

Chemical Analysis Report

SW-DIST-2019-05-07-01

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

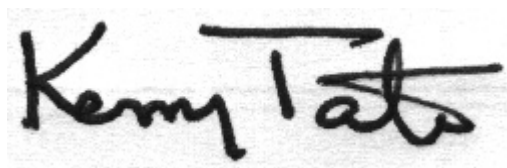
Event Description: **Bishop Creek-Pinellas Sites 12-04, 12-02**
Request ID: **RQ-2019-05-06-06**
Customer: **SW-DIST**
Project ID: **SMP**

Send Reports to:
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Certified by: Kerry Tate, Ph.D., Environmental Administrator

Date Certified: 22-MAY-2019 10:29

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 "T" and a long horizontal stroke 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 by the Florida Department of Health Environmental Laboratory Certification Program 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 @ HARBOR LAKES

Collection Date/Time: 05/06/2019 10:02

Field ID: G1SW0061

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2083598	EPA 8321B	2,4-D	0.032		ug/L	P363505	
		Acesulfame K**	0.10	U	ug/L	P363636	
		AMPA**	0.60		ug/L	P363636	
		Sucralose**	0.068		ug/L	P363636	
		Acetaminophen**	0.0080	U	ug/L	P363505	
		Endothall**	0.25	U	ug/L	P363636	
		Glufosinate**	0.10	U	ug/L	P363636	
		Bentazon	0.090		ug/L	P363505	
		Glyphosate**	1.2		ug/L	P363636	
		Carbamazepine**	8.0E-04	U	ug/L	P363505	
		Diuron	0.022		ug/L	P363505	
		Fenuron	0.016	U	ug/L	P363505	
		Fluridone**	0.049		ug/L	P363505	
		Imazapyr**	0.078		ug/L	P363505	
		Hydrocodone**	0.0020	U	ug/L	P363505	
		Ibuprofen**	0.020	U	ug/L	P363505	
		Imidacloprid	0.18		ug/L	P363505	
		Linuron	0.0040	U	ug/L	P363505	
		MCPP	0.0096		ug/L	P363505	
		Naproxen**	0.0080	U	ug/L	P363505	
		Primidone**	0.0040	U	ug/L	P363505	
		Pyraclostrobin**	0.0020	U	ug/L	P363505	
		Triclopyr**	0.0040	U	ug/L	P363505	

Sample Location: BISHOP CRK @ OAKCREST DR.

Collection Date/Time: 05/06/2019 10:38

Field ID: G1SW0063

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2083599	EPA 8321B	2,4-D	0.035		ug/L	P363505	
		Acesulfame K**	0.10	U	ug/L	P363636	
		AMPA**	0.69		ug/L	P363636	
		Sucralose**	0.93		ug/L	P363636	
		Acetaminophen**	0.0080	U	ug/L	P363505	
		Endothall**	0.25	U	ug/L	P363636	
		Glufosinate**	0.10	U	ug/L	P363636	
		Bentazon	0.058		ug/L	P363505	
		Glyphosate**	2.2		ug/L	P363636	
		Carbamazepine**	0.0012	I	ug/L	P363505	
		Diuron	0.0030	I	ug/L	P363505	
		Fenuron	0.016	U	ug/L	P363505	
		Fluridone**	0.49		ug/L	P363505	
		Imazapyr**	0.31		ug/L	P363505	
		Hydrocodone**	0.0020	U	ug/L	P363505	
		Ibuprofen**	0.020	U	ug/L	P363505	
		Imidacloprid	0.20		ug/L	P363505	
		Linuron	0.0040	U	ug/L	P363505	
		MCPP	0.0091		ug/L	P363505	
		Naproxen**	0.0080	U	ug/L	P363505	
		Primidone**	0.0040	U	ug/L	P363505	
		Pyraclostrobin**	0.0020	U	ug/L	P363505	
		Triclopyr**	0.0040	U	ug/L	P363505	

