

Chemical Analysis Report

SW-DIST-2020-02-10-02

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

Event Description: **Miill, Lil Man N, Lil Man S.**
Request ID: **RQ-2019-12-09-05**
Customer: **SW-DIST**
Project ID: **SMP**

Send Reports to:
FL Dept. of Environmental Protection
FL Dept. of Environmental Protection
13051 N. Telecom Parkway
Temple Terrace, FL 33637-0926
Attn: Judy Ashton

For additional information please contact
Colin Wright, Ph.D.
Liang-Tsair Lin, Ph.D.
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Thekkekalathil Chandrasekhar, Ph.D, QA Officer
Phone (850) 245-8085

Certified by: Liang Lin, Environmental Administrator

Date Certified: 04-MAR-2020 09:54

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

NON-CONFORMANCE REPORT INCLUDED

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: Payne Creek in State Park

Collection Date/Time: 02/06/2020 12:30

Field ID: G3SW0084

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2156209	EPA 8321B	2,4-D	0.0021	IY	ug/L	P378656	
		Acesulfame K**	0.10	UY	ug/L	P378657	
		AMPA**	0.43	Y	ug/L	P378657	
		Sucralose**	0.32	Y	ug/L	P378657	
		Acetaminophen**	0.0080	UY	ug/L	P378656	
		Acetamiprid**	0.0020	UY	ug/L	P378656	
		Endothall**	0.25	UY	ug/L	P378657	
		Glufosinate**	0.10	UY	ug/L	P378657	
		Glyphosate**	0.23	IY	ug/L	P378657	
		Afidopyropen**	0.0020	UJY	ug/L	P378656	
		Bentazon	8.0E-04	UY	ug/L	P378656	
		Benzovindiflupyr**	0.0020	UJY	ug/L	P378656	
		Carbamazepine**	8.0E-04	UY	ug/L	P378656	
		Clothianidin**	0.0051	IY	ug/L	P378656	
		Dinotefuran**	0.0020	UY	ug/L	P378656	
		Diuron	0.0060	IY	ug/L	P378656	
		Fenuron	0.016	UY	ug/L	P378656	
		Fluridone**	8.0E-04	UY	ug/L	P378656	
		Imazapyr**	0.14	Y	ug/L	P378656	
		Hydrocodone**	0.0020	UY	ug/L	P378656	
		Ibuprofen**	0.020	UY	ug/L	P378656	
		Imidacloprid	0.028	YJ	ug/L	P378656	MS
		Linuron	0.0040	UY	ug/L	P378656	
		Mandestrobin**	0.0020	UJY	ug/L	P378656	
		MCPP	0.0020	UY	ug/L	P378656	
		Naproxen**	0.0080	UY	ug/L	P378656	
		Primidone**	0.0040	UY	ug/L	P378656	
		Pyraclostrobin**	0.0020	UY	ug/L	P378656	
		Thiamethoxam**	0.0063	IY	ug/L	P378656	
		Tolfenpyrad**	0.0020	UY	ug/L	P378656	
		Triclopyr**	0.0040	UY	ug/L	P378656	
2156210	EPA 200.7 Rev. 4.4	Barium	4.8		ug/L	P378666	
		Calcium	37.3		mg/L	P378666	
		Iron	150		ug/L	P378666	
		Magnesium	23.7		mg/L	P378666	
		Potassium	2.6		mg/L	P378666	
		Sodium	21.9		mg/L	P378666	
		Zinc	5.0	U	ug/L	P378666	
	EPA 200.8 Rev. 5.4	Aluminum	128		ug/L	P378666	
		Antimony	0.26		ug/L	P378666	
		Arsenic	1.77		ug/L	P378666	
		Boron**	52.1		ug/L	P378666	
		Cadmium	0.035	I	ug/L	P378666	
		Chromium	0.40	U	ug/L	P378666	

Field ID: G3SW0084

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2156210	EPA 200.8 Rev. 5.4	Copper	0.40	U	ug/L	P378666	
		Lead	0.20	U	ug/L	P378666	
		Nickel	0.79	I	ug/L	P378666	
		Selenium	0.41	I	ug/L	P378666	
		Silver	0.010	U	ug/L	P378666	
		Thallium	0.10	U	ug/L	P378666	
2156211	EPA 8270E	Acetochlor	0.24	UY	ng/L	P378789	
		Alachlor	0.24	UY	ng/L	P378789	
		Ametryn	0.59	UY	ng/L	P378789	
		Atrazine	2.7	Y	ng/L	P378789	
		Atrazine Desethyl	1.5	UY	ng/L	P378789	
		Azinphos Methyl	2.0	UY	ng/L	P378789	
		Bromacil	91	Y	ng/L	P378789	
		Butylate	0.39	UYJ	ng/L	P378789	LCS, MS, RPD
		Carbophenothion	0.49	UY	ng/L	P378789	
		Chlorpyrifos Ethyl	0.24	UY	ng/L	P378789	
		Chlorpyrifos Methyl	0.049	UY	ng/L	P378789	
		Cyanazine	3.2	UY	ng/L	P378789	
		Demeton	1.5	UY	ng/L	P378789	
		Diazinon	0.12	UY	ng/L	P378789	
		Dimethenamid**	0.098	UY	ng/L	P378789	
		Disulfoton	0.49	UY	ng/L	P378789	
		Dithiopyr**	0.098	UY	ng/L	P378789	
		EPTC	1.2	UY	ng/L	P378789	
		Ethion	0.15	UY	ng/L	P378789	
		Ethoprop	0.098	UY	ng/L	P378789	
		Fenamiphos	0.49	UY	ng/L	P378789	
		Fipronil	0.24	UY	ng/L	P378789	
		Fipronil Desulfinyl**	0.12	UY	ng/L	P378789	
		Fipronil Sulfide	0.15	UY	ng/L	P378789	
		Fipronil Sulfone	0.15	UY	ng/L	P378789	
		Flumioxazin**	1.7	UY	ng/L	P378789	
		Fonofos	0.20	UY	ng/L	P378789	
		Hexazinone	5.9	Y	ng/L	P378789	
		Imazalil**	0.73	UY	ng/L	P378789	MS, RPD
		Malathion	0.34	UY	ng/L	P378789	
		Metalaxyl	5.7	Y	ng/L	P378789	
		Metolachlor	0.82	IY	ng/L	P378789	
		Metribuzin	3.2	UY	ng/L	P378789	
		Mevinphos	0.49	UY	ng/L	P378789	
		Molinate	0.29	UY	ng/L	P378789	
		Norflurazon	41	Y	ng/L	P378789	
		Oxadiazon**	0.20	IY	ng/L	P378789	
		Parathion Ethyl	0.24	UY	ng/L	P378789	

