Chemical Analysis Report

TLH-ROC-2021-02-22-01

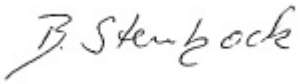
Florida Department of Environmental Protection
Central Laboratory
2600 Blair Stone Road
Tallahassee, FL 32399-2400
DOH Accreditation E31780

Event Description: **Run 1**
Request ID: **RQ-2021-02-15-43**
Customer: **TLH-ROC**
Project ID: **SMP**

Send Reports to:
FL Dept. of Environmental Protection
2600 Blair Stone Rd
Tallahassee, FL 32399
Attn: Michael Eckles

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: Dr. rer. nat. Bettina Steinbock, Environmental Administrator Date Certified: 16-MAR-2021 11:52



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: 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: Waccasassa River @ Boat Ramp **Collection Date/Time: 02/22/2021 11:05**

Field ID: G1TLHR0032 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2226337	EPA 180.1 Rev. 2.0	Turbidity	1.3		NTU	P394118	
	EPA 300.0 Rev. 2.1	Bromide	0.031	I	mg Br/L	P394335	
	SM 2320 B-2011	Total Alkalinity	100		mg CaCO3/L	P394365	
	SM 2540 D-2011	TSS	2	UA	mg/L	P394531	
	SM 4500 F-C-2011	Fluoride	0.092	I	mg F/L	P394524	
2226338	EPA 350.1 Rev. 2.0	Ammonia-N	0.014		mg N/L	P394301	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.66		mg N/L	P394203	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.17		mg N/L	P394133	
	EPA 365.1 Rev. 2.0	Total-P	0.043		mg P/L	P394153	
	SM 5310 B-2011	Organic Carbon	21		mg C/L	P394646	
2226339	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.024		mg P/L	P394102	
2226355	EPA 8321B	2,4-D	0.0020	U	ug/L	P394025	
		Acesulfame K	0.10	U	ug/L	P394077	MS
		2,4,5-T	0.0040	U	ug/L	P394025	
		AMPA	0.10	U	ug/L	P394077	
		Sucralose	0.010	U	ug/L	P394077	
		Acetaminophen**	0.023	I	ug/L	P394025	RPD
		Acetamiprid**	0.0020	U	ug/L	P394025	
		Endothall	0.25	U	ug/L	P394077	
		Glufosinate	0.10	U	ug/L	P394077	
		Glyphosate	0.10	U	ug/L	P394077	
		Afidopyropen**	0.0020	U	ug/L	P394025	
		Bentazon	8.0E-04	U	ug/L	P394025	MS
		Benzovindiflupyr**	0.0020	U	ug/L	P394025	
		Carbamazepine**	8.0E-04	U	ug/L	P394025	
		Clothianidin**	0.0020	U	ug/L	P394025	
		Dinotefuran**	0.0020	U	ug/L	P394025	
		Diuron	0.0020	U	ug/L	P394025	
		Fenuron	0.016	U	ug/L	P394025	
		Fluridone**	8.0E-04	U	ug/L	P394025	
		Imazapyr**	0.042		ug/L	P394025	
		Hydrocodone**	0.0020	U	ug/L	P394025	
		Ibuprofen**	0.020	U	ug/L	P394025	
		Imidacloprid	0.0020	U	ug/L	P394025	
		Linuron	0.0040	U	ug/L	P394025	
		Mandestrobin**	0.0020	U	ug/L	P394025	
		MCPP	0.0020	U	ug/L	P394025	
		Naproxen**	0.0080	U	ug/L	P394025	RPD
		Primidone**	0.0040	U	ug/L	P394025	
		Pyraclostrobin**	0.0020	U	ug/L	P394025	
		Thiamethoxam**	0.0020	U	ug/L	P394025	
		Tolfenpyrad**	0.0020	U	ug/L	P394025	
		Triclopyr**	0.0040	U	ug/L	P394025	

