

Chemical Analysis Report

CEN-DIST-2017-04-18-02

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

Event Description: **Salt / Sweet / Haynes SMP**
Request ID: **RQ-2017-04-10-43**
Customer: **CEN-DIST**
Project ID: **SMP**

Send Reports to:
FL Dept. of Environmental Protection
FL Dept. of Environmental Protection
3319 Maguire Blvd., Suite 232
Orlando, FL 32803-3767
Attn: Mike Linger

For additional information please contact
Colin Wright, Ph.D.
Liang-Tsair Lin, Ph.D.
Thekkekalathil Chandrasekhar, PhD, QA Officer
Phone (850) 245-8085

Certified by: Colin Wright, Program Administrator

Date Certified: 16-MAY-2017 16:37

A handwritten signature in black ink, appearing to read "Colin Wright", is displayed on a light gray 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: Haynes Creek @ 300m DS of CR 44

Collection Date/Time: 04/17/2017 12:45

Field ID: G1CE0023

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1889578	EPA 8321B	Sucralose**	0.022	I	ug/L	P323547	
	USGS O-2060-01	2,4-D	0.026		ug/L	P323473	
		Diuron	0.0020	U	ug/L	P323473	
		Fenuron	0.010	U	ug/L	P323473	
		Imidacloprid	0.0020	U	ug/L	P323473	
		Bentazon	0.0012	I	ug/L	P323473	
		Linuron	0.010	U	ug/L	P323473	
		Acetaminophen**	0.20		ug/L	P323473	
		MCP	0.0040	U	ug/L	P323473	
		Carbamazepine**	5.0E-04	U	ug/L	P323473	
		Triclopyr**	0.010	U	ug/L	P323473	
		Primidone**	0.020	U	ug/L	P323473	
		Fluridone**	0.0042		ug/L	P323473	

Ref. Method and Comment:

USGS O-2060-01: MS accuracy and precision for acetaminophen could not be assessed due to high concentration of parameter in the spiked sample.

Sample Location: Salt Creek @ Packard Avenue

Collection Date/Time: 04/17/2017 14:50

Field ID: G2CE0088

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1889579	EPA 8321B	Sucralose**	0.035	I	ug/L	P323547	
	USGS O-2060-01	2,4-D	0.0040	U	ug/L	P323473	
		Diuron	0.0020	U	ug/L	P323473	
		Fenuron	0.010	U	ug/L	P323473	
		Imidacloprid	0.0020	U	ug/L	P323473	
		Bentazon	0.0010	U	ug/L	P323473	
		Linuron	0.010	U	ug/L	P323473	
		Acetaminophen**	0.16		ug/L	P323473	
		MCP	0.0040	U	ug/L	P323473	
		Carbamazepine**	5.0E-04	U	ug/L	P323473	
		Triclopyr**	0.010	U	ug/L	P323473	
		Primidone**	0.020	U	ug/L	P323473	
		Fluridone**	5.0E-04	U	ug/L	P323473	

Ref. Method and Comment:

USGS O-2060-01: Results confirmed in re-extraction.

USGS O-2060-01: MS accuracy and precision for acetaminophen could not be assessed due to high concentration of parameter in the spiked sample.

Results confirmed in re-extraction.

Quality Assurance Report

Method Blank Results

Reference Method: EPA 8321B

Batch ID: P323547

Component	Result	Code	Units
Sucralose	0.010	U	ug/L

Quality Assurance Report Method Blank Results

Reference Method: USGS O-2060-01
 Batch ID: P323473

Component	Result	Code	Units
2,4-D	0.0040	U	ug/L
Acetaminophen	0.020	U	ug/L
Bentazon	0.0010	U	ug/L
Carbamazepine	5.0E-04	U	ug/L
Diuron	0.0020	U	ug/L
Fenuron	0.010	U	ug/L
Fluridone	5.0E-04	U	ug/L
Imidacloprid	0.0020	U	ug/L
Linuron	0.010	U	ug/L
MCP	0.0040	U	ug/L
Primidone	0.020	U	ug/L
Triclopyr	0.010	U	ug/L

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 8321B
 Batch ID: P323547

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Sucralose	110		P	40 - 140

Reference Method: USGS O-2060-01
 Batch ID: P323473

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2,4-D	91.4		P	40 - 140
Acetaminophen	58.0		P	40 - 140
Bentazon	102		P	40 - 140
Carbamazepine	127		P	40 - 140
Diuron	102		P	40 - 140
Fenuron	111		P	40 - 140
Fluridone	117		P	40 - 140
Imidacloprid	88.8		P	40 - 160
Linuron	103		P	40 - 140
MCP	93.6		P	40 - 140
Primidone	98.8		P	40 - 140
Triclopyr	91.4		P	40 - 140

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 8321B
 Batch ID: P323547

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1889460	Sucralose	79.2	83.2	P/P	40 - 140