Field ID: G3SW0084

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2156211	EPA 8270E	Parathion Methyl	0.54	UY	ng/L	P378789	
		Pendimethalin	0.98	UY	ng/L	P378789	
		Phorate	0.24	UY	ng/L	P378789	
		Prodiamine**	0.17	UY	ng/L	P378789	
		Prometon	0.88	UY	ng/L	P378789	
		Prometryn	0.20	UY	ng/L	P378789	
		Pronamide**	0.15	UY	ng/L	P378789	
		Propiconazole**	0.49	UY	ng/L	P378789	
		Simazine	2.6	Y	ng/L	P378789	
		Sulfentrazone**	1.1	IY	ng/L	P378789	
		Tebuconazole**	0.49	UY	ng/L	P378789	
		Terbufos	0.098	UY	ng/L	P378789	
		Terbuthylazine	0.41	UY	ng/L	P378789	

Ref. Method and Comment:

EPA 8321B: J - second source check standards for some analytes were not available for analysis. MS accuracy for imazapyr could not be assessed due to high concentration of parameter in the spiked sample. Y - Sample was received with inadequate sample preservation; see NCR report. Refer to the Lab Analysis Report for an explanation of QC Codes.

EPA 8321B: Y - Sample was received with inadequate sample preservation; see NCR report.

EPA 8270E: MS accuracy for some parameters not assessed due to high content of these parameters in the sample spiked. Refer to the Lab Analysis Report for an explanation of QC Codes. Y - Due to improper preservation; see NCR report.

Non-Conformance Report

NCR ID: 8174

Event(s)

SW-DIST-2020-02-10-02

Job(s)

Sample(s)

Test(s)

NCR Type: SHIPPING/RECEIVING

NCR Category: Preservation Not Intact

Observation: Samples arrived one or more days late by FedEx, samples received outside of the acceptable temperature range.

Resolution: Samples logged in using Curtis Musson's SMP project login Protocol.
Samples will be qualified as appropriate.

Authorized by/Date: Joshua Ayres 2/19/2020

The Non-Conformance Report details exceptions or problems encountered with the events/jobs/samples/test.
Please address questions to:

Chemistry	Colin Wright	(850) 245-8085
Biology	Cheryl Swanson	(850) 245-8177

Quality Assurance Report Method Blank Results

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P378666

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: P378666

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 8270E
Batch ID: P378789

Component	Result	Code	Units
Acetochlor	0.25	U	ng/L
Alachlor	0.25	U	ng/L
Ametryn	0.60	U	ng/L
Atrazine	0.25	U	ng/L
Atrazine Desethyl	1.5	U	ng/L
Azinphos Methyl	2.0	U	ng/L
Bromacil	0.50	U	ng/L
Butylate	0.40	U	ng/L
Carbophenothion	0.50	U	ng/L
Chlorpyrifos Ethyl	0.25	U	ng/L
Chlorpyrifos Methyl	0.050	U	ng/L
Cyanazine	3.2	U	ng/L
Demeton	1.5	U	ng/L
Diazinon	0.12	U	ng/L
Dimethenamid	0.10	U	ng/L
Disulfoton	0.50	U	ng/L
Dithiopyr	0.10	U	ng/L
EPTC	1.2	U	ng/L
Ethion	0.15	U	ng/L
Ethoprop	0.10	U	ng/L
Fenamiphos	0.50	U	ng/L
Fipronil	0.25	U	ng/L
Fipronil Desulfinyl	0.12	U	ng/L

Quality Assurance Report

Method Blank Results

Reference Method: EPA 8270E
Batch ID: P378789

Component	Result	Code	Units
Fipronil Sulfide	0.15	U	ng/L
Fipronil Sulfone	0.15	U	ng/L
Flumioxazin	1.8	U	ng/L
Fonofos	0.20	U	ng/L
Hexazinone	0.50	U	ng/L
Imazalil	0.75	U	ng/L
Malathion	0.35	U	ng/L
Metalaxyl	0.75	U	ng/L
Metolachlor	0.50	U	ng/L
Metribuzin	3.2	U	ng/L
Mevinphos	0.50	U	ng/L
Molinate	0.30	U	ng/L
Norflurazon	0.50	U	ng/L
Oxadiazon	0.10	U	ng/L
Parathion Ethyl	0.25	U	ng/L
Parathion Methyl	0.55	U	ng/L
Pendimethalin	1.0	U	ng/L
Phorate	0.25	U	ng/L
Prodiamine	0.18	U	ng/L
Prometon	0.90	U	ng/L
Prometryn	0.20	U	ng/L
Pronamide	0.15	U	ng/L
Propiconazole	0.50	U	ng/L
Simazine	0.50	U	ng/L
Sulfentrazone	0.50	U	ng/L
Tebuconazole	0.50	U	ng/L
Terbufos	0.10	U	ng/L
Terbutylazine	0.42	U	ng/L

Reference Method: EPA 8321B
Batch ID: P378656

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
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
MCP	0.0020	U	ug/L

Quality Assurance Report

Method Blank Results

Reference Method: EPA 8321B
Batch ID: P378656

Component	Result	Code	Units
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

Reference Method: EPA 8321B
Batch ID: P378657

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: P378666

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Barium	104		P	85 - 115
Calcium	105		P	85 - 115
Iron	108		P	85 - 115
Magnesium	110		P	85 - 115
Potassium	106		P	85 - 115
Sodium	104		P	85 - 115
Zinc	103		P	85 - 115

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P378666

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Aluminum	102		P	85 - 115
Antimony	106		P	85 - 115
Arsenic	103		P	85 - 115
Boron	102		P	85 - 115
Cadmium	102		P	85 - 115
Chromium	98.2		P	85 - 115
Copper	101		P	85 - 115
Lead	98.6		P	85 - 115
Nickel	100		P	85 - 115
Selenium	101		P	85 - 115
Silver	104		P	85 - 115
Thallium	96.8		P	85 - 115

