

Chemical Analysis Report

NW-DIST-2023-02-08-01

Florida DEP Laboratory
2600 Blair Stone Road
Tallahassee, FL 32399-2400
DOH Accreditation E31780

Event Description: **Freeport Run**
Request ID: **RQ-2023-02-06-37**
Customer: **NW-DIST**
Project ID: **SMP**

Send Reports to:
FL Dept. of Environmental Protection
160 W Government Street
Suite 208
Pensacola, FL 32502-5794
Attn: Myranda Butler

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Certified by: Kerry Tate, Ph.D., Environmental Administrator

Date Certified: 15-FEB-2023 12:08

A handwritten signature in black ink that reads "Kerry Tate". The signature is written in a cursive, flowing style with a horizontal line extending from the end of the 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: Little Black Creek upstream of Black Creek

Collection Date/Time: 02/06/2023 09:35

Field ID: G3NW0200

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2385908	EPA 8321B	2,4-D	0.0020	U	ug/L	P425592	
		Acesulfame K	0.10	U	ug/L	P425414	
		2,4,5-T	0.0040	U	ug/L	P425592	
		AMPA	0.10	U	ug/L	P425414	
		Acetaminophen	0.0080	U	ug/L	P425592	
		Acetamiprid	0.0020	U	ug/L	P425592	
		Endothall	0.25	U	ug/L	P425414	
		Glufosinate	0.10	U	ug/L	P425414	
		Glyphosate	0.10	U	ug/L	P425414	
		Afidopyropen	0.0020	U	ug/L	P425592	
		Bentazon	8.0E-04	U	ug/L	P425592	
		Sucralose	0.014	I	ug/L	P425414	
		Benzovindiflupyr	0.0020	U	ug/L	P425592	
		Carbamazepine	8.0E-04	UJ	ug/L	P425592	CCV
		Clothianidin	0.0020	U	ug/L	P425592	
		Dinotefuran	0.0020	U	ug/L	P425592	
		Diuron	0.0020	U	ug/L	P425592	
		Fenuron	0.032	U	ug/L	P425592	
		Fluridone	8.0E-04	U	ug/L	P425592	
		Imazapyr	0.0040	U	ug/L	P425592	
		Hydrocodone	0.0020	U	ug/L	P425592	
		Ibuprofen	0.080	U	ug/L	P425592	
		Imidacloprid	0.0020	U	ug/L	P425592	
		Linuron	0.0040	U	ug/L	P425592	
		Mandestrobin	0.0020	U	ug/L	P425592	
		MCPP	0.0020	U	ug/L	P425592	
		Naproxen	0.0080	U	ug/L	P425592	RPD
		Primidone	0.0040	U	ug/L	P425592	
		Pyraclostrobin	0.0020	U	ug/L	P425592	
		Silvex	0.0040	U	ug/L	P425592	
		Thiamethoxam	0.0020	U	ug/L	P425592	
		Tolfenpyrad	0.0020	U	ug/L	P425592	
		Triclopyr	0.0040	U	ug/L	P425592	

Ref. Method and Comment:

EPA 8321B: Refer to the Lab Analysis Report for an explanation of QC Codes.

Quality Assurance Report

Method Blank Results

Reference Method: EPA 8321B

Batch ID: P425414

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

Reference Method: EPA 8321B

Batch ID: P425592

Component	Result	Code	Units
2,4-D	0.0020	U	ug/L
2,4,5-T	0.0040	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	0.032	U	ug/L
Fluridone	8.0E-04	U	ug/L
Hydrocodone	0.0020	U	ug/L
Ibuprofen	0.080	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
Silvex	0.0040	U	ug/L
Thiamethoxam	0.0020	U	ug/L
Tolfenpyrad	0.0020	U	ug/L
Triclopyr	0.0040	U	ug/L

