

Chemical Analysis Report

TLH-ROC-2020-11-02-01

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

Event Description: **Run 11**
Request ID: **RQ-2020-10-19-51**
Customer: **TLH-ROC**
Project ID: **SMP**

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

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Certified by: Liang Lin, Environmental Administrator

Date Certified: 24-NOV-2020 11:12

A handwritten signature in black ink, appearing to read "Liang Lin", on a light-colored background.

Case Narrative

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

Results for the following analytical groups are included in this report: 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: Fenholloway River @ Mouth

Collection Date/Time: 11/02/2020 11:05

Field ID: G1TLHR0042

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2205813	EPA 180.1 Rev. 2.0	Turbidity	2.8		NTU	P389695	
	EPA 300.0 Rev. 2.1	Bromide	2.8		mg Br/L	P389912	
	SM 2320 B-2011	Total Alkalinity	118		mg CaCO3/L	P389776	
	SM 2540 D-2011	TSS	5	IA	mg/L	P389999	
	SM 4500 F-C-2011	Fluoride	0.15		mg F/L	P389778	
2205814	EPA 350.1 Rev. 2.0	Ammonia-N	0.025		mg N/L	P389896	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.89		mg N/L	P389829	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.044		mg N/L	P389737	
	EPA 365.1 Rev. 2.0	Total-P	0.11		mg P/L	P389741	
	SM 5310 B-2011	Organic Carbon	31		mg C/L	P389772	
2205815	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.068		mg P/L	P389698	
2205821	EPA 8321B	2,4-D	0.0020	U	ug/L	P389267	
		Acesulfame K**	0.10	UJ	ug/L	P389719	MS
		AMPA**	0.10	UJ	ug/L	P389719	MS
		Sucralose**	0.035	I	ug/L	P389719	
		Acetaminophen**	0.0080	U	ug/L	P389267	
		Endothall**	0.58	IJ	ug/L	P389719	MS
		Acetamiprid**	0.0020	U	ug/L	P389267	RPD
		Glufosinate**	0.10	U	ug/L	P389719	
		Glyphosate**	0.43		ug/L	P389719	
		Afidopyropen**	0.0020	U	ug/L	P389267	MS, RPD
		Bentazon	8.0E-04	U	ug/L	P389267	MS
		Benzovindiflupyr**	0.0020	U	ug/L	P389267	
		Carbamazepine**	8.0E-04	U	ug/L	P389267	
		Clothianidin**	0.0020	U	ug/L	P389267	
		Dinotefuran**	0.0020	U	ug/L	P389267	
		Diuron	0.0020	U	ug/L	P389267	
		Fenuron	0.016	U	ug/L	P389267	
		Fluridone**	8.0E-04	U	ug/L	P389267	
		Imazapyr**	0.13		ug/L	P389267	
		Hydrocodone**	0.0020	U	ug/L	P389267	
		Ibuprofen**	0.020	U	ug/L	P389267	
		Imidacloprid	0.0020	U	ug/L	P389267	
		Linuron	0.0040	U	ug/L	P389267	
		Mandestrobin**	0.0020	U	ug/L	P389267	
		MCP	0.0020	U	ug/L	P389267	
		Naproxen**	0.0080	U	ug/L	P389267	
		Primidone**	0.0040	U	ug/L	P389267	
		Pyraclostrobin**	0.0020	U	ug/L	P389267	
		Thiamethoxam**	0.0020	U	ug/L	P389267	
		Tolfenpyrad**	0.0020	U	ug/L	P389267	
		Triclopyr**	0.0040	U	ug/L	P389267	

Field ID: G1TLHR0042

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
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Ref. Method and Comment:
EPA 300.0 Rev. 2.1: Bromide: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample.
SM 2540 D-2011: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample.
SM 4500 F-C-2011: Batch matrix spike recoveries are unavailable because of high analyte concentration in the QC sample.
EPA 8321B: Refer to the Lab Analysis Report for an explanation of QC Codes.