Reference Method: EPA 8270E
Batch ID: P378789

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Acetochlor	107	102	P/P	71 - 122
Alachlor	104	101	P/P	70 - 121
Ametryn	127	104	P/P	49 - 137
Atrazine	97.7	93.3	P/P	76 - 125
Atrazine Desethyl	109	106	P/P	31 - 144
Azinphos Methyl	132	125	P/P	67 - 150
Bromacil	108	106	P/P	36 - 121
Butylate	33.0	35.7	F/P	33 - 88.0
Carbophenothion	95.5	89.4	P/P	50 - 150
Chlorpyrifos Ethyl	96.2	98.7	P/P	73 - 117
Chlorpyrifos Methyl	98.6	94.6	P/P	68 - 121
Cyanazine	174	185	P/P	20 - 250
Demeton	91.2	89.5	P/P	30 - 123
Diazinon	106	110	P/P	70 - 128
Dimethenamid	106	102	P/P	66 - 122
Disulfoton	107	96.6	P/P	46 - 124
Dithiopyr	105	101	P/P	69 - 122
EPTC	51.5	50.3	P/P	31 - 90.0
Ethion	91.6	87.6	P/P	45 - 135
Ethoprop	104	95.1	P/P	59 - 118
Fenamiphos	86.4	95.8	P/P	30 - 136
Fipronil	117	112	P/P	57 - 127
Fipronil Desulfinyl	113	105	P/P	51 - 122

Quality Assurance Report

Laboratory Control Sample Accuracy

Reference Method: EPA 8270E
Batch ID: P378789

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fipronil Sulfide	102	91.5	P/P	57 - 119
Fipronil Sulfone	98.2	89.5	P/P	51 - 119
Flumioxazin	168	156	P/P	70 - 200
Fonofos	90.3	92.0	P/P	60 - 120
Hexazinone	130	101	P/P	57 - 142
Imazalil	99.3	99.2	P/P	50 - 150
Malathion	105	107	P/P	67 - 128
Metalaxyl	110	106	P/P	21 - 148
Metolachlor	102	96.4	P/P	70 - 120
Metribuzin	192	191	P/P	20 - 253
Mevinphos	85.8	83.2	P/P	47 - 116
Molinate	65.7	61.9	P/P	41 - 99.0
Norflurazon	112	107	P/P	54 - 127
Oxadiazon	86.9	87.8	P/P	65 - 122
Parathion Ethyl	103	94.7	P/P	71 - 113
Parathion Methyl	109	105	P/P	73 - 129
Pendimethalin	103	98.4	P/P	63 - 130
Phorate	94.5	92.0	P/P	48 - 118
Prodiamine	47.1	43.9	P/P	20 - 144
Prometon	101	92.3	P/P	53 - 120
Prometryn	115	108	P/P	63 - 119
Pronamide	109	102	P/P	50 - 150
Propiconazole	114	106	P/P	50 - 150
Simazine	114	107	P/P	77 - 129
Sulfentrazone	99.6	92.9	P/P	50 - 150
Tebuconazole	85.3	76.4	P/P	20 - 118
Terbufos	96.0	94.7	P/P	61 - 119
Terbutylazine	98.5	94.4	P/P	75 - 119

Reference Method: EPA 8321B
Batch ID: P378656

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2,4-D	122		P	30 - 160
Acetaminophen	93.0		P	30 - 160
Acetamiprid	89.9		P	30 - 160
Afidopyropen	75.9		P	30 - 160
Bentazon	84.8		P	30 - 160
Benzovindiflupyr	80.0		P	30 - 160
Carbamazepine	89.4		P	30 - 160
Clothianidin	91.1		P	30 - 160
Dinotefuran	90.1		P	30 - 160
Diuron	89.6		P	30 - 160
Fenuron	109		P	30 - 160
Fluridone	87.7		P	30 - 160
Hydrocodone	101		P	30 - 160
Ibuprofen	76.8		P	30 - 160
Imazapyr	105		P	30 - 160
Imidacloprid	109		P	30 - 160
Linuron	70.7		P	30 - 160
Mandestrobin	83.6		P	30 - 160
MCPP	122		P	30 - 160

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 8321B
Batch ID: P378656

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Naproxen	77.0		P	30 - 160
Primidone	98.2		P	30 - 160
Pyraclostrobin	76.4		P	30 - 160
Thiamethoxam	69.0		P	30 - 160
Tolfenpyrad	49.7		P	30 - 160
Triclopyr	95.5		P	30 - 160

Reference Method: EPA 8321B
Batch ID: P378657

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Acesulfame K	100		P	40 - 150
AMPA	124		P	40 - 150
Endothall	94.3		P	40 - 150
Glufosinate	111		P	40 - 150
Glyphosate	140		P	40 - 140
Sucralose	98.2		P	40 - 150

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P378666

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2156164	Barium	102		P	80 - 120
2156164	Calcium	105		P	80 - 120
2156164	Iron	105		P	80 - 120
2156164	Magnesium	104		P	80 - 120
2156164	Potassium	102		P	80 - 120
2156164	Sodium	104		P	80 - 120
2156164	Zinc	103		P	80 - 120
2156185	Barium	99.3	101	P/P	80 - 120
2156185	Calcium	96.5		P	80 - 120
2156185	Iron	103	104	P/P	80 - 120
2156185	Magnesium	100	102	P/P	80 - 120
2156185	Potassium	102	102	P/P	80 - 120
2156185	Sodium	101		P	80 - 120
2156185	Zinc	98.0	100	P/P	80 - 120

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P378666

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2156164	Aluminum	101		P	80 - 120
2156164	Antimony	107		P	80 - 120
2156164	Arsenic	108		P	80 - 120
2156164	Boron	102		P	80 - 120
2156164	Cadmium	104		P	80 - 120
2156164	Chromium	99.8		P	80 - 120
2156164	Copper	102		P	80 - 120
2156164	Lead	99.3		P	80 - 120
2156164	Nickel	100		P	80 - 120
2156164	Selenium	104		P	80 - 120
2156164	Silver	103		P	80 - 120
2156164	Thallium	96.5		P	80 - 120
2156185	Aluminum	98.4	101	P/P	80 - 120
2156185	Antimony	106	108	P/P	80 - 120
2156185	Arsenic	103	106	P/P	80 - 120
2156185	Boron	102	104	P/P	80 - 120
2156185	Cadmium	103	105	P/P	80 - 120
2156185	Chromium	97.6	99.9	P/P	80 - 120
2156185	Copper	99.4	102	P/P	80 - 120
2156185	Lead	97.6	98.5	P/P	80 - 120
2156185	Nickel	98.3	98.5	P/P	80 - 120
2156185	Selenium	101	103	P/P	80 - 120
2156185	Silver	103	104	P/P	80 - 120
2156185	Thallium	95.0	97.0	P/P	80 - 120

