

Chemical Analysis Report

NW-DIST-2021-03-19-01

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

Event Description: **North Escambia County Run**

Request ID: **RQ-2021-03-01-61**

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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Date Certified: 12-APR-2021 14:17



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: Wiggins Branch below Highway 29

Collection Date/Time: 03/18/2021 10:00

Field ID: G4NW0163

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2232775	EPA 200.7 Rev. 4.4	Barium	10.3		ug/L	P395294	
		Calcium	2.30		mg/L	P395294	
		Iron	1.07E+03		ug/L	P395294	
		Magnesium	1.00		mg/L	P395294	
		Manganese	23.6		ug/L	P395294	
		Potassium	0.38	I	mg/L	P395294	
		Sodium	1.8	I	mg/L	P395294	
	EPA 200.8 Rev. 5.4	Zinc	5.0	U	ug/L	P395294	
		Aluminum	290		ug/L	P395294	
		Antimony	0.050	U	ug/L	P395294	
		Arsenic	0.45		ug/L	P395294	
		Beryllium	0.053		ug/L	P395294	
		Boron**	12.3		ug/L	P395294	
		Cadmium	0.020	U	ug/L	P395294	
		Chromium	0.40	U	ug/L	P395294	
		Copper	0.45	I	ug/L	P395294	
		Lead	0.41		ug/L	P395294	
		Nickel	0.50	U	ug/L	P395294	
		Selenium	0.20	U	ug/L	P395294	
		Silver	0.010	U	ug/L	P395294	
		Thallium	0.10	U	ug/L	P395294	
	SM 2340B	Hardness	9.9		mg/L	P395294	

Sample Location: Big Escambia Creek Downstream of Fannie Rd Collection Date/Time: 03/18/2021 10:20

Field ID: G4NW0421

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2232745	EPA 180.1 Rev. 2.0	Turbidity	14		NTU	P395218	
	EPA 300.0 Rev. 2.1	Chloride	4.0		mg Cl/L	P395466	
		Sulfate	1.1		mg SO4/L	P395468	
	SM 2120 B-2011	Color (true)	56		PCU	P395235	
	SM 2320 B-2011	Total Alkalinity	3.4		mg CaCO3/L	P395328	
	SM 2540 C-2011	TDS	40		mg/L	P395620	
	SM 2540 D-2011	TSS	17		mg/L	P395624	
	SM 4500 F-C-2011	Fluoride	0.035	U	mg F/L	P395332	
2232747	EPA 350.1 Rev. 2.0	Ammonia-N	0.017		mg N/L	P395901	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.37		mg N/L	P395534	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.31		mg N/L	P395337	
	EPA 365.1 Rev. 2.0	Total-P	0.028		mg P/L	P395485	
	SM 5310 B-2011	Organic Carbon	5.0		mg C/L	P395667	
2232749	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P395242	
2232772	EPA 8321B	2,4-D	0.0046	I	ug/L	P395318	
		Acesulfame K	0.10	U	ug/L	P395198	MS
		2,4,5-T	0.0040	U	ug/L	P395318	
		AMPA	0.10	U	ug/L	P395198	
		Sucralose	0.096		ug/L	P395198	
		Acetaminophen	0.0080	UJ	ug/L	P395318	LCS
		Acetamiprid	0.0020	U	ug/L	P395318	
		Endothall	0.25	U	ug/L	P395198	
		Glufosinate	0.10	U	ug/L	P395198	
		Glyphosate	0.10	U	ug/L	P395198	
		Afidopyropen	0.0020	U	ug/L	P395318	
		Bentazon	8.0E-04	U	ug/L	P395318	
		Benzovindiflupyr	0.0020	U	ug/L	P395318	
		Carbamazepine	8.0E-04	U	ug/L	P395318	
		Clothianidin	0.0020	U	ug/L	P395318	
		Dinotefuran	0.0020	U	ug/L	P395318	
		Diuron	0.0020	U	ug/L	P395318	
		Fenuron	0.016	U	ug/L	P395318	
		Fluridone	8.0E-04	U	ug/L	P395318	
		Imazapyr	0.0067	I	ug/L	P395318	
		Hydrocodone	0.0020	U	ug/L	P395318	
		Ibuprofen	0.020	U	ug/L	P395318	
		Imidacloprid	0.0020	U	ug/L	P395318	
		Linuron	0.0040	U	ug/L	P395318	
		Mandestrobin	0.0020	U	ug/L	P395318	
		MCPP	0.0020	U	ug/L	P395318	
		Naproxen	0.0080	U	ug/L	P395318	
		Primidone	0.0040	U	ug/L	P395318	
		Pyraclostrobin	0.0020	U	ug/L	P395318	

Field ID: G4NW0421

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2232772	EPA 8321B	Thiamethoxam	0.0020	U	ug/L	P395318	
		Tolfenpyrad	0.0020	U	ug/L	P395318	
		Triclopyr	0.0040	U	ug/L	P395318	

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.

