

Chemical Analysis Report

CEN-DIST-2017-03-02-01

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

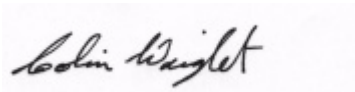
Event Description: **Kasey Lake / Lake Dot**
Request ID: **RQ-2017-02-27-57**
Customer: **CEN-DIST**
Project ID: **SMP**

Send Reports to:
FL Dept. of Environmental Protection
FL Dept. of Environmental Protection
3319 Maguire Blvd., Suite 232
Orlando, FL 32803-3767
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Certified by: Colin Wright, Program Administrator

Date Certified: 20-MAR-2017 17:08

A handwritten signature in black ink, appearing to read "Colin Wright", is displayed on a light gray 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 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: 03/01/2017 11:05

Field ID: G2CE0067

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1877147	EPA 8321B	Sucralose**	0.076		ug/L	P320822	
	USGS O-2060-01	2,4-D	0.020		ug/L	P320727	
		Diuron	0.0056	I	ug/L	P320727	
		2,4-DB	0.010	U	ug/L	P320727	
		Fenuron	0.0080	U	ug/L	P320727	
		2,4,5-T	0.0040	U	ug/L	P320727	
		Acifluorfen	0.0020	U	ug/L	P320727	
		Imidacloprid	0.016		ug/L	P320727	
		Bentazon	0.15		ug/L	P320727	MS
		Linuron	0.0040	U	ug/L	P320727	
		Dicamba	0.050	U	ug/L	P320727	
		Dichlorprop	0.0040	U	ug/L	P320727	
		Dinoseb	0.020	U	ug/L	P320727	RPD
		MCPA	0.0040	U	ug/L	P320727	
		Acetaminophen**	0.0040	U	ug/L	P320727	
		MCPD	0.0040	U	ug/L	P320727	
		Picloram	0.050	U	ug/L	P320727	
		Carbamazepine**	4.0E-04	U	ug/L	P320727	
		Silvex	0.0040	U	ug/L	P320727	
		Triclopyr**	0.021	I	ug/L	P320727	
		Primidone**	0.0080	U	ug/L	P320727	
		Fluridone**	0.0093		ug/L	P320727	

Sample Location: Kasey Lake @ Center

Collection Date/Time: 03/01/2017 11:55

Field ID: G2CE0011

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1877148	EPA 8321B	Sucralose**	0.010	U	ug/L	P320822	
	USGS O-2060-01	2,4-D	0.0093	I	ug/L	P320727	
		Diuron	0.0040	U	ug/L	P320727	
		2,4-DB	0.010	U	ug/L	P320727	
		Fenuron	0.0080	U	ug/L	P320727	
		2,4,5-T	0.0040	U	ug/L	P320727	
		Acifluorfen	0.0020	U	ug/L	P320727	
		Imidacloprid	0.0040	U	ug/L	P320727	
		Bentazon	0.15		ug/L	P320727	MS
		Linuron	0.0040	U	ug/L	P320727	
		Dicamba	0.050	U	ug/L	P320727	
		Dichlorprop	0.0040	U	ug/L	P320727	
		Dinoseb	0.020	U	ug/L	P320727	RPD
		MCPA	0.0040	U	ug/L	P320727	
		Acetaminophen**	0.0040	U	ug/L	P320727	
		MCPD	0.0040	U	ug/L	P320727	
		Picloram	0.050	U	ug/L	P320727	

Field ID: G2CE0011

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1877148	USGS O-2060-01	Carbamazepine**	4.0E-04	U	ug/L	P320727	
		Silvex	0.0040	U	ug/L	P320727	
		Triclopyr**	0.010	U	ug/L	P320727	
		Primidone**	0.0080	U	ug/L	P320727	
		Fluridone**	4.0E-04	U	ug/L	P320727	

