

Chemical Analysis Report

WAS-SECT-2019-04-17-01

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

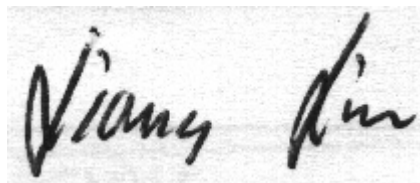
Event Description: **Wakulla BMAP**
Request ID: **RQ-2019-04-15-19**
Customer: **WAS-SECT**
Project ID: **BMAP**

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

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Certified by: Liang Lin, Environmental Administrator

Date Certified: 06-MAY-2019 14:05

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

NON-CONFORMANCE REPORT INCLUDED

Case Narrative

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

Results for the following analytical groups are included in this report: Metals, 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: 04/17/2019 10:46

Field ID: 44059

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2079060	EPA 180.1 Rev. 2.0	Turbidity	0.35		NTU	P362376	
	EPA 300.0 Rev. 2.1	Chloride	8.9		mg Cl/L	P362821	
		Sulfate	10	Y	mg SO4/L	P362824	
	SM 2120 B	Color (true)	4.4	I	PCU	P362409	
	SM 2320 B-97	Total Alkalinity	141	AY	mg CaCO3/L	P362948	
	SM 2540 C-97	TDS	180	Y	mg/L	P363047	
	SM 2540 D-97	TSS	2	IY	mg/L	P362916	
	SM 4500 F-C-97	Fluoride	0.14		mg F/L	P362952	
2079061	EPA 350.1 Rev. 2.0	Ammonia-N	0.002	I	mg N/L	P362727	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.092	I	mg N/L	P362842	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.42		mg N/L	P362769	
	EPA 365.1 Rev. 2.0	Total-P	0.029		mg P/L	P362618	
	SM 5310 B-00	Organic Carbon	0.57	I	mg C/L	P362591	
2079062	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.025		mg P/L	P362370	
2079065	EPA 8321B	2,4-D	0.0020	U	ug/L	P362343	
		Acesulfame K**	0.10	U	ug/L	P362469	
		AMPA**	0.10	U	ug/L	P362469	
		Sucralose**	0.054		ug/L	P362469	
		Acetaminophen**	0.0080	U	ug/L	P362343	
		Endothall**	0.25	U	ug/L	P362469	
		Glufosinate**	0.10	U	ug/L	P362469	
		Bentazon	8.0E-04	U	ug/L	P362343	
		Glyphosate**	0.10	U	ug/L	P362469	
		Carbamazepine**	8.0E-04	U	ug/L	P362343	
		Diuron	0.0020	U	ug/L	P362343	
		Fenuron	0.016	U	ug/L	P362343	
		Fluridone**	8.1E-04	I	ug/L	P362343	
		Imazapyr**	0.0040	U	ug/L	P362343	
		Hydrocodone**	0.0020	U	ug/L	P362343	
		Ibuprofen**	0.020	U	ug/L	P362343	
		Imidacloprid	0.0020	U	ug/L	P362343	MS
		Linuron	0.0040	U	ug/L	P362343	
		MCPP	0.0020	U	ug/L	P362343	
		Naproxen**	0.0080	U	ug/L	P362343	
		Primidone**	0.0040	U	ug/L	P362343	
		Pyraclostrobin**	0.0020	U	ug/L	P362343	
		Triclopyr**	0.0040	U	ug/L	P362343	
2079066	EPA 200.7 Rev. 4.4	Barium	10.5		ug/L	P362614	
		Calcium	45.5		mg/L	P362614	
		Iron	30	U	ug/L	P362614	
		Magnesium	10.4		mg/L	P362614	
		Potassium	0.63	I	mg/L	P362614	
		Sodium	5.9		mg/L	P362614	

Field ID: 44059

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2079066	EPA 200.7 Rev. 4.4	Zinc	5.0	U	ug/L	P362614	
	EPA 200.8 Rev. 5.4	Aluminum	7.5	I	ug/L	P362614	
		Antimony	0.050	U	ug/L	P362614	
		Arsenic	0.54		ug/L	P362614	
		Boron**	16.8		ug/L	P362614	
		Cadmium	0.020	U	ug/L	P362614	
		Chromium	0.75	I	ug/L	P362614	
		Copper	0.40	U	ug/L	P362614	
		Lead	0.20	U	ug/L	P362614	
		Nickel	0.50	U	ug/L	P362614	
		Selenium	0.40	I	ug/L	P362614	
		Silver	0.010	U	ug/L	P362614	
		Thallium	0.10	U	ug/L	P362614	
2079067	EPA 8270D	Acetochlor	0.27	U	ng/L	P362397	
		Alachlor	0.27	U	ng/L	P362397	
		Ametryn	0.65	UJ	ng/L	P362397	RPD
		Atrazine	1.7		ng/L	P362397	
		Atrazine Desethyl	1.6	U	ng/L	P362397	
		Azinphos Methyl	5.4	U	ng/L	P362397	
		Bromacil	0.54	UJ	ng/L	P362397	RPD
		Butylate	0.44	U	ng/L	P362397	
		Chlorpyrifos Ethyl	0.27	U	ng/L	P362397	
		Chlorpyrifos Methyl	0.11	U	ng/L	P362397	
		Cyanazine	3.5	U	ng/L	P362397	
		Demeton	7.6	U	ng/L	P362397	
		Diazinon	0.14	U	ng/L	P362397	
		Dimethenamid**	0.11	U	ng/L	P362397	
		Disulfoton	0.54	U	ng/L	P362397	
		Dithiopyr**	0.11	U	ng/L	P362397	
		EPTC	1.4	U	ng/L	P362397	
		Ethion	0.16	U	ng/L	P362397	
		Ethoprop	0.11	U	ng/L	P362397	
		Fenamiphos	0.54	UJ	ng/L	P362397	LCS, RPD
		Fipronil	0.27	U	ng/L	P362397	
		Fipronil Desulfinyl**	0.14	U	ng/L	P362397	
		Fipronil Sulfide	0.16	U	ng/L	P362397	
		Fipronil Sulfone	0.16	U	ng/L	P362397	
		Fonofos	0.22	U	ng/L	P362397	
		Hexazinone	0.59	IJ	ng/L	P362397	LCS, MS, RPD
		Malathion	0.38	U	ng/L	P362397	
		Metalaxyl	0.33	UJ	ng/L	P362397	LCS, RPD
		Metolachlor	0.54	U	ng/L	P362397	
		Metribuzin	0.82	UJ	ng/L	P362397	CCV
		Mevinphos	0.54	UJ	ng/L	P362397	LCS, RPD

