Chemical Analysis Report

CEN-DIST-2018-04-05-01

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

Event Description: **Six / Soldier / LW(w) / Gee / Howell**
Request ID: **RQ-2018-04-02-51**
Customer: **CEN-DIST**
Project ID: **SMP**

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Certified by: Dr. rer. nat. Bettina Steinbock, Environmental Administrator Date Certified: 03-MAY-2018 15:40

B. Steinbock

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: HOWELL CREEK @ 150M US OF LAKE HOWELL (2997A) **Collection Date/Time: 04/04/2018 09:42**

Field ID: G2CE0072 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1981715	EPA 8321B	2,4-D	0.0092		ug/L	P342880	
		Sucralose**	0.22	I	ug/L	P342827	
		Bentazon	0.027		ug/L	P342880	
		MCPP	0.0031	I	ug/L	P342880	
		Triclopyr**	0.0040	U	ug/L	P342880	
		Imidacloprid	0.0064	I	ug/L	P342880	MS
		Diuron	0.022		ug/L	P342880	
		Pyraclostrobin**	0.0020	U	ug/L	P342880	
		Primidone**	0.0040	U	ug/L	P342880	
		Linuron	0.0040	U	ug/L	P342880	
		Acetaminophen**	0.0080	U	ug/L	P342880	MS
		Fenuron	0.016	U	ug/L	P342880	
		Imazapyr**	0.032		ug/L	P342880	
		Carbamazepine**	0.0016		ug/L	P342880	
		Fluridone**	0.011		ug/L	P342880	
		Hydrocodone**	8.0E-04	U	ug/L	P342880	

Sample Location: HOWELL CREEK @ US OF LAKE HOWELL LN (2997A) **Collection Date/Time: 04/04/2018 09:22**

Field ID: G2CE0138 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1981716	EPA 8321B	2,4-D	0.013		ug/L	P342880	
		Sucralose**	0.30	I	ug/L	P342827	
		Bentazon	0.023		ug/L	P342880	
		MCPP	0.0039	I	ug/L	P342880	
		Triclopyr**	0.0040	U	ug/L	P342880	
		Imidacloprid	0.013		ug/L	P342880	MS
		Diuron	0.028		ug/L	P342880	
		Pyraclostrobin**	0.0020	U	ug/L	P342880	
		Primidone**	0.0040	U	ug/L	P342880	
		Linuron	0.0040	U	ug/L	P342880	
		Acetaminophen**	0.0080	U	ug/L	P342880	MS
		Fenuron	0.016	U	ug/L	P342880	
		Imazapyr**	0.046		ug/L	P342880	
		Carbamazepine**	4.0E-04	U	ug/L	P342880	
		Fluridone**	0.014		ug/L	P342880	
		Hydrocodone**	8.0E-04	U	ug/L	P342880	

Sample Location: GEE CREEK @ SR HWY 419 (2994A) **Collection Date/Time: 04/04/2018 10:11**

Field ID: G2CE0075 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1981709	EPA 8321B	2,4-D	0.0092		ug/L	P342820	

Field ID: G2CE0075 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1981709	EPA 8321B	Sucralose**	1.2		ug/L	P342827	
		Bentazon	0.16		ug/L	P342820	
		MCPP	0.0047	I	ug/L	P342820	
		Triclopyr**	0.0040	U	ug/L	P342820	
		Imidacloprid	0.064		ug/L	P342820	
		Diuron	0.0024	I	ug/L	P342820	
		Pyraclostrobin**	0.0020	U	ug/L	P342820	
		Primidone**	0.011	I	ug/L	P342820	
		Linuron	0.0040	U	ug/L	P342820	
		Acetaminophen**	0.0080	UJ	ug/L	P342820	SUR
		Fenuron	0.016	U	ug/L	P342820	
		Imazapyr**	0.15		ug/L	P342820	
		Carbamazepine**	0.0063		ug/L	P342820	
		Fluridone**	0.015		ug/L	P342820	
		Hydrocodone**	8.0E-04	U	ug/L	P342820	

Ref. Method and Comment:
EPA 8321B: Refer to the narrative for an explanation of QC Codes.

