

Chemical Analysis Report

NE-DIST-2021-01-28-01

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

Event Description: **St.Augustine 2021**
Request ID: **RQ-2021-01-25-09**
Customer: **NE-DIST**
Project ID: **SMP**

Send Reports to:
FL Dept. of Environmental Protection
8800 Baymeadows Way West
Suite 100
Jacksonville, FL 32256
Attn: Jeremy Parrish

For additional information please contact
Colin Wright, Ph.D.
Liang-Tsair Lin, Ph.D.
Kerry Tate, Ph.D.
Dr. rer. nat. Bettina Steinbock
Thekkekalathil Chandrasekhar, Ph.D, QA Officer
Phone (850) 245-8085

Certified by: Kerry Tate, Ph.D., Environmental Administrator

Date Certified: 19-FEB-2021 13:16

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

Case Narrative

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

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

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

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

Results for TNI accredited tests met requirements established by The NELAC Institute. A double asterisk (**) is used to indicate an analyte/matrix/method for which the laboratory is not TNI accredited by the Florida Department of Health Environmental Laboratory Certification Program or where accreditation for that field of testing is not applicable.

Any significant anomalies or deviations from established protocols are documented in Non-Conformance Reports, which, where appropriate, are included within this analytical report. Additional comments related to specific analytical tests may be included as remarks following the analytical results for each sample. Such comments and remarks are for informational purposes only and are not intended to convey judgement about the usability of the reported data.

A quality control report on the performance of the test method for the submitted samples is included. Uncertainty associated with the analytical results contained in this report can be estimated from the reported quality assurance results and from published quality control acceptance limits for each analytical test. Matrix quality control results (matrix spike recoveries and matrix sample precision) pertain only to the matrix sample tested and do not necessarily reflect test method performance for other samples.

Typical matrix quality control (QC) measurements may include matrix spike recovery, matrix spike duplicate recovery, matrix spike precision and matrix sample precision. Not all matrix QC results may be available or reportable; where they are not an explanation is provided. Typical reasons for unavailable QC results include, but are not limited to, a) insufficient matrix sample to perform some or all QC measurements; b) analyte concentration in the sample replicated was too low for a meaningful measurement of precision and c) analyte concentration in the matrix sample spiked was too high (relative to the amount of analyte spiked) for a meaningful measurement of recovery. Where matrix QC results are unavailable, other method performance metrics (e.g., LCS recovery, LCS precision, surrogate recovery) may be used to assess performance of the method. Comments explaining any missing QC measurements are not intended to convey any adverse conclusions about the quality of the reported data.

Precision is reported as relative percent difference unless otherwise noted.

Quality Control codes as defined below may be used in this report to indicate results that are associated with one or more quality control elements which did not fall within established test method criteria. Such results may be qualified as estimates using a J qualifier as required by 62-160 F.A.C. Explanations are included in the report for any results that were reported as estimates for other reasons.

QC Codes used in this report may include:

- LCS – Recovery for the batch Laboratory Control Sample (LCS) was outside existing control limits;
- MS – Recovery for the batch matrix spike (MS) was outside existing control limits;
- CCV – Recovery for a continuing calibration verification (CCV) standard was outside existing control limits;
- SUR – Recovery of a surrogate (SUR) for associated analytes was outside existing control limits;
- RPD – The precision, measured as relative percent difference (RPD), of batch replicate measurements was outside existing control limits;
- RSD – The precision, measured as relative standard deviation (RSD), of batch replicate measurements was outside existing control limits;
- SMP – Sample - used precision derived from replicate analyses of a sample;

The following data qualifiers are used, where applicable, in this report as specified in 62-160 F.A.C.

- A - Value reported is the mean of two or more determinations.
- B - Results based on colony counts outside the acceptable range.
- I - The reported value is between the laboratory method detection limit and the laboratory practical quantitation limit.
- J - Estimated value and/or the analysis did not meet established quality control criteria.
- K - Actual value is known to be less than value given.
- L - Actual value is known to be greater than value given.
- N - Presumptive evidence of presence of material.
- O - Sampled, but analysis lost or not performed.
- Q - Sample held beyond normal holding time.
- T - Value reported is less than the criterion of detection.
- U - Material was analyzed for but not detected. The reported value is the method detection limit for the sample analyzed.
- V - Analyte was detected in both sample and method blank.
- X - Too few individuals to calculate SCI value.
- Y - The laboratory analysis was from an unpreserved or improperly preserved sample. The data may not be accurate.
- Z - Colonies were too numerous to count (TNTC).

