

Chemical Analysis Report

WAS-SECT-2019-01-23-02

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-2019-01-14-07**
Customer: **WAS-SECT**
Project ID: **BMAP**

Send Reports to:
FL Dept. of Environmental Protection
2600 Blair Stone Rd
Tallahassee, FL 32399
Attn: Curtis Musson

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

Certified by: Kerry Tate, Ph.D., Environmental Administrator

Date Certified: 12-FEB-2019 11:48

A handwritten signature in black ink that reads "Kerry Tate". The signature is written in a cursive, flowing style with a horizontal line above the first name.

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 CR 365

Collection Date/Time: 01/23/2019 10:50

Field ID: 34879

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2056445	EPA 180.1 Rev. 2.0	Turbidity	1.7		NTU	P357797	
	EPA 300.0 Rev. 2.1	Chloride	8.3		mg Cl/L	P358034	
		Sulfate	9.4		mg SO4/L	P358035	
	SM 2120 B	Color (true)	20		PCU	P357803	
	SM 2320 B-97	Total Alkalinity	138		mg CaCO3/L	P358237	
	SM 2540 C-97	TDS	163	A	mg/L	P358051	
	SM 2540 D-97	TSS	4	IA	mg/L	P358063	
	SM 4500 F-C-97	Fluoride	0.12		mg F/L	P358241	
2056446	EPA 350.1 Rev. 2.0	Ammonia-N	0.006		mg N/L	P357944	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.12	I	mg N/L	P358151	MS
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.36		mg N/L	P357855	
	EPA 365.1 Rev. 2.0	Total-P	0.036		mg P/L	P357787	
	SM 5310 B-00	Organic Carbon	2.1		mg C/L	P357910	
2056447	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.027		mg P/L	P357731	
2056450	EPA 8321B	2,4-D	0.0020	U	ug/L	P357299	
		Sucralose**	0.042		ug/L	P357752	
		Bentazon	8.0E-04	U	ug/L	P357299	
		MCP	0.0020	U	ug/L	P357299	
		Triclopyr**	0.0040	U	ug/L	P357299	
		Imidacloprid	0.0020	U	ug/L	P357299	MS
		Diuron	0.0020	U	ug/L	P357299	
		Pyraclostrobin**	0.0020	U	ug/L	P357299	
		Primidone**	0.0040	U	ug/L	P357299	
		Linuron	0.0040	U	ug/L	P357299	
		Acetaminophen**	0.0080	U	ug/L	P357299	
		Fenuron	0.016	U	ug/L	P357299	
		Imazapyr**	0.0042	I	ug/L	P357299	
		Carbamazepine**	8.0E-04	U	ug/L	P357299	
		Fluridone**	8.0E-04	U	ug/L	P357299	
		Hydrocodone**	0.0020	U	ug/L	P357299	
		Naproxen**	0.0080	U	ug/L	P357299	
		Ibuprofen**	0.020	U	ug/L	P357299	
		Glyphosate**	0.10	U	ug/L	P357752	
		AMPA**	0.10	U	ug/L	P357752	
		Endothall**	0.25	U	ug/L	P357752	
		Glufosinate**	0.10	U	ug/L	P357752	
		Acesulfame K**	0.10	U	ug/L	P357752	
2056451	EPA 200.7 Rev. 4.4	Barium	11.2		ug/L	P357907	
		Calcium	48.6		mg/L	P357907	
		Iron	42	I	ug/L	P357907	
		Magnesium	9.55		mg/L	P357907	
		Potassium	0.58	I	mg/L	P357907	
		Sodium	5.5		mg/L	P357907	

Field ID: 34879

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2056451	EPA 200.7 Rev. 4.4	Zinc	5.0	U	ug/L	P357907	
	EPA 200.8 Rev. 5.4	Aluminum	47		ug/L	P357907	
		Antimony	0.050	U	ug/L	P357907	
		Arsenic	0.66		ug/L	P357907	
		Boron**	17.1		ug/L	P357907	
		Cadmium	0.029	I	ug/L	P357907	
		Chromium	1.0	I	ug/L	P357907	
		Copper	0.40	U	ug/L	P357907	
		Lead	0.20	U	ug/L	P357907	
		Nickel	0.50	U	ug/L	P357907	
		Selenium	0.50	I	ug/L	P357907	
		Silver	0.010	U	ug/L	P357907	
		Thallium	0.10	U	ug/L	P357907	
2056452	EPA 8270D	Acetochlor	0.26	U	ng/L	P357819	
		Alachlor	0.26	U	ng/L	P357819	
		Ametryn	0.63	U	ng/L	P357819	
		Atrazine	1.6		ng/L	P357819	
		Atrazine Desethyl	1.7	I	ng/L	P357819	
		Azinphos Methyl	2.4	U	ng/L	P357819	
		Bromacil	0.53	U	ng/L	P357819	
		Butylate	0.42	U	ng/L	P357819	
		Chlorpyrifos Ethyl	0.26	U	ng/L	P357819	
		Chlorpyrifos Methyl	0.11	U	ng/L	P357819	
		Cyanazine	3.4	U	ng/L	P357819	
		Demeton	7.4	U	ng/L	P357819	
		Diazinon	0.13	U	ng/L	P357819	
		Dimethenamid**	0.11	U	ng/L	P357819	
		Disulfoton	0.53	U	ng/L	P357819	
		Dithiopyr**	0.11	U	ng/L	P357819	
		EPTC	1.3	U	ng/L	P357819	
		Ethion	0.16	U	ng/L	P357819	
		Ethoprop	0.11	U	ng/L	P357819	
		Fenamiphos	0.53	U	ng/L	P357819	
		Fipronil	0.26	U	ng/L	P357819	
		Fipronil Desulfinyl**	0.13	U	ng/L	P357819	MS
		Fipronil Sulfide	0.16	U	ng/L	P357819	
		Fipronil Sulfone	0.16	U	ng/L	P357819	
		Fonofos	0.21	U	ng/L	P357819	
		Hexazinone	1.0	I	ng/L	P357819	
		Malathion	0.37	U	ng/L	P357819	
		Metalaxyl	0.26	U	ng/L	P357819	
		Metolachlor	0.53	U	ng/L	P357819	
		Metribuzin	0.79	UJ	ng/L	P357819	CCV
		Mevinphos	0.53	U	ng/L	P357819	
		Molinate	0.32	U	ng/L	P357819	

Field ID: 34879

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2056452	EPA 8270D	Norflurazon	0.53	U	ng/L	P357819	
		Oxadiazon**	0.11	U	ng/L	P357819	
		Parathion Ethyl	0.26	U	ng/L	P357819	
		Parathion Methyl	0.58	U	ng/L	P357819	
		Pendimethalin	1.1	U	ng/L	P357819	
		Phorate	0.26	U	ng/L	P357819	
		Prodiamine**	0.18	U	ng/L	P357819	
		Prometon	0.95	U	ng/L	P357819	
		Prometryn	0.21	U	ng/L	P357819	
		Simazine	38		ng/L	P357819	
		Tebuconazole**	0.53	U	ng/L	P357819	RPD
		Terbufos	0.11	U	ng/L	P357819	
		Terbuthylazine	0.45	U	ng/L	P357819	

Ref. Method and Comment:

SM 2540 D-97: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample.

