

Chemical Analysis Report

NE-DIST-2019-03-13-02

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

Event Description: **Alachua County March SMP**
Request ID: **RQ-2019-03-11-13**
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: Liang Lin, Environmental Administrator

Date Certified: 05-APR-2019 13:36

A handwritten signature in black ink, appearing to read "Liang Lin", is shown on a light-colored background.

Case Narrative

Unless otherwise noted, all samples included in this report were received in accordance with protocols referenced in Chapter 62-160, Florida Administrative Code (F.A.C.). Results published in this report pertain only to the samples as submitted to, and received by the laboratory. All times in this report are adjusted to the applicable Eastern Time Zone (EST or EDT).

Results for the following analytical 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: POSSUM CREEK-S OF NW 16TH AVE

Collection Date/Time: 03/12/2019 12:05

Field ID: G1NE0900

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2069254	EPA 8321B	2,4-D	0.0020	U	ug/L	P360341	
		Acesulfame K**	0.10	UJ	ug/L	P360352	MS
		AMPA**	0.19	I	ug/L	P360352	
		Endothall**	0.25	U	ug/L	P360352	
		Acetaminophen**	0.0080	U	ug/L	P360341	
		Glufosinate**	0.10	U	ug/L	P360352	
		Glyphosate**	0.22	I	ug/L	P360352	
		Bentazon	0.0020	I	ug/L	P360341	
		Sucralose**	0.084		ug/L	P360352	
		Carbamazepine**	8.0E-04	U	ug/L	P360341	
		Diuron	0.0020	U	ug/L	P360341	
		Fenuron	0.016	U	ug/L	P360341	
		Fluridone**	0.0032		ug/L	P360341	
		Imazapyr**	0.21		ug/L	P360341	
		Hydrocodone**	0.0020	U	ug/L	P360341	
		Ibuprofen**	0.020	U	ug/L	P360341	
		Imidacloprid	0.017		ug/L	P360341	MS
		Linuron	0.0040	U	ug/L	P360341	
		MCPP	0.0020	U	ug/L	P360341	MS
		Naproxen**	0.0080	U	ug/L	P360341	
		Primidone**	0.0040	U	ug/L	P360341	
		Pyraclostrobin**	0.0020	U	ug/L	P360341	
		Triclopyr**	0.0040	U	ug/L	P360341	
2069265	EPA 200.7 Rev. 4.4	Barium	4.8		ug/L	P360652	
		Calcium	32.0		mg/L	P360652	
		Iron	210		ug/L	P360652	
		Magnesium	7.82		mg/L	P360652	
		Potassium	0.79	I	mg/L	P360652	
		Sodium	11.8		mg/L	P360652	
		Zinc	5.0	U	ug/L	P360652	
	EPA 200.8 Rev. 5.4	Aluminum	101		ug/L	P360652	
		Antimony	0.089	I	ug/L	P360652	
		Arsenic	0.60		ug/L	P360652	
		Boron**	27.1		ug/L	P360652	
		Cadmium	0.020	U	ug/L	P360652	
		Chromium	0.46	I	ug/L	P360652	
		Copper	0.41	I	ug/L	P360652	
		Lead	0.20	U	ug/L	P360652	
		Nickel	0.56	I	ug/L	P360652	
		Selenium	0.34	I	ug/L	P360652	
		Silver	0.010	U	ug/L	P360652	
		Thallium	0.10	U	ug/L	P360652	

Ref. Method and Comment:

EPA 8321B: Refer to the narrative for an explanation of QC Codes.

Sample Location: HOGTOWN CREEK-RING PARK N OF NW 16TH AVE BETWEEN NW 18TH **Collection Date/Time: 03/12/2019 13:00**

