

Chemical Analysis Report

CEN-DIST-2019-02-12-01

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

Event Description: **Mormon Branch + SCI**
Request ID: **RQ-2019-02-11-37**
Customer: **CEN-DIST**
Project ID: **SMP**

Send Reports to:
FL Dept. of Environmental Protection
FL Dept. of Environmental Protection
3319 Maguire Blvd., Suite 232
Orlando, FL 32803-3767
Attn: Mike Linger

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: Thekkekalathil Chandrasekhar, Chemist Administrator

Date Certified: 01-MAR-2019 14:36



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: Mormon Branch Upstream of SR 19

Collection Date/Time: 02/11/2019 13:21

Field ID: G2CE0052

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2061675	EPA 180.1 Rev. 2.0	Turbidity	0.70		NTU	P358804	
	EPA 300.0 Rev. 2.1	Chloride	20	A	mg Cl/L	P359449	
		Sulfate	18	A	mg SO4/L	P359453	
	SM 2120 B	Color (true)	53	A	PCU	P358810	
	SM 2320 B-97	Total Alkalinity	50		mg CaCO3/L	P359116	
	SM 2540 C-97	TDS	130	A	mg/L	P359130	
	SM 2540 D-97	TSS	2	IA	mg/L	P359151	
2061676	SM 4500 F-C-97	Fluoride	0.072	I	mg F/L	P359121	
	EPA 350.1 Rev. 2.0	Ammonia-N	0.002	I	mg N/L	P359057	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.12	I	mg N/L	P358838	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.014		mg N/L	P359081	
	EPA 365.1 Rev. 2.0	Total-P	0.031		mg P/L	P358859	
2061677	SM 5310 B-00	Organic Carbon	4.1		mg C/L	P358985	
	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.023		mg P/L	P358814	
2061695	EPA 8321B	2,4-D	0.0020	U	ug/L	P358573	
		Acesulfame K**	0.10	U	ug/L	P358749	
		AMPA**	0.10	U	ug/L	P358749	
		Sucralose**	0.010	U	ug/L	P358749	
		Acetaminophen**	0.0080	U	ug/L	P358573	
		Endothall**	0.25	U	ug/L	P358749	MS
		Glufosinate**	0.10	U	ug/L	P358749	
		Bentazon	8.0E-04	U	ug/L	P358573	
		Glyphosate**	0.10	U	ug/L	P358749	
		Carbamazepine**	8.0E-04	U	ug/L	P358573	
		Diuron	0.0020	U	ug/L	P358573	
		Fenuron	0.016	U	ug/L	P358573	
		Imazapyr**	0.0040	U	ug/L	P358573	
		Imidacloprid	0.0020	U	ug/L	P358573	MS
		Linuron	0.0040	U	ug/L	P358573	
		MCPP	0.0020	U	ug/L	P358573	
		Primidone**	0.0040	U	ug/L	P358573	
		Pyraclostrobin**	0.0020	U	ug/L	P358573	
		Triclopyr**	0.0040	U	ug/L	P358573	
		Fluridone**	8.0E-04	U	ug/L	P358573	
		Hydrocodone**	0.0020	U	ug/L	P358573	
		Naproxen**	0.0080	U	ug/L	P358573	
		Ibuprofen**	0.020	U	ug/L	P358573	
2061696	EPA 200.7 Rev. 4.4	Barium	4.4		ug/L	P358870	
		Calcium	17.0		mg/L	P358870	
		Iron	57	I	ug/L	P358870	
		Magnesium	7.47		mg/L	P358870	
		Potassium	0.49	I	mg/L	P358870	
		Sodium	12.5		mg/L	P358870	

Field ID: G2CE0052

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2061696	EPA 200.7 Rev. 4.4	Zinc	5.0	U	ug/L	P358870	
	EPA 200.8 Rev. 5.4	Aluminum	59		ug/L	P358870	
		Antimony	0.050	U	ug/L	P358870	
		Arsenic	0.37		ug/L	P358870	
		Boron**	15.6		ug/L	P358870	
		Cadmium	0.020	U	ug/L	P358870	
		Chromium	0.40	U	ug/L	P358870	
		Copper	0.40	U	ug/L	P358870	
		Lead	0.20	U	ug/L	P358870	
		Nickel	0.50	U	ug/L	P358870	
		Selenium	0.20	U	ug/L	P358870	
		Silver	0.010	U	ug/L	P358870	
		Thallium	0.10	U	ug/L	P358870	
2061713	EPA 8270D	Acetochlor	0.24	U	ng/L	P358680	
		Alachlor	0.24	U	ng/L	P358680	
		Ametryn	0.58	U	ng/L	P358680	RPD
		Atrazine	0.24	U	ng/L	P358680	
		Atrazine Desethyl	1.4	UJ	ng/L	P358680	RPD
		Azinphos Methyl	2.2	U	ng/L	P358680	
		Bromacil	0.48	U	ng/L	P358680	
		Butylate	0.38	U	ng/L	P358680	
		Chlorpyrifos Ethyl	0.24	U	ng/L	P358680	
		Chlorpyrifos Methyl	0.096	U	ng/L	P358680	
		Cyanazine	3.1	U	ng/L	P358680	
		Demeton	6.7	U	ng/L	P358680	
		Diazinon	0.12	U	ng/L	P358680	
		Dimethenamid**	0.096	U	ng/L	P358680	
		Disulfoton	0.48	U	ng/L	P358680	
		Dithiopyr**	0.096	U	ng/L	P358680	
		EPTC	1.2	U	ng/L	P358680	
		Ethion	0.14	U	ng/L	P358680	
		Ethoprop	0.096	U	ng/L	P358680	
		Fenamiphos	0.48	U	ng/L	P358680	
		Fipronil	0.24	U	ng/L	P358680	
		Fipronil Desulfinyl**	0.12	U	ng/L	P358680	MS
		Fipronil Sulfide	0.14	U	ng/L	P358680	
		Fipronil Sulfone	0.14	U	ng/L	P358680	
		Fonofos	0.19	U	ng/L	P358680	
		Hexazinone	0.48	U	ng/L	P358680	
		Malathion	0.34	U	ng/L	P358680	
		Metalaxyl	0.24	U	ng/L	P358680	
		Metolachlor	0.48	U	ng/L	P358680	
		Metribuzin	0.72	UJ	ng/L	P358680	RPD
		Mevinphos	0.48	U	ng/L	P358680	
		Molinate	0.29	U	ng/L	P358680	

