

Chemical Analysis Report

NW-DIST-2021-03-16-01

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

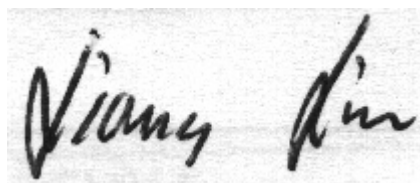
Event Description: **Yellow River Run**
Request ID: **RQ-2021-03-15-53**
Customer: **NW-DIST**
Project ID: **SMP**

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: 06-APR-2021 10:26

A handwritten signature in black ink, appearing to read "Liang Lin", is written on a light-colored, textured 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: Yellow River Upstream of Miller Bluff Landing Collection Date/Time: 03/15/2021 12:00

Field ID: G4NW0534

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2231590	EPA 180.1 Rev. 2.0	Turbidity	11	A	NTU	P395035	
	EPA 300.0 Rev. 2.1	Chloride	3.5		mg Cl/L	P395298	
		Sulfate	1.1		mg SO4/L	P395302	
		Color (true)	44	A	PCU	P395050	
	SM 2320 B-2011	Total Alkalinity	12		mg CaCO3/L	P395226	
	SM 2540 C-2011	TDS	28		mg/L	P395590	
	SM 2540 D-2011	TSS	7	I	mg/L	P395598	
	SM 4500 F-C-2011	Fluoride	0.035	U	mg F/L	P395232	
2231591	EPA 350.1 Rev. 2.0	Ammonia-N	0.015		mg N/L	P395254	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.28		mg N/L	P395284	MS
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.19		mg N/L	P395077	
	EPA 365.1 Rev. 2.0	Total-P	0.019		mg P/L	P395104	
	SM 5310 B-2011	Organic Carbon	3.4		mg C/L	P395519	
2231592	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	I	mg P/L	P395043	
2231596	EPA 8321B	2,4-D	0.0030	I	ug/L	P395071	
		Acesulfame K	0.10	UJ	ug/L	P395125	MS
		AMPA	0.10	U	ug/L	P395125	
		2,4,5-T	0.0040	U	ug/L	P395071	
		Sucralose	0.12		ug/L	P395125	
		Acetaminophen	0.0080	U	ug/L	P395071	
		Endothall	0.25	U	ug/L	P395125	
		Acetamiprid	0.0020	U	ug/L	P395071	
		Glufosinate	0.10	U	ug/L	P395125	
		Glyphosate	0.10	UJ	ug/L	P395125	LCS
		Afidopyropen	0.0020	U	ug/L	P395071	
		Bentazon	8.0E-04	U	ug/L	P395071	
		Benzovindiflupyr	0.0020	U	ug/L	P395071	
		Carbamazepine	8.0E-04	U	ug/L	P395071	
		Clothianidin	0.0020	U	ug/L	P395071	
		Dinotefuran	0.0020	U	ug/L	P395071	
		Diuron	0.0020	U	ug/L	P395071	
		Fenuron	0.016	U	ug/L	P395071	
		Fluridone	8.0E-04	U	ug/L	P395071	
		Imazapyr	0.0057	I	ug/L	P395071	
		Hydrocodone	0.0020	U	ug/L	P395071	
		Ibuprofen	0.020	U	ug/L	P395071	
		Imidacloprid	0.0034	I	ug/L	P395071	
		Linuron	0.0040	U	ug/L	P395071	
		Mandestrobin	0.0020	U	ug/L	P395071	
		MCPP	0.0020	U	ug/L	P395071	
		Naproxen	0.0080	U	ug/L	P395071	
		Primidone	0.0040	U	ug/L	P395071	
		Pyraclostrobin	0.0020	U	ug/L	P395071	

Field ID: G4NW0534

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2231596	EPA 8321B	Thiamethoxam	0.0020	U	ug/L	P395071	
		Tolfenpyrad	0.0020	U	ug/L	P395071	
		Triclopyr	0.0040	U	ug/L	P395071	
2231598	EPA 200.7 Rev. 4.4	Barium	15.4		ug/L	P395098	
		Calcium	4.52		mg/L	P395098	
		Iron	650		ug/L	P395098	
		Magnesium	1.13		mg/L	P395098	
		Manganese	27.9		ug/L	P395098	
		Potassium	0.51	I	mg/L	P395098	
		Sodium	2.1		mg/L	P395098	
	EPA 200.8 Rev. 5.4	Zinc	5.0	U	ug/L	P395098	
		Aluminum	325		ug/L	P395098	
		Antimony	0.050	U	ug/L	P395098	
		Arsenic	0.33		ug/L	P395098	
		Beryllium	0.031	I	ug/L	P395098	
		Boron**	8.9		ug/L	P395098	
		Cadmium	0.020	U	ug/L	P395098	
		Chromium	0.46	I	ug/L	P395098	
		Copper	0.40	U	ug/L	P395098	
		Lead	0.42		ug/L	P395098	
		Nickel	0.50	U	ug/L	P395098	
		Selenium	0.20	U	ug/L	P395098	
		Silver	0.010	U	ug/L	P395098	
		Thallium	0.10	U	ug/L	P395098	
	SM 2340B	Hardness	15.9		mg/L	P395098	

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.