Field ID: G1NE0912

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2069255	EPA 8321B	2,4-D	0.0025	I	ug/L	P360341	
		Acesulfame K**	0.10	U	ug/L	P360352	MS
		AMPA**	0.14	I	ug/L	P360352	
		Acetaminophen**	0.011	I	ug/L	P360341	
		Endothall**	0.25	U	ug/L	P360352	
		Glufosinate**	0.10	U	ug/L	P360352	
		Bentazon	0.0045		ug/L	P360341	
		Glyphosate**	0.43		ug/L	P360352	
		Carbamazepine**	8.0E-04	U	ug/L	P360341	
		Sucralose**	0.040	I	ug/L	P360352	
		Diuron	0.0020	U	ug/L	P360341	
		Fenuron	0.016	U	ug/L	P360341	
		Fluridone**	8.0E-04	I	ug/L	P360341	
		Imazapyr**	0.020		ug/L	P360341	
		Hydrocodone**	0.0020	U	ug/L	P360341	
		Ibuprofen**	0.020	U	ug/L	P360341	
		Imidacloprid	0.010		ug/L	P360341	MS
		Linuron	0.0040	U	ug/L	P360341	
		MCP	0.0020	U	ug/L	P360341	MS
		Naproxen**	0.0080	U	ug/L	P360341	
		Primidone**	0.0040	U	ug/L	P360341	
		Pyraclostrobin**	0.0020	U	ug/L	P360341	
		Triclopyr**	0.0040	U	ug/L	P360341	
2069266	EPA 200.7 Rev. 4.4	Barium	9.8		ug/L	P360652	
		Calcium	37.7		mg/L	P360652	
		Iron	360		ug/L	P360652	
		Magnesium	8.48		mg/L	P360652	
		Potassium	1.0	I	mg/L	P360652	
		Sodium	9.7		mg/L	P360652	
		Zinc	5.0	U	ug/L	P360652	
	EPA 200.8 Rev. 5.4	Aluminum	131		ug/L	P361214	
		Antimony	0.13	I	ug/L	P360652	
		Arsenic	1.16		ug/L	P360652	
		Boron**	29.1		ug/L	P360652	
		Cadmium	0.026	I	ug/L	P360652	
		Chromium	0.79	I	ug/L	P360652	
		Copper	0.60	I	ug/L	P360652	
		Lead	0.38	I	ug/L	P360652	
		Nickel	0.67	I	ug/L	P360652	
		Selenium	0.59	I	ug/L	P360652	
		Silver	0.010	U	ug/L	P360652	
		Thallium	0.10	U	ug/L	P360652	

Sample Location: HOGTOWN CREEK-RING PARK N OF NW 16TH AVE BETWEEN NW 18TH **Collection Date/Time: 03/12/2019 13:00**

Field ID: G1NE0912DUP

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2069256	EPA 8321B	2,4-D	0.0027	I	ug/L	P360341	
		Acesulfame K**	0.10	U	ug/L	P360352	MS
		AMPA**	0.13	I	ug/L	P360352	
		Acetaminophen**	0.0095	I	ug/L	P360341	
		Endothall**	0.25	U	ug/L	P360352	
		Glufosinate**	0.10	U	ug/L	P360352	
		Bentazon	0.0047		ug/L	P360341	
		Glyphosate**	0.42		ug/L	P360352	
		Carbamazepine**	8.0E-04	U	ug/L	P360341	
		Sucralose**	0.033	I	ug/L	P360352	
		Diuron	0.0020	U	ug/L	P360341	
		Fenuron	0.016	U	ug/L	P360341	
		Fluridone**	8.0E-04	U	ug/L	P360341	
		Imazapyr**	0.019		ug/L	P360341	
		Hydrocodone**	0.0020	U	ug/L	P360341	
		Ibuprofen**	0.020	U	ug/L	P360341	
		Imidacloprid	0.0085		ug/L	P360341	MS
		Linuron	0.0040	U	ug/L	P360341	
		MCP	0.0020	U	ug/L	P360341	MS
		Naproxen**	0.0080	U	ug/L	P360341	
2069267	EPA 200.7 Rev. 4.4	Primidone**	0.0040	U	ug/L	P360341	
		Pyraclostrobin**	0.0020	U	ug/L	P360341	
		Triclopyr**	0.0040	U	ug/L	P360341	
		Barium	9.7		ug/L	P360652	
		Calcium	37.7		mg/L	P360652	
		Iron	340		ug/L	P360652	
		Magnesium	8.47		mg/L	P360652	
		Potassium	0.95	I	mg/L	P360652	
		Sodium	9.6		mg/L	P360652	
		Zinc	5.0	U	ug/L	P360652	
	EPA 200.8 Rev. 5.4	Aluminum	135		ug/L	P361214	
		Antimony	0.12	I	ug/L	P360652	
		Arsenic	1.13		ug/L	P360652	
		Boron**	28.9		ug/L	P360652	
		Cadmium	0.027	I	ug/L	P360652	
		Chromium	0.63	I	ug/L	P360652	
		Copper	0.58	I	ug/L	P360652	
		Lead	0.35	I	ug/L	P360652	
		Nickel	0.67	I	ug/L	P360652	
		Selenium	0.58	I	ug/L	P360652	
		Silver	0.010	U	ug/L	P360652	
		Thallium	0.10	U	ug/L	P360652	