Field ID: G2CE0052

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2061713	EPA 8270D	Norflurazon	0.48	U	ng/L	P358680	
		Oxadiazon**	0.096	U	ng/L	P358680	
		Parathion Ethyl	0.24	U	ng/L	P358680	
		Parathion Methyl	0.53	U	ng/L	P358680	
		Pendimethalin	0.96	U	ng/L	P358680	
		Phorate	0.24	U	ng/L	P358680	
		Prodiamine**	0.17	U	ng/L	P358680	
		Prometon	0.86	U	ng/L	P358680	
		Prometryn	0.19	U	ng/L	P358680	
		Simazine	0.48	U	ng/L	P358680	
		Tebuconazole**	0.48	U	ng/L	P358680	
		Terbufos	0.096	U	ng/L	P358680	
		Terbutylazine	0.41	U	ng/L	P358680	

Ref. Method and Comment:

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

EPA 8321B: MS accuracy for imazapyr could not be assessed due to high concentration of parameter in the spiked sample.

EPA 8270D: MS accuracy for Atrazine 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: P358804

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P358870

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: P358870

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: P359449

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P359453

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P359057

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: P358838

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

Reference Method: EPA 353.2 Rev. 2.0
 Batch ID: P359081

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

Reference Method: EPA 365.1 Rev. 2.0
 Batch ID: P358859

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
 Batch ID: P358814

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

Reference Method: EPA 8270D
 Batch ID: P358680

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: P358680

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: P358573

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: P358749

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: P358810

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2320 B-97
Batch ID: P359116

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

Reference Method: SM 2540 C-97
Batch ID: P359130

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P359151

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500 F-C-97
Batch ID: P359121

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-00
Batch ID: P358985

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: P358870

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Barium	103		P	85 - 115
Calcium	101		P	85 - 115
Iron	106		P	85 - 115
Magnesium	112		P	85 - 115
Potassium	109		P	85 - 115
Sodium	110		P	85 - 115
Zinc	102		P	85 - 115

Reference Method: EPA 200.8 Rev. 5.4

Batch ID: P358870

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Aluminum	106		P	80 - 120
Antimony	105		P	80 - 120
Arsenic	112		P	80 - 120
Boron	110		P	80 - 120
Cadmium	107		P	80 - 120
Chromium	110		P	80 - 120
Copper	110		P	80 - 120
Lead	110		P	80 - 120
Nickel	110		P	80 - 120
Selenium	107		P	80 - 120
Silver	107		P	80 - 120
Thallium	107		P	80 - 120

Reference Method: EPA 300.0 Rev. 2.1

Batch ID: P359449

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

Reference Method: EPA 300.0 Rev. 2.1

Batch ID: P359453

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

Reference Method: EPA 350.1 Rev. 2.0

Batch ID: P359057

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Ammonia-N	99.1		P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0

Batch ID: P358838

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

Quality Assurance Report

Laboratory Control Sample Accuracy

Reference Method: EPA 353.2 Rev. 2.0
 Batch ID: P359081

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

Reference Method: EPA 365.1 Rev. 2.0
 Batch ID: P358859

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
 Batch ID: P358814

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

Reference Method: EPA 8270D
 Batch ID: P358680

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Acetochlor	99.4	89.0	P/P	71 - 121
Alachlor	102	87.4	P/P	72 - 119
Ametryn	90.9	87.9	P/P	47 - 144
Atrazine	104	99.6	P/P	75 - 123
Atrazine Desethyl	106	56.6	P/P	45 - 133
Azinphos Methyl	126	111	P/P	66 - 165
Bromacil	68.2	63.5	P/P	43 - 123
Butylate	60.1	59.7	P/P	27 - 83.0
Chlorpyrifos Ethyl	98.0	111	P/P	70 - 117
Chlorpyrifos Methyl	98.5	88.2	P/P	71 - 120
Cyanazine	134	103	P/P	34 - 264
Demeton	73.8	69.1	P/P	41 - 122
Diazinon	99.2	84.8	P/P	70 - 127
Dimethenamid	100	88.7	P/P	60 - 130
Disulfoton	85.4	82.8	P/P	56 - 127
Dithiopyr	99.5	87.6	P/P	60 - 130
EPTC	61.1	59.5	P/P	24 - 84.0
Ethion	90.8	96.9	P/P	53 - 132
Ethoprop	84.2	77.3	P/P	57 - 117
Fenamiphos	85.0	86.2	P/P	55 - 136
Fipronil	95.0	80.1	P/P	64 - 126
Fipronil Desulfinyl	91.2	78.9	P/P	60 - 130
Fipronil Sulfide	89.0	91.1	P/P	57 - 120
Fipronil Sulfone	78.1	75.7	P/P	52 - 115
Fonofos	86.8	88.0	P/P	61 - 121
Hexazinone	105	100	P/P	62 - 131
Malathion	93.4	105	P/P	67 - 126
Metalaxyl	97.4	77.9	P/P	54 - 128
Metolachlor	90.4	95.2	P/P	71 - 118
Metribuzin	202	87.2	P/P	42 - 221
Mevinphos	81.2	73.5	P/P	45 - 114
Molinate	65.2	62.5	P/P	33 - 91.0
Norflurazon	93.7	76.8	P/P	60 - 123
Oxadiazon	93.1	97.4	P/P	60 - 130

