

Chemical Analysis Report

SO-DIST-2018-04-25-01

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

Event Description: **3240N : Owl Creek**
Request ID: **RQ-2018-04-02-72**
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
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Certified by: Liang Lin, Environmental Administrator

Date Certified: 15-MAY-2018 17:28

A handwritten signature in black ink, appearing to read "Liang Lin", 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 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: Owl Creek @ SR78; upstream side

Collection Date/Time: 04/24/2018 09:16

Field ID: AD72928

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1987048	EPA 8321B	2,4-D	0.0020	U	ug/L	P343931	
		Bentazon	8.0E-04	U	ug/L	P343931	
		MCP	0.0020	U	ug/L	P343931	
		Triclopyr**	0.0040	U	ug/L	P343931	
		Imidacloprid	0.0020	U	ug/L	P343931	
		Diuron	0.0020	U	ug/L	P343931	
		Pyraclostrobin**	0.0020	U	ug/L	P343931	
		Primidone**	0.0040	U	ug/L	P343931	
		Linuron	0.0040	U	ug/L	P343931	
		Acetaminophen**	0.0080	U	ug/L	P343931	
		Fenuron	0.016	U	ug/L	P343931	
		Imazapyr**	0.031		ug/L	P343931	
		Carbamazepine**	4.0E-04	U	ug/L	P343931	
		Fluridone**	8.0E-04	U	ug/L	P343931	
		Hydrocodone**	8.0E-04	U	ug/L	P343931	
		Sucralose**	0.10	U	ug/L	P344028	

Ref. Method and Comment:

EPA 8321B: MS accuracy for imidacloprid 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: P343931

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
Pyraclostrobin	0.0020	U	ug/L
Triclopyr	0.0040	U	ug/L

Reference Method: EPA 8321B

Batch ID: P344028

Component	Result	Code	Units
Sucralose	0.10	U	ug/L

Quality Assurance Report Laboratory Control Sample Accuracy

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 8321B
Batch ID: P343931

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2,4-D	88.8		P	40 - 150
Acetaminophen	93.1		P	30 - 150
Bentazon	117		P	30 - 150
Carbamazepine	96.8		P	40 - 150
Diuron	90.4		P	40 - 150
Fenuron	110		P	40 - 150
Fluridone	87.8		P	40 - 150
Hydrocodone	115		P	40 - 150
Imazapyr	104		P	40 - 150
Imidacloprid	104		P	40 - 160
Linuron	90.8		P	40 - 150
MCP	103		P	40 - 150
Primidone	97.8		P	40 - 150
Pyraclostrobin	83.1		P	40 - 150
Triclopyr	106		P	40 - 150

Reference Method: EPA 8321B
Batch ID: P344028

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Sucralose	112		P	40 - 150

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 8321B
Batch ID: P343931

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1986950	2,4-D	80.1	76.0	P/P	40 - 150
1986950	Acetaminophen	128	117	P/P	30 - 150
1986950	Bentazon	75.6	68.5	P/P	30 - 150
1986950	Carbamazepine	116	108	P/P	40 - 150
1986950	Diuron	96.5	88.5	P/P	40 - 150
1986950	Fenuron	121	108	P/P	40 - 150
1986950	Fluridone	88.8	80.4	P/P	40 - 150
1986950	Hydrocodone	146	135	P/P	40 - 150
1986950	Imazapyr	119	87.0	P/P	40 - 150
1986950	Linuron	100	89.9	P/P	40 - 150
1986950	MCP	92.7	84.2	P/P	40 - 150
1986950	Primidone	131	110	P/P	40 - 150
1986950	Pyraclostrobin	103	97.6	P/P	40 - 150
1986950	Triclopyr	96.1	88.3	P/P	40 - 150

Reference Method: EPA 8321B
Batch ID: P344028

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1987104	Sucralose	85.1	72.9	P/P	40 - 150

