

Chemical Analysis Report

WAS-SECT-2020-12-07-01

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

Event Description: **Little River**
Request ID: **RQ-2020-11-16-08**
Customer: **WAS-SECT**
Project ID: **SMP**

Send Reports to:
FL Dept. of Environmental Protection
2600 Blair Stone Rd
Tallahassee, FL 32399
Attn: Curtis Musson

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: Liang Lin, Environmental Administrator

Date Certified: 29-DEC-2020 10:33

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

Case Narrative

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

Results for the following analytical groups are included in this report: Metals, 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: Scurlock Creek At Pilgrim Rd

Collection Date/Time: 12/07/2020 10:19

Field ID: G3WA0009

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2211305	EPA 180.1 Rev. 2.0	Turbidity	7.1		NTU	P390848	
	EPA 300.0 Rev. 2.1	Chloride	5.7		mg Cl/L	P391016	
		Sulfate	0.73		mg SO4/L	P391017	
	SM 2120 B-2011	Color (true)	110		PCU	P390920	
	SM 2320 B-2011	Total Alkalinity	7.8		mg CaCO3/L	P391089	
	SM 2540 C-2011	TDS	65		mg/L	P391169	
	SM 2540 D-2011	TSS	4	I	mg/L	P391149	
	SM 4500 F-C-2011	Fluoride	0.035	U	mg F/L	P390970	
2211307	EPA 350.1 Rev. 2.0	Ammonia-N	0.058		mg N/L	P391080	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.79		mg N/L	P391046	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.016		mg N/L	P390960	
	EPA 365.1 Rev. 2.0	Total-P	0.032		mg P/L	P390982	
	SM 5310 B-2011	Organic Carbon	14		mg C/L	P391060	
2211309	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.007	I	mg P/L	P390853	
2211315	EPA 8321B	2,4-D	0.0020	U	ug/L	P390959	
		Acesulfame K**	0.10	U	ug/L	P390828	MS
		AMPA**	0.10	U	ug/L	P390828	
		Sucralose**	0.010	U	ug/L	P390828	
		Acetaminophen**	0.0080	U	ug/L	P390959	
		Acetamiprid**	0.0020	U	ug/L	P390959	
		Endothall**	0.25	U	ug/L	P390828	MS
		Glufosinate**	0.10	U	ug/L	P390828	
		Glyphosate**	0.10	U	ug/L	P390828	
		Afidopyrophen**	0.0020	U	ug/L	P390959	
		Bentazon	8.0E-04	U	ug/L	P390959	
		Benzovindiflupyr**	0.0020	U	ug/L	P390959	
		Carbamazepine**	8.0E-04	U	ug/L	P390959	
		Clothianidin**	0.0020	U	ug/L	P390959	
		Dinotefuran**	0.0020	U	ug/L	P390959	
		Diuron	0.0020	U	ug/L	P390959	
		Fenuron	0.016	U	ug/L	P390959	
		Fluridone**	8.0E-04	U	ug/L	P390959	
		Imazapyr**	0.0056	I	ug/L	P390959	
		Hydrocodone**	0.0020	U	ug/L	P390959	
		Ibuprofen**	0.020	U	ug/L	P390959	
		Imidacloprid	0.0020	U	ug/L	P390959	
		Linuron	0.0040	U	ug/L	P390959	
		Mandestrobin**	0.0020	U	ug/L	P390959	
		MCP	0.0020	U	ug/L	P390959	
		Naproxen**	0.0080	U	ug/L	P390959	RPD
		Primidone**	0.0040	U	ug/L	P390959	
		Pyraclostrobin**	0.0020	U	ug/L	P390959	
		Thiamethoxam**	0.0020	U	ug/L	P390959	

Field ID: G3WA0009

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2211315	EPA 8321B	Tolfenpyrad**	0.0020	U	ug/L	P390959	
		Triclopyr**	0.0040	U	ug/L	P390959	
2211317	EPA 200.7 Rev. 4.4	Barium	14.8		ug/L	P390843	
		Calcium	4.99		mg/L	P390843	
		Iron	1.08E+03		ug/L	P390843	
		Magnesium	0.98		mg/L	P390843	
		Potassium	1.5		mg/L	P390843	
		Sodium	2.3		mg/L	P390843	
		Strontium	9.4		ug/L	P390843	
		Tin	3.0	U	ug/L	P390843	
		Titanium	15.3		ug/L	P390843	
		Vanadium	2.0	U	ug/L	P390843	
		Zinc	5.0	U	ug/L	P390843	
	EPA 200.8 Rev. 5.4	Aluminum	387		ug/L	P390843	
		Antimony	0.050	U	ug/L	P390843	
		Arsenic	0.43		ug/L	P390843	
		Beryllium	0.019	I	ug/L	P390843	
		Boron**	12.3		ug/L	P390843	
		Cadmium	0.020	U	ug/L	P390843	
		Chromium	0.60	I	ug/L	P390843	
		Cobalt	0.334		ug/L	P390843	
		Copper	0.63	I	ug/L	P390843	
		Lead	0.62		ug/L	P390843	
		Manganese	146		ug/L	P390843	
		Molybdenum	0.15	U	ug/L	P390843	
		Nickel	0.50	U	ug/L	P390843	
		Selenium	0.20	U	ug/L	P390843	
		Silver	0.010	U	ug/L	P390843	
		Thallium	0.10	U	ug/L	P390843	
	SM 2340B	Hardness	16.5		mg/L	P390843	

Ref. Method and Comment:

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

EPA 200.7 Rev. 4.4: Batch matrix spike recoveries for potassium are unavailable for one of two spiked samples because of high analyte concentration in the QC sample.

EPA 200.8 Rev. 5.4: The lead result was confirmed in the undigested sample on 12/17/2020.