Quality control information from overflow laboratories may not be included in this report. Please refer to the associated report from the overflow laboratory for additional information.

Sample Location: Moultrie CR @ US 1

Collection Date/Time: 01/27/2021 10:55

Field ID: 27010055

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2222089	EPA 180.1 Rev. 2.0	Turbidity	4.6		NTU	P393102	
	EPA 300.0 Rev. 2.1	Bromide	63		mg Br/L	P393555	
	SM 2320 B-2011	Total Alkalinity	109		mg CaCO3/L	P393340	
	SM 2540 D-2011	TSS	10	A	mg/L	P393541	
	SM 4500 F-C-2011	Fluoride	1.1		mg F/L	P393342	
2222090	EPA 350.1 Rev. 2.0	Ammonia-N	0.017		mg N/L	P393459	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.36	I	mg N/L	P393543	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.014		mg N/L	P393289	
	EPA 365.1 Rev. 2.0	Total-P	0.048		mg P/L	P393316	
	SM 5310 B-2011	Organic Carbon	3.7		mg C/L	P393265	
2222091	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.028		mg P/L	P393089	
2222104	EPA 200.7 Rev. 4.4	Calcium	182		mg/L	P393322	
		Chromium	6.9	I	ug/L	P393322	
		Iron	240	I	ug/L	P393322	
		Magnesium	391		mg/L	P393322	
		Manganese	17		ug/L	P393322	
		Zinc	20	U	ug/L	P393322	
	EPA 200.8 Rev. 5.4	Aluminum	300	I	ug/L	P393322	
		Antimony	0.20	U	ug/L	P393322	
		Arsenic	1.93		ug/L	P393322	
		Beryllium	0.040	U	ug/L	P393322	
		Cadmium	0.080	U	ug/L	P393322	
		Copper	1.6	U	ug/L	P393322	
		Lead	0.80	U	ug/L	P393322	
		Nickel	2.0	U	ug/L	P393322	
		Selenium	0.80	U	ug/L	P393322	
		Silver	0.040	U	ug/L	P393322	
		Thallium	0.40	U	ug/L	P393322	

Ref. Method and Comment:

EPA 200.7 Rev. 4.4: Batch matrix spike recoveries for calcium and magnesium are unavailable because of high analyte concentration in the QC sample.

Sample Location: Mill CR @ SR 16

Collection Date/Time: 01/27/2021 13:00

Field ID: 20030474

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2222103	EPA 8321B	2,4-D	0.081		ug/L	P392967	
		Acesulfame K	0.10	U	ug/L	P393118	
		AMPA	0.74		ug/L	P393118	
		Sucralose	22		ug/L	P393118	
		Acetaminophen**	0.0080	U	ug/L	P392967	
		Acetamiprid**	0.0020	U	ug/L	P392967	
		Endothall	0.25	U	ug/L	P393118	
		Glufosinate	0.10	U	ug/L	P393118	
		Glyphosate	0.10	U	ug/L	P393118	
		Afidopyropen**	0.0020	U	ug/L	P392967	
		Bentazon	0.068		ug/L	P392967	
		Benzovindiflupyr**	0.0020	U	ug/L	P392967	
		Carbamazepine**	0.014		ug/L	P392967	
		Clothianidin**	0.0024	I	ug/L	P392967	
		Dinotefuran**	0.0020	U	ug/L	P392967	
		Diuron	0.0020	U	ug/L	P392967	
		Fenuron	0.016	U	ug/L	P392967	
		Fluridone**	0.010		ug/L	P392967	
		Imazapyr**	0.15		ug/L	P392967	
		Hydrocodone**	0.0020	U	ug/L	P392967	
		Ibuprofen**	0.020	U	ug/L	P392967	
		Imidacloprid	0.0098		ug/L	P392967	
		Linuron	0.0040	U	ug/L	P392967	
		Mandestrobin**	0.0020	U	ug/L	P392967	
		MCPP	0.0020	U	ug/L	P392967	
		Naproxen**	0.0080	U	ug/L	P392967	
		Primidone**	0.056		ug/L	P392967	
		Pyraclostrobin**	0.0020	U	ug/L	P392967	
		Thiamethoxam**	0.0020	U	ug/L	P392967	
		Tolfenpyrad**	0.0020	U	ug/L	P392967	
		Triclopyr**	0.0040	U	ug/L	P392967	

