

Chemical Analysis Report

SW-DIST-2018-04-11-02

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

Event Description: **Joe's Crk-Pinellas co.**

Request ID: **RQ-2018-04-09-09**

Customer: **SW-DIST**

Project ID: **SMP**

Send Reports to:

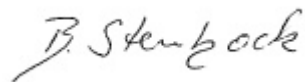
FL Dept. of Environmental Protection
FL Dept. of Environmental Protection
13051 N. Telecom Parkway
Temple Terrace, FL 33637-0926
Attn: Judy Ashton

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: 23-APR-2018 17:59



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 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: Joe's Creek @ 62nd & 42nd

Collection Date/Time: 04/10/2018 10:08

Field ID: G5SW0137

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1983474	EPA 8321B	2,4-D	0.0052	I	ug/L	P343184	
		Bentazon	0.0082		ug/L	P343184	
		MCP	0.0020	U	ug/L	P343184	
		Triclopyr**	0.0040	U	ug/L	P343184	
		Imidacloprid	0.21		ug/L	P343184	MS
		Diuron	0.0028	I	ug/L	P343184	
		Pyraclorobin**	0.0020	U	ug/L	P343184	
		Primidone**	0.0040	U	ug/L	P343184	
		Linuron	0.0040	U	ug/L	P343184	
		Acetaminophen**	0.0080	U	ug/L	P343184	
		Fenuron	0.016	U	ug/L	P343184	
		Imazapyr**	0.024		ug/L	P343184	
		Carbamazepine**	4.0E-04	U	ug/L	P343184	
		Fluridone**	0.0095		ug/L	P343184	
		Hydrocodone**	8.0E-04	U	ug/L	P343184	
		Sucralose**	0.10	U	ug/L	P343272	
		Glyphosate**	1.8		ug/L	P343272	
		AMPA**	0.34	I	ug/L	P343272	MS
		Endothall**	0.10	U	ug/L	P343272	
		Glufosinate**	0.10	U	ug/L	P343272	

Quality Assurance Report Method Blank Results

Reference Method: EPA 8321B

Batch ID: P343184

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	4.0E-04	U	ug/L
Diuron	0.0020	U	ug/L
Fenuron	0.016	U	ug/L
Fluridone	8.0E-04	U	ug/L
Hydrocodone	8.0E-04	U	ug/L
Imazapyr	0.0040	U	ug/L
Imidacloprid	0.0020	U	ug/L
Linuron	0.0040	U	ug/L
MCP	0.0020	U	ug/L
Primidone	0.0040	U	ug/L
Pyraclorobin	0.0020	U	ug/L
Triclopyr	0.0040	U	ug/L

Reference Method: EPA 8321B

Batch ID: P343272

Component	Result	Code	Units
AMPA	0.10	U	ug/L

Quality Assurance Report Method Blank Results

Reference Method: EPA 8321B
Batch ID: P343272

Component	Result	Code	Units
Endothall	0.10	U	ug/L
Glufosinate	0.10	U	ug/L
Glyphosate	0.10	U	ug/L
Sucralose	0.10	U	ug/L

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 8321B
Batch ID: P343184

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2,4-D	78.5		P	40 - 150
Acetaminophen	91.0		P	30 - 150
Bentazon	68.4		P	30 - 150
Carbamazepine	80.4		P	40 - 150
Diuron	63.8		P	40 - 150
Fenuron	110		P	40 - 150
Fluridone	61.9		P	40 - 150
Hydrocodone	103		P	40 - 150
Imazapyr	65.5		P	40 - 150
Imidacloprid	104		P	40 - 160
Linuron	72.0		P	40 - 150
MCPP	64.0		P	40 - 150
Primidone	106		P	40 - 150
Pyraclostrobin	69.2		P	40 - 150
Triclopyr	63.4		P	40 - 150

