

Chemical Analysis Report

SE-DIST-2018-10-24-01

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

Event Description: **SMP- Fort Pierce**
Request ID: **RQ-2018-10-22-16**
Customer: **SE-DIST**
Project ID: **SMP**

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

For additional information please contact
Colin Wright, Ph.D.
Liang-Tsair Lin, Ph.D.
Kerry Tate, Ph.D.
Dr. rer. nat. Bettina Steinbock
Thekkekalathil Chandrasekhar, Ph.D, QA Officer
Phone (850) 245-8085

Certified by: Kerry Tate, Ph.D., Environmental Administrator

Date Certified: 16-NOV-2018 12:58

A handwritten signature in black ink that reads "Kerry Tate". The signature is written in a cursive, flowing style with a horizontal line above the first name.

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, Nutrients and Pesticides.

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-25 CANAL WEST @ GODWIN

Collection Date/Time: 10/23/2018 10:10

Field ID: G2SE0001

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2035184	EPA 180.1 Rev. 2.0	Turbidity	2.6		NTU	P353756	
	EPA 300.0 Rev. 2.1	Chloride	110		mg Cl/L	P353866	
		Sulfate	44		mg SO4/L	P353868	
	SM 2120 B	Color (true)	86		PCU	P353617	
	SM 2320 B-97	Total Alkalinity	161		mg CaCO3/L	P353897	
	SM 2540 C-97	TDS	430		mg/L	P354123	
	SM 2540 D-97	TSS	4	I	mg/L	P354019	
	SM 4500 F-C-97	Fluoride	0.32		mg F/L	P353902	
	EPA 350.1 Rev. 2.0	Ammonia-N	0.046		mg N/L	P353949	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.1		mg N/L	P353909	
2035185	EPA 353.2 Rev. 2.0	NO2NO3-N	0.016		mg N/L	P353773	
	EPA 365.1 Rev. 2.0	Total-P	0.15		mg P/L	P353663	
	SM 5310 B-00	Organic Carbon	17		mg C/L	P353790	
	EPA 365.1 Rev. 2.0	O-Phosphate-P	0.12		mg P/L	P353641	
	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 365.1 Rev. 2.0: Total-P: Batch matrix spike recoveries are unavailable because of high analyte concentration in the QC sample.

Sample Location: MOORES CREEK @ 2ND

Collection Date/Time: 10/23/2018 10:45

Field ID: G2SE0025

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2035193	EPA 180.1 Rev. 2.0	Turbidity	2.2		NTU	P353756	
	SM 2320 B-97	Total Alkalinity	126		mg CaCO3/L	P354097	
	SM 2540 D-97	TSS	6	I	mg/L	P354024	
	SM 4500 F-C-97	Fluoride	1.2		mg F/L	P354100	
2035195	EPA 350.1 Rev. 2.0	Ammonia-N	0.063		mg N/L	P353952	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.36	I	mg N/L	P353747	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.014		mg N/L	P353823	
	EPA 365.1 Rev. 2.0	Total-P	0.050		mg P/L	P353665	MS
	SM 5310 B-00	Organic Carbon	2.5		mg C/L	P353795	
2035197	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.031		mg P/L	P353648	
2035211	EPA 8321B	2,4-D	0.0020	U	ug/L	P353529	
		Bentazon	8.0E-04	U	ug/L	P353529	
		MCP	0.0020	U	ug/L	P353529	
		Triclopyr**	0.0040	U	ug/L	P353529	MS
		Imidacloprid	0.0020	U	ug/L	P353529	MS
		Diuron	0.0020	U	ug/L	P353529	
		Pyraclostrobin**	0.0020	U	ug/L	P353529	
		Primidone**	0.0040	U	ug/L	P353529	
		Linuron	0.0040	U	ug/L	P353529	
		Acetaminophen**	0.0080	U	ug/L	P353529	
		Fenuron	0.016	U	ug/L	P353529	
		Imazapyr**	0.0040	U	ug/L	P353529	
		Carbamazepine**	8.0E-04	U	ug/L	P353529	
		Fluridone**	4.4E-04	I	ug/L	P353529	
		Hydrocodone**	8.0E-04	U	ug/L	P353529	
		Naproxen**	0.0080	U	ug/L	P353529	
		Ibuprofen**	0.020	U	ug/L	P353529	
		Sucralose**	0.011	I	ug/L	P353544	
		Acesulfame K**	0.10	U	ug/L	P353544	
2035213	EPA 200.7 Rev. 4.4	Iron	120	U	ug/L	P353602	
		Zinc	15	U	ug/L	P353602	
	EPA 200.8 Rev. 5.4	Arsenic	2.08		ug/L	P353602	
		Cadmium	0.080	U	ug/L	P353602	
		Chromium	4.0	U	ug/L	P353602	MS
		Copper	0.80	U	ug/L	P353602	
		Lead	0.50	U	ug/L	P353602	
		Nickel	0.80	U	ug/L	P353602	
		Silver	0.040	U	ug/L	P353602	