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

Sample Location: Yellow River Below Malone Creek

Collection Date/Time: 03/15/2021 13:15

Field ID: G4NW0373

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2231597	EPA 8321B	2,4-D	0.0049	I	ug/L	P395071	
		Acesulfame K	0.10	U	ug/L	P395125	MS
		AMPA	0.10	U	ug/L	P395125	
		2,4,5-T	0.0040	U	ug/L	P395071	
		Sucralose	0.14		ug/L	P395125	
		Acetaminophen	0.0080	U	ug/L	P395071	
		Endothall	0.25	U	ug/L	P395125	
		Acetamiprid	0.0020	U	ug/L	P395071	
		Glufosinate	0.10	U	ug/L	P395125	
		Glyphosate	0.10	UJ	ug/L	P395125	LCS
		Afidopyropen	0.0020	U	ug/L	P395071	
		Bentazon	8.0E-04	U	ug/L	P395071	
		Benzovindiflupyr	0.0020	U	ug/L	P395071	
		Carbamazepine	8.0E-04	U	ug/L	P395071	
		Clothianidin	0.0020	U	ug/L	P395071	
		Dinotefuran	0.0020	U	ug/L	P395071	
		Diuron	0.0020	U	ug/L	P395071	
		Fenuron	0.016	U	ug/L	P395071	
		Fluridone	8.0E-04	U	ug/L	P395071	
		Imazapyr	0.0071	I	ug/L	P395071	
		Hydrocodone	0.0020	U	ug/L	P395071	
		Ibuprofen	0.020	U	ug/L	P395071	
		Imidacloprid	0.0037	I	ug/L	P395071	
		Linuron	0.0040	U	ug/L	P395071	
		Mandestrobin	0.0020	U	ug/L	P395071	
		MCPP	0.0020	U	ug/L	P395071	
		Naproxen	0.0080	U	ug/L	P395071	
		Primidone	0.0040	U	ug/L	P395071	
		Pyraclostrobin	0.0020	U	ug/L	P395071	
		Thiamethoxam	0.0020	U	ug/L	P395071	
		Tolfenpyrad	0.0020	U	ug/L	P395071	
		Triclopyr	0.0040	U	ug/L	P395071	
2231599	EPA 200.7 Rev. 4.4	Barium	15.5		ug/L	P395098	
		Calcium	4.99		mg/L	P395098	
		Iron	660		ug/L	P395098	
		Magnesium	1.19		mg/L	P395098	
		Manganese	28.0		ug/L	P395098	
		Potassium	0.50	I	mg/L	P395098	
		Sodium	2.1		mg/L	P395098	
		Zinc	5.0	U	ug/L	P395098	
	EPA 200.8 Rev. 5.4	Aluminum	264		ug/L	P395098	
		Antimony	0.050	U	ug/L	P395098	
		Arsenic	0.34		ug/L	P395098	
		Beryllium	0.033	I	ug/L	P395098	

Field ID: G4NW0373

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2231599	EPA 200.8 Rev. 5.4	Boron**	9.2		ug/L	P395098	
		Cadmium	0.020	U	ug/L	P395098	
		Chromium	0.43	I	ug/L	P395098	
		Copper	0.40	U	ug/L	P395098	
		Lead	0.34	I	ug/L	P395098	
		Nickel	0.50	U	ug/L	P395098	
		Selenium	0.20	U	ug/L	P395098	
		Silver	0.010	U	ug/L	P395098	
		Thallium	0.10	U	ug/L	P395098	
	SM 2340B	Hardness	17.4		mg/L	P395098	

Ref. Method and Comment:

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

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

Quality Assurance Report

Method Blank Results

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P395035

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P395098

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: P395098

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: P395298

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P395302

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P395254

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: P395284

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

Reference Method: EPA 353.2 Rev. 2.0
 Batch ID: P395077

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

Reference Method: EPA 365.1 Rev. 2.0
 Batch ID: P395104

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
 Batch ID: P395043

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

Reference Method: EPA 8321B
 Batch ID: P395071

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
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: P395125

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: P395050

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2320 B-2011
Batch ID: P395226

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

Reference Method: SM 2540 C-2011
Batch ID: P395590

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-2011
Batch ID: P395598

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500 F-C-2011
Batch ID: P395232

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-2011
Batch ID: P395519

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: P395098

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Barium	95.2		P	85 - 115
Calcium	101		P	85 - 115
Iron	100		P	85 - 115
Magnesium	98.1		P	85 - 115
Manganese	96.8		P	85 - 115
Potassium	97.6		P	85 - 115
Sodium	98.9		P	85 - 115
Zinc	92.6		P	85 - 115

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P395098

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Aluminum	96.2		P	85 - 115
Antimony	99.6		P	85 - 115
Arsenic	99.4		P	85 - 115
Beryllium	91.7		P	85 - 115
Boron	96.2		P	85 - 115
Cadmium	98.1		P	85 - 115
Chromium	97.0		P	85 - 115
Copper	99.7		P	85 - 115
Lead	105		P	85 - 115
Nickel	98.1		P	85 - 115
Selenium	98.4		P	85 - 115
Silver	105		P	85 - 115
Thallium	102		P	85 - 115