SM 4500 F-C-97: Batch matrix spike recoveries are unavailable because of high analyte concentration in the QC sample.

EPA 8270D: MS accuracy for Simazine not assessed due to high content of this parameter in the sample spiked. Refer to the narrative for an explanation of QC Codes.

Quality Assurance Report

Method Blank Results

Reference Method: EPA 180.1 Rev. 2.0

Batch ID: P357797

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 200.7 Rev. 4.4

Batch ID: P357907

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: P357907

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 300.0 Rev. 2.1

Batch ID: P358034

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1

Batch ID: P358035

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 350.1 Rev. 2.0

Batch ID: P357944

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

Quality Assurance Report

Method Blank Results

Reference Method: EPA 351.2 Rev. 2.0

Batch ID: P358151

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

Reference Method: EPA 353.2 Rev. 2.0

Batch ID: P357855

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

Reference Method: EPA 365.1 Rev. 2.0

Batch ID: P357787

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved

Batch ID: P357731

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

Reference Method: EPA 8270D

Batch ID: P357819

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	2.2	U	ng/L
Bromacil	0.50	U	ng/L
Butylate	0.40	U	ng/L
Chlorpyrifos Ethyl	0.25	U	ng/L
Chlorpyrifos Methyl	0.10	U	ng/L
Cyanazine	3.2	U	ng/L
Demeton	7.0	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
Fipronil Sulfide	0.15	U	ng/L
Fipronil Sulfone	0.15	U	ng/L
Fonofos	0.20	U	ng/L
Hexazinone	0.50	U	ng/L
Malathion	0.35	U	ng/L
Metalaxyl	0.25	U	ng/L

Quality Assurance Report

Method Blank Results

Reference Method: EPA 8270D

Batch ID: P357819

Component	Result	Code	Units
Metolachlor	0.50	U	ng/L
Metribuzin	0.75	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
Simazine	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: P357299

Component	Result	Code	Units
2,4-D	0.0020	U	ug/L
Acetaminophen	0.0080	U	ug/L
Bentazon	8.0E-04	U	ug/L
Carbamazepine	8.0E-04	U	ug/L
Diuron	0.0020	U	ug/L
Fenuron	0.016	U	ug/L
Fluridone	8.0E-04	U	ug/L
Hydrocodone	0.0020	U	ug/L
Ibuprofen	0.020	U	ug/L
Imazapyr	0.0040	U	ug/L
Imidacloprid	0.0020	U	ug/L
Linuron	0.0040	U	ug/L
MCPP	0.0020	U	ug/L
Naproxen	0.0080	U	ug/L
Primidone	0.0040	U	ug/L
Pyraclostrobin	0.0020	U	ug/L
Triclopyr	0.0040	U	ug/L

Reference Method: EPA 8321B

Batch ID: P357752

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

Method Blank Results

Reference Method: SM 2120 B
Batch ID: P357803

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2320 B-97
Batch ID: P358237

Component	Result	Code	Units
Total Alkalinity	0.65	U	mg CaCO ₃ /L

Reference Method: SM 2540 C-97
Batch ID: P358051

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P358063

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500 F-C-97
Batch ID: P358241

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-00
Batch ID: P357910

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: P357907

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Barium	104		P	85 - 115
Calcium	105		P	85 - 115
Iron	107		P	85 - 115
Magnesium	104		P	85 - 115
Potassium	108		P	85 - 115
Sodium	103		P	85 - 115
Zinc	102		P	85 - 115

Reference Method: EPA 200.8 Rev. 5.4

Batch ID: P357907

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Aluminum	103		P	85 - 115
Antimony	101		P	85 - 115
Arsenic	106		P	85 - 115
Boron	105		P	85 - 115
Cadmium	103		P	85 - 115
Chromium	104		P	85 - 115
Copper	103		P	85 - 115
Lead	105		P	85 - 115
Nickel	103		P	85 - 115
Selenium	103		P	85 - 115
Silver	102		P	85 - 115
Thallium	102		P	85 - 115

Reference Method: EPA 300.0 Rev. 2.1

Batch ID: P358034

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

Reference Method: EPA 300.0 Rev. 2.1

Batch ID: P358035

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

Reference Method: EPA 350.1 Rev. 2.0

Batch ID: P357944

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

Reference Method: EPA 351.2 Rev. 2.0

Batch ID: P358151

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Kjeldahl Nitrogen	105		P	90 - 110

Quality Assurance Report

Laboratory Control Sample Accuracy

Reference Method: EPA 353.2 Rev. 2.0

Batch ID: P357855

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: P357787

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: P357731

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
O-Phosphate-P	98.0		P	90 - 110

Reference Method: EPA 8270D

Batch ID: P357819

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Acetochlor	87.1	85.0	P/P	71 - 121
Alachlor	88.7	83.8	P/P	72 - 119
Ametryn	93.6	93.2	P/P	47 - 144
Atrazine	94.6	91.0	P/P	75 - 123
Atrazine Desethyl	67.8	64.1	P/P	45 - 133
Azinphos Methyl	105	89.3	P/P	66 - 165
Bromacil	79.8	76.8	P/P	43 - 123
Butylate	59.5	51.8	P/P	27 - 83.0
Chlorpyrifos Ethyl	97.8	84.8	P/P	70 - 117
Chlorpyrifos Methyl	85.4	76.9	P/P	71 - 120
Cyanazine	75.3	70.4	P/P	34 - 264
Demeton	74.3	62.5	P/P	41 - 122
Diazinon	85.2	77.8	P/P	70 - 127
Dimethenamid	86.7	85.6	P/P	60 - 130
Disulfoton	86.7	75.0	P/P	56 - 127
Dithiopyr	90.5	87.8	P/P	60 - 130
EPTC	61.3	54.2	P/P	24 - 84.0
Ethion	98.8	96.8	P/P	53 - 132
Ethoprop	82.5	76.5	P/P	57 - 117
Fenamiphos	97.1	90.4	P/P	55 - 136
Fipronil	89.1	90.8	P/P	64 - 126
Fipronil Desulfinyl	80.5	83.1	P/P	60 - 130
Fipronil Sulfide	92.9	91.2	P/P	57 - 120
Fipronil Sulfone	89.6	90.1	P/P	52 - 115
Fonofos	78.8	72.1	P/P	61 - 121
Hexazinone	103	98.4	P/P	62 - 131
Malathion	97.5	88.6	P/P	67 - 126
Metalaxyl	86.6	77.2	P/P	54 - 128
Metolachlor	90.6	88.0	P/P	71 - 118
Metribuzin	91.3	77.6	P/P	42 - 221
Mevinphos	84.0	72.5	P/P	45 - 114
Molinate	67.2	61.0	P/P	33 - 91.0
Norflurazon	89.4	86.7	P/P	60 - 123
Oxadiazon	94.7	95.4	P/P	60 - 130

