

Chemical Analysis Report

SO-DIST-2022-12-14-01

Florida DEP Laboratory
2600 Blair Stone Road
Tallahassee, FL 32399-2400
DOH Accreditation E31780

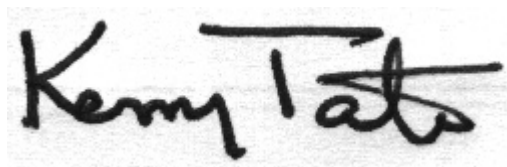
Event Description: **2022 SMP: Runoff to Peace River**
Request ID: **RQ-2022-12-12-23**
Customer: **SO-DIST**
Project ID: **SMP**

Send Reports to:
FL Dept. of Environmental Protection
FLDEP South District Office
2295 Victoria Ave. Suite 314
Fort Myers, FL 33901-3381
Attn: William Mullen

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

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

Date Certified: 05-JAN-2023 13:27

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

Case Narrative

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

Results for the following analytical 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: RUNOFF TO PEACE RIVER SITE 3

Collection Date/Time: 12/13/2022 09:25

Field ID: G3SD0132

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2375213	EPA 8321B	2,4-D	0.0020	U	ug/L	P423628	
		Acesulfame K	0.10	U	ug/L	P423561	
		2,4,5-T	0.0040	U	ug/L	P423628	
		AMPA	0.10	U	ug/L	P423561	
		Acetaminophen	0.0080	U	ug/L	P423628	
		Acetamiprid	0.0020	U	ug/L	P423628	
		Endothall	0.25	U	ug/L	P423561	
		Glufosinate	0.10	U	ug/L	P423561	
		Glyphosate	0.17	I	ug/L	P423561	
		Afidopyropen	0.0020	U	ug/L	P423628	
		Bentazon	8.0E-04	U	ug/L	P423628	
		Sucralose	0.010	U	ug/L	P423561	
		Benzovindiflupyr	0.0020	U	ug/L	P423628	
		Carbamazepine	8.0E-04	U	ug/L	P423628	
		Clothianidin	0.0020	U	ug/L	P423628	
		Dinotefuran	0.0020	U	ug/L	P423628	
		Diuron	0.0020	U	ug/L	P423628	
		Fenuron	0.032	U	ug/L	P423628	
		Fluridone	8.0E-04	U	ug/L	P423628	
		Imazapyr	0.0040	U	ug/L	P423628	
		Hydrocodone	0.0020	U	ug/L	P423628	
		Ibuprofen	0.20	U	ug/L	P423628	
		Imidacloprid	0.0020	U	ug/L	P423628	
		Linuron	0.0040	U	ug/L	P423628	
		Mandestrobin	0.0020	U	ug/L	P423628	
		MCPP	0.0040	U	ug/L	P423628	
		Naproxen	0.0080	U	ug/L	P423628	
		Primidone	0.0040	U	ug/L	P423628	
		Pyraclostrobin	0.0020	U	ug/L	P423628	
		Silvex	0.0040	U	ug/L	P423628	
		Thiamethoxam	0.0020	U	ug/L	P423628	
		Tolfenpyrad	0.0020	U	ug/L	P423628	
		Triclopyr	0.0040	U	ug/L	P423628	

Quality Assurance Report Method Blank Results

Reference Method: EPA 8321B

Batch ID: P423561

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: EPA 8321B

Batch ID: P423628

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
Diuron	0.0020	U	ug/L
Fenuron	0.032	U	ug/L
Fluridone	8.0E-04	U	ug/L
Hydrocodone	0.0020	U	ug/L
Ibuprofen	0.20	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	0.0040	U	ug/L
Naproxen	0.0080	U	ug/L
Primidone	0.0040	U	ug/L
Pyraclostrobin	0.0020	U	ug/L
Silvex	0.0040	U	ug/L
Thiamethoxam	0.0020	U	ug/L
Tolfenpyrad	0.0020	U	ug/L
Triclopyr	0.0040	U	ug/L