Quality Assurance Report Method Blank Results

Reference Method: EPA 8321B

Batch ID: P320822

Component	Result	Code	Units
Sucralose	0.010	U	ug/L

Reference Method: USGS O-2060-01

Batch ID: P320727

Component	Result	Code	Units
2,4,5-T	0.0020	U	ug/L
2,4-D	0.0040	U	ug/L
2,4-DB	0.0020	U	ug/L
Acetaminophen	0.0040	U	ug/L
Acifluorfen	0.0020	U	ug/L
Bentazon	0.0020	U	ug/L
Carbamazepine	4.0E-04	U	ug/L
Dicamba	0.020	U	ug/L
Dichlorprop	0.0020	U	ug/L
Dinoseb	0.020	U	ug/L
Diuron	0.0040	U	ug/L
Fenuron	0.0080	U	ug/L
Fluridone	4.0E-04	U	ug/L
Imidacloprid	0.0040	U	ug/L
Linuron	0.0040	U	ug/L
MCPA	0.0040	U	ug/L
MCPP	0.0040	U	ug/L
Picloram	0.050	U	ug/L
Primidone	0.0080	U	ug/L
Silvex	0.0020	U	ug/L
Triclopyr	0.0040	U	ug/L

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 8321B

Batch ID: P320822

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Sucralose	92.7		P	40 - 140

Reference Method: USGS O-2060-01

Batch ID: P320727

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
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Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: USGS O-2060-01

Batch ID: P320727

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2,4,5-T	89.2		P	40 - 140
2,4-D	98.0		P	40 - 140
2,4-DB	70.4		P	40 - 140
Acetaminophen	122		P	40 - 140
Acifluorfen	102		P	40 - 140
Bentazon	103		P	40 - 140
Carbamazepine	99.2		P	40 - 140
Dicamba	97.6		P	40 - 140
Dichlorprop	104		P	40 - 140
Dinoseb	96.8		P	40 - 140
Diuron	89.6		P	40 - 140
Fenuron	96.0		P	40 - 140
Fluridone	90.8		P	40 - 140
Imidacloprid	80.4		P	40 - 160
Linuron	94.4		P	40 - 140
MCPA	94.8		P	40 - 140
MCPP	98.4		P	40 - 140
Picloram	111		P	40 - 140
Primidone	77.6		P	40 - 140
Silvex	86.0		P	40 - 140
Triclopyr	98.4		P	40 - 140

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 8321B

Batch ID: P320822

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1877330	Sucralose	86.9	80.3	P/P	40 - 140

Reference Method: USGS O-2060-01

Batch ID: P320727

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1876081	2,4,5-T	98.8	106	P/P	40 - 140
1876081	2,4-D	113	134	P/P	40 - 140
1876081	2,4-DB	66.4	78.4	P/P	40 - 140
1876081	Acetaminophen	49.6	53.6	P/P	40 - 140
1876081	Acifluorfen	99.2	123	P/P	40 - 140
1876081	Bentazon	203	222	F/F	40 - 140
1876081	Carbamazepine	44.4	54.4	P/P	40 - 140
1876081	Dicamba	70.0	87.2	P/P	40 - 140
1876081	Dichlorprop	98.8	117	P/P	40 - 140
1876081	Dinoseb	71.6	119	P/P	40 - 140
1876081	Diuron	42.4	45.2	P/P	40 - 140
1876081	Fenuron	40.4	47.6	P/P	40 - 140
1876081	Fluridone	52.1	55.3	P/P	40 - 140
1876081	Imidacloprid	75.6	82.4	P/P	40 - 160
1876081	Linuron	74.0	68.0	P/P	40 - 140
1876081	MCPA	107	116	P/P	40 - 140

Quality Assurance Report Matrix Spike Accuracy

Reference Method: USGS O-2060-01
 Batch ID: P320727

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1876081	MCP	116	124	P/P	40 - 140
1876081	Picloram	64.0	63.2	P/P	40 - 140
1876081	Primidone	42.4	41.6	P/P	40 - 140
1876081	Silvex	115	138	P/P	40 - 140
1876081	Triclopyr	101	111	P/P	40 - 140