Quality Assurance Report

Laboratory Control Sample Accuracy

Reference Method: EPA 8270D

Batch ID: P358680

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Parathion Ethyl	92.7	90.3	P/P	73 - 111
Parathion Methyl	104	80.0	P/P	74 - 126
Pendimethalin	85.6	81.0	P/P	63 - 131
Phorate	75.8	69.5	P/P	54 - 115
Prodiamine	62.5	78.4	P/P	60 - 130
Prometon	81.3	80.1	P/P	61 - 120
Prometryn	86.3	80.5	P/P	62 - 126
Simazine	110	97.1	P/P	75 - 126
Tebuconazole	78.2	72.7	P/P	30 - 100
Terbufos	85.1	82.3	P/P	65 - 116
Terbuthylazine	90.8	95.9	P/P	73 - 117

Reference Method: EPA 8321B

Batch ID: P358573

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2,4-D	60.5		P	40 - 150
Acetaminophen	82.2		P	30 - 150
Bentazon	64.9		P	30 - 150
Carbamazepine	85.2		P	40 - 150
Diuron	83.0		P	40 - 150
Fenuron	101		P	40 - 150
Fluridone	101		P	40 - 150
Hydrocodone	96.7		P	40 - 150
Ibuprofen	75.9		P	40 - 150
Imazapyr	74.4		P	40 - 150
Imidacloprid	111		P	40 - 150
Linuron	82.4		P	40 - 150
MCPP	79.2		P	40 - 150
Naproxen	70.7		P	40 - 150
Primidone	94.4		P	40 - 150
Pyraclostrobin	78.1		P	40 - 150
Triclopyr	50.5		P	40 - 150

Reference Method: EPA 8321B

Batch ID: P358749

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Acesulfame K	112		P	40 - 150
AMPA	103		P	40 - 150
Endothall	100		P	40 - 150
Glufosinate	94.1		P	40 - 150
Glyphosate	107		P	40 - 140
Sucralose	99.4		P	40 - 150

Reference Method: SM 2120 B

Batch ID: P358810

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Color (true)	100		P	85 - 115

Quality Assurance Report

Laboratory Control Sample Accuracy

Reference Method: SM 2320 B-97
Batch ID: P359116

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	102		P	98 - 107

Reference Method: SM 4500 F-C-97
Batch ID: P359121

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	93.6		P	91 - 105

Reference Method: SM 5310 B-00
Batch ID: P358985

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	97.1		P	85 - 115

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P358870

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2061776	Barium	102	101	P/P	80 - 120
2061776	Calcium	102		P	80 - 120
2061776	Iron	109	108	P/P	80 - 120
2061776	Magnesium	113	112	P/P	80 - 120
2061776	Potassium	107	105	P/P	80 - 120
2061776	Sodium	108	107	P/P	80 - 120
2061776	Zinc	103	102	P/P	80 - 120
2061877	Barium	102		P	80 - 120
2061877	Calcium	97.7		P	80 - 120
2061877	Iron	109		P	80 - 120
2061877	Magnesium	109		P	80 - 120
2061877	Potassium	105		P	80 - 120
2061877	Sodium	104		P	80 - 120
2061877	Zinc	102		P	80 - 120

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P358870

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2061776	Aluminum	105	104	P/P	80 - 120
2061776	Antimony	105	105	P/P	80 - 120
2061776	Arsenic	108	107	P/P	80 - 120
2061776	Boron	110	104	P/P	80 - 120
2061776	Cadmium	109	108	P/P	80 - 120
2061776	Chromium	104	103	P/P	80 - 120
2061776	Copper	107	105	P/P	80 - 120
2061776	Lead	107	106	P/P	80 - 120
2061776	Nickel	105	104	P/P	80 - 120
2061776	Selenium	108	106	P/P	80 - 120
2061776	Silver	108	106	P/P	80 - 120
2061776	Thallium	114	113	P/P	80 - 120
2061877	Aluminum	104		P	80 - 120
2061877	Antimony	105		P	80 - 120
2061877	Arsenic	107		P	80 - 120
2061877	Boron	107		P	80 - 120
2061877	Cadmium	109		P	80 - 120
2061877	Chromium	102		P	80 - 120
2061877	Copper	101		P	80 - 120
2061877	Lead	104		P	80 - 120
2061877	Nickel	103		P	80 - 120
2061877	Selenium	106		P	80 - 120
2061877	Silver	106		P	80 - 120
2061877	Thallium	110		P	80 - 120

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P359449

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2061675	Chloride	103		P	90 - 110
2061726	Chloride	105		P	90 - 110

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P359453

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2061675	Sulfate	102		P	90 - 110
2061726	Sulfate	104		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P359057

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2061706	Ammonia-N	100	99.8	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P358838

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2061676	Kjeldahl Nitrogen	109	105	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P359081

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2061637	NO2NO3-N	99.6	100	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P358859

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2061600	Total-P	102	106	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P358814

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2061677	O-Phosphate-P	95.1	96.1	P/P	90 - 110

