

Chemical Analysis Report

WQAP-2017-07-28-02

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

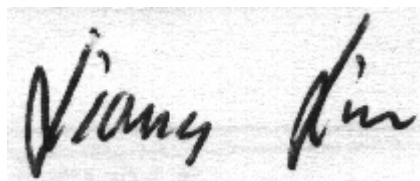
Event Description: **Pinellas LR2**
Request ID: **RQ-2017-07-24-21**
Customer: **WQAP**
Project ID: **SMP**

Send Reports to:
FL Dept. of Environmental Protection
13051 N. Telecom Parkway
Tampa, FL 33637
Attn: Judy Ashton

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

Certified by: Liang Lin, Environmental Administrator

Date Certified: 14-AUG-2017 14:08

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: Rattlesnake Creek

Collection Date/Time: 07/27/2017 13:13

Field ID: G5SW0001

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1917390	EPA 8321B	Sucralose**	0.68		ug/L	P329343	
	USGS O-2060-01	2,4-D	0.097		ug/L	P329234	
		Diuron	0.0053		ug/L	P329234	
		Fenuron	0.0080	U	ug/L	P329234	
		Imidacloprid	0.070		ug/L	P329234	MS
		Bentazon	0.023		ug/L	P329234	
		Linuron	0.0040	U	ug/L	P329234	
		Acetaminophen**	0.0080	U	ug/L	P329234	
		MCP	0.0028	I	ug/L	P329234	
		Carbamazepine**	0.0021		ug/L	P329234	
		Triclopyr**	0.0040	U	ug/L	P329234	
		Primidone**	0.0064	I	ug/L	P329234	
		Fluridone**	0.029		ug/L	P329234	

Ref. Method and Comment:

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

Sample Location: Rattlesnake Creek

Collection Date/Time: 07/27/2017 13:41

Field ID: G5SW0140

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1917391	EPA 8321B	Sucralose**	1.4		ug/L	P329343	
	USGS O-2060-01	2,4-D	0.073		ug/L	P329234	
		Diuron	0.0036		ug/L	P329234	
		Fenuron	0.0080	U	ug/L	P329234	
		Imidacloprid	0.066		ug/L	P329234	MS
		Bentazon	0.029		ug/L	P329234	
		Linuron	0.0040	U	ug/L	P329234	
		Acetaminophen**	0.0080	U	ug/L	P329234	
		MCP	0.0035	I	ug/L	P329234	
		Carbamazepine**	0.0043		ug/L	P329234	
		Triclopyr**	0.0040	U	ug/L	P329234	
		Primidone**	0.0093	I	ug/L	P329234	
		Fluridone**	0.035		ug/L	P329234	

Ref. Method and Comment:

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

Sample Location: Curlew Creek (Fresh)

Collection Date/Time: 07/27/2017 10:32

Field ID: G5SW0132

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1917392	EPA 8321B	Sucralose**	5.1		ug/L	P329343	
	USGS O-2060-01	2,4-D	6.7		ug/L	P329234	
		Diuron	0.30		ug/L	P329234	
		Fenuron	0.0080	U	ug/L	P329234	
		Imidacloprid	0.060		ug/L	P329234	MS

Field ID: G5SW0132

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1917392	USGS O-2060-01	Bentazon	0.027		ug/L	P329234	
		Linuron	0.0040	U	ug/L	P329234	
		Acetaminophen**	0.0080	U	ug/L	P329234	
		MCP	0.0027	I	ug/L	P329234	
		Carbamazepine**	0.035		ug/L	P329234	
		Triclopyr**	0.0040	U	ug/L	P329234	
		Primidone**	0.033		ug/L	P329234	
		Fluridone**	0.021		ug/L	P329234	

Ref. Method and Comment:

USGS O-2060-01: MS accuracy for bentazon could not be assessed due to high concentration of parameter in the spiked sample. 2,4-D-d3 surrogate recovery is not available due to matrix interference.

Sample Location: Bee Branch

Collection Date/Time: 07/27/2017 10:01

Field ID: G5SW0133

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1917393	EPA 8321B	Sucralose**	3.7		ug/L	P329343	
	USGS O-2060-01	2,4-D	0.0065	I	ug/L	P329234	
		Diuron	0.0064		ug/L	P329234	
		Fenuron	0.0080	U	ug/L	P329234	
		Imidacloprid	0.067		ug/L	P329234	MS
		Bentazon	0.59		ug/L	P329234	
		Linuron	0.0040	U	ug/L	P329234	
		Acetaminophen**	0.0080	U	ug/L	P329234	
		MCP	0.0020	U	ug/L	P329234	
		Carbamazepine**	0.0059		ug/L	P329234	
		Triclopyr**	0.0040	U	ug/L	P329234	
		Primidone**	0.010	I	ug/L	P329234	
		Fluridone**	0.027		ug/L	P329234	

