

Chemical Analysis Report

TLH-ROC-2020-08-17-01

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

Event Description: **Run 7**
Request ID: **RQ-2020-08-10-35**
Customer: **TLH-ROC**
Project ID: **SMP**

Send Reports to:
FL Dept. of Environmental Protection
2600 Blair Stone Rd
Tallahassee, FL 32399
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Certified by: Kerry Tate, Ph.D., Environmental Administrator

Date Certified: 09-SEP-2020 12:21

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 "T" and a long horizontal stroke at the end.

Case Narrative

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

Results for the following analytical groups are included in this report: Metals, 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 by the Florida Department of Health Environmental Laboratory Certification Program or where accreditation for that field of testing is not applicable.

Any significant anomalies or deviations from established protocols are documented in Non-Conformance Reports, which, where appropriate, are included within this analytical report. Additional comments related to specific analytical tests may be included as remarks following the analytical results for each sample. Such comments and remarks are for informational purposes only and are not intended to convey judgement about the usability of the reported data.

A quality control report on the performance of the test method for the submitted samples is included. Uncertainty associated with the analytical results contained in this report can be estimated from the reported quality assurance results and from published quality control acceptance limits for each analytical test. Matrix quality control results (matrix spike recoveries and matrix sample precision) pertain only to the matrix sample tested and do not necessarily reflect test method performance for other samples.

Typical matrix quality control (QC) measurements may include matrix spike recovery, matrix spike duplicate recovery, matrix spike precision and matrix sample precision. Not all matrix QC results may be available or reportable; where they are not an explanation is provided. Typical reasons for unavailable QC results include, but are not limited to, a) insufficient matrix sample to perform some or all QC measurements; b) analyte concentration in the sample replicated was too low for a meaningful measurement of precision and c) analyte concentration in the matrix sample spiked was too high (relative to the amount of analyte spiked) for a meaningful measurement of recovery. Where matrix QC results are unavailable, other method performance metrics (e.g., LCS recovery, LCS precision, surrogate recovery) may be used to assess performance of the method. Comments explaining any missing QC measurements are not intended to convey any adverse conclusions about the quality of the reported data.

Precision is reported as relative percent difference unless otherwise noted.

Quality Control codes as defined below may be used in this report to indicate results that are associated with one or more quality control elements which did not fall within established test method criteria. Such results may be qualified as estimates using a J qualifier as required by 62-160 F.A.C. Explanations are included in the report for any results that were reported as estimates for other reasons.

QC Codes used in this report may include:

- LCS – Recovery for the batch Laboratory Control Sample (LCS) was outside existing control limits;
- MS – Recovery for the batch matrix spike (MS) was outside existing control limits;
- CCV – Recovery for a continuing calibration verification (CCV) standard was outside existing control limits;
- SUR – Recovery of a surrogate (SUR) for associated analytes was outside existing control limits;
- RPD – The precision, measured as relative percent difference (RPD), of batch replicate measurements was outside existing control limits;
- RSD – The precision, measured as relative standard deviation (RSD), of batch replicate measurements was outside existing control limits;
- SMP – Sample - used precision derived from replicate analyses of a sample;

The following data qualifiers are used, where applicable, in this report as specified in 62-160 F.A.C.

- A - Value reported is the mean of two or more determinations.
- B - Results based on colony counts outside the acceptable range.
- I - The reported value is between the laboratory method detection limit and the laboratory practical quantitation limit.
- J - Estimated value and/or the analysis did not meet established quality control criteria.
- K - Actual value is known to be less than value given.
- L - Actual value is known to be greater than value given.
- N - Presumptive evidence of presence of material.
- O - Sampled, but analysis lost or not performed.
- Q - Sample held beyond normal holding time.
- T - Value reported is less than the criterion of detection.
- U - Material was analyzed for but not detected. The reported value is the method detection limit for the sample analyzed.
- V - Analyte was detected in both sample and method blank.
- X - Too few individuals to calculate SCI value.
- Y - The laboratory analysis was from an unpreserved or improperly preserved sample. The data may not be accurate.
- Z - Colonies were too numerous to count (TNTC).

Quality control information from overflow laboratories may not be included in this report. Please refer to the associated report from the overflow laboratory for additional information.

Sample Location: Apalachicola River @ Bristol Landing

Collection Date/Time: 08/17/2020 09:50

Field ID: G2TLHR0043

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2190673	EPA 180.1 Rev. 2.0	Turbidity	6.8	A	NTU	P386190	
	EPA 300.0 Rev. 2.1	Chloride	5.2		mg Cl/L	P386376	
		Sulfate	6.7		mg SO4/L	P386379	
	SM 2120 B-2011	Color (true)	14		PCU	P386199	
	SM 2320 B-2011	Total Alkalinity	44		mg CaCO3/L	P386324	
	SM 2540 C-2011	TDS	68		mg/L	P386503	
	SM 2540 D-2011	TSS	4	I	mg/L	P386390	
	SM 4500 F-C-2011	Fluoride	0.077	I	mg F/L	P386328	
2190674	EPA 350.1 Rev. 2.0	Ammonia-N	0.035		mg N/L	P386427	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.29	J	mg N/L	P386316	MS
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.40		mg N/L	P386151	
	EPA 365.1 Rev. 2.0	Total-P	0.026		mg P/L	P386249	
	SM 5310 B-2011	Organic Carbon	2.5		mg C/L	P386332	
2190675	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.007	I	mg P/L	P386206	
2190699	EPA 200.7 Rev. 4.4	Barium	22.3		ug/L	P386231	
		Calcium	16.1		mg/L	P386231	
		Iron	330		ug/L	P386231	
		Magnesium	2.14		mg/L	P386231	
		Potassium	1.8		mg/L	P386231	
		Sodium	7.2		mg/L	P386231	
		Zinc	5.0	U	ug/L	P386231	
	EPA 200.8 Rev. 5.4	Aluminum	199		ug/L	P386231	
		Antimony	0.060	I	ug/L	P386231	
		Arsenic	0.57		ug/L	P386231	
		Boron**	17.6		ug/L	P386231	
		Cadmium	0.020	U	ug/L	P386231	
		Chromium	0.40	I	ug/L	P386231	
		Copper	0.45	I	ug/L	P386231	
		Lead	0.20	U	ug/L	P386231	
		Nickel	0.50	U	ug/L	P386231	
		Selenium	0.20	U	ug/L	P386231	
		Silver	0.010	U	ug/L	P386231	
		Thallium	0.10	U	ug/L	P386231	
	SM 2340B	Hardness	49.0		mg/L	P386231	

Ref. Method and Comment:

SM 2540 D-2011: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample.