Reference Method: EPA 8270E
Batch ID: P378789

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2156138	Acetochlor	98.8	99.1	P/P	68 - 126
2156138	Alachlor	100	101	P/P	66 - 125
2156138	Ametryn	97.4	102	P/P	31 - 182
2156138	Atrazine Desethyl	99.4	102	P/P	13 - 161

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 8270E
Batch ID: P378789

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2156138	Azinphos Methyl	115	110	P/P	54 - 162
2156138	Bromacil	87.3	82.1	P/P	34 - 144
2156138	Butylate	17.3	4.47	P/F	16 - 92.0
2156138	Carbophenothion	78.5	80.8	P/P	50 - 150
2156138	Chlorpyrifos Ethyl	84.8	90.1	P/P	63 - 124
2156138	Chlorpyrifos Methyl	90.3	88.3	P/P	64 - 125
2156138	Cyanazine	156	159	P/P	13 - 245
2156138	Demeton	91.7	88.3	P/P	20 - 154
2156138	Diazinon	102	105	P/P	66 - 141
2156138	Dimethenamid	97.3	99.8	P/P	50 - 130
2156138	Disulfoton	95.6	99.3	P/P	55 - 130
2156138	Dithiopyr	93.4	95.5	P/P	66 - 122
2156138	EPTC	34.7	36.4	P/P	15 - 93.0
2156138	Ethion	83.4	77.0	P/P	15 - 148
2156138	Ethoprop	99.8	93.2	P/P	59 - 126
2156138	Fenamiphos	77.2	93.1	P/P	39 - 137
2156138	Fipronil	113	112	P/P	47 - 131
2156138	Fipronil Desulfinyl	107	104	P/P	43 - 121
2156138	Fipronil Sulfide	86.2	98.4	P/P	29 - 134
2156138	Fipronil Sulfone	82.7	80.4	P/P	19 - 131
2156138	Flumioxazin	159	154	P/P	70 - 200
2156138	Fonofos	82.9	90.0	P/P	62 - 128
2156138	Hexazinone	100	98.3	P/P	58 - 154
2156138	Imazalil	278	75.0	F/P	50 - 150
2156138	Malathion	89.1	91.8	P/P	54 - 135
2156138	Metalaxyl	104	106	P/P	46 - 136
2156138	Metolachlor	89.8	92.6	P/P	62 - 126
2156138	Metribuzin	241	258	P/P	44 - 277
2156138	Mevinphos	83.7	86.6	P/P	44 - 135
2156138	Molinate	58.3	59.4	P/P	31 - 104
2156138	Norflurazon	98.9	91.7	P/P	32 - 134
2156138	Oxadiazon	74.8	84.6	P/P	55 - 123
2156138	Parathion Ethyl	89.1	94.2	P/P	67 - 120
2156138	Parathion Methyl	99.1	103	P/P	70 - 140
2156138	Pendimethalin	91.0	98.4	P/P	59 - 145
2156138	Phorate	85.5	93.0	P/P	52 - 127
2156138	Prodiamine	46.0	47.1	P/P	11 - 157
2156138	Prometon	94.3	81.1	P/P	55 - 130
2156138	Prometryn	108	111	P/P	55 - 127
2156138	Pronamide	103	110	P/P	50 - 150
2156138	Propiconazole	119	118	P/P	50 - 150
2156138	Tebuconazole	75.1	77.8	P/P	10 - 122
2156138	Terbufos	92.5	97.0	P/P	65 - 131
2156138	Terbuthylazine	91.6	93.4	P/P	63 - 131

Reference Method: EPA 8321B
Batch ID: P378656

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2156209	2,4-D	133	127	P/P	30 - 160
2156209	Acetaminophen	100	106	P/P	30 - 160
2156209	Acetamiprid	93.4	83.3	P/P	30 - 160

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 8321B
Batch ID: P378656

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2156209	Afidopyropen	97.8	86.7	P/P	30 - 160
2156209	Bentazon	72.7	69.3	P/P	30 - 160
2156209	Benzovindiflupyr	84.7	80.7	P/P	30 - 160
2156209	Carbamazepine	88.3	71.8	P/P	30 - 160
2156209	Clothianidin	99.7	83.6	P/P	30 - 160
2156209	Dinotefuran	112	103	P/P	30 - 160
2156209	Diuron	77.2	76.9	P/P	30 - 160
2156209	Fenuron	76.7	88.4	P/P	30 - 160
2156209	Fluridone	86.7	85.7	P/P	30 - 160
2156209	Hydrocodone	93.6	107	P/P	30 - 160
2156209	Ibuprofen	81.7	84.0	P/P	30 - 160
2156209	Imidacloprid	163	172	F/F	30 - 160
2156209	Linuron	66.9	65.0	P/P	30 - 160
2156209	Mandestrobin	84.3	83.1	P/P	30 - 160
2156209	MCCP	133	131	P/P	30 - 160
2156209	Naproxen	99.7	102	P/P	30 - 160
2156209	Primidone	103	96.6	P/P	30 - 160
2156209	Pyraclostrobin	81.7	84.6	P/P	30 - 160
2156209	Thiamethoxam	132	113	P/P	30 - 160
2156209	Tolfenpyrad	49.2	55.7	P/P	30 - 160
2156209	Triclopyr	106	108	P/P	30 - 160

Reference Method: EPA 8321B
Batch ID: P378657

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2156136	Acesulfame K	41.8	42.7	P/P	40 - 150
2156136	AMPA	104	102	P/P	40 - 150
2156136	Endothall	113	112	P/P	40 - 150
2156136	Glufosinate	120	121	P/P	40 - 150
2156136	Glyphosate	120	120	P/P	40 - 140
2156136	Sucralose	109	102	P/P	40 - 150

Quality Assurance Report Precision

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P378666

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2156185	Barium	2.13	Spike	P	0 - 20
2156185	Calcium	0.409	Spike	P	0 - 20
2156185	Iron	0.442	Spike	P	0 - 20
2156185	Magnesium	0.726	Spike	P	0 - 20
2156185	Potassium	0.000413	Spike	P	0 - 20
2156185	Sodium	0.131	Spike	P	0 - 20
2156185	Zinc	2.28	Spike	P	0 - 20