Field ID: 44059

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2079067	EPA 8270D	Molinate	0.33	U	ng/L	P362397	
		Norflurazon	0.54	U	ng/L	P362397	
		Oxadiazon**	0.11	U	ng/L	P362397	
		Parathion Ethyl	0.27	U	ng/L	P362397	
		Parathion Methyl	0.60	U	ng/L	P362397	
		Pendimethalin	1.1	U	ng/L	P362397	
		Phorate	0.27	U	ng/L	P362397	
		Prodiamine**	0.19	U	ng/L	P362397	
		Prometon	0.98	UJ	ng/L	P362397	LCS
		Prometryn	0.22	UJ	ng/L	P362397	LCS, RPD
		Simazine	5.2		ng/L	P362397	
		Tebuconazole**	0.54	UJ	ng/L	P362397	LCS, RPD
		Terbufos	0.11	U	ng/L	P362397	
		Terbuthylazine	0.46	U	ng/L	P362397	

Ref. Method and Comment:

EPA 180.1 Rev. 2.0: The batch relative percent difference is unavailable because of low amount of analyte in the QC sample.

EPA 300.0 Rev. 2.1: Sulfate: Sample was left out at room temperature overnight, should be stored below 6 degC.

SM 2320 B-97: Sample was left out at room temperature overnight, should be stored below 6 degC.

SM 2540 C-97: Sample was left out at room temperature overnight, should be stored below 6 degC.

SM 2540 D-97: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample. Sample was left out at room temperature overnight, should be stored below 6 degC.

EPA 8270D: MS accuracies for atrazine, simazine, metribuzin, and bromacil not assessed due to high content of these parameters in the sample spiked. Refer to the narrative for an explanation of QC Codes.

Non-Conformance Report

NCR ID: 7647

Event(s)

WAS-SECT-2019-04-17-01

Job(s)

TLH-2019-04-17-159

Sample(s)

2079060

Test(s)

NCR Type: CUSTODY

NCR Category: General

Observation: Samples stored at room temperature overnight on 04/18/2019.

Resolution: Chemistry Administrator notified, samples returned to refrigerator on 04/19/2019 at 12:00. Data will be qualified as appropriate.

Authorized by/Date: Peter D. Kaus 5/3/2019

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

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

Quality Assurance Report Method Blank Results

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P362376

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P362614

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: P362614

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: P362821

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P362824

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P362727

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: P362842

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P362769

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P362618

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P362370

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

Reference Method: EPA 8270D
Batch ID: P362397

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	5.0	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	0.30	U	ng/L

Quality Assurance Report

Method Blank Results

Reference Method: EPA 8270D

Batch ID: P362397

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: P362343

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: P362469

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: P362409

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2320 B-97
Batch ID: P362948

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

Reference Method: SM 2540 C-97
Batch ID: P363047

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P362916

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500 F-C-97
Batch ID: P362952

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-00
Batch ID: P362591

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: P362614

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Barium	96.1		P	85 - 115
Calcium	106		P	85 - 115
Iron	103		P	85 - 115
Magnesium	110		P	85 - 115
Potassium	103		P	85 - 115
Sodium	105		P	85 - 115
Zinc	97.0		P	85 - 115

Reference Method: EPA 200.8 Rev. 5.4

Batch ID: P362614

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Aluminum	93.1		P	85 - 115
Antimony	91.8		P	85 - 115
Arsenic	95.2		P	85 - 115
Boron	94.6		P	85 - 115
Cadmium	95.9		P	85 - 115
Chromium	87.7		P	85 - 115
Copper	93.1		P	85 - 115
Lead	96.5		P	85 - 115
Nickel	93.3		P	85 - 115
Selenium	94.2		P	85 - 115
Silver	113		P	85 - 115
Thallium	90.8		P	85 - 115

Reference Method: EPA 300.0 Rev. 2.1

Batch ID: P362821

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

Reference Method: EPA 300.0 Rev. 2.1

Batch ID: P362824

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Sulfate	99.7		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0

Batch ID: P362727

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

Reference Method: EPA 351.2 Rev. 2.0

Batch ID: P362842

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Kjeldahl Nitrogen	98.9		P	90 - 110

Quality Assurance Report

Laboratory Control Sample Accuracy

Reference Method: EPA 353.2 Rev. 2.0

Batch ID: P362769

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
NO2NO3-N	99.0		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Batch ID: P362618

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved

Batch ID: P362370

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

Reference Method: EPA 8270D

Batch ID: P362397

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Acetochlor	104	101	P/P	71 - 121
Alachlor	102	99.7	P/P	72 - 119
Ametryn	47.4	75.9	P/P	47 - 144
Atrazine	96.6	97.2	P/P	75 - 123
Atrazine Desethyl	52.1	49.3	P/P	45 - 133
Azinphos Methyl	101	96.4	P/P	66 - 165
Bromacil	62.2	43.8	P/P	43 - 123
Butylate	58.1	58.5	P/P	27 - 83.0
Chlorpyrifos Ethyl	98.7	97.0	P/P	70 - 117
Chlorpyrifos Methyl	90.9	84.9	P/P	71 - 120
Cyanazine	72.2	70.5	P/P	34 - 264
Demeton	61.0	65.0	P/P	41 - 122
Diazinon	98.2	94.8	P/P	70 - 127
Dimethenamid	103	99.2	P/P	66 - 123
Disulfoton	84.5	81.5	P/P	56 - 127
Dithiopyr	107	104	P/P	67 - 125
EPTC	61.0	58.3	P/P	24 - 84.0
Ethion	103	104	P/P	53 - 132
Ethoprop	88.1	84.3	P/P	57 - 117
Fenamiphos	32.9	15.2	F/F	55 - 136
Fipronil	103	91.4	P/P	64 - 126
Fipronil Desulfinyl	101	94.3	P/P	47 - 114
Fipronil Sulfide	102	96.2	P/P	57 - 120
Fipronil Sulfone	97.7	86.9	P/P	52 - 115
Fonofos	82.4	82.7	P/P	61 - 121
Hexazinone	48.4	16.9	F/F	62 - 131
Malathion	101	97.5	P/P	67 - 126
Metalaxyl	13.7	9.41	F/F	54 - 128
Metolachlor	104	100	P/P	71 - 118
Metribuzin	73.1	72.4	P/P	42 - 221
Mevinphos	51.2	26.7	P/F	45 - 114
Molinate	67.5	70.4	P/P	33 - 91.0
Norflurazon	92.6	81.4	P/P	60 - 123
Oxadiazon	110	109	P/P	66 - 121