Sample Location: Unnamed Creek at Palmview Rd

Collection Date/Time: 12/07/2020 09:28

Field ID: G3WA0013

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2211306	EPA 180.1 Rev. 2.0	Turbidity	20		NTU	P390848	
	EPA 300.0 Rev. 2.1	Chloride	7.4		mg Cl/L	P391016	
		Sulfate	2.2		mg SO4/L	P391017	
	SM 2120 B-2011	Color (true)	51	A	PCU	P390926	
	SM 2320 B-2011	Total Alkalinity	5.0		mg CaCO3/L	P391089	
	SM 2540 C-2011	TDS	55		mg/L	P391169	
	SM 2540 D-2011	TSS	5	I	mg/L	P391149	
2211308	SM 4500 F-C-2011	Fluoride	0.035	U	mg F/L	P390970	
	EPA 350.1 Rev. 2.0	Ammonia-N	0.019		mg N/L	P391130	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.57		mg N/L	P391046	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.012		mg N/L	P390960	
	EPA 365.1 Rev. 2.0	Total-P	0.052		mg P/L	P390982	
2211310	SM 5310 B-2011	Organic Carbon	9.2		mg C/L	P391060	
	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.007	I	mg P/L	P390853	
2211316	EPA 8321B	2,4-D	0.26		ug/L	P390959	
		Acesulfame K**	0.10	U	ug/L	P390828	MS
		AMPA**	0.10	U	ug/L	P390828	
		Sucralose**	0.010	U	ug/L	P390828	
		Acetaminophen**	0.0080	U	ug/L	P390959	
		Acetamidiprid**	0.0020	U	ug/L	P390959	
		Endothall**	0.25	U	ug/L	P390828	MS
		Glufosinate**	0.10	U	ug/L	P390828	
		Glyphosate**	0.10	U	ug/L	P390828	
		Afidopyropen**	0.0020	U	ug/L	P390959	
		Bentazon	8.0E-04	U	ug/L	P390959	
		Benzovindiflupyr**	0.0020	U	ug/L	P390959	
		Carbamazepine**	8.0E-04	U	ug/L	P390959	
		Clothianidin**	0.0020	U	ug/L	P390959	
		Dinotefuran**	0.0020	U	ug/L	P390959	
		Diuron	0.0020	U	ug/L	P390959	
		Fenuron	0.016	U	ug/L	P390959	
		Fluridone**	8.0E-04	U	ug/L	P390959	
		Imazapyr**	0.62		ug/L	P390959	
		Hydrocodone**	0.0020	U	ug/L	P390959	
		Ibuprofen**	0.020	U	ug/L	P390959	
		Imidacloprid	0.0026	I	ug/L	P390959	
		Linuron	0.0040	U	ug/L	P390959	
		Mandestrobin**	0.0020	U	ug/L	P390959	
		MCPD	0.0020	U	ug/L	P390959	
		Naproxen**	0.0080	U	ug/L	P390959	RPD
		Primidone**	0.0040	U	ug/L	P390959	
		Pyraclostrobin**	0.0020	U	ug/L	P390959	
		Thiamethoxam**	0.0020	U	ug/L	P390959	

Field ID: G3WA0013

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2211316	EPA 8321B	Tolfenpyrad**	0.0020	U	ug/L	P390959	
		Triclopyr**	0.0040	U	ug/L	P390959	
2211318	EPA 200.7 Rev. 4.4	Barium	17.8		ug/L	P390843	
		Calcium	3.41		mg/L	P390843	
		Iron	1.28E+03		ug/L	P390843	
		Magnesium	1.25		mg/L	P390843	
		Potassium	2.6		mg/L	P390843	
		Sodium	2.2		mg/L	P390843	
		Strontium	9.1		ug/L	P390843	
		Tin	3.0	U	ug/L	P390843	
		Titanium	45.1		ug/L	P390843	
		Vanadium	2.2	I	ug/L	P390843	
		Zinc	5.0	U	ug/L	P390843	
	EPA 200.8 Rev. 5.4	Aluminum	646		ug/L	P390843	
		Antimony	0.053	I	ug/L	P390843	
		Arsenic	0.54		ug/L	P390843	
		Beryllium	0.020	I	ug/L	P390843	
		Boron**	13.5		ug/L	P390843	
		Cadmium	0.020	U	ug/L	P390843	
		Chromium	0.66	I	ug/L	P390843	
		Cobalt	0.394		ug/L	P390843	
		Copper	0.70	I	ug/L	P390843	
		Lead	0.64		ug/L	P390843	
		Manganese	179		ug/L	P390843	
		Molybdenum	0.15	U	ug/L	P390843	
		Nickel	0.50	U	ug/L	P390843	
		Selenium	0.20	U	ug/L	P390843	
		Silver	0.010	U	ug/L	P390843	
		Thallium	0.10	U	ug/L	P390843	
	SM 2340B	Hardness	13.7		mg/L	P390843	

Ref. Method and Comment:

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

EPA 200.7 Rev. 4.4: Batch matrix spike recoveries for potassium are unavailable for one of two spiked samples because of high analyte concentration in the QC sample.

EPA 200.8 Rev. 5.4: The lead result was confirmed in the undigested sample on 12/17/2020.

Quality Assurance Report Method Blank Results

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P390848

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P390843

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
Strontium	2.0	U	ug/L
Tin	3.0	U	ug/L
Titanium	0.75	U	ug/L
Vanadium	2.0	U	ug/L
Zinc	5.0	U	ug/L

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P390843

Component	Result	Code	Units
Aluminum	5.0	U	ug/L
Antimony	0.050	U	ug/L
Arsenic	0.050	U	ug/L
Beryllium	0.010	U	ug/L
Boron	2.0	U	ug/L
Cadmium	0.020	U	ug/L
Chromium	0.40	U	ug/L
Cobalt	0.020	U	ug/L
Copper	0.40	U	ug/L
Lead	0.20	U	ug/L
Manganese	0.10	U	ug/L
Molybdenum	0.15	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: P391016

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P391017

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: P391080

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P391130

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P391046

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P390960

Component	Result	Code	Units
NO ₂ NO ₃ -N	0.004	U	mg N/L

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P390982

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P390853

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

Reference Method: EPA 8321B
Batch ID: P390828

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

Reference Method: EPA 8321B
Batch ID: P390959

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

Quality Assurance Report Method Blank Results

Reference Method: EPA 8321B
Batch ID: P390959

Component	Result	Code	Units
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: P390920