Quality Assurance Report Method Blank Results

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P393102

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P393322

Component	Result	Code	Units
Calcium	0.075	U	mg/L
Chromium	1.0	U	ug/L
Iron	30	U	ug/L
Magnesium	0.040	U	mg/L
Manganese	1.0	U	ug/L
Zinc	5.0	U	ug/L

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P393322

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
Cadmium	0.020	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: P393555

Component	Result	Code	Units
Bromide	0.013	U	mg Br/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P393459

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P393543

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P393289

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

Quality Assurance Report Method Blank Results

Reference Method: EPA 365.1 Rev. 2.0

Batch ID: P393316

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved

Batch ID: P393089

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

Reference Method: EPA 8321B

Batch ID: P392967

Component	Result	Code	Units
2,4-D	0.0020	U	ug/L
Acetaminophen	0.0080	U	ug/L
Acetamiprid	0.0020	U	ug/L
Afidopyropen	0.0020	U	ug/L
Bentazon	8.0E-04	U	ug/L
Benzovindiflupyr	0.0020	U	ug/L
Carbamazepine	8.0E-04	U	ug/L
Clothianidin	0.0020	U	ug/L
Dinotefuran	0.0020	U	ug/L
Diuron	0.0020	U	ug/L
Fenuron	0.016	U	ug/L
Fluridone	8.0E-04	U	ug/L
Hydrocodone	0.0020	U	ug/L
Ibuprofen	0.020	U	ug/L
Imazapyr	0.0040	U	ug/L
Imidacloprid	0.0020	U	ug/L
Linuron	0.0040	U	ug/L
Mandestrobin	0.0020	U	ug/L
MCPP	0.0020	U	ug/L
Naproxen	0.0080	U	ug/L
Primidone	0.0040	U	ug/L
Pyraclostrobin	0.0020	U	ug/L
Thiamethoxam	0.0020	U	ug/L
Tolfenpyrad	0.0020	U	ug/L
Triclopyr	0.0040	U	ug/L

Reference Method: EPA 8321B

Batch ID: P393118

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

Quality Assurance Report

Method Blank Results

Reference Method: SM 2320 B-2011
Batch ID: P393340

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

Reference Method: SM 2540 D-2011
Batch ID: P393541

Component	Result	Code	Units
TSS	3	U	mg/L

Reference Method: SM 4500 F-C-2011
Batch ID: P393342

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-2011
Batch ID: P393265

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: P393322

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Calcium	98.9		P	85 - 115
Chromium	92.2		P	85 - 115
Iron	101		P	85 - 115
Magnesium	98.7		P	85 - 115
Manganese	97.0		P	85 - 115
Zinc	94.5		P	85 - 115

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P393322

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Aluminum	98.4		P	85 - 115
Antimony	104		P	85 - 115
Arsenic	97.7		P	85 - 115
Beryllium	86.9		P	85 - 115
Cadmium	94.4		P	85 - 115
Copper	94.7		P	85 - 115
Lead	98.7		P	85 - 115
Nickel	93.1		P	85 - 115
Selenium	96.3		P	85 - 115
Silver	105		P	85 - 115
Thallium	98.3		P	85 - 115

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P393555

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P393459

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P393543

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P393289

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P393316

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

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P393089

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

Reference Method: EPA 8321B
Batch ID: P392967

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2,4-D	129		P	30 - 160
Acetaminophen	94.9		P	30 - 160
Acetamiprid	113		P	30 - 160
Afidopyropen	83.0		P	30 - 160
Bentazon	86.7		P	30 - 160
Benzovindiflupyr	80.1		P	30 - 160
Carbamazepine	118		P	30 - 160
Clothianidin	108		P	30 - 160
Dinotefuran	103		P	30 - 160
Diuron	73.0		P	30 - 160
Fenuron	106		P	30 - 160
Fluridone	89.7		P	30 - 160
Hydrocodone	107		P	30 - 160
Ibuprofen	113		P	30 - 160
Imazapyr	103		P	30 - 160
Imidacloprid	114		P	30 - 160
Linuron	81.0		P	30 - 160
Mandestrobin	95.4		P	30 - 160
MCPP	111		P	30 - 160
Naproxen	75.7		P	30 - 160
Primidone	99.3		P	30 - 160
Pyraclostrobin	84.4		P	30 - 160
Thiamethoxam	112		P	30 - 160
Tolfenpyrad	56.3		P	30 - 160
Triclopyr	91.4		P	30 - 160

Reference Method: EPA 8321B
Batch ID: P393118

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Acesulfame K	107		P	40 - 150
AMPA	90.4		P	40 - 150
Endothall	96.1		P	40 - 150
Glufosinate	104		P	40 - 150
Glyphosate	97.9		P	40 - 140
Sucralose	109		P	40 - 150