Quality Assurance Report

Laboratory Control Sample Accuracy

Reference Method: EPA 8270D

Batch ID: P362397

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Parathion Ethyl	90.2	89.3	P/P	73 - 111
Parathion Methyl	91.2	89.4	P/P	74 - 126
Pendimethalin	103	109	P/P	63 - 131
Phorate	73.7	72.0	P/P	54 - 115
Prodiamine	115	114	P/P	38 - 140
Prometon	22.6	27.6	F/F	61 - 120
Prometryn	59.8	88.9	F/P	62 - 126
Simazine	101	92.6	P/P	75 - 126
Tebuconazole	56.4	14.6	P/F	21 - 115
Terbufos	85.6	83.3	P/P	65 - 116
Terbuthylazine	100	97.6	P/P	73 - 117

Reference Method: EPA 8321B

Batch ID: P362343

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2,4-D	86.2		P	40 - 150
Acetaminophen	83.1		P	30 - 150
Bentazon	83.4		P	30 - 150
Carbamazepine	81.0		P	40 - 150
Diuron	82.1		P	40 - 150
Fenuron	93.8		P	40 - 150
Fluridone	120		P	40 - 150
Hydrocodone	110		P	40 - 150
Ibuprofen	83.3		P	40 - 150
Imazapyr	85.5		P	40 - 150
Imidacloprid	97.9		P	40 - 150
Linuron	75.2		P	40 - 150
MCPP	97.9		P	40 - 150
Naproxen	76.6		P	40 - 150
Primidone	95.6		P	40 - 150
Pyraclostrobin	70.0		P	40 - 150
Triclopyr	75.1		P	40 - 150

Reference Method: EPA 8321B

Batch ID: P362469

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Acesulfame K	106		P	40 - 150
AMPA	116		P	40 - 150
Endothall	114		P	40 - 150
Glufosinate	119		P	40 - 150
Glyphosate	118		P	40 - 140
Sucralose	107		P	40 - 150

Reference Method: SM 2120 B

Batch ID: P362409

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Color (true)	103		P	85 - 115

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: SM 2320 B-97
Batch ID: P362948

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	102		P	98 - 106

Reference Method: SM 4500 F-C-97
Batch ID: P362952

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	99.3		P	92 - 103

Reference Method: SM 5310 B-00
Batch ID: P362591

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	101		P	85 - 115

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 200.7 Rev. 4.4

Batch ID: P362614

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2078912	Barium	95.3		P	80 - 120
2078912	Calcium	98.6		P	80 - 120
2078912	Iron	105		P	80 - 120
2078912	Magnesium	100		P	80 - 120
2078912	Potassium	101		P	80 - 120
2078912	Sodium	99.0		P	80 - 120
2078912	Zinc	97.1		P	80 - 120
2079154	Barium	96.7	97.5	P/P	80 - 120
2079154	Calcium	107	105	P/P	80 - 120
2079154	Iron	106	105	P/P	80 - 120
2079154	Magnesium	112	110	P/P	80 - 120
2079154	Potassium	108	108	P/P	80 - 120
2079154	Sodium	102	102	P/P	80 - 120
2079154	Zinc	98.1	99.4	P/P	80 - 120

Reference Method: EPA 200.8 Rev. 5.4

Batch ID: P362614

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2078912	Aluminum	90.8		P	80 - 120
2078912	Antimony	91.8		P	80 - 120
2078912	Arsenic	94.4		P	80 - 120
2078912	Boron	95.9		P	80 - 120
2078912	Cadmium	95.1		P	80 - 120
2078912	Chromium	87.5		P	80 - 120
2078912	Copper	89.4		P	80 - 120
2078912	Lead	96.4		P	80 - 120
2078912	Nickel	90.6		P	80 - 120
2078912	Selenium	92.2		P	80 - 120
2078912	Silver	112		P	80 - 120
2078912	Thallium	112		P	80 - 120
2079154	Aluminum	91.0	89.6	P/P	80 - 120
2079154	Antimony	90.2	89.8	P/P	80 - 120
2079154	Arsenic	92.6	92.6	P/P	80 - 120
2079154	Boron	95.7	94.3	P/P	80 - 120
2079154	Cadmium	94.0	92.7	P/P	80 - 120
2079154	Chromium	89.2	88.4	P/P	80 - 120
2079154	Copper	93.2	93.2	P/P	80 - 120
2079154	Lead	96.8	96.4	P/P	80 - 120
2079154	Nickel	93.1	93.1	P/P	80 - 120
2079154	Selenium	91.2	91.5	P/P	80 - 120
2079154	Silver	110	112	P/P	80 - 120
2079154	Thallium	109	111	P/P	80 - 120

Reference Method: EPA 300.0 Rev. 2.1

Batch ID: P362821

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2078783	Chloride	96.5		P	90 - 110
2078980	Chloride	99.2		P	90 - 110

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P362824

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2078783	Sulfate	96.5		P	90 - 110
2078980	Sulfate	97.9		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P362727

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2079061	Ammonia-N	101	103	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P362842

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2079041	Kjeldahl Nitrogen	98.4	96.9	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P362769

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2079144	NO2NO3-N	100	98.6	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P362618

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2079061	Total-P	101	103	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P362370

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2078982	O-Phosphate-P	95.6	98.7	P/P	90 - 110

Reference Method: EPA 8270D
Batch ID: P362397

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2078905	Acetochlor	93.2	94.2	P/P	63 - 129
2078905	Alachlor	89.9	89.6	P/P	65 - 127
2078905	Ametryn	92.4	94.3	P/P	40 - 164
2078905	Atrazine Desethyl	63.2	58.8	P/P	14 - 157
2078905	Azinphos Methyl	94.5	90.1	P/P	49 - 180
2078905	Butylate	46.5	47.6	P/P	10 - 94.0
2078905	Chlorpyrifos Ethyl	97.4	98.2	P/P	58 - 123
2078905	Chlorpyrifos Methyl	92.9	91.1	P/P	58 - 125
2078905	Cyanazine	108	97.0	P/P	24 - 253
2078905	Demeton	85.6	82.4	P/P	25 - 149
2078905	Diazinon	98.9	98.1	P/P	59 - 144
2078905	Dimethenamid	93.0	91.7	P/P	46 - 139
2078905	Disulfoton	90.9	84.6	P/P	54 - 132
2078905	Dithiopyr	95.9	96.5	P/P	64 - 130
2078905	EPTC	48.7	51.9	P/P	10 - 92.0