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: MOORES CREEK @ 7TH

Collection Date/Time: 10/23/2018 11:00

Field ID: G2SE0016

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2035194	EPA 180.1 Rev. 2.0	Turbidity	3.0		NTU	P353756	
	SM 2320 B-97	Total Alkalinity	141		mg CaCO3/L	P354097	
	SM 2540 D-97	TSS	6	I	mg/L	P354024	
	SM 4500 F-C-97	Fluoride	0.81		mg F/L	P354100	
2035196	EPA 350.1 Rev. 2.0	Ammonia-N	0.061		mg N/L	P353951	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.50		mg N/L	P353747	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.009	I	mg N/L	P353823	
	EPA 365.1 Rev. 2.0	Total-P	0.13		mg P/L	P353665	MS
	SM 5310 B-00	Organic Carbon	6.1		mg C/L	P353795	
2035198	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.11		mg P/L	P353648	
2035212	EPA 8321B	2,4-D	0.0020	U	ug/L	P353529	
		Bentazon	8.0E-04	U	ug/L	P353529	
		MCP	0.0020	U	ug/L	P353529	
		Triclopyr**	0.0040	U	ug/L	P353529	MS
		Imidacloprid	0.0026	I	ug/L	P353529	MS
		Diuron	0.0020	U	ug/L	P353529	
		Pyraclostrobin**	0.0020	U	ug/L	P353529	
		Primidone**	0.0040	U	ug/L	P353529	
		Linuron	0.0040	U	ug/L	P353529	
		Acetaminophen**	0.0080	U	ug/L	P353529	
		Fenuron	0.016	U	ug/L	P353529	
		Imazapyr**	0.0042	I	ug/L	P353529	
		Carbamazepine**	8.0E-04	U	ug/L	P353529	
		Fluridone**	8.7E-04	I	ug/L	P353529	
		Hydrocodone**	8.0E-04	U	ug/L	P353529	
		Naproxen**	0.0080	U	ug/L	P353529	
		Ibuprofen**	0.020	U	ug/L	P353529	
		Sucralose**	0.035	I	ug/L	P353544	
		Acesulfame K**	0.10	U	ug/L	P353544	
2035214	EPA 200.7 Rev. 4.4	Iron	120	U	ug/L	P353602	
		Zinc	20	U	ug/L	P353602	
	EPA 200.8 Rev. 5.4	Arsenic	1.65		ug/L	P353602	
		Cadmium	0.080	U	ug/L	P353602	
		Chromium	4.0	U	ug/L	P353602	MS
		Copper	0.80	U	ug/L	P353602	
		Lead	0.26	I	ug/L	P353602	
		Nickel	0.80	U	ug/L	P353602	
		Silver	0.040	U	ug/L	P353602	

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: FIVE MILE CREEK @ OKEECHOBEE

Collection Date/Time: 10/23/2018 11:35

Field ID: G2SE0008

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2035187	EPA 180.1 Rev. 2.0	Turbidity	5.4	A	NTU	P353756	
	EPA 300.0 Rev. 2.1	Chloride	330		mg Cl/L	P353866	
		Sulfate	110		mg SO4/L	P353868	
	SM 2120 B	Color (true)	39	A	PCU	P353617	
	SM 2320 B-97	Total Alkalinity	213		mg CaCO3/L	P353897	
	SM 2540 C-97	TDS	876		mg/L	P354123	
	SM 2540 D-97	TSS	6	I	mg/L	P354019	
	SM 4500 F-C-97	Fluoride	0.51		mg F/L	P353902	
	EPA 350.1 Rev. 2.0	Ammonia-N	0.017		mg N/L	P353949	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.46		mg N/L	P353909	
2035189	EPA 353.2 Rev. 2.0	NO2NO3-N	0.033		mg N/L	P353773	
	EPA 365.1 Rev. 2.0	Total-P	0.080		mg P/L	P353663	
	SM 5310 B-00	Organic Carbon	9.4		mg C/L	P353790	
	EPA 365.1 Rev. 2.0	O-Phosphate-P	0.047		mg P/L	P353641	
	dissolved						
2035191	EPA 365.1 Rev. 2.0	O-Phosphate-P	0.047		mg P/L	P353641	

Ref. Method and Comment:

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

EPA 365.1 Rev. 2.0: Total-P: Batch matrix spike recoveries are unavailable because of high analyte concentration in the QC sample.

Sample Location: TEN-MILE CREEK @ GORDY

Collection Date/Time: 10/23/2018 12:00

Field ID: G2SE0009

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes	
2035188	EPA 180.1 Rev. 2.0	Turbidity	4.0		NTU	P353756		
	EPA 300.0 Rev. 2.1	Chloride	470		mg Cl/L	P353866		
		Sulfate	100		mg SO4/L	P353868		
		Color (true)	49		PCU	P353617		
	SM 2320 B-97	Total Alkalinity	188		mg CaCO3/L	P353897		
	SM 2540 C-97	TDS	1.14E+03		mg/L	P354123		
	SM 2540 D-97	TSS	6	I	mg/L	P354019		
	SM 4500 F-C-97	Fluoride	0.43		mg F/L	P353902		
	2035190	EPA 350.1 Rev. 2.0	Ammonia-N	0.015		mg N/L	P353949	
		EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.86		mg N/L	P353909	
EPA 353.2 Rev. 2.0		NO2NO3-N	0.034		mg N/L	P353773		
EPA 365.1 Rev. 2.0		Total-P	0.12		mg P/L	P353663		
SM 5310 B-00		Organic Carbon	12		mg C/L	P353790		
2035192	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.063		mg P/L	P353641		
2035418	EPA 200.7 Rev. 4.4	Iron	240		ug/L	P353655		
		Zinc	5.7	I	ug/L	P353655		
	EPA 200.8 Rev. 5.4	Arsenic	1.08		ug/L	P353655		
		Cadmium	0.020	U	ug/L	P353655		
		Chromium	0.40	U	ug/L	P353655		
		Copper	1.31		ug/L	P353655		
		Lead	0.11	I	ug/L	P353655		
		Nickel	0.37	I	ug/L	P353655		
		Silver	0.010	U	ug/L	P353655		

Ref. Method and Comment:

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

EPA 365.1 Rev. 2.0: Total-P: 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: P353756

