

Chemical Analysis Report

SW-DIST-2019-03-15-02

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

Event Description: **Alafia River @ Center Ave**
Request ID: **RQ-2019-03-11-64**
Customer: **SW-DIST**
Project ID: **SMP**

Send Reports to:
FL Dept. of Environmental Protection
FL Dept. of Environmental Protection
13051 N. Telecom Parkway
Temple Terrace, FL 33637-0926
Attn: Judy Ashton

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Certified by: Liang Lin, Environmental Administrator

Date Certified: 05-APR-2019 10:44

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: ALAFIA RIVER @ CENTER AVE

Collection Date/Time: 03/14/2019 13:10

Field ID: G2SW0045

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2070592	EPA 8321B	2,4-D	0.052		ug/L	P360490	
		Acesulfame K**	0.10	U	ug/L	P360627	MS
		AMPA**	0.58		ug/L	P360627	
		Sucralose**	2.0		ug/L	P361315	
		Acetaminophen**	0.0080	U	ug/L	P360490	
		Endothall**	0.25	U	ug/L	P360627	MS
		Glufosinate**	0.10	U	ug/L	P360627	
		Bentazon	0.026		ug/L	P360490	
		Glyphosate**	0.39	I	ug/L	P360627	
		Carbamazepine**	0.0069		ug/L	P360490	
		Diuron	0.0030	I	ug/L	P360490	
		Fenuron	0.016	U	ug/L	P360490	
		Fluridone**	0.011		ug/L	P360490	
		Imazapyr**	0.099		ug/L	P360490	
		Hydrocodone**	0.0020	U	ug/L	P360490	
		Ibuprofen**	0.020	U	ug/L	P360490	
		Imidacloprid	0.018		ug/L	P360490	MS
		Linuron	0.0040	U	ug/L	P360490	
		MCPP	0.0020	U	ug/L	P360490	
		Naproxen**	0.0080	U	ug/L	P360490	
		Primidone**	0.014	I	ug/L	P360490	
		Pyraclostrobin**	0.0020	U	ug/L	P360490	
		Triclopyr**	0.0040	U	ug/L	P360490	

Quality Assurance Report

Method Blank Results

Reference Method: EPA 8321B

Batch ID: P360490

Component	Result	Code	Units
2,4-D	0.0020	U	ug/L
Acetaminophen	0.0080	U	ug/L
Bentazon	8.0E-04	U	ug/L
Carbamazepine	8.0E-04	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
MCPP	0.0020	U	ug/L
Naproxen	0.0080	U	ug/L
Primidone	0.0040	U	ug/L
Pyraclostrobin	0.0020	U	ug/L
Triclopyr	0.0040	U	ug/L

Reference Method: EPA 8321B

Batch ID: P360627

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

Reference Method: EPA 8321B

Batch ID: P361315

Component	Result	Code	Units
Sucralose	0.010	U	ug/L

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 8321B
Batch ID: P360490

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2,4-D	75.9		P	40 - 150
Acetaminophen	111		P	30 - 150
Bentazon	129		P	30 - 150
Carbamazepine	111		P	40 - 150
Diuron	120		P	40 - 150
Fenuron	127		P	40 - 150
Fluridone	127		P	40 - 150
Hydrocodone	98.2		P	40 - 150
Ibuprofen	76.0		P	40 - 150
Imazapyr	99.5		P	40 - 150
Imidacloprid	102		P	40 - 150
Linuron	103		P	40 - 150
MCPP	82.2		P	40 - 150
Naproxen	87.3		P	40 - 150
Primidone	119		P	40 - 150
Pyraclostrobin	82.3		P	40 - 150
Triclopyr	53.8		P	40 - 150

Reference Method: EPA 8321B
Batch ID: P360627

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Acesulfame K	98.1		P	40 - 150
AMPA	98.7		P	40 - 150
Endothall	112		P	40 - 150
Glufosinate	104		P	40 - 150
Glyphosate	108		P	40 - 140