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 8270D

Batch ID: P362397

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2078905	Ethion	101	98.2	P/P	30 - 148
2078905	Ethoprop	91.4	90.1	P/P	50 - 130
2078905	Fenamiphos	89.0	92.4	P/P	49 - 142
2078905	Fipronil	80.1	75.2	P/P	46 - 140
2078905	Fipronil Desulfinyl	68.7	66.3	P/P	30 - 121
2078905	Fipronil Sulfide	71.4	65.1	P/P	31 - 136
2078905	Fipronil Sulfone	52.7	45.4	P/P	16 - 136
2078905	Fonofos	93.1	91.2	P/P	55 - 129
2078905	Hexazinone	100	172	P/F	56 - 141
2078905	Malathion	95.6	92.3	P/P	56 - 135
2078905	Metalaxyl	90.4	82.6	P/P	54 - 135
2078905	Metolachlor	90.3	92.5	P/P	51 - 140
2078905	Mevinphos	77.1	83.1	P/P	33 - 131
2078905	Molinate	65.9	66.6	P/P	14 - 98.0
2078905	Norflurazon	77.6	72.3	P/P	34 - 136
2078905	Oxadiazon	94.8	94.8	P/P	67 - 116
2078905	Parathion Ethyl	95.5	92.5	P/P	66 - 118
2078905	Parathion Methyl	99.7	96.5	P/P	64 - 136
2078905	Pendimethalin	120	119	P/P	59 - 144
2078905	Phorate	82.3	79.2	P/P	42 - 130
2078905	Prodiamine	124	123	P/P	42 - 148
2078905	Prometon	93.7	121	P/P	59 - 134
2078905	Prometryn	95.0	92.9	P/P	54 - 135
2078905	Tebuconazole	78.9	75.2	P/P	10 - 131
2078905	Terbufos	99.5	92.6	P/P	57 - 131
2078905	Terbutylazine	96.7	94.8	P/P	68 - 125

Reference Method: EPA 8321B

Batch ID: P362343

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2079441	2,4-D	98.0	81.8	P/P	40 - 150
2079441	Acetaminophen	80.9	79.6	P/P	30 - 150
2079441	Bentazon	56.9	52.0	P/P	30 - 150
2079441	Carbamazepine	92.7	85.8	P/P	40 - 150
2079441	Diuron	72.6	71.6	P/P	40 - 150
2079441	Fenuron	116	111	P/P	40 - 150
2079441	Fluridone	117	122	P/P	40 - 150
2079441	Hydrocodone	107	102	P/P	40 - 150
2079441	Ibuprofen	87.2	78.2	P/P	40 - 150
2079441	Imazapyr	92.8	85.9	P/P	40 - 150
2079441	Imidacloprid	154	122	F/P	40 - 150
2079441	Linuron	79.6	81.1	P/P	40 - 150
2079441	MCP	107	99.0	P/P	40 - 150
2079441	Naproxen	62.2	66.5	P/P	40 - 150
2079441	Primidone	89.6	90.7	P/P	40 - 150
2079441	Pyraclostrobin	65.5	68.2	P/P	40 - 150
2079441	Triclopyr	75.4	62.5	P/P	40 - 150

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 8321B
Batch ID: P362469

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2078457	Acesulfame K	102	86.1	P/P	40 - 150
2078457	AMPA	147	145	P/P	40 - 150
2078457	Endothall	103	105	P/P	40 - 150
2078457	Glufosinate	112	123	P/P	40 - 150
2078457	Glyphosate	113	114	P/P	40 - 140
2078457	Sucralose	76.2	93.8	P/P	40 - 150

Reference Method: SM 4500 F-C-97
Batch ID: P362952

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2079060	Fluoride	98.5	98.5	P/P	89 - 106

Reference Method: SM 5310 B-00
Batch ID: P362591

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2079061	Organic Carbon	99.8	100	P/P	85 - 115

Quality Assurance Report Precision

Reference Method: EPA 200.7 Rev. 4.4

Batch ID: P362614

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2079154	Barium	0.856	Spike	P	0 - 20
2079154	Calcium	1.79	Spike	P	0 - 20
2079154	Iron	1.16	Spike	P	0 - 20
2079154	Magnesium	1.57	Spike	P	0 - 20
2079154	Potassium	0.811	Spike	P	0 - 20
2079154	Sodium	0.138	Spike	P	0 - 20
2079154	Zinc	1.25	Spike	P	0 - 20

Reference Method: EPA 200.8 Rev. 5.4

Batch ID: P362614

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2079154	Aluminum	1.37	Spike	P	0 - 20
2079154	Antimony	0.522	Spike	P	0 - 20
2079154	Arsenic	0.0398	Spike	P	0 - 20
2079154	Boron	1.38	Spike	P	0 - 20
2079154	Cadmium	1.49	Spike	P	0 - 20
2079154	Chromium	0.876	Spike	P	0 - 20
2079154	Copper	0.0551	Spike	P	0 - 20
2079154	Lead	0.408	Spike	P	0 - 20
2079154	Nickel	0.0864	Spike	P	0 - 20
2079154	Selenium	0.387	Spike	P	0 - 20
2079154	Silver	1.17	Spike	P	0 - 20
2079154	Thallium	1.91	Spike	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1

Batch ID: P362821

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2078783	Chloride	0.00717	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1

Batch ID: P362824

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2078783	Sulfate	0.202	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0

Batch ID: P362727

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2079061	Ammonia-N	1.39	Spike	P	0 - 20

Quality Assurance Report

Precision

Reference Method: EPA 351.2 Rev. 2.0

Batch ID: P362842

Replicated

Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2079041	Kjeldahl Nitrogen	1.40	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0

Batch ID: P362769

Replicated

Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2079144	NO2NO3-N	1.11	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0

Batch ID: P362618

Replicated

Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2079061	Total-P	2.18	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved

Batch ID: P362370

Replicated

Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2078982	O-Phosphate-P	3.01	Spike	P	0 - 20

Reference Method: EPA 8270D

Batch ID: P362397

Replicated

Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2078905	Acetochlor	1.11	Spike	P	0 - 30
2078905	Alachlor	0.334	Spike	P	0 - 30
2078905	Ametryn	1.55	Spike	P	0 - 30
2078905	Atrazine	1.89	Spike	P	0 - 30
2078905	Atrazine Desethyl	5.13	Spike	P	0 - 30
2078905	Azinphos Methyl	4.78	Spike	P	0 - 30
2078905	Bromacil	4.83	Spike	P	0 - 30
2078905	Butylate	2.38	Spike	P	0 - 30
2078905	Chlorpyrifos Ethyl	0.884	Spike	P	0 - 30
2078905	Chlorpyrifos Methyl	1.94	Spike	P	0 - 30
2078905	Cyanazine	10.9	Spike	P	0 - 30
2078905	Demeton	3.78	Spike	P	0 - 30
2078905	Diazinon	0.864	Spike	P	0 - 30
2078905	Dimethenamid	1.46	Spike	P	0 - 30
2078905	Disulfoton	7.18	Spike	P	0 - 30
2078905	Dithiopyr	0.549	Spike	P	0 - 30
2078905	EPTC	6.41	Spike	P	0 - 30
2078905	Ethion	2.36	Spike	P	0 - 30
2078905	Ethoprop	1.10	Spike	P	0 - 30
2078905	Fenamiphos	3.79	Spike	P	0 - 30
2078905	Fipronil	5.70	Spike	P	0 - 30
2078905	Fipronil Desulfinyl	2.99	Spike	P	0 - 30
2078905	Fipronil Sulfide	7.15	Spike	P	0 - 30