Quality Assurance Report Precision

Reference Method: EPA 8321B
 Batch ID: P320822

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1877330	Sucralose	7.22	Spike	P	0 - 30

Reference Method: USGS O-2060-01
 Batch ID: P320727

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1876081	2,4,5-T	7.03	Spike	P	0 - 30
1876081	2,4-D	8.93	Spike	P	0 - 30
1876081	2,4-DB	16.6	Spike	P	0 - 30
1876081	Acetaminophen	7.75	Spike	P	0 - 30
1876081	Acifluorfen	21.3	Spike	P	0 - 30
1876081	Bentazon	6.44	Spike	P	0 - 30
1876081	Carbamazepine	20.2	Spike	P	0 - 30
1876081	Dicamba	21.9	Spike	P	0 - 30
1876081	Dichlorprop	16.7	Spike	P	0 - 30
1876081	Dinoseb	49.6	Spike	F	0 - 30
1876081	Diuron	6.39	Spike	P	0 - 30
1876081	Fenuron	16.4	Spike	P	0 - 30
1876081	Fluridone	5.67	Spike	P	0 - 30
1876081	Imidacloprid	8.61	Spike	P	0 - 30
1876081	Linuron	8.45	Spike	P	0 - 30
1876081	MCPA	7.91	Spike	P	0 - 30
1876081	MCP	6.32	Spike	P	0 - 30
1876081	Picloram	1.26	Spike	P	0 - 30
1876081	Primidone	1.90	Spike	P	0 - 30
1876081	Silvex	18.1	Spike	P	0 - 30
1876081	Triclopyr	9.42	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

Quality Assurance Report Surrogates

Lab Sample ID: 1877147
Field Sample ID: G2CE0067

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	Sucralose-d6	85.0	P	40 - 150
USGS O-2060-01	2,4-D-d3	117	P	40 - 150
USGS O-2060-01	Acetaminophen-d4	83.4	P	30 - 150
USGS O-2060-01	Carbamazepine-d10	75.2	P	40 - 160
USGS O-2060-01	Diuron-d6	49.8	P	40 - 150
USGS O-2060-01	Primidone-d5	88.2	P	40 - 150

Lab Sample ID: 1877148
Field Sample ID: G2CE0011

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	Sucralose-d6	85.5	P	40 - 150
USGS O-2060-01	2,4-D-d3	99.4	P	40 - 150
USGS O-2060-01	Acetaminophen-d4	59.8	P	30 - 150
USGS O-2060-01	Carbamazepine-d10	60.4	P	40 - 160
USGS O-2060-01	Diuron-d6	48.6	P	40 - 150
USGS O-2060-01	Primidone-d5	88.0	P	40 - 150

Quality Assurance Report Calibration Verification

Reference Method: EPA 8321B
Run ID: A74898
Included Lab Sample IDs: 1877147, 1877148

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Sucralose	108	82.7	P/P	60 - 150

Reference Method: USGS O-2060-01
Run ID: A74966
Included Lab Sample IDs: 1877147, 1877148

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
2,4,5-T	96.0	96.2	P/P	50 - 150
2,4,5-T	97.0	96.0	P/P	50 - 150
2,4-D	126	128	P/P	50 - 150
2,4-D	128	125	P/P	50 - 150
2,4-DB	107	109	P/P	50 - 150
2,4-DB	109	113	P/P	50 - 150
Acifluorfen	106	106	P/P	50 - 150
Acifluorfen	87.8	106	P/P	50 - 150
Bentazon	112	112	P/P	50 - 150
Bentazon	112	115	P/P	50 - 150
Dicamba	136	126	P/P	50 - 150
Dicamba	97.4	136	P/P	50 - 150
Dichlorprop	120	121	P/P	50 - 150
Dichlorprop	121	121	P/P	50 - 150
Dinoseb	128	134	P/P	50 - 150
Dinoseb	134	135	P/P	50 - 150
MCPA	115	121	P/P	50 - 150
MCPA	116	115	P/P	50 - 150