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P353602

Component	Result	Code	Units
Iron	30	U	ug/L
Zinc	5.0	U	ug/L

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P353655

Component	Result	Code	Units
Iron	30	U	ug/L
Zinc	5.0	U	ug/L

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P353602

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
Silver	0.010	U	ug/L

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P353655

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
Silver	0.010	U	ug/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P353866

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P353868

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Quality Assurance Report

Method Blank Results

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P353949

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P353951

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P353952

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P353747

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P353909

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P353773

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P353823

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P353663

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P353665

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

Quality Assurance Report Method Blank Results

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P353641

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P353648

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

Reference Method: EPA 8321B
Batch ID: P353529

Component	Result	Code	Units
2,4-D	0.0020	U	ug/L
Acetaminophen	0.0080	U	ug/L
Bentazon	8.0E-04	U	ug/L
Carbamazepine	8.0E-04	U	ug/L
Diuron	0.0020	U	ug/L
Fenuron	0.016	U	ug/L
Fluridone	4.0E-04	U	ug/L
Hydrocodone	8.0E-04	U	ug/L
Ibuprofen	0.020	U	ug/L
Imazapyr	0.0040	U	ug/L
Imidacloprid	0.0020	U	ug/L
Linuron	0.0040	U	ug/L
MCPP	0.0020	U	ug/L
Naproxen	0.0080	U	ug/L
Primidone	0.0040	U	ug/L
Pyraclostrobin	0.0020	U	ug/L
Triclopyr	0.0040	U	ug/L

Reference Method: EPA 8321B
Batch ID: P353544

Component	Result	Code	Units
Acesulfame K	0.10	U	ug/L
Sucralose	0.010	U	ug/L

Reference Method: SM 2120 B
Batch ID: P353617

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2320 B-97
Batch ID: P353897

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

Quality Assurance Report

Method Blank Results

Reference Method: SM 2320 B-97
Batch ID: P354097

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

Reference Method: SM 2540 C-97
Batch ID: P354123

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P354019

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P354024

Component	Result	Code	Units
TSS	3	U	mg/L

Reference Method: SM 4500 F-C-97
Batch ID: P353902

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 4500 F-C-97
Batch ID: P354100

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-00
Batch ID: P353790

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

Reference Method: SM 5310 B-00
Batch ID: P353795

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: P353602

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Iron	108		P	85 - 115
Zinc	101		P	85 - 115

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P353655

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Iron	105		P	85 - 115
Zinc	99.2		P	85 - 115

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P353602

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Arsenic	106		P	85 - 115
Cadmium	102		P	85 - 115
Chromium	104		P	85 - 115
Copper	104		P	85 - 115
Lead	96.3		P	85 - 115
Nickel	103		P	85 - 115
Silver	101		P	85 - 115

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P353655

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Arsenic	99.9		P	85 - 115
Cadmium	96.3		P	85 - 115
Chromium	97.3		P	85 - 115
Copper	99.0		P	85 - 115
Lead	93.1		P	85 - 115
Nickel	99.5		P	85 - 115
Silver	96.0		P	85 - 115

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P353866

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P353868

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P353949

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

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P353951

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P353952

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P353747

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: P353909

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P353773

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P353823

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P353663

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P353665

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P353641

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

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P353648

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

Reference Method: EPA 8321B
Batch ID: P353529

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2,4-D	90.6		P	40 - 150
Acetaminophen	143		P	30 - 150
Bentazon	73.3		P	30 - 150
Carbamazepine	97.0		P	40 - 150
Diuron	93.3		P	40 - 150
Fenuron	133		P	40 - 150
Fluridone	116		P	40 - 150
Hydrocodone	130		P	40 - 150
Ibuprofen	41.3		P	40 - 150
Imazapyr	110		P	40 - 150
Imidacloprid	137		P	40 - 160
Linuron	87.2		P	40 - 150
MCPP	97.5		P	40 - 150
Naproxen	92.8		P	40 - 150
Primidone	130		P	40 - 150
Pyraclostrobin	93.1		P	40 - 150
Triclopyr	99.9		P	40 - 150

Reference Method: EPA 8321B
Batch ID: P353544

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Acesulfame K	84.0		P	40 - 150
Sucralose	83.5		P	40 - 150

Reference Method: SM 2120 B
Batch ID: P353617

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Color (true)	101		P	85 - 115

Reference Method: SM 2320 B-97
Batch ID: P353897

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

Reference Method: SM 2320 B-97
Batch ID: P354097

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

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: SM 4500 F-C-97
Batch ID: P353902

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	99.1		P	91 - 105

Reference Method: SM 4500 F-C-97
Batch ID: P354100

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

Reference Method: SM 5310 B-00
Batch ID: P353790

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	97.2		P	85 - 115

Reference Method: SM 5310 B-00
Batch ID: P353795

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

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P353602

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2033818	Iron	104	99.8	P/P	80 - 120
2033818	Zinc	99.5	96.6	P/P	80 - 120

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P353655

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2034830	Iron	106	104	P/P	80 - 120
2034830	Zinc	102	100	P/P	80 - 120
2035504	Iron	105		P	80 - 120
2035504	Zinc	101		P	80 - 120

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P353602

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2033818	Arsenic	109	110	P/P	70 - 130
2033818	Cadmium	98.8	99.9	P/P	70 - 130
2033818	Chromium	112	132	P/F	80 - 120
2033818	Copper	94.3	93.4	P/P	70 - 130
2033818	Lead	101	106	P/P	80 - 120
2033818	Nickel	87.6	86.7	P/P	70 - 130
2033818	Silver	90.4	91.1	P/P	70 - 130