Field ID: G1TLHR0032 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes

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

Sample Location: Field Blank **Collection Date/Time: 02/22/2021 11:00**

Field ID: FB_02222021 Matrix: W-FIELD-BK

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2226340	EPA 180.1 Rev. 2.0	Turbidity	0.10	U	NTU	P394118	
	EPA 300.0 Rev. 2.1	Bromide	0.013	U	mg Br/L	P394335	
	SM 2320 B-2011	Total Alkalinity	0.65	U	mg CaCO3/L	P394365	
	SM 2540 D-2011	TSS	2	U	mg/L	P394531	
	SM 4500 F-C-2011	Fluoride	0.035	U	mg F/L	P394524	
2226341	EPA 350.1 Rev. 2.0	Ammonia-N	0.002	U	mg N/L	P394301	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.080	U	mg N/L	P394203	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P394133	
	EPA 365.1 Rev. 2.0	Total-P	0.002	U	mg P/L	P394153	
	SM 5310 B-2011	Organic Carbon	0.50	U	mg C/L	P394646	
2226342	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P394102	
2226356	EPA 8321B	2,4-D	0.0020	U	ug/L	P394025	
		Acesulfame K	0.10	U	ug/L	P394077	MS
		2,4,5-T	0.0040	U	ug/L	P394025	
		AMPA	0.10	U	ug/L	P394077	
		Sucralose	0.010	U	ug/L	P394077	
		Acetaminophen**	0.0080	U	ug/L	P394025	RPD
		Acetamiprid**	0.0020	U	ug/L	P394025	
		Endothall	0.25	U	ug/L	P394077	
		Glufosinate	0.10	U	ug/L	P394077	
		Glyphosate	0.10	U	ug/L	P394077	
		Afidopyropen**	0.0020	U	ug/L	P394025	
		Bentazon	8.0E-04	U	ug/L	P394025	MS
		Benzovindiflupyr**	0.0020	U	ug/L	P394025	
		Carbamazepine**	8.0E-04	U	ug/L	P394025	
		Clothianidin**	0.0020	U	ug/L	P394025	
		Dinotefuran**	0.0020	U	ug/L	P394025	
		Diuron	0.0020	U	ug/L	P394025	
		Fenuron	0.016	U	ug/L	P394025	
		Fluridone**	8.0E-04	U	ug/L	P394025	
		Imazapyr**	0.0040	U	ug/L	P394025	
		Hydrocodone**	0.0020	U	ug/L	P394025	
		Ibuprofen**	0.020	U	ug/L	P394025	
		Imidacloprid	0.0020	U	ug/L	P394025	
		Linuron	0.0040	U	ug/L	P394025	
		Mandestrobin**	0.0020	U	ug/L	P394025	
		MCPP	0.0020	U	ug/L	P394025	
		Naproxen**	0.0080	U	ug/L	P394025	RPD
		Primidone**	0.0040	U	ug/L	P394025	
		Pyraclostrobin**	0.0020	U	ug/L	P394025	
		Thiamethoxam**	0.0020	U	ug/L	P394025	
		Tolfenpyrad**	0.0020	U	ug/L	P394025	
		Triclopyr**	0.0040	U	ug/L	P394025	

Field ID: FB_02222021 Matrix: W-FIELD-BK

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes

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: P394118

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P394335

Component	Result	Code	Units
Bromide	0.013	U	mg Br/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P394301

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P394203

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P394133

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P394153

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P394102

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

Reference Method: EPA 8321B
Batch ID: P394025

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

Quality Assurance Report
Method Blank Results

Reference Method: EPA 8321B
Batch ID: P394025

Component	Result	Code	Units
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: P394077

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 2320 B-2011
Batch ID: P394365

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

Reference Method: SM 2540 D-2011
Batch ID: P394531

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500 F-C-2011
Batch ID: P394524

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-2011
Batch ID: P394646

Component	Result	Code	Units
Organic Carbon	0.50	U	mg C/L

Quality Assurance Report
Laboratory Control Sample Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P394335

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Bromide	96.0		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P394301

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: P394203

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P394133

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P394153

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: P394102

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
O-Phosphate-P	99.2		P	90 - 110

Reference Method: EPA 8321B
Batch ID: P394025

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2,4-D	139		P	30 - 160
2,4,5-T	107		P	30 - 160
Acetaminophen	104		P	30 - 160
Acetamiprid	112		P	30 - 160
Afidopyropen	75.2		P	30 - 160
Bentazon	89.0		P	30 - 160
Benzovindiflupyr	91.0		P	30 - 160
Carbamazepine	113		P	30 - 160
Clothianidin	116		P	30 - 160
Dinotefuran	109		P	30 - 160
Diuron	67.3		P	30 - 160
Fenuron	112		P	30 - 160
Fluridone	94.7		P	30 - 160
Hydrocodone	117		P	30 - 160
Ibuprofen	108		P	30 - 160
Imazapyr	149		P	30 - 160

