

Chemical Analysis Report

SW-DIST-2019-04-09-03

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

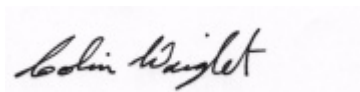
Event Description: **McKay Creek Pinellas Site# 27-11**
Request ID: **RQ-2019-04-08-07**
Customer: **SW-DIST**
Project ID: **SMP**

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: Colin Wright, Program Administrator

Date Certified: 23-APR-2019 10:48

A handwritten signature in black ink, appearing to read "Colin Wright", is displayed on a light-colored 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 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: Mckay Creek @ Bluff Dr. (pc27-11)

Collection Date/Time: 04/08/2019 11:38

Field ID: G5SW0145

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2076485	EPA 8321B	2,4-D	0.0020	U	ug/L	P361794	
		Acesulfame K**	0.18	I	ug/L	P361901	MS
		AMPA**	0.26	I	ug/L	P361901	
		Sucralose**	0.72		ug/L	P361901	
		Acetaminophen**	0.0080	U	ug/L	P361794	
		Endothall**	0.25	U	ug/L	P361901	
		Glufosinate**	0.10	U	ug/L	P361901	
		Bentazon	0.047		ug/L	P361794	
		Glyphosate**	0.36	I	ug/L	P361901	MS
		Carbamazepine**	9.6E-04	I	ug/L	P361794	
		Diuron	0.0020	U	ug/L	P361794	
		Fenuron	0.016	U	ug/L	P361794	
		Fluridone**	0.029		ug/L	P361794	
		Imazapyr**	0.013	I	ug/L	P361794	
		Hydrocodone**	0.0020	U	ug/L	P361794	
		Ibuprofen**	0.020	U	ug/L	P361794	
		Imidacloprid	0.0060	IJ	ug/L	P361794	MS
		Linuron	0.0040	U	ug/L	P361794	
		MCPP	0.0020	U	ug/L	P361794	
		Naproxen**	0.0080	U	ug/L	P361794	
		Primidone**	0.0040	U	ug/L	P361794	
		Pyraclostrobin**	0.0020	U	ug/L	P361794	
		Triclopyr**	0.0040	U	ug/L	P361794	

Ref. Method and Comment:

EPA 8321B: Refer to the narrative for an explanation of QC Codes.

Quality Assurance Report

Method Blank Results

Reference Method: EPA 8321B
Batch ID: P361794

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: P361901

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: P361794

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2,4-D	72.6		P	40 - 150
Acetaminophen	82.7		P	30 - 150
Bentazon	86.7		P	30 - 150
Carbamazepine	81.0		P	40 - 150
Diuron	69.9		P	40 - 150
Fenuron	96.3		P	40 - 150
Fluridone	99.0		P	40 - 150
Hydrocodone	79.3		P	40 - 150
Ibuprofen	99.9		P	40 - 150
Imazapyr	84.3		P	40 - 150
Imidacloprid	87.5		P	40 - 150
Linuron	74.6		P	40 - 150
MCPP	86.7		P	40 - 150
Naproxen	61.3		P	40 - 150
Primidone	72.0		P	40 - 150
Pyraclostrobin	61.2		P	40 - 150
Triclopyr	51.1		P	40 - 150

Reference Method: EPA 8321B

Batch ID: P361901

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Acesulfame K	117		P	40 - 150
AMPA	96.9		P	40 - 150
Endothall	113		P	40 - 150
Glufosinate	116		P	40 - 150
Glyphosate	83.8		P	40 - 140
Sucralose	108		P	40 - 150