Reference Method: EPA 8321B
Batch ID: P343272

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
AMPA	81.1		P	40 - 140
Endothall	100		P	40 - 140
Glufosinate	68.5		P	40 - 140
Glyphosate	94.4		P	40 - 140
Sucralose	113		P	40 - 150

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 8321B
Batch ID: P343184

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1983224	2,4-D	130	136	P/P	40 - 150
1983224	Acetaminophen	122	128	P/P	30 - 150
1983224	Bentazon	41.1	43.3	P/P	30 - 150
1983224	Carbamazepine	103	103	P/P	40 - 150
1983224	Diuron	79.4	73.3	P/P	40 - 150
1983224	Fenuron	111	108	P/P	40 - 150

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 8321B
Batch ID: P343184

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1983224	Fluridone	61.8	70.7	P/P	40 - 150
1983224	Hydrocodone	147	141	P/P	40 - 150
1983224	Imazapyr	89.8	74.8	P/P	40 - 150
1983224	Imidacloprid	248	245	F/F	40 - 160
1983224	Linuron	89.4	88.5	P/P	40 - 150
1983224	MCP	96.0	99.7	P/P	40 - 150
1983224	Primidone	130	122	P/P	40 - 150
1983224	Pyraclostrobin	75.5	75.8	P/P	40 - 150
1983224	Triclopyr	92.0	96.4	P/P	40 - 150

Reference Method: EPA 8321B
Batch ID: P343272

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1983451	AMPA	34.7	35.8	F/F	40 - 140
1983451	Endothall	113	112	P/P	40 - 140
1983451	Glufosinate	92.3	92.6	P/P	40 - 140
1983451	Glyphosate	61.1	61.9	P/P	40 - 140
1983451	Sucralose	60.7	59.3	P/P	40 - 150

Quality Assurance Report Precision

Reference Method: EPA 8321B
Batch ID: P343184

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1983224	2,4-D	4.71	Spike	P	0 - 30
1983224	Acetaminophen	4.60	Spike	P	0 - 30
1983224	Bentazon	5.22	Spike	P	0 - 30
1983224	Carbamazepine	0.542	Spike	P	0 - 30
1983224	Diuron	8.02	Spike	P	0 - 30
1983224	Fenuron	2.41	Spike	P	0 - 30
1983224	Fluridone	13.5	Spike	P	0 - 30
1983224	Hydrocodone	4.30	Spike	P	0 - 30
1983224	Imazapyr	15.4	Spike	P	0 - 30
1983224	Imidacloprid	1.39	Spike	P	0 - 30
1983224	Linuron	0.996	Spike	P	0 - 30
1983224	MCP	3.82	Spike	P	0 - 30
1983224	Primidone	6.33	Spike	P	0 - 30
1983224	Pyraclostrobin	0.414	Spike	P	0 - 30
1983224	Triclopyr	4.67	Spike	P	0 - 30

Reference Method: EPA 8321B
Batch ID: P343272

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1983451	AMPA	2.07	Spike	P	0 - 30
1983451	Endothall	0.886	Spike	P	0 - 30

Quality Assurance Report Precision

Reference Method: EPA 8321B
Batch ID: P343272

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1983451	Glufosinate	0.325	Spike	P	0 - 30
1983451	Glyphosate	0.691	Spike	P	0 - 30
1983451	Sucralose	0.882	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: 1983474
Field Sample ID: G5SW0137

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	2,4-D-d3	69.6	P	30 - 160
EPA 8321B	2,4-D-d3	69.6	P	30 - 160
EPA 8321B	Acetaminophen-d4	131	P	30 - 160
EPA 8321B	Acetaminophen-d4	131	P	30 - 160
EPA 8321B	Carbamazepine-d10	117	P	30 - 160
EPA 8321B	Carbamazepine-d10	117	P	30 - 160
EPA 8321B	Diuron-d6	87.1	P	30 - 160
EPA 8321B	Diuron-d6	87.1	P	30 - 160
EPA 8321B	Endothall-d6	123	P	40 - 160
EPA 8321B	Endothall-d6	123	P	40 - 160
EPA 8321B	Glyphosate 13C 15N	48.7	P	40 - 160
EPA 8321B	Glyphosate 13C 15N	48.7	P	40 - 160
EPA 8321B	Primidone-d5	152	P	30 - 160
EPA 8321B	Primidone-d5	152	P	30 - 160
EPA 8321B	Sucralose-d6	61.2	P	40 - 160
EPA 8321B	Sucralose-d6	61.2	P	40 - 160