Reference Method: EPA 8270D
Batch ID: P358680

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2061294	Acetochlor	81.3	84.8	P/P	63 - 129
2061294	Alachlor	84.6	88.1	P/P	65 - 127
2061294	Ametryn	130	92.7	P/P	40 - 164
2061294	Atrazine Desethyl	97.4	96.9	P/P	14 - 157
2061294	Azinphos Methyl	105	111	P/P	49 - 180
2061294	Bromacil	79.2	76.9	P/P	48 - 130
2061294	Butylate	66.6	55.2	P/P	10 - 94.0
2061294	Chlorpyrifos Ethyl	86.7	91.2	P/P	58 - 123
2061294	Chlorpyrifos Methyl	94.4	90.7	P/P	58 - 125
2061294	Cyanazine	147	135	P/P	24 - 253
2061294	Demeton	106	84.4	P/P	25 - 149
2061294	Diazinon	101	102	P/P	59 - 144
2061294	Dimethenamid	82.8	85.9	P/P	60 - 130
2061294	Disulfoton	104	102	P/P	54 - 132
2061294	Dithiopyr	89.3	93.7	P/P	60 - 130

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 8270D
Batch ID: P358680

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2061294	EPTC	65.5	50.9	P/P	10 - 92.0
2061294	Ethion	92.0	89.3	P/P	30 - 148
2061294	Ethoprop	102	96.4	P/P	50 - 130
2061294	Fenamiphos	92.1	77.1	P/P	49 - 142
2061294	Fipronil	81.8	71.8	P/P	46 - 140
2061294	Fipronil Desulfinyl	67.1	60.0	P/F	60 - 130
2061294	Fipronil Sulfide	66.2	54.9	P/P	31 - 136
2061294	Fipronil Sulfone	50.5	35.4	P/P	16 - 136
2061294	Fonofos	105	96.9	P/P	55 - 129
2061294	Hexazinone	113	110	P/P	56 - 141
2061294	Malathion	80.1	80.4	P/P	56 - 135
2061294	Metalaxyl	89.8	86.6	P/P	54 - 135
2061294	Metolachlor	81.4	84.9	P/P	51 - 140
2061294	Metribuzin	216	217	P/P	45 - 254
2061294	Mevinphos	104	96.5	P/P	33 - 131
2061294	Molinate	62.9	59.7	P/P	14 - 98.0
2061294	Norflurazon	79.3	67.8	P/P	34 - 136
2061294	Oxadiazon	82.8	85.5	P/P	60 - 130
2061294	Parathion Ethyl	92.0	87.1	P/P	66 - 118
2061294	Parathion Methyl	106	104	P/P	64 - 136
2061294	Pendimethalin	100	94.1	P/P	59 - 144
2061294	Phorate	94.5	77.8	P/P	42 - 130
2061294	Prodiamine	67.3	67.0	P/P	60 - 130
2061294	Prometon	76.0	76.1	P/P	59 - 134
2061294	Prometryn	82.2	78.2	P/P	54 - 135
2061294	Simazine	126	133	P/P	53 - 156
2061294	Tebuconazole	69.4	65.5	P/P	30 - 100
2061294	Terbufos	107	96.0	P/P	57 - 131
2061294	Terbutylazine	85.2	82.4	P/P	68 - 125

Reference Method: EPA 8321B
Batch ID: P358573

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2061239	2,4-D	70.1	65.3	P/P	40 - 150
2061239	Acetaminophen	118	116	P/P	30 - 150
2061239	Bentazon	36.7	36.3	P/P	30 - 150
2061239	Carbamazepine	71.9	74.9	P/P	40 - 150
2061239	Diuron	62.4	66.4	P/P	40 - 150
2061239	Fenuron	83.3	80.6	P/P	40 - 150
2061239	Fluridone	80.8	87.0	P/P	40 - 150
2061239	Hydrocodone	78.8	79.7	P/P	40 - 150
2061239	Ibuprofen	87.9	87.0	P/P	40 - 150
2061239	Imidacloprid	184	167	F/F	40 - 150
2061239	Linuron	66.6	70.5	P/P	40 - 150
2061239	MCPD	88.5	79.5	P/P	40 - 150
2061239	Naproxen	51.7	50.3	P/P	40 - 150
2061239	Primidone	109	102	P/P	40 - 150
2061239	Pyraclostrobin	78.7	76.3	P/P	40 - 150
2061239	Triclopyr	47.4	40.6	P/P	40 - 150

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 8321B
Batch ID: P358749

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2061239	Acesulfame K	71.3	72.6	P/P	40 - 150
2061239	Endothall	25.1	20.9	F/F	40 - 150
2061239	Sucralose	101	109	P/P	40 - 150
2061887	AMPA	94.0	92.8	P/P	40 - 150
2061887	Glufosinate	80.5	85.4	P/P	40 - 150
2061887	Glyphosate	89.8	89.1	P/P	40 - 140

Reference Method: SM 4500 F-C-97
Batch ID: P359121

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2061786	Fluoride	92.6	93.1	P/P	91 - 105

Reference Method: SM 5310 B-00
Batch ID: P358985

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2061620	Organic Carbon	101		P	85 - 115

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P358804

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2061636	Turbidity	4.07	Sample	P	0 - 20

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P358870

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2061776	Barium	1.11	Spike	P	0 - 20
2061776	Calcium	1.57	Spike	P	0 - 20
2061776	Iron	0.957	Spike	P	0 - 20
2061776	Magnesium	0.261	Spike	P	0 - 20
2061776	Potassium	1.38	Spike	P	0 - 20
2061776	Sodium	0.341	Spike	P	0 - 20
2061776	Zinc	1.07	Spike	P	0 - 20

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P358870

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2061776	Aluminum	0.941	Spike	P	0 - 20
2061776	Antimony	0.344	Spike	P	0 - 20
2061776	Arsenic	1.13	Spike	P	0 - 20
2061776	Boron	2.55	Spike	P	0 - 20
2061776	Cadmium	0.227	Spike	P	0 - 20
2061776	Chromium	1.18	Spike	P	0 - 20
2061776	Copper	1.56	Spike	P	0 - 20
2061776	Lead	1.05	Spike	P	0 - 20
2061776	Nickel	0.434	Spike	P	0 - 20
2061776	Selenium	1.49	Spike	P	0 - 20
2061776	Silver	1.56	Spike	P	0 - 20
2061776	Thallium	1.35	Spike	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P359449

