

Chemical Analysis Report

WQAP-2016-07-22-08

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

Event Description: **Hogan/Miller Source ID**
Request ID: **RQ-2016-07-18-50**
Customer: **WQAP**
Project ID: **BMAP**

Send Reports to:
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Certified by: Timothy Fitzpatrick, Program Administrator

Date Certified: 11-AUG-2016 10:51

A handwritten signature in black ink, appearing to read "Timothy Fitzpatrick", with a stylized flourish at the end.

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: SS BHSC Miller

Collection Date/Time: 07/21/2016 08:15

Field ID: SS BHSC Miller

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1818742	EPA 8321B	Sucralose**	0.056		ug/L	P308513	MS
	USGS O-2060-01	Diuron	0.0040	U	ug/L	P308513	
		Fenuron	0.0080	U	ug/L	P308513	
		Imidacloprid	0.083		ug/L	P308513	MS
		Linuron	0.0040	U	ug/L	P308513	
		Acetaminophen**	0.0091	I	ug/L	P308513	
		Carbamazepine**	4.0E-04	U	ug/L	P308513	
		Primidone**	0.0080	U	ug/L	P308513	
		Fluridone**	4.0E-04	U	ug/L	P308513	

Sample Location: Hogan A2 Culvert

Collection Date/Time: 07/21/2016 08:45

Field ID: Hogan A2 Culvert

Matrix: WATER

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1818743	EPA 8321B	Sucralose**	0.27		ug/L	P308513	MS
	USGS O-2060-01	Diuron	0.0040	U	ug/L	P308513	
		Fenuron	0.0080	U	ug/L	P308513	
		Imidacloprid	0.20		ug/L	P308513	MS
		Linuron	0.0040	U	ug/L	P308513	
		Acetaminophen**	1.6		ug/L	P308513	
		Carbamazepine**	0.0012	I	ug/L	P308513	
		Primidone**	0.0080	U	ug/L	P308513	
		Fluridone**	4.0E-04	U	ug/L	P308513	

Sample Location: Hogan A3 Ditch

Collection Date/Time: 07/21/2016 08:55

Field ID: Hogan A3 Ditch

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1818744	EPA 8321B	Sucralose**	0.010	UJ	ug/L	P308513	MS, SUR
	USGS O-2060-01	Diuron	0.017		ug/L	P308513	
		Fenuron	0.0080	U	ug/L	P308513	
		Imidacloprid	0.14	J	ug/L	P308513	MS
		Linuron	0.0040	U	ug/L	P308513	
		Acetaminophen**	0.0040	U	ug/L	P308513	
		Carbamazepine**	4.0E-04	U	ug/L	P308513	
		Primidone**	0.0080	U	ug/L	P308513	
		Fluridone**	5.8E-04	I	ug/L	P308513	

Ref. Method and Comment:

EPA 8321B: Refer to the narrative for an explanation of QC Codes. Results confirmed.

USGS O-2060-01: Refer to the narrative for an explanation of QC Codes.

Sample Location: A2B1 (16th)

Collection Date/Time: 07/21/2016 09:15

Field ID: A2B1 (16th)

Matrix: WATER

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1818745	EPA 8321B	Sucralose**	0.35		ug/L	P308513	MS

Field ID: A2B1 (16th)

Matrix: WATER

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1818745	USGS O-2060-01	Diuron	0.0040	U	ug/L	P308513	
		Fenuron	0.0080	U	ug/L	P308513	
		Imidacloprid	0.22		ug/L	P308513	MS
		Linuron	0.0040	U	ug/L	P308513	
		Acetaminophen**	2.1		ug/L	P308513	
		Carbamazepine**	0.0015	I	ug/L	P308513	
		Primidone**	0.0080	U	ug/L	P308513	
		Fluridone**	4.0E-04	U	ug/L	P308513	

Sample Location: A2B2 (16th & Perry)

Collection Date/Time: 07/21/2016 09:30

Field ID: A2B2 (16th & Perry)