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P395298

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P395302

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P395254

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Ammonia-N	98.4		P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P395284

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

Quality Assurance Report

Laboratory Control Sample Accuracy

Reference Method: EPA 353.2 Rev. 2.0

Batch ID: P395077

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

Reference Method: EPA 365.1 Rev. 2.0

Batch ID: P395104

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: P395043

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

Reference Method: EPA 8321B

Batch ID: P395071

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2,4-D	133		P	30 - 160
2,4,5-T	103		P	30 - 160
Acetaminophen	92.2		P	30 - 160
Acetamiprid	109		P	30 - 160
Afidopyropen	79.1		P	30 - 160
Bentazon	91.2		P	30 - 160
Benzovindiflupyr	92.0		P	30 - 160
Carbamazepine	105		P	30 - 160
Clothianidin	103		P	30 - 160
Dinotefuran	106		P	30 - 160
Diuron	78.3		P	30 - 160
Fenuron	107		P	30 - 160
Fluridone	101		P	30 - 160
Hydrocodone	105		P	30 - 160
Ibuprofen	102		P	30 - 160
Imazapyr	112		P	30 - 160
Imidacloprid	112		P	30 - 160
Linuron	85.5		P	30 - 160
Mandestrobin	96.1		P	30 - 160
MCPP	123		P	30 - 160
Naproxen	56.1		P	30 - 160
Primidone	99.7		P	30 - 160
Pyraclostrobin	89.1		P	30 - 160
Thiamethoxam	110		P	30 - 160
Tolfenpyrad	62.8		P	30 - 160
Triclopyr	107		P	30 - 160

Reference Method: EPA 8321B

Batch ID: P395125

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Acesulfame K	115		P	40 - 150
AMPA	104		P	40 - 150
Endothall	87.4		P	40 - 150

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 8321B
Batch ID: P395125

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Glufosinate	125		P	40 - 150
Glyphosate	148		F	40 - 140
Sucralose	93.5		P	40 - 150

Reference Method: SM 2120 B-2011
Batch ID: P395050

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

Reference Method: SM 2320 B-2011
Batch ID: P395226

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

Reference Method: SM 4500 F-C-2011
Batch ID: P395232

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	102		P	90 - 106

Reference Method: SM 5310 B-2011
Batch ID: P395519

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: P395098

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2231676	Barium	99.5		P	80 - 120
2231676	Calcium	90.3		P	80 - 120
2231676	Iron	107		P	80 - 120
2231676	Magnesium	87.0		P	80 - 120
2231676	Manganese	101		P	80 - 120
2231676	Zinc	101		P	80 - 120
2232092	Barium	99.4	103	P/P	80 - 120
2232092	Calcium	105	107	P/P	80 - 120
2232092	Iron	105	107	P/P	80 - 120
2232092	Magnesium	103	105	P/P	80 - 120
2232092	Manganese	99.7	103	P/P	80 - 120
2232092	Potassium	104	106	P/P	80 - 120
2232092	Sodium	103	106	P/P	80 - 120
2232092	Zinc	98.0	102	P/P	80 - 120

Reference Method: EPA 200.8 Rev. 5.4

Batch ID: P395098

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2231676	Aluminum	97.2		P	80 - 120
2231676	Antimony	105		P	80 - 120
2231676	Arsenic	106		P	80 - 120
2231676	Beryllium	87.1		P	80 - 120
2231676	Boron	99.5		P	80 - 120
2231676	Cadmium	101		P	80 - 120
2231676	Chromium	98.6		P	80 - 120
2231676	Copper	98.3		P	80 - 120
2231676	Lead	108		P	80 - 120
2231676	Nickel	93.9		P	80 - 120
2231676	Selenium	99.2		P	80 - 120
2231676	Silver	99.4		P	80 - 120
2231676	Thallium	104		P	80 - 120
2232092	Aluminum	90.8	94.0	P/P	80 - 120
2232092	Antimony	99.3	99.7	P/P	80 - 120
2232092	Arsenic	97.1	99.2	P/P	80 - 120
2232092	Beryllium	92.3	94.4	P/P	80 - 120
2232092	Boron	94.5	96.8	P/P	80 - 120
2232092	Cadmium	99.1	97.8	P/P	80 - 120
2232092	Chromium	95.9	97.2	P/P	80 - 120
2232092	Copper	98.8	99.1	P/P	80 - 120
2232092	Lead	105	106	P/P	80 - 120
2232092	Nickel	96.8	97.1	P/P	80 - 120
2232092	Selenium	94.5	96.6	P/P	80 - 120
2232092	Silver	105	105	P/P	80 - 120
2232092	Thallium	103	105	P/P	80 - 120

Reference Method: EPA 300.0 Rev. 2.1

Batch ID: P395298

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2231575	Chloride	101		P	90 - 110
2231693	Chloride	100		P	90 - 110