EPA 351.2 Rev. 2.0: Refer to the Lab Analysis Report for an explanation of QC Codes.

Sample Location: Crooked Creek @ Aspalaga Rd

Collection Date/Time: 08/17/2020 10:15

Field ID: G2TLHR0010

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2190676	EPA 180.1 Rev. 2.0	Turbidity	13		NTU	P386190	
	EPA 300.0 Rev. 2.1	Chloride	2.4		mg Cl/L	P386376	
		Sulfate	0.72		mg SO4/L	P386379	
	SM 2120 B-2011	Color (true)	37		PCU	P386199	
	SM 2320 B-2011	Total Alkalinity	7.9		mg CaCO3/L	P386324	
	SM 2540 C-2011	TDS	22	I	mg/L	P386503	
	SM 2540 D-2011	TSS	10	I	mg/L	P386390	
	SM 4500 F-C-2011	Fluoride	0.077	I	mg F/L	P386328	
2190679	EPA 350.1 Rev. 2.0	Ammonia-N	0.013		mg N/L	P386427	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.24		mg N/L	P386316	MS
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.19		mg N/L	P386151	
	EPA 365.1 Rev. 2.0	Total-P	0.19		mg P/L	P386249	
	SM 5310 B-2011	Organic Carbon	2.3		mg C/L	P386332	
2190682	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.13		mg P/L	P386206	

Ref. Method and Comment:

SM 2540 D-2011: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample.

Sample Location: Tributary South Mosquito Creek

Collection Date/Time: 08/17/2020 10:55

Field ID: G2TLHR0008

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2190677	EPA 180.1 Rev. 2.0	Turbidity	7.3		NTU	P386190	
	EPA 300.0 Rev. 2.1	Chloride	5.0		mg Cl/L	P386376	
		Sulfate	0.78		mg SO4/L	P386379	
		Color (true)	39	A	PCU	P386199	
	SM 2320 B-2011	Total Alkalinity	106		mg CaCO3/L	P386324	
	SM 2540 C-2011	TDS	121		mg/L	P386503	
	SM 2540 D-2011	TSS	4	I	mg/L	P386390	
	SM 4500 F-C-2011	Fluoride	0.13		mg F/L	P386328	
2190680	EPA 350.1 Rev. 2.0	Ammonia-N	0.026		mg N/L	P386427	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.20		mg N/L	P386317	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.20		mg N/L	P386151	
	EPA 365.1 Rev. 2.0	Total-P	0.026		mg P/L	P386249	
	SM 5310 B-2011	Organic Carbon	2.6		mg C/L	P386332	
2190683	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.014		mg P/L	P386206	

Ref. Method and Comment:

SM 2540 D-2011: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample.

Sample Location: Big Creek @ Cr 2224

Collection Date/Time: 08/17/2020 09:25

Field ID: G1TLHR0057

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2190678	EPA 180.1 Rev. 2.0	Turbidity	2.7		NTU	P386190	
	EPA 300.0 Rev. 2.1	Chloride	1.8		mg Cl/L	P386376	
		Sulfate	0.87		mg SO4/L	P386379	
	SM 2120 B-2011	Color (true)	99		PCU	P386199	
	SM 2320 B-2011	Total Alkalinity	0.91	I	mg CaCO3/L	P386324	
	SM 2540 C-2011	TDS	23	I	mg/L	P386503	
	SM 2540 D-2011	TSS	2	I	mg/L	P386390	
	SM 4500 F-C-2011	Fluoride	0.035	U	mg F/L	P386328	
2190681	EPA 350.1 Rev. 2.0	Ammonia-N	0.014		mg N/L	P386427	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.32		mg N/L	P386317	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.49		mg N/L	P386151	
	EPA 365.1 Rev. 2.0	Total-P	0.016		mg P/L	P386249	
	SM 5310 B-2011	Organic Carbon	6.2		mg C/L	P386332	
2190684	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.006	I	mg P/L	P386206	

Ref. Method and Comment:

SM 2540 D-2011: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample.

Sample Location: OCKLAWAHA CREEK @ SR267

Collection Date/Time: 08/17/2020 08:45

Field ID: G1TLHR0053

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2190685	EPA 180.1 Rev. 2.0	Turbidity	3.8		NTU	P386190	
	EPA 300.0 Rev. 2.1	Chloride	1.9		mg Cl/L	P386376	
		Sulfate	1.0		mg SO4/L	P386379	
	SM 2120 B-2011	Color (true)	50		PCU	P386199	
	SM 2320 B-2011	Total Alkalinity	1.2	I	mg CaCO3/L	P386324	
	SM 2540 C-2011	TDS	18	I	mg/L	P386504	
	SM 2540 D-2011	TSS	4	I	mg/L	P386391	
	SM 4500 F-C-2011	Fluoride	0.035	U	mg F/L	P386328	
	EPA 350.1 Rev. 2.0	Ammonia-N	0.006		mg N/L	P386428	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.18	I	mg N/L	P386317	
2190686	EPA 353.2 Rev. 2.0	NO2NO3-N	0.088		mg N/L	P386152	
	EPA 365.1 Rev. 2.0	Total-P	0.012		mg P/L	P386249	
	SM 5310 B-2011	Organic Carbon	2.9		mg C/L	P386332	
	EPA 365.1 Rev. 2.0	O-Phosphate-P	0.004	U	mg P/L	P386206	
	dissolved						
2190687	EPA 8321B	2,4-D	0.0020	U	ug/L	P386256	
2190698		Acesulfame K**	0.10	U	ug/L	P386214	
		AMPA**	0.10	U	ug/L	P386214	
		Sucralose**	0.013	I	ug/L	P386214	
		Acetaminophen**	0.0080	U	ug/L	P386256	
		Acetamiprid**	0.0020	U	ug/L	P386256	
		Endothall**	0.25	U	ug/L	P386214	
		Glufosinate**	0.10	U	ug/L	P386214	
		Glyphosate**	0.10	U	ug/L	P386214	
		Afidopyropen**	0.0020	U	ug/L	P386256	
		Bentazon	8.0E-04	U	ug/L	P386256	
		Benzovindiflupyr**	0.0020	U	ug/L	P386256	
		Carbamazepine**	8.0E-04	U	ug/L	P386256	
		Clothianidin**	0.0020	U	ug/L	P386256	
		Dinotefuran**	0.0020	U	ug/L	P386256	
		Diuron	0.0020	U	ug/L	P386256	
		Fenuron	0.016	U	ug/L	P386256	
		Fluridone**	8.0E-04	U	ug/L	P386256	
		Imazapyr**	0.013	I	ug/L	P386256	
		Hydrocodone**	0.0020	U	ug/L	P386256	
		Ibuprofen**	0.020	U	ug/L	P386256	
		Imidacloprid	0.0020	U	ug/L	P386256	
		Linuron	0.0040	U	ug/L	P386256	
		Mandestrobin**	0.0020	U	ug/L	P386256	
		MCP	0.0020	U	ug/L	P386256	
		Naproxen**	0.0080	U	ug/L	P386256	
		Primidone**	0.0040	U	ug/L	P386256	
		Pyraclostrobin**	0.0020	U	ug/L	P386256	
		Thiamethoxam**	0.0020	U	ug/L	P386256	

