	
2037349	EPA 353.2 Rev. 2.0	NO2NO3-N	0.020		mg N/L	P354372	
	EPA 365.1 Rev. 2.0	Total-P	0.053		mg P/L	P354157	
	SM 5310 B-00	Organic Carbon	20		mg C/L	P354203	
	EPA 365.1 Rev. 2.0	O-Phosphate-P	0.004	U	mg P/L	P353930	
	dissolved						

Ref. Method and Comment:

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

SM 4500 F-C-97: Batch matrix spike recoveries are unavailable because of high analyte concentration in the QC sample.

EPA 351.2 Rev. 2.0: Batch matrix spike recoveries are unavailable because of high analyte concentration in the QC sample.

Sample Location: Lake Wellington

Collection Date/Time: 10/29/2018 11:40

Field ID: G3SE0039

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2037343	EPA 180.1 Rev. 2.0	Turbidity	4.4		NTU	P353927	
	EPA 300.0 Rev. 2.1	Chloride	71		mg Cl/L	P354898	MS
		Sulfate	29		mg SO4/L	P354901	MS
	SM 2120 B	Color (true)	30		PCU	P353972	
	SM 2320 B-97	Total Alkalinity	194		mg CaCO3/L	P354355	
	SM 2540 C-97	TDS	374		mg/L	P354571	
	SM 2540 D-97	TSS	5	I	mg/L	P354494	
	SM 4500 F-C-97	Fluoride	0.14		mg F/L	P354361	
2037345	EPA 350.1 Rev. 2.0	Ammonia-N	0.20		mg N/L	P354386	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.6		mg N/L	P354213	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.015		mg N/L	P354372	
	EPA 365.1 Rev. 2.0	Total-P	0.10		mg P/L	P354157	
	SM 5310 B-00	Organic Carbon	11		mg C/L	P354203	
2037347	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.019		mg P/L	P353930	

Ref. Method and Comment:

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

SM 4500 F-C-97: Batch matrix spike recoveries are unavailable because of high analyte concentration in the QC sample.

EPA 351.2 Rev. 2.0: Batch matrix spike recoveries are unavailable because of high analyte concentration in the QC sample.

Sample Location: Okeeheelee Park Ramp

Collection Date/Time: 10/29/2018 12:00

Field ID: G3SE0015

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2037351	EPA 180.1 Rev. 2.0	Turbidity	0.55		NTU	P353927	
	EPA 300.0 Rev. 2.1	Chloride	17		mg Cl/L	P354898	MS
		Sulfate	0.20	U	mg SO4/L	P354901	MS
	SM 2120 B	Color (true)	6.7		PCU	P353972	
	SM 2320 B-97	Total Alkalinity	57		mg CaCO3/L	P354355	
	SM 2540 C-97	TDS	108		mg/L	P354572	
	SM 2540 D-97	TSS	2	U	mg/L	P354495	
	SM 4500 F-C-97	Fluoride	0.094	I	mg F/L	P354361	
2037352	EPA 350.1 Rev. 2.0	Ammonia-N	0.022		mg N/L	P354386	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.74		mg N/L	P354214	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.01	I	mg N/L	P354372	
	EPA 365.1 Rev. 2.0	Total-P	0.008		mg P/L	P354157	
	SM 5310 B-00	Organic Carbon	6.7		mg C/L	P354203	
2037353	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P353931	
2037372	EPA 200.7 Rev. 4.4	Calcium	22.0		mg/L	P354082	
		Iron	33	I	ug/L	P354082	
		Magnesium	1.74		mg/L	P354082	
		Potassium	0.74	I	mg/L	P354082	
		Sodium	10.1		mg/L	P354082	
		Zinc	5.0	U	ug/L	P354082	
	EPA 200.8 Rev. 5.4	Arsenic	0.95		ug/L	P354082	
		Cadmium	0.020	U	ug/L	P354082	
		Chromium	0.40	U	ug/L	P354082	
		Copper	0.20	U	ug/L	P354082	
		Lead	0.050	U	ug/L	P354082	
		Nickel	0.20	U	ug/L	P354082	
		Silver	0.010	U	ug/L	P354982	

Ref. Method and Comment:

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

SM 4500 F-C-97: Batch matrix spike recoveries are unavailable because of high analyte concentration in the QC sample.