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P378666

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2156185	Aluminum	2.72	Spike	P	0 - 20
2156185	Antimony	1.81	Spike	P	0 - 20
2156185	Arsenic	2.36	Spike	P	0 - 20
2156185	Boron	2.39	Spike	P	0 - 20
2156185	Cadmium	2.04	Spike	P	0 - 20
2156185	Chromium	2.25	Spike	P	0 - 20
2156185	Copper	2.51	Spike	P	0 - 20
2156185	Lead	0.946	Spike	P	0 - 20
2156185	Nickel	0.206	Spike	P	0 - 20
2156185	Selenium	1.58	Spike	P	0 - 20
2156185	Silver	1.17	Spike	P	0 - 20
2156185	Thallium	2.11	Spike	P	0 - 20

Reference Method: EPA 8270E
Batch ID: P378789

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2156138	Acetochlor	0.271	Spike	P	0 - 30
2156138	Alachlor	1.43	Spike	P	0 - 30
2156138	Ametryn	3.50	Spike	P	0 - 30
2156138	Atrazine	3.03	Spike	P	0 - 30
2156138	Atrazine Desethyl	2.06	Spike	P	0 - 30
2156138	Azinphos Methyl	5.17	Spike	P	0 - 30
2156138	Bromacil	6.22	Spike	P	0 - 30
2156138	Butylate	118	Spike	F	0 - 30
2156138	Carbophenothion	2.91	Spike	P	0 - 30
2156138	Chlorpyrifos Ethyl	5.99	Spike	P	0 - 30
2156138	Chlorpyrifos Methyl	2.25	Spike	P	0 - 30
2156138	Cyanazine	1.69	Spike	P	0 - 30
2156138	Demeton	3.76	Spike	P	0 - 30
2156138	Diazinon	3.65	Spike	P	0 - 30
2156138	Dimethenamid	2.60	Spike	P	0 - 30
2156138	Disulfoton	3.80	Spike	P	0 - 30
2156138	Dithiopyr	1.89	Spike	P	0 - 30
2156138	EPTC	4.73	Spike	P	0 - 30
2156138	Ethion	7.94	Spike	P	0 - 30
2156138	Ethoprop	6.90	Spike	P	0 - 30

Quality Assurance Report Precision

Reference Method: EPA 8270E
Batch ID: P378789

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2156138	Fenamiphos	18.6	Spike	P	0 - 30
2156138	Fipronil	0.423	Spike	P	0 - 30
2156138	Fipronil Desulfinyl	2.46	Spike	P	0 - 30
2156138	Fipronil Sulfide	9.10	Spike	P	0 - 30
2156138	Fipronil Sulfone	1.84	Spike	P	0 - 30
2156138	Flumioxazin	3.15	Spike	P	0 - 30
2156138	Fonofos	8.25	Spike	P	0 - 30
2156138	Hexazinone	2.03	Spike	P	0 - 30
2156138	Imazalil	115	Spike	F	0 - 30
2156138	Malathion	2.97	Spike	P	0 - 30
2156138	Metalaxyl	2.08	Spike	P	0 - 30
2156138	Metolachlor	3.05	Spike	P	0 - 30
2156138	Metribuzin	6.91	Spike	P	0 - 30
2156138	Mevinphos	3.37	Spike	P	0 - 30
2156138	Molinate	1.93	Spike	P	0 - 30
2156138	Norflurazon	7.53	Spike	P	0 - 30
2156138	Oxadiazon	10.3	Spike	P	0 - 30
2156138	Parathion Ethyl	5.57	Spike	P	0 - 30
2156138	Parathion Methyl	4.26	Spike	P	0 - 30
2156138	Pendimethalin	7.74	Spike	P	0 - 30
2156138	Phorate	8.31	Spike	P	0 - 30
2156138	Prodiamine	2.25	Spike	P	0 - 30
2156138	Prometon	15.0	Spike	P	0 - 30
2156138	Prometryn	2.80	Spike	P	0 - 30
2156138	Pronamide	6.30	Spike	P	0 - 30
2156138	Propiconazole	0.579	Spike	P	0 - 30
2156138	Simazine	0.669	Spike	P	0 - 30
2156138	Sulfentrazone	1.93	Spike	P	0 - 30
2156138	Tebuconazole	3.58	Spike	P	0 - 30
2156138	Terbufos	4.67	Spike	P	0 - 30
2156138	Terbutylazine	1.88	Spike	P	0 - 30
LFB	Acetochlor	4.44	LCS	P	0 - 30
LFB	Alachlor	2.32	LCS	P	0 - 30
LFB	Ametryn	20.4	LCS	P	0 - 30
LFB	Atrazine	4.60	LCS	P	0 - 30
LFB	Atrazine Desethyl	3.13	LCS	P	0 - 30
LFB	Azinphos Methyl	5.72	LCS	P	0 - 30
LFB	Bromacil	1.51	LCS	P	0 - 30
LFB	Butylate	7.87	LCS	P	0 - 30
LFB	Carbophenothion	6.60	LCS	P	0 - 30
LFB	Chlorpyrifos Ethyl	2.47	LCS	P	0 - 30
LFB	Chlorpyrifos Methyl	4.08	LCS	P	0 - 30
LFB	Cyanazine	6.08	LCS	P	0 - 30
LFB	Demeton	1.92	LCS	P	0 - 30
LFB	Diazinon	3.30	LCS	P	0 - 30
LFB	Dimethenamid	3.60	LCS	P	0 - 30
LFB	Disulfoton	10.4	LCS	P	0 - 30
LFB	Dithiopyr	4.05	LCS	P	0 - 30
LFB	EPTC	2.37	LCS	P	0 - 30
LFB	Ethion	4.47	LCS	P	0 - 30
LFB	Ethoprop	8.73	LCS	P	0 - 30