Quality Assurance Report

Laboratory Control Sample Accuracy

Reference Method: EPA 8270D

Batch ID: P357819

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Parathion Ethyl	91.4	84.3	P/P	73 - 111
Parathion Methyl	98.7	90.2	P/P	74 - 126
Pendimethalin	85.1	83.4	P/P	63 - 131
Phorate	75.8	66.1	P/P	54 - 115
Prodiamine	91.8	80.8	P/P	60 - 130
Prometon	84.5	82.8	P/P	61 - 120
Prometryn	92.1	88.3	P/P	62 - 126
Simazine	103	98.0	P/P	75 - 126
Tebuconazole	85.8	84.0	P/P	30 - 100
Terbufos	80.0	70.7	P/P	65 - 116
Terbuthylazine	91.8	89.1	P/P	73 - 117

Reference Method: EPA 8321B

Batch ID: P357299

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2,4-D	85.7		P	40 - 150
Acetaminophen	94.2		P	30 - 150
Bentazon	78.9		P	30 - 150
Carbamazepine	90.0		P	40 - 150
Diuron	73.5		P	40 - 150
Fenuron	105		P	40 - 150
Fluridone	100		P	40 - 150
Hydrocodone	99.5		P	40 - 150
Ibuprofen	71.3		P	40 - 150
Imazapyr	83.3		P	40 - 150
Imidacloprid	102		P	40 - 160
Linuron	81.1		P	40 - 150
MCPP	105		P	40 - 150
Naproxen	69.3		P	40 - 150
Primidone	99.9		P	40 - 150
Pyraclostrobin	69.7		P	40 - 150
Triclopyr	56.8		P	40 - 150

Reference Method: EPA 8321B

Batch ID: P357752

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Acesulfame K	87.0		P	40 - 150
AMPA	101		P	40 - 150
Endothall	97.4		P	40 - 150
Glufosinate	95.1		P	40 - 150
Glyphosate	90.8		P	40 - 140
Sucralose	79.4		P	40 - 150

Reference Method: SM 2120 B

Batch ID: P357803

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Color (true)	101		P	85 - 115

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: SM 2320 B-97
Batch ID: P358237

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	101		P	98 - 107

Reference Method: SM 4500 F-C-97
Batch ID: P358241

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	96.7		P	91 - 105

Reference Method: SM 5310 B-00
Batch ID: P357910

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	100		P	85 - 115

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 200.7 Rev. 4.4

Batch ID: P357907

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2055992	Barium	101		P	80 - 120
2055992	Calcium	99.4		P	80 - 120
2055992	Iron	106		P	80 - 120
2055992	Magnesium	102		P	80 - 120
2055992	Potassium	106		P	80 - 120
2055992	Sodium	97.9		P	80 - 120
2055992	Zinc	101		P	80 - 120
2056739	Barium	103	104	P/P	80 - 120
2056739	Calcium	102		P	80 - 120
2056739	Iron	105	108	P/P	80 - 120
2056739	Magnesium	101		P	80 - 120
2056739	Potassium	109	112	P/P	80 - 120
2056739	Sodium	103		P	80 - 120
2056739	Zinc	101	103	P/P	80 - 120

Reference Method: EPA 200.8 Rev. 5.4

Batch ID: P357907

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2055992	Aluminum	100		P	80 - 120
2055992	Antimony	103		P	80 - 120
2055992	Arsenic	107		P	80 - 120
2055992	Boron	102		P	80 - 120
2055992	Cadmium	104		P	80 - 120
2055992	Chromium	102		P	80 - 120
2055992	Copper	99.6		P	80 - 120
2055992	Lead	104		P	80 - 120
2055992	Nickel	102		P	80 - 120
2055992	Selenium	103		P	80 - 120
2055992	Silver	101		P	80 - 120
2055992	Thallium	105		P	80 - 120
2056739	Aluminum	100	102	P/P	80 - 120
2056739	Antimony	102	104	P/P	80 - 120
2056739	Arsenic	106	107	P/P	80 - 120
2056739	Boron	105	105	P/P	80 - 120
2056739	Cadmium	103	106	P/P	80 - 120
2056739	Chromium	102	103	P/P	80 - 120
2056739	Copper	98.6	101	P/P	80 - 120
2056739	Lead	103	105	P/P	80 - 120
2056739	Nickel	99.0	100	P/P	80 - 120
2056739	Selenium	102	102	P/P	80 - 120
2056739	Silver	102	104	P/P	80 - 120
2056739	Thallium	101	104	P/P	80 - 120

Reference Method: EPA 300.0 Rev. 2.1

Batch ID: P358034

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2056361	Chloride	97.8		P	90 - 110
2056423	Chloride	94.2		P	90 - 110

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P358035

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2056361	Sulfate	100		P	90 - 110
2056423	Sulfate	100		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P357944

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2056426	Ammonia-N	102	103	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P358151

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2056426	Kjeldahl Nitrogen	113	111	F/F	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P357855

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2056406	NO2NO3-N	99.8	99.8	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P357787

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2056425	Total-P	106	106	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P357731

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2056363	O-Phosphate-P	94.6	97.0	P/P	90 - 110

Reference Method: EPA 8270D
Batch ID: P357819

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2056368	Acetochlor	73.2	95.8	P/P	63 - 129
2056368	Alachlor	73.3	91.0	P/P	65 - 127
2056368	Ametryn	70.9	90.8	P/P	40 - 164
2056368	Atrazine	68.0	99.6	P/P	66 - 135
2056368	Atrazine Desethyl	53.8	72.9	P/P	14 - 157
2056368	Azinphos Methyl	90.0	106	P/P	49 - 180
2056368	Bromacil	58.9	77.0	P/P	48 - 130
2056368	Butylate	47.5	59.2	P/P	10 - 94.0
2056368	Chlorpyrifos Ethyl	76.1	91.3	P/P	58 - 123
2056368	Chlorpyrifos Methyl	71.7	91.5	P/P	58 - 125
2056368	Cyanazine	67.8	86.1	P/P	24 - 253
2056368	Demeton	68.6	83.4	P/P	25 - 149
2056368	Diazinon	71.9	93.6	P/P	59 - 144
2056368	Dimethenamid	74.9	94.0	P/P	60 - 130
2056368	Disulfoton	73.8	92.0	P/P	54 - 132