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
 Batch ID: P395302

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2231575	Sulfate	97.3		P	90 - 110
2231693	Sulfate	97.5		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
 Batch ID: P395254

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2231591	Ammonia-N	98.0	100	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
 Batch ID: P395284

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2231537	Kjeldahl Nitrogen	111	107	F/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
 Batch ID: P395077

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2231578	NO2NO3-N	103	103	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
 Batch ID: P395104

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2231548	Total-P	105	107	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
 Batch ID: P395043

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2231592	O-Phosphate-P	97.2	99.3	P/P	90 - 110

Reference Method: EPA 8321B
 Batch ID: P395071

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2231596	2,4-D	116	124	P/P	30 - 160
2231596	2,4,5-T	98.9	103	P/P	30 - 160
2231596	Acetaminophen	94.8	103	P/P	30 - 160
2231596	Acetamiprid	107	97.0	P/P	30 - 160
2231596	Afidopyropen	78.5	65.5	P/P	30 - 160
2231596	Bentazon	67.7	70.4	P/P	30 - 160
2231596	Benzovindiflupyr	89.4	92.9	P/P	30 - 160
2231596	Carbamazepine	95.3	91.9	P/P	30 - 160
2231596	Clothianidin	113	101	P/P	30 - 160
2231596	Dinotefuran	109	95.4	P/P	30 - 160
2231596	Diuron	64.9	67.1	P/P	30 - 160
2231596	Fenuron	93.9	97.0	P/P	30 - 160
2231596	Fluridone	87.5	90.0	P/P	30 - 160
2231596	Hydrocodone	108	104	P/P	30 - 160
2231596	Ibuprofen	82.1	83.6	P/P	30 - 160

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 8321B
Batch ID: P395071

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2231596	Imazapyr	118	113	P/P	30 - 160
2231596	Imidacloprid	137	135	P/P	30 - 160
2231596	Linuron	74.3	73.9	P/P	30 - 160
2231596	Mandestrobin	86.6	88.4	P/P	30 - 160
2231596	MCP	107	112	P/P	30 - 160
2231596	Naproxen	73.6	80.1	P/P	30 - 160
2231596	Primidone	101	99.6	P/P	30 - 160
2231596	Pyraclostrobin	85.7	84.9	P/P	30 - 160
2231596	Thiamethoxam	135	126	P/P	30 - 160
2231596	Tolfenpyrad	58.0	59.2	P/P	30 - 160
2231596	Triclopyr	102	103	P/P	30 - 160

Reference Method: EPA 8321B
Batch ID: P395125

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2231596	Acesulfame K	177	145	F/P	40 - 150
2231596	AMPA	120	127	P/P	40 - 150
2231596	Endothall	82.1	109	P/P	40 - 150
2231596	Glufosinate	134	135	P/P	40 - 150
2231596	Glyphosate	105	92.0	P/P	40 - 140
2231596	Sucralose	105	103	P/P	40 - 150

Reference Method: SM 4500 F-C-2011
Batch ID: P395232

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2231841	Fluoride	99.4	99.4	P/P	94 - 107

Reference Method: SM 5310 B-2011
Batch ID: P395519

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2231591	Organic Carbon	95.5	97.5	P/P	85 - 115

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0

Batch ID: P395035

Replicated

Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2231590	Turbidity	0.889	Sample	P	0 - 20

Reference Method: EPA 200.7 Rev. 4.4

Batch ID: P395098

Replicated

Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2232092	Barium	3.82	Spike	P	0 - 20
2232092	Calcium	1.87	Spike	P	0 - 20
2232092	Iron	2.29	Spike	P	0 - 20
2232092	Magnesium	2.18	Spike	P	0 - 20
2232092	Manganese	3.34	Spike	P	0 - 20
2232092	Potassium	2.20	Spike	P	0 - 20
2232092	Sodium	1.84	Spike	P	0 - 20
2232092	Zinc	3.88	Spike	P	0 - 20

Reference Method: EPA 200.8 Rev. 5.4

Batch ID: P395098

Replicated

Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2232092	Aluminum	3.17	Spike	P	0 - 20
2232092	Antimony	0.398	Spike	P	0 - 20
2232092	Arsenic	2.08	Spike	P	0 - 20
2232092	Beryllium	2.20	Spike	P	0 - 20
2232092	Boron	2.18	Spike	P	0 - 20
2232092	Cadmium	1.39	Spike	P	0 - 20
2232092	Chromium	1.35	Spike	P	0 - 20
2232092	Copper	0.344	Spike	P	0 - 20
2232092	Lead	0.506	Spike	P	0 - 20
2232092	Nickel	0.309	Spike	P	0 - 20
2232092	Selenium	2.12	Spike	P	0 - 20
2232092	Silver	0.442	Spike	P	0 - 20
2232092	Thallium	2.07	Spike	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1

Batch ID: P395298

Replicated

Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2231575	Chloride	0.468	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1

Batch ID: P395302

Replicated

Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2231575	Sulfate	0.723	Sample	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 350.1 Rev. 2.0