Quality Assurance Report Method Blank Results

Reference Method: EPA 180.1 Rev. 2.0
 Batch ID: P389695

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 300.0 Rev. 2.1
 Batch ID: P389912

Component	Result	Code	Units
Bromide	0.013	U	mg Br/L

Reference Method: EPA 350.1 Rev. 2.0
 Batch ID: P389896

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

Reference Method: EPA 351.2 Rev. 2.0
 Batch ID: P389829

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

Reference Method: EPA 353.2 Rev. 2.0
 Batch ID: P389737

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

Reference Method: EPA 365.1 Rev. 2.0
 Batch ID: P389741

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
 Batch ID: P389698

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

Reference Method: EPA 8321B
 Batch ID: P389267

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

Quality Assurance Report Method Blank Results

Reference Method: EPA 8321B
Batch ID: P389267

Component	Result	Code	Units
Fenuron	0.016	U	ug/L
Fluridone	8.0E-04	U	ug/L
Hydrocodone	0.0020	U	ug/L
Ibuprofen	0.020	U	ug/L
Imazapyr	0.0040	U	ug/L
Imidacloprid	0.0020	U	ug/L
Linuron	0.0040	U	ug/L
Mandestrobin	0.0020	U	ug/L
MCP	0.0020	U	ug/L
Naproxen	0.0080	U	ug/L
Primidone	0.0040	U	ug/L
Pyraclostrobin	0.0020	U	ug/L
Thiamethoxam	0.0020	U	ug/L
Tolfenpyrad	0.0020	U	ug/L
Triclopyr	0.0040	U	ug/L

Reference Method: EPA 8321B
Batch ID: P389719

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: P389776

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

Reference Method: SM 2540 D-2011
Batch ID: P389999

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500 F-C-2011
Batch ID: P389778

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-2011
Batch ID: P389772

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: P389912

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P389896

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P389829

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: P389737

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: P389741

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P389698

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

Reference Method: EPA 8321B
Batch ID: P389267

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2,4-D	60.0	73.1	P/P	30 - 160
Acetaminophen	35.8	42.9	P/P	30 - 160
Acetamiprid	58.2	50.3	P/P	30 - 160
Afidopyropen	46.0	36.5	P/P	30 - 160
Bentazon	51.6	49.9	P/P	30 - 160
Benzovindiflupyr	75.1	79.7	P/P	30 - 160
Carbamazepine	68.8	61.1	P/P	30 - 160
Clothianidin	78.7	79.1	P/P	30 - 160
Dinotefuran	60.3	57.1	P/P	30 - 160
Diuron	74.0	70.1	P/P	30 - 160
Fenuron	95.7	92.0	P/P	30 - 160
Fluridone	77.0	74.5	P/P	30 - 160
Hydrocodone	77.1	78.6	P/P	30 - 160
Ibuprofen	62.9	66.1	P/P	30 - 160
Imazapyr	76.3	72.7	P/P	30 - 160
Imidacloprid	78.3	80.4	P/P	30 - 160

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 8321B
Batch ID: P389267

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Linuron	82.1	91.5	P/P	30 - 160
Mandestrobin	77.8	75.5	P/P	30 - 160
MCP	71.3	63.3	P/P	30 - 160
Naproxen	59.3	50.9	P/P	30 - 160
Primidone	79.2	82.6	P/P	30 - 160
Pyraclostrobin	51.6	51.6	P/P	30 - 160
Thiamethoxam	72.3	88.3	P/P	30 - 160
Tolfenpyrad	32.3	30.5	P/P	30 - 160
Triclopyr	55.5	45.4	P/P	30 - 160

Reference Method: EPA 8321B
Batch ID: P389719

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Acesulfame K	118		P	40 - 150
AMPA	58.8		P	40 - 150
Endothall	87.3		P	40 - 150
Glufosinate	83.2		P	40 - 150
Glyphosate	101		P	40 - 140
Sucralose	104		P	40 - 150