Sample Location: GEE CREEK @ ALTON RD (2994A) **Collection Date/Time: 04/04/2018 10:29**

Field ID: G2CE0161 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1981710	EPA 8321B	2,4-D	0.0046	I	ug/L	P342820	
		Sucralose**	0.87		ug/L	P342827	
		Bentazon	0.019		ug/L	P342820	
		MCPP	0.0039	I	ug/L	P342820	
		Triclopyr**	0.0040	U	ug/L	P342820	
		Imidacloprid	0.015		ug/L	P342820	
		Diuron	0.0029	I	ug/L	P342820	
		Pyraclostrobin**	0.0020	U	ug/L	P342820	
		Primidone**	0.0061	I	ug/L	P342820	
		Linuron	0.0040	U	ug/L	P342820	
		Acetaminophen**	0.0080	U	ug/L	P342820	
		Fenuron	0.016	U	ug/L	P342820	
		Imazapyr**	0.048		ug/L	P342820	
		Carbamazepine**	0.0055		ug/L	P342820	
		Fluridone**	0.019		ug/L	P342820	
		Hydrocodone**	8.0E-04	U	ug/L	P342820	

Sample Location: SOLDIER CREEK @ JUST DOWNSTREAM OF SR HWY 419 (2986) **Collection Date/Time: 04/04/2018 10:47**

Field ID: G2CE0162 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1981713	EPA 8321B	2,4-D	0.013		ug/L	P342820	
		Sucralose**	1.3		ug/L	P342827	

Field ID: G2CE0162 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1981713	EPA 8321B	Bentazon	0.074		ug/L	P342820	
		MCPP	0.0020	I	ug/L	P342820	
		Triclopyr**	0.0040	U	ug/L	P342820	
		Imidacloprid	0.063		ug/L	P342820	
		Diuron	0.0020	U	ug/L	P342820	
		Pyraclostrobin**	0.0020	U	ug/L	P342820	
		Primidone**	0.016	I	ug/L	P342820	
		Linuron	0.0040	U	ug/L	P342820	
		Acetaminophen**	0.0080	UJ	ug/L	P342820	SUR
		Fenuron	0.016	U	ug/L	P342820	
		Imazapyr**	0.25		ug/L	P342820	
		Carbamazepine**	0.015		ug/L	P342820	
		Fluridone**	0.021		ug/L	P342820	
		Hydrocodone**	8.0E-04	U	ug/L	P342820	

Ref. Method and Comment:
EPA 8321B: Refer to the narrative for an explanation of QC Codes.

Sample Location: SOLDIER CREEK @ 150m UPSTREAM OF SR HWY 419 (2986) **Collection Date/Time: 04/04/2018 11:00**

Field ID: G2CE0071 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1981714	EPA 8321B	2,4-D	0.012		ug/L	P342880	
		Sucralose**	1.9		ug/L	P342827	
		Bentazon	0.13		ug/L	P342880	
		MCPP	0.0020	U	ug/L	P342880	
		Triclopyr**	0.0040	U	ug/L	P342880	
		Imidacloprid	0.039		ug/L	P342880	MS
		Diuron	0.0020	U	ug/L	P342880	
		Pyraclostrobin**	0.0020	U	ug/L	P342880	
		Primidone**	0.017		ug/L	P342880	
		Linuron	0.0040	U	ug/L	P342880	
		Acetaminophen**	0.0080	U	ug/L	P342880	MS
		Fenuron	0.016	U	ug/L	P342880	
		Imazapyr**	0.25		ug/L	P342880	
		Carbamazepine**	0.015		ug/L	P342880	
		Fluridone**	0.012		ug/L	P342880	
		Hydrocodone**	8.0E-04	U	ug/L	P342880	