Quality Assurance Report Method Blank Results

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P360652

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: P360652

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 200.8 Rev. 5.4
Batch ID: P361214

Component	Result	Code	Units
Aluminum	5.0	U	ug/L

Reference Method: EPA 8321B
Batch ID: P360341

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	8.0E-04	U	ug/L
Diuron	0.0020	U	ug/L
Fenuron	0.016	U	ug/L
Fluridone	8.0E-04	U	ug/L
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
MCPP	0.0020	U	ug/L
Naproxen	0.0080	U	ug/L
Primidone	0.0040	U	ug/L
Pyraclostrobin	0.0020	U	ug/L
Triclopyr	0.0040	U	ug/L

Quality Assurance Report

Method Blank Results

Reference Method: EPA 8321B
Batch ID: P360352

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

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P360652

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Barium	101		P	85 - 115
Calcium	103		P	85 - 115
Iron	108		P	85 - 115
Magnesium	104		P	85 - 115
Potassium	105		P	85 - 115
Sodium	100		P	85 - 115
Zinc	102		P	85 - 115

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P360652

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Aluminum	96.8		P	85 - 115
Antimony	98.6		P	85 - 115
Arsenic	102		P	85 - 115
Boron	94.4		P	85 - 115
Cadmium	99.8		P	85 - 115
Chromium	91.9		P	85 - 115
Copper	98.1		P	85 - 115
Lead	98.3		P	85 - 115
Nickel	98.1		P	85 - 115
Selenium	99.0		P	85 - 115
Silver	110		P	85 - 115
Thallium	100		P	85 - 115

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P361214

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Aluminum	97.3		P	85 - 115

Reference Method: EPA 8321B
Batch ID: P360341

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2,4-D	86.2		P	40 - 150
Acetaminophen	93.1		P	30 - 150
Bentazon	90.1		P	30 - 150
Carbamazepine	92.8		P	40 - 150
Diuron	70.0		P	40 - 150
Fenuron	118		P	40 - 150
Fluridone	113		P	40 - 150
Hydrocodone	98.4		P	40 - 150
Ibuprofen	64.5		P	40 - 150
Imazapyr	98.5		P	40 - 150
Imidacloprid	97.3		P	40 - 150
Linuron	72.6		P	40 - 150
MCPP	103		P	40 - 150
Naproxen	43.1		P	40 - 150
Primidone	90.8		P	40 - 150
Pyraclostrobin	55.9		P	40 - 150
Triclopyr	62.8		P	40 - 150

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 8321B
Batch ID: P360352

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Acesulfame K	96.2		P	40 - 150
AMPA	88.8		P	40 - 150
Endothall	91.1		P	40 - 150
Glufosinate	89.5		P	40 - 150
Glyphosate	93.9		P	40 - 140
Sucralose	56.9		P	40 - 150

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P360652

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2069273	Barium	98.5		P	80 - 120
2069273	Calcium	104		P	80 - 120
2069273	Iron	107		P	80 - 120
2069273	Magnesium	106		P	80 - 120
2069273	Potassium	103		P	80 - 120
2069273	Sodium	101		P	80 - 120
2069273	Zinc	101		P	80 - 120
2069327	Barium	99.9	99.7	P/P	80 - 120
2069327	Calcium	104		P	80 - 120
2069327	Iron	109	108	P/P	80 - 120
2069327	Magnesium	104		P	80 - 120
2069327	Potassium	105	105	P/P	80 - 120
2069327	Sodium	106		P	80 - 120
2069327	Zinc	100	99.5	P/P	80 - 120