Field ID: G1TLHR0053

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2190698	EPA 8321B	Tolfenpyrad**	0.0020	U	ug/L	P386256	
		Triclopyr**	0.0040	U	ug/L	P386256	

Ref. Method and Comment:

SM 2540 D-2011: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample.

Quality Assurance Report Method Blank Results

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P386190

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P386231

Component	Result	Code	Units
Barium	1.0	U	ug/L
Calcium	0.075	U	mg/L
Iron	30	U	ug/L
Magnesium	0.040	U	mg/L
Potassium	0.30	U	mg/L
Sodium	0.50	U	mg/L
Zinc	5.0	U	ug/L

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P386231

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P386376

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P386379

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P386427

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

Quality Assurance Report Method Blank Results

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P386428

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P386316

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P386317

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P386151

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P386152

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P386249

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P386206

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

Reference Method: EPA 8321B
Batch ID: P386214

Component	Result	Code	Units
Acesulfame K	0.10	U	ug/L
AMPA	0.10	U	ug/L
Endothall	0.25	U	ug/L
Glufosinate	0.10	U	ug/L
Glyphosate	0.10	U	ug/L
Sucralose	0.010	U	ug/L

Quality Assurance Report

Method Blank Results

Reference Method: EPA 8321B
Batch ID: P386256

Component	Result	Code	Units
2,4-D	0.0020	U	ug/L
Acetaminophen	0.0080	U	ug/L
Acetamiprid	0.0020	U	ug/L
Afidopyropen	0.0020	U	ug/L
Bentazon	8.0E-04	U	ug/L
Benzovindiflupyr	0.0020	U	ug/L
Carbamazepine	8.0E-04	U	ug/L
Clothianidin	0.0020	U	ug/L
Dinotefuran	0.0020	U	ug/L
Diuron	0.0020	U	ug/L
Fenuron	0.016	U	ug/L
Fluridone	8.0E-04	U	ug/L
Hydrocodone	0.0020	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
Mandestrobin	0.0020	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
Thiamethoxam	0.0020	U	ug/L
Tolfenpyrad	0.0020	U	ug/L
Triclopyr	0.0040	U	ug/L

Reference Method: SM 2120 B-2011
Batch ID: P386199

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2320 B-2011
Batch ID: P386324

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

Reference Method: SM 2540 C-2011
Batch ID: P386503

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 C-2011
Batch ID: P386504

Component	Result	Code	Units
TDS	15	U	mg/L

Quality Assurance Report

Method Blank Results

Reference Method: SM 2540 D-2011
Batch ID: P386390

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 2540 D-2011
Batch ID: P386391

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500 F-C-2011
Batch ID: P386328

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-2011
Batch ID: P386332

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: P386231

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Barium	104		P	85 - 115
Calcium	109		P	85 - 115
Iron	107		P	85 - 115
Magnesium	108		P	85 - 115
Potassium	104		P	85 - 115
Sodium	105		P	85 - 115
Zinc	105		P	85 - 115

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P386231

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Aluminum	105		P	85 - 115
Antimony	107		P	85 - 115
Arsenic	103		P	85 - 115
Boron	107		P	85 - 115
Cadmium	105		P	85 - 115
Chromium	104		P	85 - 115
Copper	100		P	85 - 115
Lead	108		P	85 - 115
Nickel	101		P	85 - 115
Selenium	102		P	85 - 115
Silver	106		P	85 - 115
Thallium	105		P	85 - 115

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P386376

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P386379

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P386427

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Ammonia-N	96.2		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P386428

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Ammonia-N	96.6		P	90 - 110

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 351.2 Rev. 2.0
 Batch ID: P386316

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

Reference Method: EPA 351.2 Rev. 2.0
 Batch ID: P386317

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: P386151

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: P386152

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

Reference Method: EPA 365.1 Rev. 2.0
 Batch ID: P386249

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
 Batch ID: P386206

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

Reference Method: EPA 8321B
 Batch ID: P386214

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Acesulfame K	63.0		P	40 - 150
AMPA	94.4		P	40 - 150
Endothall	99.5		P	40 - 150
Glufosinate	95.9		P	40 - 150
Glyphosate	79.2		P	40 - 140
Sucralose	93.9		P	40 - 150

Reference Method: EPA 8321B
 Batch ID: P386256

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2,4-D	115		P	30 - 160
Acetaminophen	82.2		P	30 - 160
Acetamiprid	71.7		P	30 - 160
Afidopyropen	58.2		P	30 - 160
Bentazon	61.8		P	30 - 160

Quality Assurance Report

Laboratory Control Sample Accuracy

Reference Method: EPA 8321B

Batch ID: P386256

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Benzovindiflupyr	67.6		P	30 - 160
Carbamazepine	64.2		P	30 - 160
Clothianidin	88.3		P	30 - 160
Dinotefuran	94.8		P	30 - 160
Diuron	54.8		P	30 - 160
Fenuron	89.4		P	30 - 160
Fluridone	73.6		P	30 - 160
Hydrocodone	83.2		P	30 - 160
Ibuprofen	75.1		P	30 - 160
Imazapyr	70.3		P	30 - 160
Imidacloprid	101		P	30 - 160
Linuron	62.7		P	30 - 160
Mandestrobin	78.2		P	30 - 160
MCPP	123		P	30 - 160
Naproxen	62.8		P	30 - 160
Primidone	83.1		P	30 - 160
Pyraclostrobin	66.4		P	30 - 160
Thiamethoxam	86.9		P	30 - 160
Tolfenpyrad	43.2		P	30 - 160
Triclopyr	107		P	30 - 160

