

Chemical Analysis Report

NE-DIST-2019-08-23-02

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

Event Description: **Alachua County August SMP**
Request ID: **RQ-2019-08-05-90**
Customer: **NE-DIST**
Project ID: **SMP**

Send Reports to:
FL Dept. of Environmental Protection
8800 Baymeadows Way West
Suite 100
Jacksonville, FL 32256
Attn: Jeremy Parrish

For additional information please contact
Colin Wright, Ph.D.
Liang-Tsair Lin, Ph.D.
Kerry Tate, Ph.D.
Dr. rer. nat. Bettina Steinbock
Thekkekalathil Chandrasekhar, Ph.D, QA Officer
Phone (850) 245-8085

Certified by: Thekkekalathil Chandrasekhar, Chemist Administrator

Date Certified: 20-SEP-2019 11:24



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 groups are included in this report: Metals and 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: TUBLIN CREEK-W OF US 441

Collection Date/Time: 08/22/2019 09:55

Field ID: G1NE0902

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2114585	EPA 8321B	2,4-D	0.0047	I	ug/L	P369653	
		Acesulfame K**	0.28	I	ug/L	P369616	
		AMPA**	0.27	I	ug/L	P369616	
		Sucralose**	0.36		ug/L	P369616	
		Acetaminophen**	0.030	I	ug/L	P369653	
		Endothall**	0.25	U	ug/L	P369616	
		Acetamiprid**	0.0020	U	ug/L	P369653	
		Glufosinate**	0.10	U	ug/L	P369616	
		Glyphosate**	0.94		ug/L	P369616	
		Afidopyropen**	0.0020	UJ	ug/L	P369653	
		Bentazon	0.0014	I	ug/L	P369653	
		Benzovindiflupyr**	0.0020	UJ	ug/L	P369653	
		Carbamazepine**	8.6E-04	I	ug/L	P369653	
		Clothianidin**	0.0050	I	ug/L	P369653	
		Dinotefuran**	0.0020	U	ug/L	P369653	
		Diuron	0.012		ug/L	P369653	
		Fenuron	0.016	U	ug/L	P369653	
		Fluridone**	0.0025	I	ug/L	P369653	
		Imazapyr**	0.011	I	ug/L	P369653	
		Hydrocodone**	0.0020	U	ug/L	P369653	
		Ibuprofen**	0.020	U	ug/L	P369653	
		Imidacloprid	0.34		ug/L	P369653	
		Linuron	0.0040	U	ug/L	P369653	
		Mandestrobin**	0.0020	UJ	ug/L	P369653	
		MCP	0.0020	U	ug/L	P369653	MS
		Naproxen**	0.0080	U	ug/L	P369653	
		Primidone**	0.0040	U	ug/L	P369653	
		Pyraclostrobin**	0.0020	U	ug/L	P369653	
		Thiamethoxam**	0.0020	U	ug/L	P369653	
		Tolfenpyrad**	0.0020	U	ug/L	P369653	
		Triclopyr**	0.0040	U	ug/L	P369653	
2114588	EPA 200.7 Rev. 4.4	Barium	21.6		ug/L	P369856	
		Calcium	57.6		mg/L	P369856	
		Iron	170		ug/L	P369856	
		Magnesium	7.21		mg/L	P369856	
		Potassium	3.1		mg/L	P369856	
		Sodium	13.4		mg/L	P369856	
		Zinc	5.0	U	ug/L	P369856	
	EPA 200.8 Rev. 5.4	Aluminum	69		ug/L	P369856	
		Antimony	0.45		ug/L	P369856	
		Arsenic	1.01		ug/L	P369856	
		Boron**	52.1		ug/L	P369856	
		Cadmium	0.020	U	ug/L	P369856	
		Chromium	0.40	U	ug/L	P369856	

Field ID: G1NE0902

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2114588	EPA 200.8 Rev. 5.4	Copper	1.31		ug/L	P369856	
		Lead	0.34	I	ug/L	P369856	
		Nickel	0.50	U	ug/L	P369856	
		Selenium	0.41	I	ug/L	P369856	
		Silver	0.010	U	ug/L	P369856	
		Thallium	0.10	U	ug/L	P369856	

Ref. Method and Comment:
EPA 8321B: MS accuracy for bentazon and imazapyr could not be assessed due to high concentration of parameter in the spiked sample. J - second source check standards for some analytes were not available for analysis.