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2061675	Chloride	0.0456	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P359453

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2061675	Sulfate	0.0756	Sample	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 350.1 Rev. 2.0
 Batch ID: P359057

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2061706	Ammonia-N	0.173	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
 Batch ID: P358838

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2061676	Kjeldahl Nitrogen	3.08	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
 Batch ID: P359081

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2061637	NO2NO3-N	0.404	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
 Batch ID: P358859

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2061600	Total-P	3.34	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
 Batch ID: P358814

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2061677	O-Phosphate-P	0.845	Spike	P	0 - 20

Reference Method: EPA 8270D
 Batch ID: P358680

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2061294	Acetochlor	4.18	Spike	P	0 - 30
2061294	Alachlor	4.02	Spike	P	0 - 30
2061294	Ametryn	33.5	Spike	F	0 - 30
2061294	Atrazine	1.35	Spike	P	0 - 30
2061294	Atrazine Desethyl	0.408	Spike	P	0 - 30
2061294	Azinphos Methyl	4.84	Spike	P	0 - 30
2061294	Bromacil	2.99	Spike	P	0 - 30
2061294	Butylate	18.6	Spike	P	0 - 30
2061294	Chlorpyrifos Ethyl	5.06	Spike	P	0 - 30
2061294	Chlorpyrifos Methyl	3.98	Spike	P	0 - 30
2061294	Cyanazine	8.64	Spike	P	0 - 30
2061294	Demeton	22.3	Spike	P	0 - 30
2061294	Diazinon	0.732	Spike	P	0 - 30
2061294	Dimethenamid	3.67	Spike	P	0 - 30
2061294	Disulfoton	1.16	Spike	P	0 - 30
2061294	Dithiopyr	4.76	Spike	P	0 - 30

Quality Assurance Report

Precision

Reference Method: EPA 8270D

Batch ID: P358680

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2061294	EPTC	25.1	Spike	P	0 - 30
2061294	Ethion	2.96	Spike	P	0 - 30
2061294	Ethoprop	5.52	Spike	P	0 - 30
2061294	Fenamiphos	17.7	Spike	P	0 - 30
2061294	Fipronil	12.9	Spike	P	0 - 30
2061294	Fipronil Desulfinyl	10.1	Spike	P	0 - 30
2061294	Fipronil Sulfide	14.3	Spike	P	0 - 30
2061294	Fipronil Sulfone	19.3	Spike	P	0 - 30
2061294	Fonofos	7.75	Spike	P	0 - 30
2061294	Hexazinone	3.06	Spike	P	0 - 30
2061294	Malathion	0.437	Spike	P	0 - 30
2061294	Metaxyl	3.68	Spike	P	0 - 30
2061294	Metolachlor	4.18	Spike	P	0 - 30
2061294	Metribuzin	0.452	Spike	P	0 - 30
2061294	Mevinphos	7.29	Spike	P	0 - 30
2061294	Molinate	5.27	Spike	P	0 - 30
2061294	Norflurazon	15.6	Spike	P	0 - 30
2061294	Oxadiazon	2.71	Spike	P	0 - 30
2061294	Parathion Ethyl	5.45	Spike	P	0 - 30
2061294	Parathion Methyl	1.81	Spike	P	0 - 30
2061294	Pendimethalin	6.30	Spike	P	0 - 30
2061294	Phorate	19.4	Spike	P	0 - 30
2061294	Prodiamine	0.444	Spike	P	0 - 30
2061294	Prometon	0.0937	Spike	P	0 - 30
2061294	Prometryn	4.94	Spike	P	0 - 30
2061294	Simazine	4.93	Spike	P	0 - 30
2061294	Tebuconazole	5.78	Spike	P	0 - 30
2061294	Terbufos	11.1	Spike	P	0 - 30
2061294	Terbutylazine	3.31	Spike	P	0 - 30
LFB	Acetochlor	11.0	LCS	P	0 - 30
LFB	Alachlor	15.7	LCS	P	0 - 30
LFB	Ametryn	3.36	LCS	P	0 - 30
LFB	Atrazine	4.00	LCS	P	0 - 30
LFB	Atrazine Desethyl	60.9	LCS	F	0 - 30
LFB	Azinphos Methyl	13.2	LCS	P	0 - 30
LFB	Bromacil	7.00	LCS	P	0 - 30
LFB	Butylate	0.553	LCS	P	0 - 30
LFB	Chlorpyrifos Ethyl	12.3	LCS	P	0 - 30
LFB	Chlorpyrifos Methyl	11.1	LCS	P	0 - 30
LFB	Cyanazine	26.2	LCS	P	0 - 30
LFB	Demeton	6.67	LCS	P	0 - 30
LFB	Diazinon	15.7	LCS	P	0 - 30
LFB	Dimethenamid	12.2	LCS	P	0 - 30
LFB	Disulfoton	3.09	LCS	P	0 - 30
LFB	Dithiopyr	12.8	LCS	P	0 - 30
LFB	EPTC	2.65	LCS	P	0 - 30
LFB	Ethion	6.53	LCS	P	0 - 30
LFB	Ethoprop	8.59	LCS	P	0 - 30
LFB	Fenamiphos	1.40	LCS	P	0 - 30
LFB	Fipronil	17.0	LCS	P	0 - 30
LFB	Fipronil Desulfinyl	14.4	LCS	P	0 - 30