Sample Location: Little Pine Barren Creek below CR99A

Collection Date/Time: 03/18/2021 11:00

Field ID: G4NW0192

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2232774	EPA 200.7 Rev. 4.4	Barium	65.7		ug/L	P395294	
		Calcium	1.95		mg/L	P395294	
		Iron	1.61E+03		ug/L	P395294	
		Magnesium	1.84		mg/L	P395294	
		Manganese	61.3		ug/L	P395294	
		Potassium	0.97	I	mg/L	P395294	
		Sodium	2.6		mg/L	P395294	
	EPA 200.8 Rev. 5.4	Zinc	5.0	U	ug/L	P395294	
		Aluminum	52		ug/L	P395294	
		Antimony	0.050	U	ug/L	P395294	
		Arsenic	0.43		ug/L	P395294	
		Beryllium	0.036	I	ug/L	P395294	
		Boron**	9.9		ug/L	P395294	
		Cadmium	0.020	U	ug/L	P395294	
		Chromium	0.40	U	ug/L	P395294	
		Copper	0.40	U	ug/L	P395294	
		Lead	0.20	U	ug/L	P395294	
		Nickel	0.50	U	ug/L	P395294	
		Selenium	0.20	U	ug/L	P395294	
		Silver	0.010	U	ug/L	P395294	
		Thallium	0.10	U	ug/L	P395294	
	SM 2340B	Hardness	12.5		mg/L	P395294	

Sample Location: McDavid Creek 100m Upstream SR99

Collection Date/Time: 03/18/2021 11:45

Field ID: G5NW0150

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2232746	EPA 180.1 Rev. 2.0	Turbidity	3.1		NTU	P395218	
	EPA 300.0 Rev. 2.1	Chloride	4.0		mg Cl/L	P395466	
		Sulfate	0.66		mg SO4/L	P395468	
	SM 2120 B-2011	Color (true)	42		PCU	P395235	
	SM 2320 B-2011	Total Alkalinity	1.3	I	mg CaCO3/L	P395328	
	SM 2540 C-2011	TDS	27		mg/L	P395620	
	SM 2540 D-2011	TSS	2	I	mg/L	P395624	
	SM 4500 F-C-2011	Fluoride	0.035	U	mg F/L	P395332	
2232748	EPA 350.1 Rev. 2.0	Ammonia-N	0.004	I	mg N/L	P395901	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.21		mg N/L	P395607	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.18		mg N/L	P395337	
	EPA 365.1 Rev. 2.0	Total-P	0.008		mg P/L	P395485	
	SM 5310 B-2011	Organic Carbon	3.7		mg C/L	P395667	
2232750	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P395242	

Ref. Method and Comment:

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

Quality Assurance Report Method Blank Results

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P395218

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P395294

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: P395294

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: P395466

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P395468

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P395901

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: P395534

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

Reference Method: EPA 351.2 Rev. 2.0
 Batch ID: P395607

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

Reference Method: EPA 353.2 Rev. 2.0
 Batch ID: P395337

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

Reference Method: EPA 365.1 Rev. 2.0
 Batch ID: P395485

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
 Batch ID: P395242

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

Reference Method: EPA 8321B
 Batch ID: P395198

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: P395318

Component	Result	Code	Units
2,4-D	0.0020	U	ug/L
2,4,5-T	0.0040	U	ug/L
Acetaminophen	0.030	I	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

Quality Assurance Report Method Blank Results

Reference Method: EPA 8321B

Batch ID: P395318

Component	Result	Code	Units
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
MCP	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: P395235

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2320 B-2011

Batch ID: P395328

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

Reference Method: SM 2540 C-2011

Batch ID: P395620

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-2011

Batch ID: P395624

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500 F-C-2011

Batch ID: P395332

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-2011

Batch ID: P395667

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: P395294

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Barium	94.9		P	85 - 115
Calcium	104		P	85 - 115
Iron	102		P	85 - 115
Magnesium	101		P	85 - 115
Manganese	98.3		P	85 - 115
Potassium	101		P	85 - 115
Sodium	100		P	85 - 115
Zinc	92.9		P	85 - 115

Reference Method: EPA 200.8 Rev. 5.4

Batch ID: P395294

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Aluminum	94.4		P	85 - 115
Antimony	96.3		P	85 - 115
Arsenic	97.4		P	85 - 115
Beryllium	91.7		P	85 - 115
Boron	96.9		P	85 - 115
Cadmium	96.5		P	85 - 115
Chromium	93.7		P	85 - 115
Copper	99.1		P	85 - 115
Lead	99.2		P	85 - 115
Nickel	96.7		P	85 - 115
Selenium	94.8		P	85 - 115
Silver	99.1		P	85 - 115
Thallium	103		P	85 - 115

Reference Method: EPA 300.0 Rev. 2.1

Batch ID: P395466

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

Reference Method: EPA 300.0 Rev. 2.1

Batch ID: P395468

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

Reference Method: EPA 350.1 Rev. 2.0

Batch ID: P395901

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

Reference Method: EPA 351.2 Rev. 2.0

Batch ID: P395534

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 351.2 Rev. 2.0
Batch ID: P395607

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Kjeldahl Nitrogen	109		P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P395337

