

Chemical Analysis Report

SO-DIST-2020-09-11-02

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

Event Description: **SMP: Caloosa Creeks Sites**
Request ID: **RQ-2020-04-06-12**
Customer: **SO-DIST**
Project ID: **SMP**

Send Reports to:
FL Dept. of Environmental Protection
FLDEP South District Office
2295 Victoria Ave. Suite 364
Fort Myers, FL 33901-3381
Attn: Miranda Carroll

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: 22-SEP-2020 16:22



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: Orange River at Boat Ramp

Collection Date/Time: 09/10/2020 13:10

Field ID: G3SD0128

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2195674	EPA 8321B	2,4-D	0.0087		ug/L	P387335	
		Acesulfame K**	0.10	U	ug/L	P387254	
		AMPA**	0.23	I	ug/L	P387254	
		Sucralose**	1.3		ug/L	P387254	
		Acetaminophen**	0.0080	U	ug/L	P387335	
		Acetamiprid**	0.0020	U	ug/L	P387335	
		Endothall**	0.25	U	ug/L	P387254	
		Glufosinate**	0.10	U	ug/L	P387254	
		Glyphosate**	0.68		ug/L	P387254	
		Afidopyropen**	0.0020	U	ug/L	P387335	
		Bentazon	0.014		ug/L	P387335	
		Benzovindiflupyr**	0.0020	U	ug/L	P387335	
		Carbamazepine**	0.0041		ug/L	P387335	
		Clothianidin**	0.0020	U	ug/L	P387335	
		Dinotefuran**	0.0020	U	ug/L	P387335	
		Diuron	0.0020	U	ug/L	P387335	
		Fenuron	0.016	U	ug/L	P387335	
		Fluridone**	0.0080		ug/L	P387335	
		Imazapyr**	0.24		ug/L	P387335	
		Hydrocodone**	0.0020	U	ug/L	P387335	
		Ibuprofen**	0.020	U	ug/L	P387335	
		Imidacloprid	0.014		ug/L	P387335	
		Linuron	0.0040	U	ug/L	P387335	
		Mandestrobin**	0.0020	U	ug/L	P387335	
		MCPP	0.0020	U	ug/L	P387335	
		Naproxen**	0.0080	U	ug/L	P387335	
		Primidone**	0.0040	U	ug/L	P387335	
		Pyraclostrobin**	0.0020	U	ug/L	P387335	
		Thiamethoxam**	0.0020	U	ug/L	P387335	
		Tolfenpyrad**	0.0020	U	ug/L	P387335	
		Triclopyr**	0.0040	U	ug/L	P387335	

Ref. Method and Comment:

EPA 8321B: MS accuracy for some analytes 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: P387254

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: P387335

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

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 8321B
Batch ID: P387254

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Acesulfame K	110		P	40 - 150
AMPA	60.4		P	40 - 150
Endothall	84.0		P	40 - 150
Glufosinate	97.6		P	40 - 150
Glyphosate	114		P	40 - 140
Sucralose	114		P	40 - 150

Reference Method: EPA 8321B
Batch ID: P387335

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2,4-D	129		P	30 - 160
Acetaminophen	93.0		P	30 - 160
Acetamiprid	73.9		P	30 - 160
Afidopyropen	57.2		P	30 - 160
Bentazon	58.2		P	30 - 160
Benzovindiflupyr	72.8		P	30 - 160
Carbamazepine	68.1		P	30 - 160
Clothianidin	82.3		P	30 - 160
Dinotefuran	95.5		P	30 - 160
Diuron	55.9		P	30 - 160
Fenuron	91.5		P	30 - 160
Fluridone	81.3		P	30 - 160
Hydrocodone	88.8		P	30 - 160
Ibuprofen	77.4		P	30 - 160
Imazapyr	76.8		P	30 - 160
Imidacloprid	115		P	30 - 160
Linuron	68.2		P	30 - 160
Mandestrobin	82.5		P	30 - 160
MCPP	116		P	30 - 160
Naproxen	67.0		P	30 - 160
Primidone	83.0		P	30 - 160
Pyraclostrobin	69.7		P	30 - 160
Thiamethoxam	90.4		P	30 - 160
Tolfenpyrad	57.7		P	30 - 160
Triclopyr	109		P	30 - 160

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 8321B
Batch ID: P387254

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2194750	Acesulfame K	104	103	P/P	40 - 150
2194750	AMPA	90.9	94.1	P/P	40 - 150
2194750	Endothall	70.3	79.6	P/P	40 - 150
2194750	Glufosinate	92.0	97.1	P/P	40 - 150
2194750	Glyphosate	120	114	P/P	40 - 140
2194750	Sucralose	95.4	96.9	P/P	40 - 150