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P353655

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2034830	Arsenic	102	100	P/P	80 - 120
2034830	Cadmium	99.2	97.9	P/P	80 - 120
2034830	Chromium	98.6	96.6	P/P	80 - 120
2034830	Copper	99.6	98.3	P/P	80 - 120
2034830	Lead	95.7	94.8	P/P	80 - 120
2034830	Nickel	99.0	97.0	P/P	80 - 120
2034830	Silver	96.3	96.0	P/P	80 - 120
2035504	Arsenic	101		P	80 - 120
2035504	Cadmium	101		P	80 - 120
2035504	Chromium	99.5		P	80 - 120
2035504	Copper	102		P	80 - 120
2035504	Lead	97.2		P	80 - 120
2035504	Nickel	99.5		P	80 - 120
2035504	Silver	97.6		P	80 - 120

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P353866

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2034762	Chloride	104	103	P/P	90 - 110
2035091	Chloride	98.7		P	90 - 110

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P353868

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2034762	Sulfate	102	102	P/P	90 - 110
2035091	Sulfate	98.9		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P353949

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2035092	Ammonia-N	101	102	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P353951

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2035225	Ammonia-N	102	102	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P353952

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2034783	Ammonia-N	105	106	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P353747

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2035065	Kjeldahl Nitrogen	101	99.7	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P353909

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2035190	Kjeldahl Nitrogen	105	101	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P353773

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2034922	NO2NO3-N	98.2	99.8	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P353823

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2035136	NO2NO3-N	102	101	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P353665

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2035136	Total-P	90.2	89.8	P/F	90 - 110

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P353641

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2035093	O-Phosphate-P	96.7	97.8	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P353648

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2035069	O-Phosphate-P	97.7	100	P/P	90 - 110

Reference Method: EPA 8321B
Batch ID: P353529

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2035512	2,4-D	139	120	P/P	40 - 150
2035512	Acetaminophen	126	135	P/P	30 - 150
2035512	Bentazon	95.7	68.5	P/P	30 - 150
2035512	Carbamazepine	74.4	74.6	P/P	40 - 150
2035512	Diuron	65.9	65.5	P/P	40 - 150
2035512	Fenuron	114	115	P/P	40 - 150
2035512	Fluridone	105	107	P/P	40 - 150
2035512	Hydrocodone	119	123	P/P	40 - 150
2035512	Ibuprofen	44.5	41.7	P/P	40 - 150
2035512	Imazapyr	101	110	P/P	40 - 150
2035512	Imidacloprid	200	187	F/F	40 - 160
2035512	Linuron	68.7	67.9	P/P	40 - 150
2035512	MCP	136	134	P/P	40 - 150
2035512	Naproxen	103	102	P/P	40 - 150
2035512	Primidone	121	118	P/P	40 - 150
2035512	Pyraclostrobin	85.2	81.1	P/P	40 - 150
2035512	Triclopyr	165	132	F/P	40 - 150

Reference Method: EPA 8321B
Batch ID: P353544

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2034746	Acesulfame K	104	99.7	P/P	40 - 150
2034746	Sucralose	81.8	78.5	P/P	40 - 150

Reference Method: SM 4500 F-C-97
Batch ID: P353902

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2034796	Fluoride	101	100	P/P	91 - 105

Reference Method: SM 4500 F-C-97
Batch ID: P354100

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2035932	Fluoride	97.5	98.2	P/P	91 - 105

Quality Assurance Report

Matrix Spike Accuracy

Reference Method: SM 5310 B-00
Batch ID: P353790

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2034794	Organic Carbon	99.2	96.8	P/P	85 - 115

Reference Method: SM 5310 B-00
Batch ID: P353795

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2034854	Organic Carbon	96.2	94.7	P/P	85 - 115

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P353756

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2035187	Turbidity	1.47	Sample	P	0 - 20

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P353602

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2033818	Iron	4.12	Spike	P	0 - 20
2033818	Zinc	2.78	Spike	P	0 - 20

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P353655

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2034830	Iron	2.41	Spike	P	0 - 20
2034830	Zinc	2.39	Spike	P	0 - 20

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P353602

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2033818	Arsenic	0.904	Spike	P	0 - 20
2033818	Cadmium	1.16	Spike	P	0 - 20
2033818	Chromium	16.8	Spike	P	0 - 20
2033818	Copper	0.650	Spike	P	0 - 20
2033818	Lead	4.90	Spike	P	0 - 20
2033818	Nickel	0.990	Spike	P	0 - 20
2033818	Silver	0.834	Spike	P	0 - 20

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P353655

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2034830	Arsenic	1.63	Spike	P	0 - 20
2034830	Cadmium	1.34	Spike	P	0 - 20
2034830	Chromium	2.01	Spike	P	0 - 20
2034830	Copper	1.23	Spike	P	0 - 20
2034830	Lead	0.874	Spike	P	0 - 20
2034830	Nickel	2.12	Spike	P	0 - 20
2034830	Silver	0.283	Spike	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P353866

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2034762	Chloride	0.529	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P353868

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2034762	Sulfate	0.0954	Spike	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P353949

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2035092	Ammonia-N	0.820	Spike	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P353951

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2035225	Ammonia-N	0.598	Spike	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P353952

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2034783	Ammonia-N	1.17	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P353747

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2035065	Kjeldahl Nitrogen	1.01	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P353909

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2035190	Kjeldahl Nitrogen	2.38	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P353773

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2034922	NO2NO3-N	1.37	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P353823

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2035136	NO2NO3-N	0.494	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P353663

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2035334	Total-P	0.665	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P353665

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2035136	Total-P	0.437	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P353641

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2035093	O-Phosphate-P	1.13	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P353648