Sample Location: Lake Clarke @ Pine Tree

Collection Date/Time: 10/29/2018 12:35

Field ID: G3SE0001

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2037354	EPA 180.1 Rev. 2.0	Turbidity	3.7		NTU	P353928	
	EPA 300.0 Rev. 2.1	Chloride	52		mg Cl/L	P354898	MS
		Sulfate	25		mg SO4/L	P354901	MS
	SM 2120 B	Color (true)	44		PCU	P353972	
	SM 2320 B-97	Total Alkalinity	167		mg CaCO3/L	P354355	
	SM 2540 C-97	TDS	344	A	mg/L	P354572	
	SM 2540 D-97	TSS	4	IA	mg/L	P354495	
	SM 4500 F-C-97	Fluoride	0.14		mg F/L	P354361	
2037355	EPA 350.1 Rev. 2.0	Ammonia-N	0.035		mg N/L	P354387	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.0		mg N/L	P354214	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.075		mg N/L	P354372	
	EPA 365.1 Rev. 2.0	Total-P	0.069		mg P/L	P354157	
	SM 5310 B-00	Organic Carbon	12		mg C/L	P354203	
2037356	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.038		mg P/L	P353931	
2037373	EPA 200.7 Rev. 4.4	Calcium	70.1		mg/L	P354082	
		Iron	99	I	ug/L	P354082	
		Magnesium	6.09		mg/L	P354082	
		Potassium	3.4		mg/L	P354082	
		Sodium	36.1		mg/L	P354082	
		Zinc	5.0	U	ug/L	P354082	
	EPA 200.8 Rev. 5.4	Arsenic	2.19		ug/L	P354082	
		Cadmium	0.020	U	ug/L	P354082	
		Chromium	0.44	I	ug/L	P354982	
		Copper	1.01		ug/L	P354082	
		Lead	0.18	I	ug/L	P354082	
		Nickel	0.34	I	ug/L	P354082	
		Silver	0.010	U	ug/L	P354982	

Ref. Method and Comment:

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

SM 4500 F-C-97: Batch matrix spike recoveries are unavailable because of high analyte concentration in the QC sample.

Sample Location: M-Canal @ Haverhill

Collection Date/Time: 10/29/2018 13:00

Field ID: G3SE0029

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2037336	EPA 180.1 Rev. 2.0	Turbidity	4.4		NTU	P353927	
	EPA 300.0 Rev. 2.1	Chloride	44		mg Cl/L	P354899	MS
		Sulfate	17		mg SO4/L	P354902	
	SM 2120 B	Color (true)	53		PCU	P353972	
	SM 2320 B-97	Total Alkalinity	105	A	mg CaCO3/L	P354136	
	SM 2540 C-97	TDS	238		mg/L	P354571	
	SM 2540 D-97	TSS	6	I	mg/L	P354494	
	SM 4500 F-C-97	Fluoride	0.14		mg F/L	P354138	
2037337	EPA 350.1 Rev. 2.0	Ammonia-N	0.01		mg N/L	P354386	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.2		mg N/L	P354213	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P354223	
	EPA 365.1 Rev. 2.0	Total-P	0.036		mg P/L	P354062	
	SM 5310 B-00	Organic Carbon	15		mg C/L	P354203	
2037338	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	I	mg P/L	P353930	
2037371	EPA 200.7 Rev. 4.4	Calcium	40.0		mg/L	P354082	
		Iron	140		ug/L	P354082	
		Magnesium	7.32		mg/L	P354082	
		Potassium	4.0		mg/L	P354082	
		Sodium	30.3		mg/L	P354082	
		Zinc	5.0	U	ug/L	P354082	
	EPA 200.8 Rev. 5.4	Arsenic	1.09		ug/L	P354082	
		Cadmium	0.020	U	ug/L	P354082	
		Chromium	0.40	U	ug/L	P354082	
		Copper	0.69	I	ug/L	P354082	
		Lead	0.14	I	ug/L	P354082	
		Nickel	0.28	I	ug/L	P354082	
		Silver	0.010	U	ug/L	P354982	

Ref. Method and Comment:

EPA 300.0 Rev. 2.1: Sulfate: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample.

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

EPA 351.2 Rev. 2.0: Batch matrix spike recoveries are unavailable because of high analyte concentration in the QC sample.

