

Chemical Analysis Report

NW-DIST-2021-03-09-01

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

Event Description: **Laurel Hill East Run**
Request ID: **RQ-2021-03-08-55**
Customer: **NW-DIST**
Project ID: **SMP**

Send Reports to:
FL Dept. of Environmental Protection
160 Government Center
Suite 208
Pensacola, FL 32502-5794
Attn: Cheryl Bunch

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Certified by: Liang Lin, Environmental Administrator

Date Certified: 29-MAR-2021 14:01

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: Horsehead Creek upstream of Millside Rd

Collection Date/Time: 03/08/2021 11:10

Field ID: G4NW0515

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2229920	EPA 180.1 Rev. 2.0	Turbidity	4.5	A	NTU	P394688	
	EPA 300.0 Rev. 2.1	Chloride	4.1		mg Cl/L	P394883	
		Sulfate	0.74		mg SO4/L	P394885	
		Color (true)	55		PCU	P394706	
	SM 2320 B-2011	Total Alkalinity	5.4		mg CaCO3/L	P394789	
	SM 2540 C-2011	TDS	33		mg/L	P395159	
	SM 2540 D-2011	TSS	3	I	mg/L	P395151	
	SM 4500 F-C-2011	Fluoride	0.035	U	mg F/L	P394792	
2229921	EPA 350.1 Rev. 2.0	Ammonia-N	0.010		mg N/L	P394924	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.27		mg N/L	P394976	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.38		mg N/L	P394714	
	EPA 365.1 Rev. 2.0	Total-P	0.031		mg P/L	P394820	
	SM 5310 B-2011	Organic Carbon	4.6		mg C/L	P395175	
2229922	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.015		mg P/L	P394671	
2229933	EPA 200.7 Rev. 4.4	Barium	21.3		ug/L	P394723	
		Calcium	3.00		mg/L	P394723	
		Iron	740		ug/L	P394723	
		Magnesium	0.98		mg/L	P394723	
		Manganese	39.4		ug/L	P394723	
		Potassium	0.57	I	mg/L	P394723	
		Sodium	2.1		mg/L	P394723	
	EPA 200.8 Rev. 5.4	Zinc	5.0	U	ug/L	P394723	
		Aluminum	179		ug/L	P394723	
		Antimony	0.050	U	ug/L	P394723	
		Arsenic	0.35		ug/L	P394723	
		Beryllium	0.019	I	ug/L	P394723	
		Boron**	6.9	I	ug/L	P394723	
		Cadmium	0.020	U	ug/L	P394723	
		Chromium	0.40	U	ug/L	P394723	
		Copper	0.40	U	ug/L	P394723	
		Lead	0.25	I	ug/L	P394723	
		Nickel	0.50	U	ug/L	P394723	
		Selenium	0.20	U	ug/L	P394723	
		Silver	0.010	U	ug/L	P394723	
		Thallium	0.10	U	ug/L	P394723	
	SM 2340B	Hardness	11.5		mg/L	P394723	

Ref. Method and Comment:

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

Sample Location: Pond Creek in McCloud Bay upstream of Lake Ella Road **Collection Date/Time: 03/08/2021 10:05**

Field ID: G4NW0350

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2229932	EPA 8321B	2,4-D	0.011		ug/L	P394766	
		Acesulfame K	0.10	U	ug/L	P394775	
		2,4,5-T	0.0040	U	ug/L	P394766	
		AMPA	0.10	U	ug/L	P394775	
		Sucralose	0.14		ug/L	P394775	
		Acetaminophen	0.0080	U	ug/L	P394766	
		Acetamiprid	0.0020	U	ug/L	P394766	
		Endothall	0.25	U	ug/L	P394775	
		Glufosinate	0.10	U	ug/L	P394775	
		Glyphosate	0.10	U	ug/L	P394775	
		Afidopyropen	0.0020	U	ug/L	P394766	
		Bentazon	8.0E-04	U	ug/L	P394766	
		Benzovindiflupyr	0.0020	U	ug/L	P394766	
		Carbamazepine	8.0E-04	U	ug/L	P394766	
		Clothianidin	0.0020	U	ug/L	P394766	
		Dinotefuran	0.0020	U	ug/L	P394766	
		Diuron	0.0020	U	ug/L	P394766	
		Fenuron	0.016	U	ug/L	P394766	
		Fluridone	8.0E-04	U	ug/L	P394766	
		Imazapyr	0.0040	U	ug/L	P394766	
		Hydrocodone	0.0020	U	ug/L	P394766	
		Ibuprofen	0.020	U	ug/L	P394766	
		Imidacloprid	0.0020	U	ug/L	P394766	
		Linuron	0.0040	U	ug/L	P394766	
		Mandestrobin	0.0020	U	ug/L	P394766	
		MCPP	0.0020	U	ug/L	P394766	
		Naproxen	0.0080	U	ug/L	P394766	
		Primidone	0.0040	U	ug/L	P394766	
		Pyraclostrobin	0.0020	U	ug/L	P394766	
		Thiamethoxam	0.0020	U	ug/L	P394766	
		Tolfenpyrad	0.0020	U	ug/L	P394766	
		Triclopyr	0.0040	U	ug/L	P394766	