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: P395485

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P395242

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

Reference Method: EPA 8321B
Batch ID: P395198

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Acesulfame K	104		P	40 - 150
AMPA	102		P	40 - 150
Endothall	120		P	40 - 150
Glufosinate	121		P	40 - 150
Glyphosate	137		P	40 - 140
Sucralose	97.5		P	40 - 150

Reference Method: EPA 8321B
Batch ID: P395318

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2,4-D	126		P	30 - 160
2,4,5-T	96.7		P	30 - 160
Acetaminophen	203		F	30 - 160
Acetamiprid	83.0		P	30 - 160
Afidopyropen	70.3		P	30 - 160
Bentazon	62.6		P	30 - 160
Benzovindiflupyr	86.8		P	30 - 160
Carbamazepine	91.1		P	30 - 160
Clothianidin	93.6		P	30 - 160
Dinotefuran	82.0		P	30 - 160
Diuron	68.1		P	30 - 160
Fenuron	87.9		P	30 - 160
Fluridone	79.5		P	30 - 160
Hydrocodone	91.3		P	30 - 160
Ibuprofen	80.2		P	30 - 160
Imazapyr	78.9		P	30 - 160
Imidacloprid	103		P	30 - 160

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 8321B
Batch ID: P395318

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Linuron	67.1		P	30 - 160
Mandestrobin	85.2		P	30 - 160
MCPD	110		P	30 - 160
Naproxen	62.8		P	30 - 160
Primidone	91.1		P	30 - 160
Pyraclostrobin	78.8		P	30 - 160
Thiamethoxam	99.4		P	30 - 160
Tolfenpyrad	44.4		P	30 - 160
Triclopyr	111		P	30 - 160

Reference Method: SM 2120 B-2011
Batch ID: P395235

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

Reference Method: SM 2320 B-2011
Batch ID: P395328

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	101		P	93 - 104

Reference Method: SM 4500 F-C-2011
Batch ID: P395332

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	99.2		P	90 - 106

Reference Method: SM 5310 B-2011
Batch ID: P395667

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	95.2		P	85 - 115

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 200.7 Rev. 4.4

Batch ID: P395294

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2232332	Barium	98.9	96.2	P/P	80 - 120
2232332	Calcium	107	103	P/P	80 - 120
2232332	Iron	107	102	P/P	80 - 120
2232332	Magnesium	106	101	P/P	80 - 120
2232332	Manganese	102	98.9	P/P	80 - 120
2232332	Potassium	110	104	P/P	80 - 120
2232332	Sodium	105	100	P/P	80 - 120
2232332	Zinc	95.6	93.6	P/P	80 - 120
2232774	Barium	98.6		P	80 - 120
2232774	Calcium	108		P	80 - 120
2232774	Iron	107		P	80 - 120
2232774	Magnesium	106		P	80 - 120
2232774	Manganese	102		P	80 - 120
2232774	Potassium	105		P	80 - 120
2232774	Sodium	106		P	80 - 120
2232774	Zinc	95.0		P	80 - 120

Reference Method: EPA 200.8 Rev. 5.4

Batch ID: P395294

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2232332	Aluminum	93.2	96.8	P/P	80 - 120
2232332	Antimony	95.7	98.4	P/P	80 - 120
2232332	Arsenic	95.0	97.7	P/P	80 - 120
2232332	Beryllium	93.1	93.8	P/P	80 - 120
2232332	Boron	96.2	98.0	P/P	80 - 120
2232332	Cadmium	97.8	100	P/P	80 - 120
2232332	Chromium	92.3	94.8	P/P	80 - 120
2232332	Copper	96.6	99.9	P/P	80 - 120
2232332	Lead	98.1	99.6	P/P	80 - 120
2232332	Nickel	94.9	97.6	P/P	80 - 120
2232332	Selenium	93.4	95.4	P/P	80 - 120
2232332	Silver	98.1	100	P/P	80 - 120
2232332	Thallium	102	105	P/P	80 - 120
2232774	Aluminum	95.5		P	80 - 120
2232774	Antimony	98.2		P	80 - 120
2232774	Arsenic	95.8		P	80 - 120
2232774	Beryllium	88.4		P	80 - 120
2232774	Boron	99.6		P	80 - 120
2232774	Cadmium	98.3		P	80 - 120
2232774	Chromium	95.0		P	80 - 120
2232774	Copper	97.4		P	80 - 120
2232774	Lead	100		P	80 - 120
2232774	Nickel	96.1		P	80 - 120
2232774	Selenium	94.2		P	80 - 120
2232774	Silver	99.6		P	80 - 120
2232774	Thallium	103		P	80 - 120

Reference Method: EPA 300.0 Rev. 2.1

Batch ID: P395466

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: P395466

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2232577	Chloride	103		P	90 - 110
2232746	Chloride	104		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P395468

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2232577	Sulfate	101		P	90 - 110
2232746	Sulfate	102		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P395901

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2232748	Ammonia-N	97.4	99.0	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P395534

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2232747	Kjeldahl Nitrogen	107	99.3	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P395607

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2232748	Kjeldahl Nitrogen	101	102	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P395337

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2232703	NO2NO3-N	96.1	95.6	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P395485

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2232213	Total-P	104	109	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P395242

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2232749	O-Phosphate-P	103	101	P/P	90 - 110

