

Chemical Analysis Report

NW-DIST-2021-02-09-01

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

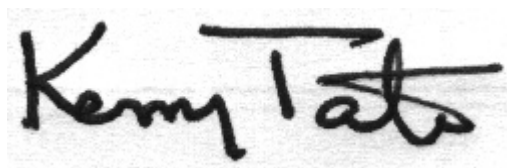
Event Description: **Yellow River Run**
Request ID: **RQ-2021-02-08-43**
Customer: **NW-DIST**
Project ID: **SMP**

Send Reports to:
FL Dept. of Environmental Protection
160 Government Center
Suite 208
Pensacola, FL 32502-5794
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Certified by: Kerry Tate, Ph.D., Environmental Administrator

Date Certified: 26-FEB-2021 14:09

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

Case Narrative

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

Results for the following analytical groups are included in this report: Metals, Nutrients and Pesticides.

Scientific notation may be used in reporting very large or small values. Values reported using scientific notation will take the form of the following example: 1.3E+03, which is equivalent to 1.3×10^3 or 1300.

Unless otherwise noted, analytical values for soil and sediment samples are reported on a dry weight basis, and analytical values for waste and tissue samples are reported on a wet weight basis.

Results for TNI accredited tests met requirements established by The NELAC Institute. A double asterisk (**) is used to indicate an analyte/matrix/method for which the laboratory is not TNI accredited 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: Yellow River Below Malone Creek

Collection Date/Time: 02/08/2021 13:30

Field ID: G4NW0373

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2224381	EPA 8321B	2,4-D	0.0020	U	ug/L	P393602	
		Acesulfame K	0.10	U	ug/L	P393652	
		AMPA	0.10	U	ug/L	P393652	MS
		Sucralose	0.096		ug/L	P393652	
		Acetaminophen**	0.0080	U	ug/L	P393602	
		Endothall	0.25	U	ug/L	P393652	MS
		Acetamiprid**	0.0020	U	ug/L	P393602	RPD
		Glufosinate	0.10	U	ug/L	P393652	
		Glyphosate	0.10	U	ug/L	P393652	
		Afidopyropen**	0.0020	U	ug/L	P393602	RPD
		Bentazon	8.0E-04	U	ug/L	P393602	
		Benzovindiflupyr**	0.0020	U	ug/L	P393602	
		Carbamazepine**	8.0E-04	U	ug/L	P393602	
		Clothianidin**	0.0020	U	ug/L	P393602	
		Dinotefuran**	0.0020	U	ug/L	P393602	
		Diuron	0.0020	U	ug/L	P393602	
		Fenuron	0.016	U	ug/L	P393602	
		Fluridone**	8.0E-04	U	ug/L	P393602	
		Imazapyr**	0.0049	I	ug/L	P393602	
		Hydrocodone**	0.0020	U	ug/L	P393602	
		Ibuprofen**	0.020	U	ug/L	P393602	
		Imidacloprid	0.0029	I	ug/L	P393602	
		Linuron	0.0040	U	ug/L	P393602	
		Mandestrobin**	0.0020	U	ug/L	P393602	
		MCPP	0.0020	U	ug/L	P393602	
		Naproxen**	0.0080	U	ug/L	P393602	
		Primidone**	0.0040	U	ug/L	P393602	
		Pyraclostrobin**	0.0020	U	ug/L	P393602	
		Thiamethoxam**	0.0020	U	ug/L	P393602	
		Tolfenpyrad**	0.0020	U	ug/L	P393602	
		Triclopyr**	0.0040	U	ug/L	P393602	
2224383	EPA 200.7 Rev. 4.4	Barium	12.0		ug/L	P393556	
		Calcium	3.90		mg/L	P393556	
		Iron	510		ug/L	P393556	
		Magnesium	1.00		mg/L	P393556	
		Manganese	19.8		ug/L	P393556	
		Potassium	0.47	I	mg/L	P393556	
		Sodium	1.9	I	mg/L	P393556	
		Zinc	5.0	U	ug/L	P393556	
	EPA 200.8 Rev. 5.4	Aluminum	227		ug/L	P393556	
		Antimony	0.050	U	ug/L	P393556	
		Arsenic	0.28		ug/L	P393556	
		Beryllium	0.022	I	ug/L	P393556	
		Boron**	8.8		ug/L	P393556	

Field ID: G4NW0373

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2224383	EPA 200.8 Rev. 5.4	Cadmium	0.020	U	ug/L	P393556	
		Chromium	0.50	I	ug/L	P393556	
		Copper	0.40	U	ug/L	P393556	
		Lead	0.25	I	ug/L	P393556	
		Nickel	0.50	U	ug/L	P393556	
		Selenium	0.20	U	ug/L	P393556	
		Silver	0.010	U	ug/L	P393556	
		Thallium	0.10	U	ug/L	P393556	
		Hardness	13.9		mg/L	P393556	
	SM 2340B						