Matrix: WATER

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1818746	EPA 8321B	Sucralose**	0.32		ug/L	P308513	MS
	USGS O-2060-01	Diuron	0.0040	U	ug/L	P308513	
		Fenuron	0.0080	U	ug/L	P308513	
		Imidacloprid	0.0086	I	ug/L	P308513	MS
		Linuron	0.0040	U	ug/L	P308513	
		Acetaminophen**	0.68		ug/L	P308513	
		Carbamazepine**	0.0033		ug/L	P308513	
		Primidone**	0.0080	U	ug/L	P308513	
		Fluridone**	4.0E-04	U	ug/L	P308513	

Sample Location: Blank

Collection Date/Time: 07/21/2016 10:50

Field ID: Equipment Blank

Matrix: W-EQPMT-BK

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1818747	EPA 8321B	Sucralose**	0.010	U	ug/L	P308513	MS
	USGS O-2060-01	Diuron	0.0040	U	ug/L	P308513	
		Fenuron	0.0080	U	ug/L	P308513	
		Imidacloprid	0.0040	U	ug/L	P308513	MS
		Linuron	0.0040	U	ug/L	P308513	
		Acetaminophen**	0.0040	U	ug/L	P308513	
		Carbamazepine**	4.0E-04	U	ug/L	P308513	
		Primidone**	0.0080	U	ug/L	P308513	
		Fluridone**	4.0E-04	U	ug/L	P308513	

Quality Assurance Report Method Blank Results

Reference Method: EPA 8321B
Batch ID: P308513

Component	Result	Code	Units
Sucralose	0.010	U	ug/L

Quality Assurance Report Method Blank Results

Reference Method: USGS O-2060-01
Batch ID: P308513

Component	Result	Code	Units
Acetaminophen	0.0040	U	ug/L
Carbamazepine	4.0E-04	U	ug/L
Diuron	0.0040	U	ug/L
Fenuron	0.0080	U	ug/L
Fluridone	4.0E-04	U	ug/L
Imidacloprid	0.0040	U	ug/L
Linuron	0.0040	U	ug/L
Primidone	0.0080	U	ug/L

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 8321B
Batch ID: P308513

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Sucralose	108		P	40 - 140

Reference Method: USGS O-2060-01
Batch ID: P308513

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Acetaminophen	130		P	40 - 140
Carbamazepine	100		P	40 - 140
Diuron	56.4		P	40 - 140
Fenuron	101		P	40 - 140
Fluridone	83.6		P	40 - 140
Imidacloprid	114		P	40 - 160
Linuron	97.2		P	40 - 140
Primidone	90.0		P	40 - 140

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 8321B
Batch ID: P308513

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1818744	Sucralose	37.3	39.7	F/F	40 - 140

Reference Method: USGS O-2060-01
Batch ID: P308513

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1818744	Acetaminophen	111	115	P/P	40 - 140
1818744	Carbamazepine	108	99.6	P/P	40 - 140
1818744	Diuron	69.9	56.7	P/P	40 - 140
1818744	Fenuron	100	91.6	P/P	40 - 140
1818744	Fluridone	72.2	68.2	P/P	40 - 140
1818744	Imidacloprid	271	255	F/F	40 - 160
1818744	Linuron	76.8	68.4	P/P	40 - 140

Quality Assurance Report Matrix Spike Accuracy

Reference Method: USGS O-2060-01
Batch ID: P308513

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1818744	Primidone	88.8	84.8	P/P	40 - 140

Quality Assurance Report Precision

Reference Method: EPA 8321B
Batch ID: P308513

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1818744	Sucralose	6.23	Spike	P	0 - 30

Reference Method: USGS O-2060-01
Batch ID: P308513

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1818744	Acetaminophen	3.19	Spike	P	0 - 30
1818744	Carbamazepine	8.09	Spike	P	0 - 30
1818744	Diuron	16.4	Spike	P	0 - 30
1818744	Fenuron	9.17	Spike	P	0 - 30
1818744	Fluridone	5.65	Spike	P	0 - 30
1818744	Imidacloprid	3.96	Spike	P	0 - 30
1818744	Linuron	11.6	Spike	P	0 - 30
1818744	Primidone	4.61	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: 1818742
Field Sample ID: SS BHSC Miller