Reference Method: EPA 8321B
Batch ID: P395198

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2232387	Acesulfame K	256	293	F/F	40 - 150
2232387	AMPA	115	115	P/P	40 - 150

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 8321B
Batch ID: P395198

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2232387	Endothall	98.2	81.7	P/P	40 - 150
2232387	Glufosinate	121	121	P/P	40 - 150
2232387	Glyphosate	89.3	114	P/P	40 - 140
2232387	Sucralose	65.9	72.5	P/P	40 - 150

Reference Method: EPA 8321B
Batch ID: P395318

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2232693	2,4-D	112	98.8	P/P	30 - 160
2232693	2,4,5-T	104	97.7	P/P	30 - 160
2232693	Acetaminophen	108	98.9	P/P	30 - 160
2232693	Acetamiprid	93.9	75.5	P/P	30 - 160
2232693	Afidopyropen	80.5	64.6	P/P	30 - 160
2232693	Bentazon	36.4	37.6	P/P	30 - 160
2232693	Benzovindiflupyr	91.8	81.8	P/P	30 - 160
2232693	Carbamazepine	75.9	74.6	P/P	30 - 160
2232693	Clothianidin	83.2	96.8	P/P	30 - 160
2232693	Dinotefuran	120	113	P/P	30 - 160
2232693	Diuron	53.1	48.9	P/P	30 - 160
2232693	Fenuron	67.5	65.6	P/P	30 - 160
2232693	Fluridone	84.5	68.2	P/P	30 - 160
2232693	Hydrocodone	99.5	96.2	P/P	30 - 160
2232693	Ibuprofen	82.8	71.7	P/P	30 - 160
2232693	Imazapyr	93.7	83.8	P/P	30 - 160
2232693	Imidacloprid	152	142	P/P	30 - 160
2232693	Linuron	61.9	56.1	P/P	30 - 160
2232693	Mandestrobin	91.4	82.9	P/P	30 - 160
2232693	MCP	103	94.5	P/P	30 - 160
2232693	Naproxen	58.5	48.2	P/P	30 - 160
2232693	Primidone	102	97.6	P/P	30 - 160
2232693	Pyraclostrobin	86.9	76.6	P/P	30 - 160
2232693	Thiamethoxam	135	127	P/P	30 - 160
2232693	Tolfenpyrad	55.5	55.3	P/P	30 - 160
2232693	Triclopyr	117	107	P/P	30 - 160

Reference Method: SM 4500 F-C-2011
Batch ID: P395332

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2232751	Fluoride	98.3	98.3	P/P	94 - 107

Reference Method: SM 5310 B-2011
Batch ID: P395667

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2233012	Organic Carbon	93.5	94.9	P/P	85 - 115

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0

Batch ID: P395218

Replicated

Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2232665	Turbidity	5.87	Sample	P	0 - 20

Reference Method: EPA 200.7 Rev. 4.4

Batch ID: P395294

Replicated

Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2232332	Barium	2.79	Spike	P	0 - 20
2232332	Calcium	2.80	Spike	P	0 - 20
2232332	Iron	4.65	Spike	P	0 - 20
2232332	Magnesium	4.27	Spike	P	0 - 20
2232332	Manganese	2.88	Spike	P	0 - 20
2232332	Potassium	4.92	Spike	P	0 - 20
2232332	Sodium	3.64	Spike	P	0 - 20
2232332	Zinc	2.09	Spike	P	0 - 20

Reference Method: EPA 200.8 Rev. 5.4

Batch ID: P395294

Replicated

Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2232332	Aluminum	3.67	Spike	P	0 - 20
2232332	Antimony	2.74	Spike	P	0 - 20
2232332	Arsenic	2.88	Spike	P	0 - 20
2232332	Beryllium	0.732	Spike	P	0 - 20
2232332	Boron	1.75	Spike	P	0 - 20
2232332	Cadmium	2.50	Spike	P	0 - 20
2232332	Chromium	2.45	Spike	P	0 - 20
2232332	Copper	3.05	Spike	P	0 - 20
2232332	Lead	1.50	Spike	P	0 - 20
2232332	Nickel	2.82	Spike	P	0 - 20
2232332	Selenium	2.11	Spike	P	0 - 20
2232332	Silver	2.16	Spike	P	0 - 20
2232332	Thallium	3.67	Spike	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1

Batch ID: P395466

Replicated

Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2232577	Chloride	0.743	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1

Batch ID: P395468

Replicated

Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2232577	Sulfate	0.0839	Sample	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 350.1 Rev. 2.0

Batch ID: P395901

Replicated

Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2232748	Ammonia-N	1.51	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0

Batch ID: P395534

Replicated

Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2232747	Kjeldahl Nitrogen	5.82	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0

Batch ID: P395607

Replicated

Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2232748	Kjeldahl Nitrogen	1.07	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0

Batch ID: P395337

Replicated

Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2232703	NO2NO3-N	0.447	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0

Batch ID: P395485

Replicated

Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2232213	Total-P	4.44	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved

Batch ID: P395242

Replicated

Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2232749	O-Phosphate-P	1.18	Spike	P	0 - 20

