

Chemical Analysis Report

SW-DIST-2019-12-20-01

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

Event Description: **English Creek**
Request ID: **RQ-2019-12-16-58**
Customer: **SW-DIST**
Project ID: **SMP**

Send Reports to:
FL Dept. of Environmental Protection
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13051 N. Telecom Parkway
Temple Terrace, FL 33637-0926
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Certified by: Liang Lin, Environmental Administrator

Date Certified: 03-JAN-2020 15:40

A handwritten signature in black ink, appearing to read "Liang Lin", is shown 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 group are included in this report: 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: English Creek above SR 60

Collection Date/Time: 12/19/2019 11:10

Field ID: G2SW0006

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2145897	EPA 8321B	2,4-D	0.0060	I	ug/L	P376238	
		Acesulfame K**	0.10	U	ug/L	P376239	
		AMPA**	2.8		ug/L	P376239	
		Sucralose**	0.21		ug/L	P376239	
		Acetaminophen**	0.0080	U	ug/L	P376238	
		Acetamiprid**	0.10		ug/L	P376238	
		Endothall**	0.25	U	ug/L	P376239	
		Glufosinate**	0.10	U	ug/L	P376239	
		Glyphosate**	2.5		ug/L	P376239	MS
		Afidopyropen**	0.0020	UJ	ug/L	P376238	RPD
		Bentazon	0.014		ug/L	P376238	
		Benzovindiflupyr**	0.0020	UJ	ug/L	P376238	
		Carbamazepine**	0.0022	I	ug/L	P376238	
		Clothianidin**	0.021		ug/L	P376238	
		Dinotefuran**	0.0085		ug/L	P376238	
		Diuron	0.078		ug/L	P376238	
		Fenuron	0.016	U	ug/L	P376238	
		Fluridone**	0.0055		ug/L	P376238	
		Imazapyr**	0.13		ug/L	P376238	
		Hydrocodone**	0.0020	U	ug/L	P376238	
		Ibuprofen**	0.020	U	ug/L	P376238	
		Imidacloprid	0.81		ug/L	P376238	
		Linuron	0.0040	U	ug/L	P376238	
		Mandestrobin**	0.0020	UJ	ug/L	P376238	
		MCPP	0.0020	U	ug/L	P376238	
		Naproxen**	0.0080	U	ug/L	P376238	
		Primidone**	0.0040	U	ug/L	P376238	
		Pyraclostrobin**	0.043		ug/L	P376238	
		Thiamethoxam**	0.11		ug/L	P376238	
		Tolfenpyrad**	0.0020	U	ug/L	P376238	
		Triclopyr**	0.0040	U	ug/L	P376238	

Ref. Method and Comment:

EPA 8321B: J - second source check standards for some analytes were not available for analysis. MS accuracy for imazapyr could not be assessed due to high concentration of parameter in the spiked sample.

Quality Assurance Report

Method Blank Results

Reference Method: EPA 8321B

Batch ID: P376238

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: P376239

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 Laboratory Control Sample Accuracy

Reference Method: EPA 8321B
Batch ID: P376238

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2,4-D	133		P	40 - 160
Acetaminophen	74.2		P	30 - 160
Acetamiprid	79.0		P	40 - 160
Afidopyropen	77.2		P	40 - 160
Bentazon	66.7		P	30 - 160
Benzovindiflupyr	102		P	40 - 160
Carbamazepine	88.7		P	40 - 160
Clothianidin	85.9		P	40 - 160
Dinotefuran	76.7		P	40 - 160
Diuron	62.9		P	40 - 160
Fenuron	93.6		P	40 - 160
Fluridone	84.8		P	40 - 160
Hydrocodone	73.3		P	40 - 160
Ibuprofen	68.9		P	30 - 160
Imazapyr	87.9		P	40 - 160
Imidacloprid	92.7		P	40 - 160
Linuron	50.1		P	40 - 160
Mandestrobin	86.8		P	40 - 160
MCPP	157		P	40 - 160
Naproxen	74.2		P	40 - 160
Primidone	70.3		P	40 - 160
Pyraclostrobin	94.6		P	30 - 160
Thiamethoxam	88.9		P	40 - 160
Tolfenpyrad	68.7		P	40 - 160
Triclopyr	98.1		P	30 - 160

Reference Method: EPA 8321B
Batch ID: P376239

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Acesulfame K	118		P	40 - 150
AMPA	86.3		P	40 - 150
Endothall	119		P	40 - 150
Glufosinate	110		P	40 - 150
Glyphosate	130		P	40 - 140
Sucralose	98.4		P	40 - 150