Sample Location: Pond Creek upstream of Bob Sikes Hwy

Collection Date/Time: 03/08/2021 10:40

Field ID: G4NW0522

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2229935	EPA 200.7 Rev. 4.4	Barium	17.8		ug/L	P394723	
		Calcium	5.02		mg/L	P394723	
		Iron	1.13E+03		ug/L	P394723	
		Magnesium	1.51		mg/L	P394723	
		Manganese	62.3		ug/L	P394723	
		Potassium	0.93	I	mg/L	P394723	
		Sodium	2.8		mg/L	P394723	
	EPA 200.8 Rev. 5.4	Zinc	5.0	U	ug/L	P394723	
		Aluminum	146		ug/L	P394723	
		Antimony	0.057	I	ug/L	P394723	
		Arsenic	0.66		ug/L	P394723	
		Beryllium	0.010	U	ug/L	P394723	
		Boron**	11.3		ug/L	P394723	
		Cadmium	0.020	U	ug/L	P394723	
		Chromium	0.40	U	ug/L	P394723	
		Copper	0.42	I	ug/L	P394723	
		Lead	0.33	I	ug/L	P394723	
		Nickel	0.50	U	ug/L	P394723	
		Selenium	0.20	U	ug/L	P394723	
		Silver	0.010	U	ug/L	P394723	
		Thallium	0.10	U	ug/L	P394723	
	SM 2340B	Hardness	18.8		mg/L	P394723	

Matrix: W-SURF-FRH

Ref. Method and Comment:
SM 2540 D-2011: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample.
EPA 200.8 Rev. 5.4: The beryllium result was confirmed in the undigested sample on 03/24/2021.

Sample Location: Trammel Creek East of Hwy 4

Collection Date/Time: 03/08/2021 12:30

Field ID: G4NW0052

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2229936	EPA 200.7 Rev. 4.4	Barium	14.1		ug/L	P394723	
		Calcium	6.04		mg/L	P394723	
		Iron	370		ug/L	P394723	
		Magnesium	1.09		mg/L	P394723	
		Manganese	12.0		ug/L	P394723	
		Potassium	1.2		mg/L	P394723	
		Sodium	4.2		mg/L	P394723	
	EPA 200.8 Rev. 5.4	Zinc	5.0	U	ug/L	P394723	
		Aluminum	101		ug/L	P394723	
		Antimony	0.050	U	ug/L	P394723	
		Arsenic	0.19	I	ug/L	P394723	
		Beryllium	0.018	I	ug/L	P394723	
		Boron**	58.2		ug/L	P394723	
		Cadmium	0.020	U	ug/L	P394723	
		Chromium	0.40	U	ug/L	P394723	
		Copper	0.40	U	ug/L	P394723	
		Lead	0.31	I	ug/L	P394723	
		Nickel	0.50	U	ug/L	P394723	
		Selenium	0.20	U	ug/L	P394723	
		Silver	0.010	U	ug/L	P394723	
		Thallium	0.10	U	ug/L	P394723	
	SM 2340B	Hardness	19.6		mg/L	P394723	

Quality Assurance Report

Method Blank Results

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P394688

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P394723

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: P394723

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: P394883

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P394884

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P394885

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Quality Assurance Report Method Blank Results

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P394886

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P394924

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P394976

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P394714

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P394820

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P394671

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

Reference Method: EPA 8321B
Batch ID: P394766

Component	Result	Code	Units
2,4-D	0.0020	U	ug/L
2,4,5-T	0.0040	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

Quality Assurance Report Method Blank Results

Reference Method: EPA 8321B

Batch ID: P394766

Component	Result	Code	Units
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: EPA 8321B

Batch ID: P394775

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: P394706

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2320 B-2011

Batch ID: P394789

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

Reference Method: SM 2540 C-2011

Batch ID: P395159

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-2011

Batch ID: P395151

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500 F-C-2011

Batch ID: P394792

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Quality Assurance Report

Method Blank Results

Reference Method: SM 5310 B-2011
Batch ID: P395175

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: P394723

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Barium	102		P	85 - 115
Calcium	106		P	85 - 115
Iron	104		P	85 - 115
Magnesium	101		P	85 - 115
Manganese	102		P	85 - 115
Potassium	98.2		P	85 - 115
Sodium	103		P	85 - 115
Zinc	101		P	85 - 115

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P394723

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Aluminum	95.7		P	85 - 115
Antimony	97.9		P	85 - 115
Arsenic	97.2		P	85 - 115
Beryllium	95.2		P	85 - 115
Boron	93.1		P	85 - 115
Cadmium	96.3		P	85 - 115
Chromium	93.8		P	85 - 115
Copper	95.9		P	85 - 115
Lead	105		P	85 - 115
Nickel	94.6		P	85 - 115
Selenium	98.8		P	85 - 115
Silver	102		P	85 - 115
Thallium	102		P	85 - 115

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P394883

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Chloride	98.2		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P394884

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Chloride	98.7		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P394885

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P394886

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

Quality Assurance Report

Laboratory Control Sample Accuracy

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P394924

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Ammonia-N	97.4		P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P394976