Quality Assurance Report Precision

Reference Method: EPA 8321B
Batch ID: P343931

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1986950	2,4-D	5.24	Spike	P	0 - 30
1986950	Acetaminophen	8.51	Spike	P	0 - 30
1986950	Bentazon	7.81	Spike	P	0 - 30
1986950	Carbamazepine	7.17	Spike	P	0 - 30
1986950	Diuron	7.50	Spike	P	0 - 30
1986950	Fenuron	10.8	Spike	P	0 - 30
1986950	Fluridone	8.24	Spike	P	0 - 30
1986950	Hydrocodone	8.33	Spike	P	0 - 30
1986950	Imazapyr	11.2	Spike	P	0 - 30
1986950	Imidacloprid	11.5	Spike	P	0 - 30
1986950	Linuron	11.1	Spike	P	0 - 30
1986950	MCP	9.64	Spike	P	0 - 30
1986950	Primidone	17.4	Spike	P	0 - 30
1986950	Pyraclostrobin	5.76	Spike	P	0 - 30
1986950	Triclopyr	8.54	Spike	P	0 - 30

Reference Method: EPA 8321B
Batch ID: P344028

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1987104	Sucralose	15.4	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: 1987048
Field Sample ID: AD72928

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	2,4-D-d3	67.9	P	30 - 160
EPA 8321B	2,4-D-d3	67.9	P	30 - 160
EPA 8321B	Acetaminophen-d4	104	P	30 - 160
EPA 8321B	Acetaminophen-d4	104	P	30 - 160
EPA 8321B	Carbamazepine-d10	86.8	P	30 - 160
EPA 8321B	Carbamazepine-d10	86.8	P	30 - 160
EPA 8321B	Diuron-d6	72.7	P	30 - 160
EPA 8321B	Diuron-d6	72.7	P	30 - 160
EPA 8321B	Primidone-d5	101	P	30 - 160
EPA 8321B	Primidone-d5	101	P	30 - 160
EPA 8321B	Sucralose-d6	99.8	P	40 - 160
EPA 8321B	Sucralose-d6	99.8	P	40 - 160

Quality Assurance Report Calibration Verification

Quality Assurance Report Calibration Verification

Reference Method: EPA 8321B
Run ID: A83560
Included Lab Sample IDs: 1987048

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Sucralose	110	86.1	P/P	60 - 150

Reference Method: EPA 8321B
Run ID: A83753
Included Lab Sample IDs: 1987048

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
2,4-D	106	99.7	P/P	50 - 150
Bentazon	130	134	P/P	50 - 150
MCP	105	104	P/P	50 - 150
Triclopyr	115	104	P/P	50 - 160

Reference Method: EPA 8321B
Run ID: A83769
Included Lab Sample IDs: 1987048

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Acetaminophen	112	107	P/P	60 - 150
Carbamazepine	110	108	P/P	60 - 150
Diuron	115	115	P/P	60 - 150
Fenuron	115	114	P/P	60 - 150
Fluridone	105	105	P/P	60 - 160
Hydrocodone	122	117	P/P	60 - 150
Imazapyr	103	112	P/P	50 - 150
Imidacloprid	106	108	P/P	60 - 150
Linuron	123	110	P/P	60 - 150
Primidone	106	110	P/P	60 - 150
Pyraclostrobin	114	113	P/P	60 - 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	88.8	80.1 76.0			5.24
	Acetaminophen	93.1	128 117			8.51
	Bentazon	117	75.6 68.5			7.81
	Carbamazepine	96.8	116 108			7.17
	Diuron	90.4	96.5 88.5			7.50
	Fenuron	110	121 108			10.8
	Fluridone	87.8	88.8 80.4			8.24
	Hydrocodone	115	146 135			8.33
	Imazapyr	104	119 87.0			11.2
	Imidacloprid	104				11.5
	Linuron	90.8	100 89.9			11.1
	MCP	103	92.7 84.2			9.64

Quality Assurance Report Summary

Ref. Method	Analyte	LCS % Recovery	MS % Recovery		Precision SMP	MS
			LCS	MS		
EPA 8321B	Primidone	97.8	131	110		17.4
	Pyraclostrobin	83.1	103	97.6		5.76
	Sucralose	112	85.1	72.9		15.4
	Triclopyr	106	96.1	88.3		8.54

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	1987048

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
EPA 8321B	04/25/2018	04/25/2018 14:00	Hoor Shaik	05/04/2018 21:49	Juyoung Kim	1987048
	04/25/2018	04/25/2018 14:00	Hoor Shaik	05/05/2018 22:10	Juyoung Kim	1987048
	04/25/2018	04/27/2018 12:34	Juyoung Kim	04/27/2018 23:36	Juyoung Kim	1987048