Batch ID: P395254

Replicated

Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2231591	Ammonia-N	1.70	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0

Batch ID: P395284

Replicated

Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2231537	Kjeldahl Nitrogen	4.15	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0

Batch ID: P395077

Replicated

Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2231578	NO2NO3-N	0.394	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0

Batch ID: P395104

Replicated

Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2231548	Total-P	1.69	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved

Batch ID: P395043

Replicated

Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2231592	O-Phosphate-P	2.05	Spike	P	0 - 20

Reference Method: EPA 8321B

Batch ID: P395071

Replicated

Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2231596	2,4-D	7.04	Spike	P	0 - 30
2231596	2,4,5-T	3.76	Spike	P	0 - 30
2231596	Acetaminophen	7.94	Spike	P	0 - 30
2231596	Acetamiprid	9.90	Spike	P	0 - 30
2231596	Afidopyropen	18.0	Spike	P	0 - 30
2231596	Bentazon	3.94	Spike	P	0 - 30
2231596	Benzovindiflupyr	3.90	Spike	P	0 - 30
2231596	Carbamazepine	3.55	Spike	P	0 - 30
2231596	Clothianidin	10.8	Spike	P	0 - 30
2231596	Dinotefuran	12.9	Spike	P	0 - 30
2231596	Diuron	3.40	Spike	P	0 - 30
2231596	Fenuron	3.30	Spike	P	0 - 30
2231596	Fluridone	2.78	Spike	P	0 - 30
2231596	Hydrocodone	4.03	Spike	P	0 - 30
2231596	Ibuprofen	1.90	Spike	P	0 - 30
2231596	Imazapyr	4.41	Spike	P	0 - 30

Quality Assurance Report Precision

Reference Method: EPA 8321B
Batch ID: P395071

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2231596	Imidacloprid	1.59	Spike	P	0 - 30
2231596	Linuron	0.482	Spike	P	0 - 30
2231596	Mandestrobin	2.10	Spike	P	0 - 30
2231596	MCPP	5.39	Spike	P	0 - 30
2231596	Naproxen	8.42	Spike	P	0 - 30
2231596	Primidone	1.68	Spike	P	0 - 30
2231596	Pyraclostrobin	0.919	Spike	P	0 - 30
2231596	Thiamethoxam	6.85	Spike	P	0 - 30
2231596	Tolfenpyrad	2.03	Spike	P	0 - 30
2231596	Triclopyr	1.54	Spike	P	0 - 30

Reference Method: EPA 8321B
Batch ID: P395125

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2231596	Acesulfame K	19.8	Spike	P	0 - 30
2231596	AMPA	6.11	Spike	P	0 - 30
2231596	Endothall	28.3	Spike	P	0 - 30
2231596	Glufosinate	0.981	Spike	P	0 - 30
2231596	Glyphosate	13.5	Spike	P	0 - 30
2231596	Sucralose	1.82	Spike	P	0 - 30

Reference Method: SM 2120 B-2011
Batch ID: P395050

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2231590	Color (true)	2.64	Sample	P	0 - 20

Reference Method: SM 2320 B-2011
Batch ID: P395226

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2231841	Total Alkalinity	0.340	Sample	P	0 - 8.1

Reference Method: SM 2540 C-2011
Batch ID: P395590

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2231577	TDS	2.68	Sample	P	0 - 10

Reference Method: SM 4500 F-C-2011
Batch ID: P395232

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2231841	Fluoride	0.0	Spike	P	0 - 2.8

Quality Assurance Report

Precision

Reference Method: SM 5310 B-2011
Batch ID: P395519

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2231591	Organic Carbon	1.80	Spike	P	0 - 20

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

Quality Assurance Report Surrogates

Lab Sample ID: 2231596

Field Sample ID: G4NW0534

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	2,4-D-d3	124	P	30 - 160
EPA 8321B	Acetaminophen-d4	92.7	P	30 - 160
EPA 8321B	Carbamazepine-d10	95.2	P	30 - 160
EPA 8321B	Diuron-d6	86.1	P	30 - 160
EPA 8321B	Endothall-d6	119	P	40 - 160
EPA 8321B	Endothall-d6	119	P	40 - 160
EPA 8321B	Glyphosate 13C 15N	128	P	40 - 160
EPA 8321B	Glyphosate 13C 15N	128	P	40 - 160
EPA 8321B	Ibuprofen-d3	96.5	P	30 - 160
EPA 8321B	Primidone-d5	113	P	30 - 160
EPA 8321B	Sucralose-d6	107	P	30 - 160
EPA 8321B	Sucralose-d6	107	P	30 - 160

Lab Sample ID: 2231597

Field Sample ID: G4NW0373

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	2,4-D-d3	121	P	30 - 160
EPA 8321B	Acetaminophen-d4	92.0	P	30 - 160
EPA 8321B	Carbamazepine-d10	92.2	P	30 - 160
EPA 8321B	Diuron-d6	81.5	P	30 - 160
EPA 8321B	Endothall-d6	106	P	40 - 160
EPA 8321B	Endothall-d6	106	P	40 - 160
EPA 8321B	Glyphosate 13C 15N	120	P	40 - 160
EPA 8321B	Glyphosate 13C 15N	120	P	40 - 160
EPA 8321B	Ibuprofen-d3	87.9	P	30 - 160
EPA 8321B	Primidone-d5	114	P	30 - 160
EPA 8321B	Sucralose-d6	104	P	30 - 160
EPA 8321B	Sucralose-d6	104	P	30 - 160