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 8321B
Batch ID: P376238

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2145486	2,4-D	134	127	P/P	40 - 160
2145486	Acetaminophen	92.4	98.6	P/P	30 - 160
2145486	Acetamiprid	66.7	61.7	P/P	40 - 160
2145486	Afidopyropen	88.5	48.9	P/P	40 - 160
2145486	Bentazon	42.9	44.1	P/P	30 - 160
2145486	Benzovindiflupyr	104	96.9	P/P	40 - 160
2145486	Carbamazepine	78.1	68.2	P/P	40 - 160
2145486	Clothianidin	90.8	86.7	P/P	40 - 160
2145486	Dinotefuran	99.3	95.1	P/P	40 - 160
2145486	Diuron	59.8	56.3	P/P	40 - 160
2145486	Fenuron	76.8	80.8	P/P	40 - 160
2145486	Fluridone	78.1	75.2	P/P	40 - 160
2145486	Hydrocodone	100	81.7	P/P	40 - 160
2145486	Ibuprofen	61.0	62.0	P/P	30 - 160
2145486	Imidacloprid	149	145	P/P	40 - 160
2145486	Linuron	52.2	48.7	P/P	40 - 160
2145486	Mandestrobin	82.6	74.8	P/P	40 - 160
2145486	MCP	147	139	P/P	40 - 160
2145486	Naproxen	66.7	60.7	P/P	40 - 160
2145486	Primidone	93.1	98.3	P/P	40 - 160
2145486	Pyraclostrobin	88.7	86.8	P/P	30 - 160
2145486	Thiamethoxam	104	106	P/P	40 - 160
2145486	Tolfenpyrad	61.5	62.8	P/P	40 - 160
2145486	Triclopyr	88.9	91.7	P/P	30 - 160

Reference Method: EPA 8321B
Batch ID: P376239

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2146115	Acesulfame K	45.1	50.4	P/P	40 - 150
2146115	AMPA	88.6	92.9	P/P	40 - 150
2146115	Endothall	122	126	P/P	40 - 150
2146115	Glufosinate	96.0	83.6	P/P	40 - 150
2146115	Glyphosate	152	139	F/P	40 - 140
2146115	Sucralose	91.7	95.6	P/P	40 - 150

Quality Assurance Report Precision

Reference Method: EPA 8321B
Batch ID: P376238

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2145486	2,4-D	4.51	Spike	P	0 - 30
2145486	Acetaminophen	6.51	Spike	P	0 - 30
2145486	Acetamiprid	7.73	Spike	P	0 - 30
2145486	Afidopyropen	57.7	Spike	F	0 - 30
2145486	Bentazon	2.60	Spike	P	0 - 30
2145486	Benzovindiflupyr	7.14	Spike	P	0 - 30
2145486	Carbamazepine	13.4	Spike	P	0 - 30
2145486	Clothianidin	4.65	Spike	P	0 - 30
2145486	Dinotefuran	4.35	Spike	P	0 - 30
2145486	Diuron	5.60	Spike	P	0 - 30
2145486	Fenuron	5.20	Spike	P	0 - 30
2145486	Fluridone	1.98	Spike	P	0 - 30
2145486	Hydrocodone	20.3	Spike	P	0 - 30
2145486	Ibuprofen	1.70	Spike	P	0 - 30
2145486	Imazapyr	6.76	Spike	P	0 - 30
2145486	Imidacloprid	2.58	Spike	P	0 - 30
2145486	Linuron	6.91	Spike	P	0 - 30
2145486	Mandestrobin	9.90	Spike	P	0 - 30
2145486	MCPP	5.89	Spike	P	0 - 30
2145486	Naproxen	9.41	Spike	P	0 - 30
2145486	Primidone	5.43	Spike	P	0 - 30
2145486	Pyraclostrobin	2.11	Spike	P	0 - 30
2145486	Thiamethoxam	2.33	Spike	P	0 - 30
2145486	Tolfenpyrad	2.13	Spike	P	0 - 30
2145486	Triclopyr	3.17	Spike	P	0 - 30

Reference Method: EPA 8321B
Batch ID: P376239

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2146115	Acesulfame K	11.1	Spike	P	0 - 30
2146115	AMPA	4.84	Spike	P	0 - 30
2146115	Endothall	3.41	Spike	P	0 - 30
2146115	Glufosinate	13.9	Spike	P	0 - 30
2146115	Glyphosate	8.37	Spike	P	0 - 30
2146115	Sucralose	3.69	Spike	P	0 - 30

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

Quality Assurance Report Surrogates

Lab Sample ID: 2145897
Field Sample ID: G2SW0006

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	2,4-D-d3	132	P	30 - 160
EPA 8321B	Acetaminophen-d4	103	P	30 - 160
EPA 8321B	Carbamazepine-d10	100	P	30 - 160
EPA 8321B	Diuron-d6	85.2	P	30 - 160
EPA 8321B	Endothall-d6	72.7	P	30 - 160
EPA 8321B	Endothall-d6	72.7	P	30 - 160
EPA 8321B	Glyphosate 13C 15N	152	P	30 - 160
EPA 8321B	Glyphosate 13C 15N	152	P	30 - 160
EPA 8321B	Ibuprofen-d3	89.1	P	30 - 160
EPA 8321B	Primidone-d5	110	P	30 - 160
EPA 8321B	Sucralose-d6	100	P	30 - 160
EPA 8321B	Sucralose-d6	100	P	30 - 160