Sample Location: TUBLIN CREEK-S OF SW 5th AVE

Collection Date/Time: 08/22/2019 10:40

Field ID: G1NE0914

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2114586	EPA 8321B	2,4-D	0.0020	U	ug/L	P369653	
		Acesulfame K**	0.24	I	ug/L	P369616	
		AMPA**	0.11	I	ug/L	P369616	
		Sucralose**	0.56		ug/L	P369616	
		Acetaminophen**	0.0080	U	ug/L	P369653	
		Endothall**	0.25	U	ug/L	P369616	
		Acetamiprid**	0.0020	U	ug/L	P369653	
		Glufosinate**	0.10	U	ug/L	P369616	
		Glyphosate**	0.10	U	ug/L	P369616	
		Afidopyropen**	0.0020	UJ	ug/L	P369653	
		Bentazon	0.0013	I	ug/L	P369653	
		Benzovindiflupyr**	0.0020	UJ	ug/L	P369653	
		Carbamazepine**	8.0E-04	U	ug/L	P369653	
		Clothianidin**	0.0020	U	ug/L	P369653	
		Dinotefuran**	0.0020	U	ug/L	P369653	
		Diuron	0.011		ug/L	P369653	
		Fenuron	0.016	U	ug/L	P369653	
		Fluridone**	8.0E-04	U	ug/L	P369653	
		Imazapyr**	0.012	I	ug/L	P369653	
		Hydrocodone**	0.0020	U	ug/L	P369653	
		Ibuprofen**	0.020	U	ug/L	P369653	
		Imidacloprid	0.31		ug/L	P369653	
		Linuron	0.0040	U	ug/L	P369653	
		Mandestrobin**	0.0020	UJ	ug/L	P369653	
		MCP	0.0020	U	ug/L	P369653	MS
		Naproxen**	0.0080	U	ug/L	P369653	
		Primidone**	0.0040	U	ug/L	P369653	
		Pyraclostrobin**	0.0020	U	ug/L	P369653	
		Thiamethoxam**	0.0020	U	ug/L	P369653	
		Tolfenpyrad**	0.0020	U	ug/L	P369653	
		Triclopyr**	0.0040	U	ug/L	P369653	
2114589	EPA 200.7 Rev. 4.4	Barium	25.6		ug/L	P369856	
		Calcium	55.3		mg/L	P369856	
		Iron	180		ug/L	P369856	
		Magnesium	7.40		mg/L	P369856	
		Potassium	3.4		mg/L	P369856	
		Sodium	13.8		mg/L	P369856	
		Zinc	5.0	U	ug/L	P369856	
	EPA 200.8 Rev. 5.4	Aluminum	59		ug/L	P369856	
		Antimony	0.41		ug/L	P369856	
		Arsenic	0.77		ug/L	P369856	
		Boron**	55.5		ug/L	P369856	
		Cadmium	0.020	U	ug/L	P369856	
		Chromium	0.40	U	ug/L	P369856	

Field ID: G1NE0914

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2114589	EPA 200.8 Rev. 5.4	Copper	0.89		ug/L	P369856	
		Lead	0.40		ug/L	P369856	
		Nickel	0.50	U	ug/L	P369856	
		Selenium	0.49	I	ug/L	P369856	
		Silver	0.010	U	ug/L	P369856	
		Thallium	0.10	U	ug/L	P369856	

Ref. Method and Comment:
EPA 8321B: MS accuracy for bentazon and imazapyr could not be assessed due to high concentration of parameter in the spiked sample. J - second source check standards for some analytes were not available for analysis.

