

Chemical Analysis Report

SW-DIST-2019-10-24-01

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

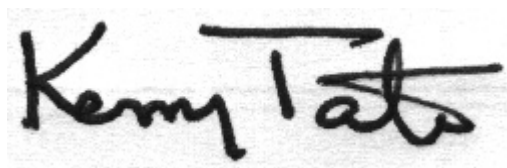
Event Description: **McKay Fresh & Tidal**
Request ID: **RQ-2019-10-21-03**
Customer: **SW-DIST**
Project ID: **SMP**

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: 06-NOV-2019 14:31

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 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.

Collection Date/Time: 10/23/2019 09:43

Field ID: G5SW0145

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2131193	EPA 8321B	2,4-D	0.0042	I	ug/L	P373086	
		Acesulfame K**	0.10	U	ug/L	P373164	
		AMPA**	0.19	I	ug/L	P373164	
		Sucralose**	0.10		ug/L	P373164	
		Acetaminophen**	0.0080	U	ug/L	P373086	
		Acetamiprid**	0.0020	U	ug/L	P373086	
		Endothall**	0.25	U	ug/L	P373164	
		Glufosinate**	0.10	U	ug/L	P373164	
		Glyphosate**	0.58		ug/L	P373164	
		Afidopyropen**	0.0020	UJ	ug/L	P373086	
		Bentazon	0.037		ug/L	P373086	
		Benzovindiflupyr**	0.0020	UJ	ug/L	P373086	
		Carbamazepine**	8.0E-04	U	ug/L	P373086	
		Clothianidin**	0.0086		ug/L	P373086	
		Dinotefuran**	0.0020	U	ug/L	P373086	
		Diuron	0.0020	U	ug/L	P373086	
		Fenuron	0.016	U	ug/L	P373086	
		Fluridone**	0.033		ug/L	P373086	
		Imazapyr**	0.015	I	ug/L	P373086	
		Hydrocodone**	0.0020	U	ug/L	P373086	
		Ibuprofen**	0.020	U	ug/L	P373086	
		Imidacloprid	0.036		ug/L	P373086	MS
		Linuron	0.0040	U	ug/L	P373086	
		Mandestrobin**	0.0020	UJ	ug/L	P373086	
		MCPP	0.0020	U	ug/L	P373086	
		Naproxen**	0.0080	U	ug/L	P373086	
		Primidone**	0.0040	U	ug/L	P373086	
		Pyraclostrobin**	0.0020	U	ug/L	P373086	
		Thiamethoxam**	0.0020	U	ug/L	P373086	
		Tolfenpyrad**	0.0020	U	ug/L	P373086	
		Triclopyr**	0.0040	U	ug/L	P373086	

Ref. Method and Comment:

EPA 8321B: J - second source check standards for some analytes were not available for analysis.

Quality Assurance Report

Method Blank Results

Reference Method: EPA 8321B
Batch ID: P373086

Component	Result	Code	Units
2,4-D	0.0020	U	ug/L
Acetaminophen	0.0080	U	ug/L
Acetamiprid	0.0020	U	ug/L
Afidopyropen	0.0020	U	ug/L
Bentazon	8.0E-04	U	ug/L
Benzovindiflupyr	0.0020	U	ug/L
Carbamazepine	8.0E-04	U	ug/L
Clothianidin	0.0020	U	ug/L
Dinotefuran	0.0020	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
Mandestrobin	0.0020	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
Thiamethoxam	0.0020	U	ug/L
Tolfenpyrad	0.0020	U	ug/L
Triclopyr	0.0040	U	ug/L

