

Chemical Analysis Report

WQAP-2017-05-24-04

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

Event Description: **Pinellas LR3**
Request ID: **RQ-2017-05-22-21**
Customer: **WQAP**
Project ID: **SMP**

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

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Certified by: Colin Wright, Program Administrator

Date Certified: 08-JUN-2017 10:28

A handwritten signature in black ink, appearing to read "Colin Wright", is placed over 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: BISHOP CREEK

Collection Date/Time: 05/23/2017 11:28

Field ID: G1SW0061

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1901187	EPA 8321B	Sucralose**	0.059		ug/L	P325694	
	USGS O-2060-01	2,4-D	0.0053		ug/L	P325789	
		Diuron	0.0042		ug/L	P325789	
		Fenuron	0.0041	I	ug/L	P325789	
		Imidacloprid	0.060		ug/L	P325789	
		Bentazon	0.011		ug/L	P325789	MS
		Linuron	0.0040	U	ug/L	P325789	
		Acetaminophen**	0.0080	U	ug/L	P325789	
		MCP	0.0020	U	ug/L	P325789	
		Carbamazepine**	4.0E-04	U	ug/L	P325789	
		Triclopyr**	0.0040	U	ug/L	P325789	
		Primidone**	0.0040	U	ug/L	P325789	
		Fluridone**	0.012		ug/L	P325789	

Sample Location: ALLIGATOR CREEK

Collection Date/Time: 05/23/2017 14:04

Field ID: G1SW0057

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1901188	EPA 8321B	Sucralose**	1.1		ug/L	P325694	
	USGS O-2060-01	2,4-D	0.17		ug/L	P325789	
		Diuron	0.0082		ug/L	P325789	
		Fenuron	0.0040	U	ug/L	P325789	
		Imidacloprid	0.045		ug/L	P325789	
		Bentazon	0.0051		ug/L	P325789	MS
		Linuron	0.0040	U	ug/L	P325789	
		Acetaminophen**	0.0080	U	ug/L	P325789	
		MCP	0.0043	I	ug/L	P325789	
		Carbamazepine**	0.0014	I	ug/L	P325789	
		Triclopyr**	0.0040	U	ug/L	P325789	
		Primidone**	0.0069	I	ug/L	P325789	
		Fluridone**	0.036		ug/L	P325789	

Quality Assurance Report Method Blank Results

Reference Method: EPA 8321B
Batch ID: P325694

Component	Result	Code	Units
Sucralose	0.010	U	ug/L

Reference Method: USGS O-2060-01
Batch ID: P325789

Component	Result	Code	Units
2,4-D	8.0E-04	U	ug/L
Acetaminophen	0.0080	U	ug/L

Quality Assurance Report Method Blank Results

Reference Method: USGS O-2060-01
Batch ID: P325789

Component	Result	Code	Units
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
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: P325694

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Sucralose	76.7		P	40 - 140

Reference Method: USGS O-2060-01
Batch ID: P325789

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2,4-D	66.6		P	40 - 140
Acetaminophen	48.4		P	40 - 140
Bentazon	63.2		P	40 - 140
Carbamazepine	92.2		P	40 - 140
Diuron	89.0		P	40 - 140
Fenuron	88.8		P	40 - 140
Fluridone	85.0		P	40 - 140
Imidacloprid	77.0		P	40 - 160
Linuron	74.6		P	40 - 140
MCPP	81.2		P	40 - 140
Primidone	78.6		P	40 - 140
Triclopyr	77.4		P	40 - 140

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 8321B
Batch ID: P325694

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1900888	Sucralose	99.0	68.0	P/P	40 - 140

Reference Method: USGS O-2060-01
Batch ID: P325789

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1900995	2,4-D	71.4	63.8	P/P	40 - 140

Quality Assurance Report Matrix Spike Accuracy

Reference Method: USGS O-2060-01
Batch ID: P325789

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1900995	Acetaminophen	79.2	75.4	P/P	40 - 140
1900995	Bentazon	31.4	28.0	F/F	40 - 140
1900995	Carbamazepine	69.6	62.2	P/P	40 - 140
1900995	Diuron	57.8	52.0	P/P	40 - 140
1900995	Fenuron	49.4	67.6	P/P	40 - 140
1900995	Fluridone	75.0	65.6	P/P	40 - 140
1900995	Imidacloprid	120	111	P/P	40 - 160
1900995	Linuron	77.0	70.4	P/P	40 - 140
1900995	MCP	64.0	54.2	P/P	40 - 140
1900995	Primidone	64.2	62.4	P/P	40 - 140
1900995	Triclopyr	67.4	63.2	P/P	40 - 140

Quality Assurance Report Precision

Reference Method: EPA 8321B
Batch ID: P325694

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1900888	Sucralose	3.15	Spike	P	0 - 30