Sample Location: POSSUM CREEK-S OF NW 16th AVE

Collection Date/Time: 08/22/2019 12:00

Field ID: G1NE0900

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2114587	EPA 8321B	2,4-D	0.092		ug/L	P369653	
		Acesulfame K**	0.10	U	ug/L	P369616	
		AMPA**	0.31	I	ug/L	P369616	
		Sucralose**	0.024	I	ug/L	P369616	
		Acetaminophen**	0.0080	U	ug/L	P369653	
		Endothall**	0.25	U	ug/L	P369616	
		Acetamiprid**	0.0020	U	ug/L	P369653	
		Glufosinate**	0.10	U	ug/L	P369616	
		Glyphosate**	0.54		ug/L	P369616	
		Afidopyropen**	0.0020	UJ	ug/L	P369653	
		Bentazon	0.0015	IJ	ug/L	P369653	
		Benzovindiflupyr**	0.0020	UJ	ug/L	P369653	
		Carbamazepine**	8.0E-04	U	ug/L	P369653	
		Clothianidin**	0.0087		ug/L	P369653	
		Dinotefuran**	0.0038	I	ug/L	P369653	
		Diuron	0.0037	I	ug/L	P369653	
		Fenuron	0.016	U	ug/L	P369653	
		Fluridone**	0.0034		ug/L	P369653	
		Imazapyr**	0.098		ug/L	P369653	
		Hydrocodone**	0.0020	U	ug/L	P369653	
		Ibuprofen**	0.020	U	ug/L	P369653	
		Imidacloprid	0.045		ug/L	P369653	
		Linuron	0.0040	U	ug/L	P369653	
		Mandestrobin**	0.0020	UJ	ug/L	P369653	
		MCP	0.0020	U	ug/L	P369653	MS
		Naproxen**	0.0080	U	ug/L	P369653	
		Primidone**	0.0040	U	ug/L	P369653	
		Pyraclostrobin**	0.0020	U	ug/L	P369653	
		Thiamethoxam**	0.0020	U	ug/L	P369653	
		Tolfenpyrad**	0.0020	U	ug/L	P369653	
		Triclopyr**	0.0040	U	ug/L	P369653	
2114590	EPA 200.7 Rev. 4.4	Barium	8.6		ug/L	P369856	
		Calcium	28.5		mg/L	P369856	
		Iron	630		ug/L	P369856	
		Magnesium	5.42		mg/L	P369856	
		Potassium	0.96	I	mg/L	P369856	
		Sodium	9.0		mg/L	P369856	
		Zinc	5.0	U	ug/L	P369856	
	EPA 200.8 Rev. 5.4	Aluminum	368		ug/L	P369856	
		Antimony	0.13	I	ug/L	P369856	
		Arsenic	1.85		ug/L	P369856	
		Boron**	27.0		ug/L	P369856	
		Cadmium	0.028	I	ug/L	P369856	
		Chromium	1.3	I	ug/L	P369856	

Field ID: G1NE0900

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2114590	EPA 200.8 Rev. 5.4	Copper	0.87		ug/L	P369856	
		Lead	0.52		ug/L	P369856	
		Nickel	0.75	I	ug/L	P369856	
		Selenium	0.28	I	ug/L	P369856	
		Silver	0.010	U	ug/L	P369856	
		Thallium	0.10	U	ug/L	P369856	

Ref. Method and Comment:
EPA 8321B: MS accuracy for bentazon and imazapyr could not be assessed due to high concentration of parameter in the spiked sample. J - second source check standards for some analytes were not available for analysis.

Quality Assurance Report Method Blank Results

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P369856

Component	Result	Code	Units
Barium	1.0	U	ug/L
Calcium	0.075	U	mg/L
Iron	30	U	ug/L
Magnesium	0.040	U	mg/L
Potassium	0.30	U	mg/L
Sodium	0.50	U	mg/L
Zinc	5.0	U	ug/L

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P369856

Component	Result	Code	Units
Aluminum	5.0	U	ug/L
Antimony	0.050	U	ug/L
Arsenic	0.050	U	ug/L
Boron	2.0	U	ug/L
Cadmium	0.020	U	ug/L
Chromium	0.40	U	ug/L
Copper	0.40	U	ug/L
Lead	0.20	U	ug/L
Nickel	0.50	U	ug/L
Selenium	0.20	U	ug/L
Silver	0.010	U	ug/L
Thallium	0.10	U	ug/L

Reference Method: EPA 8321B
Batch ID: P369616

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: P369653

Component	Result	Code	Units
2,4-D	0.0020	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	0.016	U	ug/L
Fluridone	8.0E-04	U	ug/L

Quality Assurance Report

Method Blank Results

Reference Method: EPA 8321B
Batch ID: P369653

Component	Result	Code	Units
Hydrocodone	0.0020	U	ug/L
Ibuprofen	0.020	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
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 200.7 Rev. 4.4
Batch ID: P369856

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Barium	100		P	80 - 120
Calcium	104		P	80 - 120
Iron	104		P	80 - 120
Magnesium	105		P	80 - 120
Potassium	107		P	80 - 120
Sodium	108		P	80 - 120
Zinc	97.0		P	80 - 120

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P369856

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Aluminum	101		P	85 - 115
Antimony	99.1		P	85 - 115
Arsenic	99.6		P	85 - 115
Boron	100		P	85 - 115
Cadmium	100		P	85 - 115
Chromium	97.4		P	85 - 115
Copper	96.7		P	85 - 115
Lead	97.8		P	85 - 115
Nickel	97.6		P	85 - 115
Selenium	99.0		P	85 - 115
Silver	100		P	85 - 115
Thallium	102		P	85 - 115