Sample Location: SIX MILE @ 400M US OF LAKE JESSUP (2984) **Collection Date/Time: 04/04/2018 11:18**

Field ID: G2CE0074 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1981711	EPA 8321B	2,4-D	0.021		ug/L	P342820	
		Sucralose**	0.14	I	ug/L	P342827	
		Bentazon	0.026		ug/L	P342820	

Field ID: G2CE0074 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1981711	EPA 8321B	MCPP	0.0020	U	ug/L	P342820	
		Triclopyr**	0.0040	U	ug/L	P342820	
		Imidacloprid	0.0071	I	ug/L	P342820	
		Diuron	0.0020	U	ug/L	P342820	
		Pyraclostrobin**	0.0020	U	ug/L	P342820	
		Primidone**	0.011	I	ug/L	P342820	
		Linuron	0.0040	U	ug/L	P342820	
		Acetaminophen**	0.0080	U	ug/L	P342820	
		Fenuron	0.016	U	ug/L	P342820	
		Imazapyr**	0.065		ug/L	P342820	
		Carbamazepine**	8.8E-04	I	ug/L	P342820	
		Fluridone**	0.0033		ug/L	P342820	
		Hydrocodone**	8.0E-04	U	ug/L	P342820	

Sample Location: ELDER SPRINGS RUN @ US OF MYRTLE ST (2984) **Collection Date/Time: 04/04/2018 11:25**

Field ID: G2CE0120 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1981712	EPA 8321B	2,4-D	0.044		ug/L	P342820	
		Sucralose**	0.11	U	ug/L	P342827	
		Bentazon	0.030		ug/L	P342820	
		MCPP	0.0020	U	ug/L	P342820	
		Triclopyr**	0.0040	U	ug/L	P342820	
		Imidacloprid	0.0075	I	ug/L	P342820	
		Diuron	0.0020	U	ug/L	P342820	
		Pyraclostrobin**	0.0020	U	ug/L	P342820	
		Primidone**	0.011	I	ug/L	P342820	
		Linuron	0.0040	U	ug/L	P342820	
		Acetaminophen**	0.0080	U	ug/L	P342820	
		Fenuron	0.016	U	ug/L	P342820	
		Imazapyr**	0.056		ug/L	P342820	
		Carbamazepine**	9.2E-04	I	ug/L	P342820	
		Fluridone**	0.0034		ug/L	P342820	
		Hydrocodone**	8.0E-04	U	ug/L	P342820	

Quality Assurance Report
Method Blank Results

Reference Method: EPA 8321B
Batch ID: P342820

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	4.0E-04	U	ug/L
Diuron	0.0020	U	ug/L

Quality Assurance Report
Method Blank Results

Reference Method: EPA 8321B
Batch ID: P342820

Component	Result	Code	Units
Fenuron	0.029	I	ug/L
Fluridone	8.0E-04	U	ug/L
Hydrocodone	8.0E-04	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
Primidone	0.0040	U	ug/L
Pyraclostrobin	0.0020	U	ug/L
Triclopyr	0.0040	U	ug/L

Reference Method: EPA 8321B
Batch ID: P342827

Component	Result	Code	Units
Sucralose	0.11	U	ug/L

Reference Method: EPA 8321B
Batch ID: P342880

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	4.0E-04	U	ug/L
Diuron	0.0020	U	ug/L
Fenuron	0.021	I	ug/L
Fluridone	8.0E-04	U	ug/L
Hydrocodone	8.0E-04	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
Primidone	0.0040	U	ug/L
Pyraclostrobin	0.0020	U	ug/L
Triclopyr	0.0040	U	ug/L