Quality Assurance Report Calibration Verification

Reference Method: EPA 180.1 Rev. 2.0

Run ID: A104090

Included Lab Sample IDs: 2231590

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved

Run ID: A104091

Included Lab Sample IDs: 2231592

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	97.0	97.7	P/P	90 - 110

Reference Method: SM 2120 B-2011

Run ID: A104092

Included Lab Sample IDs: 2231590

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	104	103	P/P	90 - 115

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A104102

Included Lab Sample IDs: 2231591

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

Reference Method: EPA 300.0 Rev. 2.1

Run ID: A104153

Included Lab Sample IDs: 2231590

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	99.9	100	P/P	90 - 110
Sulfate	98.9	100	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A104154

Included Lab Sample IDs: 2231591

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

Reference Method: SM 2320 B-2011

Run ID: A104172

Included Lab Sample IDs: 2231590

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	98.6	96.9	P/P	90 - 110

Reference Method: SM 4500 F-C-2011

Run ID: A104172

Included Lab Sample IDs: 2231590

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

Quality Assurance Report Calibration Verification

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A104179

Included Lab Sample IDs: 2231591

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	98.1	98.0	P/P	90 - 110

Reference Method: EPA 200.8 Rev. 5.4

Run ID: A104188

Included Lab Sample IDs: 2231598, 2231599

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Aluminum	97.6	98.3	P/P	90 - 110
Antimony	97.7	98.7	P/P	90 - 110
Arsenic	100	98.9	P/P	90 - 110
Beryllium	98.4	94.3	P/P	90 - 110
Cadmium	98.6	99.8	P/P	90 - 110
Chromium	97.4	95.6	P/P	90 - 110
Copper	99.3	96.8	P/P	90 - 110
Lead	106	108	P/P	90 - 110
Nickel	99.3	96.6	P/P	90 - 110
Selenium	99.7	98.9	P/P	90 - 110
Silver	101	101	P/P	90 - 110
Thallium	103	102	P/P	90 - 110

Reference Method: EPA 8321B

Run ID: A104192

Included Lab Sample IDs: 2231596, 2231597

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Acesulfame K	158	99.9	P/P	60 - 160
AMPA	109	122	P/P	60 - 160
Endothall	86.5	122	P/P	60 - 160
Glufosinate	100	117	P/P	60 - 160
Glyphosate	155	108	P/P	60 - 160

Reference Method: EPA 200.8 Rev. 5.4

Run ID: A104205

Included Lab Sample IDs: 2231598, 2231599

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Boron	98.4	97.4	P/P	90 - 110

Reference Method: EPA 200.7 Rev. 4.4

Run ID: A104231

Included Lab Sample IDs: 2231598, 2231599

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Barium	97.9	98.4	P/P	90 - 110
Calcium	100	102	P/P	90 - 110
Iron	102	104	P/P	90 - 110
Magnesium	97.9	99.6	P/P	90 - 110
Manganese	101	101	P/P	90 - 110
Potassium	102	104	P/P	90 - 110
Sodium	98.6	100	P/P	90 - 110
Zinc	99.6	100	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A104250

Included Lab Sample IDs: 2231591

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	97.8	98.8	P/P	90 - 110

Reference Method: EPA 8321B

Run ID: A104272

Included Lab Sample IDs: 2231596, 2231597

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Sucralose	96.7	101	P/P	60 - 160

Reference Method: SM 5310 B-2011

Run ID: A104292

Included Lab Sample IDs: 2231591

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	95.6	96.4	P/P	90 - 110

Reference Method: EPA 8321B

Run ID: A104297

Included Lab Sample IDs: 2231596, 2231597

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
2,4-D	102	116	P/P	50 - 150
2,4,5-T	112	100	P/P	50 - 150
Acetaminophen	121	106	P/P	60 - 160
Acetamiprid	112	107	P/P	50 - 150
Afidopyropen	105	103	P/P	50 - 150
Bentazon	108	117	P/P	50 - 160
Benzovindiflupyr	110	115	P/P	50 - 160
Carbamazepine	115	104	P/P	60 - 150
Clothianidin	114	113	P/P	60 - 150
Dinotefuran	126	108	P/P	50 - 150
Diuron	113	107	P/P	60 - 160
Fenuron	111	105	P/P	60 - 150
Fluridone	122	101	P/P	60 - 160
Hydrocodone	111	114	P/P	60 - 150
Ibuprofen	120	117	P/P	50 - 160
Imazapyr	102	97.3	P/P	50 - 160
Imidacloprid	106	103	P/P	60 - 150
Linuron	109	97.2	P/P	60 - 150
Mandestrobin	104	108	P/P	50 - 150
MCPP	113	107	P/P	50 - 150
Naproxen	90.4	98.6	P/P	50 - 160
Primidone	104	97.1	P/P	60 - 150
Pyraclostrobin	111	110	P/P	60 - 150
Thiamethoxam	111	110	P/P	50 - 150
Tolfenpyrad	111	106	P/P	60 - 150
Triclopyr	104	117	P/P	50 - 150

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

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

Where they are different, both control limits are provided.