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P360652

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2069273	Aluminum	100		P	80 - 120
2069273	Antimony	99.3		P	80 - 120
2069273	Arsenic	101		P	80 - 120
2069273	Boron	103		P	80 - 120
2069273	Cadmium	97.8		P	80 - 120
2069273	Chromium	87.2		P	80 - 120
2069273	Copper	95.2		P	80 - 120
2069273	Lead	98.6		P	80 - 120
2069273	Nickel	96.5		P	80 - 120
2069273	Selenium	99.5		P	80 - 120
2069273	Silver	107		P	80 - 120
2069273	Thallium	101		P	80 - 120
2069327	Aluminum	98.7	98.6	P/P	80 - 120
2069327	Antimony	99.2	98.1	P/P	80 - 120
2069327	Arsenic	99.5	99.5	P/P	80 - 120
2069327	Boron	103	104	P/P	80 - 120
2069327	Cadmium	99.0	100	P/P	80 - 120
2069327	Chromium	91.4	92.0	P/P	80 - 120
2069327	Copper	94.4	94.7	P/P	80 - 120
2069327	Lead	98.5	97.8	P/P	80 - 120
2069327	Nickel	96.0	95.0	P/P	80 - 120
2069327	Selenium	95.2	97.9	P/P	80 - 120
2069327	Silver	111	111	P/P	80 - 120
2069327	Thallium	101	101	P/P	80 - 120

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P361214

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2069267	Aluminum	100	100	P/P	80 - 120

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 8321B
 Batch ID: P360341

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2069366	2,4-D	103	88.8	P/P	40 - 150
2069366	Acetaminophen	90.8	98.1	P/P	30 - 150
2069366	Bentazon	54.8	56.8	P/P	30 - 150
2069366	Carbamazepine	73.5	70.2	P/P	40 - 150
2069366	Diuron	66.0	58.3	P/P	40 - 150
2069366	Fenuron	89.9	88.2	P/P	40 - 150
2069366	Fluridone	114	110	P/P	40 - 150
2069366	Hydrocodone	81.4	82.3	P/P	40 - 150
2069366	Ibuprofen	68.5	75.8	P/P	40 - 150
2069366	Imazapyr	106	110	P/P	40 - 150
2069366	Imidacloprid	182	174	F/F	40 - 150
2069366	Linuron	68.3	66.9	P/P	40 - 150
2069366	MCP	153	143	F/P	40 - 150
2069366	Naproxen	67.2	65.4	P/P	40 - 150
2069366	Primidone	70.3	85.2	P/P	40 - 150
2069366	Pyraclostrobin	58.4	63.0	P/P	40 - 150
2069366	Triclopyr	90.3	75.6	P/P	40 - 150

Reference Method: EPA 8321B
 Batch ID: P360352

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2069254	Acesulfame K	139	155	P/F	40 - 150
2069254	AMPA	87.8	97.9	P/P	40 - 150
2069254	Endothall	90.9	101	P/P	40 - 150
2069254	Glufosinate	87.0	86.8	P/P	40 - 150
2069254	Glyphosate	114	119	P/P	40 - 140
2069254	Sucralose	49.1	54.5	P/P	40 - 150

Quality Assurance Report Precision

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P360652

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2069327	Barium	0.178	Spike	P	0 - 20
2069327	Calcium	0.707	Spike	P	0 - 20
2069327	Iron	1.27	Spike	P	0 - 20
2069327	Magnesium	1.04	Spike	P	0 - 20
2069327	Potassium	0.0172	Spike	P	0 - 20
2069327	Sodium	1.82	Spike	P	0 - 20
2069327	Zinc	0.566	Spike	P	0 - 20

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P360652

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2069327	Aluminum	0.0910	Spike	P	0 - 20
2069327	Antimony	1.16	Spike	P	0 - 20
2069327	Arsenic	0.0323	Spike	P	0 - 20
2069327	Boron	1.06	Spike	P	0 - 20
2069327	Cadmium	1.09	Spike	P	0 - 20
2069327	Chromium	0.659	Spike	P	0 - 20
2069327	Copper	0.345	Spike	P	0 - 20
2069327	Lead	0.720	Spike	P	0 - 20
2069327	Nickel	1.01	Spike	P	0 - 20
2069327	Selenium	2.76	Spike	P	0 - 20
2069327	Silver	0.743	Spike	P	0 - 20
2069327	Thallium	0.171	Spike	P	0 - 20

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P361214

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2069267	Aluminum	0.0345	Spike	P	0 - 20