Quality Assurance Report
Laboratory Control Sample Accuracy

Reference Method: EPA 8321B
Batch ID: P342820

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2,4-D	80.7		P	40 - 150
Acetaminophen	116		P	30 - 150
Bentazon	76.3		P	30 - 150
Carbamazepine	94.0		P	40 - 150
Diuron	75.4		P	40 - 150
Fenuron	121		P	40 - 150
Fluridone	66.7		P	40 - 150

Quality Assurance Report
Laboratory Control Sample Accuracy

Reference Method: EPA 8321B
Batch ID: P342820

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Hydrocodone	131		P	40 - 150
Imazapyr	74.7		P	40 - 150
Imidacloprid	112		P	40 - 160
Linuron	86.0		P	40 - 150
MCPP	75.0		P	40 - 150
Primidone	110		P	40 - 150
Pyraclostrobin	79.6		P	40 - 150
Triclopyr	75.4		P	40 - 150

Reference Method: EPA 8321B
Batch ID: P342827

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Sucralose	115		P	40 - 150

Reference Method: EPA 8321B
Batch ID: P342880

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2,4-D	100		P	40 - 150
Acetaminophen	120		P	30 - 150
Bentazon	109		P	30 - 150
Carbamazepine	84.9		P	40 - 150
Diuron	65.1		P	40 - 150
Fenuron	124		P	40 - 150
Fluridone	60.3		P	40 - 150
Hydrocodone	112		P	40 - 150
Imazapyr	88.7		P	40 - 150
Imidacloprid	115		P	40 - 160
Linuron	78.1		P	40 - 150
MCPP	92.3		P	40 - 150
Primidone	108		P	40 - 150
Pyraclostrobin	70.8		P	40 - 150
Triclopyr	91.0		P	40 - 150

Quality Assurance Report
Matrix Spike Accuracy

Reference Method: EPA 8321B
Batch ID: P342820

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1981583	2,4-D	73.9	74.6	P/P	40 - 150
1981583	Acetaminophen	108	137	P/P	30 - 150
1981583	Bentazon	42.7	42.6	P/P	30 - 150
1981583	Carbamazepine	87.2	93.9	P/P	40 - 150
1981583	Diuron	71.9	72.9	P/P	40 - 150
1981583	Fenuron	105	114	P/P	40 - 150
1981583	Fluridone	61.4	64.4	P/P	40 - 150
1981583	Hydrocodone	111	127	P/P	40 - 150
1981583	Imazapyr	47.6	58.1	P/P	40 - 150

Quality Assurance Report
Matrix Spike Accuracy

Reference Method: EPA 8321B
Batch ID: P342820

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1981583	Imidacloprid	116	147	P/P	40 - 160
1981583	Linuron	88.0	95.1	P/P	40 - 150
1981583	MCPP	56.6	57.9	P/P	40 - 150
1981583	Primidone	110	132	P/P	40 - 150
1981583	Pyraclostrobin	72.7	85.9	P/P	40 - 150
1981583	Triclopyr	60.5	60.1	P/P	40 - 150

Reference Method: EPA 8321B
Batch ID: P342827

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1981709	Sucralose	51.2	49.6	P/P	40 - 150

Reference Method: EPA 8321B
Batch ID: P342880

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1983038	2,4-D	103	106	P/P	40 - 150
1983038	Acetaminophen	162	156	F/F	30 - 150
1983038	Bentazon	36.3	30.2	P/P	30 - 150
1983038	Carbamazepine	105	108	P/P	40 - 150
1983038	Diuron	73.9	71.7	P/P	40 - 150
1983038	Fenuron	110	104	P/P	40 - 150
1983038	Fluridone	47.2	56.1	P/P	40 - 150
1983038	Hydrocodone	123	116	P/P	40 - 150
1983038	Imazapyr	109	92.7	P/P	40 - 150
1983038	Imidacloprid	248	233	F/F	40 - 160
1983038	Linuron	82.0	91.2	P/P	40 - 150
1983038	MCPP	75.1	83.1	P/P	40 - 150
1983038	Primidone	108	113	P/P	40 - 150
1983038	Pyraclostrobin	53.9	65.6	P/P	40 - 150
1983038	Triclopyr	78.5	83.4	P/P	40 - 150