Quality Assurance Report
Laboratory Control Sample Accuracy

Reference Method: EPA 8321B
Batch ID: P394025

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Imidacloprid	126		P	30 - 160
Linuron	85.4		P	30 - 160
Mandestrobin	97.3		P	30 - 160
MCPP	123		P	30 - 160
Naproxen	49.4		P	30 - 160
Primidone	122		P	30 - 160
Pyraclostrobin	77.6		P	30 - 160
Thiamethoxam	123		P	30 - 160
Tolfenpyrad	50.5		P	30 - 160
Triclopyr	105		P	30 - 160

Reference Method: EPA 8321B
Batch ID: P394077

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Acesulfame K	95.2		P	40 - 150
AMPA	87.1		P	40 - 150
Endothall	93.7		P	40 - 150
Glufosinate	109		P	40 - 150
Glyphosate	82.4		P	40 - 140
Sucralose	111		P	40 - 150

Reference Method: SM 2320 B-2011
Batch ID: P394365

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	94.5		P	93 - 104

Reference Method: SM 4500 F-C-2011
Batch ID: P394524

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	95.6		P	90 - 106

Reference Method: SM 5310 B-2011
Batch ID: P394646

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	95.3		P	85 - 115

Quality Assurance Report
Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P394335

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2226337	Bromide	95.5	93.9	P/P	90 - 110
2226988	Bromide	95.7		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P394301

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2226338	Ammonia-N	95.8	97.0	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P394203

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2226369	Kjeldahl Nitrogen	98.9	93.0	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P394133

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2226338	NO2NO3-N	96.5	96.0	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P394153

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2226338	Total-P	102	101	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P394102

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2226339	O-Phosphate-P	95.7	96.5	P/P	90 - 110

Reference Method: EPA 8321B
Batch ID: P394025

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2225913	2,4-D	105	105	P/P	30 - 160
2225913	2,4,5-T	73.8	92.6	P/P	30 - 160
2225913	Acetaminophen	146	101	P/P	30 - 160
2225913	Acetamiprid	86.8	86.9	P/P	30 - 160
2225913	Afidopyropen	56.5	63.6	P/P	30 - 160
2225913	Bentazon	29.0	32.7	F/P	30 - 160
2225913	Benzovindiflupyr	68.7	66.5	P/P	30 - 160
2225913	Carbamazepine	79.2	81.0	P/P	30 - 160
2225913	Clothianidin	99.4	99.9	P/P	30 - 160
2225913	Dinotefuran	118	123	P/P	30 - 160
2225913	Diuron	46.0	46.6	P/P	30 - 160
2225913	Fenuron	67.5	73.3	P/P	30 - 160
2225913	Fluridone	60.9	64.4	P/P	30 - 160
2225913	Hydrocodone	106	116	P/P	30 - 160
2225913	Ibuprofen	79.2	74.1	P/P	30 - 160

Quality Assurance Report
Matrix Spike Accuracy

Reference Method: EPA 8321B
Batch ID: P394025

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2225913	Imazapyr	101	96.0	P/P	30 - 160
2225913	Imidacloprid	138	146	P/P	30 - 160
2225913	Linuron	63.2	66.5	P/P	30 - 160
2225913	Mandestrobin	75.9	75.7	P/P	30 - 160
2225913	MCPP	87.4	91.1	P/P	30 - 160
2225913	Naproxen	55.5	80.8	P/P	30 - 160
2225913	Primidone	90.6	105	P/P	30 - 160
2225913	Pyraclostrobin	67.5	65.1	P/P	30 - 160
2225913	Thiamethoxam	137	143	P/P	30 - 160
2225913	Tolfenpyrad	54.7	42.7	P/P	30 - 160
2225913	Triclopyr	78.7	89.3	P/P	30 - 160