Reference Method: SM 2120 B-2011

Batch ID: P386199

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Color (true)	99.0		P	85 - 115

Reference Method: SM 2320 B-2011

Batch ID: P386324

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	98.9		P	93 - 104

Reference Method: SM 4500 F-C-2011

Batch ID: P386328

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	101		P	90 - 106

Reference Method: SM 5310 B-2011

Batch ID: P386332

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	98.5		P	85 - 115

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P386231

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2190501	Barium	104		P	80 - 120
2190501	Calcium	105		P	80 - 120
2190501	Iron	107		P	80 - 120
2190501	Magnesium	106		P	80 - 120
2190501	Potassium	103		P	80 - 120
2190501	Sodium	105		P	80 - 120
2190501	Zinc	104		P	80 - 120
2190729	Barium	105	103	P/P	80 - 120
2190729	Calcium	111	108	P/P	80 - 120
2190729	Iron	108	105	P/P	80 - 120
2190729	Magnesium	109	105	P/P	80 - 120
2190729	Potassium	111	107	P/P	80 - 120
2190729	Sodium	105	101	P/P	80 - 120
2190729	Zinc	107	105	P/P	80 - 120

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P386231

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2190501	Aluminum	105		P	80 - 120
2190501	Antimony	108		P	80 - 120
2190501	Arsenic	102		P	80 - 120
2190501	Boron	107		P	80 - 120
2190501	Cadmium	106		P	80 - 120
2190501	Chromium	107		P	80 - 120
2190501	Copper	104		P	80 - 120
2190501	Lead	110		P	80 - 120
2190501	Nickel	102		P	80 - 120
2190501	Selenium	100		P	80 - 120
2190501	Silver	108		P	80 - 120
2190501	Thallium	106		P	80 - 120
2190729	Aluminum	104	104	P/P	80 - 120
2190729	Antimony	107	105	P/P	80 - 120
2190729	Arsenic	104	103	P/P	80 - 120
2190729	Boron	104	103	P/P	80 - 120
2190729	Cadmium	104	104	P/P	80 - 120
2190729	Chromium	104	104	P/P	80 - 120
2190729	Copper	104	102	P/P	80 - 120
2190729	Lead	108	108	P/P	80 - 120
2190729	Nickel	102	100	P/P	80 - 120
2190729	Selenium	98.4	99.6	P/P	80 - 120
2190729	Silver	107	106	P/P	80 - 120
2190729	Thallium	107	108	P/P	80 - 120

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P386376

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2190476	Chloride	98.4		P	90 - 110
2190685	Chloride	97.9		P	90 - 110

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P386379

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2190476	Sulfate	98.7		P	90 - 110
2190685	Sulfate	98.7		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P386427

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2190680	Ammonia-N	99.0	99.4	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P386428

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2190686	Ammonia-N	101	102	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P386316

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2190674	Kjeldahl Nitrogen	108	111	P/F	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P386317

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2190680	Kjeldahl Nitrogen	106	98.5	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P386151

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2190471	NO2NO3-N	100		P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P386152

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2190686	NO2NO3-N	103	104	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P386249

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2190674	Total-P	104	105	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P386206

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2190675	O-Phosphate-P	98.3	99.0	P/P	90 - 110

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 8321B
 Batch ID: P386214

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2190698	Acesulfame K	70.0	70.2	P/P	40 - 150
2190698	AMPA	93.4	99.2	P/P	40 - 150
2190698	Endothall	94.0	96.0	P/P	40 - 150
2190698	Glufosinate	88.4	103	P/P	40 - 150
2190698	Glyphosate	69.3	72.4	P/P	40 - 140
2190698	Sucralose	92.6	91.6	P/P	40 - 150

Reference Method: EPA 8321B
 Batch ID: P386256

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2190698	2,4-D	112	108	P/P	30 - 160
2190698	Acetaminophen	96.7	88.8	P/P	30 - 160
2190698	Acetamiprid	80.6	74.1	P/P	30 - 160
2190698	Afidopyropen	51.6	51.3	P/P	30 - 160
2190698	Bentazon	54.6	48.0	P/P	30 - 160
2190698	Benzovindiflupyr	70.2	72.0	P/P	30 - 160
2190698	Carbamazepine	67.4	64.7	P/P	30 - 160
2190698	Clothianidin	96.7	87.6	P/P	30 - 160
2190698	Dinotefuran	106	98.9	P/P	30 - 160
2190698	Diuron	59.5	53.9	P/P	30 - 160
2190698	Fenuron	88.6	83.2	P/P	30 - 160
2190698	Fluridone	85.5	83.5	P/P	30 - 160
2190698	Hydrocodone	87.0	85.0	P/P	30 - 160
2190698	Ibuprofen	79.6	72.4	P/P	30 - 160
2190698	Imazapyr	102	71.9	P/P	30 - 160
2190698	Imidacloprid	131	98.3	P/P	30 - 160
2190698	Linuron	67.6	57.5	P/P	30 - 160
2190698	Mandestrobin	82.4	75.9	P/P	30 - 160
2190698	MCP	121	112	P/P	30 - 160
2190698	Naproxen	74.2	88.0	P/P	30 - 160
2190698	Primidone	93.1	83.3	P/P	30 - 160
2190698	Pyraclostrobin	75.3	68.5	P/P	30 - 160
2190698	Thiamethoxam	105	96.9	P/P	30 - 160
2190698	Tolfenpyrad	47.0	42.0	P/P	30 - 160
2190698	Triclopyr	110	96.8	P/P	30 - 160

Reference Method: SM 4500 F-C-2011
 Batch ID: P386328

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2190865	Fluoride	98.3	99.7	P/P	94 - 107

Reference Method: SM 5310 B-2011
 Batch ID: P386332

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2190680	Organic Carbon	98.5	97.7	P/P	85 - 115

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P386190

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2190673	Turbidity	5.27	Sample	P	0 - 20

