

Chemical Analysis Report

CEN-DIST-2017-10-25-02

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

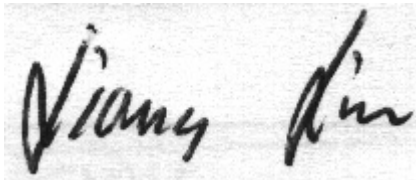
Event Description: **Crane Strand / Crane Strand Drain**
Request ID: **RQ-2017-10-23-30**
Customer: **CEN-DIST**
Project ID: **SMP**

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

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Certified by: Liang Lin, Environmental Administrator

Date Certified: 22-NOV-2017 11:27

A handwritten signature in black ink, appearing to read "Liang Lin", is shown on a light-colored 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: Crane Strand @ 100m DS of Econ Trl Brid

Collection Date/Time: 10/24/2017 10:05

Field ID: G2CE0076

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1939858	EPA 8321B	Sucralose**	0.69		ug/L	P334158	
	USGS O-2060-01	2,4-D	0.022	Q	ug/L	P335525	
		Diuron	0.0035		ug/L	P334159	
		Fenuron	0.0080	U	ug/L	P334159	
		Imidacloprid	0.020		ug/L	P334159	MS
		Bentazon	0.11	Q	ug/L	P335525	
		Linuron	0.0040	U	ug/L	P334159	
		Acetaminophen**	0.0080	U	ug/L	P334159	
		MCP	0.0020	UQ	ug/L	P335525	
		Carbamazepine**	0.0018	Q	ug/L	P335525	
		Triclopyr**	0.0040	UQ	ug/L	P335525	
		Primidone**	0.0040	U	ug/L	P334159	
		Fluridone**	0.032		ug/L	P334159	

Ref. Method and Comment:

USGS O-2060-01: Sample required re-extraction beyond normal holding time due to reagent performance inconsistencies.

Sample Location: Crane Strand Drain @ 100m US of University Blvd.

Collection Date/Time: 10/24/2017 10:40

Field ID: G2CE0077

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1939861	EPA 8321B	Sucralose**	0.21		ug/L	P334158	
	USGS O-2060-01	2,4-D	0.021	Q	ug/L	P335525	
		Diuron	0.0075		ug/L	P334159	
		Fenuron	0.0080	U	ug/L	P334159	
		Imidacloprid	0.023		ug/L	P334159	MS
		Bentazon	0.062	Q	ug/L	P335525	
		Linuron	0.0040	U	ug/L	P334159	
		Acetaminophen**	0.012	I	ug/L	P334159	
		MCP	0.0024	IQ	ug/L	P335525	
		Carbamazepine**	4.0E-04	UQ	ug/L	P335525	
		Triclopyr**	0.0040	UQ	ug/L	P335525	
		Primidone**	0.0040	U	ug/L	P334159	
		Fluridone**	0.047		ug/L	P334159	

Ref. Method and Comment:

USGS O-2060-01: Sample required re-extraction beyond normal holding time due to reagent performance inconsistencies.

Sample Location: Crane Strain Drain DUP @ 100m US of University Blvd.

Collection Date/Time: 10/24/2017 10:42

Field ID: G2CE0077_D

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1939859	EPA 8321B	Sucralose**	0.21		ug/L	P334158	
	USGS O-2060-01	2,4-D	0.019	Q	ug/L	P335525	
		Diuron	0.0070		ug/L	P334159	
		Fenuron	0.0080	U	ug/L	P334159	

Field ID: G2CE0077_D

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1939859	USGS O-2060-01	Imidacloprid	0.023		ug/L	P334159	MS
		Bentazon	0.057	Q	ug/L	P335525	
		Linuron	0.0040	U	ug/L	P334159	
		Acetaminophen**	0.011	I	ug/L	P334159	
		MCP	0.0021	IQ	ug/L	P335525	
		Carbamazepine**	4.0E-04	UQ	ug/L	P335525	
		Triclopyr**	0.0040	UQ	ug/L	P335525	
		Primidone**	0.0040	U	ug/L	P334159	
		Fluridone**	0.052		ug/L	P334159	

Ref. Method and Comment:

USGS O-2060-01: Sample required re-extraction beyond normal holding time due to reagent performance inconsistencies.