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 8270D

Batch ID: P357819

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2056368	Dithiopyr	76.0	92.6	P/P	60 - 130
2056368	EPTC	47.8	61.0	P/P	10 - 92.0
2056368	Ethion	58.1	68.4	P/P	30 - 148
2056368	Ethoprop	69.6	86.7	P/P	50 - 130
2056368	Fenamiphos	68.4	88.0	P/P	49 - 142
2056368	Fipronil	61.0	82.2	P/P	46 - 140
2056368	Fipronil Desulfinyl	53.9	70.1	F/P	60 - 130
2056368	Fipronil Sulfide	56.0	74.8	P/P	31 - 136
2056368	Fipronil Sulfone	65.0	87.7	P/P	16 - 136
2056368	Fonofos	65.8	85.7	P/P	55 - 129
2056368	Hexazinone	68.3	85.3	P/P	56 - 141
2056368	Malathion	71.5	83.5	P/P	56 - 135
2056368	Metalaxyl	67.7	88.9	P/P	54 - 135
2056368	Metolachlor	73.4	92.7	P/P	51 - 140
2056368	Metribuzin	96.2	130	P/P	45 - 254
2056368	Mevinphos	76.3	80.4	P/P	33 - 131
2056368	Molinate	54.6	70.0	P/P	14 - 98.0
2056368	Norflurazon	65.2	83.5	P/P	34 - 136
2056368	Oxadiazon	69.6	85.1	P/P	60 - 130
2056368	Parathion Ethyl	66.8	83.9	P/P	66 - 118
2056368	Parathion Methyl	92.6	107	P/P	64 - 136
2056368	Pendimethalin	73.3	89.1	P/P	59 - 144
2056368	Phorate	79.2	86.4	P/P	42 - 130
2056368	Prodiamine	62.9	75.4	P/P	60 - 130
2056368	Prometon	65.3	81.0	P/P	59 - 134
2056368	Prometryn	64.3	82.9	P/P	54 - 135
2056368	Tebuconazole	42.0	59.9	P/P	30 - 100
2056368	Terbufos	71.6	87.0	P/P	57 - 131
2056368	Terbutylazine	70.5	90.4	P/P	68 - 125

Reference Method: EPA 8321B

Batch ID: P357299

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2055519	2,4-D	86.1	86.3	P/P	40 - 150
2055519	Acetaminophen	119	118	P/P	30 - 150
2055519	Bentazon	65.6	61.7	P/P	30 - 150
2055519	Carbamazepine	92.0	86.8	P/P	40 - 150
2055519	Diuron	74.1	68.7	P/P	40 - 150
2055519	Fenuron	102	97.5	P/P	40 - 150
2055519	Fluridone	112	99.0	P/P	40 - 150
2055519	Hydrocodone	117	110	P/P	40 - 150
2055519	Ibuprofen	73.8	72.9	P/P	40 - 150
2055519	Imazapyr	120	117	P/P	40 - 150
2055519	Imidacloprid	163	152	F/P	40 - 160
2055519	Linuron	77.1	71.1	P/P	40 - 150
2055519	MCPP	114	112	P/P	40 - 150
2055519	Naproxen	64.6	53.1	P/P	40 - 150
2055519	Primidone	106	98.6	P/P	40 - 150
2055519	Pyraclostrobin	73.2	69.1	P/P	40 - 150
2055519	Triclopyr	62.4	58.3	P/P	40 - 150

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 8321B
Batch ID: P357752

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2055989	Acesulfame K	76.1	68.6	P/P	40 - 150
2055989	AMPA	93.5	99.0	P/P	40 - 150
2055989	Endothall	103	91.1	P/P	40 - 150
2055989	Glufosinate	78.0	81.6	P/P	40 - 150
2055989	Glyphosate	83.4	83.5	P/P	40 - 140
2055989	Sucralose	79.9	71.6	P/P	40 - 150

Reference Method: SM 5310 B-00
Batch ID: P357910

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2056386	Organic Carbon	97.0		P	85 - 115

Quality Assurance Report

Precision

Reference Method: EPA 180.1 Rev. 2.0

Batch ID: P357797

Replicated

Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2056455	Turbidity	0.0	Sample	P	0 - 20

Reference Method: EPA 200.7 Rev. 4.4

Batch ID: P357907

Replicated

Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2056739	Barium	1.06	Spike	P	0 - 20
2056739	Calcium	0.834	Spike	P	0 - 20
2056739	Iron	2.51	Spike	P	0 - 20
2056739	Magnesium	2.38	Spike	P	0 - 20
2056739	Potassium	1.83	Spike	P	0 - 20
2056739	Sodium	0.673	Spike	P	0 - 20
2056739	Zinc	2.07	Spike	P	0 - 20

Reference Method: EPA 200.8 Rev. 5.4

Batch ID: P357907

Replicated

Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2056739	Aluminum	1.58	Spike	P	0 - 20
2056739	Antimony	1.28	Spike	P	0 - 20
2056739	Arsenic	1.16	Spike	P	0 - 20
2056739	Boron	0.452	Spike	P	0 - 20
2056739	Cadmium	2.20	Spike	P	0 - 20
2056739	Chromium	1.14	Spike	P	0 - 20
2056739	Copper	2.13	Spike	P	0 - 20
2056739	Lead	2.18	Spike	P	0 - 20
2056739	Nickel	1.20	Spike	P	0 - 20
2056739	Selenium	0.807	Spike	P	0 - 20
2056739	Silver	1.35	Spike	P	0 - 20
2056739	Thallium	3.18	Spike	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1

Batch ID: P358034

Replicated

Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2056361	Chloride	1.18	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1

Batch ID: P358035

Replicated

Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2056361	Sulfate	1.63	Sample	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P357944

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2056426	Ammonia-N	0.723	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P358151

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2056426	Kjeldahl Nitrogen	1.73	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P357855

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2056406	NO2NO3-N	0.0	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P357787

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2056425	Total-P	0.309	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P357731

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2056363	O-Phosphate-P	1.97	Spike	P	0 - 20

Reference Method: EPA 8270D
Batch ID: P357819

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2056368	Acetochlor	26.7	Spike	P	0 - 30
2056368	Alachlor	21.5	Spike	P	0 - 30
2056368	Ametryn	24.7	Spike	P	0 - 30
2056368	Atrazine	24.8	Spike	P	0 - 30
2056368	Atrazine Desethyl	25.7	Spike	P	0 - 30
2056368	Azinphos Methyl	15.9	Spike	P	0 - 30
2056368	Bromacil	26.6	Spike	P	0 - 30
2056368	Butylate	22.0	Spike	P	0 - 30
2056368	Chlorpyrifos Ethyl	18.2	Spike	P	0 - 30
2056368	Chlorpyrifos Methyl	24.3	Spike	P	0 - 30
2056368	Cyanazine	23.8	Spike	P	0 - 30
2056368	Demeton	19.5	Spike	P	0 - 30
2056368	Diazinon	26.2	Spike	P	0 - 30
2056368	Dimethenamid	22.6	Spike	P	0 - 30
2056368	Disulfoton	22.0	Spike	P	0 - 30
2056368	Dithiopyr	19.7	Spike	P	0 - 30