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P386231

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2190729	Barium	1.48	Spike	P	0 - 20
2190729	Calcium	2.82	Spike	P	0 - 20
2190729	Iron	2.92	Spike	P	0 - 20
2190729	Magnesium	2.83	Spike	P	0 - 20
2190729	Potassium	3.20	Spike	P	0 - 20
2190729	Sodium	2.79	Spike	P	0 - 20
2190729	Zinc	1.63	Spike	P	0 - 20

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P386231

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2190729	Aluminum	0.316	Spike	P	0 - 20
2190729	Antimony	1.67	Spike	P	0 - 20
2190729	Arsenic	0.359	Spike	P	0 - 20
2190729	Boron	0.601	Spike	P	0 - 20
2190729	Cadmium	0.191	Spike	P	0 - 20
2190729	Chromium	0.832	Spike	P	0 - 20
2190729	Copper	2.66	Spike	P	0 - 20
2190729	Lead	0.556	Spike	P	0 - 20
2190729	Nickel	1.61	Spike	P	0 - 20
2190729	Selenium	1.27	Spike	P	0 - 20
2190729	Silver	0.487	Spike	P	0 - 20
2190729	Thallium	0.931	Spike	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P386376

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2190476	Chloride	0.748	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P386379

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2190476	Sulfate	1.34	Sample	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P386427

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2190680	Ammonia-N	0.264	Spike	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P386428

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2190686	Ammonia-N	1.05	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P386316

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2190674	Kjeldahl Nitrogen	2.07	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P386317

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2190680	Kjeldahl Nitrogen	6.33	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P386151

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2190471	NO2NO3-N	0.224	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P386152

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2190686	NO2NO3-N	1.02	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P386249

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2190674	Total-P	0.660	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P386206

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2190675	O-Phosphate-P	0.660	Spike	P	0 - 20

Quality Assurance Report

Precision

Reference Method: EPA 8321B

Batch ID: P386214

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2190698	Acesulfame K	0.199	Spike	P	0 - 30
2190698	AMPA	6.10	Spike	P	0 - 30
2190698	Endothall	2.17	Spike	P	0 - 30
2190698	Glufosinate	15.6	Spike	P	0 - 30
2190698	Glyphosate	4.35	Spike	P	0 - 30
2190698	Sucralose	1.04	Spike	P	0 - 30

Reference Method: EPA 8321B

Batch ID: P386256

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2190698	2,4-D	3.11	Spike	P	0 - 30
2190698	Acetaminophen	8.48	Spike	P	0 - 30
2190698	Acetamiprid	8.42	Spike	P	0 - 30
2190698	Afidopyropen	0.549	Spike	P	0 - 30
2190698	Bentazon	13.0	Spike	P	0 - 30
2190698	Benzovindiflupyr	2.64	Spike	P	0 - 30
2190698	Carbamazepine	4.07	Spike	P	0 - 30
2190698	Clothianidin	9.84	Spike	P	0 - 30
2190698	Dinotefuran	6.54	Spike	P	0 - 30
2190698	Diuron	9.84	Spike	P	0 - 30
2190698	Fenuron	6.22	Spike	P	0 - 30
2190698	Fluridone	2.43	Spike	P	0 - 30
2190698	Hydrocodone	2.43	Spike	P	0 - 30
2190698	Ibuprofen	9.60	Spike	P	0 - 30
2190698	Imazapyr	29.1	Spike	P	0 - 30
2190698	Imidacloprid	28.4	Spike	P	0 - 30
2190698	Linuron	16.1	Spike	P	0 - 30
2190698	Mandestrobin	8.22	Spike	P	0 - 30
2190698	MCPP	7.98	Spike	P	0 - 30
2190698	Naproxen	16.9	Spike	P	0 - 30
2190698	Primidone	11.2	Spike	P	0 - 30
2190698	Pyraclostrobin	9.47	Spike	P	0 - 30
2190698	Thiamethoxam	7.73	Spike	P	0 - 30
2190698	Tolfenpyrad	11.3	Spike	P	0 - 30
2190698	Triclopyr	12.7	Spike	P	0 - 30

Reference Method: SM 2120 B-2011

Batch ID: P386199

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2190677	Color (true)	2.47	Sample	P	0 - 20

Reference Method: SM 2320 B-2011

Batch ID: P386324

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2190865	Total Alkalinity	0.814	Sample	P	0 - 8.1

Quality Assurance Report Precision

Reference Method: SM 2540 C-2011
Batch ID: P386503

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2190590	TDS	0.489	Sample	P	0 - 10

Reference Method: SM 2540 C-2011
Batch ID: P386504

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2190809	TDS	3.12	Sample	P	0 - 10

Reference Method: SM 4500 F-C-2011
Batch ID: P386328

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2190865	Fluoride	0.457	Spike	P	0 - 2.8

Reference Method: SM 5310 B-2011
Batch ID: P386332

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2190680	Organic Carbon	0.675	Spike	P	0 - 20

* Sample, spike and/or laboratory control sample precision (LCS) is reported.

Quality Assurance Report Surrogates

Lab Sample ID: 2190698

Field Sample ID: G1TLHR0053

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	2,4-D-d3	116	P	30 - 160
EPA 8321B	Acetaminophen-d4	90.0	P	30 - 160
EPA 8321B	Carbamazepine-d10	69.0	P	30 - 160
EPA 8321B	Diuron-d6	58.0	P	30 - 160
EPA 8321B	Endothall-d6	102	P	30 - 160
EPA 8321B	Endothall-d6	102	P	30 - 160
EPA 8321B	Glyphosate 13C 15N	64.6	P	30 - 160
EPA 8321B	Glyphosate 13C 15N	64.6	P	30 - 160
EPA 8321B	Ibuprofen-d3	80.3	P	30 - 160
EPA 8321B	Primidone-d5	88.2	P	30 - 160
EPA 8321B	Sucralose-d6	89.9	P	30 - 160
EPA 8321B	Sucralose-d6	89.9	P	30 - 160

Quality Assurance Report Calibration Verification

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A100504

Included Lab Sample IDs: 2190674, 2190679, 2190680, 2190681, 2190686

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

Reference Method: EPA 180.1 Rev. 2.0

Run ID: A100517

Included Lab Sample IDs: 2190673, 2190676, 2190677, 2190678, 2190685

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

Reference Method: SM 2120 B-2011

Run ID: A100519

Included Lab Sample IDs: 2190673, 2190676, 2190677, 2190678, 2190685

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	100	99.7	P/P	90 - 115

Reference Method: EPA 365.1 Rev. 2.0 dissolved

Run ID: A100520

Included Lab Sample IDs: 2190675, 2190682, 2190683, 2190684, 2190687

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	99.5	98.9	P/P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1