Reference Method: SM 2320 B-2011
Batch ID: P389776

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	99.2		P	93 - 104

Reference Method: SM 4500 F-C-2011
Batch ID: P389778

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	93.6		P	90 - 106

Reference Method: SM 5310 B-2011
Batch ID: P389772

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	102		P	85 - 115

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P389912

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2205470	Bromide	103		P	90 - 110
2205479	Bromide	104		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P389896

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2205767	Ammonia-N	103	103	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P389829

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2205836	Kjeldahl Nitrogen	103	98.8	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P389737

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2205836	NO2NO3-N	96.4	96.4	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P389741

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2205814	Total-P	99.8	103	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P389698

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2205837	O-Phosphate-P	97.6	98.7	P/P	90 - 110

Reference Method: EPA 8321B
Batch ID: P389267

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2205160	2,4-D	55.0	46.0	P/P	30 - 160
2205160	Acetaminophen	66.2	68.5	P/P	30 - 160
2205160	Acetamiprid	54.4	31.8	P/P	30 - 160
2205160	Afidopyropen	38.0	26.0	P/F	30 - 160
2205160	Bentazon	29.6	5.43	F/F	30 - 160
2205160	Benzovindiflupyr	64.8	55.8	P/P	30 - 160
2205160	Carbamazepine	49.7	45.5	P/P	30 - 160
2205160	Clothianidin	71.1	52.1	P/P	30 - 160
2205160	Dinotefuran	78.3	67.5	P/P	30 - 160
2205160	Diuron	50.0	38.0	P/P	30 - 160
2205160	Fenuron	74.5	88.2	P/P	30 - 160
2205160	Fluridone	62.6	53.2	P/P	30 - 160
2205160	Hydrocodone	71.5	60.6	P/P	30 - 160
2205160	Ibuprofen	48.2	47.3	P/P	30 - 160
2205160	Imazapyr	99.3	76.1	P/P	30 - 160

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 8321B
Batch ID: P389267

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2205160	Imidacloprid	120	96.1	P/P	30 - 160
2205160	Linuron	66.1	59.4	P/P	30 - 160
2205160	Mandestrobin	66.2	60.8	P/P	30 - 160
2205160	MCPP	57.1	55.6	P/P	30 - 160
2205160	Naproxen	41.4	48.9	P/P	30 - 160
2205160	Primidone	87.4	66.4	P/P	30 - 160
2205160	Pyraclostrobin	52.0	52.0	P/P	30 - 160
2205160	Thiamethoxam	103	77.8	P/P	30 - 160
2205160	Tolfenpyrad	30.0	33.1	P/P	30 - 160
2205160	Triclopyr	43.9	39.8	P/P	30 - 160

Reference Method: EPA 8321B
Batch ID: P389719

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2205821	Acesulfame K	19.2	21.8	F/F	40 - 150
2205821	AMPA	32.1	34.2	F/F	40 - 150
2205821	Endothall	270	321	F/F	40 - 150
2205821	Glufosinate	69.0	69.9	P/P	40 - 150
2205821	Glyphosate	67.7	73.2	P/P	40 - 140
2205821	Sucralose	97.6	95.4	P/P	40 - 150

Reference Method: SM 5310 B-2011
Batch ID: P389772

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2205510	Organic Carbon	103	103	P/P	85 - 115

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
 Batch ID: P389695

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2205822	Turbidity	4.18	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
 Batch ID: P389896

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2205767	Ammonia-N	0.313	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
 Batch ID: P389829

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2205836	Kjeldahl Nitrogen	2.04	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
 Batch ID: P389737

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2205836	NO2NO3-N	0.0	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
 Batch ID: P389741

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2205814	Total-P	2.30	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
 Batch ID: P389698

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2205837	O-Phosphate-P	0.885	Spike	P	0 - 20