Reference Method: EPA 8321B
Batch ID: P369616

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Acesulfame K	95.2		P	40 - 150
AMPA	140		P	40 - 150
Endothall	95.9		P	40 - 150
Glufosinate	113		P	40 - 150
Glyphosate	128		P	40 - 140
Sucralose	75.2		P	40 - 150

Reference Method: EPA 8321B
Batch ID: P369653

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2,4-D	119		P	40 - 160
Acetaminophen	74.9		P	30 - 160
Acetamiprid	82.1		P	40 - 160
Afidopyropen	87.0		P	40 - 160
Bentazon	91.2		P	30 - 160
Benzovindiflupyr	75.2		P	40 - 160
Carbamazepine	78.4		P	40 - 160
Clothianidin	78.0		P	40 - 160
Dinotefuran	82.9		P	40 - 160
Diuron	79.1		P	40 - 160
Fenuron	90.5		P	40 - 160
Fluridone	90.2		P	40 - 160

Quality Assurance Report

Laboratory Control Sample Accuracy

Reference Method: EPA 8321B
Batch ID: P369653

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Hydrocodone	79.3		P	40 - 160
Ibuprofen	86.5		P	30 - 160
Imazapyr	95.6		P	40 - 160
Imidacloprid	86.8		P	40 - 160
Linuron	64.9		P	40 - 160
Mandestrobin	77.1		P	40 - 160
MCPP	144		P	40 - 160
Naproxen	84.0		P	40 - 160
Primidone	78.5		P	40 - 160
Pyraclostrobin	74.5		P	30 - 160
Thiamethoxam	90.7		P	40 - 160
Tolfenpyrad	49.7		P	40 - 160
Triclopyr	102		P	30 - 160

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P369856

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2114588	Barium	97.5	97.1	P/P	80 - 120
2114588	Calcium	103		P	80 - 120
2114588	Iron	103	104	P/P	80 - 120
2114588	Magnesium	104		P	80 - 120
2114588	Potassium	108	99.1	P/P	80 - 120
2114588	Sodium	106		P	80 - 120
2114588	Zinc	96.0	95.7	P/P	80 - 120
2114889	Barium	98.2		P	80 - 120
2114889	Calcium	102		P	80 - 120
2114889	Iron	102		P	80 - 120
2114889	Magnesium	104		P	80 - 120
2114889	Potassium	106		P	80 - 120
2114889	Sodium	102		P	80 - 120
2114889	Zinc	95.3		P	80 - 120

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P369856

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2114588	Aluminum	98.7	99.6	P/P	80 - 120
2114588	Antimony	101	102	P/P	80 - 120
2114588	Arsenic	101	101	P/P	80 - 120
2114588	Boron	101	101	P/P	80 - 120
2114588	Cadmium	103	102	P/P	80 - 120
2114588	Chromium	98.4	98.6	P/P	80 - 120
2114588	Copper	93.0	93.7	P/P	80 - 120
2114588	Lead	98.1	98.8	P/P	80 - 120
2114588	Nickel	96.7	96.6	P/P	80 - 120
2114588	Selenium	99.3	99.5	P/P	80 - 120
2114588	Silver	99.3	100	P/P	80 - 120
2114588	Thallium	104	105	P/P	80 - 120
2114889	Aluminum	100		P	80 - 120
2114889	Antimony	101		P	80 - 120
2114889	Arsenic	102		P	80 - 120
2114889	Boron	104		P	80 - 120
2114889	Cadmium	101		P	80 - 120
2114889	Chromium	101		P	80 - 120
2114889	Copper	97.9		P	80 - 120
2114889	Lead	99.3		P	80 - 120
2114889	Nickel	102		P	80 - 120
2114889	Selenium	100		P	80 - 120
2114889	Silver	101		P	80 - 120
2114889	Thallium	105		P	80 - 120

Reference Method: EPA 8321B
Batch ID: P369616

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2113575	Acesulfame K	88.8	91.5	P/P	40 - 150
2113575	AMPA	86.0	94.9	P/P	40 - 150
2113575	Endothall	86.7	89.2	P/P	40 - 150
2113575	Glufosinate	86.6	95.0	P/P	40 - 150

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 8321B
Batch ID: P369616

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2113575	Glyphosate	93.5	94.9	P/P	40 - 140
2113575	Sucralose	77.3	72.4	P/P	40 - 150