Reference Method: SM 2320 B-2011
Batch ID: P393340

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	97.8		P	93 - 104

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: SM 4500 F-C-2011
Batch ID: P393342

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	97.3		P	90 - 106

Reference Method: SM 5310 B-2011
Batch ID: P393265

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	100		P	85 - 115

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 200.7 Rev. 4.4

Batch ID: P393322

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2221579	Chromium	93.5	91.2	P/P	70 - 130
2221579	Iron	106	101	P/P	70 - 130
2221579	Manganese	96.9	94.4	P/P	70 - 130
2221579	Zinc	98.2	95.1	P/P	70 - 130

Reference Method: EPA 200.8 Rev. 5.4

Batch ID: P393322

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2221579	Aluminum	93.2	92.8	P/P	70 - 130
2221579	Antimony	103	103	P/P	70 - 130
2221579	Arsenic	102	104	P/P	70 - 130
2221579	Beryllium	98.6	93.9	P/P	70 - 130
2221579	Cadmium	87.1	86.2	P/P	70 - 130
2221579	Copper	105	104	P/P	70 - 130
2221579	Lead	103	102	P/P	70 - 130
2221579	Nickel	95.8	96.3	P/P	70 - 130
2221579	Selenium	99.1	97.5	P/P	70 - 130
2221579	Silver	95.4	95.6	P/P	70 - 130
2221579	Thallium	101	102	P/P	70 - 130

Reference Method: EPA 300.0 Rev. 2.1

Batch ID: P393555

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2222197	Bromide	101		P	90 - 110
2222279	Bromide	101	101	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0

Batch ID: P393459

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2220828	Ammonia-N	98.9	103	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0

Batch ID: P393543

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2221391	Kjeldahl Nitrogen	104	102	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0

Batch ID: P393289

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2221936	NO2NO3-N	100	99.8	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Batch ID: P393316

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2221563	Total-P	101	104	P/P	90 - 110

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P393089

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2222091	O-Phosphate-P	104	103	P/P	90 - 110

Reference Method: EPA 8321B
Batch ID: P392967

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2221551	2,4-D	108	121	P/P	30 - 160
2221551	Acetaminophen	100	114	P/P	30 - 160
2221551	Acetamiprid	106	108	P/P	30 - 160
2221551	Afidopyropen	56.4	65.5	P/P	30 - 160
2221551	Bentazon	68.2	76.8	P/P	30 - 160
2221551	Benzovindiflupyr	84.4	78.5	P/P	30 - 160
2221551	Carbamazepine	97.3	99.6	P/P	30 - 160
2221551	Clothianidin	111	111	P/P	30 - 160
2221551	Dinotefuran	122	122	P/P	30 - 160
2221551	Diuron	67.4	63.8	P/P	30 - 160
2221551	Fenuron	88.9	94.3	P/P	30 - 160
2221551	Fluridone	87.2	76.4	P/P	30 - 160
2221551	Hydrocodone	103	104	P/P	30 - 160
2221551	Ibuprofen	83.2	92.7	P/P	30 - 160
2221551	Imazapyr	108	109	P/P	30 - 160
2221551	Imidacloprid	136	139	P/P	30 - 160
2221551	Linuron	71.0	73.6	P/P	30 - 160
2221551	Mandestrobin	86.6	85.6	P/P	30 - 160
2221551	MCPP	95.4	101	P/P	30 - 160
2221551	Naproxen	77.7	63.8	P/P	30 - 160
2221551	Primidone	106	108	P/P	30 - 160
2221551	Pyraclostrobin	82.9	83.3	P/P	30 - 160
2221551	Thiamethoxam	142	134	P/P	30 - 160
2221551	Tolfenpyrad	60.7	60.8	P/P	30 - 160
2221551	Triclopyr	88.8	85.6	P/P	30 - 160

Reference Method: EPA 8321B
Batch ID: P393118

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2221551	Acesulfame K	126	124	P/P	40 - 150
2221551	AMPA	128	134	P/P	40 - 150
2221551	Endothall	102	96.6	P/P	40 - 150
2221551	Glufosinate	97.2	106	P/P	40 - 150
2221551	Glyphosate	98.3	99.3	P/P	40 - 140
2221551	Sucralose	108	106	P/P	40 - 150

Reference Method: SM 4500 F-C-2011
Batch ID: P393342

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2222276	Fluoride	97.3	97.3	P/P	94 - 107