Quality Assurance Report

Precision

Reference Method: EPA 8270D

Batch ID: P357819

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2056368	EPTC	24.3	Spike	P	0 - 30
2056368	Ethion	16.2	Spike	P	0 - 30
2056368	Ethoprop	21.9	Spike	P	0 - 30
2056368	Fenamiphos	25.0	Spike	P	0 - 30
2056368	Fipronil	29.5	Spike	P	0 - 30
2056368	Fipronil Desulfinyl	26.1	Spike	P	0 - 30
2056368	Fipronil Sulfide	28.6	Spike	P	0 - 30
2056368	Fipronil Sulfone	29.8	Spike	P	0 - 30
2056368	Fonofos	26.3	Spike	P	0 - 30
2056368	Hexazinone	20.1	Spike	P	0 - 30
2056368	Malathion	15.5	Spike	P	0 - 30
2056368	Metalaxyl	27.1	Spike	P	0 - 30
2056368	Metolachlor	23.2	Spike	P	0 - 30
2056368	Metribuzin	29.8	Spike	P	0 - 30
2056368	Mevinphos	5.18	Spike	P	0 - 30
2056368	Molinate	24.7	Spike	P	0 - 30
2056368	Norflurazon	24.6	Spike	P	0 - 30
2056368	Oxadiazon	20.1	Spike	P	0 - 30
2056368	Parathion Ethyl	22.6	Spike	P	0 - 30
2056368	Parathion Methyl	14.9	Spike	P	0 - 30
2056368	Pendimethalin	19.4	Spike	P	0 - 30
2056368	Phorate	8.72	Spike	P	0 - 30
2056368	Prodiamine	18.1	Spike	P	0 - 30
2056368	Prometon	21.4	Spike	P	0 - 30
2056368	Prometryn	25.2	Spike	P	0 - 30
2056368	Simazine	23.6	Spike	P	0 - 30
2056368	Tebuconazole	35.2	Spike	F	0 - 30
2056368	Terbufos	19.4	Spike	P	0 - 30
2056368	Terbutylazine	24.7	Spike	P	0 - 30
LFB	Acetochlor	2.43	LCS	P	0 - 30
LFB	Alachlor	5.60	LCS	P	0 - 30
LFB	Ametryn	0.431	LCS	P	0 - 30
LFB	Atrazine	3.90	LCS	P	0 - 30
LFB	Atrazine Desethyl	5.60	LCS	P	0 - 30
LFB	Azinphos Methyl	16.6	LCS	P	0 - 30
LFB	Bromacil	3.94	LCS	P	0 - 30
LFB	Butylate	13.9	LCS	P	0 - 30
LFB	Chlorpyrifos Ethyl	14.2	LCS	P	0 - 30
LFB	Chlorpyrifos Methyl	10.5	LCS	P	0 - 30
LFB	Cyanazine	6.78	LCS	P	0 - 30
LFB	Demeton	17.2	LCS	P	0 - 30
LFB	Diazinon	8.97	LCS	P	0 - 30
LFB	Dimethenamid	1.24	LCS	P	0 - 30
LFB	Disulfoton	14.5	LCS	P	0 - 30
LFB	Dithiopyr	3.00	LCS	P	0 - 30
LFB	EPTC	12.4	LCS	P	0 - 30
LFB	Ethion	2.01	LCS	P	0 - 30
LFB	Ethoprop	7.66	LCS	P	0 - 30
LFB	Fenamiphos	7.18	LCS	P	0 - 30
LFB	Fipronil	1.92	LCS	P	0 - 30
LFB	Fipronil Desulfinyl	3.19	LCS	P	0 - 30

Quality Assurance Report

Precision

Reference Method: EPA 8270D

Batch ID: P357819

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
LFB	Fipronil Sulfide	1.88	LCS	P	0 - 30
LFB	Fipronil Sulfone	0.640	LCS	P	0 - 30
LFB	Fonofos	8.84	LCS	P	0 - 30
LFB	Hexazinone	4.54	LCS	P	0 - 30
LFB	Malathion	9.52	LCS	P	0 - 30
LFB	Metalaxyl	11.4	LCS	P	0 - 30
LFB	Metolachlor	3.01	LCS	P	0 - 30
LFB	Metribuzin	16.2	LCS	P	0 - 30
LFB	Mevinphos	14.8	LCS	P	0 - 30
LFB	Molinate	9.60	LCS	P	0 - 30
LFB	Norflurazon	3.10	LCS	P	0 - 30
LFB	Oxadiazon	0.750	LCS	P	0 - 30
LFB	Parathion Ethyl	8.12	LCS	P	0 - 30
LFB	Parathion Methyl	9.05	LCS	P	0 - 30
LFB	Pendimethalin	2.01	LCS	P	0 - 30
LFB	Phorate	13.7	LCS	P	0 - 30
LFB	Prodiamine	12.8	LCS	P	0 - 30
LFB	Prometon	2.02	LCS	P	0 - 30
LFB	Prometryn	4.22	LCS	P	0 - 30
LFB	Simazine	5.40	LCS	P	0 - 30
LFB	Tebuconazole	2.17	LCS	P	0 - 30
LFB	Terbufos	12.3	LCS	P	0 - 30
LFB	Terbuthylazine	2.92	LCS	P	0 - 30

Reference Method: EPA 8321B

Batch ID: P357299

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2055519	2,4-D	0.322	Spike	P	0 - 30
2055519	Acetaminophen	0.985	Spike	P	0 - 30
2055519	Bentazon	5.53	Spike	P	0 - 30
2055519	Carbamazepine	5.17	Spike	P	0 - 30
2055519	Diuron	7.22	Spike	P	0 - 30
2055519	Fenuron	4.98	Spike	P	0 - 30
2055519	Fluridone	11.9	Spike	P	0 - 30
2055519	Hydrocodone	6.16	Spike	P	0 - 30
2055519	Ibuprofen	1.21	Spike	P	0 - 30
2055519	Imazapyr	1.54	Spike	P	0 - 30
2055519	Imidacloprid	6.58	Spike	P	0 - 30
2055519	Linuron	8.13	Spike	P	0 - 30
2055519	MCP	2.06	Spike	P	0 - 30
2055519	Naproxen	19.6	Spike	P	0 - 30
2055519	Primidone	7.45	Spike	P	0 - 30
2055519	Pyraclostrobin	5.78	Spike	P	0 - 30
2055519	Triclopyr	6.88	Spike	P	0 - 30