Ref. Method and Comment:

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

Quality Assurance Report

Method Blank Results

Reference Method: EPA 8321B

Batch ID: P329343

Component	Result	Code	Units
Sucralose	0.010	U	ug/L

Reference Method: USGS O-2060-01

Batch ID: P329234

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

Quality Assurance Report Method Blank Results

Reference Method: USGS O-2060-01
Batch ID: P329234

Component	Result	Code	Units
Fenuron	0.0080	U	ug/L
Fluridone	4.0E-04	U	ug/L
Imidacloprid	8.0E-04	U	ug/L
Linuron	0.0040	U	ug/L
MCPP	0.0020	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: P329343

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Sucralose	85.0		P	40 - 150

Reference Method: USGS O-2060-01
Batch ID: P329234

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2,4-D	69.0		P	40 - 150
Acetaminophen	58.6		P	30 - 150
Bentazon	88.1		P	40 - 150
Carbamazepine	130		P	40 - 150
Diuron	99.8		P	40 - 150
Fenuron	113		P	40 - 150
Fluridone	89.3		P	40 - 150
Imidacloprid	112		P	40 - 160
Linuron	92.3		P	40 - 150
MCPP	72.8		P	40 - 150
Primidone	80.7		P	40 - 150
Triclopyr	64.7		P	40 - 150

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 8321B
Batch ID: P329343

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1917030	Sucralose	103	92.6	P/P	40 - 150

Reference Method: USGS O-2060-01
Batch ID: P329234

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1917511	2,4-D	105	90.3	P/P	40 - 150
1917511	Acetaminophen	126	108	P/P	30 - 150
1917511	Carbamazepine	107	80.9	P/P	40 - 150
1917511	Diuron	64.9	59.2	P/P	40 - 150

Quality Assurance Report Matrix Spike Accuracy

Reference Method: USGS O-2060-01
Batch ID: P329234

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1917511	Fenuron	60.9	48.1	P/P	40 - 150
1917511	Fluridone	47.3	41.3	P/P	40 - 150
1917511	Imidacloprid	162	169	F/F	40 - 160
1917511	Linuron	75.2	78.6	P/P	40 - 150
1917511	MCCP	107	102	P/P	40 - 150
1917511	Primidone	56.6	47.4	P/P	40 - 150
1917511	Triclopyr	92.7	95.2	P/P	40 - 150

Quality Assurance Report Precision

Reference Method: EPA 8321B
Batch ID: P329343

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1917030	Sucralose	5.37	Spike	P	0 - 30

Reference Method: USGS O-2060-01
Batch ID: P329234

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1917511	2,4-D	12.9	Spike	P	0 - 30
1917511	Acetaminophen	15.8	Spike	P	0 - 30
1917511	Bentazon	2.20	Spike	P	0 - 30
1917511	Carbamazepine	27.9	Spike	P	0 - 30
1917511	Diuron	8.16	Spike	P	0 - 30
1917511	Fenuron	23.4	Spike	P	0 - 30
1917511	Fluridone	11.6	Spike	P	0 - 30
1917511	Imidacloprid	3.46	Spike	P	0 - 30
1917511	Linuron	4.42	Spike	P	0 - 30
1917511	MCCP	5.06	Spike	P	0 - 30
1917511	Primidone	17.7	Spike	P	0 - 30
1917511	Triclopyr	2.62	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: 1917390
Field Sample ID: G5SW0001

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	Sucralose-d6	65.9	P	40 - 160
USGS O-2060-01	2,4-D-d3	114	P	40 - 160
USGS O-2060-01	Acetaminophen-d4	141	P	30 - 160
USGS O-2060-01	Carbamazepine-d10	105	P	30 - 160
USGS O-2060-01	Diuron-d6	89.7	P	30 - 160

Quality Assurance Report Surrogates

Lab Sample ID: 1917390
 Field Sample ID: G5SW0001

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
USGS O-2060-01	Primidone-d5	81.2	P	30 - 160

Lab Sample ID: 1917391
 Field Sample ID: G5SW0140

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	Sucralose-d6	114	P	40 - 160
USGS O-2060-01	2,4-D-d3	106	P	40 - 160
USGS O-2060-01	Acetaminophen-d4	143	P	30 - 160
USGS O-2060-01	Carbamazepine-d10	99.1	P	30 - 160
USGS O-2060-01	Diuron-d6	74.4	P	30 - 160
USGS O-2060-01	Primidone-d5	94.5	P	30 - 160

