

Chemical Analysis Report

WQAP-2017-11-02-02

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

Event Description: **Pinellas LR2**
Request ID: **RQ-2017-09-25-15**
Customer: **WQAP**
Project ID: **SMP**

Send Reports to:
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Date Certified: 01-DEC-2017 15:47



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: Bee Branch PC Site 08-03

Collection Date/Time: 11/01/2017 09:02

Field ID: G5SW0133

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1942388	EPA 8321B	Sucralose**	3.0		ug/L	P334540	
	USGS O-2060-01	2,4-D	0.0020	UQ	ug/L	P335857	
		Diuron	0.0043		ug/L	P334541	
		Fenuron	0.0080	U	ug/L	P334541	
		Imidacloprid	0.017		ug/L	P334541	MS
		Bentazon	0.30	Q	ug/L	P335857	
		Linuron	0.0040	U	ug/L	P334541	
		Acetaminophen**	0.0080	U	ug/L	P334541	
		MCP	0.0066	IQ	ug/L	P335857	
		Carbamazepine**	0.0052		ug/L	P334541	
		Triclopyr**	0.0040	UQ	ug/L	P335857	
		Primidone**	0.017		ug/L	P334541	
		Fluridone**	0.15		ug/L	P334541	

Ref. Method and Comment:

USGS O-2060-01: Sample required re-extraction beyond normal holding time due to reagent performance inconsistencies.

Sample Location: Curlew Crk-Fresh PC Site 10-02

Collection Date/Time: 11/01/2017 09:48

Field ID: G5SW0132

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1942389	EPA 8321B	Sucralose**	6.6		ug/L	P334540	
	USGS O-2060-01	2,4-D	0.0070	IQ	ug/L	P335857	
		Diuron	0.020		ug/L	P334541	
		Fenuron	0.0080	U	ug/L	P334541	
		Imidacloprid	0.086		ug/L	P334541	MS
		Bentazon	0.060	Q	ug/L	P335857	
		Linuron	0.0040	U	ug/L	P334541	
		Acetaminophen**	0.0080	U	ug/L	P334541	
		MCP	0.0020	UQ	ug/L	P335857	
		Carbamazepine**	0.036		ug/L	P334541	
		Triclopyr**	0.0040	UQ	ug/L	P335857	
		Primidone**	0.084		ug/L	P334541	
		Fluridone**	0.022		ug/L	P334541	

Ref. Method and Comment:

USGS O-2060-01: Sample required re-extraction beyond normal holding time due to reagent performance inconsistencies.

Sample Location: Rattlesnake Crk PC Site 17-01

Collection Date/Time: 11/01/2017 10:30

Field ID: G5SW0001

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1942390	EPA 8321B	Sucralose**	0.48		ug/L	P334540	
	USGS O-2060-01	2,4-D	0.073	Q	ug/L	P335857	
		Diuron	0.0050		ug/L	P334541	
		Fenuron	0.0080	U	ug/L	P334541	
		Imidacloprid	0.027		ug/L	P334541	MS

Field ID: G5SW0001

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1942390	USGS O-2060-01	Bentazon	0.023	Q	ug/L	P335857	
		Linuron	0.0040	U	ug/L	P334541	
		Acetaminophen**	0.0080	U	ug/L	P334541	
		MCP	0.0020	IQ	ug/L	P335857	
		Carbamazepine**	0.0025		ug/L	P334541	
		Triclopyr**	0.0040	UQ	ug/L	P335857	
		Primidone**	0.0079	I	ug/L	P334541	
		Fluridone**	0.024		ug/L	P334541	

Ref. Method and Comment:

USGS O-2060-01: Sample required re-extraction beyond normal holding time due to reagent performance inconsistencies.