Reference Method: EPA 8321B
Batch ID: P387335

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2195541	Acetaminophen	99.2	100	P/P	30 - 160
2195541	Acetamiprid	65.3	70.2	P/P	30 - 160
2195541	Afidopyropen	48.0	57.2	P/P	30 - 160
2195541	Benzovindiflupyr	68.2	66.5	P/P	30 - 160
2195541	Carbamazepine	53.7	52.5	P/P	30 - 160
2195541	Clothianidin	72.9	75.0	P/P	30 - 160
2195541	Dinotefuran	96.8	96.0	P/P	30 - 160
2195541	Diuron	45.5	50.6	P/P	30 - 160
2195541	Fenuron	76.0	75.8	P/P	30 - 160
2195541	Fluridone	67.0	65.0	P/P	30 - 160
2195541	Hydrocodone	80.2	76.1	P/P	30 - 160
2195541	Ibuprofen	67.9	60.5	P/P	30 - 160
2195541	Imazapyr	66.3	83.3	P/P	30 - 160
2195541	Imidacloprid	140	138	P/P	30 - 160
2195541	Linuron	54.3	54.8	P/P	30 - 160
2195541	Mandestrobin	75.0	75.3	P/P	30 - 160
2195541	MCPP	104	100	P/P	30 - 160
2195541	Naproxen	54.2	57.7	P/P	30 - 160
2195541	Primidone	83.4	83.5	P/P	30 - 160
2195541	Pyraclostrobin	68.2	65.5	P/P	30 - 160
2195541	Thiamethoxam	70.5	80.6	P/P	30 - 160
2195541	Tolfenpyrad	49.2	47.8	P/P	30 - 160
2195541	Triclopyr	114	102	P/P	30 - 160

Quality Assurance Report Precision

Reference Method: EPA 8321B
Batch ID: P387254

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2194750	Acesulfame K	0.805	Spike	P	0 - 30
2194750	AMPA	3.07	Spike	P	0 - 30
2194750	Endothall	12.5	Spike	P	0 - 30
2194750	Glufosinate	5.47	Spike	P	0 - 30
2194750	Glyphosate	5.22	Spike	P	0 - 30
2194750	Sucralose	1.61	Spike	P	0 - 30

Reference Method: EPA 8321B
Batch ID: P387335

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2195541	2,4-D	0.766	Spike	P	0 - 30
2195541	Acetaminophen	1.03	Spike	P	0 - 30
2195541	Acetamiprid	7.20	Spike	P	0 - 30
2195541	Afidopyropen	17.5	Spike	P	0 - 30
2195541	Bentazon	0.785	Spike	P	0 - 30
2195541	Benzovindiflupyr	2.55	Spike	P	0 - 30
2195541	Carbamazepine	1.91	Spike	P	0 - 30
2195541	Clothianidin	2.56	Spike	P	0 - 30
2195541	Dinotefuran	0.764	Spike	P	0 - 30
2195541	Diuron	10.0	Spike	P	0 - 30
2195541	Fenuron	0.256	Spike	P	0 - 30
2195541	Fluridone	2.13	Spike	P	0 - 30
2195541	Hydrocodone	5.30	Spike	P	0 - 30
2195541	Ibuprofen	11.5	Spike	P	0 - 30
2195541	Imazapyr	10.8	Spike	P	0 - 30
2195541	Imidacloprid	0.942	Spike	P	0 - 30
2195541	Linuron	0.894	Spike	P	0 - 30
2195541	Mandestrobin	0.347	Spike	P	0 - 30
2195541	MCPP	3.82	Spike	P	0 - 30
2195541	Naproxen	6.13	Spike	P	0 - 30
2195541	Primidone	0.0866	Spike	P	0 - 30
2195541	Pyraclostrobin	3.99	Spike	P	0 - 30
2195541	Thiamethoxam	8.86	Spike	P	0 - 30
2195541	Tolfenpyrad	2.86	Spike	P	0 - 30
2195541	Triclopyr	10.4	Spike	P	0 - 30

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

Quality Assurance Report Surrogates

Lab Sample ID: 2195674
Field Sample ID: G3SD0128

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	2,4-D-d3	102	P	30 - 160
EPA 8321B	Acetaminophen-d4	81.2	P	30 - 160
EPA 8321B	Carbamazepine-d10	60.2	P	30 - 160
EPA 8321B	Diuron-d6	55.7	P	30 - 160
EPA 8321B	Endothall-d6	99.5	P	30 - 160
EPA 8321B	Endothall-d6	99.5	P	30 - 160
EPA 8321B	Glyphosate 13C 15N	74.8	P	30 - 160
EPA 8321B	Glyphosate 13C 15N	74.8	P	30 - 160
EPA 8321B	Ibuprofen-d3	67.2	P	30 - 160
EPA 8321B	Primidone-d5	71.7	P	30 - 160
EPA 8321B	Sucralose-d6	105	P	30 - 160
EPA 8321B	Sucralose-d6	105	P	30 - 160