Sample Location: Field Blank

Collection Date/Time: 10/24/2017 10:50

Field ID: Field Blank

Matrix: W-FIELD-BK

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1939860	EPA 8321B	Sucralose**	0.010	U	ug/L	P334158	
	USGS O-2060-01	2,4-D	0.0020	UQ	ug/L	P335525	
		Diuron	8.0E-04	U	ug/L	P334159	
		Fenuron	0.0080	U	ug/L	P334159	
		Imidacloprid	8.0E-04	U	ug/L	P334159	MS
		Bentazon	8.0E-04	UQ	ug/L	P335525	
		Linuron	0.0040	U	ug/L	P334159	
		Acetaminophen**	0.0080	U	ug/L	P334159	
		MCP	0.0020	UQ	ug/L	P335525	
		Carbamazepine**	4.0E-04	UQ	ug/L	P335525	
		Triclopyr**	0.0040	UQ	ug/L	P335525	
		Primidone**	0.0040	U	ug/L	P334159	
		Fluridone**	4.0E-04	U	ug/L	P334159	

Ref. Method and Comment:

USGS O-2060-01: Sample required re-extraction beyond normal holding time due to reagent performance inconsistencies.

Quality Assurance Report

Method Blank Results

Reference Method: EPA 8321B

Batch ID: P334158

Component	Result	Code	Units
Sucralose	0.010	U	ug/L

Reference Method: USGS O-2060-01

Batch ID: P334159

Component	Result	Code	Units
Acetaminophen	0.0080	U	ug/L
Diuron	8.0E-04	U	ug/L
Fenuron	0.0080	U	ug/L
Fluridone	4.0E-04	U	ug/L
Imidacloprid	8.0E-04	U	ug/L

Quality Assurance Report Method Blank Results

Reference Method: USGS O-2060-01
 Batch ID: P334159

Component	Result	Code	Units
Linuron	0.0040	U	ug/L
Primidone	0.0040	U	ug/L

Reference Method: USGS O-2060-01
 Batch ID: P335525

Component	Result	Code	Units
2,4-D	0.0020	U	ug/L
Bentazon	8.0E-04	U	ug/L
Carbamazepine	4.0E-04	U	ug/L
MCP	0.0020	U	ug/L
Triclopyr	0.0040	U	ug/L

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 8321B
 Batch ID: P334158

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Sucralose	85.0		P	40 - 150

Reference Method: USGS O-2060-01
 Batch ID: P334159

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Acetaminophen	126		P	30 - 150
Diuron	105		P	40 - 150
Fenuron	56.8		P	40 - 150
Fluridone	109		P	40 - 150
Imidacloprid	108		P	40 - 160
Linuron	108		P	40 - 150
Primidone	105		P	40 - 150

Reference Method: USGS O-2060-01
 Batch ID: P335525

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2,4-D	92.9		P	40 - 150
Bentazon	87.8		P	30 - 150
Carbamazepine	108		P	40 - 150
MCP	68.4		P	40 - 150
Triclopyr	69.3		P	40 - 150

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 8321B
 Batch ID: P334158

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

Reference Method: EPA 8321B
 Batch ID: P334158

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1939692	Sucralose	64.6	64.6	P/P	40 - 150

Reference Method: USGS O-2060-01
 Batch ID: P334159

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1940015	Acetaminophen	139	120	P/P	30 - 150
1940015	Diuron	81.3	81.3	P/P	40 - 150
1940015	Fenuron	97.0	115	P/P	40 - 150
1940015	Fluridone	98.3	97.1	P/P	40 - 150
1940015	Imidacloprid	240	241	F/F	40 - 160
1940015	Linuron	115	113	P/P	40 - 150
1940015	Primidone	98.8	107	P/P	40 - 150

