

Chemical Analysis Report

CEN-DIST-2017-04-26-02

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

Event Description: **Ocklawaha**
Request ID: **RQ-2017-04-24-59**
Customer: **CEN-DIST**
Project ID: **SMP**

Send Reports to:
FL Dept. of Environmental Protection
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3319 Maguire Blvd., Suite 232
Orlando, FL 32803-3767
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Certified by: Colin Wright, Program Administrator

Date Certified: 19-MAY-2017 13:57

A handwritten signature in black ink, appearing to read "Colin Wright", is displayed on a light-colored rectangular 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: Ocklawaha River @ 270m Upstream of Silver River **Collection Date/Time: 04/25/2017 11:05**

Field ID: G1CE0062

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1892595	EPA 8321B	Sucralose**	0.12		ug/L	P323999	
	USGS O-2060-01	2,4-D	0.032		ug/L	P324040	
		Diuron	8.0E-04	U	ug/L	P324040	
		Fenuron	0.0040	U	ug/L	P324040	
		Imidacloprid	8.0E-04	U	ug/L	P324040	MS
		Bentazon	8.0E-04	U	ug/L	P324040	
		Linuron	0.0040	U	ug/L	P324040	
		Acetaminophen**	0.0080	U	ug/L	P324040	
		MCP	8.0E-04	U	ug/L	P324040	
		Carbamazepine**	4.0E-04	U	ug/L	P324040	
		Triclopyr**	0.0040	U	ug/L	P324040	
		Primidone**	0.0040	U	ug/L	P324040	
		Fluridone**	0.0027		ug/L	P324040	

Quality Assurance Report Method Blank Results

Reference Method: EPA 8321B
Batch ID: P323999

Component	Result	Code	Units
Sucralose	0.010	U	ug/L

Reference Method: USGS O-2060-01
Batch ID: P324040

Component	Result	Code	Units
2,4-D	8.0E-04	U	ug/L
Acetaminophen	0.0080	U	ug/L
Bentazon	8.0E-04	U	ug/L
Carbamazepine	4.0E-04	U	ug/L
Diuron	8.0E-04	U	ug/L
Fenuron	0.0040	U	ug/L
Fluridone	4.0E-04	U	ug/L
Imidacloprid	8.0E-04	U	ug/L
Linuron	0.0040	U	ug/L
MCP	8.0E-04	U	ug/L
Primidone	0.0040	U	ug/L
Triclopyr	0.0040	U	ug/L

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 8321B
Batch ID: P323999

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Sucralose	92.6		P	40 - 140

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: USGS O-2060-01

Batch ID: P324040

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2,4-D	73.9		P	40 - 140
Acetaminophen	83.4		P	40 - 140
Bentazon	48.0		P	40 - 140
Carbamazepine	109		P	40 - 140
Diuron	106		P	40 - 140
Fenuron	105		P	40 - 140
Fluridone	102		P	40 - 140
Imidacloprid	106		P	40 - 160
Linuron	98.6		P	40 - 140
MCP	79.2		P	40 - 140
Primidone	105		P	40 - 140
Triclopyr	77.4		P	40 - 140

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 8321B

Batch ID: P323999

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1892232	Sucralose	84.6	87.2	P/P	40 - 140

Reference Method: USGS O-2060-01

Batch ID: P324040

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1892542	2,4-D	62.4	66.3	P/P	40 - 140
1892542	Acetaminophen	81.8	101	P/P	40 - 140
1892542	Bentazon	47.2	49.4	P/P	40 - 140
1892542	Carbamazepine	89.2	90.7	P/P	40 - 140
1892542	Diuron	76.3	80.6	P/P	40 - 140
1892542	Fenuron	49.5	49.3	P/P	40 - 140
1892542	Fluridone	71.1	74.9	P/P	40 - 140
1892542	Imidacloprid	154	163	P/F	40 - 160
1892542	Linuron	91.2	94.6	P/P	40 - 140
1892542	MCP	56.8	61.2	P/P	40 - 140
1892542	Primidone	81.5	84.5	P/P	40 - 140
1892542	Triclopyr	60.1	63.0	P/P	40 - 140