Run ID: A100543

Included Lab Sample IDs: 2190673, 2190676, 2190677, 2190678, 2190685

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	100	100	P/P	90 - 110
Chloride	101	100	P/P	90 - 110
Sulfate	101	99.8	P/P	90 - 110
Sulfate	99.8	100	P/P	90 - 110

Reference Method: EPA 200.7 Rev. 4.4

Run ID: A100548

Included Lab Sample IDs: 2190699

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Barium	103	102	P/P	90 - 110
Calcium	102	103	P/P	90 - 110
Iron	101	102	P/P	90 - 110
Magnesium	99.9	101	P/P	90 - 110
Potassium	98.2	99.8	P/P	90 - 110
Sodium	100	102	P/P	90 - 110
Zinc	102	101	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: EPA 8321B

Run ID: A100557

Included Lab Sample IDs: 2190698

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
AMPA	95.5	77.6	P/P	60 - 160
Glufosinate	91.1	95.9	P/P	60 - 160
Glyphosate	82.8	81.8	P/P	60 - 160

Reference Method: SM 2320 B-2011

Run ID: A100560

Included Lab Sample IDs: 2190673, 2190676, 2190677, 2190678, 2190685

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	99.5	99.6	P/P	90 - 110

Reference Method: SM 4500 F-C-2011

Run ID: A100560

Included Lab Sample IDs: 2190673, 2190676, 2190677, 2190678, 2190685

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

Reference Method: SM 5310 B-2011

Run ID: A100563

Included Lab Sample IDs: 2190674, 2190679, 2190680, 2190681, 2190686

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	95.0	94.9	P/P	90 - 110
Organic Carbon	98.4	95.1	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A100566

Included Lab Sample IDs: 2190679

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

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A100575

Included Lab Sample IDs: 2190674, 2190680, 2190681, 2190686

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	98.8	98.0	P/P	90 - 110

Reference Method: EPA 8321B

Run ID: A100586

Included Lab Sample IDs: 2190698

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Acesulfame K	65.7	62.3	P/P	60 - 160
Endothall	101	110	P/P	60 - 160

Quality Assurance Report Calibration Verification

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A100590

Included Lab Sample IDs: 2190674, 2190679, 2190680, 2190681, 2190686

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	100	96.2	P/P	90 - 110
Kjeldahl Nitrogen	100	98.5	P/P	90 - 110
Kjeldahl Nitrogen	98.5	100	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A100597

Included Lab Sample IDs: 2190674, 2190679, 2190680, 2190681, 2190686

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	97.7	98.1	P/P	90 - 110
Ammonia-N	98.1	97.7	P/P	90 - 110
Ammonia-N	98.1	99.0	P/P	90 - 110

Reference Method: EPA 200.8 Rev. 5.4

Run ID: A100601

Included Lab Sample IDs: 2190699

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Antimony	108	109	P/P	90 - 110
Arsenic	102	102	P/P	90 - 110
Boron	103	104	P/P	90 - 110
Cadmium	102	103	P/P	90 - 110
Chromium	101	101	P/P	90 - 110
Copper	98.1	97.0	P/P	90 - 110
Lead	104	107	P/P	90 - 110
Nickel	98.5	98.5	P/P	90 - 110
Selenium	104	102	P/P	90 - 110
Silver	104	104	P/P	90 - 110
Thallium	101	101	P/P	90 - 110

Reference Method: EPA 8321B

Run ID: A100611

Included Lab Sample IDs: 2190698

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
2,4-D	113	113	P/P	50 - 150
Acetaminophen	106	115	P/P	60 - 160
Acetamiprid	108	115	P/P	50 - 150
Afidopyropen	101	105	P/P	50 - 150
Bentazon	111	109	P/P	50 - 160
Benzovindiflupyr	103	98.5	P/P	50 - 150
Carbamazepine	104	106	P/P	60 - 150
Clothianidin	106	112	P/P	60 - 150
Dinotefuran	99.1	104	P/P	50 - 150
Diuron	112	108	P/P	60 - 160
Fenuron	111	114	P/P	60 - 150
Fluridone	88.7	106	P/P	60 - 160
Hydrocodone	107	101	P/P	60 - 150
Ibuprofen	112	116	P/P	50 - 160
Imazapyr	90.6	88.9	P/P	50 - 150
Imidacloprid	90.1	109	P/P	60 - 150

Quality Assurance Report Calibration Verification

Reference Method: EPA 8321B

Run ID: A100611

Included Lab Sample IDs: 2190698

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Linuron	112	101	P/P	60 - 150
Mandestrobin	117	120	P/P	50 - 150
MCPP	108	101	P/P	50 - 150
Naproxen	130	96.8	P/P	50 - 160
Primidone	85.2	102	P/P	60 - 150
Pyraclostrobin	104	100	P/P	60 - 150
Thiamethoxam	100	108	P/P	50 - 150
Tolfenpyrad	103	107	P/P	60 - 150
Triclopyr	114	103	P/P	50 - 150

Reference Method: EPA 8321B

Run ID: A100617

Included Lab Sample IDs: 2190698

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Sucralose	93.3	92.7	P/P	60 - 160

Reference Method: EPA 200.8 Rev. 5.4

Run ID: A100621

Included Lab Sample IDs: 2190699

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

* Pass/Fail determinations are made for each bracketing calibration verification check.
Control limits for initial calibration checks may be different from those for continuing checks, depending on method requirements.
Where they are different, both control limits are provided.