Reference Method: EPA 8321B
 Batch ID: P389267

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2205160	2,4-D	16.0	Spike	P	0 - 30
2205160	Acetaminophen	3.34	Spike	P	0 - 30
2205160	Acetamiprid	52.5	Spike	F	0 - 30
2205160	Afidopyropen	37.5	Spike	F	0 - 30
2205160	Bentazon	21.4	Spike	P	0 - 30
2205160	Benzovindiflupyr	14.9	Spike	P	0 - 30
2205160	Carbamazepine	5.68	Spike	P	0 - 30
2205160	Clothianidin	29.2	Spike	P	0 - 30
2205160	Dinotefuran	14.8	Spike	P	0 - 30

Quality Assurance Report

Precision

Reference Method: EPA 8321B

Batch ID: P389267

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2205160	Diuron	27.2	Spike	P	0 - 30
2205160	Fenuron	16.9	Spike	P	0 - 30
2205160	Fluridone	9.06	Spike	P	0 - 30
2205160	Hydrocodone	16.5	Spike	P	0 - 30
2205160	Ibuprofen	1.81	Spike	P	0 - 30
2205160	Imazapyr	15.2	Spike	P	0 - 30
2205160	Imidacloprid	19.1	Spike	P	0 - 30
2205160	Linuron	10.7	Spike	P	0 - 30
2205160	Mandestrobin	8.52	Spike	P	0 - 30
2205160	MCP	2.70	Spike	P	0 - 30
2205160	Naproxen	16.4	Spike	P	0 - 30
2205160	Primidone	24.5	Spike	P	0 - 30
2205160	Pyraclostrobin	0.0825	Spike	P	0 - 30
2205160	Thiamethoxam	27.5	Spike	P	0 - 30
2205160	Toltenpyrad	9.66	Spike	P	0 - 30
2205160	Triclopyr	9.72	Spike	P	0 - 30
LFB	2,4-D	19.7	LCS	P	0 - 30
LFB	Acetaminophen	18.0	LCS	P	0 - 30
LFB	Acetamiprid	14.4	LCS	P	0 - 30
LFB	Afidopyropen	23.0	LCS	P	0 - 30
LFB	Bentazon	3.53	LCS	P	0 - 30
LFB	Benzovindiflupyr	5.96	LCS	P	0 - 30
LFB	Carbamazepine	11.9	LCS	P	0 - 30
LFB	Clothianidin	0.496	LCS	P	0 - 30
LFB	Dinotefuran	5.41	LCS	P	0 - 30
LFB	Diuron	5.41	LCS	P	0 - 30
LFB	Fenuron	4.00	LCS	P	0 - 30
LFB	Fluridone	3.33	LCS	P	0 - 30
LFB	Hydrocodone	1.88	LCS	P	0 - 30
LFB	Ibuprofen	4.84	LCS	P	0 - 30
LFB	Imazapyr	4.73	LCS	P	0 - 30
LFB	Imidacloprid	2.61	LCS	P	0 - 30
LFB	Linuron	10.8	LCS	P	0 - 30
LFB	Mandestrobin	2.97	LCS	P	0 - 30
LFB	MCP	11.8	LCS	P	0 - 30
LFB	Naproxen	15.1	LCS	P	0 - 30
LFB	Primidone	4.20	LCS	P	0 - 30
LFB	Pyraclostrobin	0.118	LCS	P	0 - 30
LFB	Thiamethoxam	20.0	LCS	P	0 - 30
LFB	Toltenpyrad	5.64	LCS	P	0 - 30
LFB	Triclopyr	19.9	LCS	P	0 - 30

Reference Method: EPA 8321B

Batch ID: P389719

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2205821	Acesulfame K	12.8	Spike	P	0 - 30
2205821	AMPA	6.37	Spike	P	0 - 30
2205821	Endothall	15.9	Spike	P	0 - 30
2205821	Glufosinate	1.28	Spike	P	0 - 30