Quality Assurance Report Precision

Reference Method: EPA 8321B

Batch ID: P323999

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1892232	Sucralose	3.03	Spike	P	0 - 30

Quality Assurance Report Precision

Reference Method: USGS O-2060-01
Batch ID: P324040

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1892542	2,4-D	5.43	Spike	P	0 - 30
1892542	Acetaminophen	20.6	Spike	P	0 - 30
1892542	Bentazon	4.29	Spike	P	0 - 30
1892542	Carbamazepine	1.73	Spike	P	0 - 30
1892542	Diuron	4.34	Spike	P	0 - 30
1892542	Fenuron	0.324	Spike	P	0 - 30
1892542	Fluridone	4.39	Spike	P	0 - 30
1892542	Imidacloprid	5.87	Spike	P	0 - 30
1892542	Linuron	3.66	Spike	P	0 - 30
1892542	MCP	7.46	Spike	P	0 - 30
1892542	Primidone	3.61	Spike	P	0 - 30
1892542	Triclopyr	4.68	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: 1892595
Field Sample ID: G1CE0062

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	Sucralose-d6	118	P	40 - 150
USGS O-2060-01	2,4-D-d3	59.1	P	30 - 150
USGS O-2060-01	Acetaminophen-d4	80.5	P	30 - 150
USGS O-2060-01	Carbamazepine-d10	63.7	P	30 - 160
USGS O-2060-01	Diuron-d6	56.7	P	30 - 150
USGS O-2060-01	Primidone-d5	70.2	P	30 - 150

Quality Assurance Report Calibration Verification

Reference Method: EPA 8321B
Run ID: A76022
Included Lab Sample IDs: 1892595

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Sucralose	119	125	P/P	60 - 150

Reference Method: USGS O-2060-01
Run ID: A76477
Included Lab Sample IDs: 1892595

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
2,4-D	94.4	91.2	P/P	50 - 150
Acetaminophen	102	110	P/P	60 - 150
Bentazon	80.0	84.4	P/P	50 - 150
Carbamazepine	90.0	108	P/P	60 - 150
Diuron	106	116	P/P	60 - 150

Quality Assurance Report Calibration Verification

Reference Method: USGS O-2060-01
Run ID: A76477
Included Lab Sample IDs: 1892595

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fenuron	105	102	P/P	60 - 150
Fluridone	103	118	P/P	60 - 150
Imidacloprid	99.6	109	P/P	60 - 150
Linuron	95.6	104	P/P	60 - 150
MCP	90.8	94.4	P/P	50 - 150
Primidone	102	106	P/P	60 - 150
Triclopyr	90.8	97.2	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	Sucralose	92.6	84.6 87.2			3.03
USGS O-2060-01	2,4-D	73.9	62.4 66.3			5.43
	Acetaminophen	83.4	101 81.8			20.6
	Bentazon	48.0	47.2 49.4			4.29
	Carbamazepine	109	89.2 90.7			1.73
	Diuron	106	76.3 80.6			4.34
	Fenuron	105	49.5 49.3			0.324
	Fluridone	102	71.1 74.9			4.39
	Imidacloprid	106	154 163			5.87
	Linuron	98.6	91.2 94.6			3.66
	MCP	79.2	56.8 61.2			7.46
	Primidone	105	81.5 84.5			3.61
	Triclopyr	77.4	60.1 63.0			4.68

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 8321B / E31780	Water soluble organic compounds by HPLC/MS/MS	1892595
USGS O-2060-01 / E31780	Chlorinated (phenoxy acid) herbicides in water matrices by HPLC/MS/MS	1892595
USGS O-2060-01 / E31780	Urea herbicides and other chemicals in water matrices by HPLC/MS/MS	1892595

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
EPA 8321B	04/26/2017	04/26/2017	Mohammad Ghaffari	04/26/2017	Mohammad Ghaffari	1892595
USGS O-2060-01	04/26/2017	04/29/2017	Hoor Shaik	05/13/2017	Juyoung Kim	1892595