Quality Assurance Report

Precision

Reference Method: EPA 8270D

Batch ID: P362397

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2078905	Fipronil Sulfone	8.46	Spike	P	0 - 30
2078905	Fonofos	2.08	Spike	P	0 - 30
2078905	Hexazinone	46.0	Spike	F	0 - 30
2078905	Malathion	3.47	Spike	P	0 - 30
2078905	Metalaxyl	8.69	Spike	P	0 - 30
2078905	Metolachlor	1.40	Spike	P	0 - 30
2078905	Metribuzin	7.82	Spike	P	0 - 30
2078905	Mevinphos	7.50	Spike	P	0 - 30
2078905	Molinate	1.09	Spike	P	0 - 30
2078905	Norflurazon	7.07	Spike	P	0 - 30
2078905	Oxadiazon	0.00932	Spike	P	0 - 30
2078905	Parathion Ethyl	3.23	Spike	P	0 - 30
2078905	Parathion Methyl	3.21	Spike	P	0 - 30
2078905	Pendimethalin	1.32	Spike	P	0 - 30
2078905	Phorate	3.83	Spike	P	0 - 30
2078905	Prodiamine	0.994	Spike	P	0 - 30
2078905	Prometon	25.4	Spike	P	0 - 30
2078905	Prometryn	2.21	Spike	P	0 - 30
2078905	Simazine	0.137	Spike	P	0 - 30
2078905	Tebuconazole	4.00	Spike	P	0 - 30
2078905	Terbufos	7.11	Spike	P	0 - 30
2078905	Terbuthylazine	2.03	Spike	P	0 - 30
LFB	Acetochlor	3.46	LCS	P	0 - 30
LFB	Alachlor	2.74	LCS	P	0 - 30
LFB	Ametryn	46.1	LCS	F	0 - 30
LFB	Atrazine	0.615	LCS	P	0 - 30
LFB	Atrazine Desethyl	5.45	LCS	P	0 - 30
LFB	Azinphos Methyl	4.94	LCS	P	0 - 30
LFB	Bromacil	34.7	LCS	F	0 - 30
LFB	Butylate	0.548	LCS	P	0 - 30
LFB	Chlorpyrifos Ethyl	1.69	LCS	P	0 - 30
LFB	Chlorpyrifos Methyl	6.83	LCS	P	0 - 30
LFB	Cyanazine	2.41	LCS	P	0 - 30
LFB	Demeton	6.40	LCS	P	0 - 30
LFB	Diazinon	3.46	LCS	P	0 - 30
LFB	Dimethenamid	3.42	LCS	P	0 - 30
LFB	Disulfoton	3.61	LCS	P	0 - 30
LFB	Dithiopyr	2.59	LCS	P	0 - 30
LFB	EPTC	4.42	LCS	P	0 - 30
LFB	Ethion	1.22	LCS	P	0 - 30
LFB	Ethoprop	4.42	LCS	P	0 - 30
LFB	Fenamiphos	74.0	LCS	F	0 - 30
LFB	Fipronil	12.0	LCS	P	0 - 30
LFB	Fipronil Desulfinyl	6.75	LCS	P	0 - 30
LFB	Fipronil Sulfide	5.39	LCS	P	0 - 30
LFB	Fipronil Sulfone	11.8	LCS	P	0 - 30
LFB	Fonofos	0.370	LCS	P	0 - 30
LFB	Hexazinone	96.3	LCS	F	0 - 30
LFB	Malathion	3.35	LCS	P	0 - 30
LFB	Metalaxyl	37.0	LCS	F	0 - 30
LFB	Metolachlor	3.58	LCS	P	0 - 30

Quality Assurance Report

Precision

Reference Method: EPA 8270D

Batch ID: P362397

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
LFB	Metribuzin	0.906	LCS	P	0 - 30
LFB	Mevinphos	63.1	LCS	F	0 - 30
LFB	Molinate	4.11	LCS	P	0 - 30
LFB	Norflurazon	12.9	LCS	P	0 - 30
LFB	Oxadiazon	1.35	LCS	P	0 - 30
LFB	Parathion Ethyl	1.04	LCS	P	0 - 30
LFB	Parathion Methyl	2.08	LCS	P	0 - 30
LFB	Pendimethalin	6.04	LCS	P	0 - 30
LFB	Phorate	2.36	LCS	P	0 - 30
LFB	Prodiamine	0.668	LCS	P	0 - 30
LFB	Prometon	20.0	LCS	P	0 - 30
LFB	Prometryn	39.2	LCS	F	0 - 30
LFB	Simazine	8.61	LCS	P	0 - 30
LFB	Tebuconazole	118	LCS	F	0 - 30
LFB	Terbufos	2.69	LCS	P	0 - 30
LFB	Terbutylazine	2.59	LCS	P	0 - 30

Reference Method: EPA 8321B

Batch ID: P362343

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2079441	2,4-D	16.6	Spike	P	0 - 30
2079441	Acetaminophen	1.65	Spike	P	0 - 30
2079441	Bentazon	5.47	Spike	P	0 - 30
2079441	Carbamazepine	7.29	Spike	P	0 - 30
2079441	Diuron	1.36	Spike	P	0 - 30
2079441	Fenuron	3.79	Spike	P	0 - 30
2079441	Fluridone	2.62	Spike	P	0 - 30
2079441	Hydrocodone	4.57	Spike	P	0 - 30
2079441	Ibuprofen	10.9	Spike	P	0 - 30
2079441	Imazapyr	4.83	Spike	P	0 - 30
2079441	Imidacloprid	19.3	Spike	P	0 - 30
2079441	Linuron	1.78	Spike	P	0 - 30
2079441	MCPP	7.34	Spike	P	0 - 30
2079441	Naproxen	6.69	Spike	P	0 - 30
2079441	Primidone	1.16	Spike	P	0 - 30
2079441	Pyraclostrobin	4.04	Spike	P	0 - 30
2079441	Triclopyr	18.6	Spike	P	0 - 30

