

Chemical Analysis Report

SO-DIST-2018-09-26-01

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-2018-09-03-67**
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: Maryann Dugan

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Certified by: Liang Lin, Environmental Administrator

Date Certified: 04-OCT-2018 13:45

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: 09/25/2018 11:36

Field ID: AD87407

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2028334	EPA 8321B	2,4-D	0.0036	I	ug/L	P352307	
		Bentazon	8.0E-04	U	ug/L	P352307	MS
		MCP	0.0020	U	ug/L	P352307	
		Triclopyr**	0.0040	U	ug/L	P352307	
		Imidacloprid	0.0025	I	ug/L	P352307	MS
		Diuron	0.0020	U	ug/L	P352307	
		Pyraclostrobin**	0.0020	U	ug/L	P352307	
		Primidone**	0.0040	U	ug/L	P352307	
		Linuron	0.0040	U	ug/L	P352307	
		Acetaminophen**	0.0080	U	ug/L	P352307	
		Fenuron	0.016	U	ug/L	P352307	
		Imazapyr**	0.0040	U	ug/L	P352307	MS
		Carbamazepine**	8.0E-04	U	ug/L	P352307	
		Fluridone**	4.0E-04	U	ug/L	P352307	
		Hydrocodone**	8.0E-04	U	ug/L	P352307	
		Naproxen**	0.0080	U	ug/L	P352307	
		Ibuprofen**	0.020	U	ug/L	P352307	
		Sucralose**	0.010	U	ug/L	P352201	
		Acesulfame K**	0.10	U	ug/L	P352201	

Quality Assurance Report

Method Blank Results

Reference Method: EPA 8321B
Batch ID: P352201

Component	Result	Code	Units
Acesulfame K	0.10	U	ug/L
Sucralose	0.010	U	ug/L

Reference Method: EPA 8321B
Batch ID: P352307

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	4.0E-04	U	ug/L
Hydrocodone	8.0E-04	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

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 8321B
Batch ID: P352201

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Acesulfame K	76.8		P	40 - 150
Sucralose	107		P	40 - 150

Reference Method: EPA 8321B
Batch ID: P352307

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2,4-D	96.7		P	40 - 150
Acetaminophen	87.4		P	30 - 150
Bentazon	86.5		P	30 - 150
Carbamazepine	79.3		P	40 - 150
Diuron	69.4		P	40 - 150
Fenuron	98.8		P	40 - 150
Fluridone	98.5		P	40 - 150
Hydrocodone	105		P	40 - 150
Ibuprofen	99.6		P	40 - 150
Imazapyr	69.5		P	40 - 150
Imidacloprid	86.1		P	40 - 160
Linuron	68.1		P	40 - 150
MCPP	95.8		P	40 - 150
Naproxen	86.1		P	40 - 150
Primidone	84.9		P	40 - 150
Pyraclostrobin	85.1		P	40 - 150
Triclopyr	93.6		P	40 - 150

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 8321B
Batch ID: P352201

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2028139	Acesulfame K	78.4	74.1	P/P	40 - 150
2028139	Sucralose	105	103	P/P	40 - 150

Reference Method: EPA 8321B
Batch ID: P352307

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2028285	2,4-D	110	98.3	P/P	40 - 150
2028285	Acetaminophen	82.1	86.8	P/P	30 - 150
2028285	Bentazon	15.1	15.3	F/F	30 - 150
2028285	Carbamazepine	64.3	67.4	P/P	40 - 150
2028285	Diuron	57.1	56.7	P/P	40 - 150
2028285	Fenuron	88.0	80.5	P/P	40 - 150
2028285	Fluridone	101	108	P/P	40 - 150
2028285	Hydrocodone	112	112	P/P	40 - 150
2028285	Ibuprofen	77.7	74.8	P/P	40 - 150
2028285	Imazapyr	155	122	F/P	40 - 150
2028285	Imidacloprid	162	148	F/P	40 - 160
2028285	Linuron	56.4	61.6	P/P	40 - 150
2028285	MCPP	116	111	P/P	40 - 150
2028285	Naproxen	74.9	76.6	P/P	40 - 150
2028285	Primidone	97.6	92.3	P/P	40 - 150
2028285	Pyraclostrobin	87.1	81.0	P/P	40 - 150
2028285	Triclopyr	118	109	P/P	40 - 150

Quality Assurance Report Precision

Reference Method: EPA 8321B
 Batch ID: P352201

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2028139	Acesulfame K	5.58	Spike	P	0 - 30
2028139	Sucralose	1.19	Spike	P	0 - 30