Quality Assurance Report

Method Blank Results

Reference Method: EPA 8321B
Batch ID: P363505

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	8.0E-04	U	ug/L
Diuron	0.0020	U	ug/L
Fenuron	0.016	U	ug/L
Fluridone	8.0E-04	U	ug/L
Hydrocodone	0.0020	U	ug/L
Ibuprofen	0.020	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
Naproxen	0.0080	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: P363636

Component	Result	Code	Units
Acesulfame K	0.10	U	ug/L
AMPA	0.10	U	ug/L
Endothall	0.25	U	ug/L
Glufosinate	0.10	U	ug/L
Glyphosate	0.10	U	ug/L
Sucralose	0.010	U	ug/L

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 8321B
Batch ID: P363505

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2,4-D	89.6		P	40 - 150
Acetaminophen	92.9		P	30 - 150
Bentazon	106		P	30 - 150
Carbamazepine	92.2		P	40 - 150
Diuron	90.4		P	40 - 150
Fenuron	102		P	40 - 150
Fluridone	95.3		P	40 - 150
Hydrocodone	96.5		P	40 - 150
Ibuprofen	82.0		P	40 - 150
Imazapyr	93.1		P	40 - 150
Imidacloprid	96.7		P	40 - 150
Linuron	73.3		P	40 - 150
MCPP	94.5		P	40 - 150
Naproxen	81.0		P	40 - 150
Primidone	90.8		P	40 - 150
Pyraclostrobin	74.1		P	40 - 150
Triclopyr	58.2		P	40 - 150

Reference Method: EPA 8321B
Batch ID: P363636

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Acesulfame K	114		P	40 - 150
AMPA	94.2		P	40 - 150
Endothall	105		P	40 - 150
Glufosinate	110		P	40 - 150
Glyphosate	116		P	40 - 140
Sucralose	101		P	40 - 150

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 8321B
Batch ID: P363505

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2083598	2,4-D	98.5	111	P/P	40 - 150
2083598	Acetaminophen	80.4	84.2	P/P	30 - 150
2083598	Bentazon	47.6	47.5	P/P	30 - 150
2083598	Carbamazepine	67.0	66.1	P/P	40 - 150
2083598	Diuron	57.1	58.7	P/P	40 - 150
2083598	Fenuron	73.8	73.6	P/P	40 - 150
2083598	Fluridone	64.3	70.7	P/P	40 - 150
2083598	Hydrocodone	81.2	84.0	P/P	40 - 150
2083598	Ibuprofen	65.2	68.1	P/P	40 - 150
2083598	Imazapyr	120	110	P/P	40 - 150
2083598	Imidacloprid	103	101	P/P	40 - 150
2083598	Linuron	47.2	50.2	P/P	40 - 150
2083598	MCP	130	130	P/P	40 - 150
2083598	Naproxen	78.5	82.8	P/P	40 - 150
2083598	Primidone	88.4	89.5	P/P	40 - 150
2083598	Pyraclostrobin	83.9	85.6	P/P	40 - 150
2083598	Triclopyr	72.9	85.5	P/P	40 - 150

Reference Method: EPA 8321B
Batch ID: P363636

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2083598	Acesulfame K	78.8	97.1	P/P	40 - 150
2083598	AMPA	45.4	40.4	P/P	40 - 150
2083598	Endothall	91.8	94.5	P/P	40 - 150
2083598	Glufosinate	70.8	68.1	P/P	40 - 150
2083598	Glyphosate	96.5	86.6	P/P	40 - 140
2083598	Sucralose	103	102	P/P	40 - 150