Reference Method: EPA 8321B
Batch ID: P394077

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2226151	Acesulfame K	17.1	17.8	F/F	40 - 150
2226151	AMPA	104	102	P/P	40 - 150
2226151	Endothall	97.1	97.8	P/P	40 - 150
2226151	Glufosinate	106	102	P/P	40 - 150
2226151	Glyphosate	62.9	90.5	P/P	40 - 140
2226151	Sucralose	94.6	91.1	P/P	40 - 150

Reference Method: SM 4500 F-C-2011
Batch ID: P394524

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2226238	Fluoride	98.0	99.6	P/P	94 - 107

Reference Method: SM 5310 B-2011
Batch ID: P394646

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2226372	Organic Carbon	95.6	96.4	P/P	85 - 115

Quality Assurance Report
Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P394118

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2226363	Turbidity	1.95	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P394335

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2226337	Bromide	1.65	Spike	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P394301

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2226338	Ammonia-N	0.966	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P394203

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2226369	Kjeldahl Nitrogen	4.15	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P394133

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2226338	NO2NO3-N	0.277	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P394153

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2226338	Total-P	0.358	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P394102

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2226339	O-Phosphate-P	0.663	Spike	P	0 - 20

Reference Method: EPA 8321B
Batch ID: P394025

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2225913	2,4-D	0.460	Spike	P	0 - 30
2225913	2,4,5-T	22.6	Spike	P	0 - 30

Quality Assurance Report
Precision

Reference Method: EPA 8321B
Batch ID: P394025

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2225913	Acetaminophen	36.4	Spike	F	0 - 30
2225913	Acetamiprid	0.0174	Spike	P	0 - 30
2225913	Afidopyropen	11.8	Spike	P	0 - 30
2225913	Bentazon	5.74	Spike	P	0 - 30
2225913	Benzovindiflupyr	3.34	Spike	P	0 - 30
2225913	Carbamazepine	2.37	Spike	P	0 - 30
2225913	Clothianidin	0.486	Spike	P	0 - 30
2225913	Dinotefuran	4.58	Spike	P	0 - 30
2225913	Diuron	1.40	Spike	P	0 - 30
2225913	Fenuron	6.03	Spike	P	0 - 30
2225913	Fluridone	5.56	Spike	P	0 - 30
2225913	Hydrocodone	8.94	Spike	P	0 - 30
2225913	Ibuprofen	6.66	Spike	P	0 - 30
2225913	Imazapyr	5.24	Spike	P	0 - 30
2225913	Imidacloprid	5.24	Spike	P	0 - 30
2225913	Linuron	5.15	Spike	P	0 - 30
2225913	Mandestrobin	0.257	Spike	P	0 - 30
2225913	MCPP	3.83	Spike	P	0 - 30
2225913	Naproxen	37.2	Spike	F	0 - 30
2225913	Primidone	14.9	Spike	P	0 - 30
2225913	Pyraclostrobin	3.59	Spike	P	0 - 30
2225913	Thiamethoxam	4.11	Spike	P	0 - 30
2225913	Tolfenpyrad	24.7	Spike	P	0 - 30
2225913	Triclopyr	12.5	Spike	P	0 - 30

Reference Method: EPA 8321B
Batch ID: P394077

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2226151	Acesulfame K	3.46	Spike	P	0 - 30
2226151	AMPA	1.58	Spike	P	0 - 30
2226151	Endothall	0.687	Spike	P	0 - 30
2226151	Glufosinate	4.41	Spike	P	0 - 30
2226151	Glyphosate	29.3	Spike	P	0 - 30
2226151	Sucralose	3.65	Spike	P	0 - 30

Reference Method: SM 2320 B-2011
Batch ID: P394365

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2226238	Total Alkalinity	0.564	Sample	P	0 - 8.1

Reference Method: SM 4500 F-C-2011
Batch ID: P394524

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2226238	Fluoride	0.959	Spike	P	0 - 2.8

Quality Assurance Report
Precision

Reference Method: SM 5310 B-2011
Batch ID: P394646

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2226372	Organic Carbon	0.568	Spike	P	0 - 20