Reference Method: EPA 8321B
Batch ID: P369653

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2113573	2,4-D	148	157	P/P	40 - 160
2113573	Acetaminophen	79.6	81.7	P/P	30 - 160
2113573	Acetamiprid	88.9	93.5	P/P	40 - 160
2113573	Afidopyropen	99.8	106	P/P	40 - 160
2113573	Benzovindiflupyr	85.5	86.8	P/P	40 - 160
2113573	Carbamazepine	80.2	82.7	P/P	40 - 160
2113573	Clothianidin	92.6	101	P/P	40 - 160
2113573	Dinotefuran	113	108	P/P	40 - 160
2113573	Diuron	71.9	76.8	P/P	40 - 160
2113573	Fenuron	82.3	85.6	P/P	40 - 160
2113573	Fluridone	80.3	86.2	P/P	40 - 160
2113573	Hydrocodone	82.4	92.5	P/P	40 - 160
2113573	Ibuprofen	105	103	P/P	30 - 160
2113573	Imidacloprid	159	159	P/P	40 - 160
2113573	Linuron	55.5	61.0	P/P	40 - 160
2113573	Mandestrobin	73.0	76.1	P/P	40 - 160
2113573	MCPP	189	201	F/F	40 - 160
2113573	Naproxen	86.4	108	P/P	40 - 160
2113573	Primidone	91.8	96.7	P/P	40 - 160
2113573	Pyraclostrobin	81.6	81.7	P/P	30 - 160
2113573	Thiamethoxam	141	135	P/P	40 - 160
2113573	Tolfenpyrad	67.7	69.6	P/P	40 - 160
2113573	Triclopyr	127	117	P/P	30 - 160

Quality Assurance Report Precision

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P369856

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2114588	Barium	0.449	Spike	P	0 - 20
2114588	Calcium	1.60	Spike	P	0 - 20
2114588	Iron	0.976	Spike	P	0 - 20
2114588	Magnesium	2.16	Spike	P	0 - 20
2114588	Potassium	4.67	Spike	P	0 - 20
2114588	Sodium	0.478	Spike	P	0 - 20
2114588	Zinc	0.302	Spike	P	0 - 20

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P369856

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2114588	Aluminum	0.839	Spike	P	0 - 20
2114588	Antimony	1.29	Spike	P	0 - 20
2114588	Arsenic	0.394	Spike	P	0 - 20
2114588	Boron	0.0156	Spike	P	0 - 20
2114588	Cadmium	0.853	Spike	P	0 - 20
2114588	Chromium	0.183	Spike	P	0 - 20
2114588	Copper	0.719	Spike	P	0 - 20
2114588	Lead	0.702	Spike	P	0 - 20
2114588	Nickel	0.0745	Spike	P	0 - 20
2114588	Selenium	0.233	Spike	P	0 - 20
2114588	Silver	0.677	Spike	P	0 - 20
2114588	Thallium	0.978	Spike	P	0 - 20

Reference Method: EPA 8321B
Batch ID: P369616

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2113575	Acesulfame K	2.96	Spike	P	0 - 30
2113575	AMPA	9.92	Spike	P	0 - 30
2113575	Endothall	2.85	Spike	P	0 - 30
2113575	Glufosinate	9.24	Spike	P	0 - 30
2113575	Glyphosate	1.50	Spike	P	0 - 30
2113575	Sucralose	6.44	Spike	P	0 - 30

Reference Method: EPA 8321B
Batch ID: P369653

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2113573	2,4-D	3.76	Spike	P	0 - 30
2113573	Acetaminophen	2.11	Spike	P	0 - 30
2113573	Acetamiprid	5.05	Spike	P	0 - 30
2113573	Afidopyropen	6.02	Spike	P	0 - 30
2113573	Bentazon	1.34	Spike	P	0 - 30
2113573	Benzovindiflupyr	1.58	Spike	P	0 - 30
2113573	Carbamazepine	3.04	Spike	P	0 - 30
2113573	Clothianidin	8.89	Spike	P	0 - 30

Quality Assurance Report Precision

Reference Method: EPA 8321B
 Batch ID: P369653

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2113573	Dinotefuran	3.94	Spike	P	0 - 30
2113573	Diuron	6.21	Spike	P	0 - 30
2113573	Fenuron	3.92	Spike	P	0 - 30
2113573	Fluridone	5.15	Spike	P	0 - 30
2113573	Hydrocodone	11.5	Spike	P	0 - 30
2113573	Ibuprofen	2.29	Spike	P	0 - 30
2113573	Imazapyr	2.15	Spike	P	0 - 30
2113573	Imidacloprid	0.140	Spike	P	0 - 30
2113573	Linuron	9.49	Spike	P	0 - 30
2113573	Mandestrobin	4.10	Spike	P	0 - 30
2113573	MCP	5.70	Spike	P	0 - 30
2113573	Naproxen	22.5	Spike	P	0 - 30
2113573	Primidone	5.21	Spike	P	0 - 30
2113573	Pyraclostrobin	0.111	Spike	P	0 - 30
2113573	Thiamethoxam	4.53	Spike	P	0 - 30
2113573	Tolfenpyrad	2.84	Spike	P	0 - 30
2113573	Triclopyr	7.97	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: 2114585
Field Sample ID: G1NE0902