Reference Method: USGS O-2060-01
 Batch ID: P335525

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1939691	2,4-D	100	98.3	P/P	40 - 150
1939691	Bentazon	98.4	107	P/P	30 - 150
1939691	Carbamazepine	102	105	P/P	40 - 150
1939691	MCP	78.3	78.0	P/P	40 - 150
1939691	Triclopyr	79.9	81.5	P/P	40 - 150

Quality Assurance Report Precision

Reference Method: EPA 8321B
 Batch ID: P334158

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1939692	Sucralose	0.0	Spike	P	0 - 30

Reference Method: USGS O-2060-01
 Batch ID: P334159

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1940015	Acetaminophen	14.0	Spike	P	0 - 30
1940015	Diuron	0.0246	Spike	P	0 - 30
1940015	Fenuron	17.2	Spike	P	0 - 30
1940015	Fluridone	1.21	Spike	P	0 - 30
1940015	Imidacloprid	0.166	Spike	P	0 - 30
1940015	Linuron	2.40	Spike	P	0 - 30
1940015	Primidone	7.93	Spike	P	0 - 30

Quality Assurance Report Precision

Reference Method: USGS O-2060-01
Batch ID: P335525

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1939691	2,4-D	1.89	Spike	P	0 - 30
1939691	Bentazon	7.80	Spike	P	0 - 30
1939691	Carbamazepine	3.33	Spike	P	0 - 30
1939691	MCP	0.482	Spike	P	0 - 30
1939691	Triclopyr	1.87	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: 1939858
Field Sample ID: G2CE0076

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	Acetaminophen-d4	114	P	30 - 160
EPA 8321B	Carbamazepine-d10	88.1	P	30 - 160
EPA 8321B	Diuron-d6	75.0	P	30 - 160
EPA 8321B	Primidone-d5	102	P	30 - 160
EPA 8321B	Sucralose-d6	77.6	P	40 - 160
USGS O-2060-01	2,4-D-d3	76.2	P	30 - 160
USGS O-2060-01	Acetaminophen-d4	114	P	30 - 160
USGS O-2060-01	Carbamazepine-d10	88.1	P	30 - 160
USGS O-2060-01	Diuron-d6	75.0	P	30 - 160
USGS O-2060-01	Primidone-d5	102	P	30 - 160
USGS O-2060-01	Sucralose-d6	77.6	P	40 - 160

Lab Sample ID: 1939859
Field Sample ID: G2CE0077_D

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	Acetaminophen-d4	84.1	P	30 - 160
EPA 8321B	Carbamazepine-d10	86.6	P	30 - 160
EPA 8321B	Diuron-d6	76.1	P	30 - 160
EPA 8321B	Primidone-d5	97.7	P	30 - 160
EPA 8321B	Sucralose-d6	67.0	P	40 - 160
USGS O-2060-01	2,4-D-d3	66.3	P	30 - 160
USGS O-2060-01	Acetaminophen-d4	84.1	P	30 - 160
USGS O-2060-01	Carbamazepine-d10	86.6	P	30 - 160
USGS O-2060-01	Diuron-d6	76.1	P	30 - 160
USGS O-2060-01	Primidone-d5	97.7	P	30 - 160
USGS O-2060-01	Sucralose-d6	67.0	P	40 - 160

Lab Sample ID: 1939860
Field Sample ID: Field Blank

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	Acetaminophen-d4	154	P	30 - 160
EPA 8321B	Carbamazepine-d10	113	P	30 - 160

Quality Assurance Report Surrogates

Lab Sample ID: 1939860
Field Sample ID: Field Blank

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	Diuron-d6	120	P	30 - 160
EPA 8321B	Primidone-d5	113	P	30 - 160
EPA 8321B	Sucralose-d6	105	P	40 - 160
USGS O-2060-01	2,4-D-d3	96.2	P	30 - 160
USGS O-2060-01	Acetaminophen-d4	154	P	30 - 160
USGS O-2060-01	Carbamazepine-d10	113	P	30 - 160
USGS O-2060-01	Diuron-d6	120	P	30 - 160
USGS O-2060-01	Primidone-d5	113	P	30 - 160
USGS O-2060-01	Sucralose-d6	105	P	40 - 160