Quality Assurance Report Method Blank Results

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P353927

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P353928

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P354082

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: P354082

Component	Result	Code	Units
Arsenic	0.050	U	ug/L
Cadmium	0.020	U	ug/L
Chromium	0.40	U	ug/L
Copper	0.20	U	ug/L
Lead	0.050	U	ug/L
Nickel	0.20	U	ug/L

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P354982

Component	Result	Code	Units
Chromium	0.40	U	ug/L
Silver	0.010	U	ug/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P354898

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P354899

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Quality Assurance Report Method Blank Results

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P354901

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P354902

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P354386

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P354387

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P354213

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P354214

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P354223

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P354372

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P354062

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

Quality Assurance Report Method Blank Results

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P354157

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P353930

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P353931

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

Reference Method: SM 2120 B
Batch ID: P353972

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2320 B-97
Batch ID: P354136

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

Reference Method: SM 2320 B-97
Batch ID: P354355

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

Reference Method: SM 2540 C-97
Batch ID: P354571

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 C-97
Batch ID: P354572

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P354494

Component	Result	Code	Units
TSS	2	U	mg/L

Quality Assurance Report

Method Blank Results

Reference Method: SM 2540 D-97
Batch ID: P354495

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500 F-C-97
Batch ID: P354138

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 4500 F-C-97
Batch ID: P354361

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-00
Batch ID: P354203

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: P354082

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Calcium	102		P	85 - 115
Iron	102		P	85 - 115
Magnesium	107		P	85 - 115
Potassium	103		P	85 - 115
Sodium	101		P	85 - 115
Zinc	99.0		P	85 - 115

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P354082

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Arsenic	108		P	85 - 115
Cadmium	107		P	85 - 115
Chromium	106		P	85 - 115
Copper	103		P	85 - 115
Lead	105		P	85 - 115
Nickel	104		P	85 - 115

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P354982

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Chromium	103		P	85 - 115
Silver	98.5		P	85 - 115

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P354898

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P354899

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P354901

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Sulfate	98.9		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P354902

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

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P354386

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P354387

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Ammonia-N	99.1		P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P354213

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P354214

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P354223

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P354372

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P354062

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P354157

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total-P	97.1		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P353930

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

Quality Assurance Report

Laboratory Control Sample Accuracy

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P353931

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

Reference Method: SM 2120 B
Batch ID: P353972

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Color (true)	100		P	90 - 110

Reference Method: SM 2320 B-97
Batch ID: P354136

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	101		P	98 - 107

Reference Method: SM 2320 B-97
Batch ID: P354355

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	101		P	98 - 107

Reference Method: SM 4500 F-C-97
Batch ID: P354138

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	99.5		P	91 - 105

Reference Method: SM 4500 F-C-97
Batch ID: P354361

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

Reference Method: SM 5310 B-00
Batch ID: P354203

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	94.4		P	85 - 115

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P354082

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2037372	Calcium	100		P	80 - 120
2037372	Iron	97.7		P	80 - 120
2037372	Magnesium	99.1		P	80 - 120
2037372	Potassium	99.6		P	80 - 120
2037372	Sodium	95.7		P	80 - 120
2037372	Zinc	98.3		P	80 - 120
2037593	Calcium	103		P	80 - 120
2037593	Iron	101	101	P/P	80 - 120
2037593	Magnesium	107	106	P/P	80 - 120
2037593	Potassium	104	103	P/P	80 - 120
2037593	Sodium	97.2		P	80 - 120
2037593	Zinc	103	102	P/P	80 - 120

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P354082

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2037372	Arsenic	107		P	80 - 120
2037372	Cadmium	108		P	80 - 120
2037372	Chromium	103		P	80 - 120
2037372	Copper	101		P	80 - 120
2037372	Lead	104		P	80 - 120
2037372	Nickel	100		P	80 - 120
2037593	Arsenic	107	105	P/P	80 - 120
2037593	Cadmium	108	106	P/P	80 - 120
2037593	Chromium	106	105	P/P	80 - 120
2037593	Copper	103	102	P/P	80 - 120
2037593	Lead	105	104	P/P	80 - 120
2037593	Nickel	102	101	P/P	80 - 120

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P354982

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2037440	Chromium	103	102	P/P	80 - 120
2037440	Silver	98.9	97.9	P/P	80 - 120
2037637	Chromium	101		P	80 - 120
2037637	Silver	97.1		P	80 - 120

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P354898

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2037274	Chloride	91.9		P	90 - 110
2037395	Chloride	79.5		F	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P354899