Quality Assurance Report Precision

Reference Method: EPA 8321B
Batch ID: P389719

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2205821	Glyphosate	4.81	Spike	P	0 - 30
2205821	Sucralose	2.19	Spike	P	0 - 30

Reference Method: SM 2320 B-2011
Batch ID: P389776

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2205414	Total Alkalinity	1.15	Sample	P	0 - 8.1

Reference Method: SM 4500 F-C-2011
Batch ID: P389778

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2205414	Fluoride	0.469	Spike	P	0 - 2.8

Reference Method: SM 5310 B-2011
Batch ID: P389772

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2205510	Organic Carbon	0.180	Spike	P	0 - 20

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

Quality Assurance Report Surrogates

Lab Sample ID: 2205821

Field Sample ID: G1TLHR0042

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	2,4-D-d3	58.4	P	30 - 160
EPA 8321B	Acetaminophen-d4	77.3	P	30 - 160
EPA 8321B	Carbamazepine-d10	58.3	P	30 - 160
EPA 8321B	Diuron-d6	40.4	P	30 - 160
EPA 8321B	Endothall-d6	152	P	30 - 160
EPA 8321B	Endothall-d6	152	P	30 - 160
EPA 8321B	Glyphosate 13C 15N	67.7	P	30 - 160
EPA 8321B	Glyphosate 13C 15N	67.7	P	30 - 160
EPA 8321B	Ibuprofen-d3	63.2	P	30 - 160
EPA 8321B	Primidone-d5	72.3	P	30 - 160
EPA 8321B	Sucralose-d6	92.2	P	30 - 160
EPA 8321B	Sucralose-d6	92.2	P	30 - 160

Quality Assurance Report Calibration Verification

Reference Method: EPA 180.1 Rev. 2.0

Run ID: A101936

Included Lab Sample IDs: 2205813

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Turbidity	98.5	98.0	P/P	95 - 105

Reference Method: EPA 365.1 Rev. 2.0 dissolved

Run ID: A101937

Included Lab Sample IDs: 2205815

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	98.8	98.1	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A101952

Included Lab Sample IDs: 2205814

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO2NO3-N	99.5	100	P/P	90 - 110

Reference Method: EPA 8321B

Run ID: A101966

Included Lab Sample IDs: 2205821

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
2,4-D	106	107	P/P	50 - 150
Acetaminophen	104	112	P/P	60 - 160
Acetamiprid	105	105	P/P	50 - 150
Afidopyropen	95.0	99.4	P/P	50 - 150
Bentazon	106	101	P/P	50 - 160
Benzovindiflupyr	127	107	P/P	50 - 150
Carbamazepine	110	108	P/P	60 - 150
Clothianidin	103	103	P/P	60 - 150
Dinotefuran	88.2	94.9	P/P	50 - 150
Diuron	106	112	P/P	60 - 160
Fenuron	110	116	P/P	60 - 150
Fluridone	101	90.4	P/P	60 - 160
Hydrocodone	107	113	P/P	60 - 150
Ibuprofen	93.4	98.7	P/P	50 - 160
Imazapyr	115	106	P/P	50 - 160
Imidacloprid	108	107	P/P	60 - 150
Linuron	89.1	86.2	P/P	60 - 150
Mandestrobin	114	112	P/P	50 - 150
MCP	116	118	P/P	50 - 150
Naproxen	68.2	101	P/P	50 - 160
Primidone	110	115	P/P	60 - 150
Pyraclostrobin	101	101	P/P	60 - 150
Thiamethoxam	117	114	P/P	50 - 150
Tolfenpyrad	115	114	P/P	60 - 150
Triclopyr	117	119	P/P	50 - 150

Quality Assurance Report Calibration Verification

Reference Method: SM 5310 B-2011

Run ID: A101967

Included Lab Sample IDs: 2205814

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	105	105	P/P	90 - 110

Reference Method: SM 2320 B-2011

Run ID: A101970

Included Lab Sample IDs: 2205813

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	101	98.6	P/P	90 - 110

Reference Method: SM 4500 F-C-2011

Run ID: A101970

Included Lab Sample IDs: 2205813

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	95.4	100	P/P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1