Quality Assurance Report Calibration Verification

Reference Method: EPA 8321B
 Run ID: A96521
 Included Lab Sample IDs: 2145897

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Acesulfame K	138	94.0	P/P	60 - 160
Endothall	112	115	P/P	60 - 160

Reference Method: EPA 8321B
 Run ID: A96534
 Included Lab Sample IDs: 2145897

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Sucralose	99.1	91.7	P/P	60 - 160

Reference Method: EPA 8321B
 Run ID: A96588
 Included Lab Sample IDs: 2145897

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
2,4-D	103	125	P/P	50 - 150
Acetaminophen	104	98.0	P/P	60 - 160
Acetamiprid	114	115	P/P	50 - 150
Afidopyropen	116	123	P/P	50 - 150
Bentazon	90.1	78.6	P/P	50 - 160
Benzovindiflupyr	119	121	P/P	50 - 150
Carbamazepine	98.3	111	P/P	60 - 150
Clothianidin	105	93.1	P/P	60 - 150
Dinotefuran	99.1	107	P/P	50 - 150
Diuron	111	97.6	P/P	60 - 150
Fenuron	114	111	P/P	60 - 150
Fluridone	116	116	P/P	60 - 160
Hydrocodone	113	110	P/P	60 - 150
Ibuprofen	120	134	P/P	50 - 160
Imazapyr	120	122	P/P	50 - 150
Imidacloprid	110	106	P/P	60 - 150
Linuron	101	97.1	P/P	60 - 150
Mandestrobin	120	118	P/P	50 - 150
MCPP	120	125	P/P	50 - 150
Naproxen	92.8	127	P/P	50 - 160
Primidone	101	116	P/P	60 - 150
Pyraclostrobin	125	127	P/P	60 - 150
Thiamethoxam	124	106	P/P	50 - 150
Tolfenpyrad	123	129	P/P	60 - 150
Triclopyr	125	116	P/P	50 - 150

Reference Method: EPA 8321B
 Run ID: A96650
 Included Lab Sample IDs: 2145897

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
AMPA	93.6	79.9	P/P	60 - 160
Glufosinate	92.8	95.4	P/P	60 - 160
Glyphosate	101	102	P/P	60 - 160

Quality Assurance Report

Calibration Verification

* 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 SMP	MS
			LCS			
EPA 8321B	2,4-D	133	134	127		4.51
	Acesulfame K	118	45.1	50.4		11.1
	Acetaminophen	74.2	92.4	98.6		6.51
	Acetamiprid	79.0	66.7	61.7		7.73
	Afidopyropen	77.2	88.5	48.9		57.7
	AMPA	86.3	88.6	92.9		4.84
	Bentazon	66.7	42.9	44.1		2.60
	Benzovindiflupyr	102	104	96.9		7.14
	Carbamazepine	88.7	78.1	68.2		13.4
	Clothianidin	85.9	90.8	86.7		4.65
	Dinotefuran	76.7	99.3	95.1		4.35
	Diuron	62.9	59.8	56.3		5.60
	Endothall	119	122	126		3.41
	Fenuron	93.6	76.8	80.8		5.20
	Fluridone	84.8	78.1	75.2		1.98
	Glufosinate	110	96.0	83.6		13.9
	Glyphosate	130	152	139		8.37
	Hydrocodone	73.3	100	81.7		20.3
	Ibuprofen	68.9	61.0	62.0		1.70
	Imazapyr	87.9				6.76
	Imidacloprid	92.7	149	145		2.58
	Linuron	50.1	52.2	48.7		6.91
	Mandestrobin	86.8	82.6	74.8		9.90
	MCPP	157	147	139		5.89
	Naproxen	74.2	66.7	60.7		9.41
	Primidone	70.3	93.1	98.3		5.43
	Pyraclostrobin	94.6	88.7	86.8		2.11
	Sucralose	98.4	91.7	95.6		3.69
	Thiamethoxam	88.9	104	106		2.33
	Tolfenpyrad	68.7	61.5	62.8		2.13
	Triclopyr	98.1	88.9	91.7		3.17

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 8321B / E31780	Pesticides, herbicides, and other chemicals in water matrices by HPLC/MS/MS	2145897
EPA 8321B / E31780	Water soluble organic compounds by HPLC/MS/MS	2145897

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
EPA 8321B	12/20/2019	12/20/2019 16:00	Rebecca Ware	12/20/2019 21:24	Rebecca Ware	2145897
	12/20/2019	12/20/2019 16:00	Rebecca Ware	12/22/2019 13:31	Mohammad Ghaffari	2145897
	12/20/2019	12/20/2019 16:00	Rebecca Ware	12/24/2019 11:26	Mohammad Ghaffari	2145897
	12/20/2019	12/23/2019 10:00	Hoor Shaik	12/28/2019 11:48	Juyoung Kim	2145897