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2037278	Chloride	90.0		P	90 - 110
2037582	Chloride	86.0		F	90 - 110

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P354901

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2037274	Sulfate	92.4		P	90 - 110
2037395	Sulfate	84.9		F	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P354902

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2037278	Sulfate	95.9		P	90 - 110
2037582	Sulfate	90.6		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P354386

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2037281	Ammonia-N	100	101	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P354387

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2037355	Ammonia-N	101	103	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P354214

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2037355	Kjeldahl Nitrogen	103	104	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P354223

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2037261	NO2NO3-N	105		P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P354372

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2037340	NO2NO3-N	102		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P354062

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2037280	Total-P	98.4	96.0	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P354157

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2037352	Total-P	99.8	100	P/P	90 - 110

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P353930

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2037253	O-Phosphate-P	92.6	91.2	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P353931

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2037353	O-Phosphate-P	96.4	96.0	P/P	90 - 110

Reference Method: SM 4500 F-C-97
Batch ID: P354138

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2037336	Fluoride	98.5	97.9	P/P	91 - 105

Reference Method: SM 5310 B-00
Batch ID: P354203

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2037281	Organic Carbon	93.5	94.5	P/P	85 - 115

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P353927

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2037348	Turbidity	3.37	Sample	P	0 - 20

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P353928

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2037448	Turbidity	4.08	Sample	P	0 - 20

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P354082

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2037593	Calcium	1.64	Spike	P	0 - 20
2037593	Iron	0.365	Spike	P	0 - 20
2037593	Magnesium	0.178	Spike	P	0 - 20
2037593	Potassium	0.304	Spike	P	0 - 20
2037593	Sodium	1.15	Spike	P	0 - 20
2037593	Zinc	0.318	Spike	P	0 - 20

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P354082

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2037593	Arsenic	1.18	Spike	P	0 - 20
2037593	Cadmium	1.13	Spike	P	0 - 20
2037593	Chromium	0.865	Spike	P	0 - 20
2037593	Copper	1.75	Spike	P	0 - 20
2037593	Lead	1.51	Spike	P	0 - 20
2037593	Nickel	1.07	Spike	P	0 - 20

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P354982

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2037440	Chromium	0.900	Spike	P	0 - 20
2037440	Silver	0.956	Spike	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P354898

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2037274	Chloride	0.973	Sample	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P354899

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2037278	Chloride	3.44	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P354901

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2037274	Sulfate	1.21	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P354386

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2037281	Ammonia-N	0.283	Spike	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P354387

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2037355	Ammonia-N	1.60	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P354213

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2037345	Kjeldahl Nitrogen	1.40	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P354214

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2037355	Kjeldahl Nitrogen	0.604	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P354223

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2037261	NO2NO3-N	0.476	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P354372

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2037340	NO2NO3-N	0.712	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P354062

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2037280	Total-P	2.37	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P354157

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2037352	Total-P	0.247	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P353930

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2037253	O-Phosphate-P	1.19	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P353931

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2037353	O-Phosphate-P	0.416	Spike	P	0 - 20

Reference Method: SM 2120 B
Batch ID: P353972

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2037348	Color (true)	2.52	Sample	P	0 - 20

Reference Method: SM 2320 B-97
Batch ID: P354136

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2037336	Total Alkalinity	1.08	Sample	P	0 - 1.6

Reference Method: SM 2320 B-97
Batch ID: P354355

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2038201	Total Alkalinity	0.633	Sample	P	0 - 1.6

Reference Method: SM 2540 C-97
Batch ID: P354571

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2037278	TDS	1.15	Sample	P	0 - 10

Quality Assurance Report Precision

Reference Method: SM 2540 C-97
Batch ID: P354572

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2037354	TDS	3.20	Sample	P	0 - 10

Reference Method: SM 4500 F-C-97
Batch ID: P354138

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2037336	Fluoride	0.470	Spike	P	0 - 3.5

Reference Method: SM 4500 F-C-97
Batch ID: P354361

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2038201	Fluoride	0.0	Spike	P	0 - 3.5

Reference Method: SM 5310 B-00
Batch ID: P354203

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2037281	Organic Carbon	1.09	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 180.1 Rev. 2.0

Run ID: A87395

Included Lab Sample IDs: 2037336, 2037339, 2037342, 2037343, 2037348, 2037351, 2037354