Quality Assurance Report Matrix Spike Accuracy

Reference Method: USGS O-2060-01
 Batch ID: P323473

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1889462	2,4-D	104	101	P/P	40 - 140
1889462	Bentazon	67.6	67.6	P/P	40 - 140
1889462	Carbamazepine	119	125	P/P	40 - 140
1889462	Diuron	87.6	94.8	P/P	40 - 140
1889462	Fenuron	93.6	93.2	P/P	40 - 140
1889462	Fluridone	93.4	101	P/P	40 - 140
1889462	Imidacloprid	138	141	P/P	40 - 160
1889462	Linuron	101	90.0	P/P	40 - 140
1889462	MCP	82.6	83.6	P/P	40 - 140
1889462	Primidone	99.6	110	P/P	40 - 140
1889462	Triclopyr	83.4	78.2	P/P	40 - 140

Quality Assurance Report Precision

Reference Method: EPA 8321B
 Batch ID: P323547

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1889460	Sucralose	2.90	Spike	P	0 - 30

Reference Method: USGS O-2060-01
 Batch ID: P323473

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1889462	2,4-D	2.91	Spike	P	0 - 30
1889462	Bentazon	0.0	Spike	P	0 - 30
1889462	Carbamazepine	5.34	Spike	P	0 - 30
1889462	Diuron	7.00	Spike	P	0 - 30
1889462	Fenuron	0.428	Spike	P	0 - 30
1889462	Fluridone	7.90	Spike	P	0 - 30
1889462	Imidacloprid	1.82	Spike	P	0 - 30
1889462	Linuron	11.3	Spike	P	0 - 30
1889462	MCP	1.20	Spike	P	0 - 30
1889462	Primidone	9.56	Spike	P	0 - 30
1889462	Triclopyr	6.44	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: 1889578
 Field Sample ID: G1CE0023

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	Sucralose-d6	80.0	P	40 - 150
USGS O-2060-01	2,4-D-d3	90.2	P	40 - 150

Quality Assurance Report Surrogates

Lab Sample ID: 1889578
 Field Sample ID: G1CE0023

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
USGS O-2060-01	Acetaminophen-d4	104	P	30 - 150
USGS O-2060-01	Carbamazepine-d10	117	P	30 - 160
USGS O-2060-01	Diuron-d6	98.7	P	30 - 150
USGS O-2060-01	Primidone-d5	81.3	P	30 - 150

Lab Sample ID: 1889579
 Field Sample ID: G2CE0088

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	Sucralose-d6	110	P	40 - 150
USGS O-2060-01	2,4-D-d3	76.5	P	40 - 150
USGS O-2060-01	Acetaminophen-d4	89.4	P	30 - 150
USGS O-2060-01	Carbamazepine-d10	106	P	30 - 160
USGS O-2060-01	Diuron-d6	80.7	P	30 - 150
USGS O-2060-01	Primidone-d5	71.9	P	30 - 150

Quality Assurance Report Calibration Verification

Reference Method: EPA 8321B
 Run ID: A75899
 Included Lab Sample IDs: 1889578, 1889579

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Sucralose	81.6	93.9	P/P	60 - 150
Sucralose	87.8	139	P/P	60 - 150

Reference Method: USGS O-2060-01
 Run ID: A76387
 Included Lab Sample IDs: 1889578, 1889579

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
2,4-D	97.1	94.4	P/P	50 - 150
Acetaminophen	105	110	P/P	60 - 150
Bentazon	66.6	67.5	P/P	50 - 150
Carbamazepine	87.4	95.6	P/P	60 - 150
Diuron	84.6	95.8	P/P	60 - 150
Fenuron	99.9	108	P/P	60 - 150
Fluridone	75.8	81.6	P/P	60 - 150
Imidacloprid	87.2	96.4	P/P	60 - 150
Linuron	92.3	103	P/P	60 - 150
MCP	91.0	95.8	P/P	50 - 150
Primidone	90.0	94.0	P/P	60 - 150
Triclopyr	93.1	96.3	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	110	79.2	83.2			2.90
USGS O-2060-01	2,4-D	91.4	104	101			2.91
	Acetaminophen	58.0					
	Bentazon	102	67.6	67.6			0.0
	Carbamazepine	127	119	125			5.34
	Diuron	102	87.6	94.8			7.00
	Fenuron	111	93.6	93.2			0.428
	Fluridone	117	93.4	101			7.90
	Imidacloprid	88.8	138	141			1.82
	Linuron	103	101	90.0			11.3
	MCP	93.6	82.6	83.6			1.20
	Primidone	98.8	99.6	110			9.56
	Triclopyr	91.4	83.4	78.2			6.44

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 8321B / E31780	Water soluble organic compounds by HPLC/MS/MS	1889578, 1889579
USGS O-2060-01 / E31780	Chlorinated (phenoxy acid) herbicides in water matrices by HPLC/MS/MS	1889578, 1889579
USGS O-2060-01 / E31780	Urea herbicides and other chemicals in water matrices by HPLC/MS/MS	1889578, 1889579

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
EPA 8321B	04/18/2017	04/19/2017	Mohammad Ghaffari	04/19/2017	Mohammad Ghaffari	1889578, 1889579
USGS O-2060-01	04/18/2017	04/19/2017	Hoor Shaik	05/07/2017	Juyoung Kim	1889578, 1889579