Chemical Analysis Report

CEN-DIST-2018-08-10-01

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

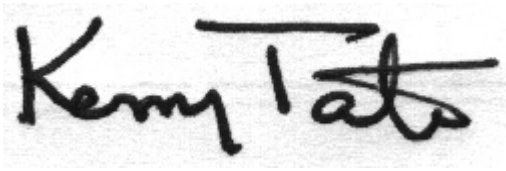
Event Description: **Kasey / Dot / Wekiva Canal**
Request ID: **RQ-2018-08-06-30**
Customer: **CEN-DIST**
Project ID: **SMP**

Send Reports to:
FL Dept. of Environmental Protection
FL Dept. of Environmental Protection
3319 Maguire Blvd., Suite 232
Orlando, FL 32803-3767
Attn: Mike Linger

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: 27-AUG-2018 11:03



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: Lake Dot @ Center **Collection Date/Time: 08/09/2018 09:58**

Field ID: G2CE0067 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2016274	EPA 8321B	2,4-D	0.18		ug/L	P349855	
		Bentazon	0.012		ug/L	P349855	
		MCPP	0.051		ug/L	P349855	
		Triclopyr**	0.0040	U	ug/L	P349855	
		Imidacloprid	0.0070	I	ug/L	P349855	
		Diuron	0.019		ug/L	P349855	
		Pyraclostrobin**	0.0020	U	ug/L	P349855	
		Primidone**	0.0040	U	ug/L	P349855	
		Linuron	0.0040	U	ug/L	P349855	
		Acetaminophen**	0.0080	U	ug/L	P349855	
		Fenuron	0.016	U	ug/L	P349855	
		Imazapyr**	0.0040	U	ug/L	P349855	
		Carbamazepine**	8.0E-04	U	ug/L	P349855	
		Fluridone**	9.6E-04	I	ug/L	P349855	
		Hydrocodone**	8.0E-04	U	ug/L	P349855	
		Naproxen**	0.0080	U	ug/L	P349855	
		Ibuprofen**	0.020	U	ug/L	P349855	
		Sucralose**	0.057		ug/L	P349904	

Quality Assurance Report
Method Blank Results

Reference Method: EPA 8321B
Batch ID: P349855

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	4.0E-04	U	ug/L
Hydrocodone	8.0E-04	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: P349904

Component	Result	Code	Units
Sucralose	0.010	U	ug/L

Quality Assurance Report
Laboratory Control Sample Accuracy

Reference Method: EPA 8321B
Batch ID: P349855

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2,4-D	94.9		P	40 - 150
Acetaminophen	89.9		P	30 - 150
Bentazon	83.9		P	30 - 150
Carbamazepine	76.0		P	40 - 150
Diuron	67.0		P	40 - 150
Fenuron	92.7		P	40 - 150
Fluridone	75.1		P	40 - 150
Hydrocodone	78.4		P	40 - 150
Ibuprofen	86.4		P	40 - 150
Imazapyr	68.9		P	40 - 150
Imidacloprid	101		P	40 - 160
Linuron	60.2		P	40 - 150
MCPP	94.8		P	40 - 150
Naproxen	93.2		P	40 - 150
Primidone	82.1		P	40 - 150
Pyraclostrobin	67.5		P	40 - 150
Triclopyr	103		P	40 - 150

Reference Method: EPA 8321B
Batch ID: P349904

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Sucralose	99.5		P	40 - 150

Quality Assurance Report
Matrix Spike Accuracy

Reference Method: EPA 8321B
Batch ID: P349855

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2015801	2,4-D	136	113	P/P	40 - 150
2015801	Acetaminophen	91.3	94.3	P/P	30 - 150
2015801	Bentazon	43.5	36.8	P/P	30 - 150
2015801	Carbamazepine	69.2	66.0	P/P	40 - 150
2015801	Diuron	54.3	50.9	P/P	40 - 150
2015801	Fenuron	80.3	70.7	P/P	40 - 150
2015801	Fluridone	70.1	72.1	P/P	40 - 150
2015801	Hydrocodone	65.1	68.0	P/P	40 - 150
2015801	Ibuprofen	58.2	53.1	P/P	40 - 150
2015801	Imazapyr	77.8	81.2	P/P	40 - 150
2015801	Imidacloprid	130	130	P/P	40 - 160
2015801	Linuron	52.3	53.3	P/P	40 - 150
2015801	MCPP	111	102	P/P	40 - 150
2015801	Naproxen	89.8	79.0	P/P	40 - 150
2015801	Primidone	77.7	78.8	P/P	40 - 150
2015801	Pyraclostrobin	68.5	74.6	P/P	40 - 150
2015801	Triclopyr	148	136	P/P	40 - 150

Reference Method: EPA 8321B
Batch ID: P349904

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2016146	Sucralose	97.2	92.5	P/P	40 - 150