Sample Location: Rattlesnake Crk PC Site 17-03

Collection Date/Time: 11/01/2017 10:45

Field ID: G5SW0140

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1942391	EPA 8321B	Sucralose**	0.39		ug/L	P334540	
	USGS O-2060-01	2,4-D	0.12	Q	ug/L	P335857	
		Diuron	0.0046		ug/L	P334541	
		Fenuron	0.0080	U	ug/L	P334541	
		Imidacloprid	0.017		ug/L	P334541	MS
		Bentazon	0.019	Q	ug/L	P335857	
		Linuron	0.0040	U	ug/L	P334541	
		Acetaminophen**	0.0080	U	ug/L	P334541	
		MCP	0.0020	UQ	ug/L	P335857	
		Carbamazepine**	0.0031		ug/L	P334541	
		Triclopyr**	0.0040	UQ	ug/L	P335857	
		Primidone**	0.0052	I	ug/L	P334541	
		Fluridone**	0.039		ug/L	P334541	

Ref. Method and Comment:

USGS O-2060-01: Sample required re-extraction beyond normal holding time due to reagent performance inconsistencies.

Quality Assurance Report

Method Blank Results

Reference Method: EPA 8321B

Batch ID: P334540

Component	Result	Code	Units
Sucralose	0.010	U	ug/L

Reference Method: USGS O-2060-01

Batch ID: P334541

Component	Result	Code	Units
Acetaminophen	0.0080	U	ug/L
Carbamazepine	4.0E-04	U	ug/L
Diuron	8.0E-04	U	ug/L
Fenuron	0.0080	U	ug/L
Fluridone	4.0E-04	U	ug/L
Imidacloprid	8.0E-04	U	ug/L

Quality Assurance Report Method Blank Results

Reference Method: USGS O-2060-01
Batch ID: P334541

Component	Result	Code	Units
Linuron	0.0040	U	ug/L
Primidone	0.0040	U	ug/L

Reference Method: USGS O-2060-01
Batch ID: P335857

Component	Result	Code	Units
2,4-D	0.0020	U	ug/L
Bentazon	8.0E-04	U	ug/L
MCP	0.0020	U	ug/L
Triclopyr	0.0040	U	ug/L

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 8321B
Batch ID: P334540

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Sucralose	83.2		P	40 - 150

Reference Method: USGS O-2060-01
Batch ID: P334541

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Acetaminophen	103		P	30 - 150
Carbamazepine	110		P	40 - 150
Diuron	95.7		P	40 - 150
Fenuron	115		P	40 - 150
Fluridone	112		P	40 - 150
Imidacloprid	112		P	40 - 160
Linuron	105		P	40 - 150
Primidone	102		P	40 - 150

Reference Method: USGS O-2060-01
Batch ID: P335857

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2,4-D	94.9		P	40 - 150
Bentazon	97.8		P	30 - 150
MCP	92.8		P	40 - 150
Triclopyr	94.0		P	40 - 150

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 8321B
Batch ID: P334540

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1942103	Sucralose	69.4	64.9	P/P	40 - 150

Quality Assurance Report Matrix Spike Accuracy

Reference Method: USGS O-2060-01
Batch ID: P334541

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1941999	Acetaminophen	98.8	118	P/P	30 - 150
1941999	Carbamazepine	103	107	P/P	40 - 150
1941999	Diuron	75.6	80.9	P/P	40 - 150
1941999	Fenuron	112	108	P/P	40 - 150
1941999	Fluridone	87.6	85.3	P/P	40 - 150
1941999	Imidacloprid	186	198	F/F	40 - 160
1941999	Linuron	86.2	86.8	P/P	40 - 150
1941999	Primidone	125	119	P/P	40 - 150

Reference Method: USGS O-2060-01
Batch ID: P335857

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1942197	2,4-D	83.8	88.3	P/P	40 - 150
1942197	Bentazon	62.6	66.1	P/P	30 - 150
1942197	MCP	68.5	70.1	P/P	40 - 150
1942197	Triclopyr	65.6	71.2	P/P	40 - 150

Quality Assurance Report Precision

Reference Method: EPA 8321B
Batch ID: P334540

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1942103	Sucralose	6.77	Spike	P	0 - 30