Quality Assurance Report Precision

Reference Method: EPA 8270E
Batch ID: P378789

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
LFB	Fenamiphos	10.4	LCS	P	0 - 30
LFB	Fipronil	4.13	LCS	P	0 - 30
LFB	Fipronil Desulfinyl	7.13	LCS	P	0 - 30
LFB	Fipronil Sulfide	10.7	LCS	P	0 - 30
LFB	Fipronil Sulfone	9.31	LCS	P	0 - 30
LFB	Flumioxazin	6.84	LCS	P	0 - 30
LFB	Fonofos	1.91	LCS	P	0 - 30
LFB	Hexazinone	25.2	LCS	P	0 - 30
LFB	Imazalil	0.0863	LCS	P	0 - 30
LFB	Malathion	1.63	LCS	P	0 - 30
LFB	Metalaxyl	4.25	LCS	P	0 - 30
LFB	Metolachlor	5.54	LCS	P	0 - 30
LFB	Metribuzin	0.781	LCS	P	0 - 30
LFB	Mevinphos	3.01	LCS	P	0 - 30
LFB	Molinate	5.96	LCS	P	0 - 30
LFB	Norflurazon	4.17	LCS	P	0 - 30
LFB	Oxadiazon	0.975	LCS	P	0 - 30
LFB	Parathion Ethyl	7.94	LCS	P	0 - 30
LFB	Parathion Methyl	4.16	LCS	P	0 - 30
LFB	Pendimethalin	4.67	LCS	P	0 - 30
LFB	Phorate	2.68	LCS	P	0 - 30
LFB	Prodiamine	7.06	LCS	P	0 - 30
LFB	Prometon	8.56	LCS	P	0 - 30
LFB	Prometryn	6.75	LCS	P	0 - 30
LFB	Pronamide	6.20	LCS	P	0 - 30
LFB	Propiconazole	7.88	LCS	P	0 - 30
LFB	Simazine	6.63	LCS	P	0 - 30
LFB	Sulfentrazone	7.00	LCS	P	0 - 30
LFB	Tebuconazole	11.0	LCS	P	0 - 30
LFB	Terbufos	1.41	LCS	P	0 - 30
LFB	Terbutylazine	4.26	LCS	P	0 - 30

Reference Method: EPA 8321B
Batch ID: P378656

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2156209	2,4-D	4.03	Spike	P	0 - 30
2156209	Acetaminophen	4.95	Spike	P	0 - 30
2156209	Acetamiprid	11.4	Spike	P	0 - 30
2156209	Afidopyropen	12.0	Spike	P	0 - 30
2156209	Bentazon	4.81	Spike	P	0 - 30
2156209	Benzovindiflupyr	4.87	Spike	P	0 - 30
2156209	Carbamazepine	20.5	Spike	P	0 - 30
2156209	Clothianidin	16.4	Spike	P	0 - 30
2156209	Dinotefuran	8.57	Spike	P	0 - 30
2156209	Diuron	0.306	Spike	P	0 - 30
2156209	Fenuron	14.1	Spike	P	0 - 30
2156209	Fluridone	1.17	Spike	P	0 - 30
2156209	Hydrocodone	13.7	Spike	P	0 - 30
2156209	Ibuprofen	2.75	Spike	P	0 - 30

Quality Assurance Report Precision

Reference Method: EPA 8321B
Batch ID: P378656

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2156209	Imazapyr	0.0409	Spike	P	0 - 30
2156209	Imidacloprid	4.52	Spike	P	0 - 30
2156209	Linuron	2.85	Spike	P	0 - 30
2156209	Mandestrobin	1.43	Spike	P	0 - 30
2156209	MCPP	1.48	Spike	P	0 - 30
2156209	Naproxen	2.70	Spike	P	0 - 30
2156209	Primidone	6.40	Spike	P	0 - 30
2156209	Pyraclostrobin	3.55	Spike	P	0 - 30
2156209	Thiamethoxam	14.7	Spike	P	0 - 30
2156209	Tolfenpyrad	12.5	Spike	P	0 - 30
2156209	Triclopyr	1.73	Spike	P	0 - 30

Reference Method: EPA 8321B
Batch ID: P378657

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2156136	Acesulfame K	2.00	Spike	P	0 - 30
2156136	AMPA	1.82	Spike	P	0 - 30
2156136	Endothall	0.738	Spike	P	0 - 30
2156136	Glufosinate	0.896	Spike	P	0 - 30
2156136	Glyphosate	0.0723	Spike	P	0 - 30
2156136	Sucralose	5.80	Spike	P	0 - 30

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

Quality Assurance Report Surrogates

Lab Sample ID: 2156209
Field Sample ID: G3SW0084

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	2,4-D-d3	108	P	30 - 160
EPA 8321B	Acetaminophen-d4	118	P	30 - 160
EPA 8321B	Carbamazepine-d10	92.0	P	30 - 160
EPA 8321B	Diuron-d6	72.4	P	30 - 160
EPA 8321B	Endothall-d6	105	P	30 - 160
EPA 8321B	Endothall-d6	105	P	30 - 160
EPA 8321B	Glyphosate 13C 15N	81.6	P	30 - 160
EPA 8321B	Glyphosate 13C 15N	81.6	P	30 - 160
EPA 8321B	Ibuprofen-d3	98.4	P	30 - 160
EPA 8321B	Primidone-d5	96.2	P	30 - 160
EPA 8321B	Sucralose-d6	96.3	P	30 - 160
EPA 8321B	Sucralose-d6	96.3	P	30 - 160

Lab Sample ID: 2156211
Field Sample ID: G3SW0084

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8270E	Simazine-d10	116	P	72 - 135
EPA 8270E	Terbufos-d10	107	P	57 - 134

Quality Assurance Report Calibration Verification

Reference Method: EPA 200.7 Rev. 4.4

Run ID: A97493

Included Lab Sample IDs: 2156210

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Barium	103	102	P/P	90 - 110
Calcium	102	102	P/P	90 - 110
Iron	104	103	P/P	90 - 110
Magnesium	103	103	P/P	90 - 110
Potassium	103	103	P/P	90 - 110
Sodium	103	102	P/P	90 - 110
Zinc	104	102	P/P	90 - 110

Reference Method: EPA 8321B

Run ID: A97533

Included Lab Sample IDs: 2156209

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
2,4-D	81.6	96.0	P/P	50 - 150
Acetaminophen	110	103	P/P	60 - 160
Acetamiprid	112	108	P/P	50 - 150
Afidopyropen	103	88.6	P/P	50 - 150
Bentazon	103	105	P/P	50 - 160
Benzovindiflupyr	104	107	P/P	50 - 150
Carbamazepine	112	104	P/P	60 - 150
Clothianidin	108	101	P/P	60 - 150
Dinotefuran	102	98.6	P/P	50 - 150
Diuron	111	117	P/P	60 - 150
Fenuron	104	106	P/P	60 - 150
Fluridone	102	108	P/P	60 - 160
Hydrocodone	109	114	P/P	60 - 150
Ibuprofen	103	91.7	P/P	50 - 160
Imazapyr	102	119	P/P	50 - 150
Imidacloprid	85.9	107	P/P	60 - 150
Linuron	100	99.7	P/P	60 - 150
Mandestrobin	100	105	P/P	50 - 150
MCPP	87.5	85.8	P/P	50 - 150
Naproxen	81.4	126	P/P	50 - 160
Primidone	93.0	107	P/P	60 - 150
Pyraclostrobin	102	104	P/P	60 - 150
Thiamethoxam	102	108	P/P	50 - 150
Tolfenpyrad	99.6	100	P/P	60 - 150
Triclopyr	99.2	97.2	P/P	50 - 150