Quality Assurance Report Precision

Reference Method: EPA 8321B
 Batch ID: P357752

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2055989	Acesulfame K	9.79	Spike	P	0 - 30
2055989	AMPA	4.28	Spike	P	0 - 30
2055989	Endothall	12.4	Spike	P	0 - 30
2055989	Glufosinate	4.47	Spike	P	0 - 30
2055989	Glyphosate	0.0757	Spike	P	0 - 30
2055989	Sucralose	9.69	Spike	P	0 - 30

Reference Method: SM 2120 B
 Batch ID: P357803

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2056455	Color (true)	0.147	Sample	P	0 - 20

Reference Method: SM 2320 B-97
 Batch ID: P358237

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2056730	Total Alkalinity	0.448	Sample	P	0 - 1.6

Reference Method: SM 2540 C-97
 Batch ID: P358051

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2056445	TDS	2.45	Sample	P	0 - 10

Reference Method: SM 4500 F-C-97
 Batch ID: P358241

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2056730	Fluoride	0.477	Spike	P	0 - 3.5

Reference Method: SM 5310 B-00
 Batch ID: P357910

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2056386	Organic Carbon	0.626	Spike	P	0 - 20

* Sample, spike and/or laboratory control sample precision (LCS) is reported.
 Replicate spike precision may be reported when sample results are below quantifiable levels.

Quality Assurance Report Surrogates

Lab Sample ID: 2056450**Field Sample ID: 34879**

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	2,4-D-d3	76.4	P	30 - 160
EPA 8321B	Acetaminophen-d4	99.8	P	30 - 160
EPA 8321B	Carbamazepine-d10	84.7	P	30 - 160
EPA 8321B	Diuron-d6	88.4	P	30 - 160
EPA 8321B	Endothall-d6	71.6	P	40 - 160
EPA 8321B	Endothall-d6	71.6	P	40 - 160
EPA 8321B	Glyphosate 13C 15N	48.6	P	40 - 160
EPA 8321B	Glyphosate 13C 15N	48.6	P	40 - 160
EPA 8321B	Ibuprofen-d3	59.4	P	30 - 160
EPA 8321B	Primidone-d5	103	P	30 - 160
EPA 8321B	Sucralose-d6	81.8	P	40 - 160
EPA 8321B	Sucralose-d6	81.8	P	40 - 160

Lab Sample ID: 2056452**Field Sample ID: 34879**

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8270D	Simazine-d10	113	P	68 - 130
EPA 8270D	Terbufos-d10	109	P	61 - 136

Quality Assurance Report Calibration Verification

Reference Method: EPA 365.1 Rev. 2.0 dissolved

Run ID: A88975

Included Lab Sample IDs: 2056447

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	97.9	98.7	P/P	90 - 110

Reference Method: EPA 180.1 Rev. 2.0

Run ID: A89003

Included Lab Sample IDs: 2056445

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Turbidity	99.5	100	P/P	95 - 105

Reference Method: SM 2120 B

Run ID: A89005

Included Lab Sample IDs: 2056445

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	101	101	P/P	90 - 115

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A89022

Included Lab Sample IDs: 2056446

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

Reference Method: SM 5310 B-00

Run ID: A89043

Included Lab Sample IDs: 2056446

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	99.6	101	P/P	90 - 110

Reference Method: EPA 8321B

Run ID: A89044

Included Lab Sample IDs: 2056450

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
2,4-D	82.8	80.8	P/P	50 - 150
Acetaminophen	115	115	P/P	60 - 160
Bentazon	103	104	P/P	50 - 160
Carbamazepine	98.3	104	P/P	60 - 150
Diuron	106	105	P/P	60 - 150
Fenuron	107	109	P/P	60 - 150
Fluridone	111	114	P/P	60 - 160
Hydrocodone	109	103	P/P	60 - 150
Ibuprofen	99.8	93.7	P/P	50 - 160
Imazapyr	99.1	97.3	P/P	50 - 150
Imidacloprid	100	102	P/P	60 - 150
Linuron	116	115	P/P	60 - 150
MCPP	86.3	87.9	P/P	50 - 150
Naproxen	76.4	98.6	P/P	50 - 160
Primidone	104	104	P/P	60 - 150
Pyraclostrobin	106	103	P/P	60 - 150

Quality Assurance Report Calibration Verification

Reference Method: EPA 8321B
Run ID: A89044
Included Lab Sample IDs: 2056450

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Triclopyr	92.2	90.2	P/P	50 - 150

Reference Method: EPA 365.1 Rev. 2.0
Run ID: A89052
Included Lab Sample IDs: 2056446

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

Reference Method: EPA 8321B
Run ID: A89056
Included Lab Sample IDs: 2056450

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
AMPA	117	150	P/P	60 - 160
Glufosinate	90.6	102	P/P	60 - 160
Glyphosate	86.8	104	P/P	60 - 160

Reference Method: EPA 8321B
Run ID: A89057
Included Lab Sample IDs: 2056450

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Acesulfame K	89.7	72.1	P/P	60 - 160
Endothall	80.3	110	P/P	60 - 160

Reference Method: EPA 350.1 Rev. 2.0
Run ID: A89059
Included Lab Sample IDs: 2056446

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

Reference Method: EPA 300.0 Rev. 2.1
Run ID: A89089
Included Lab Sample IDs: 2056445

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	101	103	P/P	90 - 110
Sulfate	102	105	P/P	90 - 110

Reference Method: EPA 200.7 Rev. 4.4
Run ID: A89104
Included Lab Sample IDs: 2056451

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Barium	99.1	100	P/P	90 - 110
Calcium	101	103	P/P	90 - 110
Iron	101	101	P/P	90 - 110
Magnesium	102	102	P/P	90 - 110
Potassium	99.1	100	P/P	90 - 110

Quality Assurance Report

Calibration Verification

Reference Method: EPA 200.7 Rev. 4.4

Run ID: A89104

Included Lab Sample IDs: 2056451

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Sodium	101	102	P/P	90 - 110
Zinc	99.9	101	P/P	90 - 110

Reference Method: SM 2320 B-97

Run ID: A89154

Included Lab Sample IDs: 2056445

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	99.8	101	P/P	90 - 110

Reference Method: SM 4500 F-C-97

Run ID: A89154

Included Lab Sample IDs: 2056445

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	98.1	98.1	P/P	90 - 110

Reference Method: EPA 200.8 Rev. 5.4

Run ID: A89155

Included Lab Sample IDs: 2056451

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Aluminum	102	102	P/P	90 - 110
Antimony	98.7	98.5	P/P	90 - 110
Arsenic	102	100	P/P	90 - 110
Boron	101	101	P/P	90 - 110
Cadmium	99.6	98.8	P/P	90 - 110
Chromium	100	101	P/P	90 - 110
Copper	101	101	P/P	90 - 110
Lead	104	103	P/P	90 - 110
Nickel	100	100	P/P	90 - 110
Selenium	100	99.6	P/P	90 - 110
Silver	97.6	97.0	P/P	90 - 110
Thallium	96.6	95.5	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A89169