Sample Location: Yellow River upstream of Hwy 2

Collection Date/Time: 02/08/2021 14:45

Field ID: G4NW0526

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2224380	EPA 8321B	2,4-D	0.020		ug/L	P393602	
		Acesulfame K	0.10	U	ug/L	P393652	
		AMPA	0.10	U	ug/L	P393652	MS
		Sucralose	0.070		ug/L	P393652	
		Acetaminophen**	0.0080	U	ug/L	P393602	
		Endothall	0.25	U	ug/L	P393652	MS
		Acetamiprid**	0.0020	U	ug/L	P393602	RPD
		Glufosinate	0.10	U	ug/L	P393652	
		Glyphosate	0.10	U	ug/L	P393652	
		Afidopyropen**	0.0020	U	ug/L	P393602	RPD
		Bentazon	8.0E-04	U	ug/L	P393602	
		Benzovindiflupyr**	0.0020	U	ug/L	P393602	
		Carbamazepine**	8.0E-04	U	ug/L	P393602	
		Clothianidin**	0.0020	U	ug/L	P393602	
		Dinotefuran**	0.0020	U	ug/L	P393602	
		Diuron	0.0020	U	ug/L	P393602	
		Fenuron	0.016	U	ug/L	P393602	
		Fluridone**	8.0E-04	U	ug/L	P393602	
		Imazapyr**	0.0076	I	ug/L	P393602	
		Hydrocodone**	0.0020	U	ug/L	P393602	
		Ibuprofen**	0.020	U	ug/L	P393602	
		Imidacloprid	0.0020	U	ug/L	P393602	
		Linuron	0.0040	U	ug/L	P393602	
		Mandestrobin**	0.0020	U	ug/L	P393602	
		MCPP	0.0020	U	ug/L	P393602	
		Naproxen**	0.0080	U	ug/L	P393602	
		Primidone**	0.0040	U	ug/L	P393602	
		Pyraclostrobin**	0.0020	U	ug/L	P393602	
		Thiamethoxam**	0.0020	U	ug/L	P393602	
		Tolfenpyrad**	0.0020	U	ug/L	P393602	
		Triclopyr**	0.0040	U	ug/L	P393602	

Sample Location: Yellow River upstream of Miller Bluff Landing Collection Date/Time: 02/08/2021 10:00

Field ID: G4NW0534

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2224372	EPA 180.1 Rev. 2.0	Turbidity	7.3		NTU	P393569	
	EPA 300.0 Rev. 2.1	Chloride	3.8		mg Cl/L	P393739	
		Sulfate	1.3		mg SO4/L	P393741	
	SM 2120 B-2011	Color (true)	40	A	PCU	P393563	
	SM 2320 B-2011	Total Alkalinity	9.4		mg CaCO3/L	P393787	
	SM 2540 C-2011	TDS	34		mg/L	P393821	
	SM 2540 D-2011	TSS	3	I	mg/L	P393814	
	SM 4500 F-C-2011	Fluoride	0.035	U	mg F/L	P393651	
	EPA 350.1 Rev. 2.0	Ammonia-N	0.010		mg N/L	P393915	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.21		mg N/L	P393835	
2224373	EPA 353.2 Rev. 2.0	NO2NO3-N	0.21		mg N/L	P393703	
	EPA 365.1 Rev. 2.0	Total-P	0.011		mg P/L	P393716	
	SM 5310 B-2011	Organic Carbon	2.8		mg C/L	P393932	
	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P393559	
	EPA 8321B	Acesulfame K	0.10	U	ug/L	P393652	
2224379		2,4-D	0.0020	U	ug/L	P393602	
		AMPA	0.10	UJ	ug/L	P393652	MS
		Sucralose	0.16		ug/L	P393652	
		Acetaminophen**	0.0080	U	ug/L	P393602	
		Endothall	0.25	UJ	ug/L	P393652	MS
		Acetamiprid**	0.0020	U	ug/L	P393602	RPD
		Glufosinate	0.10	U	ug/L	P393652	
		Glyphosate	0.10	U	ug/L	P393652	
		Afidopyropen**	0.0020	U	ug/L	P393602	RPD
		Bentazon	8.0E-04	U	ug/L	P393602	
		Benzovindiflupyr**	0.0020	U	ug/L	P393602	
		Carbamazepine**	8.0E-04	U	ug/L	P393602	
		Clothianidin**	0.0020	U	ug/L	P393602	
		Dinotefuran**	0.0020	U	ug/L	P393602	
		Diuron	0.0020	U	ug/L	P393602	
		Fenuron	0.016	U	ug/L	P393602	
		Fluridone**	8.0E-04	U	ug/L	P393602	
		Imazapyr**	0.0058	I	ug/L	P393602	
		Hydrocodone**	0.0020	U	ug/L	P393602	
		Ibuprofen**	0.020	U	ug/L	P393602	
		Imidacloprid	0.0024	I	ug/L	P393602	
		Linuron	0.0040	U	ug/L	P393602	
		Mandestrobin**	0.0020	U	ug/L	P393602	
		MCPD	0.0020	U	ug/L	P393602	
		Naproxen**	0.0080	U	ug/L	P393602	
		Primidone**	0.0040	U	ug/L	P393602	
		Pyraclostrobin**	0.0020	U	ug/L	P393602	
		Thiamethoxam**	0.0020	U	ug/L	P393602	

Field ID: G4NW0534

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2224379	EPA 8321B	Tolfenpyrad**	0.0020	U	ug/L	P393602	
		Triclopyr**	0.0040	U	ug/L	P393602	
2224382	EPA 200.7 Rev. 4.4	Barium	12.7		ug/L	P393556	
		Calcium	4.03		mg/L	P393556	
		Iron	390		ug/L	P393556	
		Magnesium	1.07		mg/L	P393556	
		Manganese	15.3		ug/L	P393556	
		Potassium	0.50	I	mg/L	P393556	
		Sodium	2.0		mg/L	P393556	
		Zinc	5.0	U	ug/L	P393556	
	EPA 200.8 Rev. 5.4	Aluminum	146		ug/L	P393556	
		Antimony	0.050	U	ug/L	P393556	
		Arsenic	0.22		ug/L	P393556	
		Beryllium	0.014	I	ug/L	P393556	
		Boron**	8.9		ug/L	P393556	
		Cadmium	0.020	U	ug/L	P393556	
		Chromium	0.40	U	ug/L	P393556	
		Copper	0.40	U	ug/L	P393556	
		Lead	0.21	I	ug/L	P393556	
		Nickel	0.50	U	ug/L	P393556	
		Selenium	0.20	U	ug/L	P393556	
		Silver	0.010	U	ug/L	P393556	
		Thallium	0.10	U	ug/L	P393556	
	SM 2340B	Hardness	14.5		mg/L	P393556	

Ref. Method and Comment:

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

EPA 8321B: Refer to the Lab Analysis Report for an explanation of QC Codes.