Reference Method: EPA 8321B

Run ID: A97601

Included Lab Sample IDs: 2156209

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Acesulfame K	64.9	90.7	P/P	60 - 160
Endothall	99.8	102	P/P	60 - 160

Quality Assurance Report Calibration Verification

Reference Method: EPA 8270E
Run ID: A97609
Included Lab Sample IDs: 2156211

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Acetochlor	101		P	80 - 120
Alachlor	105		P	80 - 120
Ametryn	102		P	80 - 120
Atrazine	99.2		P	80 - 120
Atrazine Desethyl	92.2		P	80 - 120
Azinphos Methyl	109		P	80 - 120
Bromacil	102		P	80 - 120
Butylate	103		P	80 - 120
Carbophenothion	96.5		P	80 - 120
Chlorpyrifos Ethyl	98.8		P	80 - 120
Chlorpyrifos Methyl	97.8		P	80 - 120
Cyanazine	91.8		P	80 - 120
Demeton	97.1		P	80 - 120
Diazinon	101		P	80 - 120
Dimethenamid	106		P	80 - 120
Disulfoton	92.7		P	80 - 120
Dithiopyr	103		P	80 - 120
EPTC	101		P	80 - 120
Ethion	96.7		P	80 - 120
Ethoprop	104		P	80 - 120
Fenamiphos	92.7		P	80 - 120
Fipronil	99.1		P	80 - 120
Fipronil Desulfinyl	101		P	80 - 120
Fipronil Sulfide	97.1		P	80 - 120
Fipronil Sulfone	96.4		P	80 - 120
Flumioxazin	92.7		P	80 - 120
Fonofos	97.2		P	80 - 120
Hexazinone	103		P	80 - 120
Imazalil	95.9		P	80 - 120
Malathion	88.8		P	80 - 120
Metalaxyl	107		P	80 - 120
Metolachlor	105		P	80 - 120
Metribuzin	95.9		P	80 - 120
Mevinphos	100		P	80 - 120
Molinate	103		P	80 - 120
Norflurazon	100		P	80 - 120
Oxadiazon	93.6		P	80 - 120
Parathion Ethyl	102		P	80 - 120
Parathion Methyl	97.7		P	80 - 120
Pendimethalin	99.4		P	80 - 120
Phorate	98.9		P	80 - 120
Prodiamine	93.6		P	80 - 120
Prometon	97.1		P	80 - 120
Prometryn	103		P	80 - 120
Pronamide	101		P	80 - 120
Propiconazole	102		P	80 - 120
Simazine	98.8		P	80 - 120
Sulfentrazone	95.6		P	80 - 120
Tebuconazole	101		P	80 - 120
Terbufos	97.6		P	80 - 120
Terbutylazine	102		P	80 - 120

Quality Assurance Report Calibration Verification

Reference Method: EPA 8321B

Run ID: A97612

Included Lab Sample IDs: 2156209

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
AMPA	115	124	P/P	60 - 160
Glufosinate	117	136	P/P	60 - 160
Glyphosate	142	139	P/P	60 - 160

Reference Method: EPA 200.8 Rev. 5.4

Run ID: A97637

Included Lab Sample IDs: 2156210

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Aluminum	101	98.3	P/P	90 - 110
Antimony	104	103	P/P	90 - 110
Arsenic	102	99.8	P/P	90 - 110
Boron	107	106	P/P	90 - 110
Cadmium	96.5	96.5	P/P	90 - 110
Chromium	96.3	94.8	P/P	90 - 110
Copper	102	98.3	P/P	90 - 110
Lead	94.2	93.9	P/P	90 - 110
Selenium	98.6	98.5	P/P	90 - 110
Silver	98.7	98.7	P/P	90 - 110
Thallium	95.7	93.9	P/P	90 - 110

Reference Method: EPA 200.8 Rev. 5.4

Run ID: A97713

Included Lab Sample IDs: 2156210

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Nickel	93.0	92.0	P/P	90 - 110

Reference Method: EPA 8321B

Run ID: A97805

Included Lab Sample IDs: 2156209

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Sucralose	105	99.3	P/P	60 - 160

* 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
EPA 200.7 Rev. 4.4	Barium	104		102	99.3	101		2.13
	Calcium	105		105	96.5			0.409
	Iron	108		105	103	104		0.442
	Magnesium	110		104	100	102		0.726
	Potassium	106		102	102	102		0.0004
	Sodium	104		104	101			0.131
	Zinc	103		103	98.0	100		2.28
EPA 200.8 Rev. 5.4	Aluminum	102		98.4	101	101		2.72
	Antimony	106		106	108	107		1.81
	Arsenic	103		103	106	108		2.36
	Boron	102		102	104	102		2.39
	Cadmium	102		103	105	104		2.04
	Chromium	98.2		97.6	99.9	99.8		2.25
	Copper	101		99.4	102	102		2.51
	Lead	98.6		97.6	98.5	99.3		0.946
	Nickel	100		98.3	98.5	100		0.206
	Selenium	101		101	103	104		1.58
	Silver	104		103	104	103		1.17
	Thallium	96.8		95.0	97.0	96.5		2.11
EPA 8270E	Acetochlor	107	102	98.8	99.1	4.44		0.271
	Alachlor	104	101	100	101	2.32		1.43
	Ametryn	127	104	97.4	102	20.4		3.50
	Atrazine	97.7	93.3			4.60		3.03
	Atrazine Desethyl	109	106	99.4	102	3.13		2.06
	Azinphos Methyl	132	125	115	110	5.72		5.17
	Bromacil	108	106	87.3	82.1	1.51		6.22
	Butylate	33.0	35.7	17.3	4.47	7.87		118
	Carbophenothion	95.5	89.4	78.5	80.8	6.60		2.91
	Chlorpyrifos Ethyl	96.2	98.7	84.8	90.1	2.47		5.99
	Chlorpyrifos Methyl	98.6	94.6	90.3	88.3	4.08		2.25
	Cyanazine	174	185	156	159	6.08		1.69
	Demeton	91.2	89.5	91.7	88.3	1.92		3.76
	Diazinon	106	110	102	105	3.30		3.65
	Dimethenamid	106	102	97.3	99.8	3.60		2.60
	Disulfoton	107	96.6	95.6	99.3	10.4		3.80
	Dithiopyr	105	101	93.4	95.5	4.05		1.89
	EPTC	51.5	50.3	34.7	36.4	2.37		4.73
	Ethion	91.6	87.6	83.4	77.0	4.47		7.94
	Ethoprop	104	95.1	99.8	93.2	8.73		6.90
	Fenamiphos	86.4	95.8	77.2	93.1	10.4		18.6
	Fipronil	117	112	113	112	4.13		0.423
	Fipronil Desulfinyl	113	105	107	104	7.13		2.46
	Fipronil Sulfide	102	91.5	86.2	98.4	10.7		9.10
	Fipronil Sulfone	98.2	89.5	82.7	80.4	9.31		1.84
	Flumioxazin	168	156	159	154	6.84		3.15
	Fonofos	90.3	92.0	82.9	90.0	1.91		8.25
	Hexazinone	130	101	100	98.3	25.2		2.03
	Imazalil	99.3	99.2	278	75.0	0.0863		115
	Malathion	105	107	89.1	91.8	1.63		2.97
	Metalaxyl	110	106	104	106	4.25		2.08
	Metolachlor	102	96.4	89.8	92.6	5.54		3.05
	Metribuzin	192	191	241	258	0.781		6.91
	Mevinphos	85.8	83.2	83.7	86.6	3.01		3.37
	Molinate	65.7	61.9	58.3	59.4	5.96		1.93

