Chemical Analysis Report

WAS-SECT-2021-04-19-01

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

Event Description: **Wakulla BMAP**
Request ID: **RQ-2021-04-19-03**
Customer: **WAS-SECT**
Project ID: **BMAP**

Send Reports to:
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Certified by: Colin Wright, Program Administrator

Date Certified: 11-MAY-2021 16:12

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, Nutrients 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: Wakulla River at Boat Tram **Collection Date/Time: 04/19/2021 12:21**

Field ID: 44059 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2240914	EPA 180.1 Rev. 2.0	Turbidity	0.40		NTU	P396875	
	EPA 300.0 Rev. 2.1	Chloride	8.6		mg Cl/L	P397123	
		Sulfate	10		mg SO4/L	P397126	
	SM 2120 B-2011	Color (true)	3.1	I	PCU	P396873	
	SM 2320 B-2011	Total Alkalinity	142		mg CaCO3/L	P397115	
	SM 2540 C-2011	TDS	189		mg/L	P397413	
	SM 2540 D-2011	TSS	2	I	mg/L	P397161	
	SM 4500 F-C-2011	Fluoride	0.13		mg F/L	P396944	
2240915	EPA 350.1 Rev. 2.0	Ammonia-N	0.003	I	mg N/L	P397507	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.080	U	mg N/L	P397070	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.39		mg N/L	P397037	
	EPA 365.1 Rev. 2.0	Total-P	0.032		mg P/L	P396927	
	SM 5310 B-2011	Organic Carbon	0.70	I	mg C/L	P397238	
2240916	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.030		mg P/L	P396859	
2240919	EPA 8321B	2,4-D	0.0020	U	ug/L	P396769	
		Acesulfame K	0.10	U	ug/L	P396835	MS
		2,4,5-T	0.0040	U	ug/L	P396769	
		AMPA	0.10	U	ug/L	P396835	
		Sucralose	0.12		ug/L	P396835	
		Acetaminophen	0.0080	U	ug/L	P396769	MS, RPD
		Acetamiprid	0.0020	U	ug/L	P396769	
		Endothall	0.25	U	ug/L	P396835	
		Glufosinate	0.10	U	ug/L	P396835	
		Glyphosate	0.10	U	ug/L	P396835	
		Afidopyropen	0.0020	U	ug/L	P396769	
		Bentazon	8.0E-04	U	ug/L	P396769	
		Benzovindiflupyr	0.0020	U	ug/L	P396769	
		Carbamazepine	8.0E-04	U	ug/L	P396769	
		Clothianidin	0.0020	U	ug/L	P396769	
		Dinotefuran	0.0020	U	ug/L	P396769	
		Diuron	0.0020	U	ug/L	P396769	
		Fenuron	0.016	U	ug/L	P396769	
		Fluridone	8.0E-04	U	ug/L	P396769	
		Imazapyr	0.0040	U	ug/L	P396769	
		Hydrocodone	0.0020	U	ug/L	P396769	
		Ibuprofen	0.020	U	ug/L	P396769	
		Imidacloprid	0.0020	U	ug/L	P396769	MS
		Linuron	0.0040	U	ug/L	P396769	
		Mandestrobin	0.0020	U	ug/L	P396769	
		MCPP	0.0020	U	ug/L	P396769	MS
		Naproxen	0.0080	U	ug/L	P396769	
		Primidone	0.0040	U	ug/L	P396769	
		Pyraclostrobin	0.0020	U	ug/L	P396769	

Field ID: 44059 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2240919	EPA 8321B	Thiamethoxam	0.0020	U	ug/L	P396769	MS
		Tolfenpyrad	0.0020	U	ug/L	P396769	
		Triclopyr	0.0040	U	ug/L	P396769	RPD
2240932	EPA 200.7 Rev. 4.4	Calcium	48.8		mg/L	P397169	
		Iron	30	U	ug/L	P397169	
		Magnesium	11.0		mg/L	P397169	
		Potassium	0.71	I	mg/L	P397169	
		Sodium	6.8		mg/L	P397169	
		Strontium	133		ug/L	P397169	
		Tin	3.0	U	ug/L	P397169	
		Titanium	0.75	U	ug/L	P397169	
		Vanadium	3.8	I	ug/L	P397169	
		Zinc	5.0	U	ug/L	P397169	
	EPA 200.8 Rev. 5.4	Aluminum	8.5	I	ug/L	P397874	
		Antimony	0.058	I	ug/L	P397169	
		Arsenic	0.58		ug/L	P397169	
		Barium	11.1		ug/L	P397169	
		Beryllium	0.010	U	ug/L	P397169	
		Boron**	15.5		ug/L	P397169	
		Cadmium	0.020	U	ug/L	P397169	
		Chromium	0.75	I	ug/L	P397169	
		Cobalt	0.025	I	ug/L	P397169	
		Copper	0.40	U	ug/L	P397169	
		Lead	0.20	U	ug/L	P397169	
		Manganese	2.22		ug/L	P397169	
		Molybdenum	1.45		ug/L	P397169	
		Nickel	0.50	U	ug/L	P397169	
		Selenium	0.45	I	ug/L	P397169	
		Silver	0.010	U	ug/L	P397169	
		Thallium	0.10	U	ug/L	P397169	
	SM 2340B	Hardness	167		mg/L	P397169	
2240934	EPA 8270E	Acetochlor	0.24	U	ng/L	P397049	
		Alachlor	0.24	U	ng/L	P397049	
		Ametryn	0.58	U	ng/L	P397049	
		Atrazine	0.91	I	ng/L	P397049	
		Atrazine Desethyl	2.0	I	ng/L	P397049	
		Azinphos Methyl	1.9	U	ng/L	P397049	
		Azoxystrobin**	0.49	U	ng/L	P397049	
		Bromacil	0.49	U	ng/L	P397049	
		Butylate	0.39	U	ng/L	P397049	
		Caffeine**	7.3	UJ	ng/L	P397049	MS, RPD
		Carbophenothion	0.49	U	ng/L	P397049	
		Carfentrazone Ethyl**	0.097	U	ng/L	P397049	
		Chlorpyrifos Ethyl	0.24	U	ng/L	P397049	
		Chlorpyrifos Methyl	0.049	U	ng/L	P397049	

Field ID: 44059

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2240934	EPA 8270E	Cyanazine	3.2	U	ng/L	P397049	
		Demeton	1.5	U	ng/L	P397049	
		Diazinon	0.12	U	ng/L	P397049	
		Difenoconazole**	0.58	U	ng/L	P397049	
		Dimethenamid**	0.097	U	ng/L	P397049	
		Disulfoton	0.49	U	ng/L	P397049	
		Dithiopyr**	0.17	U	ng/L	P397049	
		EPTC	1.2	U	ng/L	P397049	
		Ethion	0.15	U	ng/L	P397049	
		Ethoprop	0.097	U	ng/L	P397049	
		Fenamiphos	0.49	U	ng/L	P397049	
		Fenbuconazole**	0.12	U	ng/L	P397049	
		Fipronil	0.24	U	ng/L	P397049	
		Fipronil Desulfinyl**	0.12	U	ng/L	P397049	
		Fipronil Sulfide	0.15	U	ng/L	P397049	
		Fipronil Sulfone	0.15	U	ng/L	P397049	
		Fluazifop-P-butyl**	0.097	U	ng/L	P397049	
		Fludioxonil**	0.12	U	ng/L	P397049	
		Flumioxazin**	1.7	U	ng/L	P397049	
		Flutolanil**	0.097	U	ng/L	P397049	
		Fluxapyroxad**	0.097	U	ng/L	P397049	
		Fonofos	0.19	U	ng/L	P397049	
		Hexazinone	1.1	I	ng/L	P397049	
		Imazalil**	0.73	U	ng/L	P397049	
		Iprodione**	0.58	U	ng/L	P397049	
		Malathion	0.34	U	ng/L	P397049	
		Metalaxyl	0.73	U	ng/L	P397049	
		Metolachlor	0.34	U	ng/L	P397049	
		Metribuzin	3.2	U	ng/L	P397049	
		Mevinphos	1.0	U	ng/L	P397049	
		Molinate	0.29	U	ng/L	P397049	
		Myclobutanil**	0.24	U	ng/L	P397049	
		Naled**	1.5	U	ng/L	P397049	
		Norflurazon	0.49	U	ng/L	P397049	
		Oxadiazon	0.29	U	ng/L	P397049	
		Oxyfluorfen**	0.15	U	ng/L	P397049	
		Parathion Ethyl	0.24	U	ng/L	P397049	
		Parathion Methyl	0.53	U	ng/L	P397049	
		Pendimethalin	0.97	U	ng/L	P397049	
		Phorate	0.51	U	ng/L	P397049	
		Prodiamine**	0.17	UJ	ng/L	P397049	RPD
		Prometon	0.87	U	ng/L	P397049	
		Prometryn	0.19	U	ng/L	P397049	
		Pronamide**	0.15	U	ng/L	P397049	
		Propiconazole**	0.49	U	ng/L	P397049	

Field ID: 44059

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2240934	EPA 8270E	Pyriproxyfen**	0.12	U	ng/L	P397049	
		Simazine	3.3		ng/L	P397049	
		Sulfentrazone**	0.49	U	ng/L	P397049	
		Tebuconazole**	0.49	U	ng/L	P397049	
		Terbufos	0.097	U	ng/L	P397049	
		Terbuthylazine	0.41	U	ng/L	P397049	

Ref. Method and Comment:
SM 2120 B-2011: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample.
SM 2540 D-2011: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample.
EPA 8270E: Refer to the Lab Analysis Report for an explanation of QC Codes.