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2120 B-2011
Batch ID: P390926

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2320 B-2011
Batch ID: P391089

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

Reference Method: SM 2540 C-2011
Batch ID: P391169

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-2011
Batch ID: P391149

Component	Result	Code	Units
TSS	2	U	mg/L

Quality Assurance Report

Method Blank Results

Reference Method: SM 4500 F-C-2011
Batch ID: P390970

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-2011
Batch ID: P391060

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: P390843

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Barium	108		P	85 - 115
Calcium	103		P	85 - 115
Iron	107		P	85 - 115
Magnesium	102		P	85 - 115
Potassium	98.7		P	85 - 115
Sodium	105		P	85 - 115
Strontium	105		P	85 - 115
Tin	111		P	85 - 115
Titanium	105		P	85 - 115
Vanadium	103		P	85 - 115
Zinc	110		P	85 - 115

Reference Method: EPA 200.8 Rev. 5.4

Batch ID: P390843

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Aluminum	99.9		P	85 - 115
Antimony	104		P	85 - 115
Arsenic	100		P	85 - 115
Beryllium	104		P	85 - 115
Boron	97.5		P	85 - 115
Cadmium	98.1		P	85 - 115
Chromium	103		P	85 - 115
Cobalt	105		P	85 - 115
Copper	98.8		P	85 - 115
Lead	103		P	85 - 115
Manganese	96.4		P	85 - 115
Molybdenum	101		P	85 - 115
Nickel	98.4		P	85 - 115
Selenium	99.3		P	85 - 115
Silver	107		P	85 - 115
Thallium	102		P	85 - 115

Reference Method: EPA 300.0 Rev. 2.1

Batch ID: P391016

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

Reference Method: EPA 300.0 Rev. 2.1

Batch ID: P391017

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

Reference Method: EPA 350.1 Rev. 2.0

Batch ID: P391080

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

Quality Assurance Report

Laboratory Control Sample Accuracy

Reference Method: EPA 350.1 Rev. 2.0

Batch ID: P391130

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

Reference Method: EPA 351.2 Rev. 2.0

Batch ID: P391046

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

Reference Method: EPA 353.2 Rev. 2.0

Batch ID: P390960

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

Reference Method: EPA 365.1 Rev. 2.0

Batch ID: P390982

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved

Batch ID: P390853

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

Reference Method: EPA 8321B

Batch ID: P390828

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Acesulfame K	104		P	40 - 150
AMPA	80.3		P	40 - 150
Endothall	79.1		P	40 - 150
Glufosinate	106		P	40 - 150
Glyphosate	92.8		P	40 - 140
Sucralose	100		P	40 - 150

Reference Method: EPA 8321B

Batch ID: P390959

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2,4-D	100		P	30 - 160
Acetaminophen	77.3		P	30 - 150
Acetamiprid	113		P	30 - 160
Afidopyropen	69.2		P	30 - 160
Bentazon	51.7		P	30 - 150
Benzovindiflupyr	94.3		P	30 - 160
Carbamazepine	76.6		P	30 - 160
Clothianidin	90.9		P	30 - 160
Dinotefuran	92.8		P	30 - 160
Diuron	50.5		P	30 - 160
Fenuron	107		P	30 - 160

Quality Assurance Report

Laboratory Control Sample Accuracy

Reference Method: EPA 8321B

Batch ID: P390959

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluridone	91.4		P	30 - 160
Hydrocodone	95.5		P	30 - 160
Ibuprofen	53.3		P	30 - 160
Imazapyr	73.4		P	30 - 160
Imidacloprid	121		P	30 - 160
Linuron	60.7		P	30 - 160
Mandestrobin	91.3		P	30 - 160
MCP	109		P	30 - 160
Naproxen	43.7		P	30 - 160
Primidone	79.7		P	30 - 160
Pyraclostrobin	74.9		P	30 - 160
Thiamethoxam	102		P	30 - 160
Tolfenpyrad	60.4		P	30 - 160
Triclopyr	110		P	30 - 160

Reference Method: SM 2120 B-2011

Batch ID: P390920

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Color (true)	99.0		P	90 - 110

Reference Method: SM 2120 B-2011

Batch ID: P390926

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Color (true)	105		P	90 - 110

Reference Method: SM 2320 B-2011

Batch ID: P391089

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	103		P	93 - 104

Reference Method: SM 4500 F-C-2011

Batch ID: P390970

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	97.9		P	90 - 106

Reference Method: SM 5310 B-2011

Batch ID: P391060

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	98.2		P	85 - 115

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 200.7 Rev. 4.4

Batch ID: P390843

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2211165	Barium	104		P	80 - 120
2211165	Calcium	103		P	80 - 120
2211165	Iron	105		P	80 - 120
2211165	Magnesium	99.0		P	80 - 120
2211165	Sodium	99.8		P	80 - 120
2211165	Strontium	104		P	80 - 120
2211165	Tin	105		P	80 - 120
2211165	Titanium	102		P	80 - 120
2211165	Vanadium	99.9		P	80 - 120
2211165	Zinc	108		P	80 - 120
2211329	Barium	102	90.5	P/P	80 - 120
2211329	Calcium	84.2		P	80 - 120
2211329	Iron	103	88.5	P/P	80 - 120
2211329	Magnesium	98.9	100	P/P	80 - 120
2211329	Potassium	96.4	82.5	P/P	80 - 120
2211329	Sodium	103	82.3	P/P	80 - 120
2211329	Strontium	103	87.9	P/P	80 - 120
2211329	Tin	105	88.7	P/P	80 - 120
2211329	Titanium	101	88.6	P/P	80 - 120
2211329	Vanadium	101	88.1	P/P	80 - 120
2211329	Zinc	102	86.8	P/P	80 - 120