Quality Assurance Report

Method Blank Results

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P393569

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P393556

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
Manganese	1.0	U	ug/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: P393556

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
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: P393739

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P393741

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P393915

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

Quality Assurance Report Method Blank Results

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P393835

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P393703

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P393716

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P393559

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

Reference Method: EPA 8321B
Batch ID: P393602

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

Quality Assurance Report

Method Blank Results

Reference Method: EPA 8321B
Batch ID: P393652

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: SM 2120 B-2011
Batch ID: P393563

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2320 B-2011
Batch ID: P393787

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

Reference Method: SM 2540 C-2011
Batch ID: P393821

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-2011
Batch ID: P393814

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500 F-C-2011
Batch ID: P393651

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-2011
Batch ID: P393932

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: P393556

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Barium	97.3		P	85 - 115
Calcium	99.2		P	85 - 115
Iron	101		P	85 - 115
Magnesium	102		P	85 - 115
Manganese	98.3		P	85 - 115
Potassium	97.3		P	85 - 115
Sodium	98.3		P	85 - 115
Zinc	95.4		P	85 - 115

Reference Method: EPA 200.8 Rev. 5.4

Batch ID: P393556

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Aluminum	102		P	85 - 115
Antimony	100		P	85 - 115
Arsenic	101		P	85 - 115
Beryllium	95.3		P	85 - 115
Boron	99.8		P	85 - 115
Cadmium	96.5		P	85 - 115
Chromium	95.6		P	85 - 115
Copper	97.1		P	85 - 115
Lead	103		P	85 - 115
Nickel	97.4		P	85 - 115
Selenium	99.6		P	85 - 115
Silver	113		P	85 - 115
Thallium	95.8		P	85 - 115

Reference Method: EPA 300.0 Rev. 2.1

Batch ID: P393739

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

Reference Method: EPA 300.0 Rev. 2.1

Batch ID: P393741

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Sulfate	99.6		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0

Batch ID: P393915

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Ammonia-N	96.8		P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0

Batch ID: P393835

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

Quality Assurance Report

Laboratory Control Sample Accuracy

Reference Method: EPA 353.2 Rev. 2.0

Batch ID: P393703

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

Reference Method: EPA 365.1 Rev. 2.0

Batch ID: P393716

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved

Batch ID: P393559

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

Reference Method: EPA 8321B

Batch ID: P393602

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2,4-D	109		P	30 - 160
Acetaminophen	131		P	30 - 160
Acetamiprid	94.0		P	30 - 160
Afidopyropen	61.7		P	30 - 160
Bentazon	100		P	30 - 160
Benzovindiflupyr	76.9		P	30 - 160
Carbamazepine	116		P	30 - 160
Clothianidin	91.5		P	30 - 160
Dinotefuran	84.4		P	30 - 160
Diuron	72.1		P	30 - 160
Fenuron	103		P	30 - 160
Fluridone	91.4		P	30 - 160
Hydrocodone	99.4		P	30 - 160
Ibuprofen	87.4		P	30 - 160
Imazapyr	85.3		P	30 - 160
Imidacloprid	104		P	30 - 160
Linuron	82.7		P	30 - 160
Mandestrobin	88.1		P	30 - 160
MCPP	104		P	30 - 160
Naproxen	68.2		P	30 - 160
Primidone	102		P	30 - 160
Pyraclostrobin	83.9		P	30 - 160
Thiamethoxam	92.1		P	30 - 160
Tolfenpyrad	45.9		P	30 - 160
Triclopyr	110		P	30 - 160

Reference Method: EPA 8321B

Batch ID: P393652

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Acesulfame K	94.9		P	40 - 150
AMPA	136		P	40 - 150
Endothall	134		P	40 - 150
Glufosinate	118		P	40 - 150

Quality Assurance Report

Laboratory Control Sample Accuracy

Reference Method: EPA 8321B
Batch ID: P393652

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Glyphosate	106		P	40 - 140
Sucralose	113		P	40 - 150

Reference Method: SM 2120 B-2011
Batch ID: P393563

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Color (true)	98.1		P	85 - 115

Reference Method: SM 2320 B-2011
Batch ID: P393787

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	96.5		P	93 - 104

Reference Method: SM 4500 F-C-2011
Batch ID: P393651

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	98.8		P	90 - 106

Reference Method: SM 5310 B-2011
Batch ID: P393932

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	94.8		P	85 - 115

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 200.7 Rev. 4.4

Batch ID: P393556

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2224038	Barium	100		P	80 - 120
2224038	Calcium	97.3		P	80 - 120
2224038	Iron	104		P	80 - 120
2224038	Magnesium	97.4		P	80 - 120
2224038	Manganese	102		P	80 - 120
2224038	Potassium	98.0		P	80 - 120
2224038	Sodium	99.7		P	80 - 120
2224038	Zinc	99.5		P	80 - 120
2224365	Barium	102	99.9	P/P	80 - 120
2224365	Calcium	100		P	80 - 120
2224365	Iron	103	102	P/P	80 - 120
2224365	Magnesium	104	104	P/P	80 - 120
2224365	Manganese	102	100	P/P	80 - 120
2224365	Potassium	97.3	97.6	P/P	80 - 120
2224365	Sodium	99.0		P	80 - 120
2224365	Zinc	100	98.6	P/P	80 - 120