Reference Method: EPA 8321B
Batch ID: P360341

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2069366	2,4-D	14.6	Spike	P	0 - 30
2069366	Acetaminophen	7.71	Spike	P	0 - 30
2069366	Bentazon	3.23	Spike	P	0 - 30
2069366	Carbamazepine	4.58	Spike	P	0 - 30
2069366	Diuron	9.06	Spike	P	0 - 30
2069366	Fenuron	1.98	Spike	P	0 - 30
2069366	Fluridone	2.19	Spike	P	0 - 30
2069366	Hydrocodone	1.17	Spike	P	0 - 30
2069366	Ibuprofen	10.2	Spike	P	0 - 30
2069366	Imazapyr	3.05	Spike	P	0 - 30
2069366	Imidacloprid	2.01	Spike	P	0 - 30
2069366	Linuron	2.05	Spike	P	0 - 30
2069366	MCP	6.95	Spike	P	0 - 30

Quality Assurance Report Precision

Reference Method: EPA 8321B
Batch ID: P360341

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2069366	Naproxen	2.79	Spike	P	0 - 30
2069366	Primidone	19.1	Spike	P	0 - 30
2069366	Pyraclostrobin	7.64	Spike	P	0 - 30
2069366	Triclopyr	17.6	Spike	P	0 - 30

Reference Method: EPA 8321B
Batch ID: P360352

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2069254	Acesulfame K	11.2	Spike	P	0 - 30
2069254	AMPA	9.07	Spike	P	0 - 30
2069254	Endothall	10.9	Spike	P	0 - 30
2069254	Glufosinate	0.297	Spike	P	0 - 30
2069254	Glyphosate	3.08	Spike	P	0 - 30
2069254	Sucralose	9.68	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: 2069254
Field Sample ID: G1NE0900

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	2,4-D-d3	76.1	P	30 - 160
EPA 8321B	Acetaminophen-d4	79.2	P	30 - 160
EPA 8321B	Carbamazepine-d10	74.1	P	30 - 160
EPA 8321B	Diuron-d6	68.5	P	30 - 160
EPA 8321B	Endothall-d6	94.4	P	30 - 160
EPA 8321B	Glyphosate 13C 15N	108	P	30 - 160
EPA 8321B	Ibuprofen-d3	62.7	P	30 - 160
EPA 8321B	Primidone-d5	93.5	P	30 - 160
EPA 8321B	Sucralose-d6	77.2	P	30 - 160

Lab Sample ID: 2069255
Field Sample ID: G1NE0912

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	2,4-D-d3	82.1	P	30 - 160
EPA 8321B	Acetaminophen-d4	77.9	P	30 - 160
EPA 8321B	Carbamazepine-d10	73.7	P	30 - 160
EPA 8321B	Diuron-d6	63.1	P	30 - 160
EPA 8321B	Endothall-d6	105	P	30 - 160
EPA 8321B	Glyphosate 13C 15N	89.4	P	30 - 160
EPA 8321B	Ibuprofen-d3	68.2	P	30 - 160
EPA 8321B	Primidone-d5	81.9	P	30 - 160
EPA 8321B	Sucralose-d6	74.9	P	30 - 160

Lab Sample ID: 2069256
Field Sample ID: G1NE0912DUP

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	2,4-D-d3	85.1	P	30 - 160
EPA 8321B	Acetaminophen-d4	79.5	P	30 - 160
EPA 8321B	Carbamazepine-d10	67.7	P	30 - 160
EPA 8321B	Diuron-d6	58.9	P	30 - 160
EPA 8321B	Endothall-d6	106	P	30 - 160
EPA 8321B	Glyphosate 13C 15N	88.4	P	30 - 160
EPA 8321B	Ibuprofen-d3	59.0	P	30 - 160
EPA 8321B	Primidone-d5	93.3	P	30 - 160
EPA 8321B	Sucralose-d6	70.0	P	30 - 160

Quality Assurance Report Calibration Verification

Reference Method: EPA 8321B

Run ID: A90083

Included Lab Sample IDs: 2069254, 2069255, 2069256

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Acesulfame K	105	117	P/P	60 - 160
Endothall	97.8	93.1	P/P	60 - 160
Sucralose	91.5	77.9	P/P	60 - 160