Quality Assurance Report
Method Blank Results

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P396875

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P397169

Component	Result	Code	Units
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
Strontium	2.0	U	ug/L
Tin	3.0	U	ug/L
Titanium	0.75	U	ug/L
Vanadium	2.0	U	ug/L
Zinc	5.0	U	ug/L

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P397169

Component	Result	Code	Units
Antimony	0.050	U	ug/L
Arsenic	0.050	U	ug/L
Barium	0.20	U	ug/L
Beryllium	0.010	U	ug/L
Boron	2.0	U	ug/L
Cadmium	0.020	U	ug/L
Chromium	0.40	U	ug/L
Cobalt	0.020	U	ug/L
Copper	0.40	U	ug/L
Lead	0.20	U	ug/L
Manganese	0.10	U	ug/L
Molybdenum	0.15	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: P397874

Component	Result	Code	Units
Aluminum	5.0	U	ug/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P397123

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Quality Assurance Report
Method Blank Results

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P397126

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P397507

Component	Result	Code	Units
Ammonia-N	0.002	U	mg N/L

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P397070

Component	Result	Code	Units
Kjeldahl Nitrogen	0.080	U	mg N/L

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P397037

Component	Result	Code	Units
NO2NO3-N	0.004	U	mg N/L

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P396927

Component	Result	Code	Units
Total-P	0.002	U	mg P/L

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P396859

Component	Result	Code	Units
O-Phosphate-P	0.004	U	mg P/L

Reference Method: EPA 8270E
Batch ID: P397049

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
Azoxystrobin	0.50	U	ng/L
Bromacil	0.50	U	ng/L
Butylate	0.40	U	ng/L
Caffeine	7.5	U	ng/L
Carbophenothion	0.50	U	ng/L
Carfentrazone Ethyl	0.10	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

Quality Assurance Report
Method Blank Results

Reference Method: EPA 8270E
Batch ID: P397049

Component	Result	Code	Units
Diazinon	0.12	U	ng/L
Difenoconazole	0.60	U	ng/L
Dimethenamid	0.10	U	ng/L
Disulfoton	0.50	U	ng/L
Dithiopyr	0.18	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
Fenbuconazole	0.12	U	ng/L
Fipronil	0.25	U	ng/L
Fipronil Desulfinyl	0.12	U	ng/L
Fipronil Sulfide	0.15	U	ng/L
Fipronil Sulfone	0.15	U	ng/L
Fluazifop-P-butyl	0.10	U	ng/L
Fludioxonil	0.12	U	ng/L
Flumioxazin	1.8	U	ng/L
Flutolanil	0.10	U	ng/L
Fluxapyroxad	0.10	U	ng/L
Fonofos	0.20	U	ng/L
Hexazinone	0.50	U	ng/L
Imazalil	0.75	U	ng/L
Iprodione	0.60	U	ng/L
Malathion	0.35	U	ng/L
Metalaxyl	0.75	U	ng/L
Metolachlor	0.35	U	ng/L
Metribuzin	3.2	U	ng/L
Mevinphos	1.0	U	ng/L
Molinate	0.30	U	ng/L
Myclobutanil	0.25	U	ng/L
Naled	1.5	U	ng/L
Norflurazon	0.50	U	ng/L
Oxadiazon	0.30	U	ng/L
Oxyfluorfen	0.15	U	ng/L
Parathion Ethyl	0.25	U	ng/L
Parathion Methyl	0.55	U	ng/L
Pendimethalin	1.0	U	ng/L
Phorate	0.52	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
Pyriproxyfen	0.12	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
Terbuthylazine	0.42	U	ng/L

Quality Assurance Report
Method Blank Results

Reference Method: EPA 8321B
Batch ID: P396769

Component	Result	Code	Units
2,4-D	0.0020	U	ug/L
2,4,5-T	0.0040	U	ug/L
Acetaminophen	0.0080	U	ug/L
Acetamiprid	0.0020	U	ug/L
Afidopyropen	0.0020	U	ug/L
Bentazon	8.0E-04	U	ug/L
Benzovindiflupyr	0.0020	U	ug/L
Carbamazepine	8.0E-04	U	ug/L
Clothianidin	0.0020	U	ug/L
Dinotefuran	0.0020	U	ug/L
Diuron	0.0020	U	ug/L
Fenuron	0.016	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
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

Reference Method: EPA 8321B
Batch ID: P396835

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: SM 2120 B-2011
Batch ID: P396873

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2320 B-2011
Batch ID: P397115

Component	Result	Code	Units
Total Alkalinity	0.65	U	mg CaCO3/L

Quality Assurance Report
Method Blank Results

Reference Method: SM 2540 C-2011
Batch ID: P397413

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-2011
Batch ID: P397161

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500 F-C-2011
Batch ID: P396944

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-2011
Batch ID: P397238

Component	Result	Code	Units
Organic Carbon	0.50	U	mg C/L

Quality Assurance Report
Laboratory Control Sample Accuracy

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P397169

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Calcium	99.8		P	85 - 115
Iron	106		P	85 - 115
Magnesium	103		P	85 - 115
Potassium	108		P	85 - 115
Sodium	105		P	85 - 115
Strontium	115		P	85 - 115
Tin	105		P	85 - 115
Titanium	106		P	85 - 115
Vanadium	105		P	85 - 115
Zinc	108		P	85 - 115

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P397169

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Antimony	92.4		P	85 - 115
Arsenic	97.5		P	85 - 115
Barium	92.1		P	85 - 115
Beryllium	92.3		P	85 - 115
Boron	91.2		P	85 - 115
Cadmium	102		P	85 - 115
Chromium	92.8		P	85 - 115
Cobalt	101		P	85 - 115
Copper	94.7		P	85 - 115
Lead	98.7		P	85 - 115
Manganese	93.9		P	85 - 115
Molybdenum	91.9		P	85 - 115
Nickel	92.5		P	85 - 115
Selenium	93.5		P	85 - 115
Silver	101		P	85 - 115
Thallium	96.7		P	85 - 115

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P397874

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Aluminum	93.9		P	85 - 115

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P397123

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Chloride	97.5		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P397126

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Sulfate	97.3		P	90 - 110

Quality Assurance Report
Laboratory Control Sample Accuracy

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P397507

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Ammonia-N	97.6		P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P397070

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Kjeldahl Nitrogen	103		P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P397037

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
NO2NO3-N	102		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P396927

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P396859

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
O-Phosphate-P	97.6		P	90 - 110

Reference Method: EPA 8270E
Batch ID: P397049

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Acetochlor	89.5	85.5	P/P	70 - 121
Alachlor	87.9	83.3	P/P	70 - 119
Ametryn	79.0	85.0	P/P	61 - 135
Atrazine	94.9	87.9	P/P	76 - 123
Atrazine Desethyl	94.2	85.4	P/P	35 - 140
Azinphos Methyl	124	114	P/P	57 - 163
Azoxystrobin	177	131	P/P	43 - 231
Bromacil	83.0	71.7	P/P	42 - 123
Butylate	51.6	39.3	P/P	34 - 92.0
Caffeine	76.1	102	P/P	70 - 130
Carbophenothion	91.5	78.5	P/P	61 - 121
Carfentrazone Ethyl	98.8	95.3	P/P	62 - 139
Chlorpyrifos Ethyl	87.2	76.0	P/P	67 - 121
Chlorpyrifos Methyl	93.4	88.6	P/P	67 - 120
Cyanazine	139	118	P/P	20 - 226
Demeton	57.9	57.3	P/P	35 - 125
Diazinon	96.4	91.2	P/P	70 - 122
Difenoconazole	133	116	P/P	56 - 186
Dimethenamid	85.6	83.9	P/P	67 - 119
Disulfoton	76.9	63.2	P/P	47 - 120
Dithiopyr	90.8	85.6	P/P	67 - 118
EPTC	54.3	40.2	P/P	33 - 90.0