Quality Assurance Report Calibration Verification

Reference Method: EPA 8321B
 Run ID: A100961
 Included Lab Sample IDs: 2195674

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Sucralose	113	118	P/P	60 - 160

Reference Method: EPA 8321B
 Run ID: A100976
 Included Lab Sample IDs: 2195674

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
AMPA	60.3	60.0	P/P	60 - 160
Glufosinate	98.8	107	P/P	60 - 160
Glyphosate	120	116	P/P	60 - 160

Reference Method: EPA 8321B
 Run ID: A100977
 Included Lab Sample IDs: 2195674

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Acesulfame K	93.1	89.7	P/P	60 - 160
Endothall	106	108	P/P	60 - 160

Reference Method: EPA 8321B
 Run ID: A101044
 Included Lab Sample IDs: 2195674

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
2,4-D	116	114	P/P	50 - 150
Acetaminophen	120	119	P/P	60 - 160
Acetamiprid	124	120	P/P	50 - 150
Afidopyropen	94.0	99.9	P/P	50 - 150
Bentazon	118	116	P/P	50 - 160
Benzovindiflupyr	124	122	P/P	50 - 150
Carbamazepine	107	111	P/P	60 - 150
Clothianidin	102	102	P/P	60 - 150
Dinotefuran	104	97.9	P/P	50 - 150
Diuron	107	111	P/P	60 - 160
Fenuron	120	115	P/P	60 - 150
Fluridone	118	116	P/P	60 - 160
Hydrocodone	114	110	P/P	60 - 150
Ibuprofen	90.1	102	P/P	50 - 160
Imazapyr	126	111	P/P	50 - 160
Imidacloprid	111	97.4	P/P	60 - 150
Linuron	103	103	P/P	60 - 150
Mandestrobin	109	111	P/P	50 - 150
MCPP	114	114	P/P	50 - 150
Naproxen	60.6	129	P/P	50 - 160
Primidone	113	85.6	P/P	60 - 150
Pyraclostrobin	112	105	P/P	60 - 150
Thiamethoxam	116	109	P/P	50 - 150
Tolfenpyrad	119	110	P/P	60 - 150
Triclopyr	107	101	P/P	50 - 150

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	129				0.766
	Acesulfame K	110	104	103		0.805
	Acetaminophen	93.0	99.2	100		1.03
	Acetamiprid	73.9	65.3	70.2		7.20
	Afidopyropen	57.2	48.0	57.2		17.5
	AMPA	60.4	90.9	94.1		3.07
	Bentazon	58.2				0.785
	Benzovindiflupyr	72.8	68.2	66.5		2.55
	Carbamazepine	68.1	53.7	52.5		1.91
	Clothianidin	82.3	72.9	75.0		2.56
	Dinotefuran	95.5	96.8	96.0		0.764
	Diuron	55.9	45.5	50.6		10.0
	Endothall	84.0	70.3	79.6		12.5
	Fenuron	91.5	76.0	75.8		0.256
	Fluridone	81.3	67.0	65.0		2.13
	Glufosinate	97.6	92.0	97.1		5.47
	Glyphosate	114	120	114		5.22
	Hydrocodone	88.8	80.2	76.1		5.30
	Ibuprofen	77.4	67.9	60.5		11.5
	Imazapyr	76.8	66.3	83.3		10.8
	Imidacloprid	115	140	138		0.942
	Linuron	68.2	54.3	54.8		0.894
	Mandestrobin	82.5	75.0	75.3		0.347
	MCPP	116	104	100		3.82
	Naproxen	67.0	54.2	57.7		6.13
	Primidone	83.0	83.4	83.5		0.0866
	Pyraclostrobin	69.7	68.2	65.5		3.99
	Sucralose	114	95.4	96.9		1.61
	Thiamethoxam	90.4	70.5	80.6		8.86
	Tolfenpyrad	57.7	49.2	47.8		2.86
	Triclopyr	109	114	102		10.4

Reference Method Descriptions

Method	Description	Associated Samples
EPA 8321B	Pesticides, herbicides, and other chemicals in water matrices by HPLC/MS/MS	2195674
EPA 8321B	Water soluble organic compounds by HPLC/MS/MS	2195674

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
EPA 8321B	09/11/2020	09/11/2020 14:00	Rebecca Ware	09/12/2020 01:45	Rebecca Ware	2195674
	09/11/2020	09/11/2020 14:00	Rebecca Ware	09/14/2020 14:38	Rebecca Ware	2195674
	09/11/2020	09/11/2020 14:00	Rebecca Ware	09/14/2020 19:20	Rebecca Ware	2195674
	09/11/2020	09/15/2020 13:00	Hoor Shaik	09/18/2020 01:18	Juyoung Kim	2195674