Reference Method: EPA 8321B
 Batch ID: P352307

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2028285	2,4-D	9.06	Spike	P	0 - 30
2028285	Acetaminophen	5.53	Spike	P	0 - 30
2028285	Bentazon	6.07	Spike	P	0 - 30
2028285	Carbamazepine	4.48	Spike	P	0 - 30
2028285	Diuron	0.802	Spike	P	0 - 30
2028285	Fenuron	8.83	Spike	P	0 - 30
2028285	Fluridone	6.68	Spike	P	0 - 30
2028285	Hydrocodone	0.739	Spike	P	0 - 30
2028285	Ibuprofen	3.82	Spike	P	0 - 30
2028285	Imazapyr	3.58	Spike	P	0 - 30
2028285	Imidacloprid	5.21	Spike	P	0 - 30
2028285	Linuron	8.86	Spike	P	0 - 30
2028285	MCPP	4.36	Spike	P	0 - 30
2028285	Naproxen	2.35	Spike	P	0 - 30
2028285	Primidone	5.08	Spike	P	0 - 30
2028285	Pyraclostrobin	7.29	Spike	P	0 - 30
2028285	Triclopyr	7.62	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: 2028334
Field Sample ID: AD87407

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	2,4-D-d3	74.2	P	30 - 160
EPA 8321B	Acetaminophen-d4	81.5	P	30 - 160
EPA 8321B	Carbamazepine-d10	51.4	P	30 - 160
EPA 8321B	Diuron-d6	40.7	P	30 - 160
EPA 8321B	Endothall-d6	108	P	40 - 160
EPA 8321B	Ibuprofen-d3	68.1	P	30 - 160
EPA 8321B	Primidone-d5	73.3	P	30 - 160
EPA 8321B	Sucralose-d6	137	P	40 - 160

Quality Assurance Report Calibration Verification

Reference Method: EPA 8321B
Run ID: A86795
Included Lab Sample IDs: 2028334

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Sucralose	96.8	110	P/P	60 - 160

Reference Method: EPA 8321B
Run ID: A86798
Included Lab Sample IDs: 2028334

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Acesulfame K	81.6	69.9	P/P	60 - 160

Reference Method: EPA 8321B
Run ID: A86818
Included Lab Sample IDs: 2028334

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
2,4-D	97.4	106	P/P	50 - 150
Acetaminophen	97.9	89.1	P/P	60 - 160
Bentazon	95.5	98.8	P/P	50 - 160
Carbamazepine	102	94.0	P/P	60 - 160
Diuron	94.7	96.5	P/P	60 - 150
Fenuron	103	96.5	P/P	60 - 150
Fluridone	129	127	P/P	60 - 160
Hydrocodone	114	113	P/P	60 - 150
Ibuprofen	86.9	109	P/P	50 - 160
Imazapyr	83.1	87.5	P/P	50 - 150
Imidacloprid	102	90.1	P/P	60 - 150
Linuron	94.2	94.9	P/P	60 - 150
MCPP	97.2	97.0	P/P	50 - 150
Naproxen	102	93.6	P/P	50 - 160
Primidone	90.8	80.2	P/P	60 - 150
Pyraclostrobin	118	117	P/P	60 - 150
Triclopyr	99.1	96.5	P/P	50 - 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	96.7	98.3	110		9.06
	Acesulfame K	76.8	78.4	74.1		5.58
	Acetaminophen	87.4	82.1	86.8		5.53
	Bentazon	86.5	15.1	15.3		6.07
	Carbamazepine	79.3	64.3	67.4		4.48
	Diuron	69.4	57.1	56.7		0.802
	Fenuron	98.8	88.0	80.5		8.83
	Fluridone	98.5	101	108		6.68
	Hydrocodone	105	112	112		0.739
	Ibuprofen	99.6	74.8	77.7		3.82
	Imazapyr	69.5	155	122		3.58
	Imidacloprid	86.1	162	148		5.21
	Linuron	68.1	56.4	61.6		8.86
	MCPP	95.8	111	116		4.36
	Naproxen	86.1	76.6	74.9		2.35
	Primidone	84.9	97.6	92.3		5.08
	Pyraclostrobin	85.1	87.1	81.0		7.29
	Sucralose	107	105	103		1.19
	Triclopyr	93.6	109	118		7.62

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 8321B / E31780	Pesticides, herbicides, and other chemicals in water matrices by HPLC/MS/MS	2028334

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
EPA 8321B	09/26/2018	09/28/2018 08:30	Mohammad Ghaffari	09/28/2018 17:28	Mohammad Ghaffari	2028334
	09/26/2018	09/28/2018 08:30	Mohammad Ghaffari	09/29/2018 18:56	Mohammad Ghaffari	2028334
	09/26/2018	09/28/2018 09:00	Hoor Shaik	09/29/2018 18:17	Juyoung Kim	2028334
	09/26/2018	09/28/2018 09:00	Hoor Shaik	10/02/2018 05:08	Juyoung Kim	2028334