

Chemical Analysis Report

SW-DIST-2018-06-07-02

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

Event Description: **Pinellas LR3- Bishop Creek**
Request ID: **RQ-2018-06-04-07**
Customer: **SW-DIST**
Project ID: **SMP**

Send Reports to:
FL Dept. of Environmental Protection
FL Dept. of Environmental Protection
13051 N. Telecom Parkway
Temple Terrace, FL 33637-0926
Attn: Judy Ashton

For additional information please contact
Colin Wright, Ph.D.
Liang-Tsair Lin, Ph.D.
Kerry Tate, Ph.D.
Dr. rer. nat. Bettina Steinbock
Thekkekalathil Chandrasekhar, Ph.D, QA Officer
Phone (850) 245-8085

Certified by: Kerry Tate, Ph.D., Environmental Administrator

Date Certified: 21-JUN-2018 13:50

A handwritten signature in black ink that reads "Kerry Tate". The signature is written in a cursive, flowing style with a horizontal line above the first name.

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 Crk @ Oakcrest Dr

Collection Date/Time: 06/06/2018 13:05

Field ID: G1SW0063

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1998585	EPA 8321B	2,4-D	0.012		ug/L	P346521	
		Bentazon	0.023		ug/L	P346521	
		MCP	0.0062	I	ug/L	P346521	
		Triclopyr**	0.0040	U	ug/L	P346521	
		Imidacloprid	0.13		ug/L	P346521	
		Diuron	0.0020	U	ug/L	P346521	
		Pyraclostrobin**	0.0020	U	ug/L	P346521	MS, RPD
		Primidone**	0.0040	U	ug/L	P346521	
		Linuron	0.0040	U	ug/L	P346521	
		Acetaminophen**	0.0080	U	ug/L	P346521	
		Fenuron	0.016	U	ug/L	P346521	
		Imazapyr**	0.19		ug/L	P346521	
		Carbamazepine**	4.0E-04	U	ug/L	P346521	
		Fluridone**	0.79		ug/L	P346521	
		Hydrocodone**	8.0E-04	U	ug/L	P346521	
		Sucralose**	0.22		ug/L	P346523	

Ref. Method and Comment:

EPA 8321B: MS accuracy for imazapyr and fluridone could not be assessed due to high concentration of parameter in the spiked sample.

Sample Location: Bishop Crk @ Harbor Lakes Dr

Collection Date/Time: 06/06/2018 12:36

Field ID: G1SW0061

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1998586	EPA 8321B	2,4-D	0.0020	U	ug/L	P346521	
		Bentazon	0.030		ug/L	P346521	
		MCP	0.0020	U	ug/L	P346521	
		Triclopyr**	0.0040	U	ug/L	P346521	
		Imidacloprid	0.044		ug/L	P346521	
		Diuron	0.0010	U	ug/L	P346521	
		Pyraclostrobin**	0.0020	U	ug/L	P346521	MS, RPD
		Primidone**	0.0040	U	ug/L	P346521	
		Linuron	0.0040	U	ug/L	P346521	
		Acetaminophen**	0.0080	U	ug/L	P346521	
		Fenuron	0.016	U	ug/L	P346521	
		Imazapyr**	0.31		ug/L	P346521	
		Carbamazepine**	4.0E-04	U	ug/L	P346521	
		Fluridone**	0.060		ug/L	P346521	
		Hydrocodone**	8.0E-04	U	ug/L	P346521	
		Sucralose**	0.010	U	ug/L	P346523	

Ref. Method and Comment:

EPA 8321B: MS accuracy for imazapyr and fluridone 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: P346521

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	0.0020	U	ug/L
Fenuron	0.016	U	ug/L
Fluridone	4.0E-04	U	ug/L
Hydrocodone	8.0E-04	U	ug/L
Imazapyr	0.0040	U	ug/L
Imidacloprid	0.0020	U	ug/L
Linuron	0.0040	U	ug/L
MCPP	0.0020	U	ug/L
Primidone	0.0040	U	ug/L
Pyraclostrobin	0.0020	U	ug/L
Triclopyr	0.0040	U	ug/L

Reference Method: EPA 8321B
Batch ID: P346523

Component	Result	Code	Units
Sucralose	0.010	U	ug/L

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 8321B
Batch ID: P346521

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2,4-D	82.4		P	40 - 150
Acetaminophen	101		P	30 - 150
Bentazon	87.4		P	30 - 150
Carbamazepine	113		P	40 - 150
Diuron	85.2		P	40 - 150
Fenuron	104		P	40 - 150
Fluridone	92.0		P	40 - 150
Hydrocodone	95.0		P	40 - 150
Imazapyr	83.8		P	40 - 150
Imidacloprid	119		P	40 - 160
Linuron	83.4		P	40 - 150
MCPP	94.8		P	40 - 150
Primidone	111		P	40 - 150
Pyraclostrobin	99.5		P	40 - 150
Triclopyr	94.9		P	40 - 150

Reference Method: EPA 8321B
Batch ID: P346523

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Sucralose	122		P	40 - 150

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 8321B
Batch ID: P346521

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1998488	Acetaminophen	93.5	82.9	P/P	30 - 150
1998488	Carbamazepine	61.8	55.7	P/P	40 - 150
1998488	Diuron	56.7	47.1	P/P	40 - 150
1998488	Fenuron	63.7	58.6	P/P	40 - 150
1998488	Hydrocodone	75.6	65.0	P/P	40 - 150
1998488	Imidacloprid	116	99.1	P/P	40 - 160
1998488	Linuron	59.1	46.1	P/P	40 - 150
1998488	Primidone	81.1	75.2	P/P	40 - 150
1998488	Pyraclostrobin	75.9	22.5	P/F	40 - 150
1998568	2,4-D	115	114	P/P	40 - 150
1998568	Bentazon	30.3	30.9	P/P	30 - 150
1998568	MCP	123	133	P/P	40 - 150
1998568	Triclopyr	145	127	P/P	40 - 150