Reference Method: EPA 8321B

Batch ID: P395198

Replicated

Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2232387	Acesulfame K	13.4	Spike	P	0 - 30
2232387	AMPA	0.119	Spike	P	0 - 30
2232387	Endothall	18.3	Spike	P	0 - 30
2232387	Glufosinate	0.464	Spike	P	0 - 30
2232387	Glyphosate	24.3	Spike	P	0 - 30
2232387	Sucralose	9.40	Spike	P	0 - 30

Quality Assurance Report Precision

Reference Method: EPA 8321B
Batch ID: P395318

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2232693	2,4-D	12.1	Spike	P	0 - 30
2232693	2,4,5-T	5.77	Spike	P	0 - 30
2232693	Acetaminophen	8.43	Spike	P	0 - 30
2232693	Acetamiprid	21.7	Spike	P	0 - 30
2232693	Afidopyropen	21.8	Spike	P	0 - 30
2232693	Bentazon	3.25	Spike	P	0 - 30
2232693	Benzovindiflupyr	11.5	Spike	P	0 - 30
2232693	Carbamazepine	1.75	Spike	P	0 - 30
2232693	Clothianidin	15.1	Spike	P	0 - 30
2232693	Dinotefuran	5.98	Spike	P	0 - 30
2232693	Diuron	8.12	Spike	P	0 - 30
2232693	Fenuron	2.80	Spike	P	0 - 30
2232693	Fluridone	21.4	Spike	P	0 - 30
2232693	Hydrocodone	3.36	Spike	P	0 - 30
2232693	Ibuprofen	14.4	Spike	P	0 - 30
2232693	Imazapyr	5.74	Spike	P	0 - 30
2232693	Imidacloprid	7.06	Spike	P	0 - 30
2232693	Linuron	9.67	Spike	P	0 - 30
2232693	Mandestrobin	9.80	Spike	P	0 - 30
2232693	MCP	8.54	Spike	P	0 - 30
2232693	Naproxen	19.3	Spike	P	0 - 30
2232693	Primidone	4.40	Spike	P	0 - 30
2232693	Pyraclostrobin	12.6	Spike	P	0 - 30
2232693	Thiamethoxam	5.64	Spike	P	0 - 30
2232693	Tolfenpyrad	0.337	Spike	P	0 - 30
2232693	Triclopyr	8.82	Spike	P	0 - 30

Reference Method: SM 2120 B-2011
Batch ID: P395235

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2232665	Color (true)	4.31	Sample	P	0 - 20

Reference Method: SM 2320 B-2011
Batch ID: P395328

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2232751	Total Alkalinity	0.0288	Sample	P	0 - 8.1

Reference Method: SM 2540 C-2011
Batch ID: P395620

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2232699	TDS	0.0	Sample	P	0 - 10

Quality Assurance Report Precision

Reference Method: SM 4500 F-C-2011
Batch ID: P395332

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2232751	Fluoride	0.0	Spike	P	0 - 2.8

Reference Method: SM 5310 B-2011
Batch ID: P395667

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2233012	Organic Carbon	1.12	Spike	P	0 - 20

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

Quality Assurance Report Surrogates

Lab Sample ID: 2232772

Field Sample ID: G4NW0421

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	2,4-D-d3	130	P	30 - 160
EPA 8321B	Acetaminophen-d4	89.4	P	30 - 160
EPA 8321B	Carbamazepine-d10	89.9	P	30 - 160
EPA 8321B	Diuron-d6	73.1	P	30 - 160
EPA 8321B	Endothall-d6	116	P	40 - 160
EPA 8321B	Endothall-d6	116	P	40 - 160
EPA 8321B	Glyphosate 13C 15N	119	P	40 - 160
EPA 8321B	Glyphosate 13C 15N	119	P	40 - 160
EPA 8321B	Ibuprofen-d3	84.1	P	30 - 160
EPA 8321B	Primidone-d5	108	P	30 - 160
EPA 8321B	Sucralose-d6	107	P	30 - 160
EPA 8321B	Sucralose-d6	107	P	30 - 160

Quality Assurance Report Calibration Verification

Reference Method: EPA 180.1 Rev. 2.0

Run ID: A104168

Included Lab Sample IDs: 2232745, 2232746

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Turbidity	99.5	102	P/P	95 - 105

Reference Method: SM 2120 B-2011

Run ID: A104175

Included Lab Sample IDs: 2232745, 2232746

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	99.6	99.4	P/P	90 - 115

Reference Method: EPA 365.1 Rev. 2.0 dissolved

Run ID: A104176

Included Lab Sample IDs: 2232749, 2232750

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	100	97.4	P/P	90 - 110
O-Phosphate-P	97.4	98.1	P/P	90 - 110

Reference Method: EPA 8321B

Run ID: A104199

Included Lab Sample IDs: 2232772

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Acesulfame K	97.1	110	P/P	60 - 160
AMPA	120	115	P/P	60 - 160
Endothall	96.7	88.1	P/P	60 - 160
Glufosinate	122	117	P/P	60 - 160
Glyphosate	140	143	P/P	60 - 160