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P394714

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P394820

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: P394671

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

Reference Method: EPA 8321B
Batch ID: P394766

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2,4-D	119		P	30 - 160
2,4,5-T	115		P	30 - 160
Acetaminophen	144		P	30 - 160
Acetamiprid	88.1		P	30 - 160
Afidopyropen	64.2		P	30 - 160
Bentazon	80.8		P	30 - 160
Benzovindiflupyr	98.0		P	30 - 160
Carbamazepine	102		P	30 - 160
Clothianidin	70.1		P	30 - 160
Dinotefuran	94.7		P	30 - 160
Diuron	84.1		P	30 - 160
Fenuron	106		P	30 - 160
Fluridone	84.2		P	30 - 160
Hydrocodone	100		P	30 - 160
Ibuprofen	99.4		P	30 - 160
Imazapyr	90.4		P	30 - 160
Imidacloprid	99.3		P	30 - 160
Linuron	80.7		P	30 - 160
Mandestrobin	96.0		P	30 - 160
MCPP	133		P	30 - 160
Naproxen	63.5		P	30 - 160
Primidone	93.8		P	30 - 160

Quality Assurance Report

Laboratory Control Sample Accuracy

Reference Method: EPA 8321B

Batch ID: P394766

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Pyraclostrobin	84.4		P	30 - 160
Thiamethoxam	101		P	30 - 160
Tolfenpyrad	56.5		P	30 - 160
Triclopyr	121		P	30 - 160

Reference Method: EPA 8321B

Batch ID: P394775

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Acesulfame K	85.5		P	40 - 150
AMPA	102		P	40 - 150
Endothall	84.9		P	40 - 150
Glufosinate	110		P	40 - 150
Glyphosate	136		P	40 - 140
Sucralose	105		P	40 - 150

Reference Method: SM 2120 B-2011

Batch ID: P394706

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Color (true)	100		P	85 - 115

Reference Method: SM 2320 B-2011

Batch ID: P394789

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	99.7		P	93 - 104

Reference Method: SM 4500 F-C-2011

Batch ID: P394792

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	99.3		P	90 - 106

Reference Method: SM 5310 B-2011

Batch ID: P395175

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

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 200.7 Rev. 4.4

Batch ID: P394723

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2229917	Barium	106	109	P/P	80 - 120
2229917	Calcium	114	116	P/P	80 - 120
2229917	Iron	114	113	P/P	80 - 120
2229917	Magnesium	111	110	P/P	80 - 120
2229917	Manganese	104	108	P/P	80 - 120
2229917	Potassium	105	107	P/P	80 - 120
2229917	Sodium	110	112	P/P	80 - 120
2229917	Zinc	105	109	P/P	80 - 120
2229936	Barium	106		P	80 - 120
2229936	Calcium	110		P	80 - 120
2229936	Iron	111		P	80 - 120
2229936	Magnesium	109		P	80 - 120
2229936	Manganese	105		P	80 - 120
2229936	Potassium	105		P	80 - 120
2229936	Sodium	107		P	80 - 120
2229936	Zinc	105		P	80 - 120

Reference Method: EPA 200.8 Rev. 5.4

Batch ID: P394723

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2229917	Aluminum	93.7	94.5	P/P	80 - 120
2229917	Antimony	97.6	97.7	P/P	80 - 120
2229917	Arsenic	96.7	96.0	P/P	80 - 120
2229917	Beryllium	91.7	89.6	P/P	80 - 120
2229917	Boron	90.4	91.8	P/P	80 - 120
2229917	Cadmium	97.6	96.0	P/P	80 - 120
2229917	Chromium	94.3	93.9	P/P	80 - 120
2229917	Copper	96.8	96.1	P/P	80 - 120
2229917	Lead	104	104	P/P	80 - 120
2229917	Nickel	94.3	94.6	P/P	80 - 120
2229917	Selenium	98.4	96.1	P/P	80 - 120
2229917	Silver	101	101	P/P	80 - 120
2229917	Thallium	104	103	P/P	80 - 120
2229936	Aluminum	95.2		P	80 - 120
2229936	Antimony	97.8		P	80 - 120
2229936	Arsenic	94.4		P	80 - 120
2229936	Beryllium	87.9		P	80 - 120
2229936	Boron	97.5		P	80 - 120
2229936	Cadmium	99.0		P	80 - 120
2229936	Chromium	93.5		P	80 - 120
2229936	Copper	93.7		P	80 - 120
2229936	Lead	104		P	80 - 120
2229936	Nickel	92.7		P	80 - 120
2229936	Selenium	93.1		P	80 - 120
2229936	Silver	101		P	80 - 120
2229936	Thallium	103		P	80 - 120

Reference Method: EPA 300.0 Rev. 2.1

Batch ID: P394883

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: P394883

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2229543	Chloride	98.8		P	90 - 110
2229796	Chloride	98.6		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P394884

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2229923	Chloride	101	101	P/P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P394885

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2229543	Sulfate	95.2		P	90 - 110
2229796	Sulfate	96.7		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P394886

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2229923	Sulfate	99.0	99.2	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P394924

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2229877	Ammonia-N	97.0	98.0	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P394976

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2229921	Kjeldahl Nitrogen	105	108	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P394714