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	Acetaminophen-d4	100	P	30 - 150
EPA 8321B	Carbamazepine-d10	108	P	40 - 160
EPA 8321B	Diuron-d6	73.2	P	40 - 150
EPA 8321B	Primidone-d5	124	P	40 - 150
EPA 8321B	Sucralose-d6	42.8	P	40 - 150
USGS O-2060-01	Acetaminophen-d4	100	P	30 - 150
USGS O-2060-01	Carbamazepine-d10	108	P	40 - 160
USGS O-2060-01	Diuron-d6	73.2	P	40 - 150
USGS O-2060-01	Primidone-d5	124	P	40 - 150
USGS O-2060-01	Sucralose-d6	42.8	P	40 - 150

Lab Sample ID: 1818743
Field Sample ID: Hogan A2 Culvert

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
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Quality Assurance Report Surrogates

Lab Sample ID: 1818743

Field Sample ID: Hogan A2 Culvert

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	Acetaminophen-d4	113	P	30 - 150
EPA 8321B	Carbamazepine-d10	111	P	40 - 160
EPA 8321B	Diuron-d6	78.0	P	40 - 150
EPA 8321B	Primidone-d5	146	P	40 - 150
EPA 8321B	Sucralose-d6	57.8	P	40 - 150
USGS O-2060-01	Acetaminophen-d4	113	P	30 - 150
USGS O-2060-01	Carbamazepine-d10	111	P	40 - 160
USGS O-2060-01	Diuron-d6	78.0	P	40 - 150
USGS O-2060-01	Primidone-d5	146	P	40 - 150
USGS O-2060-01	Sucralose-d6	57.8	P	40 - 150

Lab Sample ID: 1818744

Field Sample ID: Hogan A3 Ditch

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	Acetaminophen-d4	108	P	30 - 150
EPA 8321B	Carbamazepine-d10	101	P	40 - 160
EPA 8321B	Diuron-d6	65.2	P	40 - 150
EPA 8321B	Primidone-d5	137	P	40 - 150
EPA 8321B	Sucralose-d6	31.8	F	40 - 150
USGS O-2060-01	Acetaminophen-d4	108	P	30 - 150
USGS O-2060-01	Carbamazepine-d10	101	P	40 - 160
USGS O-2060-01	Diuron-d6	65.2	P	40 - 150
USGS O-2060-01	Primidone-d5	137	P	40 - 150
USGS O-2060-01	Sucralose-d6	31.8	F	40 - 150

Lab Sample ID: 1818745

Field Sample ID: A2B1 (16th)

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	Acetaminophen-d4	102	P	30 - 150
EPA 8321B	Carbamazepine-d10	118	P	40 - 160
EPA 8321B	Diuron-d6	80.4	P	40 - 150
EPA 8321B	Primidone-d5	115	P	40 - 150
EPA 8321B	Sucralose-d6	56.7	P	40 - 150
USGS O-2060-01	Acetaminophen-d4	102	P	30 - 150
USGS O-2060-01	Carbamazepine-d10	118	P	40 - 160
USGS O-2060-01	Diuron-d6	80.4	P	40 - 150
USGS O-2060-01	Primidone-d5	115	P	40 - 150
USGS O-2060-01	Sucralose-d6	56.7	P	40 - 150

Lab Sample ID: 1818746

Field Sample ID: A2B2 (16th & Perry)

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	Acetaminophen-d4	111	P	30 - 150
EPA 8321B	Carbamazepine-d10	112	P	40 - 160
EPA 8321B	Diuron-d6	80.0	P	40 - 150
EPA 8321B	Primidone-d5	128	P	40 - 150
EPA 8321B	Sucralose-d6	40.4	P	40 - 150
USGS O-2060-01	Acetaminophen-d4	111	P	30 - 150
USGS O-2060-01	Carbamazepine-d10	112	P	40 - 160

Quality Assurance Report Surrogates

Lab Sample ID: 1818746
Field Sample ID: A2B2 (16th & Perry)

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
USGS O-2060-01	Diuron-d6	80.0	P	40 - 150
USGS O-2060-01	Primidone-d5	128	P	40 - 150
USGS O-2060-01	Sucralose-d6	40.4	P	40 - 150