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	2,4-D-d3	136	P	30 - 160
EPA 8321B	Acetaminophen-d4	94.4	P	30 - 160
EPA 8321B	Carbamazepine-d10	101	P	30 - 160
EPA 8321B	Diuron-d6	108	P	30 - 160
EPA 8321B	Endothall-d6	74.9	P	30 - 160
EPA 8321B	Endothall-d6	74.9	P	30 - 160
EPA 8321B	Glyphosate 13C 15N	110	P	30 - 160
EPA 8321B	Glyphosate 13C 15N	110	P	30 - 160
EPA 8321B	Ibuprofen-d3	117	P	30 - 160
EPA 8321B	Primidone-d5	130	P	30 - 160
EPA 8321B	Sucralose-d6	66.3	P	30 - 160
EPA 8321B	Sucralose-d6	66.3	P	30 - 160

Lab Sample ID: 2114586
Field Sample ID: G1NE0914

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	2,4-D-d3	101	P	30 - 160
EPA 8321B	Acetaminophen-d4	88.3	P	30 - 160
EPA 8321B	Carbamazepine-d10	88.2	P	30 - 160
EPA 8321B	Diuron-d6	95.2	P	30 - 160
EPA 8321B	Endothall-d6	75.0	P	30 - 160
EPA 8321B	Endothall-d6	75.0	P	30 - 160
EPA 8321B	Glyphosate 13C 15N	102	P	30 - 160
EPA 8321B	Glyphosate 13C 15N	102	P	30 - 160
EPA 8321B	Ibuprofen-d3	94.0	P	30 - 160
EPA 8321B	Primidone-d5	109	P	30 - 160
EPA 8321B	Sucralose-d6	88.1	P	30 - 160
EPA 8321B	Sucralose-d6	88.1	P	30 - 160

Lab Sample ID: 2114587
Field Sample ID: G1NE0900

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	2,4-D-d3	127	P	30 - 160
EPA 8321B	Acetaminophen-d4	89.1	P	30 - 160
EPA 8321B	Carbamazepine-d10	91.2	P	30 - 160
EPA 8321B	Diuron-d6	99.9	P	30 - 160
EPA 8321B	Endothall-d6	79.7	P	30 - 160
EPA 8321B	Endothall-d6	79.7	P	30 - 160
EPA 8321B	Glyphosate 13C 15N	130	P	30 - 160
EPA 8321B	Glyphosate 13C 15N	130	P	30 - 160
EPA 8321B	Ibuprofen-d3	106	P	30 - 160
EPA 8321B	Primidone-d5	117	P	30 - 160
EPA 8321B	Sucralose-d6	36.7	P	30 - 160
EPA 8321B	Sucralose-d6	36.7	P	30 - 160

Quality Assurance Report Calibration Verification

Reference Method: EPA 8321B

Run ID: A93824

Included Lab Sample IDs: 2114585, 2114586, 2114587

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Acesulfame K	140	110	P/P	60 - 160
Endothall	96.1	97.1	P/P	60 - 160

Reference Method: EPA 8321B

Run ID: A93825

Included Lab Sample IDs: 2114585, 2114586, 2114587

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
AMPA	94.0	93.2	P/P	60 - 160
Glufosinate	92.9	92.6	P/P	60 - 160
Glyphosate	96.4	94.7	P/P	60 - 160

Reference Method: EPA 8321B

Run ID: A93861

Included Lab Sample IDs: 2114585, 2114586, 2114587

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Sucralose	60.7	80.5	P/P	60 - 160

Reference Method: EPA 200.7 Rev. 4.4

Run ID: A93964

Included Lab Sample IDs: 2114588, 2114589, 2114590

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Barium	101	101	P/P	95 - 105
Barium	101	101	P/P	90 - 110
Calcium	101	99.2	P/P	95 - 105
Calcium	99.2	98.6	P/P	90 - 110
Iron	101	102	P/P	90 - 110
Iron	102	101	P/P	95 - 105
Magnesium	101	102	P/P	90 - 110
Magnesium	103	101	P/P	95 - 105
Potassium	102	101	P/P	90 - 110
Potassium	102	102	P/P	95 - 105
Sodium	104	103	P/P	90 - 110
Sodium	104	104	P/P	95 - 105
Zinc	97.5	97.6	P/P	90 - 110
Zinc	97.7	97.5	P/P	95 - 105