Quality Assurance Report
Laboratory Control Sample Accuracy

Reference Method: EPA 8270E
Batch ID: P397049

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Ethion	72.4	82.1	P/P	40 - 133
Ethoprop	82.2	72.9	P/P	61 - 121
Fenamiphos	85.9	79.9	P/P	31 - 139
Fenbuconazole	99.1	97.6	P/P	66 - 141
Fipronil	93.6	88.1	P/P	62 - 129
Fipronil Desulfinyl	88.8	88.5	P/P	59 - 126
Fipronil Sulfide	83.5	79.6	P/P	63 - 117
Fipronil Sulfone	89.2	77.1	P/P	57 - 117
Fluazifop-P-butyl	92.0	90.0	P/P	63 - 124
Fludioxonil	94.1	87.3	P/P	63 - 123
Flumioxazin	137	131	P/P	34 - 245
Flutolanil	83.8	86.4	P/P	56 - 131
Fluxapyroxad	89.8	89.2	P/P	57 - 117
Fonofos	76.3	77.0	P/P	61 - 116
Hexazinone	91.3	89.5	P/P	55 - 138
Imazalil	77.8	89.2	P/P	33 - 143
Iprodione	81.9	82.2	P/P	59 - 118
Malathion	86.6	75.1	P/P	62 - 138
Metalaxyl	93.9	92.0	P/P	24 - 147
Metolachlor	81.2	74.3	P/P	68 - 118
Metribuzin	89.4	97.1	P/P	20 - 239
Mevinphos	78.4	69.6	P/P	46 - 124
Molinate	64.8	52.1	P/P	46 - 100
Myclobutanil	91.0	87.2	P/P	32 - 149
Naled	41.6	35.7	P/P	32 - 95.0
Norflurazon	97.5	92.8	P/P	57 - 127
Oxadiazon	86.6	83.6	P/P	63 - 118
Oxyfluorfen	101	99.7	P/P	69 - 137
Parathion Ethyl	86.7	81.7	P/P	70 - 113
Parathion Methyl	96.5	95.8	P/P	71 - 130
Pendimethalin	83.6	85.0	P/P	55 - 118
Phorate	78.3	66.7	P/P	46 - 125
Prodiamine	49.3	35.8	P/P	20 - 141
Prometon	77.1	80.6	P/P	54 - 122
Prometryn	82.1	81.4	P/P	66 - 124
Pronamide	94.6	82.8	P/P	79 - 122
Propiconazole	89.9	87.5	P/P	61 - 126
Pyriproxyfen	95.5	92.1	P/P	52 - 131
Simazine	101	88.3	P/P	75 - 128
Sulfentrazone	53.5	58.7	P/P	20 - 132
Tebuconazole	60.3	78.1	P/P	20 - 116
Terbufos	77.4	71.5	P/P	61 - 117
Terbuthylazine	91.1	86.8	P/P	74 - 116

Reference Method: EPA 8321B
Batch ID: P396769

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2,4-D	127		P	30 - 160
2,4,5-T	119		P	30 - 160
Acetaminophen	76.4		P	30 - 150
Acetamiprid	94.3		P	30 - 160

Quality Assurance Report
Laboratory Control Sample Accuracy

Reference Method: EPA 8321B
Batch ID: P396769

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Afidopyropen	73.3		P	30 - 160
Bentazon	37.3		P	30 - 150
Benzovindiflupyr	82.9		P	30 - 160
Carbamazepine	85.9		P	30 - 160
Clothianidin	97.4		P	30 - 160
Dinotefuran	87.2		P	30 - 160
Diuron	76.7		P	30 - 160
Fenuron	98.2		P	30 - 160
Fluridone	97.0		P	30 - 160
Hydrocodone	93.0		P	30 - 160
Ibuprofen	82.3		P	30 - 160
Imazapyr	107		P	30 - 160
Imidacloprid	107		P	30 - 160
Linuron	70.9		P	30 - 160
Mandestrobin	90.0		P	30 - 160
MCPP	140		P	30 - 160
Naproxen	99.3		P	30 - 160
Primidone	75.4		P	30 - 160
Pyraclostrobin	79.3		P	30 - 160
Thiamethoxam	101		P	30 - 160
Tolfenpyrad	56.7		P	30 - 160
Triclopyr	125		P	30 - 160

Reference Method: EPA 8321B
Batch ID: P396835

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Acesulfame K	150		P	40 - 150
AMPA	84.1		P	40 - 150
Endothall	99.7		P	40 - 150
Glufosinate	82.7		P	40 - 150
Glyphosate	65.5		P	40 - 140
Sucralose	99.5		P	40 - 150

Reference Method: SM 2120 B-2011
Batch ID: P396873

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Color (true)	98.1		P	85 - 115

Reference Method: SM 2320 B-2011
Batch ID: P397115

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	100		P	93 - 104

Reference Method: SM 4500 F-C-2011
Batch ID: P396944

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	99.1		P	90 - 106

Quality Assurance Report
Laboratory Control Sample Accuracy

Reference Method: SM 5310 B-2011
Batch ID: P397238

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	96.3		P	85 - 115

Quality Assurance Report
Matrix Spike Accuracy

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P397169

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2240194	Calcium	100		P	80 - 120
2240194	Iron	102		P	80 - 120
2240194	Magnesium	102		P	80 - 120
2240194	Potassium	105		P	80 - 120
2240194	Sodium	107		P	80 - 120
2240194	Strontium	114		P	80 - 120
2240194	Tin	113		P	80 - 120
2240194	Titanium	117		P	80 - 120
2240194	Vanadium	117		P	80 - 120
2240194	Zinc	107		P	80 - 120
2240932	Calcium	106		P	80 - 120
2240932	Iron	110	106	P/P	80 - 120
2240932	Magnesium	101		P	80 - 120
2240932	Potassium	108	106	P/P	80 - 120
2240932	Sodium	111		P	80 - 120
2240932	Strontium	114	114	P/P	80 - 120
2240932	Tin	114	114	P/P	80 - 120
2240932	Titanium	118	118	P/P	80 - 120
2240932	Vanadium	116	115	P/P	80 - 120
2240932	Zinc	107	105	P/P	80 - 120

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P397169

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2240194	Antimony	93.9		P	80 - 120
2240194	Arsenic	90.2		P	80 - 120
2240194	Barium	90.1		P	80 - 120
2240194	Beryllium	87.9		P	80 - 120
2240194	Boron	91.8		P	80 - 120
2240194	Cadmium	97.0		P	80 - 120
2240194	Chromium	91.4		P	80 - 120
2240194	Cobalt	96.9		P	80 - 120
2240194	Copper	89.9		P	80 - 120
2240194	Lead	95.9		P	80 - 120
2240194	Manganese	90.7		P	80 - 120
2240194	Molybdenum	92.0		P	80 - 120
2240194	Nickel	90.4		P	80 - 120
2240194	Selenium	86.1		P	80 - 120
2240194	Silver	96.8		P	80 - 120
2240194	Thallium	96.7		P	80 - 120
2240932	Antimony	98.4	94.3	P/P	80 - 120
2240932	Arsenic	98.1	98.9	P/P	80 - 120
2240932	Barium	94.6	90.1	P/P	80 - 120
2240932	Beryllium	95.0	92.1	P/P	80 - 120
2240932	Boron	93.4	93.6	P/P	80 - 120
2240932	Cadmium	101	102	P/P	80 - 120
2240932	Chromium	93.6	94.0	P/P	80 - 120
2240932	Cobalt	99.1	99.9	P/P	80 - 120
2240932	Copper	90.8	92.6	P/P	80 - 120
2240932	Lead	96.3	97.3	P/P	80 - 120
2240932	Manganese	96.7	95.6	P/P	80 - 120

Quality Assurance Report
Matrix Spike Accuracy

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P397169

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2240932	Molybdenum	97.5	94.0	P/P	80 - 120
2240932	Nickel	91.5	89.8	P/P	80 - 120
2240932	Selenium	94.1	93.2	P/P	80 - 120
2240932	Silver	98.5	99.2	P/P	80 - 120
2240932	Thallium	101	97.6	P/P	80 - 120

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P397874

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2241352	Aluminum	98.6	89.0	P/P	80 - 120
2241736	Aluminum	96.6		P	80 - 120

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P397123

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2240914	Chloride	98.3		P	90 - 110
2241152	Chloride	97.2		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P397126

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2240914	Sulfate	95.3		P	90 - 110
2241152	Sulfate	96.5		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P397507

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2240915	Ammonia-N	94.8	96.0	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P397070

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2240520	Kjeldahl Nitrogen	106	109	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P397037

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2241011	NO2NO3-N	100	101	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P396927

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2240921	Total-P	106	109	P/P	90 - 110

Quality Assurance Report
Matrix Spike Accuracy

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P396859

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2240922	O-Phosphate-P	97.8	97.8	P/P	90 - 110