Quality Assurance Report Summary

Ref. Method	Analyte	LCS % Recovery		MS % Recovery		Precision	
						LCS	MS
						SMP	
EPA 8270E	Norflurazon	112	107	98.9	91.7	4.17	7.53
	Oxadiazon	86.9	87.8	74.8	84.6	0.975	10.3
	Parathion Ethyl	103	94.7	89.1	94.2	7.94	5.57
	Parathion Methyl	109	105	99.1	103	4.16	4.26
	Pendimethalin	103	98.4	91.0	98.4	4.67	7.74
	Phorate	94.5	92.0	85.5	93.0	2.68	8.31
	Prodiamine	47.1	43.9	46.0	47.1	7.06	2.25
	Prometon	101	92.3	94.3	81.1	8.56	15.0
	Prometryn	115	108	108	111	6.75	2.80
	Pronamide	109	102	103	110	6.20	6.30
	Propiconazole	114	106	119	118	7.88	0.579
	Simazine	114	107			6.63	0.669
	Sulfentrazone	99.6	92.9			7.00	1.93
	Tebuconazole	85.3	76.4	75.1	77.8	11.0	3.58
	Terbufos	96.0	94.7	92.5	97.0	1.41	4.67
	Terbutylazine	98.5	94.4	91.6	93.4	4.26	1.88
EPA 8321B	2,4-D	122		133	127		4.03
	Acesulfame K	100		41.8	42.7		2.00
	Acetaminophen	93.0		100	106		4.95
	Acetamiprid	89.9		93.4	83.3		11.4
	Afidopyropen	75.9		97.8	86.7		12.0
	AMPA	124		104	102		1.82
	Bentazon	84.8		72.7	69.3		4.81
	Benzovindiflupyr	80.0		84.7	80.7		4.87
	Carbamazepine	89.4		88.3	71.8		20.5
	Clothianidin	91.1		99.7	83.6		16.4
	Dinotefuran	90.1		112	103		8.57
	Diuron	89.6		77.2	76.9		0.306
	Endothall	94.3		113	112		0.738
	Fenuron	109		76.7	88.4		14.1
	Fluridone	87.7		86.7	85.7		1.17
	Glufosinate	111		120	121		0.896
	Glyphosate	140		120	120		0.0723
	Hydrocodone	101		93.6	107		13.7
	Ibuprofen	76.8		81.7	84.0		2.75
	Imazapyr	105					0.0409
	Imidacloprid	109		163	172		4.52
	Linuron	70.7		66.9	65.0		2.85
	Mandestrobin	83.6		84.3	83.1		1.43
	MCPP	122		133	131		1.48
	Naproxen	77.0		99.7	102		2.70
	Primidone	98.2		103	96.6		6.40
	Pyraclostrobin	76.4		81.7	84.6		3.55
	Sucralose	98.2		109	102		5.80
	Thiamethoxam	69.0		132	113		14.7
	Tolfenpyrad	49.7		49.2	55.7		12.5
	Triclopyr	95.5		106	108		1.73

Reference Method Descriptions

Method	Description	Associated Samples
EPA 200.7 Rev. 4.4	Total Recoverable Metals analysis using ICP emission spectroscopy for aqueous samples supporting Clean Water Act Projects	2156210

Reference Method Descriptions

Method	Description	<u>Associated Samples</u>
EPA 200.8 Rev. 5.4	Total Recoverable Metals analysis using ICP-MS for aqueous samples supporting Clean Water Act Projects	2156210
EPA 8270E	Organonitrogen and phosphorus pesticides in water matrices by GC/MS/MS	2156211
EPA 8321B	Pesticides, herbicides, and other chemicals in water matrices by HPLC/MS/MS	2156209
EPA 8321B	Water soluble organic compounds by HPLC/MS/MS	2156209

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	02/10/2020	02/11/2020 14:00	Elliott D. Healy	02/12/2020 18:28	Betina Topolski	2156210
EPA 200.8 Rev. 5.4	02/10/2020	02/11/2020 14:00	Elliott D. Healy	02/19/2020 02:16	Justin Cutchin	2156210
	02/10/2020	02/11/2020 14:00	Elliott D. Healy	02/21/2020 02:55	Justin Cutchin	2156210
	02/10/2020	02/12/2020 08:30	Rasheda Ghaffari	02/17/2020 16:54	Vandana T. Nagar	2156211
EPA 8270E	02/10/2020	02/11/2020 13:45	Rebecca Ware	02/11/2020 21:13	Rebecca Ware	2156209
EPA 8321B	02/10/2020	02/11/2020 13:45	Rebecca Ware	02/12/2020 17:58	Rebecca Ware	2156209
	02/10/2020	02/11/2020 13:45	Rebecca Ware	02/22/2020 20:47	Rebecca Ware	2156209
	02/10/2020	02/12/2020 09:30	Hoor Shaik	02/14/2020 20:14	Juyoung Kim	2156209