Quality Assurance Report

Laboratory Control Sample Accuracy

Reference Method: EPA 8321B
Batch ID: P423561

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Acesulfame K	74.1		P	40 - 150
AMPA	106		P	40 - 150
Endothall	97.9		P	40 - 150
Glufosinate	100		P	40 - 150
Glyphosate	98.6		P	40 - 150
Sucralose	113		P	40 - 150

Reference Method: EPA 8321B
Batch ID: P423628

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2,4-D	102		P	40 - 150
2,4,5-T	76.0		P	40 - 150
Acetaminophen	95.1		P	30 - 150
Acetamiprid	83.1		P	40 - 150
Afidopyropen	64.9		P	30 - 150
Bentazon	69.1		P	30 - 150
Benzovindiflupyr	85.1		P	40 - 150
Carbamazepine	81.2		P	40 - 150
Clothianidin	93.6		P	40 - 150
Dinotefuran	95.1		P	40 - 150
Diuron	69.3		P	40 - 150
Fenuron	93.5		P	40 - 150
Fluridone	78.0		P	40 - 150
Hydrocodone	86.3		P	40 - 150
Ibuprofen	96.7		P	40 - 150
Imazapyr	83.6		P	40 - 150
Imidacloprid	85.4		P	40 - 150
Linuron	77.2		P	40 - 150
Mandestrobin	91.0		P	40 - 150
MCPP	102		P	40 - 150
Naproxen	87.6		P	40 - 150
Primidone	89.9		P	40 - 150
Pyraclostrobin	78.4		P	40 - 150
Silvex	82.2		P	40 - 150
Thiamethoxam	86.6		P	40 - 150
Tolfenpyrad	40.8		P	30 - 150
Triclopyr	73.2		P	40 - 150

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 8321B
Batch ID: P423561

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2375144	Acesulfame K	77.0	95.0	P/P	40 - 150
2375144	AMPA	99.4	99.4	P/P	40 - 150
2375144	Endothall	103	100	P/P	40 - 150
2375144	Glufosinate	111	110	P/P	40 - 150
2375144	Glyphosate	97.5	102	P/P	40 - 150
2375144	Sucralose	112	110	P/P	40 - 150

Reference Method: EPA 8321B
Batch ID: P423628

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2375490	2,4-D	108	102	P/P	40 - 150
2375490	2,4,5-T	80.2	74.0	P/P	40 - 150
2375490	Acetaminophen	103	100	P/P	30 - 150
2375490	Acetamiprid	87.9	83.9	P/P	40 - 150
2375490	Afidopyropen	64.1	70.2	P/P	30 - 150
2375490	Bentazon	70.5	75.8	P/P	30 - 150
2375490	Benzovindiflupyr	93.9	88.2	P/P	40 - 150
2375490	Carbamazepine	86.2	83.4	P/P	40 - 150
2375490	Clothianidin	100	103	P/P	40 - 150
2375490	Dinotefuran	103	97.9	P/P	40 - 150
2375490	Diuron	79.8	76.3	P/P	40 - 150
2375490	Fenuron	100	101	P/P	40 - 150
2375490	Fluridone	78.9	81.6	P/P	40 - 150
2375490	Hydrocodone	90.1	92.1	P/P	40 - 150
2375490	Ibuprofen	99.9	92.6	P/P	40 - 150
2375490	Imazapyr	90.6	89.4	P/P	40 - 150
2375490	Imidacloprid	92.5	91.9	P/P	40 - 150
2375490	Linuron	81.9	80.5	P/P	40 - 150
2375490	Mandestrobin	94.3	99.3	P/P	40 - 150
2375490	MCPP	105	96.5	P/P	40 - 150
2375490	Naproxen	89.4	66.8	P/P	40 - 150
2375490	Primidone	95.7	95.6	P/P	40 - 150
2375490	Pyraclostrobin	88.7	85.3	P/P	40 - 150
2375490	Silvex	78.6	88.1	P/P	40 - 150
2375490	Thiamethoxam	95.2	95.2	P/P	40 - 150
2375490	Tolfenpyrad	50.0	42.3	P/P	30 - 150
2375490	Triclopyr	87.9	74.1	P/P	40 - 150