Reference Method: EPA 200.8 Rev. 5.4

Batch ID: P390843

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2211165	Aluminum	103		P	80 - 120
2211165	Antimony	104		P	80 - 120
2211165	Arsenic	98.2		P	80 - 120
2211165	Beryllium	104		P	80 - 120
2211165	Boron	101		P	80 - 120
2211165	Cadmium	97.2		P	80 - 120
2211165	Chromium	102		P	80 - 120
2211165	Cobalt	103		P	80 - 120
2211165	Copper	96.0		P	80 - 120
2211165	Lead	104		P	80 - 120
2211165	Manganese	96.8		P	80 - 120
2211165	Molybdenum	100		P	80 - 120
2211165	Nickel	95.7		P	80 - 120
2211165	Selenium	96.9		P	80 - 120
2211165	Silver	106		P	80 - 120
2211165	Thallium	106		P	80 - 120
2211329	Aluminum	102	100	P/P	80 - 120
2211329	Antimony	105	105	P/P	80 - 120
2211329	Arsenic	101	98.9	P/P	80 - 120
2211329	Beryllium	102	103	P/P	80 - 120
2211329	Boron	94.7	95.2	P/P	80 - 120
2211329	Cadmium	98.0	98.1	P/P	80 - 120
2211329	Chromium	101	102	P/P	80 - 120
2211329	Cobalt	104	104	P/P	80 - 120
2211329	Copper	95.7	94.6	P/P	80 - 120
2211329	Lead	102	103	P/P	80 - 120

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P390843

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2211329	Manganese	96.9	96.9	P/P	80 - 120
2211329	Molybdenum	104	104	P/P	80 - 120
2211329	Nickel	96.9	96.2	P/P	80 - 120
2211329	Selenium	98.4	96.7	P/P	80 - 120
2211329	Silver	106	108	P/P	80 - 120
2211329	Thallium	102	105	P/P	80 - 120

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P391016

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2211305	Chloride	99.0		P	90 - 110
2211680	Chloride	97.7		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P391017

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2211305	Sulfate	99.6		P	90 - 110
2211680	Sulfate	98.0		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P391080

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2211262	Ammonia-N	94.4	94.6	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P391130

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2211308	Ammonia-N	99.8	99.6	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P391046

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2211261	Kjeldahl Nitrogen	106	106	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P390960

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2211307	NO2NO3-N	97.0	97.5	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P390982

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2211259	Total-P	103	106	P/P	90 - 110

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 365.1 Rev. 2.0 dissolved

Batch ID: P390853

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2211264	O-Phosphate-P	98.6	99.8	P/P	90 - 110

Reference Method: EPA 8321B

Batch ID: P390828

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2211291	Acesulfame K	161	160	F/F	40 - 150
2211291	AMPA	81.0	83.8	P/P	40 - 150
2211291	Endothall	149	159	P/F	40 - 150
2211291	Glufosinate	101	109	P/P	40 - 150
2211291	Glyphosate	86.7	91.7	P/P	40 - 140
2211291	Sucralose	92.9	96.4	P/P	40 - 150

Reference Method: EPA 8321B

Batch ID: P390959

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2211291	2,4-D	72.9	75.6	P/P	30 - 160
2211291	Acetaminophen	56.8	59.6	P/P	30 - 150
2211291	Acetamiprid	99.2	78.6	P/P	30 - 160
2211291	Afidopyropen	58.1	45.7	P/P	30 - 160
2211291	Bentazon	57.6	58.4	P/P	30 - 150
2211291	Benzovindiflupyr	74.8	73.7	P/P	30 - 160
2211291	Carbamazepine	55.3	55.6	P/P	30 - 160
2211291	Clothianidin	72.8	77.0	P/P	30 - 160
2211291	Dinotefuran	95.1	89.5	P/P	30 - 160
2211291	Diuron	44.4	39.1	P/P	30 - 160
2211291	Fenuron	77.1	76.8	P/P	30 - 160
2211291	Fluridone	66.2	70.9	P/P	30 - 160
2211291	Hydrocodone	94.7	95.0	P/P	30 - 160
2211291	Ibuprofen	36.0	41.6	P/P	30 - 160
2211291	Imazapyr	70.6	64.9	P/P	30 - 160
2211291	Imidacloprid	129	122	P/P	30 - 160
2211291	Linuron	53.2	50.5	P/P	30 - 160
2211291	Mandestrobin	75.5	66.6	P/P	30 - 160
2211291	MCP	77.8	71.0	P/P	30 - 160
2211291	Naproxen	37.3	53.1	P/P	30 - 160
2211291	Primidone	70.3	68.8	P/P	30 - 160
2211291	Pyraclostrobin	74.4	69.4	P/P	30 - 160
2211291	Thiamethoxam	118	120	P/P	30 - 160
2211291	Tolfenpyrad	50.8	51.5	P/P	30 - 160
2211291	Triclopyr	88.2	77.3	P/P	30 - 160

Reference Method: SM 4500 F-C-2011

Batch ID: P390970

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2211416	Fluoride	97.7	99.0	P/P	94 - 107

Quality Assurance Report

Matrix Spike Accuracy

Reference Method: SM 5310 B-2011

Batch ID: P391060

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2211260	Organic Carbon	98.4	98.9	P/P	85 - 115

Quality Assurance Report

Precision

Reference Method: EPA 180.1 Rev. 2.0

Batch ID: P390848

Replicated

Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2211256	Turbidity	5.09	Sample	P	0 - 20

Reference Method: EPA 200.7 Rev. 4.4

Batch ID: P390843

Replicated

Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2211329	Barium	12.2	Spike	P	0 - 20
2211329	Calcium	16.5	Spike	P	0 - 20
2211329	Iron	15.6	Spike	P	0 - 20
2211329	Magnesium	0.736	Spike	P	0 - 20
2211329	Potassium	13.8	Spike	P	0 - 20
2211329	Sodium	15.0	Spike	P	0 - 20
2211329	Strontium	15.8	Spike	P	0 - 20
2211329	Tin	16.8	Spike	P	0 - 20
2211329	Titanium	12.6	Spike	P	0 - 20
2211329	Vanadium	13.3	Spike	P	0 - 20
2211329	Zinc	15.9	Spike	P	0 - 20