Quality Assurance Report

Matrix Spike Accuracy

Reference Method: SM 5310 B-2011
Batch ID: P393265

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2222201	Organic Carbon	99.4	99.2	P/P	85 - 115

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P393102

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2222016	Turbidity	0.281	Sample	P	0 - 20

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P393322

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2221579	Calcium	1.35	Spike	P	0 - 20
2221579	Chromium	2.41	Spike	P	0 - 20
2221579	Iron	4.54	Spike	P	0 - 20
2221579	Magnesium	2.34	Spike	P	0 - 20
2221579	Manganese	2.12	Spike	P	0 - 20
2221579	Zinc	3.22	Spike	P	0 - 20

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P393322

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2221579	Aluminum	0.377	Spike	P	0 - 20
2221579	Antimony	0.372	Spike	P	0 - 20
2221579	Arsenic	1.78	Spike	P	0 - 20
2221579	Beryllium	4.84	Spike	P	0 - 20
2221579	Cadmium	1.08	Spike	P	0 - 20
2221579	Copper	1.46	Spike	P	0 - 20
2221579	Lead	0.423	Spike	P	0 - 20
2221579	Nickel	0.542	Spike	P	0 - 20
2221579	Selenium	1.71	Spike	P	0 - 20
2221579	Silver	0.192	Spike	P	0 - 20
2221579	Thallium	0.937	Spike	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P393555

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2222279	Bromide	0.371	Spike	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P393459

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2220828	Ammonia-N	3.34	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P393543

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2221391	Kjeldahl Nitrogen	1.25	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 353.2 Rev. 2.0

Batch ID: P393289

Replicated

Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2221936	NO2NO3-N	0.454	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0

Batch ID: P393316

Replicated

Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2221563	Total-P	2.65	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved

Batch ID: P393089

Replicated

Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2222091	O-Phosphate-P	0.683	Spike	P	0 - 20

Reference Method: EPA 8321B

Batch ID: P392967

Replicated

Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2221551	2,4-D	9.29	Spike	P	0 - 30
2221551	Acetaminophen	13.3	Spike	P	0 - 30
2221551	Acetamiprid	2.53	Spike	P	0 - 30
2221551	Afidopyropen	15.0	Spike	P	0 - 30
2221551	Bentazon	11.8	Spike	P	0 - 30
2221551	Benzovindiflupyr	7.20	Spike	P	0 - 30
2221551	Carbamazepine	2.22	Spike	P	0 - 30
2221551	Clothianidin	0.473	Spike	P	0 - 30
2221551	Dinotefuran	0.755	Spike	P	0 - 30
2221551	Diuron	5.51	Spike	P	0 - 30
2221551	Fenuron	5.92	Spike	P	0 - 30
2221551	Fluridone	12.4	Spike	P	0 - 30
2221551	Hydrocodone	0.967	Spike	P	0 - 30
2221551	Ibuprofen	10.8	Spike	P	0 - 30
2221551	Imazapyr	0.856	Spike	P	0 - 30
2221551	Imidacloprid	2.05	Spike	P	0 - 30
2221551	Linuron	3.66	Spike	P	0 - 30
2221551	Mandestrobin	1.22	Spike	P	0 - 30
2221551	MCPP	5.69	Spike	P	0 - 30
2221551	Naproxen	19.5	Spike	P	0 - 30
2221551	Primidone	1.16	Spike	P	0 - 30
2221551	Pyraclostrobin	0.471	Spike	P	0 - 30
2221551	Thiamethoxam	6.10	Spike	P	0 - 30
2221551	Tolfenpyrad	0.225	Spike	P	0 - 30
2221551	Triclopyr	3.67	Spike	P	0 - 30

Quality Assurance Report Precision

Reference Method: EPA 8321B

Batch ID: P393118

Replicated

Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2221551	Acesulfame K	2.18	Spike	P	0 - 30
2221551	AMPA	4.41	Spike	P	0 - 30
2221551	Endothall	5.61	Spike	P	0 - 30
2221551	Glufosinate	9.04	Spike	P	0 - 30
2221551	Glyphosate	1.08	Spike	P	0 - 30
2221551	Sucralose	1.11	Spike	P	0 - 30

Reference Method: SM 2320 B-2011

Batch ID: P393340

Replicated

Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2222276	Total Alkalinity	2.37	Sample	P	0 - 8.1

Reference Method: SM 2540 D-2011

Batch ID: P393541

Replicated

Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2222089	TSS	8.00	Sample	P	0 - 10