Reference Method: EPA 8321B
Batch ID: P373164

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: P373086

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2,4-D	140		P	40 - 160
Acetaminophen	83.5		P	30 - 160
Acetamiprid	97.2		P	40 - 160
Afidopyropen	87.8		P	40 - 160
Bentazon	82.4		P	30 - 160
Benzovindiflupyr	89.4		P	40 - 160
Carbamazepine	99.5		P	40 - 160
Clothianidin	88.7		P	40 - 160
Dinotefuran	92.6		P	40 - 160
Diuron	91.0		P	40 - 160
Fenuron	98.4		P	40 - 160
Fluridone	89.1		P	40 - 160
Hydrocodone	91.0		P	40 - 160
Ibuprofen	94.1		P	30 - 160
Imazapyr	101		P	40 - 160
Imidacloprid	92.4		P	40 - 160
Linuron	78.0		P	40 - 160
Mandestrobin	94.1		P	40 - 160
MCPP	118		P	40 - 160
Naproxen	86.6		P	40 - 160
Primidone	77.0		P	40 - 160
Pyraclostrobin	82.8		P	30 - 160
Thiamethoxam	103		P	40 - 160
Tolfenpyrad	50.7		P	40 - 160
Triclopyr	117		P	30 - 160

Reference Method: EPA 8321B
Batch ID: P373164

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Acesulfame K	116		P	40 - 150
AMPA	141		P	40 - 150
Endothall	89.2		P	40 - 150
Glufosinate	104		P	40 - 150
Glyphosate	119		P	40 - 140
Sucralose	117		P	40 - 150

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 8321B
 Batch ID: P373086

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2130634	2,4-D	125	118	P/P	40 - 160
2130634	Acetaminophen	74.1	74.6	P/P	30 - 160
2130634	Acetamiprid	114	112	P/P	40 - 160
2130634	Afidopyropen	94.7	88.1	P/P	40 - 160
2130634	Bentazon	51.8	50.6	P/P	30 - 160
2130634	Benzovindiflupyr	88.1	84.6	P/P	40 - 160
2130634	Carbamazepine	91.1	92.1	P/P	40 - 160
2130634	Clothianidin	93.4	91.1	P/P	40 - 160
2130634	Dinotefuran	112	107	P/P	40 - 160
2130634	Diuron	78.5	80.7	P/P	40 - 160
2130634	Fenuron	94.3	89.3	P/P	40 - 160
2130634	Fluridone	84.2	84.0	P/P	40 - 160
2130634	Hydrocodone	113	111	P/P	40 - 160
2130634	Ibuprofen	81.8	77.0	P/P	30 - 160
2130634	Imazapyr	91.5	86.9	P/P	40 - 160
2130634	Imidacloprid	173	161	F/F	40 - 160
2130634	Linuron	65.8	63.8	P/P	40 - 160
2130634	Mandestrobin	98.9	97.2	P/P	40 - 160
2130634	MCP	106	111	P/P	40 - 160
2130634	Naproxen	89.1	92.1	P/P	40 - 160
2130634	Primidone	109	105	P/P	40 - 160
2130634	Pyraclostrobin	82.7	80.7	P/P	30 - 160
2130634	Thiamethoxam	157	151	P/P	40 - 160
2130634	Tolfenpyrad	61.2	60.2	P/P	40 - 160
2130634	Triclopyr	121	99.0	P/P	30 - 160

Reference Method: EPA 8321B
 Batch ID: P373164

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2131107	Acesulfame K	81.0	80.1	P/P	40 - 150
2131107	AMPA	85.3	84.8	P/P	40 - 150
2131107	Endothall	84.3	87.1	P/P	40 - 150
2131107	Glufosinate	85.5	87.8	P/P	40 - 150
2131107	Glyphosate	77.6	79.4	P/P	40 - 140
2131107	Sucralose	97.8	81.9	P/P	40 - 150