Reference Method: EPA 200.8 Rev. 5.4

Batch ID: P390843

Replicated

Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2211329	Aluminum	1.89	Spike	P	0 - 20
2211329	Antimony	0.316	Spike	P	0 - 20
2211329	Arsenic	1.77	Spike	P	0 - 20
2211329	Beryllium	0.349	Spike	P	0 - 20
2211329	Boron	0.500	Spike	P	0 - 20
2211329	Cadmium	0.159	Spike	P	0 - 20
2211329	Chromium	0.418	Spike	P	0 - 20
2211329	Cobalt	0.716	Spike	P	0 - 20
2211329	Copper	1.15	Spike	P	0 - 20
2211329	Lead	1.12	Spike	P	0 - 20
2211329	Manganese	0.00130	Spike	P	0 - 20
2211329	Molybdenum	0.338	Spike	P	0 - 20
2211329	Nickel	0.749	Spike	P	0 - 20
2211329	Selenium	1.74	Spike	P	0 - 20
2211329	Silver	1.31	Spike	P	0 - 20
2211329	Thallium	2.41	Spike	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1

Batch ID: P391016

Replicated

Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2211680	Chloride	0.649	Sample	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P391017

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2211680	Sulfate	0.178	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P391080

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2211262	Ammonia-N	0.168	Spike	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P391130

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2211308	Ammonia-N	0.145	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P391046

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2211261	Kjeldahl Nitrogen	0.119	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P390960

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2211307	NO2NO3-N	0.475	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P390982

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2211259	Total-P	2.11	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P390853

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2211264	O-Phosphate-P	1.13	Spike	P	0 - 20

Reference Method: EPA 8321B
Batch ID: P390828

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2211291	Acesulfame K	0.444	Spike	P	0 - 30
2211291	AMPA	3.46	Spike	P	0 - 30

Quality Assurance Report

Precision

Reference Method: EPA 8321B

Batch ID: P390828

Replicated

Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2211291	Endothall	6.48	Spike	P	0 - 30
2211291	Glufosinate	7.65	Spike	P	0 - 30
2211291	Glyphosate	5.60	Spike	P	0 - 30
2211291	Sucralose	3.62	Spike	P	0 - 30

Reference Method: EPA 8321B

Batch ID: P390959

Replicated

Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2211291	2,4-D	3.63	Spike	P	0 - 30
2211291	Acetaminophen	4.83	Spike	P	0 - 30
2211291	Acetamiprid	23.2	Spike	P	0 - 30
2211291	Afidopyropen	23.9	Spike	P	0 - 30
2211291	Bentazon	1.47	Spike	P	0 - 30
2211291	Benzovindiflupyr	1.47	Spike	P	0 - 30
2211291	Carbamazepine	0.653	Spike	P	0 - 30
2211291	Clothianidin	5.56	Spike	P	0 - 30
2211291	Dinotefuran	6.03	Spike	P	0 - 30
2211291	Diuron	12.8	Spike	P	0 - 30
2211291	Fenuron	0.365	Spike	P	0 - 30
2211291	Fluridone	6.91	Spike	P	0 - 30
2211291	Hydrocodone	0.315	Spike	P	0 - 30
2211291	Ibuprofen	14.5	Spike	P	0 - 30
2211291	Imazapyr	8.42	Spike	P	0 - 30
2211291	Imidacloprid	6.11	Spike	P	0 - 30
2211291	Linuron	5.32	Spike	P	0 - 30
2211291	Mandestrobin	12.5	Spike	P	0 - 30
2211291	MCPP	9.22	Spike	P	0 - 30
2211291	Naproxen	35.0	Spike	F	0 - 30
2211291	Primidone	2.12	Spike	P	0 - 30
2211291	Pyraclostrobin	6.97	Spike	P	0 - 30
2211291	Thiamethoxam	1.90	Spike	P	0 - 30
2211291	Tolfenpyrad	1.24	Spike	P	0 - 30
2211291	Triclopyr	13.2	Spike	P	0 - 30

Reference Method: SM 2120 B-2011

Batch ID: P390920

Replicated

Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2211254	Color (true)	7.28	Sample	P	0 - 20

Reference Method: SM 2120 B-2011

Batch ID: P390926

Replicated

Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2211306	Color (true)	2.98	Sample	P	0 - 20

Quality Assurance Report Precision

Reference Method: SM 2320 B-2011
Batch ID: P391089

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2211322	Total Alkalinity	1.20	Sample	P	0 - 8.1

Reference Method: SM 2540 C-2011
Batch ID: P391169

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2211322	TDS	4.04	Sample	P	0 - 10

Reference Method: SM 4500 F-C-2011
Batch ID: P390970

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2211416	Fluoride	0.982	Spike	P	0 - 2.8

Reference Method: SM 5310 B-2011
Batch ID: P391060

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2211260	Organic Carbon	0.419	Spike	P	0 - 20

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

Quality Assurance Report Surrogates

Lab Sample ID: 2211315

Field Sample ID: G3WA0009

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	2,4-D-d3	53.7	P	30 - 160
EPA 8321B	Acetaminophen-d4	49.9	P	30 - 160
EPA 8321B	Carbamazepine-d10	41.4	P	30 - 160
EPA 8321B	Diuron-d6	38.4	P	30 - 160
EPA 8321B	Endothall-d6	115	P	40 - 160
EPA 8321B	Endothall-d6	115	P	40 - 160
EPA 8321B	Glyphosate 13C 15N	90.1	P	40 - 160
EPA 8321B	Glyphosate 13C 15N	90.1	P	40 - 160
EPA 8321B	Ibuprofen-d3	39.8	P	30 - 160
EPA 8321B	Primidone-d5	59.6	P	30 - 160
EPA 8321B	Sucralose-d6	101	P	30 - 160
EPA 8321B	Sucralose-d6	101	P	30 - 160