Reference Method: EPA 8321B

Batch ID: P362469

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2078457	Acesulfame K	16.8	Spike	P	0 - 30
2078457	AMPA	1.17	Spike	P	0 - 30
2078457	Endothall	1.13	Spike	P	0 - 30
2078457	Glufosinate	9.39	Spike	P	0 - 30
2078457	Glyphosate	1.08	Spike	P	0 - 30
2078457	Sucralose	20.7	Spike	P	0 - 30

Quality Assurance Report Precision

Reference Method: SM 2120 B
 Batch ID: P362409

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2079142	Color (true)	1.86	Sample	P	0 - 20

Reference Method: SM 2320 B-97
 Batch ID: P362948

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2079060	Total Alkalinity	0.265	Sample	P	0 - 2.8

Reference Method: SM 2540 C-97
 Batch ID: P363047

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2078967	TDS	5.55	Sample	P	0 - 10

Reference Method: SM 4500 F-C-97
 Batch ID: P362952

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2079060	Fluoride	0.0	Spike	P	0 - 2.5

Reference Method: SM 5310 B-00
 Batch ID: P362591

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2079061	Organic Carbon	0.243	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: 2079065

Field Sample ID: 44059

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	2,4-D-d3	66.5	P	30 - 160
EPA 8321B	Acetaminophen-d4	100	P	30 - 160
EPA 8321B	Carbamazepine-d10	114	P	30 - 160
EPA 8321B	Diuron-d6	96.1	P	30 - 160
EPA 8321B	Endothall-d6	100	P	30 - 160
EPA 8321B	Endothall-d6	100	P	30 - 160
EPA 8321B	Glyphosate 13C 15N	121	P	30 - 160
EPA 8321B	Glyphosate 13C 15N	121	P	30 - 160
EPA 8321B	Ibuprofen-d3	79.5	P	30 - 160
EPA 8321B	Primidone-d5	88.8	P	30 - 160
EPA 8321B	Sucralose-d6	102	P	30 - 160
EPA 8321B	Sucralose-d6	102	P	30 - 160

Lab Sample ID: 2079067

Field Sample ID: 44059

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8270D	Simazine-d10	94.5	P	68 - 130
EPA 8270D	Terbufos-d10	79.1	P	61 - 136

Quality Assurance Report Calibration Verification

Reference Method: EPA 365.1 Rev. 2.0 dissolved

Run ID: A90794

Included Lab Sample IDs: 2079062

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	96.3	97.1	P/P	90 - 110

Reference Method: EPA 180.1 Rev. 2.0

Run ID: A90795

Included Lab Sample IDs: 2079060

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

Reference Method: SM 2120 B

Run ID: A90814

Included Lab Sample IDs: 2079060

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	101	102	P/P	90 - 115

Reference Method: SM 5310 B-00

Run ID: A90876

Included Lab Sample IDs: 2079061

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

Reference Method: EPA 8321B

Run ID: A90878

Included Lab Sample IDs: 2079065

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Acesulfame K	140	154	P/P	60 - 160
Endothall	117	125	P/P	60 - 160

Reference Method: EPA 8321B

Run ID: A90917

Included Lab Sample IDs: 2079065

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
AMPA	117	119	P/P	60 - 160
Glufosinate	121	122	P/P	60 - 160
Glyphosate	120	118	P/P	60 - 160

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A90934

Included Lab Sample IDs: 2079061

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	99.5	99.0	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A90949

Included Lab Sample IDs: 2079061

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

Reference Method: EPA 8321B

Run ID: A90953

Included Lab Sample IDs: 2079065

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
2,4-D	110	78.3	P/P	50 - 150
Acetaminophen	112	114	P/P	60 - 160
Bentazon	82.4	101	P/P	50 - 160
Carbamazepine	102	109	P/P	60 - 150
Diuron	104	102	P/P	60 - 150
Fenuron	111	104	P/P	60 - 150
Fluridone	104	97.5	P/P	60 - 160
Hydrocodone	110	102	P/P	60 - 150
Ibuprofen	101	107	P/P	50 - 160
Imazapyr	106	102	P/P	50 - 150
Imidacloprid	111	109	P/P	60 - 150
Linuron	99.2	100	P/P	60 - 150
MCPP	89.6	94.8	P/P	50 - 150
Naproxen	80.6	133	P/P	50 - 160
Primidone	96.5	101	P/P	60 - 150
Pyraclostrobin	106	96.3	P/P	60 - 150
Triclopyr	94.1	97.9	P/P	50 - 150

Reference Method: EPA 300.0 Rev. 2.1

Run ID: A90961

Included Lab Sample IDs: 2079060

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

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A90968

Included Lab Sample IDs: 2079061

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO2NO3-N	98.5	98.5	P/P	90 - 110

Reference Method: EPA 200.7 Rev. 4.4

Run ID: A90983

Included Lab Sample IDs: 2079066

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Barium	100	99.8	P/P	90 - 110
Calcium	103	101	P/P	90 - 110
Iron	100	102	P/P	90 - 110
Magnesium	101	102	P/P	90 - 110
Potassium	98.2	97.6	P/P	90 - 110
Sodium	98.8	100	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: EPA 200.7 Rev. 4.4

Run ID: A90983

Included Lab Sample IDs: 2079066

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

Reference Method: EPA 8321B

Run ID: A90990

Included Lab Sample IDs: 2079065

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Sucralose	99.2	98.7	P/P	60 - 160

Reference Method: EPA 200.8 Rev. 5.4

Run ID: A90993

Included Lab Sample IDs: 2079066

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Aluminum	96.1	95.7	P/P	90 - 110
Antimony	94.0	91.9	P/P	90 - 110
Arsenic	96.0	94.7	P/P	90 - 110
Boron	96.1	101	P/P	90 - 110
Cadmium	95.9	95.0	P/P	90 - 110
Chromium	95.2	97.1	P/P	90 - 110
Copper	96.1	95.2	P/P	90 - 110
Lead	102	101	P/P	90 - 110
Nickel	95.0	95.3	P/P	90 - 110
Selenium	95.3	95.5	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A91020

Included Lab Sample IDs: 2079061

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	98.4	98.6	P/P	90 - 110

Reference Method: SM 2320 B-97

Run ID: A91045

Included Lab Sample IDs: 2079060

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	99.9	107	P/P	90 - 110

Reference Method: SM 4500 F-C-97

Run ID: A91045

Included Lab Sample IDs: 2079060

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	98.6	100	P/P	90 - 110

Reference Method: EPA 8270D

Run ID: A91053

Included Lab Sample IDs: 2079067

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
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Quality Assurance Report Calibration Verification