Quality Assurance Report Precision

Reference Method: EPA 8321B
Batch ID: P373086

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2130634	2,4-D	5.38	Spike	P	0 - 30
2130634	Acetaminophen	0.457	Spike	P	0 - 30
2130634	Acetamiprid	1.39	Spike	P	0 - 30
2130634	Afidopyropen	7.19	Spike	P	0 - 30
2130634	Bentazon	1.64	Spike	P	0 - 30
2130634	Benzovindiflupyr	4.05	Spike	P	0 - 30
2130634	Carbamazepine	0.956	Spike	P	0 - 30
2130634	Clothianidin	2.49	Spike	P	0 - 30
2130634	Dinotefuran	4.38	Spike	P	0 - 30
2130634	Diuron	2.43	Spike	P	0 - 30
2130634	Fenuron	5.44	Spike	P	0 - 30
2130634	Fluridone	0.190	Spike	P	0 - 30
2130634	Hydrocodone	2.36	Spike	P	0 - 30
2130634	Ibuprofen	6.09	Spike	P	0 - 30
2130634	Imazapyr	4.54	Spike	P	0 - 30
2130634	Imidacloprid	5.63	Spike	P	0 - 30
2130634	Linuron	3.04	Spike	P	0 - 30
2130634	Mandestrobin	1.76	Spike	P	0 - 30
2130634	MCPP	4.34	Spike	P	0 - 30
2130634	Naproxen	3.36	Spike	P	0 - 30
2130634	Primidone	4.00	Spike	P	0 - 30
2130634	Pyraclostrobin	2.50	Spike	P	0 - 30
2130634	Thiamethoxam	3.93	Spike	P	0 - 30
2130634	Tolfenpyrad	1.68	Spike	P	0 - 30
2130634	Triclopyr	20.1	Spike	P	0 - 30

Reference Method: EPA 8321B
Batch ID: P373164

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2131107	Acesulfame K	1.11	Spike	P	0 - 30
2131107	AMPA	0.606	Spike	P	0 - 30
2131107	Endothall	3.27	Spike	P	0 - 30
2131107	Glufosinate	2.71	Spike	P	0 - 30
2131107	Glyphosate	2.27	Spike	P	0 - 30
2131107	Sucralose	17.8	Spike	P	0 - 30

* Sample, spike and/or laboratory control sample precision (LCS) is reported.

Quality Assurance Report Surrogates

Lab Sample ID: 2131193
Field Sample ID: G5SW0145

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	2,4-D-d3	98.0	P	30 - 160
EPA 8321B	Acetaminophen-d4	66.2	P	30 - 160
EPA 8321B	Bentazon-d7	40.6	P	30 - 160
EPA 8321B	Carbamazepine-d10	89.6	P	30 - 160
EPA 8321B	Diuron-d6	74.2	P	30 - 160
EPA 8321B	Endothall-d6	99.8	P	30 - 160
EPA 8321B	Endothall-d6	99.8	P	30 - 160
EPA 8321B	Glyphosate 13C 15N	78.4	P	30 - 160
EPA 8321B	Glyphosate 13C 15N	78.4	P	30 - 160
EPA 8321B	Ibuprofen-d3	71.0	P	30 - 160
EPA 8321B	Primidone-d5	83.0	P	30 - 160
EPA 8321B	Sucralose-d6	51.2	P	30 - 160
EPA 8321B	Sucralose-d6	51.2	P	30 - 160