Reference Method: EPA 8270E
Batch ID: P397049

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2240943	Acetochlor	85.1	91.7	P/P	66 - 122
2240943	Alachlor	86.3	92.2	P/P	65 - 122
2240943	Ametryn	92.4	86.5	P/P	45 - 173
2240943	Atrazine	97.7	96.5	P/P	70 - 134
2240943	Atrazine Desethyl	80.7	83.9	P/P	25 - 150
2240943	Azinphos Methyl	123	121	P/P	44 - 174
2240943	Azoxystrobin	202	211	P/P	10 - 268
2240943	Bromacil	76.7	81.9	P/P	31 - 145
2240943	Butylate	52.3	51.7	P/P	15 - 97.0
2240943	Caffeine	455	301	F/F	70 - 130
2240943	Carbophenothion	83.1	88.1	P/P	42 - 129
2240943	Carfentrazone Ethyl	102	100	P/P	62 - 145
2240943	Chlorpyrifos Ethyl	86.4	89.4	P/P	60 - 124
2240943	Chlorpyrifos Methyl	87.5	92.1	P/P	66 - 119
2240943	Cyanazine	132	121	P/P	17 - 225
2240943	Demeton	71.5	75.7	P/P	36 - 142
2240943	Diazinon	94.7	99.7	P/P	70 - 128
2240943	Difenoconazole	131	139	P/P	33 - 222
2240943	Dimethenamid	85.1	90.5	P/P	54 - 125
2240943	Disulfoton	80.7	89.4	P/P	49 - 133
2240943	Dithiopyr	94.5	93.7	P/P	55 - 123
2240943	EPTC	46.7	51.8	P/P	19 - 91.0
2240943	Ethion	78.8	89.7	P/P	13 - 143
2240943	Ethoprop	74.9	76.9	P/P	49 - 144
2240943	Fenamiphos	84.5	89.7	P/P	32 - 136
2240943	Fenbuconazole	101	108	P/P	73 - 148
2240943	Fipronil	95.0	99.3	P/P	57 - 129
2240943	Fipronil Desulfinyl	85.2	93.7	P/P	49 - 127
2240943	Fipronil Sulfide	79.1	86.6	P/P	44 - 127
2240943	Fipronil Sulfone	79.1	85.9	P/P	35 - 126
2240943	Fluazifop-P-butyl	93.0	97.2	P/P	67 - 129
2240943	Fludioxonil	87.0	97.0	P/P	61 - 126
2240943	Flumioxazin	156	172	P/P	38 - 279
2240943	Flutolanil	88.7	93.4	P/P	55 - 136
2240943	Fluxapyroxad	89.8	96.7	P/P	33 - 140
2240943	Fonofos	79.2	79.3	P/P	58 - 125
2240943	Hexazinone	86.5	88.6	P/P	57 - 148
2240943	Imazalil	90.3	109	P/P	10 - 221
2240943	Iprodione	82.3	92.3	P/P	32 - 140
2240943	Malathion	76.2	83.0	P/P	52 - 138
2240943	Metalaxyl	93.5	95.9	P/P	46 - 134
2240943	Metolachlor	78.8	86.8	P/P	58 - 122
2240943	Metribuzin	97.4	104	P/P	16 - 272
2240943	Mevinphos	65.6	70.8	P/P	45 - 140
2240943	Molinate	55.9	61.6	P/P	41 - 103
2240943	Myclobutanil	88.4	95.9	P/P	60 - 134

Quality Assurance Report
Matrix Spike Accuracy

Reference Method: EPA 8270E
Batch ID: P397049

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2240943	Naled	37.0	43.6	P/P	20 - 113
2240943	Norflurazon	97.4	98.3	P/P	51 - 123
2240943	Oxadiazon	91.5	93.4	P/P	44 - 125
2240943	Oxyfluorfen	107	110	P/P	66 - 176
2240943	Parathion Ethyl	82.2	91.3	P/P	57 - 132
2240943	Parathion Methyl	95.7	96.6	P/P	59 - 156
2240943	Pendimethalin	90.5	93.2	P/P	59 - 129
2240943	Phorate	69.3	75.9	P/P	47 - 136
2240943	Prodiamine	40.9	83.2	P/P	10 - 159
2240943	Prometon	74.6	80.4	P/P	59 - 127
2240943	Prometryn	83.6	91.1	P/P	59 - 129
2240943	Pronamide	82.6	93.6	P/P	65 - 145
2240943	Propiconazole	93.9	94.9	P/P	28 - 165
2240943	Pyriproxyfen	95.2	102	P/P	21 - 180
2240943	Simazine	92.2	96.7	P/P	63 - 147
2240943	Sulfentrazone	86.3	96.3	P/P	32 - 136
2240943	Tebuconazole	69.1	67.2	P/P	10 - 117
2240943	Terbufos	75.6	80.3	P/P	61 - 131
2240943	Terbuthylazine	86.6	95.8	P/P	62 - 126

Reference Method: EPA 8321B
Batch ID: P396769

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2240190	2,4-D	130	149	P/P	30 - 160
2240190	2,4,5-T	97.7	132	P/P	30 - 160
2240190	Acetaminophen	96.0	237	P/F	30 - 150
2240190	Acetamiprid	106	109	P/P	30 - 160
2240190	Afidopyropen	80.6	79.3	P/P	30 - 160
2240190	Bentazon	33.0	41.8	P/P	30 - 150
2240190	Benzovindiflupyr	85.2	96.8	P/P	30 - 160
2240190	Carbamazepine	84.5	95.2	P/P	30 - 160
2240190	Clothianidin	120	129	P/P	30 - 160
2240190	Dinotefuran	114	118	P/P	30 - 160
2240190	Diuron	74.4	70.0	P/P	30 - 160
2240190	Fenuron	112	122	P/P	30 - 160
2240190	Fluridone	103	106	P/P	30 - 160
2240190	Hydrocodone	115	125	P/P	30 - 160
2240190	Ibuprofen	69.9	90.7	P/P	30 - 160
2240190	Imazapyr	129	149	P/P	30 - 160
2240190	Imidacloprid	149	185	P/F	30 - 160
2240190	Linuron	89.4	94.7	P/P	30 - 160
2240190	Mandestrobin	88.6	94.9	P/P	30 - 160
2240190	MCPP	152	177	P/F	30 - 160
2240190	Naproxen	90.5	99.2	P/P	30 - 160
2240190	Primidone	108	112	P/P	30 - 160
2240190	Pyraclostrobin	77.8	87.0	P/P	30 - 160
2240190	Thiamethoxam	146	170	P/F	30 - 160
2240190	Tolfenpyrad	62.1	57.3	P/P	30 - 160
2240190	Triclopyr	98.0	149	P/P	30 - 160

Quality Assurance Report
Matrix Spike Accuracy

Reference Method: EPA 8321B
Batch ID: P396835

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2240044	Acesulfame K	193	160	F/F	40 - 150
2240044	AMPA	86.9	85.6	P/P	40 - 150
2240044	Endothall	88.1	78.6	P/P	40 - 150
2240044	Glufosinate	69.5	61.0	P/P	40 - 150
2240044	Glyphosate	118	138	P/P	40 - 140
2240044	Sucralose	95.1	103	P/P	40 - 150

Reference Method: SM 4500 F-C-2011
Batch ID: P396944

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2240949	Fluoride	98.5	97.9	P/P	94 - 107

Reference Method: SM 5310 B-2011
Batch ID: P397238

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2240082	Organic Carbon	99.4	99.1	P/P	85 - 115

Quality Assurance Report
Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P396875

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2240947	Turbidity	2.30	Sample	P	0 - 20

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P397169

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2240932	Calcium	0.115	Spike	P	0 - 20
2240932	Iron	4.30	Spike	P	0 - 20
2240932	Magnesium	4.09	Spike	P	0 - 20
2240932	Potassium	1.20	Spike	P	0 - 20
2240932	Sodium	0.618	Spike	P	0 - 20
2240932	Strontium	0.255	Spike	P	0 - 20
2240932	Tin	0.0982	Spike	P	0 - 20
2240932	Titanium	0.0689	Spike	P	0 - 20
2240932	Vanadium	0.233	Spike	P	0 - 20
2240932	Zinc	1.22	Spike	P	0 - 20

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P397169

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2240932	Antimony	4.26	Spike	P	0 - 20
2240932	Arsenic	0.823	Spike	P	0 - 20
2240932	Barium	4.27	Spike	P	0 - 20
2240932	Beryllium	3.09	Spike	P	0 - 20
2240932	Boron	0.187	Spike	P	0 - 20
2240932	Cadmium	1.39	Spike	P	0 - 20
2240932	Chromium	0.365	Spike	P	0 - 20
2240932	Cobalt	0.779	Spike	P	0 - 20
2240932	Copper	1.95	Spike	P	0 - 20
2240932	Lead	1.00	Spike	P	0 - 20
2240932	Manganese	1.04	Spike	P	0 - 20
2240932	Molybdenum	3.21	Spike	P	0 - 20
2240932	Nickel	1.82	Spike	P	0 - 20
2240932	Selenium	0.869	Spike	P	0 - 20
2240932	Silver	0.771	Spike	P	0 - 20
2240932	Thallium	3.75	Spike	P	0 - 20

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P397874

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2241352	Aluminum	9.85	Spike	P	0 - 20

Quality Assurance Report
Precision

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P397123

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2241152	Chloride	0.0752	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P397126

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2241152	Sulfate	0.0738	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P397507

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2240915	Ammonia-N	1.19	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P397070

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2240520	Kjeldahl Nitrogen	2.51	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P397037

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2241011	NO2NO3-N	0.426	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P396927

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2240921	Total-P	1.86	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P396859

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2240922	O-Phosphate-P	0.0	Spike	P	0 - 20

Reference Method: EPA 8270E
Batch ID: P397049

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2240943	Acetochlor	7.50	Spike	P	0 - 30
2240943	Alachlor	6.61	Spike	P	0 - 30