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2035069	O-Phosphate-P	2.43	Spike	P	0 - 20

Reference Method: EPA 8321B
Batch ID: P353529

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2035512	2,4-D	10.4	Spike	P	0 - 30
2035512	Acetaminophen	7.33	Spike	P	0 - 30
2035512	Bentazon	19.9	Spike	P	0 - 30
2035512	Carbamazepine	0.268	Spike	P	0 - 30
2035512	Diuron	0.333	Spike	P	0 - 30
2035512	Fenuron	0.665	Spike	P	0 - 30
2035512	Fluridone	2.37	Spike	P	0 - 30
2035512	Hydrocodone	3.02	Spike	P	0 - 30
2035512	Ibuprofen	6.51	Spike	P	0 - 30
2035512	Imazapyr	5.27	Spike	P	0 - 30
2035512	Imidacloprid	5.73	Spike	P	0 - 30
2035512	Linuron	1.21	Spike	P	0 - 30
2035512	MCPP	1.79	Spike	P	0 - 30
2035512	Naproxen	0.735	Spike	P	0 - 30
2035512	Primidone	2.34	Spike	P	0 - 30
2035512	Pyraclostrobin	4.90	Spike	P	0 - 30
2035512	Triclopyr	22.1	Spike	P	0 - 30

Reference Method: EPA 8321B
Batch ID: P353544

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
--------------------------	-----------	-----------	-------------------	-----------	----------------

Quality Assurance Report Precision

Reference Method: EPA 8321B
Batch ID: P353544

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2034746	Acesulfame K	3.97	Spike	P	0 - 30
2034746	Sucralose	3.21	Spike	P	0 - 30

Reference Method: SM 2120 B
Batch ID: P353617

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2035187	Color (true)	1.21	Sample	P	0 - 20

Reference Method: SM 2320 B-97
Batch ID: P353897

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2034796	Total Alkalinity	0.312	Sample	P	0 - 1.6

Reference Method: SM 2320 B-97
Batch ID: P354097

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2035932	Total Alkalinity	0.133	Sample	P	0 - 1.6

Reference Method: SM 2540 C-97
Batch ID: P354123

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2034796	TDS	4.00	Sample	P	0 - 10

Reference Method: SM 4500 F-C-97
Batch ID: P353902

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2034796	Fluoride	0.470	Spike	P	0 - 3.5

Reference Method: SM 4500 F-C-97
Batch ID: P354100

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2035932	Fluoride	0.470	Spike	P	0 - 3.5

Reference Method: SM 5310 B-00
Batch ID: P353790

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2034794	Organic Carbon	1.61	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: SM 5310 B-00
Batch ID: P353795

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2034854	Organic Carbon	1.39	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 Surrogates

Lab Sample ID: 2035211
Field Sample ID: G2SE0025

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	2,4-D-d3	86.5	P	30 - 160
EPA 8321B	Acetaminophen-d4	154	P	30 - 160
EPA 8321B	Carbamazepine-d10	95.0	P	30 - 160
EPA 8321B	Diuron-d6	83.5	P	30 - 160
EPA 8321B	Endothall-d6	82.1	P	40 - 160
EPA 8321B	Ibuprofen-d3	72.4	P	30 - 160
EPA 8321B	Primidone-d5	118	P	30 - 160
EPA 8321B	Sucralose-d6	104	P	40 - 160

Lab Sample ID: 2035212
Field Sample ID: G2SE0016

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	2,4-D-d3	81.1	P	30 - 160
EPA 8321B	Acetaminophen-d4	145	P	30 - 160
EPA 8321B	Carbamazepine-d10	92.4	P	30 - 160
EPA 8321B	Diuron-d6	73.5	P	30 - 160
EPA 8321B	Endothall-d6	78.3	P	40 - 160
EPA 8321B	Ibuprofen-d3	60.7	P	30 - 160
EPA 8321B	Primidone-d5	131	P	30 - 160
EPA 8321B	Sucralose-d6	106	P	40 - 160

Quality Assurance Report Calibration Verification

Reference Method: SM 2120 B

Run ID: A87259

Included Lab Sample IDs: 2035184, 2035187, 2035188

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	99.8	102	P/P	90 - 115

Reference Method: EPA 365.1 Rev. 2.0 dissolved

Run ID: A87273

Included Lab Sample IDs: 2035186, 2035191, 2035192, 2035197, 2035198

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	99.1	99.9	P/P	90 - 110
O-Phosphate-P	99.4	99.0	P/P	90 - 110
O-Phosphate-P	99.4	99.4	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A87310

Included Lab Sample IDs: 2035185, 2035189, 2035190, 2035196

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

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A87319

Included Lab Sample IDs: 2035195

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	99.2	99.8	P/P	90 - 110

Reference Method: EPA 180.1 Rev. 2.0

Run ID: A87320

Included Lab Sample IDs: 2035184, 2035187, 2035188, 2035193, 2035194

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

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A87323

Included Lab Sample IDs: 2035185, 2035189, 2035190

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

Reference Method: EPA 8321B

Run ID: A87330

Included Lab Sample IDs: 2035211, 2035212

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Sucralose	72.1	75.4	P/P	60 - 160

Quality Assurance Report Calibration Verification

Reference Method: SM 5310 B-00

Run ID: A87335

Included Lab Sample IDs: 2035185, 2035189, 2035190, 2035195, 2035196

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

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A87354

Included Lab Sample IDs: 2035195, 2035196

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO2NO3-N	99.0	98.5	P/P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1

Run ID: A87368

Included Lab Sample IDs: 2035184, 2035187, 2035188

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

Reference Method: EPA 8321B

Run ID: A87369

Included Lab Sample IDs: 2035211, 2035212

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Acesulfame K	88.1	61.7	P/P	60 - 160