Lab Sample ID: 1917392
 Field Sample ID: G5SW0132

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	Sucralose-d6	116	P	40 - 160
USGS O-2060-01	Acetaminophen-d4	145	P	30 - 160
USGS O-2060-01	Carbamazepine-d10	112	P	30 - 160
USGS O-2060-01	Diuron-d6	93.0	P	30 - 160
USGS O-2060-01	Primidone-d5	130	P	30 - 160

Lab Sample ID: 1917393
 Field Sample ID: G5SW0133

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	Sucralose-d6	107	P	40 - 160
USGS O-2060-01	2,4-D-d3	113	P	40 - 160
USGS O-2060-01	Acetaminophen-d4	156	P	30 - 160
USGS O-2060-01	Carbamazepine-d10	114	P	30 - 160
USGS O-2060-01	Diuron-d6	87.6	P	30 - 160
USGS O-2060-01	Primidone-d5	91.3	P	30 - 160

Quality Assurance Report Calibration Verification

Reference Method: USGS O-2060-01
 Run ID: A78239
 Included Lab Sample IDs: 1917390, 1917391, 1917392, 1917393

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
2,4-D	63.0	83.9	P/P	50 - 150
2,4-D	83.9	60.2	P/P	50 - 150
Acetaminophen	138	140	P/P	60 - 150
Acetaminophen	140	127	P/P	60 - 150
Bentazon	98.9	118	P/P	50 - 150
Carbamazepine	136	150	P/P	60 - 150
Carbamazepine	150	138	P/P	60 - 150
Diuron	131	145	P/P	60 - 150
Diuron	145	115	P/P	60 - 150

Quality Assurance Report Calibration Verification

Reference Method: USGS O-2060-01

Run ID: A78239

Included Lab Sample IDs: 1917390, 1917391, 1917392, 1917393

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fenuron	129	134	P/P	60 - 150
Fenuron	134	105	P/P	60 - 150
Fluridone	110	110	P/P	60 - 160
Fluridone	97.4	110	P/P	60 - 160
Imidacloprid	118	126	P/P	60 - 150
Imidacloprid	126	121	P/P	60 - 150
Linuron	118	133	P/P	60 - 150
Linuron	133	105	P/P	60 - 150
MCPPP	92.5	93.2	P/P	50 - 150
MCPPP	93.2	81.6	P/P	50 - 150
Primidone	105	73.8	P/P	60 - 150
Primidone	73.8	72.8	P/P	60 - 150
Triclopyr	75.1	73.6	P/P	50 - 150
Triclopyr	94.3	75.1	P/P	50 - 150

Reference Method: EPA 8321B

Run ID: A78247

Included Lab Sample IDs: 1917390, 1917391, 1917392, 1917393

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Sucralose	115	76.8	P/P	60 - 160

Reference Method: USGS O-2060-01

Run ID: A78269

Included Lab Sample IDs: 1917392, 1917393

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
2,4-D	109	108	P/P	50 - 150
Bentazon	135	113	P/P	50 - 150
Diuron	90.1	99.5	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	85.0	103	92.6		5.37
USGS O-2060-01	2,4-D	69.0	105	90.3		12.9
	Acetaminophen	58.6	126	108		15.8
	Bentazon	88.1				2.20
	Carbamazepine	130	107	80.9		27.9
	Diuron	99.8	64.9	59.2		8.16
	Fenuron	113	60.9	48.1		23.4
	Fluridone	89.3	47.3	41.3		11.6
	Imidacloprid	112	162	169		3.46
	Linuron	92.3	75.2	78.6		4.42

Quality Assurance Report
Summary

Ref. Method	Analyte	LCS % Recovery	MS % Recovery		Precision LCS	SMP	MS
USGS O-2060-01	MCP	72.8	107	102			5.06
	Primidone	80.7	56.6	47.4			17.7
	Triclopyr	64.7	92.7	95.2			2.62

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 8321B / E31780	Water soluble organic compounds by HPLC/MS/MS	1917390, 1917391, 1917392, 1917393
USGS O-2060-01 / E31780	Chlorinated (phenoxy acid) herbicides in water matrices by HPLC/MS/MS	1917390, 1917391, 1917392, 1917393
USGS O-2060-01 / E31780	Urea herbicides and other chemicals in water matrices by HPLC/MS/MS	1917390, 1917391, 1917392, 1917393

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
EPA 8321B	07/28/2017	08/04/2017	Julie Michelle Frank	08/04/2017	Mohammad Ghaffari	1917390, 1917391, 1917392, 1917393
USGS O-2060-01	07/28/2017	08/02/2017	Fe-Val Siddell	08/05/2017	Juyoung Kim	1917390, 1917391, 1917392, 1917393
	07/28/2017	08/02/2017	Fe-Val Siddell	08/07/2017	Juyoung Kim	1917392