Quality Assurance Report Summary

Ref. Method	Analyte	LCS % Recovery	MS % Recovery			LCS	Precision SMP	MS
EPA 180.1 Rev. 2.0	Turbidity						0.889	
EPA 200.7 Rev. 4.4	Barium	95.2	99.5	99.4	103			3.82
	Calcium	101	90.3	105	107			1.87
	Iron	100	107	105	107			2.29
	Magnesium	98.1	87.0	103	105			2.18
	Manganese	96.8	101	99.7	103			3.34
	Potassium	97.6	104	106				2.20
	Sodium	98.9	103	106				1.84
	Zinc	92.6	101	98.0	102			3.88
EPA 200.8 Rev. 5.4	Aluminum	96.2	90.8	94.0	97.2			3.17
	Antimony	99.6	99.3	99.7	105			0.398
	Arsenic	99.4	97.1	99.2	106			2.08
	Beryllium	91.7	92.3	94.4	87.1			2.20
	Boron	96.2	94.5	96.8	99.5			2.18
	Cadmium	98.1	99.1	97.8	101			1.39
	Chromium	97.0	95.9	97.2	98.6			1.35
	Copper	99.7	98.8	99.1	98.3			0.344
	Lead	105	105	106	108			0.506
	Nickel	98.1	96.8	97.1	93.9			0.309
	Selenium	98.4	94.5	96.6	99.2			2.12
	Silver	105	105	105	99.4			0.442
	Thallium	102	103	105	104			2.07
EPA 300.0 Rev. 2.1	Chloride	99.9	101	100			0.468	
	Sulfate	97.6	97.3	97.5			0.723	
EPA 350.1 Rev. 2.0	Ammonia-N	98.4	98.0	100				1.70
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	103	111	107				4.15
EPA 353.2 Rev. 2.0	NO2NO3-N	102	103	103				0.394
EPA 365.1 Rev. 2.0	Total-P	104	105	107				1.69
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	104	97.2	99.3				2.05
EPA 8321B	2,4-D	133	116	124				7.04
	2,4,5-T	103	98.9	103				3.76
	Acesulfame K	115	177	145				19.8
	Acetaminophen	92.2	94.8	103				7.94
	Acetamiprid	109	107	97.0				9.90
	Afidopyropen	79.1	78.5	65.5				18.0
	AMPA	104	120	127				6.11
	Bentazon	91.2	67.7	70.4				3.94
	Benzovindiflupyr	92.0	89.4	92.9				3.90
	Carbamazepine	105	95.3	91.9				3.55
	Clothianidin	103	113	101				10.8
	Dinotefuran	106	109	95.4				12.9
	Diuron	78.3	64.9	67.1				3.40
	Endothall	87.4	82.1	109				28.3
	Fenuron	107	93.9	97.0				3.30
	Fluridone	101	87.5	90.0				2.78
	Glufosinate	125	134	135				0.981
	Glyphosate	148	105	92.0				13.5
	Hydrocodone	105	108	104				4.03
	Ibuprofen	102	82.1	83.6				1.90
	Imazapyr	112	118	113				4.41
	Imidacloprid	112	137	135				1.59
	Linuron	85.5	74.3	73.9				0.482
	Mandestrobin	96.1	86.6	88.4				2.10
	MCPD	123	107	112				5.39

Quality Assurance Report Summary

Ref. Method	Analyte	LCS % Recovery	MS % Recovery		Precision LCS	SMP	MS
EPA 8321B	Naproxen	56.1	73.6	80.1			8.42
	Primidone	99.7	101	99.6			1.68
	Pyraclostrobin	89.1	85.7	84.9			0.919
	Sucralose	93.5	105	103			1.82
	Thiamethoxam	110	135	126			6.85
	Tolfenpyrad	62.8	58.0	59.2			2.03
	Triclopyr	107	102	103			1.54
SM 2120 B-2011	Color (true)	102				2.64	
SM 2320 B-2011	Total Alkalinity	101				0.340	
SM 2540 C-2011	TDS					2.68	
SM 4500 F-C-2011	Fluoride	102	99.4	99.4			0.0
SM 5310 B-2011	Organic Carbon	95.2	95.5	97.5			1.80