Reference Method: EPA 8270D

Run ID: A91053

Included Lab Sample IDs: 2079067

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Acetochlor	102		P	80 - 120
Alachlor	105		P	80 - 120
Ametryn	104		P	80 - 120
Atrazine	99.3		P	80 - 120
Atrazine Desethyl	86.9		P	80 - 120
Azinphos Methyl	96.9		P	80 - 120
Bromacil	101		P	80 - 120
Butylate	97.0		P	80 - 120
Chlorpyrifos Ethyl	99.0		P	80 - 120
Chlorpyrifos Methyl	97.9		P	80 - 120
Cyanazine	86.5		P	80 - 120
Demeton	80.2		P	80 - 120
Diazinon	101		P	80 - 120
Dimethenamid	103		P	80 - 120
Disulfoton	96.7		P	80 - 120
Dithiopyr	104		P	80 - 120
EPTC	101		P	80 - 120
Ethion	95.9		P	80 - 120
Ethoprop	97.8		P	80 - 120
Fenamiphos	95.6		P	80 - 120
Fipronil	101		P	80 - 120
Fipronil Desulfinyl	103		P	80 - 120
Fipronil Sulfide	96.6		P	80 - 120
Fipronil Sulfone	96.4		P	80 - 120
Fonofos	101		P	80 - 120
Hexazinone	99.1		P	80 - 120
Malathion	96.5		P	80 - 120
Metalaxyl	107		P	80 - 120
Metolachlor	107		P	80 - 120
Metribuzin	73.0*		F	80 - 120
Mevinphos	98.2		P	80 - 120
Molinate	94.9		P	80 - 120
Norflurazon	103		P	80 - 120
Oxadiazon	106		P	80 - 120
Parathion Ethyl	95.4		P	80 - 120
Parathion Methyl	96.2		P	80 - 120
Pendimethalin	97.0		P	80 - 120
Phorate	95.6		P	80 - 120
Prodiamine	99.7		P	80 - 120
Prometon	102		P	80 - 120
Prometryn	105		P	80 - 120
Simazine	99.9		P	80 - 120
Tebuconazole	103		P	80 - 120
Terbufos	94.7		P	80 - 120
Terbutylazine	96.2		P	80 - 120

Reference Method: EPA 200.8 Rev. 5.4

Run ID: A91077

Included Lab Sample IDs: 2079066

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
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Quality Assurance Report Calibration Verification

Reference Method: EPA 200.8 Rev. 5.4

Run ID: A91077

Included Lab Sample IDs: 2079066

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Silver	102	102	P/P	90 - 110
Thallium	96.2	95.6	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			LCS	Precision	MS
								SMP	
EPA 200.7 Rev. 4.4	Barium	96.1		95.3	96.7	97.5			0.856
	Calcium	106		98.6	107	105			1.79
	Iron	103		105	106	105			1.16
	Magnesium	110		100	112	110			1.57
	Potassium	103		101	108	108			0.811
	Sodium	105		99.0	102	102			0.138
	Zinc	97.0		97.1	98.1	99.4			1.25
EPA 200.8 Rev. 5.4	Aluminum	93.1		90.8	91.0	89.6			1.37
	Antimony	91.8		91.8	90.2	89.8			0.522
	Arsenic	95.2		94.4	92.6	92.6			0.0398
	Boron	94.6		95.9	95.7	94.3			1.38
	Cadmium	95.9		95.1	94.0	92.7			1.49
	Chromium	87.7		87.5	89.2	88.4			0.876
	Copper	93.1		89.4	93.2	93.2			0.0551
	Lead	96.5		96.4	96.8	96.4			0.408
	Nickel	93.3		90.6	93.1	93.1			0.0864
	Selenium	94.2		92.2	91.2	91.5			0.387
	Silver	113		112	110	112			1.17
	Thallium	90.8		112	109	111			1.91
	Chloride	100		96.5	99.2			0.0071	
EPA 300.0 Rev. 2.1	Sulfate	99.7		96.5	97.9			0.202	
	Ammonia-N	105		101	103				1.39
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	98.9		98.4	96.9				1.40
EPA 353.2 Rev. 2.0	NO2NO3-N	99.0		100	98.6				1.11
EPA 365.1 Rev. 2.0	Total-P	101		101	103				2.18
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	100		95.6	98.7				3.01
EPA 8270D	Acetochlor	104	101	93.2	94.2		3.46		1.11
	Alachlor	102	99.7	89.9	89.6		2.74		0.334
	Ametryn	47.4	75.9	92.4	94.3		46.1		1.55
	Atrazine	96.6	97.2				0.615		1.89
	Atrazine Desethyl	52.1	49.3	63.2	58.8		5.45		5.13
	Azinphos Methyl	101	96.4	94.5	90.1		4.94		4.78
	Bromacil	62.2	43.8				34.7		4.83
	Butylate	58.1	58.5	46.5	47.6		0.548		2.38
	Chlorpyrifos Ethyl	98.7	97.0	97.4	98.2		1.69		0.884
	Chlorpyrifos Methyl	90.9	84.9	92.9	91.1		6.83		1.94
	Cyanazine	72.2	70.5	108	97.0		2.41		10.9
	Demeton	61.0	65.0	85.6	82.4		6.40		3.78
	Diazinon	98.2	94.8	98.9	98.1		3.46		0.864
	Dimethenamid	103	99.2	93.0	91.7		3.42		1.46
	Disulfoton	84.5	81.5	90.9	84.6		3.61		7.18
	Dithiopyr	107	104	95.9	96.5		2.59		0.549
	EPTC	61.0	58.3	48.7	51.9		4.42		6.41
	Ethion	103	104	101	98.2		1.22		2.36
	Ethoprop	88.1	84.3	91.4	90.1		4.42		1.10
	Fenamiphos	32.9	15.2	89.0	92.4		74.0		3.79
	Fipronil	103	91.4	80.1	75.2		12.0		5.70
	Fipronil Desulfanyl	101	94.3	68.7	66.3		6.75		2.99
	Fipronil Sulfide	102	96.2	71.4	65.1		5.39		7.15
	Fipronil Sulfone	97.7	86.9	52.7	45.4		11.8		8.46
	Fonofos	82.4	82.7	93.1	91.2		0.370		2.08
	Hexazinone	48.4	16.9	100	172		96.3		46.0
	Malathion	101	97.5	95.6	92.3		3.35		3.47
	Metalaxyl	13.7	9.41	90.4	82.6		37.0		8.69