Reference Method: SM 4500 F-C-2011

Batch ID: P393342

Replicated

Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2222276	Fluoride	0.0	Spike	P	0 - 2.8

Reference Method: SM 5310 B-2011

Batch ID: P393265

Replicated

Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2222201	Organic Carbon	0.134	Spike	P	0 - 20

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

Quality Assurance Report Surrogates

Lab Sample ID: 2222103

Field Sample ID: 20030474

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	2,4-D-d3	86.7	P	30 - 160
EPA 8321B	Acetaminophen-d4	105	P	30 - 160
EPA 8321B	Carbamazepine-d10	61.3	P	30 - 160
EPA 8321B	Diuron-d6	41.0	P	30 - 160
EPA 8321B	Endothall-d6	88.8	P	40 - 160
EPA 8321B	Endothall-d6	88.8	P	40 - 160
EPA 8321B	Glyphosate 13C 15N	70.9	P	40 - 160
EPA 8321B	Glyphosate 13C 15N	70.9	P	40 - 160
EPA 8321B	Ibuprofen-d3	72.2	P	30 - 160
EPA 8321B	Primidone-d5	62.9	P	30 - 160
EPA 8321B	Sucralose-d6	119	P	30 - 160
EPA 8321B	Sucralose-d6	119	P	30 - 160

Quality Assurance Report Calibration Verification

Reference Method: EPA 365.1 Rev. 2.0 dissolved

Run ID: A103293

Included Lab Sample IDs: 2222091

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	100	99.8	P/P	90 - 110

Reference Method: EPA 180.1 Rev. 2.0

Run ID: A103297

Included Lab Sample IDs: 2222089

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

Reference Method: EPA 8321B

Run ID: A103340

Included Lab Sample IDs: 2222103

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Acesulfame K	106	106	P/P	60 - 160
AMPA	103	99.5	P/P	60 - 160
Endothall	107	108	P/P	60 - 160
Glufosinate	86.3	82.3	P/P	60 - 160
Glyphosate	93.5	94.1	P/P	60 - 160

Reference Method: EPA 8321B

Run ID: A103371

Included Lab Sample IDs: 2222103

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
2,4-D	115	116	P/P	50 - 150
Acetaminophen	101	102	P/P	60 - 160
Acetamiprid	118	110	P/P	50 - 150
Afidopyropen	107	109	P/P	50 - 150
Bentazon	110	103	P/P	50 - 160
Benzovindiflupyr	101	101	P/P	50 - 160
Carbamazepine	110	108	P/P	60 - 150
Clothianidin	102	100	P/P	60 - 150
Dinotefuran	104	108	P/P	50 - 150
Diuron	113	106	P/P	60 - 160
Fenuron	104	103	P/P	60 - 150
Fluridone	104	108	P/P	60 - 160
Hydrocodone	109	104	P/P	60 - 150
Ibuprofen	108	125	P/P	50 - 160
Imazapyr	104	98.0	P/P	50 - 160
Imidacloprid	98.5	101	P/P	60 - 150
Linuron	120	106	P/P	60 - 150
Mandestrobin	106	105	P/P	50 - 150
MCPP	114	113	P/P	50 - 150
Naproxen	70.0	84.4	P/P	50 - 160
Primidone	111	107	P/P	60 - 150
Pyraclostrobin	113	107	P/P	60 - 150
Thiamethoxam	105	106	P/P	50 - 150
Tolfenpyrad	106	110	P/P	60 - 150
Triclopyr	103	104	P/P	50 - 150

Quality Assurance Report Calibration Verification

Reference Method: SM 5310 B-2011
Run ID: A103374
Included Lab Sample IDs: 2222090

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	98.4	98.2	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Run ID: A103386
Included Lab Sample IDs: 2222090

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO2NO3-N	103	102	P/P	90 - 110

Reference Method: SM 2320 B-2011
Run ID: A103397
Included Lab Sample IDs: 2222089

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	95.0	93.8	P/P	90 - 110

Reference Method: SM 4500 F-C-2011
Run ID: A103397
Included Lab Sample IDs: 2222089

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

Reference Method: EPA 200.7 Rev. 4.4
Run ID: A103435
Included Lab Sample IDs: 2222104

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Calcium	95.2	97.9	P/P	90 - 110
Chromium	96.7	99.7	P/P	90 - 110
Iron	96.6	97.7	P/P	90 - 110
Magnesium	97.2	97.9	P/P	90 - 110
Manganese	97.0	99.1	P/P	90 - 110
Zinc	100	101	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Run ID: A103445
Included Lab Sample IDs: 2222090