Quality Assurance Report
Precision

Reference Method: EPA 8321B
Batch ID: P342820

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1981583	2,4-D	0.977	Spike	P	0 - 30
1981583	Acetaminophen	23.3	Spike	P	0 - 30
1981583	Bentazon	0.329	Spike	P	0 - 30
1981583	Carbamazepine	7.02	Spike	P	0 - 30
1981583	Diuron	1.43	Spike	P	0 - 30
1981583	Fenuron	8.75	Spike	P	0 - 30
1981583	Fluridone	4.73	Spike	P	0 - 30
1981583	Hydrocodone	12.8	Spike	P	0 - 30
1981583	Imazapyr	15.7	Spike	P	0 - 30
1981583	Imidacloprid	23.7	Spike	P	0 - 30

Quality Assurance Report
Precision

Reference Method: EPA 8321B
Batch ID: P342820

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1981583	Linuron	7.80	Spike	P	0 - 30
1981583	MCPP	2.40	Spike	P	0 - 30
1981583	Primidone	16.9	Spike	P	0 - 30
1981583	Pyraclostrobin	16.6	Spike	P	0 - 30
1981583	Triclopyr	0.645	Spike	P	0 - 30

Reference Method: EPA 8321B
Batch ID: P342827

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1981709	Sucralose	1.53	Spike	P	0 - 30

Reference Method: EPA 8321B
Batch ID: P342880

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1983038	2,4-D	2.47	Spike	P	0 - 30
1983038	Acetaminophen	3.67	Spike	P	0 - 30
1983038	Bentazon	16.4	Spike	P	0 - 30
1983038	Carbamazepine	3.18	Spike	P	0 - 30
1983038	Diuron	0.849	Spike	P	0 - 30
1983038	Fenuron	6.05	Spike	P	0 - 30
1983038	Fluridone	17.3	Spike	P	0 - 30
1983038	Hydrocodone	6.02	Spike	P	0 - 30
1983038	Imazapyr	14.2	Spike	P	0 - 30
1983038	Imidacloprid	6.33	Spike	P	0 - 30
1983038	Linuron	10.7	Spike	P	0 - 30
1983038	MCPP	10.1	Spike	P	0 - 30
1983038	Primidone	4.90	Spike	P	0 - 30
1983038	Pyraclostrobin	19.5	Spike	P	0 - 30
1983038	Triclopyr	5.98	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: 1981709
Field Sample ID: G2CE0075

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	2,4-D-d3	127	P	30 - 160
EPA 8321B	Acetaminophen-d4	165	F	30 - 160
EPA 8321B	Carbamazepine-d10	131	P	30 - 160
EPA 8321B	Diuron-d6	122	P	30 - 160
EPA 8321B	Primidone-d5	153	P	30 - 160
EPA 8321B	Sucralose-d6	66.8	P	40 - 160

Quality Assurance Report
Surrogates

Lab Sample ID: 1981710
Field Sample ID: G2CE0161

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	2,4-D-d3	119	P	30 - 160
EPA 8321B	Acetaminophen-d4	142	P	30 - 160
EPA 8321B	Carbamazepine-d10	127	P	30 - 160
EPA 8321B	Diuron-d6	105	P	30 - 160
EPA 8321B	Primidone-d5	140	P	30 - 160
EPA 8321B	Sucralose-d6	56.5	P	40 - 160

Lab Sample ID: 1981711
Field Sample ID: G2CE0074

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	2,4-D-d3	117	P	30 - 160
EPA 8321B	Acetaminophen-d4	158	P	30 - 160
EPA 8321B	Carbamazepine-d10	117	P	30 - 160
EPA 8321B	Diuron-d6	94.9	P	30 - 160
EPA 8321B	Primidone-d5	134	P	30 - 160
EPA 8321B	Sucralose-d6	47.5	P	40 - 160