Lab Sample ID: 2211316

Field Sample ID: G3WA0013

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	2,4-D-d3	64.8	P	30 - 160
EPA 8321B	Acetaminophen-d4	56.4	P	30 - 160
EPA 8321B	Carbamazepine-d10	43.3	P	30 - 160
EPA 8321B	Diuron-d6	50.1	P	30 - 160
EPA 8321B	Endothall-d6	118	P	40 - 160
EPA 8321B	Endothall-d6	118	P	40 - 160
EPA 8321B	Glyphosate 13C 15N	87.8	P	40 - 160
EPA 8321B	Glyphosate 13C 15N	87.8	P	40 - 160
EPA 8321B	Ibuprofen-d3	41.9	P	30 - 160
EPA 8321B	Primidone-d5	65.3	P	30 - 160
EPA 8321B	Sucralose-d6	93.7	P	30 - 160
EPA 8321B	Sucralose-d6	93.7	P	30 - 160

Quality Assurance Report Calibration Verification

Reference Method: EPA 300.0 Rev. 2.1

Run ID: A102455

Included Lab Sample IDs: 2211305, 2211306

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	100	99.6	P/P	90 - 110
Sulfate	99.2	99.1	P/P	90 - 110

Reference Method: EPA 180.1 Rev. 2.0

Run ID: A102471

Included Lab Sample IDs: 2211305, 2211306

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Turbidity	102	102	P/P	95 - 105

Reference Method: EPA 365.1 Rev. 2.0 dissolved

Run ID: A102472

Included Lab Sample IDs: 2211309, 2211310

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	99.3	99.6	P/P	90 - 110

Reference Method: SM 2120 B-2011

Run ID: A102494

Included Lab Sample IDs: 2211305, 2211306

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	103	104	P/P	85 - 115
Color (true)	103	102	P/P	85 - 115

Reference Method: EPA 200.7 Rev. 4.4

Run ID: A102504

Included Lab Sample IDs: 2211317, 2211318

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Barium	102	102	P/P	90 - 110
Iron	99.1	102	P/P	90 - 110
Potassium	93.5	96.3	P/P	90 - 110
Sodium	98.6	98.8	P/P	90 - 110
Strontium	100	100	P/P	90 - 110
Tin	103	100	P/P	90 - 110
Titanium	101	101	P/P	90 - 110
Vanadium	99.1	98.4	P/P	90 - 110
Zinc	105	104	P/P	90 - 110

Reference Method: EPA 8321B

Run ID: A102510

Included Lab Sample IDs: 2211315, 2211316

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Sucralose	89.8	94.1	P/P	60 - 160

Quality Assurance Report Calibration Verification

Reference Method: EPA 8321B

Run ID: A102512

Included Lab Sample IDs: 2211315, 2211316

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Acesulfame K	104	110	P/P	60 - 160
AMPA	93.8	91.7	P/P	60 - 160
Endothall	82.7	84.0	P/P	60 - 160
Glufosinate	103	107	P/P	60 - 160
Glyphosate	94.9	96.9	P/P	60 - 160

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A102515

Included Lab Sample IDs: 2211307, 2211308

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO2NO3-N	99.5	100	P/P	90 - 110

Reference Method: EPA 200.7 Rev. 4.4

Run ID: A102517

Included Lab Sample IDs: 2211317, 2211318

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Calcium	97.6	97.7	P/P	90 - 110
Magnesium	96.4	96.6	P/P	90 - 110

Reference Method: SM 4500 F-C-2011

Run ID: A102518

Included Lab Sample IDs: 2211305, 2211306

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

Reference Method: SM 5310 B-2011

Run ID: A102548

Included Lab Sample IDs: 2211307, 2211308

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	98.3	98.8	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A102553

Included Lab Sample IDs: 2211307

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	96.9	96.5	P/P	90 - 110

Reference Method: SM 2320 B-2011

Run ID: A102561

Included Lab Sample IDs: 2211305, 2211306

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	101	104	P/P	90 - 110
Total Alkalinity	101	101	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A102569

Included Lab Sample IDs: 2211308

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

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A102573

Included Lab Sample IDs: 2211307, 2211308

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

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A102574

Included Lab Sample IDs: 2211307

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	97.8	98.0	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A102578

Included Lab Sample IDs: 2211308

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

Reference Method: EPA 200.8 Rev. 5.4

Run ID: A102629

Included Lab Sample IDs: 2211317, 2211318

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Antimony	100	99.1	P/P	90 - 110
Arsenic	97.0	96.2	P/P	90 - 110
Boron	100	102	P/P	90 - 110
Cadmium	96.4	95.9	P/P	90 - 110
Chromium	102	101	P/P	90 - 110
Cobalt	102	101	P/P	90 - 110
Copper	94.4	93.5	P/P	90 - 110
Lead	99.1	98.1	P/P	90 - 110
Manganese	94.2	94.1	P/P	90 - 110
Molybdenum	99.5	99.2	P/P	90 - 110
Nickel	94.0	93.4	P/P	90 - 110
Selenium	97.2	96.8	P/P	90 - 110
Silver	104	103	P/P	90 - 110
Thallium	101	99.8	P/P	90 - 110

Reference Method: EPA 200.8 Rev. 5.4

Run ID: A102654

Included Lab Sample IDs: 2211317, 2211318

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Aluminum	96.0	101	P/P	90 - 110
Beryllium	99.2	99.1	P/P	90 - 110