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

Quality Assurance Report
Surrogates

Lab Sample ID: 2226355
Field Sample ID: G1TLHR0032

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	2,4-D-d3	70.1	P	30 - 160
EPA 8321B	Acetaminophen-d4	109	P	30 - 160
EPA 8321B	Carbamazepine-d10	70.0	P	30 - 160
EPA 8321B	Diuron-d6	48.6	P	30 - 160
EPA 8321B	Endothall-d6	103	P	40 - 160
EPA 8321B	Endothall-d6	103	P	40 - 160
EPA 8321B	Glyphosate 13C 15N	88.7	P	40 - 160
EPA 8321B	Glyphosate 13C 15N	88.7	P	40 - 160
EPA 8321B	Ibuprofen-d3	80.8	P	30 - 160
EPA 8321B	Primidone-d5	71.4	P	30 - 160
EPA 8321B	Sucralose-d6	106	P	30 - 160
EPA 8321B	Sucralose-d6	106	P	30 - 160

Lab Sample ID: 2226356
Field Sample ID: FB_02222021

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	2,4-D-d3	104	P	30 - 160
EPA 8321B	Acetaminophen-d4	91.6	P	30 - 160
EPA 8321B	Carbamazepine-d10	91.9	P	30 - 160
EPA 8321B	Diuron-d6	84.6	P	30 - 160
EPA 8321B	Endothall-d6	105	P	40 - 160
EPA 8321B	Endothall-d6	105	P	40 - 160
EPA 8321B	Glyphosate 13C 15N	112	P	40 - 160
EPA 8321B	Glyphosate 13C 15N	112	P	40 - 160
EPA 8321B	Ibuprofen-d3	79.1	P	30 - 160
EPA 8321B	Primidone-d5	106	P	30 - 160
EPA 8321B	Sucralose-d6	110	P	30 - 160
EPA 8321B	Sucralose-d6	110	P	30 - 160

Quality Assurance Report
Calibration Verification

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Run ID: A103726
Included Lab Sample IDs: 2226339, 2226342

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	98.0	98.9	P/P	90 - 110
O-Phosphate-P	98.1	98.0	P/P	90 - 110

Reference Method: EPA 180.1 Rev. 2.0
Run ID: A103730
Included Lab Sample IDs: 2226337, 2226340

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Turbidity	101	102	P/P	95 - 105

Reference Method: EPA 300.0 Rev. 2.1
Run ID: A103734
Included Lab Sample IDs: 2226337, 2226340

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Bromide	97.0	98.2	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Run ID: A103736
Included Lab Sample IDs: 2226338, 2226341

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO2NO3-N	99.0	99.0	P/P	90 - 110

Reference Method: EPA 8321B
Run ID: A103740
Included Lab Sample IDs: 2226355, 2226356

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
2,4-D	118	105	P/P	50 - 150
2,4,5-T	102	96.3	P/P	50 - 150
Acetaminophen	111	112	P/P	60 - 160
Acetamiprid	120	115	P/P	50 - 150
Afidopyropen	89.7	101	P/P	50 - 150
Bentazon	127	116	P/P	50 - 160
Benzovindiflupyr	106	106	P/P	50 - 160
Carbamazepine	110	114	P/P	60 - 150
Clothianidin	108	105	P/P	60 - 150
Dinotefuran	108	102	P/P	50 - 150
Diuron	106	108	P/P	60 - 160
Fenuron	102	107	P/P	60 - 150
Fluridone	124	120	P/P	60 - 160
Hydrocodone	109	106	P/P	60 - 150
Ibuprofen	99.3	100	P/P	50 - 160
Imazapyr	81.2	80.3	P/P	50 - 160
Imidacloprid	98.6	100	P/P	60 - 150
Linuron	113	112	P/P	60 - 150
Mandestrobin	113	111	P/P	50 - 150
MCPP	104	99.8	P/P	50 - 150
Naproxen	71.5	95.6	P/P	50 - 160
Primidone	107	108	P/P	60 - 150

Quality Assurance Report
Calibration Verification

Reference Method: EPA 8321B
Run ID: A103740
Included Lab Sample IDs: 2226355, 2226356

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Pyraclostrobin	96.9	98.4	P/P	60 - 150
Thiamethoxam	105	119	P/P	50 - 150
Tolfenpyrad	114	115	P/P	60 - 150
Triclopyr	111	93.6	P/P	50 - 150

Reference Method: EPA 8321B
Run ID: A103745
Included Lab Sample IDs: 2226355, 2226356