Quality Assurance Report Calibration Verification

Reference Method: EPA 8321B
Run ID: A83252
Included Lab Sample IDs: 1983474

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
AMPA	90.0	86.4	P/P	60 - 150
Endothall	101	96.6	P/P	60 - 150
Glufosinate	96.6	103	P/P	60 - 150
Glyphosate	124	121	P/P	60 - 150
Sucralose	113	115	P/P	60 - 130

Reference Method: EPA 8321B
Run ID: A83283
Included Lab Sample IDs: 1983474

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
-----------	---------	---------	------------	----------------

Quality Assurance Report Calibration Verification

Reference Method: EPA 8321B
Run ID: A83283
Included Lab Sample IDs: 1983474

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
2,4-D	88.6	101	P/P	50 - 150
Acetaminophen	106	99.1	P/P	60 - 150
Bentazon	79.3	83.8	P/P	50 - 150
Carbamazepine	103	102	P/P	60 - 150
Diuron	105	103	P/P	60 - 150
Fenuron	118	113	P/P	60 - 150
Fluridone	102	100	P/P	60 - 160
Hydrocodone	109	108	P/P	60 - 150
Imazapyr	87.7	72.9	P/P	50 - 150
Imidacloprid	104	113	P/P	60 - 150
Linuron	112	110	P/P	60 - 150
MCP	94.2	106	P/P	50 - 150
Primidone	117	111	P/P	60 - 150
Pyraclorobin	105	101	P/P	60 - 150
Triclopyr	96.4	98.1	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	LCS	Precision SMP	MS
EPA 8321B	2,4-D	78.5	130 136			4.71
	Acetaminophen	91.0	122 128			4.60
	AMPA	81.1	34.7 35.8			2.07
	Bentazon	68.4	41.1 43.3			5.22
	Carbamazepine	80.4	103 103			0.542
	Diuron	63.8	79.4 73.3			8.02
	Endothall	100	113 112			0.886
	Fenuron	110	111 108			2.41
	Fluridone	61.9	61.8 70.7			13.5
	Glufosinate	68.5	92.3 92.6			0.325
	Glyphosate	94.4	61.1 61.9			0.691
	Hydrocodone	103	147 141			4.30
	Imazapyr	65.5	89.8 74.8			15.4
	Imidacloprid	104	248 245			1.39
	Linuron	72.0	89.4 88.5			0.996
	MCP	64.0	96.0 99.7			3.82
	Primidone	106	130 122			6.33
	Pyraclorobin	69.2	75.5 75.8			0.414
	Sucralose	113	60.7 59.3			0.882
	Triclopyr	63.4	92.0 96.4			4.67

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
---------------------	-------------	--------------------

Reference Method Descriptions

Method / DoH Cert #	Description	<u>Associated Samples</u>
EPA 8321B / E31780	Pesticides, herbicides, and other chemicals in water matrices by HPLC/MS/MS	1983474

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
EPA 8321B	04/11/2018	04/13/2018 10:00	Hoor Shaik	04/14/2018 10:03	Julie Michelle Frank	1983474
	04/11/2018	04/13/2018 10:00	Hoor Shaik	04/15/2018 01:37	Julie Michelle Frank	1983474
	04/11/2018	04/13/2018 12:00	Hoor Shaik	04/13/2018 21:58	S. M. Reddy	1983474