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2229909	NO2NO3-N	103	104	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P394820

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2229799	Total-P	107	107	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P394671

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2229884	O-Phosphate-P	100	102	P/P	90 - 110

Quality Assurance Report

Matrix Spike Accuracy

Reference Method: EPA 8321B

Batch ID: P394766

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2229932	2,4-D	101	119	P/P	30 - 160
2229932	2,4,5-T	103	106	P/P	30 - 160
2229932	Acetaminophen	93.0	98.4	P/P	30 - 160
2229932	Acetamiprid	84.4	89.6	P/P	30 - 160
2229932	Afidopyropen	67.3	77.7	P/P	30 - 160
2229932	Bentazon	60.1	65.2	P/P	30 - 160
2229932	Benzovindiflupyr	88.7	99.1	P/P	30 - 160
2229932	Carbamazepine	93.9	104	P/P	30 - 160
2229932	Clothianidin	69.2	78.9	P/P	30 - 160
2229932	Dinotefuran	94.4	108	P/P	30 - 160
2229932	Diuron	70.2	72.2	P/P	30 - 160
2229932	Fenuron	93.4	97.9	P/P	30 - 160
2229932	Fluridone	77.5	78.4	P/P	30 - 160
2229932	Hydrocodone	96.6	109	P/P	30 - 160
2229932	Ibuprofen	72.5	85.8	P/P	30 - 160
2229932	Imazapyr	76.1	86.5	P/P	30 - 160
2229932	Imidacloprid	119	127	P/P	30 - 160
2229932	Linuron	65.3	72.2	P/P	30 - 160
2229932	Mandestrobin	94.4	98.9	P/P	30 - 160
2229932	MCCP	119	136	P/P	30 - 160
2229932	Naproxen	64.5	58.0	P/P	30 - 160
2229932	Primidone	101	105	P/P	30 - 160
2229932	Pyraclostrobin	83.4	91.7	P/P	30 - 160
2229932	Thiamethoxam	118	122	P/P	30 - 160
2229932	Tolfenpyrad	55.5	59.4	P/P	30 - 160
2229932	Triclopyr	108	110	P/P	30 - 160

Reference Method: EPA 8321B

Batch ID: P394775

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2229932	Acesulfame K	126	114	P/P	40 - 150
2229932	AMPA	120	116	P/P	40 - 150
2229932	Endothall	86.4	100	P/P	40 - 150
2229932	Glufosinate	117	120	P/P	40 - 150
2229932	Glyphosate	109	128	P/P	40 - 140
2229932	Sucralose	115	116	P/P	40 - 150

Reference Method: SM 4500 F-C-2011

Batch ID: P394792

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2230112	Fluoride	98.8	98.3	P/P	94 - 107

Reference Method: SM 5310 B-2011

Batch ID: P395175

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2229798	Organic Carbon	94.8	94.5	P/P	85 - 115

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0

Batch ID: P394688

Replicated

Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2229920	Turbidity	6.88	Sample	P	0 - 20

Reference Method: EPA 200.7 Rev. 4.4

Batch ID: P394723

Replicated

Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2229917	Barium	3.39	Spike	P	0 - 20
2229917	Calcium	1.01	Spike	P	0 - 20
2229917	Iron	1.14	Spike	P	0 - 20
2229917	Magnesium	1.04	Spike	P	0 - 20
2229917	Manganese	2.98	Spike	P	0 - 20
2229917	Potassium	0.939	Spike	P	0 - 20
2229917	Sodium	1.07	Spike	P	0 - 20
2229917	Zinc	3.48	Spike	P	0 - 20

Reference Method: EPA 200.8 Rev. 5.4

Batch ID: P394723

Replicated

Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2229917	Aluminum	0.695	Spike	P	0 - 20
2229917	Antimony	0.0109	Spike	P	0 - 20
2229917	Arsenic	0.776	Spike	P	0 - 20
2229917	Beryllium	2.28	Spike	P	0 - 20
2229917	Boron	1.42	Spike	P	0 - 20
2229917	Cadmium	1.55	Spike	P	0 - 20
2229917	Chromium	0.395	Spike	P	0 - 20
2229917	Copper	0.706	Spike	P	0 - 20
2229917	Lead	0.397	Spike	P	0 - 20
2229917	Nickel	0.287	Spike	P	0 - 20
2229917	Selenium	2.32	Spike	P	0 - 20
2229917	Silver	0.123	Spike	P	0 - 20
2229917	Thallium	0.594	Spike	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1

Batch ID: P394883

Replicated

Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2229543	Chloride	1.85	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1

Batch ID: P394884

Replicated

Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2229923	Chloride	0.401	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P394885

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2229543	Sulfate	1.52	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P394886

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2229923	Sulfate	0.124	Spike	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P394924

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2229877	Ammonia-N	0.654	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P394976

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2229921	Kjeldahl Nitrogen	2.08	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P394714

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2229909	NO2NO3-N	0.966	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P394820

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2229799	Total-P	0.0363	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P394671

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2229884	O-Phosphate-P	0.946	Spike	P	0 - 20

Reference Method: EPA 8321B
Batch ID: P394766

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2229932	2,4-D	14.6	Spike	P	0 - 30
2229932	2,4,5-T	2.72	Spike	P	0 - 30