Lab Sample ID: 1981712
Field Sample ID: G2CE0120

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	2,4-D-d3	133	P	30 - 160
EPA 8321B	Acetaminophen-d4	142	P	30 - 160
EPA 8321B	Carbamazepine-d10	118	P	30 - 160
EPA 8321B	Diuron-d6	98.5	P	30 - 160
EPA 8321B	Primidone-d5	122	P	30 - 160
EPA 8321B	Sucralose-d6	47.1	P	40 - 160

Lab Sample ID: 1981713
Field Sample ID: G2CE0162

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	2,4-D-d3	133	P	30 - 160
EPA 8321B	Acetaminophen-d4	160	F	30 - 160
EPA 8321B	Carbamazepine-d10	130	P	30 - 160
EPA 8321B	Diuron-d6	101	P	30 - 160
EPA 8321B	Primidone-d5	156	P	30 - 160
EPA 8321B	Sucralose-d6	61.8	P	40 - 160

Lab Sample ID: 1981714
Field Sample ID: G2CE0071

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	2,4-D-d3	120	P	30 - 160
EPA 8321B	Acetaminophen-d4	122	P	30 - 160
EPA 8321B	Carbamazepine-d10	110	P	30 - 160
EPA 8321B	Diuron-d6	83.0	P	30 - 160
EPA 8321B	Primidone-d5	129	P	30 - 160
EPA 8321B	Sucralose-d6	57.1	P	40 - 160

Quality Assurance Report
Surrogates

Lab Sample ID: 1981715
Field Sample ID: G2CE0072

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	2,4-D-d3	101	P	30 - 160
EPA 8321B	Acetaminophen-d4	129	P	30 - 160
EPA 8321B	Carbamazepine-d10	105	P	30 - 160
EPA 8321B	Diuron-d6	78.7	P	30 - 160
EPA 8321B	Primidone-d5	133	P	30 - 160
EPA 8321B	Sucralose-d6	60.8	P	40 - 160

Lab Sample ID: 1981716
Field Sample ID: G2CE0138

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	2,4-D-d3	99.4	P	30 - 160
EPA 8321B	Acetaminophen-d4	141	P	30 - 160
EPA 8321B	Carbamazepine-d10	113	P	30 - 160
EPA 8321B	Diuron-d6	85.1	P	30 - 160
EPA 8321B	Primidone-d5	149	P	30 - 160
EPA 8321B	Sucralose-d6	59.7	P	40 - 160

Quality Assurance Report
Calibration Verification

Reference Method: EPA 8321B
Run ID: A83110
Included Lab Sample IDs: 1981709, 1981710, 1981711, 1981712, 1981713

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
2,4-D	95.5	93.4	P/P	50 - 150
Acetaminophen	104	110	P/P	60 - 150
Bentazon	89.8	96.4	P/P	50 - 150
Carbamazepine	108	107	P/P	60 - 150
Diuron	119	110	P/P	60 - 150
Fenuron	109	106	P/P	60 - 150
Fluridone	119	122	P/P	60 - 160
Hydrocodone	123	119	P/P	60 - 150
Imazapyr	83.6	75.1	P/P	50 - 150
Imidacloprid	106	111	P/P	60 - 150
Linuron	123	119	P/P	60 - 150
MCPP	106	93.4	P/P	50 - 150
Primidone	108	95.3	P/P	60 - 150
Pyraclostrobin	113	112	P/P	60 - 150
Triclopyr	103	99.5	P/P	50 - 150

Reference Method: EPA 8321B
Run ID: A83192
Included Lab Sample IDs: 1981709, 1981710, 1981711, 1981712, 1981713, 1981714, 1981715, 1981716