Quality Assurance Report
Precision

Reference Method: EPA 8321B
Batch ID: P349855

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2015801	2,4-D	17.3	Spike	P	0 - 30
2015801	Acetaminophen	3.18	Spike	P	0 - 30
2015801	Bentazon	15.3	Spike	P	0 - 30
2015801	Carbamazepine	4.76	Spike	P	0 - 30
2015801	Diuron	5.74	Spike	P	0 - 30
2015801	Fenuron	12.7	Spike	P	0 - 30
2015801	Fluridone	2.75	Spike	P	0 - 30
2015801	Hydrocodone	4.37	Spike	P	0 - 30
2015801	Ibuprofen	8.99	Spike	P	0 - 30
2015801	Imazapyr	2.10	Spike	P	0 - 30
2015801	Imidacloprid	0.358	Spike	P	0 - 30
2015801	Linuron	1.86	Spike	P	0 - 30
2015801	MCPP	8.17	Spike	P	0 - 30
2015801	Naproxen	12.8	Spike	P	0 - 30
2015801	Primidone	1.36	Spike	P	0 - 30
2015801	Pyraclostrobin	8.42	Spike	P	0 - 30
2015801	Triclopyr	8.20	Spike	P	0 - 30

Reference Method: EPA 8321B
Batch ID: P349904

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2016146	Sucralose	4.98	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: 2016274
Field Sample ID: G2CE0067

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	2,4-D-d3	92.0	P	30 - 160
EPA 8321B	Acetaminophen-d4	94.2	P	30 - 160
EPA 8321B	Carbamazepine-d10	61.9	P	30 - 160
EPA 8321B	Diuron-d6	56.4	P	30 - 160
EPA 8321B	Ibuprofen-d3	68.5	P	30 - 160
EPA 8321B	Primidone-d5	92.5	P	30 - 160
EPA 8321B	Sucralose-d6	79.2	P	40 - 160

Quality Assurance Report
Calibration Verification

Reference Method: EPA 8321B
Run ID: A855929
Included Lab Sample IDs: 2016274

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
2,4-D	87.4	116	P/P	50 - 150
Bentazon	82.0	126	P/P	50 - 160
Ibuprofen	107	103	P/P	50 - 160
MCPP	80.8	125	P/P	50 - 150
Naproxen	90.7	144	P/P	50 - 160
Triclopyr	81.7	134	P/P	50 - 160

Reference Method: EPA 8321B
Run ID: A85816
Included Lab Sample IDs: 2016274

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Sucralose	96.0	86.6	P/P	60 - 160

Reference Method: EPA 8321B
Run ID: A85967
Included Lab Sample IDs: 2016274

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Acetaminophen	107	102	P/P	60 - 150
Carbamazepine	109	107	P/P	60 - 150
Diuron	94.3	90.4	P/P	60 - 150
Fenuron	104	103	P/P	60 - 150
Fluridone	96.2	97.3	P/P	60 - 160
Hydrocodone	95.4	94.9	P/P	60 - 150
Imazapyr	80.7	86.8	P/P	50 - 150
Imidacloprid	107	106	P/P	60 - 150
Linuron	93.1	89.7	P/P	60 - 150
Primidone	106	97.0	P/P	60 - 150
Pyraclostrobin	93.5	92.6	P/P	60 - 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		
					LCS	SMP	MS
EPA 8321B	2,4-D	94.9	136	113			17.3
	Acetaminophen	89.9	91.3	94.3			3.18
	Bentazon	83.9	43.5	36.8			15.3
	Carbamazepine	76.0	69.2	66.0			4.76
	Diuron	67.0	54.3	50.9			5.74
	Fenuron	92.7	80.3	70.7			12.7
	Fluridone	75.1	70.1	72.1			2.75
	Hydrocodone	78.4	65.1	68.0			4.37
	Ibuprofen	86.4	58.2	53.1			8.99
	Imazapyr	68.9	77.8	81.2			2.10
	Imidacloprid	101	130	130			0.358
	Linuron	60.2	52.3	53.3			1.86
	MCPP	94.8	111	102			8.17
	Naproxen	93.2	89.8	79.0			12.8
	Primidone	82.1	77.7	78.8			1.36
	Pyraclostrobin	67.5	68.5	74.6			8.42
	Sucralose	99.5	97.2	92.5			4.98
	Triclopyr	103	148	136			8.20

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 8321B / E31780	Pesticides, herbicides, and other chemicals in water matrices by HPLC/MS/MS	2016274

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
EPA 8321B	08/10/2018	08/10/2018 16:00	Hoor Shaik	08/12/2018 04:37	Mohammad Ghaffari	2016274
	08/10/2018	08/13/2018 10:00	Hoor Shaik	08/15/2018 10:41	Juyoung Kim	2016274
	08/10/2018	08/13/2018 10:00	Hoor Shaik	08/16/2018 16:44	Juyoung Kim	2016274