Reference Method: SM 2320 B-2011

Run ID: A104210

Included Lab Sample IDs: 2232745, 2232746

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	101	97.2	P/P	90 - 110

Reference Method: SM 4500 F-C-2011

Run ID: A104210

Included Lab Sample IDs: 2232745, 2232746

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	101	99.1	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A104215

Included Lab Sample IDs: 2232747, 2232748

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

Quality Assurance Report Calibration Verification

Reference Method: EPA 300.0 Rev. 2.1

Run ID: A104216

Included Lab Sample IDs: 2232745, 2232746

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	99.5	99.7	P/P	90 - 110
Chloride	99.7	99.9	P/P	90 - 110
Sulfate	99.4	99.8	P/P	90 - 110
Sulfate	99.8	99.7	P/P	90 - 110

Reference Method: EPA 200.8 Rev. 5.4

Run ID: A104230

Included Lab Sample IDs: 2232774, 2232775

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Aluminum	99.5	99.9	P/P	90 - 110
Aluminum	99.9	98.4	P/P	90 - 110
Antimony	96.9	97.3	P/P	90 - 110
Antimony	97.5	96.9	P/P	90 - 110
Arsenic	100	98.8	P/P	90 - 110
Arsenic	98.8	98.7	P/P	90 - 110
Beryllium	96.2	95.6	P/P	90 - 110
Beryllium	98.5	96.2	P/P	90 - 110
Boron	103	100	P/P	90 - 110
Boron	99.3	103	P/P	90 - 110
Cadmium	99.3	98.7	P/P	90 - 110
Cadmium	99.8	99.3	P/P	90 - 110
Chromium	99.9	99.4	P/P	90 - 110
Chromium	100	99.9	P/P	90 - 110
Copper	96.4	96.4	P/P	90 - 110
Copper	99.7	96.4	P/P	90 - 110
Lead	102	99.9	P/P	90 - 110
Lead	99.9	100	P/P	90 - 110
Nickel	101	99.2	P/P	90 - 110
Nickel	99.2	98.6	P/P	90 - 110
Selenium	97.6	96.2	P/P	90 - 110
Selenium	98.4	97.6	P/P	90 - 110
Silver	98.4	97.8	P/P	90 - 110
Silver	99.0	98.4	P/P	90 - 110
Thallium	105	104	P/P	90 - 110
Thallium	107	105	P/P	90 - 110

Reference Method: EPA 200.7 Rev. 4.4

Run ID: A104262

Included Lab Sample IDs: 2232774, 2232775

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Barium	97.6	97.8	P/P	90 - 110
Calcium	101	102	P/P	90 - 110
Iron	102	103	P/P	90 - 110
Magnesium	99.6	100	P/P	90 - 110
Manganese	101	101	P/P	90 - 110
Potassium	103	104	P/P	90 - 110
Sodium	99.4	100	P/P	90 - 110
Zinc	98.5	98.4	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: EPA 8321B
Run ID: A104272
Included Lab Sample IDs: 2232772

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Sucralose	99.1	100	P/P	60 - 160

Reference Method: EPA 8321B
Run ID: A104297
Included Lab Sample IDs: 2232772

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
2,4-D	109	111	P/P	50 - 150
2,4,5-T	113	99.0	P/P	50 - 150
Acetaminophen	115	102	P/P	60 - 160
Acetamiprid	112	107	P/P	50 - 150
Afidopyropen	112	105	P/P	50 - 150
Bentazon	86.3	81.3	P/P	50 - 160
Benzovindiflupyr	117	118	P/P	50 - 160
Carbamazepine	107	107	P/P	60 - 150
Clothianidin	118	112	P/P	60 - 150
Dinotefuran	123	102	P/P	50 - 150
Diuron	111	107	P/P	60 - 160
Fenuron	104	98.8	P/P	60 - 150
Fluridone	112	114	P/P	60 - 160
Hydrocodone	114	111	P/P	60 - 150
Ibuprofen	111	105	P/P	50 - 160
Imazapyr	100	84.2	P/P	50 - 160
Imidacloprid	107	104	P/P	60 - 150
Linuron	104	106	P/P	60 - 150
Mandestrobin	109	110	P/P	50 - 150
MCPP	124	112	P/P	50 - 150
Naproxen	79.3	124	P/P	50 - 160
Primidone	109	97.0	P/P	60 - 150
Pyraclostrobin	110	108	P/P	60 - 150
Thiamethoxam	111	111	P/P	50 - 150
Tolfenpyrad	109	112	P/P	60 - 150
Triclopyr	123	108	P/P	50 - 150

Reference Method: EPA 365.1 Rev. 2.0
Run ID: A104298
Included Lab Sample IDs: 2232747, 2232748

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	98.2	98.5	P/P	90 - 110

Reference Method: SM 5310 B-2011
Run ID: A104362
Included Lab Sample IDs: 2232747, 2232748

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	95.6	95.8	P/P	90 - 110
Organic Carbon	95.8	96.2	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A104367

Included Lab Sample IDs: 2232748

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	99.4	98.2	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A104381

Included Lab Sample IDs: 2232747

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	97.3	97.8	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A104463

Included Lab Sample IDs: 2232747, 2232748

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	98.7	98.6	P/P	90 - 110

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

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

Where they are different, both control limits are provided.