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 8321B
Batch ID: P361794

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2076485	2,4-D	66.0	72.2	P/P	40 - 150
2076485	Acetaminophen	77.8	82.4	P/P	30 - 150
2076485	Bentazon	91.4	122	P/P	30 - 150
2076485	Carbamazepine	78.0	87.7	P/P	40 - 150
2076485	Diuron	60.8	68.5	P/P	40 - 150
2076485	Fenuron	104	104	P/P	40 - 150
2076485	Fluridone	134	110	P/P	40 - 150
2076485	Hydrocodone	91.3	92.9	P/P	40 - 150
2076485	Ibuprofen	70.6	61.8	P/P	40 - 150
2076485	Imazapyr	74.4	72.7	P/P	40 - 150
2076485	Imidacloprid	136	162	P/F	40 - 150
2076485	Linuron	74.2	58.7	P/P	40 - 150
2076485	MCP	92.8	105	P/P	40 - 150
2076485	Naproxen	57.9	69.1	P/P	40 - 150
2076485	Primidone	71.7	63.1	P/P	40 - 150
2076485	Pyraclostrobin	76.2	98.0	P/P	40 - 150
2076485	Triclopyr	46.6	55.9	P/P	40 - 150

Reference Method: EPA 8321B
Batch ID: P361901

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2076373	Acesulfame K	178	234	F/F	40 - 150
2076373	AMPA	94.3	95.6	P/P	40 - 150
2076373	Endothall	76.1	77.6	P/P	40 - 150
2076373	Glufosinate	108	109	P/P	40 - 150
2076373	Glyphosate	145	151	F/F	40 - 140
2076373	Sucralose	95.1	97.4	P/P	40 - 150

Quality Assurance Report Precision

Reference Method: EPA 8321B
Batch ID: P361794

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2076485	2,4-D	8.99	Spike	P	0 - 30
2076485	Acetaminophen	5.73	Spike	P	0 - 30
2076485	Bentazon	8.92	Spike	P	0 - 30
2076485	Carbamazepine	11.0	Spike	P	0 - 30
2076485	Diuron	11.9	Spike	P	0 - 30
2076485	Fenuron	0.624	Spike	P	0 - 30
2076485	Fluridone	9.07	Spike	P	0 - 30
2076485	Hydrocodone	1.75	Spike	P	0 - 30
2076485	Ibuprofen	13.2	Spike	P	0 - 30
2076485	Imazapyr	1.83	Spike	P	0 - 30
2076485	Imidacloprid	16.2	Spike	P	0 - 30
2076485	Linuron	23.3	Spike	P	0 - 30
2076485	MCP	12.3	Spike	P	0 - 30
2076485	Naproxen	17.6	Spike	P	0 - 30
2076485	Primidone	12.8	Spike	P	0 - 30
2076485	Pyraclostrobin	25.1	Spike	P	0 - 30
2076485	Triclopyr	18.1	Spike	P	0 - 30

Reference Method: EPA 8321B
Batch ID: P361901

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2076373	Acesulfame K	27.0	Spike	P	0 - 30
2076373	AMPA	1.15	Spike	P	0 - 30
2076373	Endothall	2.04	Spike	P	0 - 30
2076373	Glufosinate	1.29	Spike	P	0 - 30
2076373	Glyphosate	4.32	Spike	P	0 - 30
2076373	Sucralose	2.34	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: 2076485
Field Sample ID: G5SW0145

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	2,4-D-d3	63.4	P	30 - 160
EPA 8321B	Acetaminophen-d4	83.7	P	30 - 160
EPA 8321B	Carbamazepine-d10	74.6	P	30 - 160
EPA 8321B	Diuron-d6	64.2	P	30 - 160
EPA 8321B	Endothall-d6	89.5	P	30 - 160
EPA 8321B	Endothall-d6	89.5	P	30 - 160
EPA 8321B	Glyphosate 13C 15N	134	P	30 - 160
EPA 8321B	Glyphosate 13C 15N	134	P	30 - 160
EPA 8321B	Ibuprofen-d3	58.3	P	30 - 160
EPA 8321B	Primidone-d5	63.7	P	30 - 160
EPA 8321B	Sucralose-d6	93.5	P	30 - 160
EPA 8321B	Sucralose-d6	93.5	P	30 - 160