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Turbidity	100	101	P/P	95 - 105
Turbidity	101	101	P/P	95 - 105

Reference Method: EPA 365.1 Rev. 2.0 dissolved

Run ID: A87396

Included Lab Sample IDs: 2037338, 2037341, 2037346, 2037347, 2037350, 2037353, 2037356

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	99.3	99.4	P/P	90 - 110
O-Phosphate-P	99.4	99.8	P/P	90 - 110
O-Phosphate-P	99.8	99.1	P/P	90 - 110

Reference Method: SM 2120 B

Run ID: A87413

Included Lab Sample IDs: 2037336, 2037339, 2037342, 2037343, 2037348, 2037351, 2037354

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	99.8	99.7	P/P	85 - 115

Reference Method: SM 2320 B-97

Run ID: A87486

Included Lab Sample IDs: 2037336, 2037339, 2037342

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	102	99.1	P/P	90 - 110
Total Alkalinity	99.1	103	P/P	90 - 110

Reference Method: SM 4500 F-C-97

Run ID: A87486

Included Lab Sample IDs: 2037336, 2037339, 2037342

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	100	99.5	P/P	90 - 110
Fluoride	101	100	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A87489

Included Lab Sample IDs: 2037337, 2037340, 2037344

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	99.2	99.0	P/P	90 - 110

Reference Method: EPA 200.7 Rev. 4.4

Run ID: A87509

Included Lab Sample IDs: 2037371, 2037372, 2037373

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Calcium	104	104	P/P	90 - 110
Iron	104	103	P/P	90 - 110
Magnesium	105	104	P/P	90 - 110
Potassium	103	102	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: EPA 200.7 Rev. 4.4

Run ID: A87509

Included Lab Sample IDs: 2037371, 2037372, 2037373

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Sodium	103	101	P/P	90 - 110
Zinc	101	104	P/P	90 - 110

Reference Method: SM 5310 B-00

Run ID: A87523

Included Lab Sample IDs: 2037337, 2037340, 2037344, 2037345, 2037349, 2037352, 2037355

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	94.8	94.9	P/P	90 - 110
Organic Carbon	94.9	94.6	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A87528

Included Lab Sample IDs: 2037345, 2037349, 2037355

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

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A87529

Included Lab Sample IDs: 2037337

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO2NO3-N	103	104	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A87544

Included Lab Sample IDs: 2037352

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: A87583

Included Lab Sample IDs: 2037337, 2037340, 2037344, 2037345, 2037349, 2037352, 2037355

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	103	105	P/P	90 - 110
Kjeldahl Nitrogen	105	104	P/P	90 - 110

Reference Method: SM 2320 B-97

Run ID: A87599

Included Lab Sample IDs: 2037343, 2037348, 2037351, 2037354

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	98.8	102	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: SM 4500 F-C-97

Run ID: A87599

Included Lab Sample IDs: 2037343, 2037348, 2037351, 2037354

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

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A87603

Included Lab Sample IDs: 2037340, 2037344, 2037345, 2037349, 2037352, 2037355

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO2NO3-N	100	101	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A87606

Included Lab Sample IDs: 2037337, 2037340, 2037344, 2037345, 2037349, 2037352, 2037355

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	100	99.9	P/P	90 - 110
Ammonia-N	101	103	P/P	90 - 110
Ammonia-N	101	101	P/P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1

Run ID: A87809

Included Lab Sample IDs: 2037336, 2037339, 2037342, 2037343, 2037348, 2037351, 2037354

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	104	92.8	P/P	90 - 110
Chloride	106	98.0	P/P	90 - 110
Chloride	92.8	95.3	P/P	90 - 110
Chloride	95.3	106	P/P	90 - 110
Sulfate	102	91.6	P/P	90 - 110
Sulfate	104	95.9	P/P	90 - 110
Sulfate	91.6	93.6	P/P	90 - 110
Sulfate	93.6	104	P/P	90 - 110

Reference Method: EPA 200.8 Rev. 5.4

Run ID: A87854

Included Lab Sample IDs: 2037371, 2037372, 2037373

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Arsenic	104	104	P/P	90 - 110
Arsenic	105	104	P/P	90 - 110
Cadmium	105	105	P/P	90 - 110
Cadmium	105	104	P/P	90 - 110
Chromium	105	105	P/P	90 - 110
Chromium	105	104	P/P	90 - 110
Copper	102	102	P/P	90 - 110
Copper	103	102	P/P	90 - 110
Lead	103	105	P/P	90 - 110
Lead	105	104	P/P	90 - 110
Nickel	102	101	P/P	90 - 110
Nickel	103	102	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: EPA 200.8 Rev. 5.4