Quality Assurance Report Precision

Reference Method: EPA 8321B

Batch ID: P394766

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2229932	Acetaminophen	5.69	Spike	P	0 - 30
2229932	Acetamiprid	5.98	Spike	P	0 - 30
2229932	Afidopyropen	14.3	Spike	P	0 - 30
2229932	Bentazon	8.06	Spike	P	0 - 30
2229932	Benzovindiflupyr	11.1	Spike	P	0 - 30
2229932	Carbamazepine	10.4	Spike	P	0 - 30
2229932	Clothianidin	13.1	Spike	P	0 - 30
2229932	Dinotefuran	13.5	Spike	P	0 - 30
2229932	Diuron	2.89	Spike	P	0 - 30
2229932	Fenuron	4.75	Spike	P	0 - 30
2229932	Fluridone	1.23	Spike	P	0 - 30
2229932	Hydrocodone	11.9	Spike	P	0 - 30
2229932	Ibuprofen	16.8	Spike	P	0 - 30
2229932	Imazapyr	12.9	Spike	P	0 - 30
2229932	Imidacloprid	6.71	Spike	P	0 - 30
2229932	Linuron	10.1	Spike	P	0 - 30
2229932	Mandestrobin	4.61	Spike	P	0 - 30
2229932	MCPP	13.3	Spike	P	0 - 30
2229932	Naproxen	10.7	Spike	P	0 - 30
2229932	Primidone	4.17	Spike	P	0 - 30
2229932	Pyraclostrobin	9.49	Spike	P	0 - 30
2229932	Thiamethoxam	3.02	Spike	P	0 - 30
2229932	Tolfenpyrad	6.95	Spike	P	0 - 30
2229932	Triclopyr	2.15	Spike	P	0 - 30

Reference Method: EPA 8321B

Batch ID: P394775

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2229932	Acesulfame K	9.72	Spike	P	0 - 30
2229932	AMPA	3.80	Spike	P	0 - 30
2229932	Endothall	14.7	Spike	P	0 - 30
2229932	Glufosinate	2.43	Spike	P	0 - 30
2229932	Glyphosate	15.9	Spike	P	0 - 30
2229932	Sucralose	0.905	Spike	P	0 - 30

Reference Method: SM 2120 B-2011

Batch ID: P394706

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2229923	Color (true)	2.33	Sample	P	0 - 20

Reference Method: SM 2320 B-2011

Batch ID: P394789

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2230112	Total Alkalinity	1.03	Sample	P	0 - 8.1

Quality Assurance Report Precision

Reference Method: SM 2540 C-2011
Batch ID: P395159

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2229875	TDS	6.41	Sample	P	0 - 10

Reference Method: SM 4500 F-C-2011
Batch ID: P394792

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2230112	Fluoride	0.462	Spike	P	0 - 2.8

Reference Method: SM 5310 B-2011
Batch ID: P395175

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2229798	Organic Carbon	0.288	Spike	P	0 - 20

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

Quality Assurance Report Surrogates

Lab Sample ID: 2229932

Field Sample ID: G4NW0350

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	2,4-D-d3	125	P	30 - 160
EPA 8321B	Acetaminophen-d4	101	P	30 - 160
EPA 8321B	Carbamazepine-d10	93.0	P	30 - 160
EPA 8321B	Diuron-d6	85.3	P	30 - 160
EPA 8321B	Endothall-d6	117	P	40 - 160
EPA 8321B	Endothall-d6	117	P	40 - 160
EPA 8321B	Glyphosate 13C 15N	123	P	40 - 160
EPA 8321B	Glyphosate 13C 15N	123	P	40 - 160
EPA 8321B	Ibuprofen-d3	86.9	P	30 - 160
EPA 8321B	Primidone-d5	107	P	30 - 160
EPA 8321B	Sucralose-d6	118	P	30 - 160
EPA 8321B	Sucralose-d6	118	P	30 - 160

Quality Assurance Report Calibration Verification

Reference Method: EPA 365.1 Rev. 2.0 dissolved

Run ID: A103968

Included Lab Sample IDs: 2229922, 2229925

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	99.0	98.2	P/P	90 - 110

Reference Method: EPA 180.1 Rev. 2.0

Run ID: A103971

Included Lab Sample IDs: 2229920, 2229923

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Turbidity	100	102	P/P	95 - 105

Reference Method: EPA 300.0 Rev. 2.1

Run ID: A103974

Included Lab Sample IDs: 2229920, 2229923

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	98.3	98.3	P/P	90 - 110
Chloride	98.3	98.9	P/P	90 - 110
Sulfate	96.7	96.9	P/P	90 - 110
Sulfate	96.9	97.5	P/P	90 - 110

Reference Method: SM 2120 B-2011

Run ID: A103976

Included Lab Sample IDs: 2229920, 2229923

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	101	102	P/P	90 - 115

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A103979

Included Lab Sample IDs: 2229921, 2229924

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO2NO3-N	105	106	P/P	90 - 110