Quality Assurance Report Summary

Ref. Method	Analyte	LCS % Recovery	MS % Recovery			LCS	Precision SMP	MS
EPA 180.1 Rev. 2.0	Turbidity						5.27	
EPA 200.7 Rev. 4.4	Barium	104	104	105	103			1.48
	Calcium	109	105	111	108			2.82
	Iron	107	107	108	105			2.92
	Magnesium	108	106	109	105			2.83
	Potassium	104	103	111	107			3.20
	Sodium	105	105	105	101			2.79
	Zinc	105	104	107	105			1.63
EPA 200.8 Rev. 5.4	Aluminum	105	104	104	105			0.316
	Antimony	107	107	105	108			1.67
	Arsenic	103	104	103	102			0.359
	Boron	107	104	103	107			0.601
	Cadmium	105	104	104	106			0.191
	Chromium	104	104	104	107			0.832
	Copper	100	104	102	104			2.66
	Lead	108	108	108	110			0.556
	Nickel	101	102	100	102			1.61
	Selenium	102	98.4	99.6	100			1.27
	Silver	106	107	106	108			0.487
	Thallium	105	107	108	106			0.931
EPA 300.0 Rev. 2.1	Chloride	97.1	98.4	97.9			0.748	
	Sulfate	97.5	98.7	98.7			1.34	
EPA 350.1 Rev. 2.0	Ammonia-N	96.2	99.0	99.4				0.264
	Ammonia-N	96.6	101	102				1.05
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	99.0	108	111				2.07
	Kjeldahl Nitrogen	108	106	98.5				6.33
EPA 353.2 Rev. 2.0	NO ₂ NO ₃ -N	102	100					0.224
	NO ₂ NO ₃ -N	105	103	104				1.02
EPA 365.1 Rev. 2.0	Total-P	100	104	105				0.660
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	99.9	98.3	99.0				0.660
EPA 8321B	2,4-D	115	112	108				3.11
	Acesulfame K	63.0	70.0	70.2				0.199
	Acetaminophen	82.2	96.7	88.8				8.48
	Acetamiprid	71.7	80.6	74.1				8.42
	Afidopyropen	58.2	51.6	51.3				0.549
	AMPA	94.4	93.4	99.2				6.10
	Bentazon	61.8	54.6	48.0				13.0
	Benzovindiflupyr	67.6	70.2	72.0				2.64
	Carbamazepine	64.2	67.4	64.7				4.07
	Clothianidin	88.3	96.7	87.6				9.84
	Dinotefuran	94.8	106	98.9				6.54
	Diuron	54.8	59.5	53.9				9.84
	Endothall	99.5	94.0	96.0				2.17
	Fenuron	89.4	88.6	83.2				6.22
	Fluridone	73.6	85.5	83.5				2.43
	Glufosinate	95.9	88.4	103				15.6
	Glyphosate	79.2	69.3	72.4				4.35
	Hydrocodone	83.2	87.0	85.0				2.43
	Ibuprofen	75.1	79.6	72.4				9.60
	Imazapyr	70.3	102	71.9				29.1
	Imidacloprid	101	131	98.3				28.4
	Linuron	62.7	67.6	57.5				16.1
	Mandestrobin	78.2	82.4	75.9				8.22
	MCPP	123	121	112				7.98

Quality Assurance Report Summary

Ref. Method	Analyte	LCS % Recovery	MS % Recovery		Precision		
					LCS	SMP	MS
EPA 8321B	Naproxen	62.8	74.2	88.0			16.9
	Primidone	83.1	93.1	83.3			11.2
	Pyraclostrobin	66.4	75.3	68.5			9.47
	Sucralose	93.9	92.6	91.6			1.04
	Thiamethoxam	86.9	105	96.9			7.73
	Tolfenpyrad	43.2	47.0	42.0			11.3
	Triclopyr	107	110	96.8			12.7
SM 2120 B-2011	Color (true)	99.0				2.47	
SM 2320 B-2011	Total Alkalinity	98.9				0.814	
SM 2540 C-2011	TDS					0.489	
	TDS					3.12	
SM 4500 F-C-2011	Fluoride	101	98.3	99.7			0.457
SM 5310 B-2011	Organic Carbon	98.5	98.5	97.7			0.675

Reference Method Descriptions

Method	Description	Associated Samples
EPA 180.1 Rev. 2.0	Turbidity in aqueous matrices	2190673, 2190676, 2190677, 2190678, 2190685
EPA 200.7 Rev. 4.4	Total Recoverable Metals analysis using ICP emission spectroscopy for aqueous samples supporting Clean Water Act Projects	2190699
EPA 200.8 Rev. 5.4	Total Recoverable Metals analysis using ICP-MS for aqueous samples supporting Clean Water Act Projects	2190699
EPA 300.0 Rev. 2.1	Chloride in aqueous matrices	2190673, 2190676, 2190677, 2190678, 2190685
EPA 300.0 Rev. 2.1	Sulfate in aqueous matrices	2190673, 2190676, 2190677, 2190678, 2190685
EPA 350.1 Rev. 2.0	Ammonia in aqueous matrices as mg N/L	2190674, 2190679, 2190680, 2190681, 2190686
EPA 351.2 Rev. 2.0	Total Kjeldahl Nitrogen in aqueous matrices	2190674, 2190679, 2190680, 2190681, 2190686
EPA 353.2 Rev. 2.0	Nitrite/Nitrate in aqueous matrices as mg N/L	2190674, 2190679, 2190680, 2190681, 2190686
EPA 365.1 Rev. 2.0	Total Phosphorus in aqueous matrices as mg P/L	2190674, 2190679, 2190680, 2190681, 2190686
EPA 365.1 Rev. 2.0 dissolved	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	2190675, 2190682, 2190683, 2190684, 2190687
EPA 8321B	Pesticides, herbicides, and other chemicals in water matrices by HPLC/MS/MS	2190698
EPA 8321B	Water soluble organic compounds by HPLC/MS/MS	2190698
SM 2120 B-2011	True Color measured at 450 nm (not valid for NPDES monitoring)	2190673, 2190676, 2190677, 2190678, 2190685
SM 2320 B-2011	Alkalinity in aqueous matrices as mg CaCO3/L	2190673, 2190676, 2190677, 2190678, 2190685
SM 2340B	Hardness by calculation, in aqueous matrices, reported as mg/L CaCO3	2190699
SM 2540 C-2011	Total Dissolved Solids in aqueous matrices	2190673, 2190676, 2190677, 2190678, 2190685
SM 2540 D-2011	Total Suspended Solids in aqueous matrices using a maximum of 250 mL of sample	2190673, 2190676, 2190677, 2190678, 2190685
SM 4500 F-C-2011	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	2190673, 2190676, 2190677, 2190678, 2190685
SM 5310 B-2011	Nonpurgeable Organic Carbon in aqueous matrices	2190674, 2190679, 2190680, 2190681, 2190686