Reference Method: SM 2320 B-97

Run ID: A87382

Included Lab Sample IDs: 2035184, 2035187, 2035188

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

Reference Method: SM 4500 F-C-97

Run ID: A87382

Included Lab Sample IDs: 2035184, 2035187, 2035188

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

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A87392

Included Lab Sample IDs: 2035195, 2035196

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	98.0	94.0	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: EPA 200.7 Rev. 4.4

Run ID: A87399

Included Lab Sample IDs: 2035213, 2035214, 2035418

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Iron	101	103	P/P	90 - 110
Iron	99.3	102	P/P	90 - 110
Zinc	97.4	100	P/P	90 - 110
Zinc	98.5	101	P/P	90 - 110

Reference Method: EPA 200.8 Rev. 5.4

Run ID: A87400

Included Lab Sample IDs: 2035418

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Arsenic	99.5	98.3	P/P	90 - 110
Cadmium	97.6	98.1	P/P	90 - 110
Chromium	99.1	100	P/P	90 - 110
Copper	101	101	P/P	90 - 110
Lead	95.8	96.4	P/P	90 - 110
Nickel	101	101	P/P	90 - 110
Silver	95.2	95.4	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A87407

Included Lab Sample IDs: 2035185, 2035189, 2035190, 2035195, 2035196

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	102	101	P/P	90 - 110
Ammonia-N	103	103	P/P	90 - 110
Ammonia-N	103	104	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A87414

Included Lab Sample IDs: 2035185, 2035189, 2035190

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

Reference Method: EPA 8321B

Run ID: A87443

Included Lab Sample IDs: 2035211, 2035212

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
2,4-D	117	111	P/P	50 - 150
Acetaminophen	112	130	P/P	60 - 160
Bentazon	106	106	P/P	50 - 160
Carbamazepine	132	127	P/P	60 - 160
Diuron	139	111	P/P	60 - 150
Fenuron	104	109	P/P	60 - 150
Fluridone	116	126	P/P	60 - 160
Hydrocodone	131	127	P/P	60 - 150
Ibuprofen	56.7	75.9	P/P	50 - 160
Imazapyr	94.0	100	P/P	50 - 150
Imidacloprid	133	129	P/P	60 - 160
Linuron	130	112	P/P	60 - 150

Quality Assurance Report Calibration Verification

Reference Method: EPA 8321B

Run ID: A87443

Included Lab Sample IDs: 2035211, 2035212

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
MCP	110	103	P/P	50 - 150
Naproxen	104	110	P/P	50 - 160
Primidone	114	111	P/P	60 - 160
Pyraclorobin	126	124	P/P	60 - 150
Triclopyr	98.7	98.9	P/P	50 - 160

Reference Method: EPA 200.7 Rev. 4.4

Run ID: A87466

Included Lab Sample IDs: 2035213

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Zinc	105	107	P/P	90 - 110

Reference Method: SM 2320 B-97

Run ID: A87470

Included Lab Sample IDs: 2035193, 2035194

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	99.8	103	P/P	90 - 110

Reference Method: SM 4500 F-C-97

Run ID: A87470

Included Lab Sample IDs: 2035193, 2035194

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	100	98.6	P/P	90 - 110

Reference Method: EPA 200.8 Rev. 5.4

Run ID: A87648

Included Lab Sample IDs: 2035213, 2035214

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Arsenic	103	102	P/P	90 - 110
Cadmium	100	101	P/P	90 - 110
Copper	99.2	100	P/P	90 - 110
Nickel	97.6	99.0	P/P	90 - 110
Silver	94.4	95.5	P/P	90 - 110

Reference Method: EPA 200.8 Rev. 5.4

Run ID: A87705

Included Lab Sample IDs: 2035213, 2035214

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chromium	103	101	P/P	90 - 110
Lead	103	99.2	P/P	90 - 110
Lead	104	101	P/P	90 - 110

* Pass/Fail determinations are made for each bracketing calibration verification check.

Control limits for initial calibration checks may be different from those for continuing checks, depending on method requirements.

Where they are different, both control limits are provided.