Reference Method: USGS O-2060-01
Batch ID: P334541

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1941999	Acetaminophen	5.95	Spike	P	0 - 30
1941999	Carbamazepine	4.37	Spike	P	0 - 30
1941999	Diuron	3.58	Spike	P	0 - 30
1941999	Fenuron	3.75	Spike	P	0 - 30
1941999	Fluridone	2.39	Spike	P	0 - 30
1941999	Imidacloprid	5.35	Spike	P	0 - 30
1941999	Linuron	0.670	Spike	P	0 - 30
1941999	Primidone	4.43	Spike	P	0 - 30

Reference Method: USGS O-2060-01
Batch ID: P335857

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1942197	2,4-D	5.29	Spike	P	0 - 30
1942197	Bentazon	4.96	Spike	P	0 - 30
1942197	MCP	2.41	Spike	P	0 - 30
1942197	Triclopyr	8.26	Spike	P	0 - 30

Quality Assurance Report Precision

* 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: 1942388
Field Sample ID: G5SW0133

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	Acetaminophen-d4	89.3	P	30 - 160
EPA 8321B	Carbamazepine-d10	97.7	P	30 - 160
EPA 8321B	Diuron-d6	78.4	P	30 - 160
EPA 8321B	Primidone-d5	103	P	30 - 160
EPA 8321B	Sucralose-d6	75.0	P	40 - 160
USGS O-2060-01	2,4-D-d3	72.3	P	30 - 160
USGS O-2060-01	Acetaminophen-d4	89.3	P	30 - 160
USGS O-2060-01	Carbamazepine-d10	97.7	P	30 - 160
USGS O-2060-01	Diuron-d6	78.4	P	30 - 160
USGS O-2060-01	Primidone-d5	103	P	30 - 160
USGS O-2060-01	Sucralose-d6	75.0	P	40 - 160

Lab Sample ID: 1942389
Field Sample ID: G5SW0132

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	Acetaminophen-d4	81.7	P	30 - 160
EPA 8321B	Carbamazepine-d10	95.2	P	30 - 160
EPA 8321B	Diuron-d6	71.2	P	30 - 160
EPA 8321B	Primidone-d5	112	P	30 - 160
EPA 8321B	Sucralose-d6	66.9	P	40 - 160
USGS O-2060-01	2,4-D-d3	77.9	P	30 - 160
USGS O-2060-01	Acetaminophen-d4	81.7	P	30 - 160
USGS O-2060-01	Carbamazepine-d10	95.2	P	30 - 160
USGS O-2060-01	Diuron-d6	71.2	P	30 - 160
USGS O-2060-01	Primidone-d5	112	P	30 - 160
USGS O-2060-01	Sucralose-d6	66.9	P	40 - 160

Lab Sample ID: 1942390
Field Sample ID: G5SW0001

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	Acetaminophen-d4	79.6	P	30 - 160
EPA 8321B	Carbamazepine-d10	93.8	P	30 - 160
EPA 8321B	Diuron-d6	69.2	P	30 - 160
EPA 8321B	Primidone-d5	112	P	30 - 160
EPA 8321B	Sucralose-d6	55.8	P	40 - 160
USGS O-2060-01	2,4-D-d3	80.6	P	30 - 160
USGS O-2060-01	Acetaminophen-d4	79.6	P	30 - 160
USGS O-2060-01	Carbamazepine-d10	93.8	P	30 - 160
USGS O-2060-01	Diuron-d6	69.2	P	30 - 160
USGS O-2060-01	Primidone-d5	112	P	30 - 160
USGS O-2060-01	Sucralose-d6	55.8	P	40 - 160