Reference Method: EPA 200.8 Rev. 5.4

Batch ID: P393556

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2224038	Aluminum	102		P	80 - 120
2224038	Antimony	99.7		P	80 - 120
2224038	Arsenic	99.6		P	80 - 120
2224038	Beryllium	90.3		P	80 - 120
2224038	Boron	103		P	80 - 120
2224038	Cadmium	96.4		P	80 - 120
2224038	Chromium	95.4		P	80 - 120
2224038	Copper	92.9		P	80 - 120
2224038	Lead	102		P	80 - 120
2224038	Nickel	93.0		P	80 - 120
2224038	Selenium	96.3		P	80 - 120
2224038	Silver	112		P	80 - 120
2224038	Thallium	96.0		P	80 - 120
2224365	Aluminum	104	96.4	P/P	80 - 120
2224365	Antimony	98.1	94.5	P/P	80 - 120
2224365	Arsenic	101	97.2	P/P	80 - 120
2224365	Beryllium	89.7	89.0	P/P	80 - 120
2224365	Boron	103	100	P/P	80 - 120
2224365	Cadmium	97.2	93.2	P/P	80 - 120
2224365	Chromium	95.3	91.8	P/P	80 - 120
2224365	Copper	97.8	93.9	P/P	80 - 120
2224365	Lead	104	99.6	P/P	80 - 120
2224365	Nickel	95.6	91.7	P/P	80 - 120
2224365	Selenium	97.3	95.5	P/P	80 - 120
2224365	Silver	112	112	P/P	80 - 120
2224365	Thallium	101	96.9	P/P	80 - 120

Reference Method: EPA 300.0 Rev. 2.1

Batch ID: P393739

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
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Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P393739

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2224354	Chloride	101		P	90 - 110
2224402	Chloride	99.3		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P393741

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2224354	Sulfate	101		P	90 - 110
2224402	Sulfate	98.5		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P393915

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2224373	Ammonia-N	94.4	97.6	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P393835

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2224373	Kjeldahl Nitrogen	102	101	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P393703

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2224303	NO2NO3-N	99.5	99.5	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P393716

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2224303	Total-P	101	103	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P393559

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2224163	O-Phosphate-P	95.9	97.7	P/P	90 - 110

Reference Method: EPA 8321B
Batch ID: P393602

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2224278	2,4-D	101	102	P/P	30 - 160
2224278	Acetaminophen	115	106	P/P	30 - 160
2224278	Acetamiprid	58.4	96.3	P/P	30 - 160
2224278	Afidopyrophen	42.0	75.1	P/P	30 - 160
2224278	Bentazon	88.6	78.8	P/P	30 - 160
2224278	Benzovindiflupyr	71.1	70.4	P/P	30 - 160
2224278	Carbamazepine	97.9	91.3	P/P	30 - 160
2224278	Clothianidin	91.6	89.6	P/P	30 - 160

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 8321B
Batch ID: P393602

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2224278	Dinotefuran	87.3	92.3	P/P	30 - 160
2224278	Diuron	60.1	58.5	P/P	30 - 160
2224278	Fenuron	94.4	95.3	P/P	30 - 160
2224278	Fluridone	90.7	83.4	P/P	30 - 160
2224278	Hydrocodone	100	94.6	P/P	30 - 160
2224278	Ibuprofen	82.8	81.7	P/P	30 - 160
2224278	Imazapyr	93.1	86.3	P/P	30 - 160
2224278	Imidacloprid	108	110	P/P	30 - 160
2224278	Linuron	67.0	66.4	P/P	30 - 160
2224278	Mandestrobin	83.5	82.2	P/P	30 - 160
2224278	MCPP	99.9	96.7	P/P	30 - 160
2224278	Naproxen	58.5	66.6	P/P	30 - 160
2224278	Primidone	95.9	98.9	P/P	30 - 160
2224278	Pyraclostrobin	76.5	77.2	P/P	30 - 160
2224278	Thiamethoxam	102	99.0	P/P	30 - 160
2224278	Tolfenpyrad	40.9	37.8	P/P	30 - 160
2224278	Triclopyr	103	96.9	P/P	30 - 160

Reference Method: EPA 8321B
Batch ID: P393652

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2224379	Acesulfame K	87.9	106	P/P	40 - 150
2224379	AMPA	146	156	P/F	40 - 150
2224379	Endothall	145	156	P/F	40 - 150
2224379	Glufosinate	121	121	P/P	40 - 150
2224379	Glyphosate	126	118	P/P	40 - 140
2224379	Sucralose	111	108	P/P	40 - 150

Reference Method: SM 4500 F-C-2011
Batch ID: P393651

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2224396	Fluoride	97.5	97.5	P/P	94 - 107

Reference Method: SM 5310 B-2011
Batch ID: P393932

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2224352	Organic Carbon	99.4		P	85 - 115

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0

Batch ID: P393569

Replicated

Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2224351	Turbidity	0.149	Sample	P	0 - 20

Reference Method: EPA 200.7 Rev. 4.4

Batch ID: P393556

Replicated

Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2224365	Barium	1.67	Spike	P	0 - 20
2224365	Calcium	0.175	Spike	P	0 - 20
2224365	Iron	0.271	Spike	P	0 - 20
2224365	Magnesium	0.0693	Spike	P	0 - 20
2224365	Manganese	1.80	Spike	P	0 - 20
2224365	Potassium	0.226	Spike	P	0 - 20
2224365	Sodium	0.503	Spike	P	0 - 20
2224365	Zinc	1.63	Spike	P	0 - 20