Reference Method: SM 2320 B-2011

Run ID: A104006

Included Lab Sample IDs: 2229920, 2229923

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

Reference Method: SM 4500 F-C-2011

Run ID: A104006

Included Lab Sample IDs: 2229920, 2229923

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

Quality Assurance Report Calibration Verification

Reference Method: EPA 200.7 Rev. 4.4

Run ID: A104026

Included Lab Sample IDs: 2229933, 2229934, 2229935, 2229936

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Barium	107	110	P/P	90 - 110
Barium	110	107	P/P	90 - 110
Calcium	106	108	P/P	90 - 110
Calcium	108	106	P/P	90 - 110
Iron	104	106	P/P	90 - 110
Iron	106	104	P/P	90 - 110
Magnesium	104	106	P/P	90 - 110
Magnesium	106	104	P/P	90 - 110
Manganese	106	107	P/P	90 - 110
Manganese	107	104	P/P	90 - 110
Potassium	100	103	P/P	90 - 110
Potassium	103	103	P/P	90 - 110
Sodium	102	105	P/P	90 - 110
Sodium	105	106	P/P	90 - 110
Zinc	105	109	P/P	90 - 110
Zinc	109	106	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A104046

Included Lab Sample IDs: 2229921, 2229924

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	98.2	98.0	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A104054

Included Lab Sample IDs: 2229921, 2229924

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	97.8	99.5	P/P	90 - 110

Reference Method: EPA 8321B

Run ID: A104071

Included Lab Sample IDs: 2229932

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Sucralose	110	101	P/P	60 - 160

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A104096

Included Lab Sample IDs: 2229921, 2229924

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	102	98.4	P/P	90 - 110

Reference Method: EPA 200.8 Rev. 5.4

Run ID: A104097

Included Lab Sample IDs: 2229933, 2229934, 2229935, 2229936

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Aluminum	97.6	98.6	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: EPA 200.8 Rev. 5.4

Run ID: A104097

Included Lab Sample IDs: 2229933, 2229934, 2229935, 2229936

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Antimony	96.0	94.3	P/P	90 - 110
Arsenic	97.8	94.4	P/P	90 - 110
Beryllium	97.0	93.9	P/P	90 - 110
Boron	96.4	102	P/P	90 - 110
Cadmium	97.1	96.2	P/P	90 - 110
Chromium	97.0	94.7	P/P	90 - 110
Copper	96.9	93.0	P/P	90 - 110
Lead	107	106	P/P	90 - 110
Nickel	97.2	93.5	P/P	90 - 110
Selenium	98.9	95.6	P/P	90 - 110
Silver	99.4	97.6	P/P	90 - 110
Thallium	101	101	P/P	90 - 110

Reference Method: SM 5310 B-2011

Run ID: A104142

Included Lab Sample IDs: 2229921, 2229924

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	95.4	95.8	P/P	90 - 110

Reference Method: EPA 8321B

Run ID: A104157

Included Lab Sample IDs: 2229932

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
2,4-D	85.4	96.2	P/P	50 - 150
2,4,5-T	96.6	113	P/P	50 - 150
Acetaminophen	103	92.6	P/P	60 - 160
Acetamiprid	108	106	P/P	50 - 150
Afidopyropen	95.3	103	P/P	50 - 150
Bentazon	101	102	P/P	50 - 160
Benzovindiflupyr	105	105	P/P	50 - 160
Carbamazepine	102	110	P/P	60 - 150
Clothianidin	105	99.5	P/P	60 - 150
Dinotefuran	111	107	P/P	50 - 150
Diuron	119	122	P/P	60 - 160
Fenuron	103	95.1	P/P	60 - 150
Fluridone	104	109	P/P	60 - 160
Hydrocodone	101	105	P/P	60 - 150
Ibuprofen	80.8	126	P/P	50 - 160
Imazapyr	92.2	82.9	P/P	50 - 160
Imidacloprid	94.5	96.6	P/P	60 - 150
Linuron	93.7	102	P/P	60 - 150
Mandestrobin	114	116	P/P	50 - 150
MCPP	105	105	P/P	50 - 150
Naproxen	103	98.4	P/P	50 - 160
Primidone	105	108	P/P	60 - 150
Pyraclostrobin	106	105	P/P	60 - 150
Thiamethoxam	92.8	105	P/P	50 - 150
Tolfenpyrad	103	106	P/P	60 - 150
Triclopyr	98.2	88.9	P/P	50 - 150

Quality Assurance Report

Calibration Verification

Reference Method: EPA 8321B

Run ID: A104164

Included Lab Sample IDs: 2229932

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Acesulfame K	108	86.6	P/P	60 - 160
AMPA	115	113	P/P	60 - 160
Endothall	92.9	87.9	P/P	60 - 160
Glufosinate	131	114	P/P	60 - 160
Glyphosate	152	153	P/P	60 - 160