Reference Method: USGS O-2060-01
Batch ID: P325789

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1900995	2,4-D	10.5	Spike	P	0 - 30
1900995	Acetaminophen	4.92	Spike	P	0 - 30
1900995	Bentazon	11.4	Spike	P	0 - 30
1900995	Carbamazepine	11.2	Spike	P	0 - 30
1900995	Diuron	10.6	Spike	P	0 - 30
1900995	Fenuron	23.4	Spike	P	0 - 30
1900995	Fluridone	13.4	Spike	P	0 - 30
1900995	Imidacloprid	7.63	Spike	P	0 - 30
1900995	Linuron	8.96	Spike	P	0 - 30
1900995	MCP	16.6	Spike	P	0 - 30
1900995	Primidone	2.84	Spike	P	0 - 30
1900995	Triclopyr	6.43	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: 1901187
Field Sample ID: G1SW0061

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	Sucralose-d6	87.0	P	40 - 150

Quality Assurance Report Surrogates

Lab Sample ID: 1901187
Field Sample ID: G1SW0061

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
USGS O-2060-01	2,4-D-d3	67.7	P	30 - 150
USGS O-2060-01	Acetaminophen-d4	106	P	30 - 150
USGS O-2060-01	Carbamazepine-d10	75.7	P	30 - 160
USGS O-2060-01	Diuron-d6	55.0	P	30 - 160
USGS O-2060-01	Primidone-d5	87.2	P	30 - 150

Lab Sample ID: 1901188
Field Sample ID: G1SW0057

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	Sucralose-d6	75.5	P	40 - 150
USGS O-2060-01	2,4-D-d3	75.9	P	30 - 150
USGS O-2060-01	Acetaminophen-d4	112	P	30 - 150
USGS O-2060-01	Carbamazepine-d10	77.9	P	30 - 160
USGS O-2060-01	Diuron-d6	61.9	P	30 - 160
USGS O-2060-01	Primidone-d5	92.6	P	30 - 150

Quality Assurance Report Calibration Verification

Reference Method: EPA 8321B
Run ID: A76745
Included Lab Sample IDs: 1901187, 1901188

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Sucralose	110	79.5	P/P	60 - 150
Sucralose	66.4	61.5	P/P	60 - 150

Reference Method: USGS O-2060-01
Run ID: A76863
Included Lab Sample IDs: 1901187, 1901188

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
2,4-D	84.8	84.8	P/P	50 - 150
2,4-D	87.2	84.8	P/P	50 - 150
Acetaminophen	104	96.8	P/P	60 - 150
Acetaminophen	85.6	104	P/P	60 - 150
Bentazon	101	112	P/P	50 - 150
Bentazon	112	111	P/P	50 - 150
Carbamazepine	102	105	P/P	60 - 150
Carbamazepine	105	107	P/P	60 - 150
Diuron	96.8	98.4	P/P	60 - 150
Diuron	98.4	97.6	P/P	60 - 150
Fenuron	112	110	P/P	60 - 150
Fenuron	99.2	112	P/P	60 - 150
Fluridone	112	108	P/P	60 - 160
Fluridone	113	112	P/P	60 - 160
Imidacloprid	94.4	96.4	P/P	60 - 150
Imidacloprid	96.4	93.2	P/P	60 - 150
Linuron	88.4	100	P/P	60 - 150
Linuron	96.4	88.4	P/P	60 - 150

Quality Assurance Report Calibration Verification

Reference Method: USGS O-2060-01

Run ID: A76863

Included Lab Sample IDs: 1901187, 1901188

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
MCP	90.4	94.0	P/P	50 - 150
MCP	94.0	95.2	P/P	50 - 150
Primidone	89.2	95.2	P/P	60 - 150
Primidone	95.2	98.4	P/P	60 - 150
Triclopyr	92.4	95.6	P/P	50 - 150
Triclopyr	95.6	94.8	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	76.7	99.0 68.0			3.15
USGS O-2060-01	2,4-D	66.6	71.4 63.8			10.5
	Acetaminophen	48.4	79.2 75.4			4.92
	Bentazon	63.2	31.4 28.0			11.4
	Carbamazepine	92.2	69.6 62.2			11.2
	Diuron	89.0	57.8 52.0			10.6
	Fenuron	88.8	49.4 67.6			23.4
	Fluridone	85.0	75.0 65.6			13.4
	Imidacloprid	77.0	120 111			7.63
	Linuron	74.6	77.0 70.4			8.96
	MCP	81.2	64.0 54.2			16.6
	Primidone	78.6	64.2 62.4			2.84
	Triclopyr	77.4	67.4 63.2			6.43

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 8321B / E31780	Water soluble organic compounds by HPLC/MS/MS	1901187, 1901188
USGS O-2060-01 / E31780	Chlorinated (phenoxy acid) herbicides in water matrices by HPLC/MS/MS	1901187, 1901188
USGS O-2060-01 / E31780	Urea herbicides and other chemicals in water matrices by HPLC/MS/MS	1901187, 1901188

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
EPA 8321B	05/24/2017	05/27/2017	Mohammad Ghaffari	05/27/2017	Mohammad Ghaffari	1901188
	05/24/2017	05/27/2017	Mohammad Ghaffari	05/28/2017	Mohammad Ghaffari	1901187
USGS O-2060-01	05/24/2017	05/30/2017	Hoor Shaik	05/31/2017	Juyoung Kim	1901187, 1901188