Quality Assurance Report Summary

Ref. Method	Analyte	LCS % Recovery	MS % Recovery			LCS	Precision SMP	MS
EPA 180.1 Rev. 2.0	Turbidity						1.47	
EPA 200.7 Rev. 4.4	Iron	108	104	99.8				4.12
	Iron	105	106	104	105			2.41
	Zinc	101	99.5	96.6				2.78
	Zinc	99.2	102	100	101			2.39
EPA 200.8 Rev. 5.4	Arsenic	106	109	110				0.904
	Arsenic	99.9	102	100	101			1.63
	Cadmium	102	98.8	99.9				1.16
	Cadmium	96.3	99.2	97.9	101			1.34
	Chromium	104	112	132				16.8
	Chromium	97.3	98.6	96.6	99.5			2.01
	Copper	104	94.3	93.4				0.650
	Copper	99.0	99.6	98.3	102			1.23
	Lead	96.3	101	106				4.90
	Lead	93.1	95.7	94.8	97.2			0.874
	Nickel	103	87.6	86.7				0.990
	Nickel	99.5	99.0	97.0	99.5			2.12
	Silver	101	90.4	91.1				0.834
	Silver	96.0	96.3	96.0	97.6			0.283
EPA 300.0 Rev. 2.1	Chloride	100	104	103	98.7			0.529
	Sulfate	99.4	102	102	98.9			0.0954
EPA 350.1 Rev. 2.0	Ammonia-N	102	101	102				0.820
	Ammonia-N	103	102	102				0.598
	Ammonia-N	104	105	106				1.17
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	105	101	99.7				1.01
	Kjeldahl Nitrogen	105	105	101				2.38
EPA 353.2 Rev. 2.0	NO2NO3-N	99.5	98.2	99.8				1.37
	NO2NO3-N	99.5	102	101				0.494
EPA 365.1 Rev. 2.0	Total-P	103						0.665
	Total-P	98.3	90.2	89.8				0.437
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	98.3	96.7	97.8				1.13
	O-Phosphate-P	103	97.7	100				2.43
EPA 8321B	2,4-D	90.6	139	120				10.4
	Acesulfame K	84.0	104	99.7				3.97
	Acetaminophen	143	126	135				7.33
	Bentazon	73.3	95.7	68.5				19.9
	Carbamazepine	97.0	74.4	74.6				0.268
	Diuron	93.3	65.9	65.5				0.333
	Fenuron	133	114	115				0.665
	Fluridone	116	105	107				2.37
	Hydrocodone	130	119	123				3.02
	Ibuprofen	41.3	44.5	41.7				6.51
	Imazapyr	110	101	110				5.27
	Imidacloprid	137	200	187				5.73
	Linuron	87.2	68.7	67.9				1.21
	MCPP	97.5	136	134				1.79
	Naproxen	92.8	103	102				0.735
	Primidone	130	121	118				2.34
	Pyraclostrobin	93.1	85.2	81.1				4.90
	Sucralose	83.5	81.8	78.5				3.21
	Triclopyr	99.9	165	132				22.1
SM 2120 B	Color (true)	101					1.21	
SM 2320 B-97	Total Alkalinity	103					0.312	
	Total Alkalinity	102					0.133	

Quality Assurance Report Summary

Ref. Method	Analyte	LCS % Recovery	MS % Recovery		LCS	Precision SMP	MS
SM 2540 C-97	TDS					4.00	
SM 4500 F-C-97	Fluoride	99.1	101	100			0.470
	Fluoride	98.5	97.5	98.2			0.470
SM 5310 B-00	Organic Carbon	97.2	99.2	96.8			1.61
	Organic Carbon	93.8	96.2	94.7			1.39

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	2035184, 2035187, 2035188, 2035193, 2035194
EPA 200.7 Rev. 4.4 / E31780	Total Recoverable Metals analysis using ICP emission spectroscopy for aqueous samples supporting Clean Water Act Projects	2035213, 2035214, 2035418
EPA 200.8 Rev. 5.4 / E31780	Total Recoverable Metals analysis using ICP-MS for aqueous samples supporting Clean Water Act Projects	2035213, 2035214, 2035418
EPA 300.0 Rev. 2.1 / E31780	Chloride in aqueous matrices	2035184, 2035187, 2035188
EPA 300.0 Rev. 2.1 / E31780	Sulfate in aqueous matrices	2035184, 2035187, 2035188
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	2035185, 2035189, 2035190, 2035195, 2035196
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	2035185, 2035189, 2035190, 2035195, 2035196
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	2035185, 2035189, 2035190, 2035195, 2035196
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	2035185, 2035189, 2035190, 2035195, 2035196
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	2035186, 2035191, 2035192, 2035197, 2035198
EPA 8321B / E31780	Pesticides, herbicides, and other chemicals in water matrices by HPLC/MS/MS	2035211, 2035212
SM 2120 B / E31780	True Color measured at 450 nm	2035184, 2035187, 2035188
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO3/L	2035184, 2035187, 2035188, 2035193, 2035194
SM 2540 C-97 / E31780	Total Dissolved Solids in aqueous matrices	2035184, 2035187, 2035188
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices using a maximum of 250 mL of sample	2035184, 2035187, 2035188, 2035193, 2035194
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	2035184, 2035187, 2035188, 2035193, 2035194
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	2035185, 2035189, 2035190, 2035195, 2035196