Quality Assurance Report Summary

Ref. Method	Analyte	LCS % Recovery		MS % Recovery		Precision	
						LCS	MS
						SMP	
EPA 8270D	Metolachlor	104	100	90.3	92.5	3.58	1.40
	Metribuzin	73.1	72.4			0.906	7.82
	Mevinphos	51.2	26.7	77.1	83.1	63.1	7.50
	Molinate	67.5	70.4	65.9	66.6	4.11	1.09
	Norflurazon	92.6	81.4	77.6	72.3	12.9	7.07
	Oxadiazon	110	109	94.8	94.8	1.35	0.0093
	Parathion Ethyl	90.2	89.3	95.5	92.5	1.04	3.23
	Parathion Methyl	91.2	89.4	99.7	96.5	2.08	3.21
	Pendimethalin	103	109	120	119	6.04	1.32
	Phorate	73.7	72.0	82.3	79.2	2.36	3.83
	Prodiamine	115	114	124	123	0.668	0.994
	Prometon	22.6	27.6	93.7	121	20.0	25.4
	Prometryn	59.8	88.9	95.0	92.9	39.2	2.21
	Simazine	101	92.6			8.61	0.137
	Tebuconazole	56.4	14.6	78.9	75.2	118	4.00
	Terbufos	85.6	83.3	99.5	92.6	2.69	7.11
	Terbuthylazine	100	97.6	96.7	94.8	2.59	2.03
EPA 8321B	2,4-D	86.2		98.0	81.8		16.6
	Acesulfame K	106		102	86.1		16.8
	Acetaminophen	83.1		80.9	79.6		1.65
	AMPA	116		145	147		1.17
	Bentazon	83.4		56.9	52.0		5.47
	Carbamazepine	81.0		92.7	85.8		7.29
	Diuron	82.1		72.6	71.6		1.36
	Endothall	114		103	105		1.13
	Fenuron	93.8		116	111		3.79
	Fluridone	120		117	122		2.62
	Glufosinate	119		123	112		9.39
	Glyphosate	118		114	113		1.08
	Hydrocodone	110		107	102		4.57
	Ibuprofen	83.3		87.2	78.2		10.9
	Imazapyr	85.5		92.8	85.9		4.83
	Imidacloprid	97.9		154	122		19.3
	Linuron	75.2		79.6	81.1		1.78
	MCPP	97.9		107	99.0		7.34
	Naproxen	76.6		62.2	66.5		6.69
	Primidone	95.6		89.6	90.7		1.16
SM 2120 B SM 2320 B-97 SM 2540 C-97 SM 4500 F-C-97 SM 5310 B-00	Pyraclostrobin	70.0		65.5	68.2		4.04
	Sucralose	107		76.2	93.8		20.7
	Triclopyr	75.1		75.4	62.5		18.6
	Color (true)	103				1.86	
	Total Alkalinity	102				0.265	
	TDS					5.55	
	Fluoride	99.3		98.5	98.5		0.0
	Organic Carbon	101		99.8	100		0.243

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	2079060
EPA 200.7 Rev. 4.4 / E31780	Total Recoverable Metals analysis using ICP emission spectroscopy for aqueous samples supporting Clean Water Act Projects	2079066

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 200.8 Rev. 5.4 / E31780	Total Recoverable Metals analysis using ICP-MS for aqueous samples supporting Clean Water Act Projects	2079066
EPA 300.0 Rev. 2.1 / E31780	Chloride in aqueous matrices	2079060
EPA 300.0 Rev. 2.1 / E31780	Sulfate in aqueous matrices	2079060
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	2079061
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	2079061
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	2079061
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	2079061
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	2079062
EPA 8270D / E31780	Organonitrogen and phosphorus pesticides in water matrices by GC/MS/MS	2079067
EPA 8321B / E31780	Pesticides, herbicides, and other chemicals in water matrices by HPLC/MS/MS	2079065
EPA 8321B / E31780	Water soluble organic compounds by HPLC/MS/MS	2079065
SM 2120 B / E31780	True Color measured at 450 nm	2079060
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO ₃ /L	2079060
SM 2540 C-97 / E31780	Total Dissolved Solids in aqueous matrices	2079060
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices using a maximum of 250 mL of sample	2079060
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	2079060
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	2079061

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	04/17/2019			04/17/2019 17:22	Adrian Shelby	2079060
EPA 200.7 Rev. 4.4	04/17/2019	04/22/2019 15:30	Elliott D. Healy	04/24/2019 14:10	Betina Topolski	2079066
EPA 200.8 Rev. 5.4	04/17/2019	04/22/2019 15:30	Elliott D. Healy	04/24/2019 21:33	Robert K Palmer	2079066
	04/17/2019	04/22/2019 15:30	Elliott D. Healy	04/29/2019 22:17	Robert K Palmer	2079066
EPA 300.0 Rev. 2.1	04/17/2019			04/24/2019 20:24	Lipi Saha	2079060
EPA 350.1 Rev. 2.0	04/17/2019			04/23/2019 12:02	Ping Hua	2079061
EPA 351.2 Rev. 2.0	04/17/2019	04/25/2019 12:20	Adrian Shelby	04/26/2019 10:07	Joseph Suarez	2079061
EPA 353.2 Rev. 2.0	04/17/2019			04/24/2019 10:20	Beverly Y. Sanders	2079061
EPA 365.1 Rev. 2.0	04/17/2019	04/22/2019 15:10	Sima Feizi	04/23/2019 14:55	Rosalyn Ballman	2079061
EPA 365.1 Rev. 2.0 dissolved	04/17/2019			04/17/2019 16:53	Jhamieka S. Greenwood	2079062
EPA 8270D	04/17/2019	04/19/2019 09:00	Fe-Val Siddell	04/23/2019 18:22	Vandana T. Nagar	2079067
EPA 8321B	04/17/2019	04/19/2019 10:15	Rebecca Ware	04/19/2019 15:53	Rebecca Ware	2079065
	04/17/2019	04/19/2019 10:15	Rebecca Ware	04/22/2019 12:56	Rebecca Ware	2079065
	04/17/2019	04/19/2019 10:15	Rebecca Ware	04/24/2019 19:54	Rebecca Ware	2079065
	04/17/2019	04/22/2019 14:00	Hoor Shaik	04/24/2019 02:39	Juyoung Kim	2079065
SM 2120 B	04/17/2019			04/18/2019 12:06	Mariam Hanna	2079060
SM 2320 B-97	04/17/2019			04/26/2019 08:49	Dale L. Simmons	2079060
SM 2540 C-97	04/17/2019			04/22/2019 15:58	Yijie Li	2079060
SM 2540 D-97	04/17/2019			04/22/2019 15:58	Yijie Li	2079060
SM 4500 F-C-97	04/17/2019			04/26/2019 08:38	Dale L. Simmons	2079060
SM 5310 B-00	04/17/2019			04/19/2019 21:16	Julia Storbeck	2079061