Quality Assurance Report

Laboratory Control Sample Accuracy

Reference Method: EPA 8321B
Batch ID: P425414

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Acesulfame K	134		P	40 - 150
AMPA	95.3		P	40 - 150
Endothall	98.7		P	40 - 150
Glufosinate	112		P	40 - 150
Glyphosate	92.5		P	40 - 150
Sucralose	137		P	40 - 150

Reference Method: EPA 8321B
Batch ID: P425592

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2,4-D	85.8		P	40 - 150
2,4,5-T	77.3		P	40 - 150
Acetaminophen	83.3		P	30 - 150
Acetamiprid	82.1		P	40 - 150
Afidopyropen	61.5		P	30 - 150
Bentazon	91.0		P	30 - 150
Benzovindiflupyr	84.8		P	40 - 150
Carbamazepine	90.7		P	40 - 150
Clothianidin	94.4		P	40 - 150
Dinotefuran	98.8		P	40 - 150
Diuron	75.7		P	40 - 150
Fenuron	96.1		P	40 - 150
Fluridone	80.2		P	40 - 150
Hydrocodone	86.0		P	40 - 150
Ibuprofen	56.8		P	40 - 150
Imazapyr	83.3		P	40 - 150
Imidacloprid	84.3		P	40 - 150
Linuron	76.7		P	40 - 150
Mandestrobin	97.8		P	40 - 150
MCPP	97.5		P	40 - 150
Naproxen	63.2		P	40 - 150
Primidone	89.3		P	40 - 150
Pyraclostrobin	78.3		P	40 - 150
Silvex	72.1		P	40 - 150
Thiamethoxam	82.5		P	40 - 150
Tolfenpyrad	44.6		P	30 - 150
Triclopyr	77.2		P	40 - 150

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 8321B

Batch ID: P425414

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2385040	Acesulfame K	91.0	86.9	P/P	40 - 150
2385040	AMPA	91.5	95.2	P/P	40 - 150
2385040	Endothall	101	107	P/P	40 - 150
2385040	Glufosinate	110	91.9	P/P	40 - 150
2385040	Glyphosate	104	100	P/P	40 - 150
2385040	Sucralose	134	134	P/P	40 - 150

Reference Method: EPA 8321B

Batch ID: P425592

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2385435	2,4-D	127	98.5	P/P	40 - 150
2385435	2,4,5-T	111	106	P/P	40 - 150
2385435	Acetaminophen	107	96.4	P/P	30 - 150
2385435	Acetamiprid	96.2	106	P/P	40 - 150
2385435	Afidopyropen	65.1	73.9	P/P	30 - 150
2385435	Bentazon	91.0	88.0	P/P	30 - 150
2385435	Benzovindiflupyr	98.2	92.0	P/P	40 - 150
2385435	Carbamazepine	86.9	84.5	P/P	40 - 150
2385435	Clothianidin	125	116	P/P	40 - 150
2385435	Dinotefuran	122	116	P/P	40 - 150
2385435	Diuron	71.9	65.6	P/P	40 - 150
2385435	Fenuron	87.7	85.7	P/P	40 - 150
2385435	Fluridone	83.6	71.6	P/P	40 - 150
2385435	Hydrocodone	112	102	P/P	40 - 150
2385435	Ibuprofen	79.3	81.3	P/P	40 - 150
2385435	Imazapyr	122	113	P/P	40 - 150
2385435	Imidacloprid	149	131	P/P	40 - 150
2385435	Linuron	96.3	73.0	P/P	40 - 150
2385435	Mandestrobin	111	105	P/P	40 - 150
2385435	MCPP	123	116	P/P	40 - 150
2385435	Naproxen	126	78.6	P/P	40 - 150
2385435	Primidone	114	104	P/P	40 - 150
2385435	Pyraclostrobin	94.3	86.2	P/P	40 - 150
2385435	Silvex	86.5	83.6	P/P	40 - 150
2385435	Thiamethoxam	118	111	P/P	40 - 150
2385435	Tolfenpyrad	57.2	49.7	P/P	30 - 150
2385435	Triclopyr	88.3	82.2	P/P	40 - 150