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Sucralose	106	78.2	P/P	60 - 130
Sucralose	111	106	P/P	60 - 130

Quality Assurance Report
Calibration Verification

Reference Method: EPA 8321B
Run ID: A83260
Included Lab Sample IDs: 1981709

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Bentazon	96.4	87.5	P/P	50 - 150

Reference Method: EPA 8321B
Run ID: A83283
Included Lab Sample IDs: 1981714, 1981715, 1981716

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
2,4-D	89.6	85.4	P/P	50 - 150
Acetaminophen	105	99.5	P/P	60 - 150
Acetaminophen	118	105	P/P	60 - 150
Bentazon	79.4	88.1	P/P	50 - 150
Bentazon	88.0	82.9	P/P	50 - 150
Carbamazepine	102	106	P/P	60 - 150
Carbamazepine	106	104	P/P	60 - 150
Diuron	106	114	P/P	60 - 150
Diuron	114	106	P/P	60 - 150
Fenuron	109	110	P/P	60 - 150
Fenuron	115	109	P/P	60 - 150
Fluridone	95.4	99.5	P/P	60 - 160
Fluridone	99.5	98.9	P/P	60 - 160
Hydrocodone	113	98.8	P/P	60 - 150
Hydrocodone	98.8	113	P/P	60 - 150
Imazapyr	102	89.4	P/P	50 - 150
Imazapyr	89.4	87.5	P/P	50 - 150
Imidacloprid	101	94.8	P/P	60 - 150
Imidacloprid	94.8	108	P/P	60 - 150
Linuron	105	110	P/P	60 - 150
Linuron	110	104	P/P	60 - 150
MCPP	102	94.2	P/P	50 - 150
Primidone	102	105	P/P	60 - 150
Primidone	104	102	P/P	60 - 150
Pyraclostrobin	110	111	P/P	60 - 150
Pyraclostrobin	111	113	P/P	60 - 150
Triclopyr	90.9	95.7	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		
					LCS	SMP	MS
EPA 8321B	2,4-D	80.7	73.9	74.6			0.977
	2,4-D	100	103	106			2.47
	Acetaminophen	116	108	137			23.3
	Acetaminophen	120	162	156			3.67
	Bentazon	76.3	42.7	42.6			0.329
	Bentazon	109	36.3	30.2			16.4

Quality Assurance Report
Summary

Ref. Method	Analyte	LCS % Recovery	MS % Recovery		Precision		
					LCS	SMP	MS
EPA 8321B	Carbamazepine	94.0	87.2	93.9			7.02
	Carbamazepine	84.9	108	105			3.18
	Diuron	75.4	71.9	72.9			1.43
	Diuron	65.1	73.9	71.7			0.849
	Fenuron	121	105	114			8.75
	Fenuron	124	110	104			6.05
	Fluridone	66.7	61.4	64.4			4.73
	Fluridone	60.3	56.1	47.2			17.3
	Hydrocodone	131	111	127			12.8
	Hydrocodone	112	123	116			6.02
	Imazapyr	74.7	47.6	58.1			15.7
	Imazapyr	88.7	109	92.7			14.2
	Imidacloprid	112	116	147			23.7
	Imidacloprid	115	248	233			6.33
	Linuron	86.0	88.0	95.1			7.80
	Linuron	78.1	82.0	91.2			10.7
	MCPP	75.0	56.6	57.9			2.40
	MCPP	92.3	75.1	83.1			10.1
	Primidone	110	110	132			16.9
	Primidone	108	108	113			4.90
	Pyraclostrobin	79.6	72.7	85.9			16.6
	Pyraclostrobin	70.8	53.9	65.6			19.5
	Sucralose	115	51.2	49.6			1.53
	Triclopyr	75.4	60.5	60.1			0.645
	Triclopyr	91.0	78.5	83.4			5.98