Reference Method: EPA 8321B
Batch ID: P361315

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Sucralose	108		P	40 - 150

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 8321B
Batch ID: P360490

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2069849	2,4-D	94.4	96.9	P/P	40 - 150
2069849	Acetaminophen	103	90.8	P/P	30 - 150
2069849	Bentazon	78.8	75.9	P/P	30 - 150
2069849	Carbamazepine	102	92.4	P/P	40 - 150
2069849	Diuron	92.1	86.4	P/P	40 - 150
2069849	Fenuron	127	128	P/P	40 - 150
2069849	Fluridone	135	107	P/P	40 - 150
2069849	Hydrocodone	94.9	95.5	P/P	40 - 150
2069849	Ibuprofen	78.9	64.6	P/P	40 - 150
2069849	Imazapyr	65.2	55.8	P/P	40 - 150
2069849	Imidacloprid	183	169	F/F	40 - 150
2069849	Linuron	87.4	86.8	P/P	40 - 150
2069849	MCPP	124	110	P/P	40 - 150
2069849	Naproxen	75.2	85.0	P/P	40 - 150
2069849	Primidone	114	102	P/P	40 - 150
2069849	Pyraclostrobin	79.7	67.5	P/P	40 - 150
2069849	Triclopyr	85.9	70.6	P/P	40 - 150

Reference Method: EPA 8321B
Batch ID: P360627

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2070585	Acesulfame K	191	196	F/F	40 - 150
2070585	AMPA	92.5	90.7	P/P	40 - 150
2070585	Endothall	147	150	P/F	40 - 150
2070585	Glufosinate	65.9	65.0	P/P	40 - 150
2070585	Glyphosate	84.2	86.3	P/P	40 - 140

Reference Method: EPA 8321B
Batch ID: P361315

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2070592	Sucralose	99.2	63.5	P/P	40 - 150

Quality Assurance Report Precision

Reference Method: EPA 8321B
Batch ID: P360490

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2069849	2,4-D	2.59	Spike	P	0 - 30
2069849	Acetaminophen	12.8	Spike	P	0 - 30
2069849	Bentazon	3.26	Spike	P	0 - 30
2069849	Carbamazepine	9.88	Spike	P	0 - 30
2069849	Diuron	6.16	Spike	P	0 - 30
2069849	Fenuron	0.378	Spike	P	0 - 30
2069849	Fluridone	19.7	Spike	P	0 - 30
2069849	Hydrocodone	0.577	Spike	P	0 - 30
2069849	Ibuprofen	19.9	Spike	P	0 - 30
2069849	Imazapyr	10.1	Spike	P	0 - 30
2069849	Imidacloprid	6.91	Spike	P	0 - 30
2069849	Linuron	0.770	Spike	P	0 - 30
2069849	MCP	11.7	Spike	P	0 - 30
2069849	Naproxen	12.1	Spike	P	0 - 30
2069849	Primidone	11.2	Spike	P	0 - 30
2069849	Pyraclostrobin	16.7	Spike	P	0 - 30
2069849	Triclopyr	19.6	Spike	P	0 - 30

Reference Method: EPA 8321B
Batch ID: P360627

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2070585	Acesulfame K	2.22	Spike	P	0 - 30
2070585	AMPA	1.95	Spike	P	0 - 30
2070585	Endothall	2.28	Spike	P	0 - 30
2070585	Glufosinate	1.42	Spike	P	0 - 30
2070585	Glyphosate	2.48	Spike	P	0 - 30

Reference Method: EPA 8321B
Batch ID: P361315

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2070592	Sucralose	22.1	Spike	P	0 - 30

* Sample, spike and/or laboratory control sample precision (LCS) is reported.
Replicate spike precision may be reported when sample results are below quantifiable levels.