Reference Method: EPA 8321B

Run ID: A94124

Included Lab Sample IDs: 2114585, 2114586, 2114587

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
2,4-D	114	107	P/P	50 - 150
Acetaminophen	96.3	88.4	P/P	60 - 160
Acetamiprid	106	111	P/P	50 - 150
Afidopyropen	114	108	P/P	50 - 150
Bentazon	102	108	P/P	50 - 160
Benzovindiflupyr	107	101	P/P	50 - 150
Carbamazepine	113	109	P/P	60 - 150

Quality Assurance Report Calibration Verification

Reference Method: EPA 8321B

Run ID: A94124

Included Lab Sample IDs: 2114585, 2114586, 2114587

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Clothianidin	103	105	P/P	60 - 150
Dinotefuran	96.7	99.9	P/P	50 - 150
Diuron	103	105	P/P	60 - 150
Fenuron	110	91.7	P/P	60 - 150
Fluridone	128	125	P/P	60 - 160
Hydrocodone	111	112	P/P	60 - 150
Ibuprofen	89.2	88.8	P/P	50 - 160
Imazapyr	84.1	89.5	P/P	50 - 150
Imidacloprid	96.7	102	P/P	60 - 150
Linuron	96.0	102	P/P	60 - 150
Mandestrobin	114	112	P/P	50 - 150
MCPP	106	108	P/P	50 - 150
Naproxen	93.8	105	P/P	50 - 160
Primidone	98.5	106	P/P	60 - 150
Pyraclostrobin	117	115	P/P	60 - 150
Thiamethoxam	107	107	P/P	50 - 150
Tolfenpyrad	124	121	P/P	60 - 150
Triclopyr	103	116	P/P	50 - 150

Reference Method: EPA 200.8 Rev. 5.4

Run ID: A94220

Included Lab Sample IDs: 2114588, 2114589, 2114590

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Aluminum	101	100	P/P	90 - 110
Antimony	97.9	98.5	P/P	90 - 110
Arsenic	102	102	P/P	90 - 110
Boron	102	101	P/P	90 - 110
Cadmium	102	103	P/P	90 - 110
Chromium	96.1	102	P/P	90 - 110
Copper	99.8	98.6	P/P	90 - 110
Lead	98.4	98.8	P/P	90 - 110
Nickel	101	99.5	P/P	90 - 110
Selenium	102	103	P/P	90 - 110
Silver	98.7	97.5	P/P	90 - 110
Thallium	96.3	97.1	P/P	90 - 110

Reference Method: EPA 200.8 Rev. 5.4

Run ID: A94344

Included Lab Sample IDs: 2114588, 2114589

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Thallium	95.7	94.2	P/P	90 - 110

* 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 200.7 Rev. 4.4	Barium	100	97.5	97.1	98.2		0.449
	Calcium	104	103	102			1.60
	Iron	104	103	104	102		0.976
	Magnesium	105	104	104			2.16
	Potassium	107	108	99.1	106		4.67
	Sodium	108	106	102			0.478
	Zinc	97.0	96.0	95.7	95.3		0.302
EPA 200.8 Rev. 5.4	Aluminum	101	98.7	99.6	100		0.839
	Antimony	99.1	101	102	101		1.29
	Arsenic	99.6	101	101	102		0.394
	Boron	100	101	101	104		0.0156
	Cadmium	100	103	102	101		0.853
	Chromium	97.4	98.4	98.6	101		0.183
	Copper	96.7	93.0	93.7	97.9		0.719
	Lead	97.8	98.1	98.8	99.3		0.702
	Nickel	97.6	96.7	96.6	102		0.0745
	Selenium	99.0	99.3	99.5	100		0.233
	Silver	100	99.3	100	101		0.677
	Thallium	102	104	105	105		0.978
	2,4-D	119	148	157			3.76
	Acesulfame K	95.2	88.8	91.5			2.96
EPA 8321B	Acetaminophen	74.9	79.6	81.7			2.11
	Acetamiprid	82.1	88.9	93.5			5.05
	Afidopyropen	87.0	99.8	106			6.02
	AMPA	140	86.0	94.9			9.92
	Bentazon	91.2					1.34
	Benzovindiflupyr	75.2	85.5	86.8			1.58
	Carbamazepine	78.4	80.2	82.7			3.04
	Clothianidin	78.0	92.6	101			8.89
	Dinotefuran	82.9	113	108			3.94
	Diuron	79.1	71.9	76.8			6.21
	Endothall	95.9	86.7	89.2			2.85
	Fenuron	90.5	82.3	85.6			3.92
	Fluridone	90.2	80.3	86.2			5.15
	Glufosinate	113	86.6	95.0			9.24
	Glyphosate	128	93.5	94.9			1.50
	Hydrocodone	79.3	82.4	92.5			11.5
	Ibuprofen	86.5	105	103			2.29
	Imazapyr	95.6					2.15
	Imidacloprid	86.8	159	159			0.140
	Linuron	64.9	55.5	61.0			9.49
	Mandestrobin	77.1	73.0	76.1			4.10
	MCPP	144	189	201			5.70
	Naproxen	84.0	86.4	108			22.5
	Primidone	78.5	91.8	96.7			5.21
	Pyraclostrobin	74.5	81.6	81.7			0.111
	Sucralose	75.2	77.3	72.4			6.44
	Thiamethoxam	90.7	141	135			4.53
	Tolfenpyrad	49.7	67.7	69.6			2.84
	Triclopyr	102	127	117			7.97