Quality Assurance Report Calibration Verification

Reference Method: USGS O-2060-01

Run ID: A74966

Included Lab Sample IDs: 1877147, 1877148

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
MCP	119	122	P/P	50 - 150
MCP	122	129	P/P	50 - 150
Picloram	126	94.0	P/P	50 - 150
Picloram	94.0	119	P/P	50 - 150
Silvex	88.8	84.4	P/P	50 - 150
Silvex	89.2	88.8	P/P	50 - 150
Triclopyr	119	95.4	P/P	50 - 150
Triclopyr	95.4	119	P/P	50 - 150

Reference Method: USGS O-2060-01

Run ID: A74995

Included Lab Sample IDs: 1877147, 1877148

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Acetaminophen	126	119	P/P	60 - 150
Acetaminophen	141	126	P/P	60 - 150
Carbamazepine	116	125	P/P	60 - 150
Carbamazepine	122	116	P/P	60 - 150
Diuron	116	136	P/P	60 - 150
Diuron	136	125	P/P	60 - 150
Fenuron	118	118	P/P	60 - 150
Fenuron	118	122	P/P	60 - 150
Fluridone	110	115	P/P	60 - 150
Fluridone	115	112	P/P	60 - 150
Imidacloprid	98.4	107	P/P	60 - 150
Imidacloprid	98.4	98.4	P/P	60 - 150
Linuron	142	126	P/P	60 - 150
Linuron	149	142	P/P	60 - 150
Primidone	92.4	94.0	P/P	60 - 150
Primidone	94.0	82.8	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	LCS	Precision SMP	MS
EPA 8321B	Sucralose	92.7	86.9 80.3			7.22
USGS O-2060-01	2,4,5-T	89.2	98.8 106			7.03
	2,4-D	98.0	113 134			8.93
	2,4-DB	70.4	66.4 78.4			16.6
	Acetaminophen	122	49.6 53.6			7.75
	Acifluorfen	102	99.2 123			21.3
	Bentazon	103	203 222			6.44
	Carbamazepine	99.2	44.4 54.4			20.2
	Dicamba	97.6	70.0 87.2			21.9
	Dichlorprop	104	98.8 117			16.7

Quality Assurance Report Summary

Ref. Method	Analyte	LCS % Recovery	MS % Recovery		Precision SMP	MS
			LCS			
USGS O-2060-01	Dinoseb	96.8	71.6	119		49.6
	Diuron	89.6	42.4	45.2		6.39
	Fenuron	96.0	40.4	47.6		16.4
	Fluridone	90.8	52.1	55.3		5.67
	Imidacloprid	80.4	75.6	82.4		8.61
	Linuron	94.4	74.0	68.0		8.45
	MCPA	94.8	107	116		7.91
	MCPP	98.4	116	124		6.32
	Picloram	111	64.0	63.2		1.26
	Primidone	77.6	42.4	41.6		1.90
	Silvex	86.0	115	138		18.1
	Triclopyr	98.4	101	111		9.42

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 8321B / E31780	Water soluble organic compounds by HPLC/MS/MS	1877147, 1877148
USGS O-2060-01 / E31780	Chlorinated (phenoxy acid) herbicides in water matrices by HPLC/MS/MS	1877147, 1877148
USGS O-2060-01 / E31780	Urea herbicides and other chemicals in water matrices by HPLC/MS/MS	1877147, 1877148

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
EPA 8321B	03/02/2017	03/03/2017	Mohammad Ghaffari	03/03/2017	Mohammad Ghaffari	1877147, 1877148
USGS O-2060-01	03/02/2017	03/03/2017	Hoor Shaik	03/04/2017	Juyoung Kim	1877147, 1877148
	03/02/2017	03/03/2017	Hoor Shaik	03/05/2017	Juyoung Kim	1877147, 1877148