Included Lab Sample IDs: 2056446

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	106	100	P/P	90 - 110

Reference Method: EPA 8321B

Run ID: A89207

Included Lab Sample IDs: 2056450

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Sucralose	81.0	77.5	P/P	60 - 160

Quality Assurance Report Calibration Verification

Reference Method: EPA 8270D

Run ID: A89311

Included Lab Sample IDs: 2056452

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Acetochlor	94.4		P	80 - 120
Alachlor	99.6		P	80 - 120
Ametryn	102		P	80 - 120
Atrazine	93.9		P	80 - 120
Atrazine Desethyl	99.5		P	80 - 120
Azinphos Methyl	92.4		P	80 - 120
Bromacil	97.1		P	80 - 120
Butylate	96.4		P	80 - 120
Chlorpyrifos Ethyl	92.3		P	80 - 120
Chlorpyrifos Methyl	93.7		P	80 - 120
Cyanazine	92.8		P	80 - 120
Demeton	96.3		P	80 - 120
Diazinon	95.8		P	80 - 120
Dimethenamid	96.4		P	80 - 120
Disulfoton	95.4		P	80 - 120
Dithiopyr	101		P	80 - 120
EPTC	97.0		P	80 - 120
Ethion	95.3		P	80 - 120
Ethoprop	98.2		P	80 - 120
Fenamiphos	96.6		P	80 - 120
Fipronil	93.5		P	80 - 120
Fipronil Desulfinyl	95.6		P	80 - 120
Fipronil Sulfide	95.3		P	80 - 120
Fipronil Sulfone	97.3		P	80 - 120
Fonofos	95.0		P	80 - 120
Hexazinone	100		P	80 - 120
Malathion	90.2		P	80 - 120
Metaxyl	98.1		P	80 - 120
Metolachlor	99.7		P	80 - 120
Metribuzin	79.8*		F	80 - 120
Mevinphos	101		P	80 - 120
Molinate	96.9		P	80 - 120
Norflurazon	102		P	80 - 120
Oxadiazon	97.3		P	80 - 120
Parathion Ethyl	94.9		P	80 - 120
Parathion Methyl	104		P	80 - 120
Pendimethalin	97.8		P	80 - 120
Phorate	92.8		P	80 - 120
Prodiamine	94.1		P	80 - 120
Prometon	95.6		P	80 - 120
Prometryn	94.2		P	80 - 120
Simazine	99.7		P	80 - 120
Tebuconazole	95.8		P	80 - 120
Terbufos	92.8		P	80 - 120
Terbutylazine	95.2		P	80 - 120

* 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		LCS	Precision SMP	MS
EPA 180.1 Rev. 2.0	Turbidity						0.0	
EPA 200.7 Rev. 4.4	Barium	104		101	103	104		1.06
	Calcium	105		99.4	102			0.834
	Iron	107		106	105	108		2.51
	Magnesium	104		102	101			2.38
	Potassium	108		106	109	112		1.83
	Sodium	103		97.9	103			0.673
	Zinc	102		101	101	103		2.07
EPA 200.8 Rev. 5.4	Aluminum	103		100	100	102		1.58
	Antimony	101		103	102	104		1.28
	Arsenic	106		107	106	107		1.16
	Boron	105		102	105	105		0.452
	Cadmium	103		104	103	106		2.20
	Chromium	104		102	102	103		1.14
	Copper	103		99.6	98.6	101		2.13
	Lead	105		104	103	105		2.18
	Nickel	103		102	99.0	100		1.20
	Selenium	103		103	102	102		0.807
	Silver	102		101	102	104		1.35
	Thallium	102		105	101	104		3.18
EPA 300.0 Rev. 2.1	Chloride	101		97.8	94.2		1.18	
	Sulfate	102		100	100		1.63	
EPA 350.1 Rev. 2.0	Ammonia-N	100		102	103			0.723
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	105		113	111			1.73
EPA 353.2 Rev. 2.0	NO2NO3-N	102		99.8	99.8			0.0
EPA 365.1 Rev. 2.0	Total-P	107		106	106			0.309
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	98.0		94.6	97.0			1.97
EPA 8270D	Acetochlor	87.1	85.0	73.2	95.8	2.43		26.7
	Alachlor	88.7	83.8	73.3	91.0	5.60		21.5
	Ametryn	93.6	93.2	70.9	90.8	0.431		24.7
	Atrazine	94.6	91.0	68.0	99.6	3.90		24.8
	Atrazine Desethyl	67.8	64.1	53.8	72.9	5.60		25.7
	Azinphos Methyl	105	89.3	90.0	106	16.6		15.9
	Bromacil	79.8	76.8	58.9	77.0	3.94		26.6
	Butylate	59.5	51.8	47.5	59.2	13.9		22.0
	Chlorpyrifos Ethyl	97.8	84.8	76.1	91.3	14.2		18.2
	Chlorpyrifos Methyl	85.4	76.9	71.7	91.5	10.5		24.3
	Cyanazine	75.3	70.4	67.8	86.1	6.78		23.8
	Demeton	74.3	62.5	68.6	83.4	17.2		19.5
	Diazinon	85.2	77.8	71.9	93.6	8.97		26.2
	Dimethenamid	86.7	85.6	74.9	94.0	1.24		22.6
	Disulfoton	86.7	75.0	73.8	92.0	14.5		22.0
	Dithiopyr	90.5	87.8	76.0	92.6	3.00		19.7
	EPTC	61.3	54.2	47.8	61.0	12.4		24.3
	Ethion	98.8	96.8	58.1	68.4	2.01		16.2
	Ethoprop	82.5	76.5	69.6	86.7	7.66		21.9
	Fenamiphos	97.1	90.4	68.4	88.0	7.18		25.0
	Fipronil	89.1	90.8	61.0	82.2	1.92		29.5
	Fipronil Desulfinyl	80.5	83.1	53.9	70.1	3.19		26.1
	Fipronil Sulfide	92.9	91.2	56.0	74.8	1.88		28.6
	Fipronil Sulfone	89.6	90.1	65.0	87.7	0.640		29.8
	Fonofos	78.8	72.1	65.8	85.7	8.84		26.3
	Hexazinone	103	98.4	68.3	85.3	4.54		20.1
	Malathion	97.5	88.6	71.5	83.5	9.52		15.5