Reference Method: EPA 200.8 Rev. 5.4

Batch ID: P393556

Replicated

Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2224365	Aluminum	4.43	Spike	P	0 - 20
2224365	Antimony	3.77	Spike	P	0 - 20
2224365	Arsenic	3.92	Spike	P	0 - 20
2224365	Beryllium	0.741	Spike	P	0 - 20
2224365	Boron	2.12	Spike	P	0 - 20
2224365	Cadmium	4.23	Spike	P	0 - 20
2224365	Chromium	3.62	Spike	P	0 - 20
2224365	Copper	4.02	Spike	P	0 - 20
2224365	Lead	4.54	Spike	P	0 - 20
2224365	Nickel	4.09	Spike	P	0 - 20
2224365	Selenium	1.87	Spike	P	0 - 20
2224365	Silver	0.326	Spike	P	0 - 20
2224365	Thallium	3.89	Spike	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1

Batch ID: P393739

Replicated

Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2224402	Chloride	0.398	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1

Batch ID: P393741

Replicated

Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2224402	Sulfate	1.65	Sample	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 350.1 Rev. 2.0

Batch ID: P393915

Replicated

Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2224373	Ammonia-N	2.74	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0

Batch ID: P393835

Replicated

Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2224373	Kjeldahl Nitrogen	1.05	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0

Batch ID: P393703

Replicated

Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2224303	NO2NO3-N	0.0	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0

Batch ID: P393716

Replicated

Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2224303	Total-P	1.81	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved

Batch ID: P393559

Replicated

Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2224163	O-Phosphate-P	1.71	Spike	P	0 - 20

Reference Method: EPA 8321B

Batch ID: P393602

Replicated

Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2224278	2,4-D	1.30	Spike	P	0 - 30
2224278	Acetaminophen	8.27	Spike	P	0 - 30
2224278	Acetamiprid	49.1	Spike	F	0 - 30
2224278	Afidopyropen	56.6	Spike	F	0 - 30
2224278	Bentazon	9.71	Spike	P	0 - 30
2224278	Benzovindiflupyr	0.900	Spike	P	0 - 30
2224278	Carbamazepine	6.92	Spike	P	0 - 30
2224278	Clothianidin	2.19	Spike	P	0 - 30
2224278	Dinotefuran	5.51	Spike	P	0 - 30
2224278	Diuron	2.54	Spike	P	0 - 30
2224278	Fenuron	1.01	Spike	P	0 - 30
2224278	Fluridone	8.45	Spike	P	0 - 30
2224278	Hydrocodone	5.54	Spike	P	0 - 30
2224278	Ibuprofen	1.30	Spike	P	0 - 30
2224278	Imazapyr	7.57	Spike	P	0 - 30
2224278	Imidacloprid	1.85	Spike	P	0 - 30

Quality Assurance Report Precision

Reference Method: EPA 8321B
Batch ID: P393602

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2224278	Linuron	0.926	Spike	P	0 - 30
2224278	Mandestrobin	1.61	Spike	P	0 - 30
2224278	MCCP	3.26	Spike	P	0 - 30
2224278	Naproxen	13.0	Spike	P	0 - 30
2224278	Primidone	3.03	Spike	P	0 - 30
2224278	Pyraclostrobin	0.949	Spike	P	0 - 30
2224278	Thiamethoxam	3.32	Spike	P	0 - 30
2224278	Tolfenpyrad	7.96	Spike	P	0 - 30
2224278	Triclopyr	6.22	Spike	P	0 - 30

Reference Method: EPA 8321B
Batch ID: P393652

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2224379	Acesulfame K	18.7	Spike	P	0 - 30
2224379	AMPA	6.87	Spike	P	0 - 30
2224379	Endothall	7.37	Spike	P	0 - 30
2224379	Glufosinate	0.198	Spike	P	0 - 30
2224379	Glyphosate	7.18	Spike	P	0 - 30
2224379	Sucralose	2.50	Spike	P	0 - 30

Reference Method: SM 2120 B-2011
Batch ID: P393563

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2224372	Color (true)	1.59	Sample	P	0 - 20

Reference Method: SM 2320 B-2011
Batch ID: P393787

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2224892	Total Alkalinity	1.49	Sample	P	0 - 8.1

Reference Method: SM 2540 C-2011
Batch ID: P393821

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2224396	TDS	1.36	Sample	P	0 - 10

Reference Method: SM 4500 F-C-2011
Batch ID: P393651

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2224396	Fluoride	0.0	Spike	P	0 - 2.8

Quality Assurance Report Precision

Reference Method: SM 5310 B-2011
Batch ID: P393932

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2224352	Organic Carbon	0.474	Spike	P	0 - 20

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

Quality Assurance Report Surrogates

Lab Sample ID: 2224379

Field Sample ID: G4NW0534

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	2,4-D-d3	98.8	P	30 - 160
EPA 8321B	Acetaminophen-d4	93.2	P	30 - 160
EPA 8321B	Carbamazepine-d10	75.9	P	30 - 160
EPA 8321B	Diuron-d6	67.3	P	30 - 160
EPA 8321B	Endothall-d6	97.7	P	30 - 160
EPA 8321B	Endothall-d6	97.7	P	30 - 160
EPA 8321B	Glyphosate 13C 15N	113	P	30 - 160
EPA 8321B	Glyphosate 13C 15N	113	P	30 - 160
EPA 8321B	Ibuprofen-d3	86.1	P	30 - 160
EPA 8321B	Primidone-d5	97.1	P	30 - 160
EPA 8321B	Sucralose-d6	103	P	30 - 160
EPA 8321B	Sucralose-d6	103	P	30 - 160

Lab Sample ID: 2224380

Field Sample ID: G4NW0526

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	2,4-D-d3	111	P	30 - 160
EPA 8321B	Acetaminophen-d4	108	P	30 - 160
EPA 8321B	Carbamazepine-d10	80.1	P	30 - 160
EPA 8321B	Diuron-d6	67.7	P	30 - 160
EPA 8321B	Endothall-d6	126	P	30 - 160
EPA 8321B	Endothall-d6	126	P	30 - 160
EPA 8321B	Glyphosate 13C 15N	89.3	P	30 - 160
EPA 8321B	Glyphosate 13C 15N	89.3	P	30 - 160
EPA 8321B	Ibuprofen-d3	90.0	P	30 - 160
EPA 8321B	Primidone-d5	102	P	30 - 160
EPA 8321B	Sucralose-d6	99.7	P	30 - 160
EPA 8321B	Sucralose-d6	99.7	P	30 - 160