Reference Method: EPA 8321B

Run ID: A90091

Included Lab Sample IDs: 2069254, 2069255, 2069256

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
2,4-D	83.2	82.8	P/P	50 - 150
Acetaminophen	110	106	P/P	60 - 160
Bentazon	86.5	83.3	P/P	50 - 160
Carbamazepine	99.9	101	P/P	60 - 150
Diuron	105	102	P/P	60 - 150
Fenuron	102	104	P/P	60 - 150
Fluridone	111	109	P/P	60 - 160
Hydrocodone	85.0	101	P/P	60 - 150
Ibuprofen	82.9	84.4	P/P	50 - 160
Imazapyr	96.0	82.5	P/P	50 - 150
Imidacloprid	85.5	96.6	P/P	60 - 150
Linuron	101	110	P/P	60 - 150
MCPP	92.4	98.3	P/P	50 - 150
Naproxen	92.1	103	P/P	50 - 160
Primidone	91.6	102	P/P	60 - 150
Pyraclostrobin	69.7	85.7	P/P	60 - 150
Triclopyr	104	91.4	P/P	50 - 150

Reference Method: EPA 8321B

Run ID: A90093

Included Lab Sample IDs: 2069254, 2069255, 2069256

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
AMPA	94.6	104	P/P	60 - 160
Glufosinate	91.7	97.3	P/P	60 - 160
Glyphosate	108	96.1	P/P	60 - 160

Reference Method: EPA 200.8 Rev. 5.4

Run ID: A90103

Included Lab Sample IDs: 2069265, 2069266, 2069267

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Aluminum	102	102	P/P	90 - 110
Antimony	103	102	P/P	90 - 110
Arsenic	104	101	P/P	90 - 110
Boron	97.8	105	P/P	90 - 110
Cadmium	102	103	P/P	90 - 110
Chromium	100	101	P/P	90 - 110
Copper	103	99.8	P/P	90 - 110
Lead	104	103	P/P	90 - 110
Nickel	102	99.8	P/P	90 - 110
Selenium	102	101	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: EPA 200.8 Rev. 5.4

Run ID: A90103

Included Lab Sample IDs: 2069265, 2069266, 2069267

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Thallium	99.8	98.0	P/P	90 - 110

Reference Method: EPA 200.7 Rev. 4.4

Run ID: A90113

Included Lab Sample IDs: 2069265, 2069266, 2069267

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Barium	100	100	P/P	90 - 110
Calcium	101	103	P/P	90 - 110
Iron	102	102	P/P	90 - 110
Magnesium	103	103	P/P	90 - 110
Potassium	101	101	P/P	90 - 110
Sodium	100	103	P/P	90 - 110
Zinc	101	102	P/P	90 - 110

Reference Method: EPA 200.8 Rev. 5.4

Run ID: A90136

Included Lab Sample IDs: 2069265, 2069266, 2069267

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Silver	103	107	P/P	90 - 110

Reference Method: EPA 200.8 Rev. 5.4

Run ID: A90422

Included Lab Sample IDs: 2069266, 2069267

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Aluminum	101	100	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	101	98.5	99.9	99.7		0.178
	Calcium	103	104	104			0.707
	Iron	108	107	109	108		1.27
	Magnesium	104	106	104			1.04
	Potassium	105	103	105	105		0.0172
	Sodium	100	101	106			1.82
	Zinc	102	101	100	99.5		0.566
EPA 200.8 Rev. 5.4	Aluminum	96.8	100	98.7	98.6		0.0910
	Aluminum	97.3	100	100			0.0345
	Antimony	98.6	99.3	99.2	98.1		1.16
	Arsenic	102	101	99.5	99.5		0.0323
	Boron	94.4	103	103	104		1.06
	Cadmium	99.8	97.8	99.0	100		1.09
	Chromium	91.9	87.2	91.4	92.0		0.659
	Copper	98.1	95.2	94.4	94.7		0.345
	Lead	98.3	98.6	98.5	97.8		0.720
	Nickel	98.1	96.5	96.0	95.0		1.01
	Selenium	99.0	99.5	95.2	97.9		2.76
	Silver	110	107	111	111		0.743
	Thallium	100	101	101	101		0.171
EPA 8321B	2,4-D	86.2	103	88.8			14.6
	Acesulfame K	96.2	139	155			11.2
	Acetaminophen	93.1	90.8	98.1			7.71
	AMPA	88.8	87.8	97.9			9.07
	Bentazon	90.1	54.8	56.8			3.23
	Carbamazepine	92.8	73.5	70.2			4.58
	Diuron	70.0	66.0	58.3			9.06
	Endothall	91.1	90.9	101			10.9
	Fenuron	118	89.9	88.2			1.98
	Fluridone	113	114	110			2.19
	Glufosinate	89.5	87.0	86.8			0.297
	Glyphosate	93.9	114	119			3.08
	Hydrocodone	98.4	81.4	82.3			1.17
	Ibuprofen	64.5	68.5	75.8			10.2
	Imazapyr	98.5	106	110			3.05
	Imidacloprid	97.3	182	174			2.01
	Linuron	72.6	68.3	66.9			2.05
	MCPP	103	153	143			6.95
	Naproxen	43.1	67.2	65.4			2.79
	Primidone	90.8	70.3	85.2			19.1
	Pyraclostrobin	55.9	58.4	63.0			7.64
	Sucralose	56.9	49.1	54.5			9.68
	Triclopyr	62.8	90.3	75.6			17.6