Quality Assurance Report
Precision

Reference Method: EPA 8270E
Batch ID: P397049

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2240943	Ametryn	6.64	Spike	P	0 - 30
2240943	Atrazine	0.989	Spike	P	0 - 30
2240943	Atrazine Desethyl	3.29	Spike	P	0 - 30
2240943	Azinphos Methyl	1.63	Spike	P	0 - 30
2240943	Azoxystrobin	3.92	Spike	P	0 - 30
2240943	Bromacil	6.55	Spike	P	0 - 30
2240943	Butylate	1.23	Spike	P	0 - 30
2240943	Caffeine	36.1	Spike	F	0 - 30
2240943	Carbophenothion	5.76	Spike	P	0 - 30
2240943	Carfentrazone Ethyl	2.36	Spike	P	0 - 30
2240943	Chlorpyrifos Ethyl	3.31	Spike	P	0 - 30
2240943	Chlorpyrifos Methyl	5.15	Spike	P	0 - 30
2240943	Cyanazine	9.36	Spike	P	0 - 30
2240943	Demeton	5.72	Spike	P	0 - 30
2240943	Diazinon	5.19	Spike	P	0 - 30
2240943	Difenoconazole	5.91	Spike	P	0 - 30
2240943	Dimethenamid	6.16	Spike	P	0 - 30
2240943	Disulfoton	10.3	Spike	P	0 - 30
2240943	Dithiopyr	0.859	Spike	P	0 - 30
2240943	EPTC	10.4	Spike	P	0 - 30
2240943	Ethion	12.9	Spike	P	0 - 30
2240943	Ethoprop	2.60	Spike	P	0 - 30
2240943	Fenamiphos	5.93	Spike	P	0 - 30
2240943	Fenbuconazole	6.98	Spike	P	0 - 30
2240943	Fipronil	4.52	Spike	P	0 - 30
2240943	Fipronil Desulfinyl	9.51	Spike	P	0 - 30
2240943	Fipronil Sulfide	8.97	Spike	P	0 - 30
2240943	Fipronil Sulfone	8.27	Spike	P	0 - 30
2240943	Fluazifop-P-butyl	4.44	Spike	P	0 - 30
2240943	Fludioxonil	10.9	Spike	P	0 - 30
2240943	Flumioxazin	9.66	Spike	P	0 - 30
2240943	Flutolanil	5.16	Spike	P	0 - 30
2240943	Fluxapyroxad	7.31	Spike	P	0 - 30
2240943	Fonofos	0.0820	Spike	P	0 - 30
2240943	Hexazinone	2.20	Spike	P	0 - 30
2240943	Imazalil	19.1	Spike	P	0 - 30
2240943	Iprodione	11.5	Spike	P	0 - 30
2240943	Malathion	8.50	Spike	P	0 - 30
2240943	Metalaxyl	2.51	Spike	P	0 - 30
2240943	Metolachlor	9.68	Spike	P	0 - 30
2240943	Metribuzin	6.33	Spike	P	0 - 30
2240943	Mevinphos	7.64	Spike	P	0 - 30
2240943	Molinate	9.65	Spike	P	0 - 30
2240943	Myclobutanil	8.16	Spike	P	0 - 30
2240943	Naled	16.3	Spike	P	0 - 30
2240943	Norflurazon	0.993	Spike	P	0 - 30
2240943	Oxadiazon	2.05	Spike	P	0 - 30
2240943	Oxyfluorfen	2.82	Spike	P	0 - 30
2240943	Parathion Ethyl	10.5	Spike	P	0 - 30
2240943	Parathion Methyl	0.892	Spike	P	0 - 30
2240943	Pendimethalin	3.01	Spike	P	0 - 30

Quality Assurance Report
Precision

Reference Method: EPA 8270E
Batch ID: P397049

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2240943	Phorate	9.10	Spike	P	0 - 30
2240943	Prodiamine	68.2	Spike	F	0 - 30
2240943	Prometon	7.45	Spike	P	0 - 30
2240943	Prometryn	8.56	Spike	P	0 - 30
2240943	Pronamide	12.5	Spike	P	0 - 30
2240943	Propiconazole	1.06	Spike	P	0 - 30
2240943	Pyriproxyfen	7.17	Spike	P	0 - 30
2240943	Simazine	2.51	Spike	P	0 - 30
2240943	Sulfentrazone	11.0	Spike	P	0 - 30
2240943	Tebuconazole	2.77	Spike	P	0 - 30
2240943	Terbufos	6.04	Spike	P	0 - 30
2240943	Terbuthylazine	10.1	Spike	P	0 - 30
LFB	Acetochlor	4.54	LCS	P	0 - 30
LFB	Alachlor	5.36	LCS	P	0 - 30
LFB	Ametryn	7.27	LCS	P	0 - 30
LFB	Atrazine	7.65	LCS	P	0 - 30
LFB	Atrazine Desethyl	9.71	LCS	P	0 - 30
LFB	Azinphos Methyl	8.62	LCS	P	0 - 30
LFB	Azoxystrobin	29.5	LCS	P	0 - 30
LFB	Bromacil	14.7	LCS	P	0 - 30
LFB	Butylate	27.0	LCS	P	0 - 30
LFB	Caffeine	28.8	LCS	P	0 - 30
LFB	Carbophenothion	15.3	LCS	P	0 - 30
LFB	Carfentrazone Ethyl	3.60	LCS	P	0 - 30
LFB	Chlorpyrifos Ethyl	13.8	LCS	P	0 - 30
LFB	Chlorpyrifos Methyl	5.33	LCS	P	0 - 30
LFB	Cyanazine	16.4	LCS	P	0 - 30
LFB	Demeton	1.05	LCS	P	0 - 30
LFB	Diazinon	5.51	LCS	P	0 - 30
LFB	Difenoconazole	13.9	LCS	P	0 - 30
LFB	Dimethenamid	2.02	LCS	P	0 - 30
LFB	Disulfoton	19.6	LCS	P	0 - 30
LFB	Dithiopyr	5.87	LCS	P	0 - 30
LFB	EPTC	30.0	LCS	P	0 - 30
LFB	Ethion	12.5	LCS	P	0 - 30
LFB	Ethoprop	11.9	LCS	P	0 - 30
LFB	Fenamiphos	7.22	LCS	P	0 - 30
LFB	Fenbuconazole	1.55	LCS	P	0 - 30
LFB	Fipronil	6.11	LCS	P	0 - 30
LFB	Fipronil Desulfinyl	0.308	LCS	P	0 - 30
LFB	Fipronil Sulfide	4.82	LCS	P	0 - 30
LFB	Fipronil Sulfone	14.4	LCS	P	0 - 30
LFB	Fluazifop-P-butyl	2.09	LCS	P	0 - 30
LFB	Fludioxonil	7.52	LCS	P	0 - 30
LFB	Flumioxazin	4.42	LCS	P	0 - 30
LFB	Flutolanil	3.15	LCS	P	0 - 30
LFB	Fluxapyroxad	0.644	LCS	P	0 - 30
LFB	Fonofos	0.932	LCS	P	0 - 30
LFB	Hexazinone	2.02	LCS	P	0 - 30
LFB	Imazalil	13.7	LCS	P	0 - 30
LFB	Iprodione	0.324	LCS	P	0 - 30

Quality Assurance Report
Precision

Reference Method: EPA 8270E
Batch ID: P397049

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
LFB	Malathion	14.3	LCS	P	0 - 30
LFB	Metalaxyl	1.99	LCS	P	0 - 30
LFB	Metolachlor	8.83	LCS	P	0 - 30
LFB	Metribuzin	8.19	LCS	P	0 - 30
LFB	Mevinphos	11.9	LCS	P	0 - 30
LFB	Molinate	21.6	LCS	P	0 - 30
LFB	Myclobutanil	4.34	LCS	P	0 - 30
LFB	Naled	15.3	LCS	P	0 - 30
LFB	Norflurazon	4.93	LCS	P	0 - 30
LFB	Oxadiazon	3.54	LCS	P	0 - 30
LFB	Oxyfluorfen	1.45	LCS	P	0 - 30
LFB	Parathion Ethyl	5.95	LCS	P	0 - 30
LFB	Parathion Methyl	0.727	LCS	P	0 - 30
LFB	Pendimethalin	1.70	LCS	P	0 - 30
LFB	Phorate	15.9	LCS	P	0 - 30
LFB	Prodiamine	31.7	LCS	F	0 - 30
LFB	Prometon	4.42	LCS	P	0 - 30
LFB	Prometryn	0.817	LCS	P	0 - 30
LFB	Pronamide	13.3	LCS	P	0 - 30
LFB	Propiconazole	2.72	LCS	P	0 - 30
LFB	Pyriproxyfen	3.61	LCS	P	0 - 30
LFB	Simazine	13.1	LCS	P	0 - 30
LFB	Sulfentrazone	9.16	LCS	P	0 - 30
LFB	Tebuconazole	25.8	LCS	P	0 - 30
LFB	Terbufos	7.93	LCS	P	0 - 30
LFB	Terbuthylazine	4.85	LCS	P	0 - 30

Reference Method: EPA 8321B
Batch ID: P396769

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2240190	2,4-D	13.6	Spike	P	0 - 30
2240190	2,4,5-T	29.7	Spike	P	0 - 30
2240190	Acetaminophen	84.5	Spike	F	0 - 30
2240190	Acetamiprid	2.55	Spike	P	0 - 30
2240190	Afidopyropen	1.68	Spike	P	0 - 30
2240190	Bentazon	17.0	Spike	P	0 - 30
2240190	Benzovindiflupyr	12.8	Spike	P	0 - 30
2240190	Carbamazepine	11.0	Spike	P	0 - 30
2240190	Clothianidin	7.28	Spike	P	0 - 30
2240190	Dinotefuran	3.60	Spike	P	0 - 30
2240190	Diuron	6.08	Spike	P	0 - 30
2240190	Fenuron	8.32	Spike	P	0 - 30
2240190	Fluridone	2.87	Spike	P	0 - 30
2240190	Hydrocodone	8.23	Spike	P	0 - 30
2240190	Ibuprofen	25.9	Spike	P	0 - 30
2240190	Imazapyr	14.4	Spike	P	0 - 30
2240190	Imidacloprid	19.2	Spike	P	0 - 30
2240190	Linuron	5.80	Spike	P	0 - 30
2240190	Mandestrobin	6.94	Spike	P	0 - 30