Lab Sample ID: 2224381

Field Sample ID: G4NW0373

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	2,4-D-d3	99.5	P	30 - 160
EPA 8321B	Acetaminophen-d4	101	P	30 - 160
EPA 8321B	Carbamazepine-d10	85.2	P	30 - 160
EPA 8321B	Diuron-d6	70.3	P	30 - 160
EPA 8321B	Endothall-d6	125	P	30 - 160
EPA 8321B	Endothall-d6	125	P	30 - 160
EPA 8321B	Glyphosate 13C 15N	84.7	P	30 - 160
EPA 8321B	Glyphosate 13C 15N	84.7	P	30 - 160
EPA 8321B	Ibuprofen-d3	87.1	P	30 - 160
EPA 8321B	Primidone-d5	92.1	P	30 - 160
EPA 8321B	Sucralose-d6	70.3	P	30 - 160
EPA 8321B	Sucralose-d6	70.3	P	30 - 160

Quality Assurance Report Calibration Verification

Reference Method: EPA 300.0 Rev. 2.1

Run ID: A103481

Included Lab Sample IDs: 2224372

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	98.7	99.6	P/P	90 - 110
Sulfate	99.0	100	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved

Run ID: A103496

Included Lab Sample IDs: 2224374

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	99.5	98.4	P/P	90 - 110

Reference Method: SM 2120 B-2011

Run ID: A103497

Included Lab Sample IDs: 2224372

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	99.6	99.6	P/P	90 - 115

Reference Method: EPA 180.1 Rev. 2.0

Run ID: A103499

Included Lab Sample IDs: 2224372

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

Reference Method: EPA 200.7 Rev. 4.4

Run ID: A103530

Included Lab Sample IDs: 2224382, 2224383

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Barium	100	99.2	P/P	90 - 110
Calcium	96.5	95.7	P/P	90 - 110
Iron	98.1	97.0	P/P	90 - 110
Magnesium	98.3	96.7	P/P	90 - 110
Manganese	102	101	P/P	90 - 110
Potassium	97.6	96.2	P/P	90 - 110
Sodium	96.9	96.3	P/P	90 - 110
Zinc	102	100	P/P	90 - 110

Reference Method: SM 4500 F-C-2011

Run ID: A103534

Included Lab Sample IDs: 2224372

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

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A103559

Included Lab Sample IDs: 2224373

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO2NO3-N	99.5	98.5	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: EPA 8321B

Run ID: A103561

Included Lab Sample IDs: 2224379, 2224380, 2224381

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
2,4-D	96.7	109	P/P	50 - 150
Acetaminophen	111	111	P/P	60 - 160
Acetamiprid	109	112	P/P	50 - 150
Afidopyropen	108	97.5	P/P	50 - 150
Bentazon	136	149	P/P	50 - 160
Benzovindiflupyr	97.2	104	P/P	50 - 160
Carbamazepine	115	113	P/P	60 - 150
Clothianidin	90.1	101	P/P	60 - 150
Dinotefuran	88.8	106	P/P	50 - 150
Diuron	101	108	P/P	60 - 160
Fenuron	108	102	P/P	60 - 150
Fluridone	130	117	P/P	60 - 160
Hydrocodone	107	106	P/P	60 - 150
Ibuprofen	92.9	116	P/P	50 - 160
Imazapyr	106	101	P/P	50 - 160
Imidacloprid	97.7	101	P/P	60 - 150
Linuron	111	101	P/P	60 - 150
Mandestrobin	102	102	P/P	50 - 150
MCPP	102	110	P/P	50 - 150
Naproxen	87.7	69.1	P/P	50 - 160
Primidone	111	113	P/P	60 - 150
Pyraclostrobin	102	106	P/P	60 - 150
Thiamethoxam	98.6	101	P/P	50 - 150
Tolfenpyrad	97.4	106	P/P	60 - 150
Triclopyr	108	108	P/P	50 - 150

Reference Method: SM 2320 B-2011

Run ID: A103594

Included Lab Sample IDs: 2224372

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	94.1	99.5	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A103604

Included Lab Sample IDs: 2224373

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	99.0	97.8	P/P	90 - 110

Reference Method: EPA 8321B

Run ID: A103631

Included Lab Sample IDs: 2224379, 2224380, 2224381

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Acesulfame K	109	90.4	P/P	60 - 160
Acesulfame K	95.0	109	P/P	60 - 160
Acesulfame K	95.8	95.0	P/P	60 - 160
AMPA	115	117	P/P	40 - 160
AMPA	126	115	P/P	40 - 160
AMPA	128	126	P/P	40 - 160

Quality Assurance Report Calibration Verification

Reference Method: EPA 8321B

Run ID: A103631

Included Lab Sample IDs: 2224379, 2224380, 2224381

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Endothall	131	149	P/P	60 - 160
Endothall	149	156	P/P	60 - 160
Endothall	156	159	P/P	60 - 160
Glufosinate	102	113	P/P	60 - 200
Glufosinate	113	113	P/P	60 - 200
Glufosinate	113	111	P/P	60 - 200
Glyphosate	105	83.1	P/P	60 - 160
Glyphosate	113	105	P/P	60 - 160
Glyphosate	83.1	71.9	P/P	60 - 160

