

Chemical Analysis Report

CEN-DIST-2017-03-14-02

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

Event Description: **Eau Gallie / Crane Crk**
Request ID: **RQ-2017-03-13-44**
Customer: **CEN-DIST**
Project ID: **SMP**

Send Reports to:
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Date Certified: 05-APR-2017 14:49



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: Eau Gallie River @ boat ramp

Collection Date/Time: 03/13/2017 12:30

Field ID: G5CE0088

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1880003	EPA 8321B	Sucralose**	0.21		ug/L	P321518	
	USGS O-2060-01	2,4-D	0.45		ug/L	P321577	
		Diuron	0.0040	U	ug/L	P321577	
		Fenuron	0.0080	U	ug/L	P321577	
		Imidacloprid	0.0040	U	ug/L	P321577	
		Bentazon	0.063		ug/L	P321577	MS
		Linuron	0.0040	UJ	ug/L	P321577	CCV
		Acetaminophen**	0.0040	U	ug/L	P321577	
		MCP	0.0040	U	ug/L	P321577	
		Carbamazepine**	4.0E-04	U	ug/L	P321577	
		Triclopyr**	0.010	U	ug/L	P321577	
		Primidone**	0.0080	U	ug/L	P321577	
		Fluridone**	0.0021		ug/L	P321577	

Ref. Method and Comment:

USGS O-2060-01: Refer to the narrative for an explanation of QC Codes.

Sample Location: Crane Creek @ 65m upstream of US-1 bridge

Collection Date/Time: 03/13/2017 11:30

Field ID: G5CE0089

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1880004	EPA 8321B	Sucralose**	0.26		ug/L	P321518	
	USGS O-2060-01	2,4-D	0.034		ug/L	P321577	
		Diuron	0.0040	U	ug/L	P321577	
		Fenuron	0.0080	U	ug/L	P321577	
		Imidacloprid	0.0040	U	ug/L	P321577	
		Bentazon	0.16		ug/L	P321577	MS
		Linuron	0.0040	UJ	ug/L	P321577	CCV
		Acetaminophen**	0.0040	U	ug/L	P321577	
		MCP	0.0040	U	ug/L	P321577	
		Carbamazepine**	0.0013	I	ug/L	P321577	
		Triclopyr**	0.057		ug/L	P321577	
		Primidone**	0.0080	U	ug/L	P321577	
		Fluridone**	0.0081		ug/L	P321577	

Ref. Method and Comment:

USGS O-2060-01: Results confirmed in re-extraction.

USGS O-2060-01: Results confirmed in re-extraction. Refer to the narrative for an explanation of QC Codes.

Quality Assurance Report

Method Blank Results

Reference Method: EPA 8321B

Batch ID: P321518

Component	Result	Code	Units
Sucralose	0.010	U	ug/L

Quality Assurance Report Method Blank Results

Reference Method: USGS O-2060-01
 Batch ID: P321577

Component	Result	Code	Units
2,4-D	0.0040	U	ug/L
Acetaminophen	0.0040	U	ug/L
Bentazon	0.0040	U	ug/L
Carbamazepine	4.0E-04	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
MCP	0.0040	U	ug/L
Primidone	0.0080	U	ug/L
Triclopyr	0.010	U	ug/L

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 8321B
 Batch ID: P321518

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Sucralose	67.5		P	40 - 140

Reference Method: USGS O-2060-01
 Batch ID: P321577

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2,4-D	106		P	40 - 140
Acetaminophen	108		P	40 - 140
Bentazon	94.8		P	40 - 140
Carbamazepine	79.2		P	40 - 140
Diuron	59.6		P	40 - 140
Fenuron	77.6		P	40 - 140
Fluridone	76.0		P	40 - 140
Imidacloprid	67.6		P	40 - 160
Linuron	97.2		P	40 - 140
MCP	106		P	40 - 140
Primidone	108		P	40 - 140
Triclopyr	87.6		P	40 - 140

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 8321B
 Batch ID: P321518

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1880183	Sucralose	63.4	86.4	P/P	40 - 140

Quality Assurance Report Matrix Spike Accuracy

Reference Method: USGS O-2060-01
Batch ID: P321577

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1880315	2,4-D	134	137	P/P	40 - 140
1880315	Acetaminophen	66.4	62.4	P/P	40 - 140
1880315	Bentazon	206	199	F/F	40 - 140
1880315	Carbamazepine	80.0	86.0	P/P	40 - 140
1880315	Diuron	79.2	74.4	P/P	40 - 140
1880315	Fenuron	75.2	74.4	P/P	40 - 140
1880315	Fluridone	72.8	65.6	P/P	40 - 140
1880315	Imidacloprid	142	138	P/P	40 - 160
1880315	Linuron	135	128	P/P	40 - 140
1880315	MCP	128	129	P/P	40 - 140
1880315	Primidone	105	81.2	P/P	40 - 140
1880315	Triclopyr	106	102	P/P	40 - 140