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Acesulfame K	115	86.9	P/P	60 - 160
AMPA	85.8	91.8	P/P	60 - 160
Endothall	114	101	P/P	60 - 160
Glufosinate	111	117	P/P	60 - 160
Glyphosate	113	129	P/P	60 - 160

Reference Method: EPA 365.1 Rev. 2.0
Run ID: A103767
Included Lab Sample IDs: 2226338, 2226341

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	99.2	99.5	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Run ID: A103798
Included Lab Sample IDs: 2226338, 2226341

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	93.1	97.7	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Run ID: A103809
Included Lab Sample IDs: 2226338, 2226341

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	98.6	98.5	P/P	90 - 110

Reference Method: SM 2320 B-2011
Run ID: A103841
Included Lab Sample IDs: 2226337, 2226340

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	94.8	92.7	P/P	90 - 110

Reference Method: SM 4500 F-C-2011
Run ID: A103903
Included Lab Sample IDs: 2226337, 2226340

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	100	98.6	P/P	90 - 110

Quality Assurance Report
Calibration Verification

Reference Method: EPA 8321B
Run ID: A103914
Included Lab Sample IDs: 2226355, 2226356

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Sucralose	104	112	P/P	60 - 160
Sucralose	112	114	P/P	60 - 160

Reference Method: SM 5310 B-2011
Run ID: A103961
Included Lab Sample IDs: 2226338, 2226341

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	95.6	95.7	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			Precision		
						LCS	SMP	MS
EPA 180.1 Rev. 2.0	Turbidity						1.95	
EPA 300.0 Rev. 2.1	Bromide	96.0	95.5	93.9	95.7			1.65
EPA 350.1 Rev. 2.0	Ammonia-N	100	95.8	97.0				0.966
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	108	98.9	93.0				4.15
EPA 353.2 Rev. 2.0	NO2NO3-N	98.5	96.5	96.0				0.277
EPA 365.1 Rev. 2.0	Total-P	104	102	101				0.358
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	99.2	95.7	96.5				0.663
EPA 8321B	2,4-D	139	105	105				0.460
	2,4,5-T	107	73.8	92.6				22.6
	Acesulfame K	95.2	17.1	17.8				3.46
	Acetaminophen	104	146	101				36.4
	Acetamiprid	112	86.8	86.9				0.0174
	Afidopyropen	75.2	56.5	63.6				11.8
	AMPA	87.1	104	102				1.58
	Bentazon	89.0	29.0	32.7				5.74
	Benzovindiflupyr	91.0	68.7	66.5				3.34
	Carbamazepine	113	79.2	81.0				2.37
	Clothianidin	116	99.4	99.9				0.486
	Dinotefuran	109	118	123				4.58
	Diuron	67.3	46.0	46.6				1.40
	Endothall	93.7	97.1	97.8				0.687
	Fenuron	112	67.5	73.3				6.03
	Fluridone	94.7	60.9	64.4				5.56
	Glufosinate	109	106	102				4.41
	Glyphosate	82.4	62.9	90.5				29.3
	Hydrocodone	117	106	116				8.94
	Ibuprofen	108	79.2	74.1				6.66
	Imazapyr	149	101	96.0				5.24
	Imidacloprid	126	138	146				5.24
	Linuron	85.4	63.2	66.5				5.15
	Mandestrobin	97.3	75.9	75.7				0.257
	MCPP	123	87.4	91.1				3.83
	Naproxen	49.4	55.5	80.8				37.2
	Primidone	122	90.6	105				14.9
	Pyraclostrobin	77.6	67.5	65.1				3.59
	Sucralose	111	94.6	91.1				3.65
	Thiamethoxam	123	137	143				4.11
	Tolfenpyrad	50.5	54.7	42.7				24.7
	Triclopyr	105	78.7	89.3				12.5
SM 2320 B-2011	Total Alkalinity	94.5					0.564	
SM 4500 F-C-2011	Fluoride	95.6	98.0	99.6				0.959
SM 5310 B-2011	Organic Carbon	95.3	95.6	96.4				0.568