Quality Assurance Report

Precision

Reference Method: EPA 8270D

Batch ID: P358680

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
LFB	Fipronil Sulfide	2.43	LCS	P	0 - 30
LFB	Fipronil Sulfone	3.22	LCS	P	0 - 30
LFB	Fonofos	1.32	LCS	P	0 - 30
LFB	Hexazinone	4.89	LCS	P	0 - 30
LFB	Malathion	12.0	LCS	P	0 - 30
LFB	Metalaxyl	22.2	LCS	P	0 - 30
LFB	Metolachlor	5.15	LCS	P	0 - 30
LFB	Metribuzin	79.3	LCS	F	0 - 30
LFB	Mevinphos	9.91	LCS	P	0 - 30
LFB	Molinate	4.23	LCS	P	0 - 30
LFB	Norflurazon	19.8	LCS	P	0 - 30
LFB	Oxadiazon	4.56	LCS	P	0 - 30
LFB	Parathion Ethyl	2.68	LCS	P	0 - 30
LFB	Parathion Methyl	26.6	LCS	P	0 - 30
LFB	Pendimethalin	5.49	LCS	P	0 - 30
LFB	Phorate	8.66	LCS	P	0 - 30
LFB	Prodiamine	22.5	LCS	P	0 - 30
LFB	Prometon	1.53	LCS	P	0 - 30
LFB	Prometryn	6.93	LCS	P	0 - 30
LFB	Simazine	12.3	LCS	P	0 - 30
LFB	Tebuconazole	7.35	LCS	P	0 - 30
LFB	Terbufos	3.35	LCS	P	0 - 30
LFB	Terbuthylazine	5.45	LCS	P	0 - 30

Reference Method: EPA 8321B

Batch ID: P358573

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2061239	2,4-D	4.88	Spike	P	0 - 30
2061239	Acetaminophen	2.21	Spike	P	0 - 30
2061239	Bentazon	0.308	Spike	P	0 - 30
2061239	Carbamazepine	3.99	Spike	P	0 - 30
2061239	Diuron	5.81	Spike	P	0 - 30
2061239	Fenuron	3.35	Spike	P	0 - 30
2061239	Fluridone	3.32	Spike	P	0 - 30
2061239	Hydrocodone	1.14	Spike	P	0 - 30
2061239	Ibuprofen	1.12	Spike	P	0 - 30
2061239	Imazapyr	24.4	Spike	P	0 - 30
2061239	Imidacloprid	7.98	Spike	P	0 - 30
2061239	Linuron	5.72	Spike	P	0 - 30
2061239	MCP	10.6	Spike	P	0 - 30
2061239	Naproxen	2.75	Spike	P	0 - 30
2061239	Primidone	6.24	Spike	P	0 - 30
2061239	Pyraclostrobin	3.10	Spike	P	0 - 30
2061239	Triclopyr	15.6	Spike	P	0 - 30

Quality Assurance Report Precision

Reference Method: EPA 8321B
Batch ID: P358749

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2061239	Acesulfame K	1.72	Spike	P	0 - 30
2061239	Endothall	18.5	Spike	P	0 - 30
2061239	Sucralose	5.41	Spike	P	0 - 30
2061887	AMPA	1.37	Spike	P	0 - 30
2061887	Glufosinate	5.80	Spike	P	0 - 30
2061887	Glyphosate	0.769	Spike	P	0 - 30

Reference Method: SM 2120 B
Batch ID: P358810

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2061675	Color (true)	1.57	Sample	P	0 - 20

Reference Method: SM 2320 B-97
Batch ID: P359116

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2061786	Total Alkalinity	0.477	Sample	P	0 - 1.6

Reference Method: SM 2540 C-97
Batch ID: P359130

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2061675	TDS	4.62	Sample	P	0 - 10

Reference Method: SM 4500 F-C-97
Batch ID: P359121

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2061786	Fluoride	0.474	Spike	P	0 - 3.5

Reference Method: SM 5310 B-00
Batch ID: P358985

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2061620	Organic Carbon	0.488	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: 2061695
Field Sample ID: G2CE0052

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	2,4-D-d3	75.1	P	30 - 160
EPA 8321B	Acetaminophen-d4	99.0	P	30 - 160
EPA 8321B	Carbamazepine-d10	83.5	P	30 - 160
EPA 8321B	Diuron-d6	75.5	P	30 - 160
EPA 8321B	Endothall-d6	131	P	40 - 160
EPA 8321B	Endothall-d6	131	P	40 - 160
EPA 8321B	Glyphosate 13C 15N	79.5	P	40 - 160
EPA 8321B	Glyphosate 13C 15N	79.5	P	40 - 160
EPA 8321B	Ibuprofen-d3	95.1	P	30 - 160
EPA 8321B	Primidone-d5	112	P	30 - 160
EPA 8321B	Sucralose-d6	110	P	40 - 160
EPA 8321B	Sucralose-d6	110	P	40 - 160

Lab Sample ID: 2061713
Field Sample ID: G2CE0052

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8270D	Simazine-d10	109	P	68 - 130
EPA 8270D	Terbufos-d10	89.9	P	61 - 136

Quality Assurance Report Calibration Verification

Reference Method: EPA 180.1 Rev. 2.0

Run ID: A89377

Included Lab Sample IDs: 2061675

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Turbidity	99.5	101	P/P	95 - 105

Reference Method: SM 2120 B

Run ID: A89379

Included Lab Sample IDs: 2061675

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	101	100	P/P	90 - 115

Reference Method: EPA 365.1 Rev. 2.0 dissolved

Run ID: A89380

Included Lab Sample IDs: 2061677

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	99.5	98.6	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A89420

Included Lab Sample IDs: 2061676

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	99.2	99.5	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A89421