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	97.5	97.0	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Run ID: A103455
Included Lab Sample IDs: 2222090

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	101	99.2	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: EPA 300.0 Rev. 2.1

Run ID: A103482

Included Lab Sample IDs: 2222089

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Bromide	101	102	P/P	90 - 110

Reference Method: EPA 8321B

Run ID: A103516

Included Lab Sample IDs: 2222103

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Sucralose	107	110	P/P	60 - 160

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A103527

Included Lab Sample IDs: 2222090

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

Reference Method: EPA 200.8 Rev. 5.4

Run ID: A103548

Included Lab Sample IDs: 2222104

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Antimony	100	103	P/P	90 - 110
Arsenic	99.1	101	P/P	90 - 110
Beryllium	98.3	96.7	P/P	90 - 110
Cadmium	95.7	99.1	P/P	90 - 110
Copper	100	103	P/P	90 - 110
Lead	99.6	101	P/P	90 - 110
Nickel	98.3	101	P/P	90 - 110
Selenium	95.6	98.5	P/P	90 - 110
Silver	102	106	P/P	90 - 110
Thallium	102	103	P/P	90 - 110

Reference Method: EPA 200.8 Rev. 5.4

Run ID: A103570

Included Lab Sample IDs: 2222104

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Aluminum	90.9	93.8	P/P	90 - 110

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

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

Where they are different, both control limits are provided.

Quality Assurance Report Summary

Ref. Method	Analyte	LCS % Recovery	MS % Recovery		LCS	Precision SMP	MS
EPA 180.1 Rev. 2.0	Turbidity					0.281	
EPA 200.7 Rev. 4.4	Calcium	98.9					1.35
	Chromium	92.2	93.5	91.2			2.41
	Iron	101	106	101			4.54
	Magnesium	98.7					2.34
	Manganese	97.0	96.9	94.4			2.12
	Zinc	94.5	98.2	95.1			3.22
EPA 200.8 Rev. 5.4	Aluminum	98.4	93.2	92.8			0.377
	Antimony	104	103	103			0.372
	Arsenic	97.7	102	104			1.78
	Beryllium	86.9	98.6	93.9			4.84
	Cadmium	94.4	87.1	86.2			1.08
	Copper	94.7	105	104			1.46
	Lead	98.7	103	102			0.423
	Nickel	93.1	95.8	96.3			0.542
	Selenium	96.3	99.1	97.5			1.71
	Silver	105	95.4	95.6			0.192
	Thallium	98.3	101	102			0.937
EPA 300.0 Rev. 2.1	Bromide	103	101	101	101		0.371
EPA 350.1 Rev. 2.0	Ammonia-N	100	98.9	103			3.34
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	105	104	102			1.25
EPA 353.2 Rev. 2.0	NO2NO3-N	100	100	99.8			0.454
EPA 365.1 Rev. 2.0	Total-P	104	101	104			2.65
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	100	104	103			0.683
EPA 8321B	2,4-D	129	108	121			9.29
	Acesulfame K	107	126	124			2.18
	Acetaminophen	94.9	100	114			13.3
	Acetamiprid	113	106	108			2.53
	Afidopyropen	83.0	56.4	65.5			15.0
	AMPA	90.4	128	134			4.41
	Bentazon	86.7	68.2	76.8			11.8
	Benzovindiflupyr	80.1	84.4	78.5			7.20
	Carbamazepine	118	97.3	99.6			2.22
	Clothianidin	108	111	111			0.473
	Dinotefuran	103	122	122			0.755
	Diuron	73.0	67.4	63.8			5.51
	Endothall	96.1	102	96.6			5.61
	Fenuron	106	88.9	94.3			5.92
	Fluridone	89.7	87.2	76.4			12.4
	Glufosinate	104	97.2	106			9.04
	Glyphosate	97.9	98.3	99.3			1.08
	Hydrocodone	107	103	104			0.967
	Ibuprofen	113	83.2	92.7			10.8
	Imazapyr	103	108	109			0.856
	Imidacloprid	114	136	139			2.05
	Linuron	81.0	71.0	73.6			3.66
	Mandestrobin	95.4	86.6	85.6			1.22
	MCPP	111	95.4	101			5.69
	Naproxen	75.7	77.7	63.8			19.5
	Primidone	99.3	106	108			1.16
	Pyraclostrobin	84.4	82.9	83.3			0.471
	Sucralose	109	108	106			1.11
	Thiamethoxam	112	142	134			6.10
	Tolfenpyrad	56.3	60.7	60.8			0.225