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	10/24/2018			10/24/2018 17:02	Megan Treadwell	2035184, 2035187, 2035188, 2035193, 2035194
EPA 200.7 Rev. 4.4	10/24/2018	10/24/2018 15:15	Elliott D. Healy	10/30/2018 18:47	Betina Topolski	2035213
	10/24/2018	10/24/2018 15:15	Elliott D. Healy	10/30/2018 18:55	Betina Topolski	2035214
	10/24/2018	10/24/2018 15:15	Elliott D. Healy	11/01/2018 17:44	Betina Topolski	2035213
	10/24/2018	10/25/2018 15:04	Devin Thornton	10/30/2018 21:33	Betina Topolski	2035418
EPA 200.8 Rev. 5.4	10/24/2018	10/24/2018 15:15	Elliott D. Healy	11/08/2018 23:44	Robert K Palmer	2035213
	10/24/2018	10/24/2018 15:15	Elliott D. Healy	11/08/2018 23:53	Robert K Palmer	2035214
	10/24/2018	10/24/2018 15:15	Elliott D. Healy	11/09/2018 18:03	Allison Taylor	2035213
	10/24/2018	10/24/2018 15:15	Elliott D. Healy	11/09/2018 18:10	Allison Taylor	2035214
	10/24/2018	10/24/2018 15:15	Elliott D. Healy	11/09/2018 21:52	Allison Taylor	2035214
	10/24/2018	10/25/2018 15:04	Devin Thornton	10/31/2018 02:43	Robert K Palmer	2035418
EPA 300.0 Rev. 2.1	10/24/2018			10/29/2018 20:45	Irina Carbone	2035184
	10/24/2018			10/29/2018 20:57	Irina Carbone	2035187
	10/24/2018			10/29/2018 21:09	Irina Carbone	2035188
EPA 350.1 Rev. 2.0	10/24/2018			10/30/2018 12:58	Ping Hua	2035185
	10/24/2018			10/30/2018 12:59	Ping Hua	2035189
	10/24/2018			10/30/2018 13:01	Ping Hua	2035190
	10/24/2018			10/30/2018 13:46	Ping Hua	2035196
	10/24/2018			10/30/2018 14:41	Ping Hua	2035195
EPA 351.2 Rev. 2.0	10/24/2018	10/26/2018 12:00	Adrian Shelby	10/30/2018 14:25	Virginia P. Brown	2035195
	10/24/2018	10/26/2018 12:00	Adrian Shelby	10/30/2018 14:27	Virginia P. Brown	2035196
	10/24/2018	10/30/2018 11:55	Adrian Shelby	10/31/2018 10:25	Virginia P. Brown	2035185
	10/24/2018	10/30/2018 11:55	Adrian Shelby	10/31/2018 10:27	Virginia P. Brown	2035189
	10/24/2018	10/30/2018 11:55	Adrian Shelby	10/31/2018 10:29	Virginia P. Brown	2035190
EPA 353.2 Rev. 2.0	10/24/2018			10/26/2018 13:51	Lauren Bottorf	2035185
	10/24/2018			10/26/2018 13:52	Lauren Bottorf	2035189
	10/24/2018			10/26/2018 13:54	Lauren Bottorf	2035190
	10/24/2018			10/29/2018 10:12	Beverly Y. Sanders	2035195
	10/24/2018			10/29/2018 10:14	Beverly Y. Sanders	2035196
EPA 365.1 Rev. 2.0	10/24/2018	10/25/2018 12:50	Sima Feizi	10/26/2018 09:21	Beverly Y. Sanders	2035185
	10/24/2018	10/25/2018 12:50	Sima Feizi	10/26/2018 09:22	Beverly Y. Sanders	2035189
	10/24/2018	10/25/2018 12:50	Sima Feizi	10/26/2018 09:24	Beverly Y. Sanders	2035190
	10/24/2018	10/25/2018 12:50	Sima Feizi	10/26/2018 09:56	Beverly Y. Sanders	2035196
	10/24/2018	10/25/2018 12:50	Sima Feizi	10/26/2018 13:54	Beverly Y. Sanders	2035195
EPA 365.1 Rev. 2.0 dissolved	10/24/2018			10/24/2018 18:06	Julia Storbeck	2035191
	10/24/2018			10/24/2018 18:07	Julia Storbeck	2035192
	10/24/2018			10/24/2018 18:29	Julia Storbeck	2035197
	10/24/2018			10/24/2018 18:42	Julia Storbeck	2035186
	10/24/2018			10/24/2018 18:45	Julia Storbeck	2035198

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
EPA 8321B	10/24/2018	10/25/2018 10:00	Hoor Shaik	10/27/2018 09:11	Juyoung Kim	2035211
	10/24/2018	10/25/2018 10:00	Hoor Shaik	10/27/2018 09:46	Juyoung Kim	2035212
	10/24/2018	10/25/2018 10:00	Hoor Shaik	10/28/2018 01:55	Juyoung Kim	2035211
	10/24/2018	10/25/2018 10:00	Hoor Shaik	10/28/2018 02:29	Juyoung Kim	2035212
	10/24/2018	10/25/2018 13:00	Rebecca Ware	10/27/2018 15:18	Mohammad Ghaffari	2035211
	10/24/2018	10/25/2018 13:00	Rebecca Ware	10/27/2018 15:33	Mohammad Ghaffari	2035212
	10/24/2018	10/25/2018 13:00	Rebecca Ware	10/29/2018 16:33	Rebecca Ware	2035211
	10/24/2018	10/25/2018 13:00	Rebecca Ware	10/29/2018 16:47	Rebecca Ware	2035212
SM 2120 B	10/24/2018			10/24/2018 16:19	Chelsea Hernandez	2035184
	10/24/2018			10/24/2018 16:20	Chelsea Hernandez	2035187
	10/24/2018			10/24/2018 16:21	Chelsea Hernandez	2035188
SM 2320 B-97	10/24/2018			10/29/2018 01:12	Dale L. Simmons	2035184
	10/24/2018			10/29/2018 02:06	Dale L. Simmons	2035187
	10/24/2018			10/29/2018 02:27	Dale L. Simmons	2035188
	10/24/2018			10/31/2018 01:13	Dale L. Simmons	2035193
	10/24/2018			10/31/2018 01:24	Dale L. Simmons	2035194
SM 2540 C-97	10/24/2018			10/25/2018 15:41	Yijie Li	2035184, 2035187, 2035188
SM 2540 D-97	10/24/2018			10/25/2018 15:41	Yijie Li	2035184, 2035187, 2035188, 2035193, 2035194
SM 4500 F-C-97	10/24/2018			10/29/2018 01:12	Dale L. Simmons	2035184
	10/24/2018			10/29/2018 02:06	Dale L. Simmons	2035187
	10/24/2018			10/29/2018 02:27	Dale L. Simmons	2035188
	10/24/2018			10/30/2018 21:11	Dale L. Simmons	2035193
	10/24/2018			10/30/2018 21:15	Dale L. Simmons	2035194
SM 5310 B-00	10/24/2018			10/26/2018 06:41	Megan Treadwell	2035185
	10/24/2018			10/26/2018 07:18	Megan Treadwell	2035189
	10/24/2018			10/26/2018 07:30	Megan Treadwell	2035190
	10/24/2018			10/27/2018 05:46	Megan Treadwell	2035195
	10/24/2018			10/27/2018 05:58	Megan Treadwell	2035196