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 8321B / E31780	Pesticides, herbicides, and other chemicals in water matrices by HPLC/MS/MS	1981709, 1981710, 1981711, 1981712, 1981713, 1981714, 1981715, 1981716
EPA 8321B / E31780	Water soluble organic compounds by HPLC/MS/MS	1981709, 1981710, 1981711, 1981712, 1981713, 1981714, 1981715, 1981716

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
EPA 8321B	04/05/2018	04/06/2018 09:00	Hoor Shaik	04/13/2018 02:20	Julie Michelle Frank	1981715
	04/05/2018	04/06/2018 09:00	Hoor Shaik	04/13/2018 03:29	Julie Michelle Frank	1981716
	04/05/2018	04/06/2018 09:00	Hoor Shaik	04/13/2018 19:03	Julie Michelle Frank	1981715
	04/05/2018	04/06/2018 09:00	Hoor Shaik	04/13/2018 19:38	Julie Michelle Frank	1981716
	04/05/2018	04/06/2018 10:00	Hoor Shaik	04/07/2018 23:18	Julie Michelle Frank	1981709
	04/05/2018	04/06/2018 10:00	Hoor Shaik	04/07/2018 23:53	Julie Michelle Frank	1981710
	04/05/2018	04/06/2018 10:00	Hoor Shaik	04/08/2018 00:28	Julie Michelle Frank	1981711
	04/05/2018	04/06/2018 10:00	Hoor Shaik	04/08/2018 01:02	Julie Michelle Frank	1981712
	04/05/2018	04/06/2018 10:00	Hoor Shaik	04/08/2018 01:37	Julie Michelle Frank	1981713
	04/05/2018	04/06/2018 10:00	Hoor Shaik	04/08/2018 14:18	Julie Michelle Frank	1981709
	04/05/2018	04/06/2018 10:00	Hoor Shaik	04/08/2018 14:52	Julie Michelle Frank	1981710
	04/05/2018	04/06/2018 10:00	Hoor Shaik	04/08/2018 15:27	Julie Michelle Frank	1981711
	04/05/2018	04/06/2018 10:00	Hoor Shaik	04/08/2018 16:02	Julie Michelle Frank	1981712
	04/05/2018	04/06/2018 10:00	Hoor Shaik	04/08/2018 16:36	Julie Michelle Frank	1981713
	04/05/2018	04/06/2018 10:00	Hoor Shaik	04/09/2018 19:03	Julie Michelle Frank	1981709
	04/05/2018	04/09/2018 11:30	Julie Michelle Frank	04/11/2018 08:49	Julie Michelle Frank	1981709
	04/05/2018	04/09/2018 11:30	Julie Michelle Frank	04/11/2018 09:05	Julie Michelle Frank	1981710
	04/05/2018	04/09/2018 11:30	Julie Michelle Frank	04/11/2018 09:37	Julie Michelle Frank	1981711
	04/05/2018	04/09/2018 11:30	Julie Michelle Frank	04/11/2018 09:52	Julie Michelle Frank	1981712
	04/05/2018	04/09/2018 11:30	Julie Michelle Frank	04/11/2018 10:08	Julie Michelle Frank	1981713
	04/05/2018	04/09/2018 11:30	Julie Michelle Frank	04/11/2018 10:24	Julie Michelle Frank	1981714
	04/05/2018	04/09/2018 11:30	Julie Michelle Frank	04/11/2018 10:40	Julie Michelle Frank	1981715
	04/05/2018	04/09/2018 11:30	Julie Michelle Frank	04/11/2018 10:55	Julie Michelle Frank	1981716
	04/05/2018	04/11/2018 09:00	Hoor Shaik	04/13/2018 01:45	Julie Michelle Frank	1981714
	04/05/2018	04/11/2018 09:00	Hoor Shaik	04/13/2018 18:28	Julie Michelle Frank	1981714
	04/05/2018	04/11/2018 09:00	Hoor Shaik	04/16/2018 14:08	Julie Michelle Frank	1981714