Quality Assurance Report Summary

Ref. Method	Analyte	LCS % Recovery	MS % Recovery		LCS	Precision	MS
						SMP	
EPA 8321B	Triclopyr	91.4	88.8	85.6			3.67
SM 2320 B-2011	Total Alkalinity	97.8				2.37	
SM 2540 D-2011	TSS					8.00	
SM 4500 F-C-2011	Fluoride	97.3	97.3	97.3			0.0
SM 5310 B-2011	Organic Carbon	100	99.4	99.2			0.134

Reference Method Descriptions

Method	Description	Associated Samples
EPA 180.1 Rev. 2.0	Turbidity in aqueous matrices	2222089
EPA 200.7 Rev. 4.4	Total Recoverable Metals analysis using ICP emission spectroscopy for aqueous samples supporting Clean Water Act Projects	2222104
EPA 200.8 Rev. 5.4	Total Recoverable Metals analysis using ICP-MS for aqueous samples supporting Clean Water Act Projects	2222104
EPA 300.0 Rev. 2.1	Bromide in aqueous matrices	2222089
EPA 350.1 Rev. 2.0	Ammonia in aqueous matrices as mg N/L	2222090
EPA 351.2 Rev. 2.0	Total Kjeldahl Nitrogen in aqueous matrices	2222090
EPA 353.2 Rev. 2.0	Nitrite/Nitrate in aqueous matrices as mg N/L	2222090
EPA 365.1 Rev. 2.0	Total Phosphorus in aqueous matrices as mg P/L	2222090
EPA 365.1 Rev. 2.0 dissolved	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	2222091
EPA 8321B	Pesticides, herbicides, and other chemicals in water matrices by HPLC/MS/MS	2222103
EPA 8321B	Water soluble organic compounds by HPLC/MS/MS	2222103
SM 2320 B-2011	Alkalinity in aqueous matrices as mg CaCO ₃ /L	2222089
SM 2540 D-2011	Total Suspended Solids in aqueous matrices using a maximum of 250 mL of sample	2222089
SM 4500 F-C-2011	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	2222089
SM 5310 B-2011	Nonpurgeable Organic Carbon in aqueous matrices	2222090

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	01/28/2021			01/28/2021 14:59	Yen Ta	2222089
EPA 200.7 Rev. 4.4	01/28/2021	02/03/2021 16:10	Elliott D. Healy	02/04/2021 21:24	Betina Topolski	2222104
EPA 200.8 Rev. 5.4	01/28/2021	02/03/2021 16:10	Elliott D. Healy	02/11/2021 22:10	Alexander Thompson	2222104
	01/28/2021	02/03/2021 16:10	Elliott D. Healy	02/12/2021 13:35	Alexander Thompson	2222104
EPA 300.0 Rev. 2.1	01/28/2021			02/09/2021 00:14	Lipi Saha	2222089
EPA 350.1 Rev. 2.0	01/28/2021			02/07/2021 10:18	Ping Hua	2222090
EPA 351.2 Rev. 2.0	01/28/2021	02/09/2021 11:41	Yen Ta	02/10/2021 16:51	Julia Storbeck	2222090
EPA 353.2 Rev. 2.0	01/28/2021			02/03/2021 09:02	Beverly Y. Sanders	2222090
EPA 365.1 Rev. 2.0	01/28/2021	02/03/2021 16:16	Madeline Gruver	02/05/2021 15:00	Shengyu Wang	2222090
EPA 365.1 Rev. 2.0 dissolved	01/28/2021			01/28/2021 15:47	Blanca Fach	2222091
EPA 8321B	01/28/2021	01/29/2021 09:00	Hoor Shaik	01/30/2021 12:40	Juyoung Kim	2222103
	01/28/2021	01/29/2021 09:00	Hoor Shaik	02/01/2021 15:18	Juyoung Kim	2222103
	01/28/2021	01/29/2021 10:00	Rebecca Ware	01/29/2021 17:50	Rebecca Ware	2222103
	01/28/2021	01/29/2021 10:00	Rebecca Ware	02/09/2021 20:37	Rebecca Ware	2222103
SM 2320 B-2011	01/28/2021			02/03/2021 21:28	Dale L. Simmons	2222089
SM 2540 D-2011	01/28/2021			02/02/2021 14:20	Yijie Li	2222089
SM 4500 F-C-2011	01/28/2021			02/03/2021 20:23	Dale L. Simmons	2222089
SM 5310 B-2011	01/28/2021			02/02/2021 11:40	Madeline Gruver	2222090