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 200.7 Rev. 4.4 / E31780	Total Recoverable Metals analysis using ICP emission spectroscopy for aqueous samples supporting Clean Water Act Projects	2069265, 2069266, 2069267
EPA 200.8 Rev. 5.4 / E31780	Total Recoverable Metals analysis using ICP-MS for aqueous samples supporting Clean Water Act Projects	2069265, 2069266, 2069267
EPA 8321B / E31780	Pesticides, herbicides, and other chemicals in water matrices by HPLC/MS/MS	2069254, 2069255, 2069256

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	03/13/2019	03/18/2019 13:30	Elliott D. Healy	03/19/2019 13:41	Vijayalakshmi Reddy	2069265
	03/13/2019	03/18/2019 13:30	Elliott D. Healy	03/19/2019 13:47	Vijayalakshmi Reddy	2069266
	03/13/2019	03/18/2019 13:30	Elliott D. Healy	03/19/2019 13:52	Vijayalakshmi Reddy	2069267
EPA 200.8 Rev. 5.4	03/13/2019	03/18/2019 13:30	Elliott D. Healy	03/19/2019 15:47	Robert K Palmer	2069265
	03/13/2019	03/18/2019 13:30	Elliott D. Healy	03/19/2019 15:56	Robert K Palmer	2069266
	03/13/2019	03/18/2019 13:30	Elliott D. Healy	03/19/2019 16:06	Robert K Palmer	2069267
	03/13/2019	03/18/2019 13:30	Elliott D. Healy	03/20/2019 12:36	Robert K Palmer	2069265
	03/13/2019	03/18/2019 13:30	Elliott D. Healy	03/20/2019 12:42	Robert K Palmer	2069266
	03/13/2019	03/18/2019 13:30	Elliott D. Healy	03/20/2019 12:48	Robert K Palmer	2069267
	03/13/2019	03/28/2019 15:30	Elliott D. Healy	04/03/2019 14:54	Robert K Palmer	2069266
	03/13/2019	03/28/2019 15:30	Elliott D. Healy	04/03/2019 15:00	Robert K Palmer	2069267
	03/13/2019	03/15/2019 13:00	Hoor Shaik	03/16/2019 22:27	Juyoung Kim	2069254
EPA 8321B	03/13/2019	03/15/2019 13:00	Hoor Shaik	03/16/2019 23:01	Juyoung Kim	2069255
	03/13/2019	03/15/2019 13:00	Hoor Shaik	03/16/2019 23:36	Juyoung Kim	2069256
	03/13/2019	03/18/2019 08:00	Juyoung Kim	03/18/2019 13:02	Juyoung Kim	2069254
	03/13/2019	03/18/2019 08:00	Juyoung Kim	03/18/2019 13:12	Juyoung Kim	2069255
	03/13/2019	03/18/2019 08:00	Juyoung Kim	03/18/2019 13:23	Juyoung Kim	2069256
	03/13/2019	03/18/2019 08:00	Juyoung Kim	03/18/2019 16:32	Juyoung Kim	2069254
	03/13/2019	03/18/2019 08:00	Juyoung Kim	03/18/2019 16:46	Juyoung Kim	2069255
	03/13/2019	03/18/2019 08:00	Juyoung Kim	03/18/2019 17:00	Juyoung Kim	2069256