Reference Method: EPA 8321B
Batch ID: P346523

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1998282	Sucralose	88.3	117	P/P	40 - 150

Quality Assurance Report Precision

Reference Method: EPA 8321B
Batch ID: P346521

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1998488	Acetaminophen	11.9	Spike	P	0 - 30
1998488	Carbamazepine	10.2	Spike	P	0 - 30
1998488	Diuron	18.5	Spike	P	0 - 30
1998488	Fenuron	8.41	Spike	P	0 - 30
1998488	Fluridone	5.70	Spike	P	0 - 30
1998488	Hydrocodone	15.1	Spike	P	0 - 30
1998488	Imazapyr	10.3	Spike	P	0 - 30
1998488	Imidacloprid	10.8	Spike	P	0 - 30
1998488	Linuron	24.8	Spike	P	0 - 30
1998488	Primidone	7.54	Spike	P	0 - 30
1998488	Pyraclostrobin	109	Spike	F	0 - 30
1998568	2,4-D	0.678	Spike	P	0 - 30
1998568	Bentazon	1.82	Spike	P	0 - 30
1998568	MCP	7.80	Spike	P	0 - 30
1998568	Triclopyr	13.5	Spike	P	0 - 30

Reference Method: EPA 8321B
Batch ID: P346523

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1998282	Sucralose	26.1	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: 1998585

Field Sample ID: G1SW0063

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	2,4-D-d3	130	P	30 - 160
EPA 8321B	Acetaminophen-d4	126	P	30 - 160
EPA 8321B	Carbamazepine-d10	71.2	P	30 - 160
EPA 8321B	Diuron-d6	48.5	P	30 - 160
EPA 8321B	Primidone-d5	94.3	P	30 - 160
EPA 8321B	Sucralose-d6	77.7	P	40 - 160

Lab Sample ID: 1998586

Field Sample ID: G1SW0061

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	2,4-D-d3	120	P	30 - 160
EPA 8321B	Acetaminophen-d4	114	P	30 - 160
EPA 8321B	Carbamazepine-d10	58.5	P	30 - 160
EPA 8321B	Diuron-d6	49.9	P	30 - 160
EPA 8321B	Primidone-d5	81.8	P	30 - 160
EPA 8321B	Sucralose-d6	89.5	P	40 - 160

Quality Assurance Report Calibration Verification

Reference Method: EPA 8321B

Run ID: A84488

Included Lab Sample IDs: 1998585, 1998586

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
2,4-D	89.6	99.6	P/P	50 - 150
Bentazon	111	112	P/P	50 - 150
MCPP	96.9	95.1	P/P	50 - 150
Triclopyr	85.8	107	P/P	50 - 160

Reference Method: EPA 8321B

Run ID: A84524

Included Lab Sample IDs: 1998585, 1998586

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Acetaminophen	109	107	P/P	60 - 150
Carbamazepine	111	105	P/P	60 - 150
Diuron	111	98.6	P/P	60 - 150
Fenuron	98.7	101	P/P	60 - 150
Fluridone	126	116	P/P	60 - 160
Hydrocodone	106	110	P/P	60 - 150
Imazapyr	101	94.1	P/P	50 - 150
Imidacloprid	92.5	94.4	P/P	60 - 150
Linuron	104	101	P/P	60 - 150
Primidone	102	94.2	P/P	60 - 150
Pyraclostrobin	101	103	P/P	60 - 150

Reference Method: EPA 8321B

Run ID: A84525

Included Lab Sample IDs: 1998585, 1998586

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Sucralose	89.3	95.5	P/P	60 - 160

* 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		Precision SMP	MS
			LCS			
EPA 8321B	2,4-D	82.4	115	114		0.678
	Acetaminophen	101	93.5	82.9		11.9
	Bentazon	87.4	30.3	30.9		1.82
	Carbamazepine	113	61.8	55.7		10.2
	Diuron	85.2	56.7	47.1		18.5
	Fenuron	104	63.7	58.6		8.41
	Fluridone	92.0				5.70
	Hydrocodone	95.0	75.6	65.0		15.1
	Imazapyr	83.8				10.3
	Imidacloprid	119	116	99.1		10.8
	Linuron	83.4	59.1	46.1		24.8
	MCP	94.8	123	133		7.80
	Primidone	111	81.1	75.2		7.54
	Pyraclostrobin	99.5	75.9	22.5		109
	Sucralose	122	88.3	117		26.1
	Triclopyr	94.9	145	127		13.5

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 8321B / E31780	Pesticides, herbicides, and other chemicals in water matrices by HPLC/MS/MS	1998585, 1998586

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
EPA 8321B	06/07/2018	06/07/2018 13:00	Hoor Shaik	06/08/2018 11:13	Mohammad Ghaffari	1998585
	06/07/2018	06/07/2018 13:00	Hoor Shaik	06/08/2018 11:31	Mohammad Ghaffari	1998586
	06/07/2018	06/08/2018 12:00	Hoor Shaik	06/12/2018 07:26	Juyoung Kim	1998585
	06/07/2018	06/08/2018 12:00	Hoor Shaik	06/12/2018 08:01	Juyoung Kim	1998586
	06/07/2018	06/08/2018 12:00	Hoor Shaik	06/12/2018 10:19	Juyoung Kim	1998585
	06/07/2018	06/08/2018 12:00	Hoor Shaik	06/13/2018 17:49	Juyoung Kim	1998585
	06/07/2018	06/08/2018 12:00	Hoor Shaik	06/13/2018 18:24	Juyoung Kim	1998586