Quality Assurance Report Summary

Ref. Method	Analyte	LCS % Recovery		MS % Recovery		Precision	
						LCS	MS
						SMP	
EPA 8270D	Metalaxyl	86.6	77.2	67.7	88.9	11.4	27.1
	Metolachlor	90.6	88.0	73.4	92.7	3.01	23.2
	Metribuzin	91.3	77.6	96.2	130	16.2	29.8
	Mevinphos	84.0	72.5	76.3	80.4	14.8	5.18
	Molinate	67.2	61.0	54.6	70.0	9.60	24.7
	Norflurazon	89.4	86.7	65.2	83.5	3.10	24.6
	Oxadiazon	94.7	95.4	69.6	85.1	0.750	20.1
	Parathion Ethyl	91.4	84.3	66.8	83.9	8.12	22.6
	Parathion Methyl	98.7	90.2	92.6	107	9.05	14.9
	Pendimethalin	85.1	83.4	73.3	89.1	2.01	19.4
	Phorate	75.8	66.1	79.2	86.4	13.7	8.72
	Prodiamine	91.8	80.8	62.9	75.4	12.8	18.1
	Prometon	84.5	82.8	65.3	81.0	2.02	21.4
	Prometryn	92.1	88.3	64.3	82.9	4.22	25.2
	Simazine	103	98.0			5.40	23.6
	Tebuconazole	85.8	84.0	42.0	59.9	2.17	35.2
	Terbufos	80.0	70.7	71.6	87.0	12.3	19.4
	Terbuthylazine	91.8	89.1	70.5	90.4	2.92	24.7
EPA 8321B	2,4-D	85.7		86.1	86.3		0.322
	Acesulfame K	87.0		76.1	68.6		9.79
	Acetaminophen	94.2		119	118		0.985
	AMPA	101		93.5	99.0		4.28
	Bentazon	78.9		65.6	61.7		5.53
	Carbamazepine	90.0		92.0	86.8		5.17
	Diuron	73.5		74.1	68.7		7.22
	Endothall	97.4		103	91.1		12.4
	Fenuron	105		102	97.5		4.98
	Fluridone	100		112	99.0		11.9
	Glufosinate	95.1		78.0	81.6		4.47
	Glyphosate	90.8		83.4	83.5		0.0757
	Hydrocodone	99.5		117	110		6.16
	Ibuprofen	71.3		73.8	72.9		1.21
	Imazapyr	83.3		120	117		1.54
	Imidacloprid	102		163	152		6.58
	Linuron	81.1		77.1	71.1		8.13
	MCPP	105		114	112		2.06
	Naproxen	69.3		64.6	53.1		19.6
	Primidone	99.9		106	98.6		7.45
SM 2120 B	Color (true)	101				0.147	
	Total Alkalinity	101				0.448	
SM 2540 C-97	TDS					2.45	
SM 4500 F-C-97	Fluoride	96.7					0.477
SM 5310 B-00	Organic Carbon	100		97.0			0.626

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	2056445

Reference Method Descriptions

Method / DoH Cert #	Description	<u>Associated Samples</u>
EPA 200.7 Rev. 4.4 / E31780	Total Recoverable Metals analysis using ICP emission spectroscopy for aqueous samples supporting Clean Water Act Projects	2056451
EPA 200.8 Rev. 5.4 / E31780	Total Recoverable Metals analysis using ICP-MS for aqueous samples supporting Clean Water Act Projects	2056451
EPA 300.0 Rev. 2.1 / E31780	Chloride in aqueous matrices	2056445
EPA 300.0 Rev. 2.1 / E31780	Sulfate in aqueous matrices	2056445
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	2056446
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	2056446
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	2056446
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	2056446
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	2056447
EPA 8270D / E31780	Organonitrogen and phosphorus pesticides in water matrices by GC/MS/MS	2056452
EPA 8321B / E31780	Pesticides, herbicides, and other chemicals in water matrices by HPLC/MS/MS	2056450
EPA 8321B / E31780	Water soluble organic compounds by HPLC/MS/MS	2056450
SM 2120 B / E31780	True Color measured at 450 nm	2056445
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO ₃ /L	2056445
SM 2540 C-97 / E31780	Total Dissolved Solids in aqueous matrices	2056445
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices using a maximum of 250 mL of sample	2056445
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	2056445
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	2056446

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	01/23/2019			01/24/2019 16:10	Megan Treadwell	2056445
EPA 200.7 Rev. 4.4	01/23/2019	01/28/2019 13:20	Elliott D. Healy	01/30/2019 13:51	Betina Topolski	2056451
EPA 200.8 Rev. 5.4	01/23/2019	01/28/2019 13:20	Elliott D. Healy	02/01/2019 09:34	Allison Taylor	2056451
EPA 300.0 Rev. 2.1	01/23/2019			01/25/2019 20:52	Lipi Saha	2056445
EPA 350.1 Rev. 2.0	01/23/2019			01/28/2019 12:14	Ping Hua	2056446
EPA 351.2 Rev. 2.0	01/23/2019	02/01/2019 13:15	Adrian Shelby	02/04/2019 11:36	Joseph Suarez	2056446
EPA 353.2 Rev. 2.0	01/23/2019			01/25/2019 12:09	Beverly Y. Sanders	2056446
EPA 365.1 Rev. 2.0	01/23/2019	01/24/2019 12:50	Sima Feizi	01/28/2019 17:06	Rosalyn Ballman	2056446
EPA 365.1 Rev. 2.0 dissolved	01/23/2019			01/23/2019 17:23	Jhamieka S. Greenwood	2056447
EPA 8270D	01/23/2019	01/28/2019 09:00	Fe-Val Siddell	01/29/2019 19:48	Vandana T. Nagar	2056452
EPA 8321B	01/23/2019	01/24/2019 11:40	Hoor Shaik	01/24/2019 20:02	Juyoung Kim	2056450
	01/23/2019	01/28/2019 09:15	Mohammad Ghaffari	01/28/2019 10:17	Mohammad Ghaffari	2056450
	01/23/2019	01/28/2019 09:15	Mohammad Ghaffari	01/28/2019 12:49	Mohammad Ghaffari	2056450
	01/23/2019	01/28/2019 09:15	Mohammad Ghaffari	02/05/2019 09:39	Rebecca Ware	2056450
SM 2120 B	01/23/2019			01/24/2019 14:52	Chelsea Hernandez	2056445
SM 2320 B-97	01/23/2019			02/02/2019 11:43	Dale L. Simmons	2056445
SM 2540 C-97	01/23/2019			01/25/2019 14:17	Yijie Li	2056445
SM 2540 D-97	01/23/2019			01/25/2019 14:17	Yijie Li	2056445
SM 4500 F-C-97	01/23/2019			02/02/2019 11:43	Dale L. Simmons	2056445
SM 5310 B-00	01/23/2019			01/25/2019 17:21	Megan Treadwell	2056446