Run ID: A87944

Included Lab Sample IDs: 2037371, 2037372, 2037373

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chromium	103	104	P/P	90 - 110
Silver	95.7	97.7	P/P	90 - 110
Silver	96.8	95.7	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					3.37	
	Turbidity					4.08	
EPA 200.7 Rev. 4.4	Calcium	102	100	103			1.64
	Iron	102	97.7	101	101		0.365
	Magnesium	107	99.1	107	106		0.178
	Potassium	103	99.6	104	103		0.304
	Sodium	101	95.7	97.2			1.15
	Zinc	99.0	98.3	103	102		0.318
EPA 200.8 Rev. 5.4	Arsenic	108	107	107	105		1.18
	Cadmium	107	108	108	106		1.13
	Chromium	106	103	106	105		0.865
	Chromium	103	103	102	101		0.900
	Copper	103	101	103	102		1.75
	Lead	105	104	105	104		1.51
	Nickel	104	100	102	101		1.07
	Silver	98.5	98.9	97.9	97.1		0.956
EPA 300.0 Rev. 2.1	Chloride	102	91.9	79.5		0.973	
	Chloride	104	90.0	86.0		3.44	
	Sulfate	98.9	92.4	84.9		1.21	
	Sulfate	101	95.9	90.6			
EPA 350.1 Rev. 2.0	Ammonia-N	101	100	101			0.283
	Ammonia-N	99.1	101	103			1.60
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	107					1.40
	Kjeldahl Nitrogen	108	103	104			0.604
EPA 353.2 Rev. 2.0	NO2NO3-N	102	105				0.476
	NO2NO3-N	100	102				0.712
EPA 365.1 Rev. 2.0	Total-P	96.7	98.4	96.0			2.37
	Total-P	97.1	99.8	100			0.247
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	100	92.6	91.2			1.19
	O-Phosphate-P	98.4	96.4	96.0			0.416
SM 2120 B	Color (true)	100				2.52	
SM 2320 B-97	Total Alkalinity	101				1.08	
	Total Alkalinity	101				0.633	
SM 2540 C-97	TDS					1.15	
	TDS					3.20	
SM 4500 F-C-97	Fluoride	99.5	98.5	97.9			0.470
	Fluoride	99.8					0.0
SM 5310 B-00	Organic Carbon	94.4	93.5	94.5			1.09

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	2037336, 2037339, 2037342, 2037343, 2037348, 2037351, 2037354
EPA 200.7 Rev. 4.4 / E31780	Total Recoverable Metals analysis using ICP emission spectroscopy for aqueous samples supporting Clean Water Act Projects	2037371, 2037372, 2037373
EPA 200.8 Rev. 5.4 / E31780	Total Recoverable Metals analysis using ICP-MS for aqueous samples supporting Clean Water Act Projects	2037371, 2037372, 2037373
EPA 300.0 Rev. 2.1 / E31780	Chloride in aqueous matrices	2037336, 2037339, 2037342, 2037343, 2037348, 2037351, 2037354
EPA 300.0 Rev. 2.1 / E31780	Sulfate in aqueous matrices	2037336, 2037339, 2037342, 2037343, 2037348, 2037351, 2037354
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	2037337, 2037340, 2037344, 2037345, 2037349, 2037352, 2037355

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	2037337, 2037340, 2037344, 2037345, 2037349, 2037352, 2037355
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	2037337, 2037340, 2037344, 2037345, 2037349, 2037352, 2037355
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	2037337, 2037340, 2037344, 2037345, 2037349, 2037352, 2037355
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	2037338, 2037341, 2037346, 2037347, 2037350, 2037353, 2037356
SM 2120 B / E31780	True Color measured at 450 nm	2037336, 2037339, 2037342, 2037343, 2037348, 2037351, 2037354
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO3/L	2037336, 2037339, 2037342, 2037343, 2037348, 2037351, 2037354
SM 2540 C-97 / E31780	Total Dissolved Solids in aqueous matrices	2037336, 2037339, 2037342, 2037343, 2037348, 2037351, 2037354
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices using a maximum of 250 mL of sample	2037336, 2037339, 2037342, 2037343, 2037348, 2037351, 2037354
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	2037336, 2037339, 2037342, 2037343, 2037348, 2037351, 2037354
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	2037337, 2037340, 2037344, 2037345, 2037349, 2037352, 2037355