Quality Assurance Report

Calibration Verification

Reference Method: EPA 8321B

Run ID: A102718

Included Lab Sample IDs: 2211315, 2211316

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
2,4-D	94.2	89.3	P/P	50 - 150
Acetaminophen	112	120	P/P	60 - 160
Acetamiprid	109	126	P/P	50 - 150
Afidopyropen	105	91.5	P/P	50 - 150
Bentazon	98.8	133	P/P	50 - 160
Benzovindiflupyr	110	112	P/P	50 - 150
Carbamazepine	108	106	P/P	60 - 150
Clothianidin	116	114	P/P	60 - 150
Dinotefuran	105	101	P/P	50 - 150
Diuron	88.2	86.7	P/P	60 - 160
Fenuron	107	110	P/P	60 - 150
Fluridone	111	109	P/P	60 - 160
Hydrocodone	101	98.4	P/P	60 - 150
Ibuprofen	106	100	P/P	50 - 160
Imazapyr	96.4	104	P/P	50 - 150
Imidacloprid	96.4	109	P/P	60 - 150
Linuron	104	113	P/P	60 - 150
Mandestrobin	101	109	P/P	50 - 150
MCP	91.7	90.9	P/P	50 - 150
Naproxen	110	124	P/P	50 - 160
Primidone	91.0	92.8	P/P	60 - 150
Pyraclostrobin	106	100	P/P	60 - 150
Thiamethoxam	103	107	P/P	50 - 150
Tolfenpyrad	103	94.5	P/P	60 - 150
Triclopyr	86.3	94.2	P/P	50 - 150

* 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						5.09	
EPA 200.7 Rev. 4.4	Barium	108	104	102	90.5			12.2
	Calcium	103	103	84.2				16.5
	Iron	107	105	103	88.5			15.6
	Magnesium	102	98.9	100	99.0			0.736
	Potassium	98.7	96.4	82.5				13.8
	Sodium	105	99.8	103	82.3			15.0
	Strontium	105	104	103	87.9			15.8
	Tin	111	105	105	88.7			16.8
	Titanium	105	102	101	88.6			12.6
	Vanadium	103	99.9	101	88.1			13.3
	Zinc	110	108	102	86.8			15.9
EPA 200.8 Rev. 5.4	Aluminum	99.9	102	100	103			1.89
	Antimony	104	105	105	104			0.316
	Arsenic	100	101	98.9	98.2			1.77
	Beryllium	104	102	103	104			0.349
	Boron	97.5	94.7	95.2	101			0.500
	Cadmium	98.1	98.0	98.1	97.2			0.159
	Chromium	103	101	102	102			0.418
	Cobalt	105	104	104	103			0.716
	Copper	98.8	95.7	94.6	96.0			1.15
	Lead	103	102	103	104			1.12
	Manganese	96.4	96.9	96.9	96.8			0.0013
	Molybdenum	101	104	104	100			0.338
	Nickel	98.4	96.9	96.2	95.7			0.749
	Selenium	99.3	96.7	96.9	98.4			1.74
	Silver	107	106	108	106			1.31
	Thallium	102	102	105	106			2.41
EPA 300.0 Rev. 2.1	Chloride	98.3	97.7	99.0			0.649	
	Sulfate	99.1	98.0	99.6			0.178	
EPA 350.1 Rev. 2.0	Ammonia-N	96.2	94.4	94.6				0.168
	Ammonia-N	99.0	99.8	99.6				0.145
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	106	106	106				0.119
EPA 353.2 Rev. 2.0	NO2NO3-N	101	97.0	97.5				0.475
EPA 365.1 Rev. 2.0	Total-P	106	103	106				2.11
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	100	98.6	99.8				1.13
EPA 8321B	2,4-D	100	72.9	75.6				3.63
	Acesulfame K	104	161	160				0.444
	Acetaminophen	77.3	56.8	59.6				4.83
	Acetamiprid	113	99.2	78.6				23.2
	Afidopyropen	69.2	58.1	45.7				23.9
	AMPA	80.3	81.0	83.8				3.46
	Bentazon	51.7	57.6	58.4				1.47
	Benzovindiflupyr	94.3	74.8	73.7				1.47
	Carbamazepine	76.6	55.3	55.6				0.653
	Clothianidin	90.9	72.8	77.0				5.56
	Dinotefuran	92.8	95.1	89.5				6.03
	Diuron	50.5	44.4	39.1				12.8
	Endothall	79.1	149	159				6.48
	Fenuron	107	77.1	76.8				0.365
	Fluridone	91.4	66.2	70.9				6.91
	Glufosinate	106	101	109				7.65
	Glyphosate	92.8	86.7	91.7				5.60
	Hydrocodone	95.5	94.7	95.0				0.315

Quality Assurance Report Summary

Ref. Method	Analyte	LCS % Recovery	MS % Recovery		Precision LCS	SMP	MS
EPA 8321B	Ibuprofen	53.3	36.0	41.6			14.5
	Imazapyr	73.4	70.6	64.9			8.42
	Imidacloprid	121	129	122			6.11
	Linuron	60.7	53.2	50.5			5.32
	Mandestrobin	91.3	75.5	66.6			12.5
	MCPP	109	77.8	71.0			9.22
	Naproxen	43.7	37.3	53.1			35.0
	Primidone	79.7	70.3	68.8			2.12
	Pyraclostrobin	74.9	74.4	69.4			6.97
	Sucralose	100	92.9	96.4			3.62
	Thiamethoxam	102	118	120			1.90
	Tolfenpyrad	60.4	50.8	51.5			1.24
	Triclopyr	110	88.2	77.3			13.2
SM 2120 B-2011	Color (true)	99.0				7.28	
	Color (true)	105				2.98	
SM 2320 B-2011	Total Alkalinity	103				1.20	
SM 2540 C-2011	TDS					4.04	
SM 4500 F-C-2011	Fluoride	97.9	97.7	99.0			0.982
SM 5310 B-2011	Organic Carbon	98.2	98.4	98.9			0.419