Run ID: A101986

Included Lab Sample IDs: 2205813

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

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A101988

Included Lab Sample IDs: 2205814

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	101	100	P/P	85 - 115

Reference Method: EPA 8321B

Run ID: A101999

Included Lab Sample IDs: 2205821

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Sucralose	102	114	P/P	50 - 160

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A102027

Included Lab Sample IDs: 2205814

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

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A102028

Included Lab Sample IDs: 2205814

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

Quality Assurance Report Calibration Verification

Reference Method: EPA 8321B

Run ID: A102055

Included Lab Sample IDs: 2205821

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
AMPA	92.7	90.8	P/P	50 - 160
Glufosinate	98.5	93.9	P/P	50 - 160
Glyphosate	104	101	P/P	50 - 160

Reference Method: EPA 8321B

Run ID: A102056

Included Lab Sample IDs: 2205821

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Acesulfame K	149	122	P/P	50 - 160
Endothall	91.3	102	P/P	60 - 160

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

Control limits for initial calibration checks may be different from those for continuing checks, depending on method requirements.
Where they are different, both control limits are provided.

Quality Assurance Report Summary

Ref. Method	Analyte	LCS % Recovery		MS % Recovery		LCS	Precision	MS
							SMP	
EPA 180.1 Rev. 2.0	Turbidity						4.18	
EPA 300.0 Rev. 2.1	Bromide	103		103	104			
EPA 350.1 Rev. 2.0	Ammonia-N	102		103	103			0.313
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	105		103	98.8			2.04
EPA 353.2 Rev. 2.0	NO2NO3-N	100		96.4	96.4			0.0
EPA 365.1 Rev. 2.0	Total-P	105		99.8	103			2.30
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	98.1		97.6	98.7			0.885
EPA 8321B	2,4-D	60.0	73.1	55.0	46.0	19.7		16.0
	Acesulfame K	118		19.2	21.8			12.8
	Acetaminophen	35.8	42.9	66.2	68.5	18.0		3.34
	Acetamiprid	58.2	50.3	54.4	31.8	14.4		52.5
	Afidopyropen	46.0	36.5	38.0	26.0	23.0		37.5
	AMPA	58.8		32.1	34.2			6.37
	Bentazon	49.9	51.6	29.6	5.43	3.53		21.4
	Benzovindiflupyr	75.1	79.7	64.8	55.8	5.96		14.9
	Carbamazepine	68.8	61.1	49.7	45.5	11.9		5.68
	Clothianidin	78.7	79.1	71.1	52.1	0.496		29.2
	Dinotefuran	60.3	57.1	78.3	67.5	5.41		14.8
	Diuron	74.0	70.1	50.0	38.0	5.41		27.2
	Endothall	87.3		270	321			15.9
	Fenuron	95.7	92.0	74.5	88.2	4.00		16.9
	Fluridone	77.0	74.5	62.6	53.2	3.33		9.06
	Glufosinate	83.2		69.0	69.9			1.28
	Glyphosate	101		67.7	73.2			4.81
	Hydrocodone	77.1	78.6	71.5	60.6	1.88		16.5
	Ibuprofen	62.9	66.1	48.2	47.3	4.84		1.81
	Imazapyr	76.3	72.7	99.3	76.1	4.73		15.2
	Imidacloprid	78.3	80.4	120	96.1	2.61		19.1
	Linuron	82.1	91.5	66.1	59.4	10.8		10.7
	Mandestrobin	77.8	75.5	66.2	60.8	2.97		8.52
	MCPP	71.3	63.3	57.1	55.6	11.8		2.70
	Naproxen	59.3	50.9	41.4	48.9	15.1		16.4
	Primidone	79.2	82.6	87.4	66.4	4.20		24.5
	Pyraclostrobin	51.6	51.6	52.0	52.0	0.118		0.0825
	Sucralose	104		97.6	95.4			2.19
	Thiamethoxam	72.3	88.3	103	77.8	20.0		27.5
	Tolfenpyrad	32.3	30.5	30.0	33.1	5.64		9.66
	Triclopyr	55.5	45.4	43.9	39.8	19.9		9.72
SM 2320 B-2011	Total Alkalinity	99.2					1.15	
SM 4500 F-C-2011	Fluoride	93.6						0.469
SM 5310 B-2011	Organic Carbon	102		103	103			0.180