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	10/30/2018			10/30/2018 14:49	Megan Treadwell	2037336, 2037339, 2037342, 2037343, 2037348, 2037351, 2037354
EPA 200.7 Rev. 4.4	10/30/2018	11/01/2018 17:00	Elliott D. Healy	11/02/2018 14:41	Betina Topolski	2037371
	10/30/2018	11/01/2018 17:00	Elliott D. Healy	11/02/2018 14:47	Betina Topolski	2037372
	10/30/2018	11/01/2018 17:00	Elliott D. Healy	11/02/2018 15:03	Betina Topolski	2037373
EPA 200.8 Rev. 5.4	10/30/2018	11/01/2018 17:00	Elliott D. Healy	11/16/2018 00:33	Allison Taylor	2037371
	10/30/2018	11/01/2018 17:00	Elliott D. Healy	11/16/2018 01:11	Allison Taylor	2037372
	10/30/2018	11/01/2018 17:00	Elliott D. Healy	11/16/2018 01:31	Allison Taylor	2037373
	10/30/2018	11/20/2018 14:40	Elliott D. Healy	11/22/2018 00:28	Allison Taylor	2037371
	10/30/2018	11/20/2018 14:40	Elliott D. Healy	11/22/2018 00:37	Allison Taylor	2037372
	10/30/2018	11/20/2018 14:40	Elliott D. Healy	11/22/2018 01:16	Allison Taylor	2037373
EPA 300.0 Rev. 2.1	10/30/2018			11/15/2018 18:20	Lipi Saha	2037339
	10/30/2018			11/15/2018 19:20	Lipi Saha	2037342
	10/30/2018			11/15/2018 19:57	Lipi Saha	2037348
	10/30/2018			11/15/2018 20:09	Lipi Saha	2037343
	10/30/2018			11/15/2018 20:33	Lipi Saha	2037351
	10/30/2018			11/15/2018 21:33	Lipi Saha	2037354
	10/30/2018			11/16/2018 00:10	Lipi Saha	2037336
EPA 350.1 Rev. 2.0	10/30/2018			11/07/2018 13:32	Ping Hua	2037337
	10/30/2018			11/07/2018 13:34	Ping Hua	2037340
	10/30/2018			11/07/2018 13:35	Ping Hua	2037344
	10/30/2018			11/07/2018 13:44	Ping Hua	2037349
	10/30/2018			11/07/2018 13:46	Ping Hua	2037352
	10/30/2018			11/07/2018 13:52	Ping Hua	2037355
	10/30/2018			11/07/2018 15:26	Ping Hua	2037345
EPA 351.2 Rev. 2.0	10/30/2018	11/05/2018 12:00	Adrian Shelby	11/06/2018 15:52	Virginia P. Brown	2037337
	10/30/2018	11/05/2018 12:00	Adrian Shelby	11/06/2018 15:57	Virginia P. Brown	2037340
	10/30/2018	11/05/2018 12:00	Adrian Shelby	11/06/2018 15:58	Virginia P. Brown	2037344
	10/30/2018	11/05/2018 12:00	Adrian Shelby	11/06/2018 16:00	Virginia P. Brown	2037345
	10/30/2018	11/05/2018 12:00	Adrian Shelby	11/06/2018 16:04	Virginia P. Brown	2037349
	10/30/2018	11/05/2018 12:00	Adrian Shelby	11/06/2018 16:09	Virginia P. Brown	2037352
	10/30/2018	11/05/2018 12:00	Adrian Shelby	11/06/2018 16:11	Virginia P. Brown	2037355
EPA 353.2 Rev. 2.0	10/30/2018			11/05/2018 13:32	Lauren Bottorf	2037337
	10/30/2018			11/07/2018 11:41	Lauren Bottorf	2037340
	10/30/2018			11/07/2018 11:47	Lauren Bottorf	2037344
	10/30/2018			11/07/2018 11:48	Lauren Bottorf	2037345
	10/30/2018			11/07/2018 11:49	Lauren Bottorf	2037349
	10/30/2018			11/07/2018 11:50	Lauren Bottorf	2037352
	10/30/2018			11/07/2018 11:51	Lauren Bottorf	2037355
EPA 365.1 Rev. 2.0	10/30/2018	11/01/2018 12:35	Sima Feizi	11/02/2018 12:29	Beverly Y. Sanders	2037337