Lab Sample ID: 1818747
Field Sample ID: Equipment Blank

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	Acetaminophen-d4	145	P	30 - 150
EPA 8321B	Carbamazepine-d10	117	P	40 - 160
EPA 8321B	Diuron-d6	74.2	P	40 - 150
EPA 8321B	Primidone-d5	127	P	40 - 150
EPA 8321B	Sucralose-d6	104	P	40 - 150
USGS O-2060-01	Acetaminophen-d4	145	P	30 - 150
USGS O-2060-01	Carbamazepine-d10	117	P	40 - 160
USGS O-2060-01	Diuron-d6	74.2	P	40 - 150
USGS O-2060-01	Primidone-d5	127	P	40 - 150
USGS O-2060-01	Sucralose-d6	104	P	40 - 150

Quality Assurance Report Calibration Verification

Reference Method: EPA 8321B
Run ID: A70805
Included Lab Sample IDs: 1818742, 1818743, 1818744, 1818745, 1818746, 1818747

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Sucralose	104	109	P/P	70 - 150
Sucralose	107	104	P/P	70 - 150
Sucralose	114	106	P/P	70 - 150

Reference Method: USGS O-2060-01
Run ID: A70870
Included Lab Sample IDs: 1818742, 1818743, 1818744, 1818745, 1818746, 1818747

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Acetaminophen	124	128	P/P	60 - 150
Acetaminophen	125	124	P/P	60 - 150
Carbamazepine	117	121	P/P	60 - 150
Carbamazepine	121	123	P/P	60 - 150
Diuron	100	103	P/P	60 - 150
Diuron	103	123	P/P	60 - 150
Fenuron	124	133	P/P	60 - 150
Fenuron	133	137	P/P	60 - 150
Fluridone	106	104	P/P	60 - 150
Fluridone	97.6	106	P/P	60 - 150
Imidacloprid	130	150	P/P	60 - 150
Imidacloprid	150	143	P/P	60 - 150
Linuron	132	142	P/P	60 - 150
Linuron	142	136	P/P	60 - 150
Primidone	118	95.2	P/P	60 - 150

Quality Assurance Report Calibration Verification

Reference Method: USGS O-2060-01

Run ID: A70870

Included Lab Sample IDs: 1818742, 1818743, 1818744, 1818745, 1818746, 1818747

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Primidone	95.2	98.4	P/P	60 - 150

Reference Method: USGS O-2060-01

Run ID: A70995

Included Lab Sample IDs: 1818743, 1818745, 1818746

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Acetaminophen	105	110	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	Sucralose	108	37.3 39.7			6.23
USGS O-2060-01	Acetaminophen	130	111 115			3.19
	Carbamazepine	100	108 99.6			8.09
	Diuron	56.4	69.9 56.7			16.4
	Fenuron	101	100 91.6			9.17
	Fluridone	83.6	72.2 68.2			5.65
	Imidacloprid	114	271 255			3.96
	Linuron	97.2	76.8 68.4			11.6
	Primidone	90.0	88.8 84.8			4.61

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 8321B / E31780	Analysis of sucralose in water matrices by HPLC/MS/MS	1818742, 1818743, 1818744, 1818745, 1818746, 1818747
USGS O-2060-01 / E31780	Urea herbicides and other chemicals in water matrices by HPLC/MS/MS	1818742, 1818743, 1818744, 1818745, 1818746, 1818747

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
EPA 8321B	07/22/2016	07/26/2016	Hoor Shaik	07/27/2016	Mohammad Ghaffari	1818742, 1818743, 1818744, 1818745, 1818746, 1818747
USGS O-2060-01	07/22/2016	07/26/2016	Hoor Shaik	07/29/2016	Juyoung Kim	1818742, 1818743, 1818744, 1818745, 1818746, 1818747
	07/22/2016	07/26/2016	Hoor Shaik	08/05/2016	Juyoung Kim	1818743
	07/22/2016	07/26/2016	Hoor Shaik	08/06/2016	Juyoung Kim	1818745, 1818746