Quality Assurance Report Summary

Ref. Method	Analyte	LCS % Recovery	MS % Recovery			LCS	Precision SMP	MS
EPA 180.1 Rev. 2.0	Turbidity						5.87	
EPA 200.7 Rev. 4.4	Barium	94.9	98.9	96.2	98.6			2.79
	Calcium	104	107	103	108			2.80
	Iron	102	107	102	107			4.65
	Magnesium	101	106	101	106			4.27
	Manganese	98.3	102	98.9	102			2.88
	Potassium	101	110	104	105			4.92
	Sodium	100	105	100	106			3.64
	Zinc	92.9	95.6	93.6	95.0			2.09
EPA 200.8 Rev. 5.4	Aluminum	94.4	93.2	96.8	95.5			3.67
	Antimony	96.3	95.7	98.4	98.2			2.74
	Arsenic	97.4	95.0	97.7	95.8			2.88
	Beryllium	91.7	93.1	93.8	88.4			0.732
	Boron	96.9	96.2	98.0	99.6			1.75
	Cadmium	96.5	97.8	100	98.3			2.50
	Chromium	93.7	92.3	94.8	95.0			2.45
	Copper	99.1	96.6	99.9	97.4			3.05
	Lead	99.2	98.1	99.6	100			1.50
	Nickel	96.7	94.9	97.6	96.1			2.82
	Selenium	94.8	93.4	95.4	94.2			2.11
	Silver	99.1	98.1	100	99.6			2.16
	Thallium	103	102	105	103			3.67
EPA 300.0 Rev. 2.1	Chloride	103	103	104			0.743	
	Sulfate	102	101	102			0.0839	
EPA 350.1 Rev. 2.0	Ammonia-N	96.6	97.4	99.0				1.51
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	102	107	99.3				5.82
	Kjeldahl Nitrogen	109	101	102				1.07
EPA 353.2 Rev. 2.0	NO ₂ NO ₃ -N	101	96.1	95.6				0.447
EPA 365.1 Rev. 2.0	Total-P	107	104	109				4.44
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	100	103	101				1.18
EPA 8321B	2,4-D	126	112	98.8				12.1
	2,4,5-T	96.7	104	97.7				5.77
	Acesulfame K	104	256	293				13.4
	Acetaminophen	203	108	98.9				8.43
	Acetamiprid	83.0	93.9	75.5				21.7
	Afidopyropen	70.3	80.5	64.6				21.8
	AMPA	102	115	115				0.119
	Bentazon	62.6	36.4	37.6				3.25
	Benzovindiflupyr	86.8	91.8	81.8				11.5
	Carbamazepine	91.1	75.9	74.6				1.75
	Clothianidin	93.6	83.2	96.8				15.1
	Dinotefuran	82.0	120	113				5.98
	Diuron	68.1	53.1	48.9				8.12
	Endothall	120	98.2	81.7				18.3
	Fenuron	87.9	67.5	65.6				2.80
	Fluridone	79.5	84.5	68.2				21.4
	Glufosinate	121	121	121				0.464
	Glyphosate	137	89.3	114				24.3
	Hydrocodone	91.3	99.5	96.2				3.36
	Ibuprofen	80.2	82.8	71.7				14.4
	Imazapyr	78.9	93.7	83.8				5.74
	Imidacloprid	103	152	142				7.06
	Linuron	67.1	61.9	56.1				9.67
	Mandestrobin	85.2	91.4	82.9				9.80

Quality Assurance Report Summary

Ref. Method	Analyte	LCS % Recovery	MS % Recovery		Precision	
					LCS	MS
EPA 8321B	MCPP	110	103	94.5		8.54
	Naproxen	62.8	58.5	48.2		19.3
	Primidone	91.1	102	97.6		4.40
	Pyraclostrobin	78.8	86.9	76.6		12.6
	Sucralose	97.5	65.9	72.5		9.40
	Thiamethoxam	99.4	135	127		5.64
	Tolfenpyrad	44.4	55.5	55.3		0.337
	Triclopyr	111	117	107		8.82
SM 2120 B-2011	Color (true)	101			4.31	
SM 2320 B-2011	Total Alkalinity	101			0.0288	
SM 2540 C-2011	TDS				0.0	
SM 4500 F-C-2011	Fluoride	99.2	98.3	98.3		0.0
SM 5310 B-2011	Organic Carbon	95.2	93.5	94.9		1.12