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	10/30/2018	11/01/2018 12:35	Sima Feizi	11/02/2018 12:30	Beverly Y. Sanders	2037340
	10/30/2018	11/01/2018 12:35	Sima Feizi	11/02/2018 12:31	Beverly Y. Sanders	2037344
	10/30/2018	11/02/2018 12:40	Sima Feizi	11/05/2018 11:33	Beverly Y. Sanders	2037345
	10/30/2018	11/02/2018 12:40	Sima Feizi	11/05/2018 11:34	Beverly Y. Sanders	2037349
	10/30/2018	11/02/2018 12:40	Sima Feizi	11/05/2018 11:35	Beverly Y. Sanders	2037355
	10/30/2018	11/02/2018 12:40	Sima Feizi	11/05/2018 15:06	Beverly Y. Sanders	2037352
EPA 365.1 Rev. 2.0 dissolved	10/30/2018			10/30/2018 15:05	Julia Storbeck	2037353
	10/30/2018			10/30/2018 15:23	Julia Storbeck	2037338
	10/30/2018			10/30/2018 15:24	Julia Storbeck	2037341
	10/30/2018			10/30/2018 15:29	Julia Storbeck	2037346
	10/30/2018			10/30/2018 15:30	Julia Storbeck	2037347, 2037350
	10/30/2018			10/30/2018 15:31	Julia Storbeck	2037356
SM 2120 B	10/30/2018			10/30/2018 16:39	Chelsea Hernandez	2037336, 2037339
	10/30/2018			10/30/2018 16:40	Chelsea Hernandez	2037342
	10/30/2018			10/30/2018 16:41	Chelsea Hernandez	2037343
	10/30/2018			10/30/2018 16:42	Chelsea Hernandez	2037348
	10/30/2018			10/30/2018 16:43	Chelsea Hernandez	2037351
	10/30/2018			10/30/2018 16:44	Chelsea Hernandez	2037354
SM 2320 B-97	10/30/2018			11/01/2018 20:59	Dale L. Simmons	2037336
	10/30/2018			11/02/2018 00:04	Dale L. Simmons	2037339
	10/30/2018			11/02/2018 00:16	Dale L. Simmons	2037342
	10/30/2018			11/06/2018 20:22	Dale L. Simmons	2037343
	10/30/2018			11/06/2018 20:33	Dale L. Simmons	2037348
	10/30/2018			11/06/2018 20:43	Dale L. Simmons	2037351
SM 2540 C-97	10/30/2018			11/06/2018 20:53	Dale L. Simmons	2037354
	10/30/2018			11/02/2018 16:03	Yijie Li	2037336, 2037339, 2037342, 2037343, 2037348, 2037351, 2037354
SM 2540 D-97	10/30/2018			11/02/2018 16:03	Yijie Li	2037336, 2037339, 2037342, 2037343, 2037348, 2037351, 2037354
SM 4500 F-C-97	10/30/2018			11/01/2018 20:51	Dale L. Simmons	2037336
	10/30/2018			11/02/2018 00:04	Dale L. Simmons	2037339
	10/30/2018			11/02/2018 00:16	Dale L. Simmons	2037342
	10/30/2018			11/06/2018 20:22	Dale L. Simmons	2037343
	10/30/2018			11/06/2018 20:33	Dale L. Simmons	2037348
	10/30/2018			11/06/2018 20:43	Dale L. Simmons	2037351
SM 5310 B-00	10/30/2018			11/06/2018 20:53	Dale L. Simmons	2037354
	10/30/2018			11/02/2018 22:50	Megan Treadwell	2037337
	10/30/2018			11/02/2018 23:30	Megan Treadwell	2037340
	10/30/2018			11/02/2018 23:44	Megan Treadwell	2037344
	10/30/2018			11/02/2018 23:57	Megan Treadwell	2037345

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
SM 5310 B-00	10/30/2018			11/03/2018 00:10	Megan Treadwell	2037349
	10/30/2018			11/03/2018 00:24	Megan Treadwell	2037352
	10/30/2018			11/03/2018 00:37	Megan Treadwell	2037355