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A103638

Included Lab Sample IDs: 2224373

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	99.3	98.0	P/P	90 - 110

Reference Method: SM 5310 B-2011

Run ID: A103645

Included Lab Sample IDs: 2224373

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	94.8	93.6	P/P	90 - 110

Reference Method: EPA 8321B

Run ID: A103647

Included Lab Sample IDs: 2224379, 2224380, 2224381

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Sucralose	105	99.6	P/P	60 - 160
Sucralose	108	105	P/P	60 - 160
Sucralose	99.6	108	P/P	60 - 160

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A103655

Included Lab Sample IDs: 2224373

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	98.9	101	P/P	90 - 110

Reference Method: EPA 200.8 Rev. 5.4

Run ID: A103671

Included Lab Sample IDs: 2224382, 2224383

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Aluminum	99.5	98.5	P/P	90 - 110
Antimony	95.0	94.7	P/P	90 - 110
Arsenic	98.2	97.0	P/P	90 - 110
Beryllium	94.9	94.2	P/P	90 - 110
Boron	104	99.2	P/P	90 - 110
Cadmium	99.1	98.0	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: EPA 200.8 Rev. 5.4

Run ID: A103671

Included Lab Sample IDs: 2224382, 2224383

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chromium	95.2	94.9	P/P	90 - 110
Copper	94.9	94.1	P/P	90 - 110
Lead	105	105	P/P	90 - 110
Nickel	95.6	95.1	P/P	90 - 110
Selenium	99.2	97.8	P/P	90 - 110
Thallium	101	99.2	P/P	90 - 110

Reference Method: EPA 200.8 Rev. 5.4

Run ID: A103714

Included Lab Sample IDs: 2224382, 2224383

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Silver	107	108	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						0.149	
EPA 200.7 Rev. 4.4	Barium	97.3	100	102	99.9			1.67
	Calcium	99.2	97.3	100				0.175
	Iron	101	104	103	102			0.271
	Magnesium	102	97.4	104	104			0.0693
	Manganese	98.3	102	102	100			1.80
	Potassium	97.3	98.0	97.3	97.6			0.226
	Sodium	98.3	99.7	99.0				0.503
	Zinc	95.4	99.5	100	98.6			1.63
EPA 200.8 Rev. 5.4	Aluminum	102	104	96.4	102			4.43
	Antimony	100	98.1	94.5	99.7			3.77
	Arsenic	101	101	97.2	99.6			3.92
	Beryllium	95.3	89.7	89.0	90.3			0.741
	Boron	99.8	103	100	103			2.12
	Cadmium	96.5	97.2	93.2	96.4			4.23
	Chromium	95.6	95.3	91.8	95.4			3.62
	Copper	97.1	97.8	93.9	92.9			4.02
	Lead	103	104	99.6	102			4.54
	Nickel	97.4	95.6	91.7	93.0			4.09
	Selenium	99.6	97.3	95.5	96.3			1.87
	Silver	113	112	112	112			0.326
	Thallium	95.8	101	96.9	96.0			3.89
EPA 300.0 Rev. 2.1	Chloride	98.8	99.3	101			0.398	
	Sulfate	99.6	98.5	101			1.65	
EPA 350.1 Rev. 2.0	Ammonia-N	96.8	94.4	97.6				2.74
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	102	102	101				1.05
EPA 353.2 Rev. 2.0	NO2NO3-N	98.5	99.5	99.5				0.0
EPA 365.1 Rev. 2.0	Total-P	104	101	103				1.81
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	98.6	95.9	97.7				1.71
EPA 8321B	2,4-D	109	101	102				1.30
	Acesulfame K	94.9	87.9	106				18.7
	Acetaminophen	131	115	106				8.27
	Acetamiprid	94.0	58.4	96.3				49.1
	Afidopyrophen	61.7	42.0	75.1				56.6
	AMPA	136	146	156				6.87
	Bentazon	100	88.6	78.8				9.71
	Benzovindiflupyr	76.9	71.1	70.4				0.900
	Carbamazepine	116	97.9	91.3				6.92
	Clothianidin	91.5	91.6	89.6				2.19
	Dinotefuran	84.4	87.3	92.3				5.51
	Diuron	72.1	60.1	58.5				2.54
	Endothall	134	145	156				7.37
	Fenuron	103	94.4	95.3				1.01
	Fluridone	91.4	90.7	83.4				8.45
	Glufosinate	118	121	121				0.198
	Glyphosate	106	126	118				7.18
	Hydrocodone	99.4	100	94.6				5.54
	Ibuprofen	87.4	82.8	81.7				1.30
	Imazapyr	85.3	93.1	86.3				7.57
	Imidacloprid	104	108	110				1.85
	Linuron	82.7	67.0	66.4				0.926
	Mandestrobin	88.1	83.5	82.2				1.61
	MCPD	104	99.9	96.7				3.26
	Naproxen	68.2	58.5	66.6				13.0

Quality Assurance Report Summary

Ref. Method	Analyte	LCS % Recovery	MS % Recovery		Precision LCS	SMP	MS
EPA 8321B	Primidone	102	95.9	98.9			3.03
	Pyraclostrobin	83.9	76.5	77.2			0.949
	Sucralose	113	111	108			2.50
	Thiamethoxam	92.1	102	99.0			3.32
	Tolfenpyrad	45.9	40.9	37.8			7.96
	Triclopyr	110	103	96.9			6.22
	Color (true)	98.1				1.59	
SM 2320 B-2011	Total Alkalinity	96.5				1.49	
SM 2540 C-2011	TDS					1.36	
SM 4500 F-C-2011	Fluoride	98.8	97.5	97.5			0.0
SM 5310 B-2011	Organic Carbon	94.8	99.4				0.474