Quality Assurance Report Calibration Verification

Reference Method: EPA 8321B
 Run ID: A90662
 Included Lab Sample IDs: 2076485

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Acesulfame K	119	117	P/P	60 - 160
Endothall	126	133	P/P	60 - 160

Reference Method: EPA 8321B
 Run ID: A90675
 Included Lab Sample IDs: 2076485

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
AMPA	102	110	P/P	60 - 160
Glufosinate	116	112	P/P	60 - 160
Glyphosate	109	127	P/P	60 - 160

Reference Method: EPA 8321B
 Run ID: A90706
 Included Lab Sample IDs: 2076485

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Sucralose	102	91.4	P/P	60 - 160

Reference Method: EPA 8321B
 Run ID: A90848
 Included Lab Sample IDs: 2076485

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
2,4-D	83.8	95.6	P/P	50 - 150
Acetaminophen	105	112	P/P	60 - 160
Bentazon	109	98.7	P/P	50 - 160
Carbamazepine	107	86.3	P/P	60 - 150
Diuron	101	102	P/P	60 - 150
Fenuron	98.1	98.0	P/P	60 - 150
Fluridone	99.5	96.1	P/P	60 - 160
Hydrocodone	91.3	82.0	P/P	60 - 150
Ibuprofen	146	152	P/P	50 - 160
Imazapyr	80.4	103	P/P	50 - 150
Imidacloprid	101	94.0	P/P	60 - 150
Linuron	95.5	102	P/P	60 - 150
MCPP	88.9	94.4	P/P	50 - 150
Naproxen	98.3	88.0	P/P	50 - 160
Primidone	83.7	84.3	P/P	60 - 150
Pyraclostrobin	105	101	P/P	60 - 150
Triclopyr	93.5	100	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		Precision SMP	MS
			LCS			
EPA 8321B	2,4-D	72.6	66.0	72.2		8.99
	Acesulfame K	117	178	234		27.0
	Acetaminophen	82.7	77.8	82.4		5.73
	AMPA	96.9	94.3	95.6		1.15
	Bentazon	86.7	91.4	122		8.92
	Carbamazepine	81.0	78.0	87.7		11.0
	Diuron	69.9	60.8	68.5		11.9
	Endothall	113	76.1	77.6		2.04
	Fenuron	96.3	104	104		0.624
	Fluridone	99.0	134	110		9.07
	Glufosinate	116	108	109		1.29
	Glyphosate	83.8	145	151		4.32
	Hydrocodone	79.3	91.3	92.9		1.75
	Ibuprofen	99.9	70.6	61.8		13.2
	Imazapyr	84.3	74.4	72.7		1.83
	Imidacloprid	87.5	136	162		16.2
	Linuron	74.6	74.2	58.7		23.3
	MCPP	86.7	92.8	105		12.3
	Naproxen	61.3	57.9	69.1		17.6
	Primidone	72.0	71.7	63.1		12.8
	Pyraclostrobin	61.2	76.2	98.0		25.1
	Sucralose	108	95.1	97.4		2.34
	Triclopyr	51.1	46.6	55.9		18.1

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 8321B / E31780	Pesticides, herbicides, and other chemicals in water matrices by HPLC/MS/MS	2076485
EPA 8321B / E31780	Water soluble organic compounds by HPLC/MS/MS	2076485

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
EPA 8321B	04/09/2019	04/10/2019 10:00	Hoor Shaik	04/19/2019 17:04	Juyoung Kim	2076485
	04/09/2019	04/10/2019 15:30	Rebecca Ware	04/11/2019 10:33	Rebecca Ware	2076485
	04/09/2019	04/10/2019 15:30	Rebecca Ware	04/11/2019 18:37	Rebecca Ware	2076485
	04/09/2019	04/10/2019 15:30	Rebecca Ware	04/12/2019 18:35	Rebecca Ware	2076485