Quality Assurance Report Precision

Reference Method: EPA 8321B
Batch ID: P363505

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2083598	2,4-D	8.42	Spike	P	0 - 30
2083598	Acetaminophen	4.59	Spike	P	0 - 30
2083598	Bentazon	0.00936	Spike	P	0 - 30
2083598	Carbamazepine	1.36	Spike	P	0 - 30
2083598	Diuron	1.87	Spike	P	0 - 30
2083598	Fenuron	0.363	Spike	P	0 - 30
2083598	Fluridone	2.04	Spike	P	0 - 30
2083598	Hydrocodone	3.40	Spike	P	0 - 30
2083598	Ibuprofen	4.39	Spike	P	0 - 30
2083598	Imazapyr	4.74	Spike	P	0 - 30
2083598	Imidacloprid	0.639	Spike	P	0 - 30
2083598	Linuron	6.12	Spike	P	0 - 30
2083598	MCPP	0.285	Spike	P	0 - 30
2083598	Naproxen	5.43	Spike	P	0 - 30
2083598	Primidone	1.21	Spike	P	0 - 30
2083598	Pyraclostrobin	2.00	Spike	P	0 - 30
2083598	Triclopyr	16.0	Spike	P	0 - 30

Reference Method: EPA 8321B
Batch ID: P363636

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2083598	Acesulfame K	20.8	Spike	P	0 - 30
2083598	AMPA	4.87	Spike	P	0 - 30
2083598	Endothall	2.81	Spike	P	0 - 30
2083598	Glufosinate	3.82	Spike	P	0 - 30
2083598	Glyphosate	4.74	Spike	P	0 - 30
2083598	Sucralose	0.535	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: 2083598
Field Sample ID: G1SW0061

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	2,4-D-d3	123	P	30 - 160
EPA 8321B	Acetaminophen-d4	106	P	30 - 160
EPA 8321B	Carbamazepine-d10	73.2	P	30 - 160
EPA 8321B	Diuron-d6	64.5	P	30 - 160
EPA 8321B	Endothall-d6	95.4	P	30 - 160
EPA 8321B	Endothall-d6	95.4	P	30 - 160
EPA 8321B	Glyphosate 13C 15N	90.3	P	30 - 160
EPA 8321B	Glyphosate 13C 15N	90.3	P	30 - 160
EPA 8321B	Ibuprofen-d3	85.4	P	30 - 160
EPA 8321B	Primidone-d5	97.5	P	30 - 160
EPA 8321B	Sucralose-d6	112	P	30 - 160
EPA 8321B	Sucralose-d6	112	P	30 - 160

Lab Sample ID: 2083599
Field Sample ID: G1SW0063

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	2,4-D-d3	115	P	30 - 160
EPA 8321B	Acetaminophen-d4	96.6	P	30 - 160
EPA 8321B	Carbamazepine-d10	67.9	P	30 - 160
EPA 8321B	Diuron-d6	61.1	P	30 - 160
EPA 8321B	Endothall-d6	94.3	P	30 - 160
EPA 8321B	Endothall-d6	94.3	P	30 - 160
EPA 8321B	Glyphosate 13C 15N	93.8	P	30 - 160
EPA 8321B	Glyphosate 13C 15N	93.8	P	30 - 160
EPA 8321B	Ibuprofen-d3	78.1	P	30 - 160
EPA 8321B	Primidone-d5	86.2	P	30 - 160
EPA 8321B	Sucralose-d6	107	P	30 - 160
EPA 8321B	Sucralose-d6	107	P	30 - 160

Quality Assurance Report Calibration Verification

Reference Method: EPA 8321B

Run ID: A91347

Included Lab Sample IDs: 2083598, 2083599

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Acesulfame K	115	63.3	P/P	60 - 160
Acesulfame K	63.3	121	P/P	60 - 160
Endothall	101	110	P/P	60 - 160
Endothall	110	109	P/P	60 - 160

Reference Method: EPA 8321B

Run ID: A91381

Included Lab Sample IDs: 2083598, 2083599

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Sucralose	108	111	P/P	60 - 160
Sucralose	97.5	108	P/P	60 - 160

Reference Method: EPA 8321B

Run ID: A91409

Included Lab Sample IDs: 2083598, 2083599

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
AMPA	127	129	P/P	60 - 160
AMPA	129	115	P/P	60 - 160
Glufosinate	115	100	P/P	60 - 160
Glufosinate	122	115	P/P	60 - 160
Glyphosate	118	127	P/P	60 - 160
Glyphosate	127	112	P/P	60 - 160