* 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						6.88	
EPA 200.7 Rev. 4.4	Barium	102	106	109	106			3.39
	Calcium	106	114	116	110			1.01
	Iron	104	114	113	111			1.14
	Magnesium	101	111	110	109			1.04
	Manganese	102	104	108	105			2.98
	Potassium	98.2	105	107	105			0.939
	Sodium	103	110	112	107			1.07
	Zinc	101	105	109	105			3.48
EPA 200.8 Rev. 5.4	Aluminum	95.7	93.7	94.5	95.2			0.695
	Antimony	97.9	97.6	97.7	97.8			0.0109
	Arsenic	97.2	96.7	96.0	94.4			0.776
	Beryllium	95.2	91.7	89.6	87.9			2.28
	Boron	93.1	90.4	91.8	97.5			1.42
	Cadmium	96.3	97.6	96.0	99.0			1.55
	Chromium	93.8	94.3	93.9	93.5			0.395
	Copper	95.9	96.8	96.1	93.7			0.706
	Lead	105	104	104	104			0.397
	Nickel	94.6	94.3	94.6	92.7			0.287
	Selenium	98.8	98.4	96.1	93.1			2.32
	Silver	102	101	101	101			0.123
	Thallium	102	104	103	103			0.594
EPA 300.0 Rev. 2.1	Chloride	98.2	98.8	98.6			1.85	
	Chloride	98.7	101	101				0.401
	Sulfate	96.7	95.2	96.7			1.52	
	Sulfate	96.7	99.0	99.2				0.124
EPA 350.1 Rev. 2.0	Ammonia-N	97.4	97.0	98.0				0.654
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	107	105	108				2.08
EPA 353.2 Rev. 2.0	NO2NO3-N	104	103	104				0.966
EPA 365.1 Rev. 2.0	Total-P	106	107	107				0.0363
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	99.1	100	102				0.946
EPA 8321B	2,4-D	119	101	119				14.6
	2,4,5-T	115	103	106				2.72
	Acesulfame K	85.5	126	114				9.72
	Acetaminophen	144	93.0	98.4				5.69
	Acetamiprid	88.1	84.4	89.6				5.98
	Afidopyropen	64.2	67.3	77.7				14.3
	AMPA	102	120	116				3.80
	Bentazon	80.8	60.1	65.2				8.06
	Benzovindiflupyr	98.0	88.7	99.1				11.1
	Carbamazepine	102	93.9	104				10.4
	Clothianidin	70.1	69.2	78.9				13.1
	Dinotefuran	94.7	94.4	108				13.5
	Diuron	84.1	70.2	72.2				2.89
	Endothall	84.9	86.4	100				14.7
	Fenuron	106	93.4	97.9				4.75
	Fluridone	84.2	77.5	78.4				1.23
	Glufosinate	110	117	120				2.43
	Glyphosate	136	109	128				15.9
	Hydrocodone	100	96.6	109				11.9
	Ibuprofen	99.4	72.5	85.8				16.8
	Imazapyr	90.4	76.1	86.5				12.9
	Imidacloprid	99.3	119	127				6.71
	Linuron	80.7	65.3	72.2				10.1

Quality Assurance Report Summary

Ref. Method	Analyte	LCS % Recovery	MS % Recovery		Precision LCS	SMP	MS
EPA 8321B	Mandestrobin	96.0	94.4	98.9			4.61
	MCCP	133	119	136			13.3
	Naproxen	63.5	64.5	58.0			10.7
	Primidone	93.8	101	105			4.17
	Pyraclostrobin	84.4	83.4	91.7			9.49
	Sucralose	105	115	116			0.905
	Thiamethoxam	101	118	122			3.02
	Tolfenpyrad	56.5	55.5	59.4			6.95
	Triclopyr	121	108	110			2.15
SM 2120 B-2011	Color (true)	100				2.33	
SM 2320 B-2011	Total Alkalinity	99.7				1.03	
SM 2540 C-2011	TDS					6.41	
SM 4500 F-C-2011	Fluoride	99.3	98.8	98.3			0.462
SM 5310 B-2011	Organic Carbon	94.4	94.8	94.5			0.288

Reference Method Descriptions

Method	Description	Associated Samples
EPA 180.1 Rev. 2.0	Turbidity in aqueous matrices	2229920, 2229923
EPA 200.7 Rev. 4.4	Total Recoverable Metals analysis using ICP emission spectroscopy for aqueous samples supporting Clean Water Act Projects	2229933, 2229934, 2229935, 2229936
EPA 200.8 Rev. 5.4	Total Recoverable Metals analysis using ICP-MS for aqueous samples supporting Clean Water Act Projects	2229933, 2229934, 2229935, 2229936
EPA 300.0 Rev. 2.1	Chloride in aqueous matrices	2229920, 2229923
EPA 300.0 Rev. 2.1	Sulfate in aqueous matrices	2229920, 2229923
EPA 350.1 Rev. 2.0	Ammonia in aqueous matrices as mg N/L	2229921, 2229924
EPA 351.2 Rev. 2.0	Total Kjeldahl Nitrogen in aqueous matrices	2229921, 2229924
EPA 353.2 Rev. 2.0	Nitrite/Nitrate in aqueous matrices as mg N/L	2229921, 2229924
EPA 365.1 Rev. 2.0	Total Phosphorus in aqueous matrices as mg P/L	2229921, 2229924
EPA 365.1 Rev. 2.0 dissolved	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	2229922, 2229925
EPA 8321B	Pesticides, herbicides, and other chemicals in water matrices by HPLC/MS/MS	2229932
EPA 8321B	Water soluble organic compounds by HPLC/MS/MS	2229932
SM 2120 B-2011	True Color measured at 450 nm (not valid for NPDES monitoring)	2229920, 2229923
SM 2320 B-2011	Alkalinity in aqueous matrices as mg CaCO3/L	2229920, 2229923
SM 2340B	Hardness by calculation, in aqueous matrices, reported as mg/L CaCO3	2229933, 2229934, 2229935, 2229936
SM 2540 C-2011	Total Dissolved Solids in aqueous matrices	2229920, 2229923
SM 2540 D-2011	Total Suspended Solids in aqueous matrices using a maximum of 250 mL of sample	2229920, 2229923
SM 4500 F-C-2011	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	2229920, 2229923
SM 5310 B-2011	Nonpurgeable Organic Carbon in aqueous matrices	2229921, 2229924