Lab Sample ID: 1939861
Field Sample ID: G2CE0077

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	Acetaminophen-d4	89.9	P	30 - 160
EPA 8321B	Carbamazepine-d10	88.0	P	30 - 160
EPA 8321B	Diuron-d6	83.9	P	30 - 160
EPA 8321B	Primidone-d5	105	P	30 - 160
EPA 8321B	Sucralose-d6	71.3	P	40 - 160
USGS O-2060-01	2,4-D-d3	72.3	P	30 - 160
USGS O-2060-01	Acetaminophen-d4	89.9	P	30 - 160
USGS O-2060-01	Carbamazepine-d10	88.0	P	30 - 160
USGS O-2060-01	Diuron-d6	83.9	P	30 - 160
USGS O-2060-01	Primidone-d5	105	P	30 - 160
USGS O-2060-01	Sucralose-d6	71.3	P	40 - 160

Quality Assurance Report Calibration Verification

Reference Method: EPA 8321B
Run ID: A79945
Included Lab Sample IDs: 1939858, 1939859, 1939860, 1939861

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Sucralose	97.1	98.8	P/P	60 - 150
Sucralose	98.8	103	P/P	60 - 150

Reference Method: USGS O-2060-01
Run ID: A80386
Included Lab Sample IDs: 1939858, 1939859, 1939860, 1939861

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
2,4-D	109	104	P/P	50 - 150
Bentazon	128	119	P/P	50 - 150
Carbamazepine	123	123	P/P	60 - 150
MCP	106	107	P/P	50 - 150
Triclopyr	102	101	P/P	50 - 150

Quality Assurance Report Calibration Verification

Reference Method: USGS O-2060-01

Run ID: A80401

Included Lab Sample IDs: 1939858, 1939859, 1939860, 1939861

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Acetaminophen	122	122	P/P	60 - 150
Acetaminophen	122	127	P/P	60 - 150
Diuron	113	115	P/P	60 - 150
Diuron	115	113	P/P	60 - 150
Fenuron	115	115	P/P	60 - 150
Fenuron	115	115	P/P	60 - 150
Fluridone	125	125	P/P	60 - 160
Fluridone	125	125	P/P	60 - 160
Imidacloprid	108	114	P/P	60 - 150
Imidacloprid	113	108	P/P	60 - 150
Linuron	119	125	P/P	60 - 150
Linuron	121	119	P/P	60 - 150
Primidone	108	114	P/P	60 - 150
Primidone	114	116	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	85.0	64.6 64.6			0.0
USGS O-2060-01	2,4-D	92.9	100 98.3			1.89
	Acetaminophen	126	139 120			14.0
	Bentazon	87.8	98.4 107			7.80
	Carbamazepine	108	102 105			3.33
	Diuron	105	81.3 81.3			0.0246
	Fenuron	56.8	97.0 115			17.2
	Fluridone	109	98.3 97.1			1.21
	Imidacloprid	108	240 241			0.166
	Linuron	108	115 113			2.40
	MCP	68.4	78.3 78.0			0.482
	Primidone	105	98.8 107			7.93
	Triclopyr	69.3	79.9 81.5			1.87

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 8321B / E31780	Analysis of sucralose in water matrices by HPLC/MS/MS	1939858, 1939859, 1939860, 1939861
USGS O-2060-01 / E31780	Chlorinated (phenoxy acid) herbicides in water matrices by HPLC/MS/MS	1939858, 1939859, 1939860, 1939861
USGS O-2060-01 / E31780	Urea herbicides and other chemicals in water matrices by HPLC/MS/MS	1939858, 1939859, 1939860, 1939861

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
EPA 8321B	10/25/2017	10/30/2017	Juyoung Kim	10/30/2017	Juyoung Kim	1939858, 1939859, 1939860, 1939861
USGS O-2060-01	10/25/2017	10/30/2017	Hoor Shaik	11/02/2017	Julie Michelle Frank	1939858, 1939859, 1939860, 1939861
	10/25/2017	11/16/2017	Hoor Shaik	11/20/2017	Julie Michelle Frank	1939858, 1939859, 1939860, 1939861