Quality Assurance Report Surrogates

Lab Sample ID: 1942391
Field Sample ID: G5SW0140

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	Acetaminophen-d4	94.1	P	30 - 160
EPA 8321B	Carbamazepine-d10	103	P	30 - 160
EPA 8321B	Diuron-d6	80.0	P	30 - 160
EPA 8321B	Primidone-d5	110	P	30 - 160
EPA 8321B	Sucralose-d6	55.7	P	40 - 160
USGS O-2060-01	2,4-D-d3	81.8	P	30 - 160
USGS O-2060-01	Acetaminophen-d4	94.1	P	30 - 160
USGS O-2060-01	Carbamazepine-d10	103	P	30 - 160
USGS O-2060-01	Diuron-d6	80.0	P	30 - 160
USGS O-2060-01	Primidone-d5	110	P	30 - 160
USGS O-2060-01	Sucralose-d6	55.7	P	40 - 160

Quality Assurance Report Calibration Verification

Reference Method: EPA 8321B
Run ID: A80019
Included Lab Sample IDs: 1942388, 1942389

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Sucralose	106	83.7	P/P	60 - 150

Reference Method: USGS O-2060-01
Run ID: A80228
Included Lab Sample IDs: 1942388, 1942389, 1942390, 1942391

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Acetaminophen	97.0	93.7	P/P	60 - 150
Carbamazepine	105	108	P/P	60 - 150
Diuron	110	111	P/P	60 - 150
Fenuron	108	106	P/P	60 - 150
Fluridone	106	105	P/P	60 - 160
Imidacloprid	98.1	88.1	P/P	60 - 150
Linuron	108	105	P/P	60 - 150
Primidone	103	95.1	P/P	60 - 150

Reference Method: EPA 8321B
Run ID: A80274
Included Lab Sample IDs: 1942390, 1942391

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Sucralose	121	121	P/P	60 - 150

Reference Method: USGS O-2060-01
Run ID: A80527
Included Lab Sample IDs: 1942388, 1942389, 1942390, 1942391

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
2,4-D	93.8	97.0	P/P	50 - 150
2,4-D	97.0	87.4	P/P	50 - 150
Bentazon	112	113	P/P	50 - 150

Quality Assurance Report Calibration Verification

Reference Method: USGS O-2060-01

Run ID: A80527

Included Lab Sample IDs: 1942388, 1942389, 1942390, 1942391

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Bentazon	119	112	P/P	50 - 150
MCP	96.6	82.5	P/P	50 - 150
MCP	98.5	96.6	P/P	50 - 150
Triclopyr	92.8	83.4	P/P	50 - 150
Triclopyr	96.0	92.8	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	83.2	69.4 64.9			6.77
USGS O-2060-01	2,4-D	94.9	83.8 88.3			5.29
	Acetaminophen	103	98.8 118			5.95
	Bentazon	97.8	62.6 66.1			4.96
	Carbamazepine	110	103 107			4.37
	Diuron	95.7	75.6 80.9			3.58
	Fenuron	115	112 108			3.75
	Fluridone	112	87.6 85.3			2.39
	Imidacloprid	112	186 198			5.35
	Linuron	105	86.2 86.8			0.670
	MCP	92.8	68.5 70.1			2.41
	Primidone	102	125 119			4.43
	Triclopyr	94.0	65.6 71.2			8.26

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 8321B / E31780	Analysis of sucralose in water matrices by HPLC/MS/MS	1942388, 1942389, 1942390, 1942391
USGS O-2060-01 / E31780	Chlorinated (phenoxy acid) herbicides in water matrices by HPLC/MS/MS	1942388, 1942389, 1942390, 1942391
USGS O-2060-01 / E31780	Urea herbicides and other chemicals in water matrices by HPLC/MS/MS	1942388, 1942389, 1942390, 1942391

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
EPA 8321B	11/02/2017	11/02/2017	Juyoung Kim	11/03/2017	Juyoung Kim	1942388, 1942389
	11/02/2017	11/02/2017	Juyoung Kim	11/13/2017	Juyoung Kim	1942390, 1942391
USGS O-2060-01	11/02/2017	11/02/2017	Hoor Shaik	11/10/2017	S. M. Reddy	1942388, 1942389, 1942390, 1942391
	11/02/2017	11/27/2017	Hoor Shaik	11/29/2017	Julie Michelle Frank	1942388, 1942389, 1942390, 1942391