Quality Assurance Report Surrogates

Lab Sample ID: 2070592
Field Sample ID: G2SW0045

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	2,4-D-d3	78.6	P	30 - 160
EPA 8321B	Acetaminophen-d4	95.7	P	30 - 160
EPA 8321B	Carbamazepine-d10	81.6	P	30 - 160
EPA 8321B	Diuron-d6	85.5	P	30 - 160
EPA 8321B	Endothall-d6	125	P	30 - 160
EPA 8321B	Endothall-d6	125	P	30 - 160
EPA 8321B	Glyphosate 13C 15N	101	P	30 - 160
EPA 8321B	Glyphosate 13C 15N	101	P	30 - 160
EPA 8321B	Ibuprofen-d3	79.5	P	30 - 160
EPA 8321B	Primidone-d5	53.6	P	30 - 160
EPA 8321B	Sucralose-d6	75.8	P	30 - 160
EPA 8321B	Sucralose-d6	75.8	P	30 - 160

Quality Assurance Report Calibration Verification

Reference Method: EPA 8321B
 Run ID: A90161
 Included Lab Sample IDs: 2070592

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
AMPA	118	95.1	P/P	60 - 160
Glufosinate	94.5	92.6	P/P	60 - 160
Glyphosate	87.2	80.1	P/P	60 - 160

Reference Method: EPA 8321B
 Run ID: A90203
 Included Lab Sample IDs: 2070592

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Acesulfame K	117	120	P/P	60 - 160
Endothall	107	122	P/P	60 - 160

Reference Method: EPA 8321B
 Run ID: A90274
 Included Lab Sample IDs: 2070592

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
2,4-D	93.3	98.8	P/P	50 - 150
Acetaminophen	122	111	P/P	60 - 160
Bentazon	89.8	87.5	P/P	50 - 160
Carbamazepine	100	109	P/P	60 - 150
Diuron	114	108	P/P	60 - 150
Fenuron	113	110	P/P	60 - 150
Fluridone	66.0	104	P/P	60 - 160
Hydrocodone	121	115	P/P	60 - 150
Ibuprofen	92.7	109	P/P	50 - 160
Imazapyr	100	97.6	P/P	50 - 150
Imidacloprid	105	113	P/P	60 - 150
Linuron	99.7	94.0	P/P	60 - 150
MCPP	91.5	87.7	P/P	50 - 150
Naproxen	106	89.5	P/P	50 - 160
Primidone	138	92.5	P/P	60 - 150
Pyraclostrobin	82.5	118	P/P	60 - 150
Triclopyr	96.1	95.4	P/P	50 - 150

Reference Method: EPA 8321B
 Run ID: A90425
 Included Lab Sample IDs: 2070592

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Sucralose	95.0	79.7	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		Precision SMP	MS
			LCS			
EPA 8321B	2,4-D	75.9	94.4	96.9		2.59
	Acesulfame K	98.1	191	196		2.22
	Acetaminophen	111	103	90.8		12.8
	AMPA	98.7	92.5	90.7		1.95
	Bentazon	129	78.8	75.9		3.26
	Carbamazepine	111	102	92.4		9.88
	Diuron	120	92.1	86.4		6.16
	Endothall	112	147	150		2.28
	Fenuron	127	127	128		0.378
	Fluridone	127	135	107		19.7
	Glufosinate	104	65.9	65.0		1.42
	Glyphosate	108	84.2	86.3		2.48
	Hydrocodone	98.2	94.9	95.5		0.577
	Ibuprofen	76.0	78.9	64.6		19.9
	Imazapyr	99.5	65.2	55.8		10.1
	Imidacloprid	102	183	169		6.91
	Linuron	103	87.4	86.8		0.770
	MCPP	82.2	124	110		11.7
	Naproxen	87.3	75.2	85.0		12.1
	Primidone	119	114	102		11.2
	Pyraclostrobin	82.3	79.7	67.5		16.7
	Sucralose	108	99.2	63.5		22.1
	Triclopyr	53.8	85.9	70.6		19.6

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 8321B / E31780	Pesticides, herbicides, and other chemicals in water matrices by HPLC/MS/MS	2070592
EPA 8321B / E31780	Water soluble organic compounds by HPLC/MS/MS	2070592

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
EPA 8321B	03/15/2019	03/19/2019 10:00	Hoor Shaik	03/26/2019 14:36	Juyoung Kim	2070592
	03/15/2019	03/20/2019 12:00	Hoor Shaik	03/20/2019 13:12	Juyoung Kim	2070592
	03/15/2019	03/20/2019 12:00	Hoor Shaik	03/21/2019 01:51	Juyoung Kim	2070592
	03/15/2019	04/01/2019 15:45	Rebecca Ware	04/02/2019 11:50	Rebecca Ware	2070592