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	03/09/2021			03/09/2021 15:16	Yen Ta	2229920, 2229923
EPA 200.7 Rev. 4.4	03/09/2021	03/10/2021 12:55	Elliott D. Healy	03/11/2021 15:15	Betina Topolski	2229933
	03/09/2021	03/10/2021 12:55	Elliott D. Healy	03/11/2021 15:20	Betina Topolski	2229934
	03/09/2021	03/10/2021 12:55	Elliott D. Healy	03/11/2021 15:26	Betina Topolski	2229935
	03/09/2021	03/10/2021 12:55	Elliott D. Healy	03/11/2021 16:02	Betina Topolski	2229936
EPA 200.8 Rev. 5.4	03/09/2021	03/10/2021 12:55	Elliott D. Healy	03/16/2021 16:00	McKinley C Carter	2229933
	03/09/2021	03/10/2021 12:55	Elliott D. Healy	03/16/2021 16:08	McKinley C Carter	2229934
	03/09/2021	03/10/2021 12:55	Elliott D. Healy	03/16/2021 16:15	McKinley C Carter	2229935
	03/09/2021	03/10/2021 12:55	Elliott D. Healy	03/16/2021 16:38	McKinley C Carter	2229936
EPA 300.0 Rev. 2.1	03/09/2021			03/10/2021 20:42	Lipi Saha	2229920
	03/09/2021			03/10/2021 21:43	Lipi Saha	2229923
EPA 350.1 Rev. 2.0	03/09/2021			03/12/2021 18:04	Ping Hua	2229921
	03/09/2021			03/12/2021 18:06	Ping Hua	2229924
EPA 351.2 Rev. 2.0	03/09/2021	03/15/2021 12:24	Benjamin T. Nordmann	03/16/2021 12:01	Virginia P. Brown	2229921
	03/09/2021	03/15/2021 12:24	Benjamin T. Nordmann	03/16/2021 12:06	Virginia P. Brown	2229924
EPA 353.2 Rev. 2.0	03/09/2021			03/10/2021 09:55	Beverly Y. Sanders	2229921
	03/09/2021			03/10/2021 09:56	Beverly Y. Sanders	2229924
EPA 365.1 Rev. 2.0	03/09/2021	03/11/2021 12:40	Yen Ta	03/12/2021 15:37	Shengyu Ding	2229921
	03/09/2021	03/11/2021 12:40	Yen Ta	03/12/2021 15:38	Shengyu Ding	2229924
EPA 365.1 Rev. 2.0 dissolved	03/09/2021			03/09/2021 13:30	Lipi Saha	2229922
	03/09/2021			03/09/2021 13:31	Lipi Saha	2229925
EPA 8321B	03/09/2021	03/11/2021 10:00	Rebecca Ware	03/11/2021 12:06	Rebecca Ware	2229932
	03/09/2021	03/11/2021 10:00	Rebecca Ware	03/12/2021 23:49	Rebecca Ware	2229932
	03/09/2021	03/12/2021 14:30	Hoor Shaik	03/12/2021 21:37	Juyoung Kim	2229932
SM 2120 B-2011	03/09/2021			03/09/2021 16:15	Benjamin T. Nordmann	2229920
	03/09/2021			03/09/2021 16:17	Benjamin T. Nordmann	2229923
SM 2320 B-2011	03/09/2021			03/10/2021 21:36	Dale L. Simmons	2229920
	03/09/2021			03/10/2021 21:44	Dale L. Simmons	2229923
SM 2340B	03/09/2021			03/11/2021 15:15	Betina Topolski	2229933
	03/09/2021			03/11/2021 15:20	Betina Topolski	2229934
	03/09/2021			03/11/2021 15:26	Betina Topolski	2229935
	03/09/2021			03/11/2021 16:02	Betina Topolski	2229936
SM 2540 C-2011	03/09/2021			03/12/2021 14:32	Yijie Li	2229920, 2229923
SM 2540 D-2011	03/09/2021			03/12/2021 14:32	Yijie Li	2229920, 2229923
SM 4500 F-C-2011	03/09/2021			03/10/2021 21:36	Dale L. Simmons	2229920
	03/09/2021			03/10/2021 21:44	Dale L. Simmons	2229923
SM 5310 B-2011	03/09/2021			03/18/2021 02:27	Madeline Gruver	2229921
	03/09/2021			03/18/2021 02:36	Madeline Gruver	2229924