Reference Method Descriptions

Method	Description	Associated Samples
EPA 180.1 Rev. 2.0	Turbidity in aqueous matrices	2211305, 2211306
EPA 200.7 Rev. 4.4	Total Recoverable Metals analysis using ICP emission spectroscopy for aqueous samples supporting Clean Water Act Projects	2211317, 2211318
EPA 200.8 Rev. 5.4	Total Recoverable Metals analysis using ICP-MS for aqueous samples supporting Clean Water Act Projects	2211317, 2211318
EPA 300.0 Rev. 2.1	Chloride in aqueous matrices	2211305, 2211306
EPA 300.0 Rev. 2.1	Sulfate in aqueous matrices	2211305, 2211306
EPA 350.1 Rev. 2.0	Ammonia in aqueous matrices as mg N/L	2211307, 2211308
EPA 351.2 Rev. 2.0	Total Kjeldahl Nitrogen in aqueous matrices	2211307, 2211308
EPA 353.2 Rev. 2.0	Nitrite/Nitrate in aqueous matrices as mg N/L	2211307, 2211308
EPA 365.1 Rev. 2.0	Total Phosphorus in aqueous matrices as mg P/L	2211307, 2211308
EPA 365.1 Rev. 2.0 dissolved	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	2211309, 2211310
EPA 8321B	Pesticides, herbicides, and other chemicals in water matrices by HPLC/MS/MS	2211315, 2211316
EPA 8321B	Water soluble organic compounds by HPLC/MS/MS	2211315, 2211316
SM 2120 B-2011	True Color measured at 450 nm (not valid for NPDES monitoring)	2211305, 2211306
SM 2320 B-2011	Alkalinity in aqueous matrices as mg CaCO ₃ /L	2211305, 2211306
SM 2340B	Hardness by calculation, in aqueous matrices, reported as mg/L CaCO ₃	2211317, 2211318
SM 2540 C-2011	Total Dissolved Solids in aqueous matrices	2211305, 2211306
SM 2540 D-2011	Total Suspended Solids in aqueous matrices using a maximum of 250 mL of sample	2211305, 2211306
SM 4500 F-C-2011	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	2211305, 2211306
SM 5310 B-2011	Nonpurgeable Organic Carbon in aqueous matrices	2211307, 2211308

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	12/07/2020			12/08/2020 16:15	Yen Ta	2211305, 2211306
EPA 200.7 Rev. 4.4	12/07/2020	12/08/2020 15:15	Elliott D. Healy	12/09/2020 15:33	Betina Topolski	2211317
	12/07/2020	12/08/2020 15:15	Elliott D. Healy	12/09/2020 15:41	Betina Topolski	2211318
	12/07/2020	12/08/2020 15:15	Elliott D. Healy	12/10/2020 11:27	Betina Topolski	2211317
	12/07/2020	12/08/2020 15:15	Elliott D. Healy	12/10/2020 11:30	Betina Topolski	2211318
EPA 200.8 Rev. 5.4	12/07/2020	12/08/2020 15:15	Elliott D. Healy	12/16/2020 10:16	Alexander Thompson	2211317
	12/07/2020	12/08/2020 15:15	Elliott D. Healy	12/16/2020 10:24	Alexander Thompson	2211318
	12/07/2020	12/08/2020 15:15	Elliott D. Healy	12/17/2020 13:47	Alexander Thompson	2211317
	12/07/2020	12/08/2020 15:15	Elliott D. Healy	12/17/2020 13:52	Alexander Thompson	2211318
EPA 300.0 Rev. 2.1	12/07/2020			12/10/2020 17:27	Lipi Saha	2211305
	12/07/2020			12/10/2020 17:51	Lipi Saha	2211306
EPA 350.1 Rev. 2.0	12/07/2020			12/13/2020 14:43	Ping Hua	2211307
	12/07/2020			12/14/2020 17:00	Ping Hua	2211308
EPA 351.2 Rev. 2.0	12/07/2020	12/11/2020 13:20	Yen Ta	12/14/2020 14:40	Julia Storbeck	2211307
	12/07/2020	12/11/2020 13:20	Yen Ta	12/14/2020 14:41	Julia Storbeck	2211308
EPA 353.2 Rev. 2.0	12/07/2020			12/10/2020 09:33	Beverly Y. Sanders	2211307
	12/07/2020			12/10/2020 09:40	Beverly Y. Sanders	2211308
EPA 365.1 Rev. 2.0	12/07/2020	12/10/2020 12:58	Yen Ta	12/14/2020 10:02	Benjamin T. Nordmann	2211308
	12/07/2020	12/10/2020 12:58	Yen Ta	12/14/2020 14:17	Lipi Saha	2211307
EPA 365.1 Rev. 2.0 dissolved	12/07/2020			12/08/2020 15:49	Samantha Davila	2211309
	12/07/2020			12/08/2020 15:50	Samantha Davila	2211310
EPA 8321B	12/07/2020	12/08/2020 13:15	Rebecca Ware	12/08/2020 16:47	Rebecca Ware	2211315
	12/07/2020	12/08/2020 13:15	Rebecca Ware	12/08/2020 17:00	Rebecca Ware	2211316
	12/07/2020	12/08/2020 13:15	Rebecca Ware	12/10/2020 00:34	Rebecca Ware	2211315
	12/07/2020	12/08/2020 13:15	Rebecca Ware	12/10/2020 00:45	Rebecca Ware	2211316
	12/07/2020	12/11/2020 10:00	Hoor Shaik	12/20/2020 02:56	Juyoung Kim	2211315
	12/07/2020	12/11/2020 10:00	Hoor Shaik	12/20/2020 03:31	Juyoung Kim	2211316
SM 2120 B-2011	12/07/2020			12/08/2020 16:52	Benjamin T. Nordmann	2211305
	12/07/2020			12/08/2020 17:44	Benjamin T. Nordmann	2211306
SM 2320 B-2011	12/07/2020			12/12/2020 01:09	Dale L. Simmons	2211305
	12/07/2020			12/12/2020 01:51	Dale L. Simmons	2211306
SM 2340B	12/07/2020			12/10/2020 11:27	Betina Topolski	2211317
	12/07/2020			12/10/2020 11:30	Betina Topolski	2211318
SM 2540 C-2011	12/07/2020			12/09/2020 14:21	Yijie Li	2211305, 2211306
SM 2540 D-2011	12/07/2020			12/09/2020 14:21	Yijie Li	2211305, 2211306
SM 4500 F-C-2011	12/07/2020			12/09/2020 18:17	Dale L. Simmons	2211305
	12/07/2020			12/09/2020 18:28	Dale L. Simmons	2211306
SM 5310 B-2011	12/07/2020			12/10/2020 18:29	Madeline Gruver	2211307
	12/07/2020			12/10/2020 18:41	Madeline Gruver	2211308