Quality Assurance Report Precision

Reference Method: EPA 8321B
Batch ID: P423561

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2375144	Acesulfame K	21.0	Spike	P	0 - 30
2375144	AMPA	0.00724	Spike	P	0 - 30
2375144	Endothall	2.13	Spike	P	0 - 30
2375144	Glufosinate	0.419	Spike	P	0 - 30
2375144	Glyphosate	4.40	Spike	P	0 - 30
2375144	Sucralose	0.765	Spike	P	0 - 30

Reference Method: EPA 8321B
Batch ID: P423628

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2375490	2,4-D	6.37	Spike	P	0 - 30
2375490	2,4,5-T	8.04	Spike	P	0 - 30
2375490	Acetaminophen	3.22	Spike	P	0 - 30
2375490	Acetamiprid	4.61	Spike	P	0 - 30
2375490	Afidopyropen	9.12	Spike	P	0 - 30
2375490	Bentazon	7.20	Spike	P	0 - 30
2375490	Benzovindiflupyr	6.34	Spike	P	0 - 30
2375490	Carbamazepine	3.33	Spike	P	0 - 30
2375490	Clothianidin	2.29	Spike	P	0 - 30
2375490	Dinotefuran	4.92	Spike	P	0 - 30
2375490	Diuron	4.49	Spike	P	0 - 30
2375490	Fenuron	0.949	Spike	P	0 - 30
2375490	Fluridone	3.36	Spike	P	0 - 30
2375490	Hydrocodone	2.16	Spike	P	0 - 30
2375490	Ibuprofen	7.56	Spike	P	0 - 30
2375490	Imazapyr	1.32	Spike	P	0 - 30
2375490	Imidacloprid	0.616	Spike	P	0 - 30
2375490	Linuron	1.69	Spike	P	0 - 30
2375490	Mandestrobin	5.14	Spike	P	0 - 30
2375490	MCPP	8.12	Spike	P	0 - 30
2375490	Naproxen	29.0	Spike	P	0 - 30
2375490	Primidone	0.111	Spike	P	0 - 30
2375490	Pyraclostrobin	3.99	Spike	P	0 - 30
2375490	Silvex	11.4	Spike	P	0 - 30
2375490	Thiamethoxam	0.0381	Spike	P	0 - 30
2375490	Tolfenpyrad	16.5	Spike	P	0 - 30
2375490	Triclopyr	17.0	Spike	P	0 - 30

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

Quality Assurance Report Surrogates

Lab Sample ID: 2375213

Field Sample ID: G3SD0132

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	2,4-D-d3	78.4	P	30 - 160
EPA 8321B	Acetaminophen-d4	102	P	30 - 160
EPA 8321B	Carbamazepine-d10	55.6	P	30 - 160
EPA 8321B	Diuron-d6	53.1	P	30 - 160
EPA 8321B	Endothall-d6	106	P	30 - 160
EPA 8321B	Glyphosate 13C 15N	90.8	P	30 - 160
EPA 8321B	Ibuprofen-d3	72.3	P	30 - 160
EPA 8321B	Primidone-d5	82.7	P	30 - 160
EPA 8321B	Sucralose-d6	59.3	P	30 - 160

Quality Assurance Report Calibration Verification

Reference Method: EPA 8321B
Run ID: A116536
Included Lab Sample IDs: 2375213

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Acesulfame K	75.0	90.5	P/P	60 - 160
Sucralose	109	114	P/P	60 - 160

Reference Method: EPA 8321B
Run ID: A116538
Included Lab Sample IDs: 2375213

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
AMPA	107	110	P/P	60 - 160
Endothall	103	99.3	P/P	60 - 160
Glufosinate	102	106	P/P	60 - 160
Glyphosate	105	98.4	P/P	60 - 160