Reference Method Descriptions

Method	Description	Associated Samples
EPA 180.1 Rev. 2.0	Turbidity in aqueous matrices	2226337, 2226340
EPA 300.0 Rev. 2.1	Bromide in aqueous matrices	2226337, 2226340
EPA 350.1 Rev. 2.0	Ammonia in aqueous matrices as mg N/L	2226338, 2226341
EPA 351.2 Rev. 2.0	Total Kjeldahl Nitrogen in aqueous matrices	2226338, 2226341
EPA 353.2 Rev. 2.0	Nitrite/Nitrate in aqueous matrices as mg N/L	2226338, 2226341
EPA 365.1 Rev. 2.0	Total Phosphorus in aqueous matrices as mg P/L	2226338, 2226341

Reference Method Descriptions

Method	Description	Associated Samples
EPA 365.1 Rev. 2.0 dissolved	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	2226339, 2226342
EPA 8321B	Pesticides, herbicides, and other chemicals in water matrices by HPLC/MS/MS	2226355, 2226356
EPA 8321B	Water soluble organic compounds by HPLC/MS/MS	2226355, 2226356
SM 2320 B-2011	Alkalinity in aqueous matrices as mg CaCO3/L	2226337, 2226340
SM 2540 D-2011	Total Suspended Solids in aqueous matrices using a maximum of 250 mL of sample	2226337, 2226340
SM 4500 F-C-2011	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	2226337, 2226340
SM 5310 B-2011	Nonpurgeable Organic Carbon in aqueous matrices	2226338, 2226341

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
EPA 180.1 Rev. 2.0	02/22/2021			02/23/2021 15:14	Yen Ta	2226337, 2226340
EPA 300.0 Rev. 2.1	02/22/2021			02/26/2021 12:25	Lipi Saha	2226337
	02/22/2021			02/26/2021 14:32	Lipi Saha	2226340
EPA 350.1 Rev. 2.0	02/22/2021			02/27/2021 14:03	Ping Hua	2226338
	02/22/2021			02/27/2021 14:18	Ping Hua	2226341
EPA 351.2 Rev. 2.0	02/22/2021	02/25/2021 12:02	Yen Ta	02/26/2021 11:44	Virginia P. Brown	2226338
	02/22/2021	02/25/2021 12:02	Yen Ta	02/26/2021 11:46	Virginia P. Brown	2226341
EPA 353.2 Rev. 2.0	02/22/2021			02/24/2021 08:28	Beverly Y. Sanders	2226338
	02/22/2021			02/24/2021 08:34	Beverly Y. Sanders	2226341
EPA 365.1 Rev. 2.0	02/22/2021	02/24/2021 11:30	Shengyu Wang	02/25/2021 12:14	Shengyu Wang	2226341
	02/22/2021	02/24/2021 11:30	Shengyu Wang	02/25/2021 12:16	Shengyu Wang	2226338
EPA 365.1 Rev. 2.0 dissolved	02/22/2021			02/23/2021 13:35	Lipi Saha	2226339
	02/22/2021			02/23/2021 13:47	Lipi Saha	2226342
EPA 8321B	02/22/2021	02/23/2021 09:00	Hoor Shaik	02/24/2021 05:06	Juyoung Kim	2226355
	02/22/2021	02/23/2021 09:00	Hoor Shaik	02/24/2021 05:41	Juyoung Kim	2226356
	02/22/2021	02/23/2021 10:00	Rebecca Ware	02/23/2021 18:24	Rebecca Ware	2226355
	02/22/2021	02/23/2021 10:00	Rebecca Ware	02/23/2021 18:38	Rebecca Ware	2226356
	02/22/2021	02/23/2021 10:00	Rebecca Ware	03/04/2021 13:45	Rebecca Ware	2226356
	02/22/2021	02/23/2021 10:00	Rebecca Ware	03/04/2021 15:31	Rebecca Ware	2226355
SM 2320 B-2011	02/22/2021			02/27/2021 11:11	Dale L. Simmons	2226337
	02/22/2021			02/27/2021 11:16	Dale L. Simmons	2226340
SM 2540 D-2011	02/22/2021			02/26/2021 14:36	Yijie Li	2226337, 2226340
SM 4500 F-C-2011	02/22/2021			03/05/2021 00:08	Dale L. Simmons	2226337
	02/22/2021			03/05/2021 00:13	Dale L. Simmons	2226340
SM 5310 B-2011	02/22/2021			03/09/2021 00:02	Madeline Gruver	2226338
	02/22/2021			03/09/2021 00:12	Madeline Gruver	2226341