Quality Assurance Report Calibration Verification

Reference Method: EPA 8321B

Run ID: A95283

Included Lab Sample IDs: 2131193

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
2,4-D	102	100	P/P	50 - 150
Acetaminophen	99.0	98.6	P/P	60 - 160
Acetamiprid	105	104	P/P	50 - 150
Afidopyropen	99.3	99.1	P/P	50 - 150
Bentazon	98.8	100	P/P	50 - 160
Benzovindiflupyr	100	105	P/P	50 - 150
Carbamazepine	104	105	P/P	60 - 150
Clothianidin	97.6	85.4	P/P	60 - 150
Dinotefuran	98.6	98.1	P/P	50 - 150
Diuron	105	106	P/P	60 - 150
Fenuron	105	107	P/P	60 - 150
Fluridone	109	106	P/P	60 - 160
Hydrocodone	92.6	104	P/P	60 - 150
Ibuprofen	88.2	94.9	P/P	50 - 160
Imazapyr	95.7	89.8	P/P	50 - 150
Imidacloprid	101	93.8	P/P	60 - 150
Linuron	98.1	97.6	P/P	60 - 150
Mandestrobin	114	121	P/P	50 - 150
MCPP	92.5	89.4	P/P	50 - 150
Naproxen	102	111	P/P	50 - 160
Primidone	94.1	94.8	P/P	60 - 150
Pyraclostrobin	106	101	P/P	60 - 150
Thiamethoxam	101	102	P/P	50 - 150
Tolfenpyrad	94.2	104	P/P	60 - 150
Triclopyr	94.9	75.0	P/P	50 - 150

Reference Method: EPA 8321B

Run ID: A95323

Included Lab Sample IDs: 2131193

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Acesulfame K	106	102	P/P	60 - 160
Endothall	87.9	94.6	P/P	60 - 160

Reference Method: EPA 8321B

Run ID: A95334

Included Lab Sample IDs: 2131193

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
AMPA	115	85.9	P/P	60 - 160
Glufosinate	96.8	82.2	P/P	60 - 160
Glyphosate	115	86.1	P/P	60 - 160

Reference Method: EPA 8321B

Run ID: A95462

Included Lab Sample IDs: 2131193

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Sucralose	89.8	87.9	P/P	60 - 160

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	140	125	118		5.38
	Acesulfame K	116	81.0	80.1		1.11
	Acetaminophen	83.5	74.1	74.6		0.457
	Acetamiprid	97.2	114	112		1.39
	Afidopyropen	87.8	94.7	88.1		7.19
	AMPA	141	85.3	84.8		0.606
	Bentazon	82.4	51.8	50.6		1.64
	Benzovindiflupyr	89.4	88.1	84.6		4.05
	Carbamazepine	99.5	91.1	92.1		0.956
	Clothianidin	88.7	93.4	91.1		2.49
	Dinotefuran	92.6	112	107		4.38
	Diuron	91.0	78.5	80.7		2.43
	Endothall	89.2	84.3	87.1		3.27
	Fenuron	98.4	94.3	89.3		5.44
	Fluridone	89.1	84.2	84.0		0.190
	Glufosinate	104	85.5	87.8		2.71
	Glyphosate	119	77.6	79.4		2.27
	Hydrocodone	91.0	113	111		2.36
	Ibuprofen	94.1	81.8	77.0		6.09
	Imazapyr	101	91.5	86.9		4.54
	Imidacloprid	92.4	173	161		5.63
	Linuron	78.0	65.8	63.8		3.04
	Mandestrobin	94.1	98.9	97.2		1.76
	MCPP	118	106	111		4.34
	Naproxen	86.6	89.1	92.1		3.36
	Primidone	77.0	109	105		4.00
	Pyraclostrobin	82.8	82.7	80.7		2.50
	Sucralose	117	97.8	81.9		17.8
	Thiamethoxam	103	157	151		3.93
	Tolfenpyrad	50.7	61.2	60.2		1.68
	Triclopyr	117	121	99.0		20.1

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 8321B / E31780	Pesticides, herbicides, and other chemicals in water matrices by HPLC/MS/MS	2131193
EPA 8321B / E31780	Water soluble organic compounds by HPLC/MS/MS	2131193

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
EPA 8321B	10/24/2019	10/25/2019 14:00	Hoor Shaik	10/26/2019 10:20	Juyoung Kim	2131193
	10/24/2019	10/28/2019 11:00	Rebecca Ware	10/28/2019 12:33	Rebecca Ware	2131193
	10/24/2019	10/28/2019 11:00	Rebecca Ware	10/29/2019 11:44	Rebecca Ware	2131193
	10/24/2019	10/28/2019 11:00	Rebecca Ware	11/01/2019 18:10	Rebecca Ware	2131193