Included Lab Sample IDs: 2061676

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	98.4	103	P/P	90 - 110

Reference Method: EPA 200.7 Rev. 4.4

Run ID: A89433

Included Lab Sample IDs: 2061696

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Barium	101	101	P/P	90 - 110
Calcium	98.6	99.7	P/P	90 - 110
Iron	100	101	P/P	90 - 110
Magnesium	101	101	P/P	90 - 110
Potassium	99.4	98.7	P/P	90 - 110
Sodium	101	98.5	P/P	90 - 110
Zinc	101	101	P/P	90 - 110

Reference Method: EPA 8270D

Run ID: A89434

Included Lab Sample IDs: 2061713

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Acetochlor	101		P	80 - 120
Alachlor	107		P	80 - 120
Ametryn	104		P	80 - 120

Quality Assurance Report Calibration Verification

Reference Method: EPA 8270D

Run ID: A89434

Included Lab Sample IDs: 2061713

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Atrazine	94.8		P	80 - 120
Atrazine Desethyl	97.3		P	80 - 120
Azinphos Methyl	103		P	80 - 120
Bromacil	102		P	80 - 120
Butylate	101		P	80 - 120
Chlorpyrifos Ethyl	102		P	80 - 120
Chlorpyrifos Methyl	96.8		P	80 - 120
Cyanazine	101		P	80 - 120
Demeton	97.3		P	80 - 120
Diazinon	96.8		P	80 - 120
Dimethenamid	99.3		P	80 - 120
Disulfoton	98.9		P	80 - 120
Dithiopyr	106		P	80 - 120
EPTC	101		P	80 - 120
Ethion	95.4		P	80 - 120
Ethoprop	99.9		P	80 - 120
Fenamiphos	105		P	80 - 120
Fipronil	102		P	80 - 120
Fipronil Desulfinyl	105		P	80 - 120
Fipronil Sulfide	105		P	80 - 120
Fipronil Sulfone	106		P	80 - 120
Fonofos	99.0		P	80 - 120
Hexazinone	99.5		P	80 - 120
Malathion	97.3		P	80 - 120
Metalaxyl	102		P	80 - 120
Metolachlor	104		P	80 - 120
Metribuzin	82.6		P	80 - 120
Mevinphos	99.3		P	80 - 120
Molinate	101		P	80 - 120
Norflurazon	107		P	80 - 120
Oxadiazon	106		P	80 - 120
Parathion Ethyl	99.8		P	80 - 120
Parathion Methyl	89.0		P	80 - 120
Pendimethalin	86.7		P	80 - 120
Phorate	96.2		P	80 - 120
Prodiamine	106		P	80 - 120
Prometon	98.7		P	80 - 120
Prometryn	102		P	80 - 120
Simazine	105		P	80 - 120
Tebuconazole	106		P	80 - 120
Terbufos	97.1		P	80 - 120
Terbutylazine	99.5		P	80 - 120

Reference Method: SM 5310 B-00

Run ID: A89440

Included Lab Sample IDs: 2061676

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	96.4	97.1	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: EPA 8321B
Run ID: A89461
Included Lab Sample IDs: 2061695

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Sucralose	84.8	97.5	P/P	60 - 160

Reference Method: EPA 350.1 Rev. 2.0
Run ID: A89467
Included Lab Sample IDs: 2061676

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

Reference Method: EPA 200.8 Rev. 5.4
Run ID: A89473
Included Lab Sample IDs: 2061696

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Aluminum	101	101	P/P	90 - 110
Antimony	99.1	100	P/P	90 - 110
Boron	104	105	P/P	90 - 110
Cadmium	101	102	P/P	90 - 110
Chromium	105	109	P/P	90 - 110
Copper	105	108	P/P	90 - 110
Lead	106	109	P/P	90 - 110
Nickel	105	108	P/P	90 - 110
Selenium	101	102	P/P	90 - 110
Silver	99.0	101	P/P	90 - 110
Thallium	98.2	100	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Run ID: A89475
Included Lab Sample IDs: 2061676

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO2NO3-N	99.5	99.5	P/P	90 - 110

Reference Method: SM 2320 B-97
Run ID: A89490
Included Lab Sample IDs: 2061675

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	99.3	102	P/P	90 - 110

Reference Method: SM 4500 F-C-97
Run ID: A89490
Included Lab Sample IDs: 2061675

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	95.8	94.8	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: EPA 8321B
Run ID: A89502
Included Lab Sample IDs: 2061695

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
2,4-D	80.2	83.8	P/P	50 - 150
Acetaminophen	111	104	P/P	60 - 160
Bentazon	74.6	79.6	P/P	50 - 160
Carbamazepine	98.4	97.9	P/P	60 - 150
Diuron	89.5	97.1	P/P	60 - 150
Fenuron	97.0	95.0	P/P	60 - 150
Fluridone	104	106	P/P	60 - 160
Hydrocodone	98.7	81.1	P/P	60 - 150
Ibuprofen	82.8	90.6	P/P	50 - 160
Imazapyr	63.5	76.3	P/P	50 - 150
Imidacloprid	93.7	98.6	P/P	60 - 150
Linuron	104	101	P/P	60 - 150
MCPP	87.0	89.2	P/P	50 - 150
Naproxen	93.1	112	P/P	50 - 160
Primidone	91.5	101	P/P	60 - 150
Pyraclostrobin	111	109	P/P	60 - 150
Triclopyr	82.1	91.2	P/P	50 - 150

Reference Method: EPA 200.8 Rev. 5.4
Run ID: A89518
Included Lab Sample IDs: 2061696

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

Reference Method: EPA 8321B
Run ID: A89578
Included Lab Sample IDs: 2061695

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
AMPA	101	107	P/P	60 - 160
Glufosinate	104	105	P/P	60 - 160
Glyphosate	112	116	P/P	60 - 160