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	08/17/2020			08/18/2020 15:27	Yen Ta	2190673, 2190676, 2190677, 2190678, 2190685
EPA 200.7 Rev. 4.4	08/17/2020	08/18/2020 12:37	Elliott D. Healy	08/19/2020 18:19	Betina Topolski	2190699
EPA 200.8 Rev. 5.4	08/17/2020	08/18/2020 12:37	Elliott D. Healy	08/21/2020 18:38	Alexander Thompson	2190699
	08/17/2020	08/18/2020 12:37	Elliott D. Healy	08/24/2020 14:06	Alexander Thompson	2190699
EPA 300.0 Rev. 2.1	08/17/2020			08/20/2020 16:03	Julia Storbeck	2190685
	08/17/2020			08/20/2020 19:17	Julia Storbeck	2190673
	08/17/2020			08/20/2020 19:29	Julia Storbeck	2190676
	08/17/2020			08/20/2020 19:41	Julia Storbeck	2190677
	08/17/2020			08/20/2020 19:53	Julia Storbeck	2190678
EPA 350.1 Rev. 2.0	08/17/2020			08/22/2020 12:40	Ping Hua	2190680
	08/17/2020			08/22/2020 12:58	Ping Hua	2190674
	08/17/2020			08/22/2020 13:00	Ping Hua	2190679
	08/17/2020			08/22/2020 13:01	Ping Hua	2190681
	08/17/2020			08/22/2020 13:16	Ping Hua	2190686
EPA 351.2 Rev. 2.0	08/17/2020	08/20/2020 11:10	Sima Feizi	08/21/2020 12:47	Jhamieka S. Greenwood	2190674
	08/17/2020	08/20/2020 11:10	Sima Feizi	08/21/2020 13:07	Jhamieka S. Greenwood	2190679
	08/17/2020	08/20/2020 11:10	Sima Feizi	08/21/2020 13:13	Jhamieka S. Greenwood	2190680
	08/17/2020	08/20/2020 11:10	Sima Feizi	08/21/2020 13:18	Jhamieka S. Greenwood	2190681
	08/17/2020	08/20/2020 11:10	Sima Feizi	08/21/2020 13:23	Jhamieka S. Greenwood	2190686
EPA 353.2 Rev. 2.0	08/17/2020			08/18/2020 09:19	Beverly Y. Sanders	2190674
	08/17/2020			08/18/2020 09:20	Beverly Y. Sanders	2190679
	08/17/2020			08/18/2020 09:21	Beverly Y. Sanders	2190680
	08/17/2020			08/18/2020 09:22	Beverly Y. Sanders	2190681
	08/17/2020			08/18/2020 09:29	Beverly Y. Sanders	2190686
EPA 365.1 Rev. 2.0	08/17/2020	08/19/2020 13:04	Yen Ta	08/20/2020 13:55	Benjamin T. Nordmann	2190679
	08/17/2020	08/19/2020 13:04	Yen Ta	08/21/2020 08:02	Lipi Saha	2190674
	08/17/2020	08/19/2020 13:04	Yen Ta	08/21/2020 08:03	Lipi Saha	2190680
	08/17/2020	08/19/2020 13:04	Yen Ta	08/21/2020 08:04	Lipi Saha	2190681
	08/17/2020	08/19/2020 13:04	Yen Ta	08/21/2020 08:05	Lipi Saha	2190686
EPA 365.1 Rev. 2.0 dissolved	08/17/2020			08/18/2020 16:57	Samantha Davila	2190675
	08/17/2020			08/18/2020 17:00	Samantha Davila	2190682, 2190683
	08/17/2020			08/18/2020 17:01	Samantha Davila	2190684
	08/17/2020			08/18/2020 17:02	Samantha Davila	2190687
EPA 8321B	08/17/2020	08/19/2020 11:30	Rebecca Ware	08/19/2020 12:24	Rebecca Ware	2190698
	08/17/2020	08/19/2020 11:30	Rebecca Ware	08/20/2020 11:21	Rebecca Ware	2190698
	08/17/2020	08/19/2020 11:30	Rebecca Ware	08/21/2020 20:00	Rebecca Ware	2190698
	08/17/2020	08/20/2020 09:00	Hoor Shaik	08/21/2020 01:27	Juyoung Kim	2190698
SM 2120 B-2011	08/17/2020			08/18/2020 16:00	Benjamin T. Nordmann	2190673, 2190677
	08/17/2020			08/18/2020 16:01	Benjamin T. Nordmann	2190676

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
SM 2120 B-2011	08/17/2020			08/18/2020 16:02	Benjamin T. Nordmann	2190678
	08/17/2020			08/18/2020 16:03	Benjamin T. Nordmann	2190685
SM 2320 B-2011	08/17/2020			08/19/2020 21:33	Dale L. Simmons	2190673
	08/17/2020			08/19/2020 21:45	Dale L. Simmons	2190676
	08/17/2020			08/19/2020 21:59	Dale L. Simmons	2190677
	08/17/2020			08/19/2020 22:08	Dale L. Simmons	2190678
	08/17/2020			08/19/2020 22:18	Dale L. Simmons	2190685
	08/17/2020			08/19/2020 22:18	Betina Topolski	2190699
SM 2340B	08/17/2020			08/19/2020 18:19	Betina Topolski	2190699
SM 2540 C-2011	08/17/2020			08/19/2020 15:39	Yijie Li	2190673, 2190676, 2190677, 2190678, 2190685
SM 2540 D-2011	08/17/2020			08/19/2020 15:39	Yijie Li	2190673, 2190676, 2190677, 2190678, 2190685
SM 4500 F-C-2011	08/17/2020			08/19/2020 21:33	Dale L. Simmons	2190673
	08/17/2020			08/19/2020 21:45	Dale L. Simmons	2190676
	08/17/2020			08/19/2020 21:59	Dale L. Simmons	2190677
	08/17/2020			08/19/2020 22:08	Dale L. Simmons	2190678
	08/17/2020			08/19/2020 22:18	Dale L. Simmons	2190685
	08/17/2020			08/19/2020 18:06	David Boose	2190680
SM 5310 B-2011	08/17/2020			08/19/2020 23:05	David Boose	2190674
	08/17/2020			08/19/2020 23:19	David Boose	2190679
	08/17/2020			08/19/2020 23:31	David Boose	2190681
	08/17/2020			08/19/2020 23:43	David Boose	2190686
	08/17/2020					