Quality Assurance Report
Precision

Reference Method: EPA 8321B
Batch ID: P396769

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2240190	MCPP	14.7	Spike	P	0 - 30
2240190	Naproxen	9.23	Spike	P	0 - 30
2240190	Primidone	2.91	Spike	P	0 - 30
2240190	Pyraclostrobin	11.1	Spike	P	0 - 30
2240190	Thiamethoxam	15.5	Spike	P	0 - 30
2240190	Tolfenpyrad	8.09	Spike	P	0 - 30
2240190	Triclopyr	41.0	Spike	F	0 - 30

Reference Method: EPA 8321B
Batch ID: P396835

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2240044	Acesulfame K	18.7	Spike	P	0 - 30
2240044	AMPA	1.42	Spike	P	0 - 30
2240044	Endothall	11.4	Spike	P	0 - 30
2240044	Glufosinate	13.0	Spike	P	0 - 30
2240044	Glyphosate	14.1	Spike	P	0 - 30
2240044	Sucralose	7.10	Spike	P	0 - 30

Reference Method: SM 2320 B-2011
Batch ID: P397115

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2240949	Total Alkalinity	0.595	Sample	P	0 - 8.1

Reference Method: SM 2540 C-2011
Batch ID: P397413

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2240920	TDS	5.35	Sample	P	0 - 10

Reference Method: SM 4500 F-C-2011
Batch ID: P396944

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2240949	Fluoride	0.454	Spike	P	0 - 2.8

Reference Method: SM 5310 B-2011
Batch ID: P397238

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2240082	Organic Carbon	0.197	Spike	P	0 - 20

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

Quality Assurance Report
Surrogates

Lab Sample ID: 2240919
Field Sample ID: 44059

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	2,4-D-d3	133	P	30 - 160
EPA 8321B	Acetaminophen-d4	94.4	P	30 - 160
EPA 8321B	Carbamazepine-d10	120	P	30 - 160
EPA 8321B	Diuron-d6	88.7	P	30 - 160
EPA 8321B	Endothall-d6	116	P	40 - 160
EPA 8321B	Endothall-d6	116	P	40 - 160
EPA 8321B	Glyphosate 13C 15N	48.7	P	40 - 160
EPA 8321B	Glyphosate 13C 15N	48.7	P	40 - 160
EPA 8321B	Ibuprofen-d3	99.9	P	30 - 160
EPA 8321B	Primidone-d5	102	P	30 - 160
EPA 8321B	Sucralose-d6	108	P	30 - 160
EPA 8321B	Sucralose-d6	108	P	30 - 160

Lab Sample ID: 2240934
Field Sample ID: 44059

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8270E	Caffeine-d9	85.3	P	20 - 200
EPA 8270E	Simazine-d10	130	P	73 - 135
EPA 8270E	Terbufos-d10	107	P	58 - 130

Quality Assurance Report
Calibration Verification

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Run ID: A104857
Included Lab Sample IDs: 2240916

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	99.7	99.6	P/P	90 - 110

Reference Method: SM 2120 B-2011
Run ID: A104860
Included Lab Sample IDs: 2240914

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	97.3	100	P/P	90 - 115

Reference Method: EPA 180.1 Rev. 2.0
Run ID: A104861
Included Lab Sample IDs: 2240914

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Turbidity	98.5	101	P/P	95 - 105

Reference Method: EPA 300.0 Rev. 2.1
Run ID: A104869
Included Lab Sample IDs: 2240914

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	98.4	98.8	P/P	90 - 110
Sulfate	97.4	97.7	P/P	90 - 110

Reference Method: SM 4500 F-C-2011
Run ID: A104891
Included Lab Sample IDs: 2240914

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	100	101	P/P	90 - 110

Reference Method: EPA 8321B
Run ID: A104896
Included Lab Sample IDs: 2240919

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Acesulfame K	137	113	P/P	40 - 160
AMPA	93.3	97.8	P/P	40 - 160
Endothall	79.8	81.6	P/P	40 - 160
Glufosinate	86.8	99.8	P/P	40 - 160
Glyphosate	83.8	66.0	P/P	40 - 160

Reference Method: EPA 353.2 Rev. 2.0
Run ID: A104904
Included Lab Sample IDs: 2240915

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO2NO3-N	103	103	P/P	90 - 110

Quality Assurance Report
Calibration Verification

Reference Method: EPA 365.1 Rev. 2.0
Run ID: A104948
Included Lab Sample IDs: 2240915

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	100	98.2	P/P	90 - 110

Reference Method: SM 2320 B-2011
Run ID: A104962
Included Lab Sample IDs: 2240914

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	97.3	98.6	P/P	90 - 110

Reference Method: SM 5310 B-2011
Run ID: A105018
Included Lab Sample IDs: 2240915

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	96.2	96.1	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Run ID: A105021
Included Lab Sample IDs: 2240915

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	104	99.6	P/P	90 - 110

Reference Method: EPA 200.7 Rev. 4.4
Run ID: A105034
Included Lab Sample IDs: 2240932

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Strontium	107	107	P/P	90 - 110
Tin	108	108	P/P	90 - 110
Titanium	107	107	P/P	90 - 110
Vanadium	107	106	P/P	90 - 110

Reference Method: EPA 200.8 Rev. 5.4
Run ID: A105039
Included Lab Sample IDs: 2240932

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Antimony	97.5	99.5	P/P	90 - 110
Arsenic	98.2	97.5	P/P	90 - 110
Barium	98.0	98.5	P/P	90 - 110
Boron	97.1	97.6	P/P	90 - 110
Chromium	96.5	96.4	P/P	90 - 110
Cobalt	106	104	P/P	90 - 110
Copper	94.9	93.4	P/P	90 - 110
Manganese	95.7	96.5	P/P	90 - 110
Molybdenum	96.5	96.7	P/P	90 - 110
Nickel	96.6	95.2	P/P	90 - 110
Selenium	96.2	95.2	P/P	90 - 110
Thallium	96.2	97.6	P/P	90 - 110

Quality Assurance Report
Calibration Verification

Reference Method: EPA 200.7 Rev. 4.4
Run ID: A105068
Included Lab Sample IDs: 2240932

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Calcium	94.8	95.2	P/P	90 - 110
Potassium	102	103	P/P	90 - 110
Sodium	100	100	P/P	90 - 110
Zinc	106	106	P/P	90 - 110

Reference Method: EPA 200.7 Rev. 4.4
Run ID: A105076
Included Lab Sample IDs: 2240932

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Iron	105	103	P/P	90 - 110
Magnesium	105	103	P/P	90 - 110

Reference Method: EPA 8321B
Run ID: A105083
Included Lab Sample IDs: 2240919

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Sucralose	112	111	P/P	60 - 160

Reference Method: EPA 8321B
Run ID: A105098
Included Lab Sample IDs: 2240919

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
2,4-D	97.4	116	P/P	50 - 150
2,4,5-T	118	109	P/P	50 - 150
Acetaminophen	93.2	125	P/P	60 - 160
Acetamiprid	116	122	P/P	50 - 150
Afidopyropen	108	133	P/P	50 - 150
Bentazon	137	132	P/P	50 - 160
Benzovindiflupyr	101	114	P/P	50 - 160
Carbamazepine	104	119	P/P	60 - 150
Clothianidin	107	108	P/P	60 - 150
Dinotefuran	111	135	P/P	50 - 150
Diuron	88.3	110	P/P	60 - 160
Fenuron	107	116	P/P	60 - 150
Fluridone	117	129	P/P	60 - 160
Hydrocodone	113	130	P/P	60 - 150
Ibuprofen	86.0	89.7	P/P	50 - 160
Imazapyr	126	129	P/P	50 - 150
Imidacloprid	102	124	P/P	60 - 150
Linuron	100	122	P/P	60 - 150
Mandestrobin	109	117	P/P	50 - 150
MCPP	112	113	P/P	50 - 150
Naproxen	113	116	P/P	50 - 160
Primidone	95.8	110	P/P	60 - 150
Pyraclostrobin	116	120	P/P	60 - 150
Thiamethoxam	116	131	P/P	50 - 150
Tolfenpyrad	116	127	P/P	60 - 150
Triclopyr	98.7	115	P/P	50 - 150