Reference Method: EPA 8321B
Run ID: A116684
Included Lab Sample IDs: 2375213

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
2,4-D	100	105	P/P	50 - 150
2,4,5-T	99.8	107	P/P	50 - 150
Acetaminophen	111	111	P/P	60 - 160
Acetamiprid	100	101	P/P	50 - 150
Afidopyropen	74.0	77.9	P/P	50 - 150
Bentazon	96.6	95.2	P/P	50 - 160
Benzovindiflupyr	114	112	P/P	50 - 150
Carbamazepine	99.8	94.6	P/P	60 - 150
Clothianidin	106	107	P/P	60 - 150
Dinotefuran	106	108	P/P	50 - 150
Diuron	114	107	P/P	60 - 160
Fenuron	100	99.3	P/P	60 - 150
Fluridone	95.3	101	P/P	60 - 160
Hydrocodone	105	100	P/P	60 - 150
Ibuprofen	92.7	103	P/P	50 - 160
Imazapyr	92.0	96.5	P/P	50 - 150
Imidacloprid	93.6	92.4	P/P	60 - 150
Linuron	90.8	94.4	P/P	60 - 150
Mandestrobin	113	106	P/P	50 - 150
MCPP	97.1	96.8	P/P	50 - 150
Naproxen	64.1	89.1	P/P	50 - 160
Primidone	96.9	100	P/P	60 - 150
Pyraclostrobin	118	122	P/P	60 - 150
Silvex	101	105	P/P	50 - 150
Thiamethoxam	104	106	P/P	50 - 150
Tolfenpyrad	98.8	95.4	P/P	60 - 150
Triclopyr	95.1	114	P/P	50 - 150

* 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	MS		
EPA 8321B	2,4-D	102	108	102		6.37
	2,4,5-T	76.0	80.2	74.0		8.04
	Acesulfame K	74.1	77.0	95.0		21.0
	Acetaminophen	95.1	103	100		3.22
	Acetamiprid	83.1	87.9	83.9		4.61
	Afidopyropen	64.9	64.1	70.2		9.12
	AMPA	106	99.4	99.4		0.0072
	Bentazon	69.1	70.5	75.8		7.20
	Benzovindiflupyr	85.1	93.9	88.2		6.34
	Carbamazepine	81.2	86.2	83.4		3.33
	Clothianidin	93.6	100	103		2.29
	Dinotefuran	95.1	103	97.9		4.92
	Diuron	69.3	79.8	76.3		4.49
	Endothall	97.9	103	100		2.13
	Fenuron	93.5	100	101		0.949
	Fluridone	78.0	78.9	81.6		3.36
	Glufosinate	100	111	110		0.419
	Glyphosate	98.6	97.5	102		4.40
	Hydrocodone	86.3	90.1	92.1		2.16
	Ibuprofen	96.7	99.9	92.6		7.56
	Imazapyr	83.6	90.6	89.4		1.32
	Imidacloprid	85.4	92.5	91.9		0.616
	Linuron	77.2	81.9	80.5		1.69
	Mandestrobin	91.0	94.3	99.3		5.14
	MCPP	102	105	96.5		8.12
	Naproxen	87.6	89.4	66.8		29.0
	Primidone	89.9	95.7	95.6		0.111
	Pyraclostrobin	78.4	88.7	85.3		3.99
	Silvex	82.2	78.6	88.1		11.4
	Sucralose	113	112	110		0.765
	Thiamethoxam	86.6	95.2	95.2		0.0381
	Tolfenpyrad	40.8	50.0	42.3		16.5
	Triclopyr	73.2	87.9	74.1		17.0

Reference Method Descriptions

Method	Description	Associated Samples
EPA 8321B	Pesticides, herbicides, and other chemicals in water matrices by HPLC/MS/MS	2375213

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
EPA 8321B	12/14/2022	12/16/2022 12:30	Manjita Shrestha	12/16/2022 14:08	Manjita Shrestha	2375213
	12/14/2022	12/16/2022 12:30	Manjita Shrestha	12/16/2022 22:00	Manjita Shrestha	2375213
	12/14/2022	12/20/2022 08:30	June Rhew	12/20/2022 19:43	Juyoung Kim	2375213