Reference Method Descriptions

Method / DoH Cert #	Description	<u>Associated Samples</u>
EPA 200.7 Rev. 4.4 / E31780	Total Recoverable Metals analysis using ICP emission spectroscopy for aqueous samples supporting Clean Water Act Projects	2114588, 2114589, 2114590
EPA 200.8 Rev. 5.4 / E31780	Total Recoverable Metals analysis using ICP-MS for aqueous samples supporting Clean Water Act Projects	2114588, 2114589, 2114590
EPA 8321B / E31780	Pesticides, herbicides, and other chemicals in water matrices by HPLC/MS/MS	2114585, 2114586, 2114587
EPA 8321B / E31780	Water soluble organic compounds by HPLC/MS/MS	2114585, 2114586, 2114587

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
EPA 200.7 Rev. 4.4	08/23/2019	08/28/2019 17:20	Elliott D. Healy	09/03/2019 16:37	Alexander Thompson	2114588
	08/23/2019	08/28/2019 17:20	Elliott D. Healy	09/03/2019 17:30	Alexander Thompson	2114589
	08/23/2019	08/28/2019 17:20	Elliott D. Healy	09/03/2019 17:37	Alexander Thompson	2114590
EPA 200.8 Rev. 5.4	08/23/2019	08/28/2019 17:20	Elliott D. Healy	09/13/2019 16:21	Justin Cutchin	2114588
	08/23/2019	08/28/2019 17:20	Elliott D. Healy	09/13/2019 16:50	Justin Cutchin	2114589
	08/23/2019	08/28/2019 17:20	Elliott D. Healy	09/13/2019 17:00	Justin Cutchin	2114590
	08/23/2019	08/28/2019 17:20	Elliott D. Healy	09/19/2019 14:18	Robert K Palmer	2114588
	08/23/2019	08/28/2019 17:20	Elliott D. Healy	09/19/2019 14:28	Robert K Palmer	2114589
EPA 8321B	08/23/2019	08/26/2019 09:30	Rebecca Ware	08/26/2019 17:37	Rebecca Ware	2114585
	08/23/2019	08/26/2019 09:30	Rebecca Ware	08/26/2019 17:48	Rebecca Ware	2114586
	08/23/2019	08/26/2019 09:30	Rebecca Ware	08/26/2019 17:59	Rebecca Ware	2114587
	08/23/2019	08/26/2019 09:30	Rebecca Ware	08/27/2019 14:27	Rebecca Ware	2114585
	08/23/2019	08/26/2019 09:30	Rebecca Ware	08/27/2019 14:41	Rebecca Ware	2114586
	08/23/2019	08/26/2019 09:30	Rebecca Ware	08/27/2019 14:55	Rebecca Ware	2114587
	08/23/2019	08/26/2019 09:30	Rebecca Ware	08/28/2019 19:03	Rebecca Ware	2114585
	08/23/2019	08/26/2019 09:30	Rebecca Ware	08/28/2019 19:15	Rebecca Ware	2114586
	08/23/2019	08/26/2019 09:30	Rebecca Ware	08/28/2019 19:27	Rebecca Ware	2114587
	08/23/2019	08/27/2019 13:30	Hoor Shaik	08/30/2019 18:54	Juyoung Kim	2114585
	08/23/2019	08/27/2019 13:30	Hoor Shaik	08/30/2019 19:28	Juyoung Kim	2114586
	08/23/2019	08/27/2019 13:30	Hoor Shaik	08/30/2019 20:03	Juyoung Kim	2114587