Reference Method Descriptions

Method	Description	Associated Samples
EPA 180.1 Rev. 2.0	Turbidity in aqueous matrices	2224372
EPA 200.7 Rev. 4.4	Total Recoverable Metals analysis using ICP emission spectroscopy for aqueous samples supporting Clean Water Act Projects	2224382, 2224383
EPA 200.8 Rev. 5.4	Total Recoverable Metals analysis using ICP-MS for aqueous samples supporting Clean Water Act Projects	2224382, 2224383
EPA 300.0 Rev. 2.1	Chloride in aqueous matrices	2224372
EPA 300.0 Rev. 2.1	Sulfate in aqueous matrices	2224372
EPA 350.1 Rev. 2.0	Ammonia in aqueous matrices as mg N/L	2224373
EPA 351.2 Rev. 2.0	Total Kjeldahl Nitrogen in aqueous matrices	2224373
EPA 353.2 Rev. 2.0	Nitrite/Nitrate in aqueous matrices as mg N/L	2224373
EPA 365.1 Rev. 2.0	Total Phosphorus in aqueous matrices as mg P/L	2224373
EPA 365.1 Rev. 2.0 dissolved	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	2224374
EPA 8321B	Pesticides, herbicides, and other chemicals in water matrices by HPLC/MS/MS	2224379, 2224380, 2224381
EPA 8321B	Water soluble organic compounds by HPLC/MS/MS	2224379, 2224380, 2224381
SM 2120 B-2011	True Color measured at 450 nm (not valid for NPDES monitoring)	2224372
SM 2320 B-2011	Alkalinity in aqueous matrices as mg CaCO ₃ /L	2224372
SM 2340B	Hardness by calculation, in aqueous matrices, reported as mg/L CaCO ₃	2224382, 2224383
SM 2540 C-2011	Total Dissolved Solids in aqueous matrices	2224372
SM 2540 D-2011	Total Suspended Solids in aqueous matrices using a maximum of 250 mL of sample	2224372
SM 4500 F-C-2011	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	2224372
SM 5310 B-2011	Nonpurgeable Organic Carbon in aqueous matrices	2224373

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
EPA 180.1 Rev. 2.0	02/09/2021			02/09/2021 14:44	Yen Ta	2224372
EPA 200.7 Rev. 4.4	02/09/2021	02/09/2021 16:11	Elliott D. Healy	02/10/2021 18:33	Betina Topolski	2224382
	02/09/2021	02/09/2021 16:11	Elliott D. Healy	02/10/2021 18:41	Betina Topolski	2224383
EPA 200.8 Rev. 5.4	02/09/2021	02/09/2021 16:11	Elliott D. Healy	02/18/2021 18:10	Alexander Thompson	2224382
	02/09/2021	02/09/2021 16:11	Elliott D. Healy	02/18/2021 18:18	Alexander Thompson	2224383
	02/09/2021	02/09/2021 16:11	Elliott D. Healy	02/19/2021 15:59	Alexander Thompson	2224382
	02/09/2021	02/09/2021 16:11	Elliott D. Healy	02/19/2021 16:04	Alexander Thompson	2224383
EPA 300.0 Rev. 2.1	02/09/2021			02/11/2021 22:07	Lipi Saha	2224372
EPA 350.1 Rev. 2.0	02/09/2021			02/17/2021 16:22	Ping Hua	2224373
EPA 351.2 Rev. 2.0	02/09/2021	02/16/2021 12:31	Yen Ta	02/17/2021 12:39	Julia Storbeck	2224373
EPA 353.2 Rev. 2.0	02/09/2021			02/12/2021 10:39	Beverly Y. Sanders	2224373
EPA 365.1 Rev. 2.0	02/09/2021	02/12/2021 14:20	Lipi Saha	02/16/2021 11:53	Shengyu Wang	2224373
EPA 365.1 Rev. 2.0 dissolved	02/09/2021			02/09/2021 15:26	Blanca Fach	2224374
EPA 8321B	02/09/2021	02/11/2021 10:00	Hoor Shaik	02/12/2021 21:55	Juyoung Kim	2224379
	02/09/2021	02/11/2021 10:00	Hoor Shaik	02/12/2021 22:30	Juyoung Kim	2224380
	02/09/2021	02/11/2021 10:00	Hoor Shaik	02/12/2021 23:04	Juyoung Kim	2224381
	02/09/2021	02/11/2021 10:15	Rebecca Ware	02/12/2021 14:05	Rebecca Ware	2224379
	02/09/2021	02/11/2021 10:15	Rebecca Ware	02/12/2021 19:04	Rebecca Ware	2224380
	02/09/2021	02/11/2021 10:15	Rebecca Ware	02/12/2021 19:59	Rebecca Ware	2224381
	02/09/2021	02/11/2021 10:15	Rebecca Ware	02/17/2021 15:58	Rebecca Ware	2224379
	02/09/2021	02/11/2021 10:15	Rebecca Ware	02/17/2021 18:08	Rebecca Ware	2224380
	02/09/2021	02/11/2021 10:15	Rebecca Ware	02/17/2021 18:31	Rebecca Ware	2224381
SM 2120 B-2011	02/09/2021			02/09/2021 15:34	Benjamin T. Nordmann	2224372
SM 2320 B-2011	02/09/2021			02/12/2021 23:02	Dale L. Simmons	2224372
SM 2340B	02/09/2021			02/10/2021 18:33	Betina Topolski	2224382
	02/09/2021			02/10/2021 18:41	Betina Topolski	2224383
SM 2540 C-2011	02/09/2021			02/10/2021 14:52	Yijie Li	2224372
SM 2540 D-2011	02/09/2021			02/10/2021 14:52	Yijie Li	2224372
SM 4500 F-C-2011	02/09/2021			02/10/2021 23:20	Dale L. Simmons	2224372
SM 5310 B-2011	02/09/2021			02/16/2021 19:44	Touraj Touran	2224373