Reference Method Descriptions

Method	Description	Associated Samples
EPA 180.1 Rev. 2.0	Turbidity in aqueous matrices	2205813
EPA 300.0 Rev. 2.1	Bromide in aqueous matrices	2205813
EPA 350.1 Rev. 2.0	Ammonia in aqueous matrices as mg N/L	2205814
EPA 351.2 Rev. 2.0	Total Kjeldahl Nitrogen in aqueous matrices	2205814
EPA 353.2 Rev. 2.0	Nitrite/Nitrate in aqueous matrices as mg N/L	2205814
EPA 365.1 Rev. 2.0	Total Phosphorus in aqueous matrices as mg P/L	2205814
EPA 365.1 Rev. 2.0 dissolved	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	2205815

Reference Method Descriptions

Method	Description	<u>Associated Samples</u>
EPA 8321B	Pesticides, herbicides, and other chemicals in water matrices by HPLC/MS/MS	2205821
EPA 8321B	Water soluble organic compounds by HPLC/MS/MS	2205821
SM 2320 B-2011	Alkalinity in aqueous matrices as mg CaCO ₃ /L	2205813
SM 2540 D-2011	Total Suspended Solids in aqueous matrices using a maximum of 250 mL of sample	2205813
SM 4500 F-C-2011	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	2205813
SM 5310 B-2011	Nonpurgeable Organic Carbon in aqueous matrices	2205814

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	11/02/2020			11/03/2020 15:14	Yen Ta	2205813
EPA 300.0 Rev. 2.1	11/02/2020			11/06/2020 22:14	Lipi Saha	2205813
EPA 350.1 Rev. 2.0	11/02/2020			11/07/2020 14:16	Ping Hua	2205814
EPA 351.2 Rev. 2.0	11/02/2020	11/05/2020 14:25	David Boose	11/07/2020 13:35	Elliott Rodriguez	2205814
EPA 353.2 Rev. 2.0	11/02/2020			11/04/2020 11:33	Beverly Y. Sanders	2205814
EPA 365.1 Rev. 2.0	11/02/2020	11/04/2020 12:04	Yen Ta	11/05/2020 12:52	Benjamin T. Nordmann	2205814
EPA 365.1 Rev. 2.0 dissolved	11/02/2020			11/03/2020 15:46	Blanca Fach	2205815
EPA 8321B	11/02/2020	11/03/2020 10:30	Hoor Shaik	11/04/2020 18:38	Juyoung Kim	2205821
	11/02/2020	11/04/2020 10:15	Rebecca Ware	11/04/2020 14:04	Rebecca Ware	2205821
	11/02/2020	11/04/2020 10:15	Rebecca Ware	11/06/2020 12:36	Rebecca Ware	2205821
	11/02/2020	11/04/2020 10:15	Rebecca Ware	11/06/2020 17:39	Rebecca Ware	2205821
SM 2320 B-2011	11/02/2020			11/04/2020 22:45	Samantha Davila	2205813
SM 2540 D-2011	11/02/2020			11/04/2020 14:21	Yijie Li	2205813
SM 4500 F-C-2011	11/02/2020			11/04/2020 22:45	Samantha Davila	2205813
SM 5310 B-2011	11/02/2020			11/04/2020 19:16	Lauren Lees	2205814