Reference Method: EPA 8321B

Run ID: A91464

Included Lab Sample IDs: 2083598, 2083599

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
2,4-D	97.2	91.0	P/P	50 - 150
Acetaminophen	106	112	P/P	60 - 160
Bentazon	99.2	107	P/P	50 - 160
Carbamazepine	101	97.9	P/P	60 - 150
Diuron	96.9	100	P/P	60 - 150
Fenuron	103	103	P/P	60 - 150
Fluridone	106	107	P/P	60 - 160
Fluridone	107	102	P/P	60 - 160
Hydrocodone	100	101	P/P	60 - 150
Ibuprofen	111	113	P/P	50 - 160
Imazapyr	91.7	92.9	P/P	50 - 150
Imidacloprid	104	99.4	P/P	60 - 150
Linuron	91.8	91.3	P/P	60 - 150
MCP	95.0	93.6	P/P	50 - 150
Naproxen	103	114	P/P	50 - 160
Primidone	98.1	95.9	P/P	60 - 150
Pyraclostrobin	107	106	P/P	60 - 150
Triclopyr	96.0	101	P/P	50 - 150

Quality Assurance Report

Calibration Verification

* 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	89.6	98.5	111		8.42
	Acesulfame K	114	78.8	97.1		20.8
	Acetaminophen	92.9	80.4	84.2		4.59
	AMPA	94.2	45.4	40.4		4.87
	Bentazon	106	47.6	47.5		0.0093
	Carbamazepine	92.2	67.0	66.1		1.36
	Diuron	90.4	57.1	58.7		1.87
	Endothall	105	91.8	94.5		2.81
	Fenuron	102	73.8	73.6		0.363
	Fluridone	95.3	64.3	70.7		2.04
	Glufosinate	110	70.8	68.1		3.82
	Glyphosate	116	96.5	86.6		4.74
	Hydrocodone	96.5	81.2	84.0		3.40
	Ibuprofen	82.0	65.2	68.1		4.39
	Imazapyr	93.1	120	110		4.74
	Imidacloprid	96.7	103	101		0.639
	Linuron	73.3	47.2	50.2		6.12
	MCPP	94.5	130	130		0.285
	Naproxen	81.0	78.5	82.8		5.43
	Primidone	90.8	88.4	89.5		1.21
	Pyraclostrobin	74.1	83.9	85.6		2.00
	Sucralose	101	103	102		0.535
	Triclopyr	58.2	72.9	85.5		16.0

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 8321B / E31780	Pesticides, herbicides, and other chemicals in water matrices by HPLC/MS/MS	2083598, 2083599
EPA 8321B / E31780	Water soluble organic compounds by HPLC/MS/MS	2083598, 2083599

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
EPA 8321B	05/07/2019	05/09/2019 11:00	Rebecca Ware	05/09/2019 16:49	Rebecca Ware	2083598
	05/07/2019	05/09/2019 11:00	Rebecca Ware	05/09/2019 17:17	Rebecca Ware	2083599
	05/07/2019	05/09/2019 11:00	Rebecca Ware	05/11/2019 19:55	Rebecca Ware	2083598
	05/07/2019	05/09/2019 11:00	Rebecca Ware	05/11/2019 20:17	Rebecca Ware	2083599
	05/07/2019	05/09/2019 11:00	Rebecca Ware	05/12/2019 19:49	Rebecca Ware	2083598
	05/07/2019	05/09/2019 11:00	Rebecca Ware	05/12/2019 20:13	Rebecca Ware	2083599
	05/07/2019	05/09/2019 13:00	Hoor Shaik	05/17/2019 01:46	Juyoung Kim	2083598
	05/07/2019	05/09/2019 13:00	Hoor Shaik	05/17/2019 02:20	Juyoung Kim	2083599
	05/07/2019	05/09/2019 13:00	Hoor Shaik	05/17/2019 13:18	Juyoung Kim	2083599