Quality Assurance Report Precision

Reference Method: EPA 8321B
Batch ID: P425414

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2385040	Acesulfame K	4.72	Spike	P	0 - 30
2385040	AMPA	3.73	Spike	P	0 - 30
2385040	Endothall	5.53	Spike	P	0 - 30
2385040	Glufosinate	17.5	Spike	P	0 - 30
2385040	Glyphosate	3.57	Spike	P	0 - 30
2385040	Sucralose	0.655	Spike	P	0 - 30

Reference Method: EPA 8321B
Batch ID: P425592

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2385435	2,4-D	18.6	Spike	P	0 - 30
2385435	2,4,5-T	5.22	Spike	P	0 - 30
2385435	Acetaminophen	10.5	Spike	P	0 - 30
2385435	Acetamiprid	9.76	Spike	P	0 - 30
2385435	Afidopyropen	12.6	Spike	P	0 - 30
2385435	Bentazon	3.34	Spike	P	0 - 30
2385435	Benzovindiflupyr	6.57	Spike	P	0 - 30
2385435	Carbamazepine	2.86	Spike	P	0 - 30
2385435	Clothianidin	7.49	Spike	P	0 - 30
2385435	Dinotefuran	5.58	Spike	P	0 - 30
2385435	Diuron	9.24	Spike	P	0 - 30
2385435	Fenuron	2.26	Spike	P	0 - 30
2385435	Fluridone	15.6	Spike	P	0 - 30
2385435	Hydrocodone	9.17	Spike	P	0 - 30
2385435	Ibuprofen	2.45	Spike	P	0 - 30
2385435	Imazapyr	6.55	Spike	P	0 - 30
2385435	Imidacloprid	12.9	Spike	P	0 - 30
2385435	Linuron	27.5	Spike	P	0 - 30
2385435	Mandestrobin	5.39	Spike	P	0 - 30
2385435	MCPP	6.06	Spike	P	0 - 30
2385435	Naproxen	46.1	Spike	F	0 - 30
2385435	Primidone	9.12	Spike	P	0 - 30
2385435	Pyraclostrobin	8.98	Spike	P	0 - 30
2385435	Silvex	3.48	Spike	P	0 - 30
2385435	Thiamethoxam	6.64	Spike	P	0 - 30
2385435	Tolfenpyrad	14.1	Spike	P	0 - 30
2385435	Triclopyr	7.10	Spike	P	0 - 30

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

Quality Assurance Report Surrogates

Lab Sample ID: 2385908

Field Sample ID: G3NW0200

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	2,4-D-d3	101	P	30 - 160
EPA 8321B	Acetaminophen-d4	95.0	P	30 - 160
EPA 8321B	Carbamazepine-d10	108	P	30 - 160
EPA 8321B	Diuron-d6	79.4	P	30 - 160
EPA 8321B	Endothall-d6	96.9	P	30 - 160
EPA 8321B	Glyphosate 13C 15N	93.3	P	30 - 160
EPA 8321B	Ibuprofen-d3	93.5	P	30 - 160
EPA 8321B	Primidone-d5	96.6	P	30 - 160
EPA 8321B	Sucralose-d6	131	P	30 - 160

Quality Assurance Report Calibration Verification

Reference Method: EPA 8321B
Run ID: A117380
Included Lab Sample IDs: 2385908

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Acesulfame K	120	114	P/P	60 - 160
Sucralose	131	132	P/P	60 - 160

Reference Method: EPA 8321B
Run ID: A117382
Included Lab Sample IDs: 2385908

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
AMPA	90.2	90.6	P/P	60 - 160
Endothall	70.1	95.5	P/P	60 - 160
Glufosinate	84.4	87.9	P/P	60 - 160
Glyphosate	93.6	96.1	P/P	60 - 160