Reference Method Descriptions

Method	Description	Associated Samples
EPA 180.1 Rev. 2.0	Turbidity in aqueous matrices	2231590
EPA 200.7 Rev. 4.4	Total Recoverable Metals analysis using ICP emission spectroscopy for aqueous samples supporting Clean Water Act Projects	2231598, 2231599
EPA 200.8 Rev. 5.4	Total Recoverable Metals analysis using ICP-MS for aqueous samples supporting Clean Water Act Projects	2231598, 2231599
EPA 300.0 Rev. 2.1	Chloride in aqueous matrices	2231590
EPA 300.0 Rev. 2.1	Sulfate in aqueous matrices	2231590
EPA 350.1 Rev. 2.0	Ammonia in aqueous matrices as mg N/L	2231591
EPA 351.2 Rev. 2.0	Total Kjeldahl Nitrogen in aqueous matrices	2231591
EPA 353.2 Rev. 2.0	Nitrite/Nitrate in aqueous matrices as mg N/L	2231591
EPA 365.1 Rev. 2.0	Total Phosphorus in aqueous matrices as mg P/L	2231591
EPA 365.1 Rev. 2.0 dissolved	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	2231592
EPA 8321B	Pesticides, herbicides, and other chemicals in water matrices by HPLC/MS/MS	2231596, 2231597
EPA 8321B	Water soluble organic compounds by HPLC/MS/MS	2231596, 2231597
SM 2120 B-2011	True Color measured at 450 nm (not valid for NPDES monitoring)	2231590
SM 2320 B-2011	Alkalinity in aqueous matrices as mg CaCO3/L	2231590
SM 2340B	Hardness by calculation, in aqueous matrices, reported as mg/L CaCO3	2231598, 2231599
SM 2540 C-2011	Total Dissolved Solids in aqueous matrices	2231590
SM 2540 D-2011	Total Suspended Solids in aqueous matrices using a maximum of 250 mL of sample	2231590
SM 4500 F-C-2011	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	2231590
SM 5310 B-2011	Nonpurgeable Organic Carbon in aqueous matrices	2231591

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	03/16/2021			03/16/2021 16:11	Yen Ta	2231590
EPA 200.7 Rev. 4.4	03/16/2021	03/17/2021 16:35	Elliott D. Healy	03/23/2021 13:40	Betina Topolski	2231598
	03/16/2021	03/17/2021 16:35	Elliott D. Healy	03/23/2021 13:47	Betina Topolski	2231599
EPA 200.8 Rev. 5.4	03/16/2021	03/17/2021 16:35	Elliott D. Healy	03/19/2021 17:40	McKinley C Carter	2231598
	03/16/2021	03/17/2021 16:35	Elliott D. Healy	03/19/2021 17:48	McKinley C Carter	2231599
	03/16/2021	03/17/2021 16:35	Elliott D. Healy	03/22/2021 13:26	Alexander Thompson	2231598
	03/16/2021	03/17/2021 16:35	Elliott D. Healy	03/22/2021 13:31	Alexander Thompson	2231599
EPA 300.0 Rev. 2.1	03/16/2021			03/19/2021 20:58	Lipi Saha	2231590
EPA 350.1 Rev. 2.0	03/16/2021			03/20/2021 12:23	Ping Hua	2231591
EPA 351.2 Rev. 2.0	03/16/2021	03/22/2021 13:25	Benjamin T. Nordmann	03/23/2021 23:01	Julia Storbeck	2231591
EPA 353.2 Rev. 2.0	03/16/2021			03/17/2021 10:22	Beverly Y. Sanders	2231591
EPA 365.1 Rev. 2.0	03/16/2021	03/17/2021 13:18	Yen Ta	03/18/2021 16:17	Shengyu Ding	2231591
EPA 365.1 Rev. 2.0 dissolved	03/16/2021			03/16/2021 15:14	Patrick M. Roche	2231592
EPA 8321B	03/16/2021	03/18/2021 09:00	Hoor Shaik	03/25/2021 22:26	Juyoung Kim	2231596
	03/16/2021	03/18/2021 09:00	Hoor Shaik	03/26/2021 00:10	Juyoung Kim	2231597
	03/16/2021	03/18/2021 10:30	Rebecca Ware	03/18/2021 11:50	Rebecca Ware	2231596
	03/16/2021	03/18/2021 10:30	Rebecca Ware	03/18/2021 12:04	Rebecca Ware	2231597
	03/16/2021	03/18/2021 10:30	Rebecca Ware	03/24/2021 16:20	Rebecca Ware	2231596
	03/16/2021	03/18/2021 10:30	Rebecca Ware	03/24/2021 16:32	Rebecca Ware	2231597
SM 2120 B-2011	03/16/2021			03/16/2021 18:32	Benjamin T. Nordmann	2231590
SM 2320 B-2011	03/16/2021			03/19/2021 01:28	Dale L. Simmons	2231590
SM 2340B	03/16/2021			03/23/2021 13:40	Betina Topolski	2231598
	03/16/2021			03/23/2021 13:47	Betina Topolski	2231599
SM 2540 C-2011	03/16/2021			03/19/2021 15:21	Yijie Li	2231590
SM 2540 D-2011	03/16/2021			03/19/2021 15:21	Yijie Li	2231590
SM 4500 F-C-2011	03/16/2021			03/19/2021 01:28	Dale L. Simmons	2231590
SM 5310 B-2011	03/16/2021			03/25/2021 21:31	Madeline Gruver	2231591