Quality Assurance Report
Calibration Verification

Reference Method: EPA 8270E
Run ID: A105102
Included Lab Sample IDs: 2240934

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Acetochlor	91.9		P	80 - 120
Alachlor	94.4		P	80 - 120
Ametryn	87.6		P	80 - 120
Atrazine	94.5		P	80 - 120
Atrazine Desethyl	97.5		P	80 - 120
Azinphos Methyl	97.2		P	80 - 120
Azoxystrobin	91.0		P	80 - 120
Bromacil	102		P	80 - 120
Butylate	107		P	80 - 120
Caffeine	102		P	80 - 120
Carbophenothion	96.1		P	80 - 120
Carfentrazone Ethyl	96.4		P	80 - 120
Chlorpyrifos Ethyl	95.3		P	80 - 120
Chlorpyrifos Methyl	101		P	80 - 120
Cyanazine	103		P	80 - 120
Demeton	96.7		P	80 - 120
Diazinon	97.9		P	80 - 120
Difenoconazole	91.0		P	80 - 120
Dimethenamid	95.2		P	80 - 120
Disulfoton	92.3		P	80 - 120
Dithiopyr	97.3		P	80 - 120
EPTC	95.7		P	80 - 120
Ethion	96.2		P	80 - 120
Ethoprop	99.3		P	80 - 120
Fenamiphos	97.7		P	80 - 120
Fenbuconazole	93.4		P	80 - 120
Fipronil	93.7		P	80 - 120
Fipronil Desulfinyl	93.4		P	80 - 120
Fipronil Sulfide	102		P	80 - 120
Fipronil Sulfone	98.5		P	80 - 120
Fluazifop-P-butyl	94.7		P	80 - 120
Fludioxonil	97.4		P	80 - 120
Flumioxazin	93.3		P	80 - 120
Flutolanil	92.6		P	80 - 120
Fluxapyroxad	98.4		P	80 - 120
Fonofos	103		P	80 - 120
Hexazinone	103		P	80 - 120
Imazalil	92.6		P	80 - 120
Iprodione	95.8		P	80 - 120
Malathion	94.8		P	80 - 120
Metalaxyl	99.4		P	80 - 120
Metolachlor	91.6		P	80 - 120
Metribuzin	101		P	80 - 120
Mevinphos	96.7		P	80 - 120
Molinate	99.0		P	80 - 120
Myclobutanil	93.2		P	80 - 120
Naled	101		P	80 - 120
Norflurazon	94.1		P	80 - 120
Oxadiazon	93.4		P	80 - 120
Oxyfluorfen	91.5		P	80 - 120
Parathion Ethyl	98.5		P	80 - 120

Quality Assurance Report
Calibration Verification

Reference Method: EPA 8270E
Run ID: A105102
Included Lab Sample IDs: 2240934

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Parathion Methyl	101		P	80 - 120
Pendimethalin	101		P	80 - 120
Phorate	96.5		P	80 - 120
Prodiamine	92.1		P	80 - 120
Prometon	96.2		P	80 - 120
Prometryn	95.0		P	80 - 120
Pronamide	91.7		P	80 - 120
Propiconazole	94.6		P	80 - 120
Pyriproxyfen	95.7		P	80 - 120
Simazine	91.5		P	80 - 120
Sulfentrazone	94.4		P	80 - 120
Tebuconazole	94.3		P	80 - 120
Terbufos	99.5		P	80 - 120
Terbuthylazine	98.3		P	80 - 120

Reference Method: EPA 350.1 Rev. 2.0
Run ID: A105117
Included Lab Sample IDs: 2240915

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	100	98.4	P/P	90 - 110

Reference Method: EPA 200.8 Rev. 5.4
Run ID: A105206
Included Lab Sample IDs: 2240932

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Beryllium	97.2	97.3	P/P	90 - 110
Cadmium	97.6	98.4	P/P	90 - 110
Lead	99.9	101	P/P	90 - 110
Silver	98.0	98.3	P/P	90 - 110

Reference Method: EPA 200.8 Rev. 5.4
Run ID: A105274
Included Lab Sample IDs: 2240932

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Aluminum	103	104	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		
							LCS	SMP	MS
EPA 180.1 Rev. 2.0	Turbidity							2.30	
EPA 200.7 Rev. 4.4	Calcium	99.8		100	106				0.115
	Iron	106		102	110	106			4.30
	Magnesium	103		102	101				4.09
	Potassium	108		105	108	106			1.20
	Sodium	105		107	111				0.618
	Strontium	115		114	114	114			0.255
	Tin	105		113	114	114			0.0982
	Titanium	106		117	118	118			0.0689
	Vanadium	105		117	116	115			0.233
	Zinc	108		107	107	105			1.22
EPA 200.8 Rev. 5.4	Aluminum	93.9		98.6	89.0	96.6			9.85
	Antimony	92.4		98.4	94.3	93.9			4.26
	Arsenic	97.5		98.1	98.9	90.2			0.823
	Barium	92.1		94.6	90.1	90.1			4.27
	Beryllium	92.3		95.0	92.1	87.9			3.09
	Boron	91.2		93.4	93.6	91.8			0.187
	Cadmium	102		101	102	97.0			1.39
	Chromium	92.8		93.6	94.0	91.4			0.365
	Cobalt	101		99.1	99.9	96.9			0.779
	Copper	94.7		90.8	92.6	89.9			1.95
	Lead	98.7		96.3	97.3	95.9			1.00
	Manganese	93.9		96.7	95.6	90.7			1.04
	Molybdenum	91.9		97.5	94.0	92.0			3.21
	Nickel	92.5		91.5	89.8	90.4			1.82
	Selenium	93.5		94.1	93.2	86.1			0.869
	Silver	101		98.5	99.2	96.8			0.771
	Thallium	96.7		101	97.6	96.7			3.75
EPA 300.0 Rev. 2.1	Chloride	97.5		97.2	98.3			0.0752	
	Sulfate	97.3		96.5	95.3			0.0738	
EPA 350.1 Rev. 2.0	Ammonia-N	97.6		94.8	96.0				1.19
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	103		106	109				2.51
EPA 353.2 Rev. 2.0	NO2NO3-N	102		100	101				0.426
EPA 365.1 Rev. 2.0	Total-P	107		106	109				1.86
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	97.6		97.8	97.8				0.0
EPA 8270E	Acetochlor	89.5	85.5	85.1	91.7		4.54		7.50
	Alachlor	87.9	83.3	86.3	92.2		5.36		6.61
	Ametryn	79.0	85.0	92.4	86.5		7.27		6.64
	Atrazine	94.9	87.9	97.7	96.5		7.65		0.989
	Atrazine Desethyl	94.2	85.4	80.7	83.9		9.71		3.29
	Azinphos Methyl	124	114	123	121		8.62		1.63
	Azoxystrobin	177	131	202	211		29.5		3.92
	Bromacil	83.0	71.7	76.7	81.9		14.7		6.55
	Butylate	51.6	39.3	52.3	51.7		27.0		1.23
	Caffeine	76.1	102	455	301		28.8		36.1
	Carbophenothion	91.5	78.5	83.1	88.1		15.3		5.76
	Carfentrazone Ethyl	98.8	95.3	102	100		3.60		2.36
	Chlorpyrifos Ethyl	87.2	76.0	86.4	89.4		13.8		3.31
	Chlorpyrifos Methyl	93.4	88.6	87.5	92.1		5.33		5.15
	Cyanazine	139	118	132	121		16.4		9.36
	Demeton	57.9	57.3	71.5	75.7		1.05		5.72
	Diazinon	96.4	91.2	94.7	99.7		5.51		5.19
	Difenoconazole	133	116	131	139		13.9		5.91
	Dimethenamid	85.6	83.9	85.1	90.5		2.02		6.16