Reference Method Descriptions

Method	Description	Associated Samples
EPA 180.1 Rev. 2.0	Turbidity in aqueous matrices	2232745, 2232746
EPA 200.7 Rev. 4.4	Total Recoverable Metals analysis using ICP emission spectroscopy for aqueous samples supporting Clean Water Act Projects	2232774, 2232775
EPA 200.8 Rev. 5.4	Total Recoverable Metals analysis using ICP-MS for aqueous samples supporting Clean Water Act Projects	2232774, 2232775
EPA 300.0 Rev. 2.1	Chloride in aqueous matrices	2232745, 2232746
EPA 300.0 Rev. 2.1	Sulfate in aqueous matrices	2232745, 2232746
EPA 350.1 Rev. 2.0	Ammonia in aqueous matrices as mg N/L	2232747, 2232748
EPA 351.2 Rev. 2.0	Total Kjeldahl Nitrogen in aqueous matrices	2232747, 2232748
EPA 353.2 Rev. 2.0	Nitrite/Nitrate in aqueous matrices as mg N/L	2232747, 2232748
EPA 365.1 Rev. 2.0	Total Phosphorus in aqueous matrices as mg P/L	2232747, 2232748
EPA 365.1 Rev. 2.0 dissolved	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	2232749, 2232750
EPA 8321B	Pesticides, herbicides, and other chemicals in water matrices by HPLC/MS/MS	2232772
EPA 8321B	Water soluble organic compounds by HPLC/MS/MS	2232772
SM 2120 B-2011	True Color measured at 450 nm (not valid for NPDES monitoring)	2232745, 2232746
SM 2320 B-2011	Alkalinity in aqueous matrices as mg CaCO ₃ /L	2232745, 2232746
SM 2340B	Hardness by calculation, in aqueous matrices, reported as mg/L CaCO ₃	2232774, 2232775
SM 2540 C-2011	Total Dissolved Solids in aqueous matrices	2232745, 2232746
SM 2540 D-2011	Total Suspended Solids in aqueous matrices using a maximum of 250 mL of sample	2232745, 2232746
SM 4500 F-C-2011	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	2232745, 2232746
SM 5310 B-2011	Nonpurgeable Organic Carbon in aqueous matrices	2232747, 2232748

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	03/19/2021			03/19/2021 14:00	Yen Ta	2232745, 2232746
EPA 200.7 Rev. 4.4	03/19/2021	03/22/2021 15:05	Elliott D. Healy	03/24/2021 15:11	Betina Topolski	2232774
	03/19/2021	03/22/2021 15:05	Elliott D. Healy	03/24/2021 15:30	Betina Topolski	2232775
EPA 200.8 Rev. 5.4	03/19/2021	03/22/2021 15:05	Elliott D. Healy	03/23/2021 21:01	Alexander Thompson	2232774
	03/19/2021	03/22/2021 15:05	Elliott D. Healy	03/23/2021 21:58	Alexander Thompson	2232775
EPA 300.0 Rev. 2.1	03/19/2021			03/24/2021 21:12	Lipi Saha	2232746
	03/19/2021			03/24/2021 23:37	Lipi Saha	2232745
EPA 350.1 Rev. 2.0	03/19/2021			04/02/2021 17:18	Ping Hua	2232748
	03/19/2021			04/02/2021 17:30	Ping Hua	2232747
EPA 351.2 Rev. 2.0	03/19/2021	03/26/2021 13:02	Benjamin T. Nordmann	03/30/2021 16:01	Virginia P. Brown	2232747
	03/19/2021	03/29/2021 13:13	Benjamin T. Nordmann	03/30/2021 11:48	Virginia P. Brown	2232748
EPA 353.2 Rev. 2.0	03/19/2021			03/23/2021 09:52	Beverly Y. Sanders	2232747
	03/19/2021			03/23/2021 09:54	Beverly Y. Sanders	2232748
EPA 365.1 Rev. 2.0	03/19/2021	03/25/2021 12:45	Yen Ta	03/26/2021 12:57	Shengyu Ding	2232747
	03/19/2021	03/25/2021 12:45	Yen Ta	03/26/2021 12:58	Shengyu Ding	2232748
EPA 365.1 Rev. 2.0 dissolved	03/19/2021			03/19/2021 15:34	Blanca Fach	2232749
	03/19/2021			03/19/2021 15:43	Blanca Fach	2232750
EPA 8321B	03/19/2021	03/19/2021 14:10	Rebecca Ware	03/19/2021 14:24	Rebecca Ware	2232772
	03/19/2021	03/19/2021 14:10	Rebecca Ware	03/24/2021 20:39	Rebecca Ware	2232772
	03/19/2021	03/25/2021 09:00	Hoor Shaik	03/26/2021 20:24	Juyoung Kim	2232772
SM 2120 B-2011	03/19/2021			03/19/2021 14:58	Benjamin T. Nordmann	2232745
	03/19/2021			03/19/2021 14:59	Benjamin T. Nordmann	2232746
SM 2320 B-2011	03/19/2021			03/22/2021 21:27	Dale L. Simmons	2232745
	03/19/2021			03/22/2021 21:35	Dale L. Simmons	2232746
SM 2340B	03/19/2021			03/24/2021 15:11	Betina Topolski	2232774
	03/19/2021			03/24/2021 15:30	Betina Topolski	2232775
SM 2540 C-2011	03/19/2021			03/22/2021 14:26	Yijie Li	2232745, 2232746
SM 2540 D-2011	03/19/2021			03/22/2021 14:26	Yijie Li	2232745, 2232746
SM 4500 F-C-2011	03/19/2021			03/22/2021 21:27	Dale L. Simmons	2232745
	03/19/2021			03/22/2021 21:35	Dale L. Simmons	2232746
SM 5310 B-2011	03/19/2021			03/29/2021 22:39	Madeline Gruver	2232747
	03/19/2021			03/30/2021 00:31	Madeline Gruver	2232748