Reference Method: EPA 8321B
Run ID: A117405
Included Lab Sample IDs: 2385908

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
2,4-D	103	119	P/P	50 - 150
2,4,5-T	107	85.1	P/P	50 - 150
Acetaminophen	102	100	P/P	60 - 160
Acetamiprid	104	97.9	P/P	50 - 150
Afidopyropen	90.2	57.5	P/P	50 - 150
Bentazon	117	126	P/P	50 - 160
Benzovindiflupyr	106	111	P/P	50 - 150
Carbamazepine	111	160*	P/F	60 - 150
Clothianidin	102	108	P/P	60 - 150
Dinotefuran	101	105	P/P	50 - 150
Diuron	113	104	P/P	60 - 160
Fenuron	94.7	94.6	P/P	60 - 150
Fluridone	110	113	P/P	60 - 160
Hydrocodone	105	102	P/P	60 - 150
Ibuprofen	104	95.5	P/P	50 - 160
Imazapyr	94.9	95.0	P/P	50 - 150
Imidacloprid	91.0	92.2	P/P	60 - 150
Linuron	97.7	109	P/P	60 - 150
Mandestrobin	106	107	P/P	50 - 150
MCPP	110	110	P/P	50 - 150
Naproxen	84.0	88.1	P/P	50 - 160
Primidone	99.2	100	P/P	60 - 150
Pyraclostrobin	109	108	P/P	60 - 150
Silvex	104	103	P/P	50 - 150
Thiamethoxam	93.3	95.3	P/P	50 - 150
Tolfenpyrad	104	103	P/P	60 - 150
Triclopyr	93.1	75.7	P/P	50 - 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 SMP	MS
			LCS			
EPA 8321B	2,4-D	85.8	127	98.5		18.6
	2,4,5-T	77.3	111	106		5.22
	Acesulfame K	134	91.0	86.9		4.72
	Acetaminophen	83.3	107	96.4		10.5
	Acetamiprid	82.1	96.2	106		9.76
	Afidopyropen	61.5	65.1	73.9		12.6
	AMPA	95.3	91.5	95.2		3.73
	Bentazon	91.0	91.0	88.0		3.34
	Benzovindiflupyr	84.8	98.2	92.0		6.57
	Carbamazepine	90.7	86.9	84.5		2.86
	Clothianidin	94.4	125	116		7.49
	Dinotefuran	98.8	122	116		5.58
	Diuron	75.7	71.9	65.6		9.24
	Endothall	98.7	101	107		5.53
	Fenuron	96.1	87.7	85.7		2.26
	Fluridone	80.2	83.6	71.6		15.6
	Glufosinate	112	110	91.9		17.5
	Glyphosate	92.5	104	100		3.57
	Hydrocodone	86.0	112	102		9.17
	Ibuprofen	56.8	79.3	81.3		2.45
	Imazapyr	83.3	122	113		6.55
	Imidacloprid	84.3	149	131		12.9
	Linuron	76.7	96.3	73.0		27.5
	Mandestrobin	97.8	111	105		5.39
	MCPP	97.5	123	116		6.06
	Naproxen	63.2	126	78.6		46.1
	Primidone	89.3	114	104		9.12
	Pyraclostrobin	78.3	94.3	86.2		8.98
	Silvex	72.1	86.5	83.6		3.48
	Sucralose	137	134	134		0.655
	Thiamethoxam	82.5	118	111		6.64
	Tolfenpyrad	44.6	57.2	49.7		14.1
	Triclopyr	77.2	88.3	82.2		7.10

Reference Method Descriptions

Method	Description	Associated Samples
EPA 8321B	Pesticides, herbicides, and other chemicals in water matrices by HPLC/MS/MS	2385908

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
EPA 8321B	02/08/2023	02/08/2023 16:00	Manjita Shrestha	02/08/2023 23:33	Manjita Shrestha	2385908
	02/08/2023	02/08/2023 16:00	Manjita Shrestha	02/09/2023 07:41	Manjita Shrestha	2385908
	02/08/2023	02/10/2023 10:00	June Rhew	02/11/2023 03:00	Juyoung Kim	2385908