Quality Assurance Report Precision

Reference Method: EPA 8321B
Batch ID: P321518

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1880183	Sucralose	14.6	Spike	P	0 - 30

Reference Method: USGS O-2060-01
Batch ID: P321577

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1880315	2,4-D	2.50	Spike	P	0 - 30
1880315	Acetaminophen	6.21	Spike	P	0 - 30
1880315	Bentazon	3.36	Spike	P	0 - 30
1880315	Carbamazepine	7.23	Spike	P	0 - 30
1880315	Diuron	6.25	Spike	P	0 - 30
1880315	Fenuron	1.07	Spike	P	0 - 30
1880315	Fluridone	10.2	Spike	P	0 - 30
1880315	Imidacloprid	2.58	Spike	P	0 - 30
1880315	Linuron	5.16	Spike	P	0 - 30
1880315	MCP	1.25	Spike	P	0 - 30
1880315	Primidone	25.8	Spike	P	0 - 30
1880315	Triclopyr	3.47	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: 1880003
Field Sample ID: G5CE0088

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
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Quality Assurance Report Surrogates

Lab Sample ID: 1880003
Field Sample ID: G5CE0088

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	Sucralose-d6	81.0	P	40 - 150
USGS O-2060-01	2,4-D-d3	113	P	40 - 150
USGS O-2060-01	Acetaminophen-d4	57.6	P	30 - 150
USGS O-2060-01	Carbamazepine-d10	55.0	P	40 - 160
USGS O-2060-01	Diuron-d6	49.8	P	40 - 150
USGS O-2060-01	Primidone-d5	77.4	P	40 - 150

Lab Sample ID: 1880004
Field Sample ID: G5CE0089

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	Sucralose-d6	91.0	P	40 - 150
USGS O-2060-01	2,4-D-d3	116	P	40 - 150
USGS O-2060-01	Acetaminophen-d4	62.8	P	30 - 150
USGS O-2060-01	Carbamazepine-d10	53.2	P	40 - 160
USGS O-2060-01	Diuron-d6	46.0	P	40 - 150
USGS O-2060-01	Primidone-d5	66.4	P	40 - 150

Quality Assurance Report Calibration Verification

Reference Method: EPA 8321B
Run ID: A75135
Included Lab Sample IDs: 1880003, 1880004

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Sucralose	73.6	103	P/P	60 - 150

Reference Method: USGS O-2060-01
Run ID: A75159
Included Lab Sample IDs: 1880003, 1880004

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Acetaminophen	104	107	P/P	60 - 150
Carbamazepine	146	149	P/P	60 - 150
Diuron	122	121	P/P	60 - 150
Fenuron	127	130	P/P	60 - 150
Fluridone	103	102	P/P	60 - 150
Imidacloprid	109	128	P/P	60 - 150
Linuron	187*	175*	F/F	60 - 150
Primidone	101	119	P/P	60 - 150

Reference Method: USGS O-2060-01
Run ID: A75269
Included Lab Sample IDs: 1880003, 1880004

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
2,4-D	112	119	P/P	50 - 150
Bentazon	98.2	105	P/P	50 - 150
MCP	110	118	P/P	50 - 150
Triclopyr	92.6	98.6	P/P	50 - 150

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	Sucralose	67.5	63.4	86.4		14.6
USGS O-2060-01	2,4-D	106	134	137		2.50
	Acetaminophen	108	66.4	62.4		6.21
	Bentazon	94.8	206	199		3.36
	Carbamazepine	79.2	80.0	86.0		7.23
	Diuron	59.6	79.2	74.4		6.25
	Fenuron	77.6	75.2	74.4		1.07
	Fluridone	76.0	72.8	65.6		10.2
	Imidacloprid	67.6	142	138		2.58
	Linuron	97.2	135	128		5.16
	MCPP	106	128	129		1.25
	Primidone	108	105	81.2		25.8
	Triclopyr	87.6	106	102		3.47

Reference Method Descriptions

Method / DoH Cert #	Description	<u>Associated Samples</u>
EPA 8321B / E31780	Water soluble organic compounds by HPLC/MS/MS	1880003, 1880004
USGS O-2060-01 / E31780	Chlorinated (phenoxy acid) herbicides in water matrices by HPLC/MS/MS	1880003, 1880004
USGS O-2060-01 / E31780	Urea herbicides and other chemicals in water matrices by HPLC/MS/MS	1880003, 1880004

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
EPA 8321B	03/14/2017	03/15/2017	Mohammad Ghaffari	03/16/2017	Mohammad Ghaffari	1880003, 1880004
USGS O-2060-01	03/14/2017	03/16/2017	Hoor Shaik	03/18/2017	Juyoung Kim	1880003, 1880004
	03/14/2017	03/16/2017	Hoor Shaik	03/22/2017	Juyoung Kim	1880003, 1880004