Quality Assurance Report
Summary

Ref. Method	Analyte	LCS % Recovery		MS % Recovery		Precision		
						LCS	SMP	MS
EPA 8270E	Disulfoton	76.9	63.2	80.7	89.4	19.6		10.3
	Dithiopyr	90.8	85.6	94.5	93.7	5.87		0.859
	EPTC	54.3	40.2	46.7	51.8	30.0		10.4
	Ethion	72.4	82.1	78.8	89.7	12.5		12.9
	Ethoprop	82.2	72.9	74.9	76.9	11.9		2.60
	Fenamiphos	85.9	79.9	84.5	89.7	7.22		5.93
	Fenbuconazole	99.1	97.6	101	108	1.55		6.98
	Fipronil	93.6	88.1	95.0	99.3	6.11		4.52
	Fipronil Desulfinyl	88.8	88.5	85.2	93.7	0.308		9.51
	Fipronil Sulfide	83.5	79.6	79.1	86.6	4.82		8.97
	Fipronil Sulfone	89.2	77.1	79.1	85.9	14.4		8.27
	Fluazifop-P-butyl	92.0	90.0	93.0	97.2	2.09		4.44
	Fludioxonil	94.1	87.3	87.0	97.0	7.52		10.9
	Flumioxazin	137	131	156	172	4.42		9.66
	Flutolanil	83.8	86.4	88.7	93.4	3.15		5.16
	Fluxapyroxad	89.8	89.2	89.8	96.7	0.644		7.31
	Fonofos	76.3	77.0	79.2	79.3	0.932		0.0820
	Hexazinone	91.3	89.5	86.5	88.6	2.02		2.20
	Imazalil	77.8	89.2	90.3	109	13.7		19.1
	Iprodione	81.9	82.2	82.3	92.3	0.324		11.5
	Malathion	86.6	75.1	76.2	83.0	14.3		8.50
	Metalaxyl	93.9	92.0	93.5	95.9	1.99		2.51
	Metolachlor	81.2	74.3	78.8	86.8	8.83		9.68
	Metribuzin	89.4	97.1	97.4	104	8.19		6.33
	Mevinphos	78.4	69.6	65.6	70.8	11.9		7.64
	Molinate	64.8	52.1	55.9	61.6	21.6		9.65
	Myclobutanil	91.0	87.2	88.4	95.9	4.34		8.16
	Naled	41.6	35.7	37.0	43.6	15.3		16.3
	Norflurazon	97.5	92.8	97.4	98.3	4.93		0.993
	Oxadiazon	86.6	83.6	91.5	93.4	3.54		2.05
	Oxyfluorfen	101	99.7	107	110	1.45		2.82
	Parathion Ethyl	86.7	81.7	82.2	91.3	5.95		10.5
	Parathion Methyl	96.5	95.8	95.7	96.6	0.727		0.892
	Pendimethalin	83.6	85.0	90.5	93.2	1.70		3.01
	Phorate	78.3	66.7	69.3	75.9	15.9		9.10
	Prodiamine	49.3	35.8	40.9	83.2	31.7		68.2
	Prometon	77.1	80.6	74.6	80.4	4.42		7.45
	Prometryn	82.1	81.4	83.6	91.1	0.817		8.56
	Pronamide	94.6	82.8	82.6	93.6	13.3		12.5
	Propiconazole	89.9	87.5	93.9	94.9	2.72		1.06
	Pyriproxyfen	95.5	92.1	95.2	102	3.61		7.17
	Simazine	101	88.3	92.2	96.7	13.1		2.51
	Sulfentrazone	53.5	58.7	86.3	96.3	9.16		11.0
	Tebuconazole	60.3	78.1	69.1	67.2	25.8		2.77
	Terbufos	77.4	71.5	75.6	80.3	7.93		6.04
	Terbuthylazine	91.1	86.8	86.6	95.8	4.85		10.1
EPA 8321B	2,4-D	127		130	149			13.6
	2,4,5-T	119		97.7	132			29.7
	Acesulfame K	150		193	160			18.7
	Acetaminophen	76.4		96.0	237			84.5
	Acetamiprid	94.3		106	109			2.55
	Afidopyropen	73.3		80.6	79.3			1.68
	AMPA	84.1		86.9	85.6			1.42
	Bentazon	37.3		33.0	41.8			17.0

Quality Assurance Report
Summary

Ref. Method	Analyte	LCS % Recovery	MS % Recovery		Precision		
					LCS	SMP	MS
EPA 8321B	Benzovindiflupyr	82.9	85.2	96.8			12.8
	Carbamazepine	85.9	84.5	95.2			11.0
	Clothianidin	97.4	120	129			7.28
	Dinotefuran	87.2	114	118			3.60
	Diuron	76.7	74.4	70.0			6.08
	Endothall	99.7	88.1	78.6			11.4
	Fenuron	98.2	112	122			8.32
	Fluridone	97.0	103	106			2.87
	Glufosinate	82.7	69.5	61.0			13.0
	Glyphosate	65.5	118	138			14.1
	Hydrocodone	93.0	115	125			8.23
	Ibuprofen	82.3	69.9	90.7			25.9
	Imazapyr	107	129	149			14.4
	Imidacloprid	107	149	185			19.2
	Linuron	70.9	89.4	94.7			5.80
	Mandestrobin	90.0	88.6	94.9			6.94
	MCPP	140	152	177			14.7
	Naproxen	99.3	90.5	99.2			9.23
	Primidone	75.4	108	112			2.91
	Pyraclostrobin	79.3	77.8	87.0			11.1
	Sucralose	99.5	95.1	103			7.10
	Thiamethoxam	101	146	170			15.5
	Tolfenpyrad	56.7	62.1	57.3			8.09
	Triclopyr	125	98.0	149			41.0
SM 2120 B-2011	Color (true)	98.1					
SM 2320 B-2011	Total Alkalinity	100				0.595	
SM 2540 C-2011	TDS					5.35	
SM 4500 F-C-2011	Fluoride	99.1	98.5	97.9			0.454
SM 5310 B-2011	Organic Carbon	96.3	99.4	99.1			0.197

Reference Method Descriptions

Method	Description	Associated Samples
EPA 180.1 Rev. 2.0	Turbidity in aqueous matrices	2240914
EPA 200.7 Rev. 4.4	Total Recoverable Metals analysis using ICP emission spectroscopy for aqueous samples supporting Clean Water Act Projects	2240932
EPA 200.8 Rev. 5.4	Total Recoverable Metals analysis using ICP-MS for aqueous samples supporting Clean Water Act Projects	2240932
EPA 300.0 Rev. 2.1	Chloride in aqueous matrices	2240914
EPA 300.0 Rev. 2.1	Sulfate in aqueous matrices	2240914
EPA 350.1 Rev. 2.0	Ammonia in aqueous matrices as mg N/L	2240915
EPA 351.2 Rev. 2.0	Total Kjeldahl Nitrogen in aqueous matrices	2240915
EPA 353.2 Rev. 2.0	Nitrite/Nitrate in aqueous matrices as mg N/L	2240915
EPA 365.1 Rev. 2.0	Total Phosphorus in aqueous matrices as mg P/L	2240915
EPA 365.1 Rev. 2.0 dissolved	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	2240916
EPA 8270E	Organonitrogen and phosphorus pesticides in water matrices by GC/MS/MS	2240934
EPA 8321B	Pesticides, herbicides, and other chemicals in water matrices by HPLC/MS/MS	2240919
EPA 8321B	Water soluble organic compounds by HPLC/MS/MS	2240919
SM 2120 B-2011	True Color measured at 450 nm (not valid for NPDES monitoring)	2240914
SM 2320 B-2011	Alkalinity in aqueous matrices as mg CaCO3/L	2240914
SM 2340B	Hardness by calculation, in aqueous matrices, reported as mg/L CaCO3	2240932
SM 2540 C-2011	Total Dissolved Solids in aqueous matrices	2240914

Reference Method Descriptions

Method	Description	Associated Samples
SM 2540 D-2011	Total Suspended Solids in aqueous matrices using a maximum of 250 mL of sample	2240914
SM 4500 F-C-2011	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	2240914
SM 5310 B-2011	Nonpurgeable Organic Carbon in aqueous matrices	2240915

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
EPA 180.1 Rev. 2.0	04/19/2021			04/20/2021 15:50	Yen Ta	2240914
EPA 200.7 Rev. 4.4	04/19/2021	04/26/2021 17:00	Elliott D. Healy	04/28/2021 07:31	Betina Topolski	2240932
	04/19/2021	04/26/2021 17:00	Elliott D. Healy	04/28/2021 22:37	Betina Topolski	2240932
	04/19/2021	04/26/2021 17:00	Elliott D. Healy	04/29/2021 12:24	Betina Topolski	2240932
EPA 200.8 Rev. 5.4	04/19/2021	04/26/2021 17:00	Elliott D. Healy	04/27/2021 16:28	McKinley C Carter	2240932
	04/19/2021	04/26/2021 17:00	Elliott D. Healy	05/05/2021 15:57	Alexander Thompson	2240932
	04/19/2021	05/06/2021 16:40	Elliott D. Healy	05/07/2021 18:15	McKinley C Carter	2240932
EPA 300.0 Rev. 2.1	04/19/2021			04/23/2021 16:55	Lipi Saha	2240914
EPA 350.1 Rev. 2.0	04/19/2021			05/01/2021 09:39	Ping Hua	2240915
EPA 351.2 Rev. 2.0	04/19/2021	04/23/2021 14:33	Benjamin T. Nordmann	04/27/2021 12:54	Virginia P. Brown	2240915
EPA 353.2 Rev. 2.0	04/19/2021			04/22/2021 11:59	Beverly Y. Sanders	2240915
EPA 365.1 Rev. 2.0	04/19/2021	04/21/2021 13:23	Yen Ta	04/23/2021 16:01	Shengyu Ding	2240915
EPA 365.1 Rev. 2.0 dissolved	04/19/2021			04/20/2021 14:32	Patrick M. Roche	2240916
EPA 8270E	04/19/2021	04/23/2021 08:00	Rasheda Ghaffari	04/27/2021 14:56	Michael Poppell	2240934
EPA 8321B	04/19/2021	04/20/2021 09:00	Hoor Shaik	04/30/2021 13:15	Juyoung Kim	2240919
	04/19/2021	04/20/2021 10:30	Rebecca Ware	04/20/2021 15:59	Rebecca Ware	2240919
	04/19/2021	04/20/2021 10:30	Rebecca Ware	04/28/2021 19:57	Rebecca Ware	2240919
SM 2120 B-2011	04/19/2021			04/20/2021 15:59	Madeline Gruver	2240914
SM 2320 B-2011	04/19/2021			04/23/2021 18:24	Dale L. Simmons	2240914
SM 2340B	04/19/2021			04/29/2021 12:24	Betina Topolski	2240932
SM 2540 C-2011	04/19/2021			04/23/2021 15:31	Yijie Li	2240914
SM 2540 D-2011	04/19/2021			04/23/2021 15:31	Yijie Li	2240914
SM 4500 F-C-2011	04/19/2021			04/21/2021 22:05	Dale L. Simmons	2240914
SM 5310 B-2011	04/19/2021			04/23/2021 20:30	Lauren Lees	2240915