Reference Method: EPA 8321B
Run ID: A89585
Included Lab Sample IDs: 2061695

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Acesulfame K	97.9	104	P/P	60 - 160
Endothall	94.4	90.1	P/P	60 - 160

Reference Method: EPA 300.0 Rev. 2.1
Run ID: A89617
Included Lab Sample IDs: 2061675

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

Quality Assurance Report

Calibration Verification

* 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						4.07	
EPA 200.7 Rev. 4.4	Barium	103		102	101	102		1.11
	Calcium	101		102	97.7			1.57
	Iron	106		109	108	109		0.957
	Magnesium	112		113	112	109		0.261
	Potassium	109		107	105	105		1.38
	Sodium	110		108	107	104		0.341
	Zinc	102		103	102	102		1.07
EPA 200.8 Rev. 5.4	Aluminum	106		105	104	104		0.941
	Antimony	105		105	105	105		0.344
	Arsenic	112		108	107	107		1.13
	Boron	110		110	104	107		2.55
	Cadmium	107		109	108	109		0.227
	Chromium	110		104	103	102		1.18
	Copper	110		107	105	101		1.56
	Lead	110		107	106	104		1.05
	Nickel	110		105	104	103		0.434
	Selenium	107		108	106	106		1.49
	Silver	107		108	106	106		1.56
	Thallium	107		114	113	110		1.35
EPA 300.0 Rev. 2.1	Chloride	105		103	105		0.0456	
	Sulfate	105		102	104		0.0756	
EPA 350.1 Rev. 2.0	Ammonia-N	99.1		100	99.8			0.173
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	109		109	105			3.08
EPA 353.2 Rev. 2.0	NO2NO3-N	101		99.6	100			0.404
EPA 365.1 Rev. 2.0	Total-P	102		102	106			3.34
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	97.5		95.1	96.1			0.845
EPA 8270D	Acetochlor	99.4	89.0	81.3	84.8	11.0		4.18
	Alachlor	102	87.4	84.6	88.1	15.7		4.02
	Ametryn	90.9	87.9	130	92.7	3.36		33.5
	Atrazine	104	99.6			4.00		1.35
	Atrazine Desethyl	106	56.6	97.4	96.9	60.9		0.408
	Azinphos Methyl	126	111	105	111	13.2		4.84
	Bromacil	68.2	63.5	79.2	76.9	7.00		2.99
	Butylate	60.1	59.7	66.6	55.2	0.553		18.6
	Chlorpyrifos Ethyl	98.0	111	86.7	91.2	12.3		5.06
	Chlorpyrifos Methyl	98.5	88.2	94.4	90.7	11.1		3.98
	Cyanazine	134	103	147	135	26.2		8.64
	Demeton	73.8	69.1	106	84.4	6.67		22.3
	Diazinon	99.2	84.8	101	102	15.7		0.732
	Dimethenamid	100	88.7	82.8	85.9	12.2		3.67
	Disulfoton	85.4	82.8	104	102	3.09		1.16
	Dithiopyr	99.5	87.6	89.3	93.7	12.8		4.76
	EPTC	61.1	59.5	65.5	50.9	2.65		25.1
	Ethion	90.8	96.9	92.0	89.3	6.53		2.96
	Ethoprop	84.2	77.3	102	96.4	8.59		5.52
	Fenamiphos	85.0	86.2	92.1	77.1	1.40		17.7
	Fipronil	95.0	80.1	81.8	71.8	17.0		12.9
	Fipronil Desulfinyl	91.2	78.9	67.1	60.0	14.4		10.1
	Fipronil Sulfide	89.0	91.1	66.2	54.9	2.43		14.3
	Fipronil Sulfone	78.1	75.7	50.5	35.4	3.22		19.3
	Fonofos	86.8	88.0	105	96.9	1.32		7.75
	Hexazinone	105	100	113	110	4.89		3.06
	Malathion	93.4	105	80.1	80.4	12.0		0.437

Quality Assurance Report Summary

Ref. Method	Analyte	LCS % Recovery		MS % Recovery		Precision	
						LCS	MS
						SMP	
EPA 8270D	Metalaxyl	97.4	77.9	89.8	86.6	22.2	3.68
	Metolachlor	90.4	95.2	81.4	84.9	5.15	4.18
	Metribuzin	202	87.2	216	217	79.3	0.452
	Mevinphos	81.2	73.5	104	96.5	9.91	7.29
	Molinate	65.2	62.5	62.9	59.7	4.23	5.27
	Norflurazon	93.7	76.8	79.3	67.8	19.8	15.6
	Oxadiazon	93.1	97.4	82.8	85.5	4.56	2.71
	Parathion Ethyl	92.7	90.3	92.0	87.1	2.68	5.45
	Parathion Methyl	104	80.0	106	104	26.6	1.81
	Pendimethalin	85.6	81.0	100	94.1	5.49	6.30
	Phorate	75.8	69.5	94.5	77.8	8.66	19.4
	Prodiamine	62.5	78.4	67.3	67.0	22.5	0.444
	Prometon	81.3	80.1	76.0	76.1	1.53	0.0937
	Prometryn	86.3	80.5	82.2	78.2	6.93	4.94
	Simazine	110	97.1	126	133	12.3	4.93
	Tebuconazole	78.2	72.7	69.4	65.5	7.35	5.78
	Terbufos	85.1	82.3	107	96.0	3.35	11.1
	Terbuthylazine	90.8	95.9	85.2	82.4	5.45	3.31
EPA 8321B	2,4-D	60.5		65.3	70.1		4.88
	Acesulfame K	112		71.3	72.6		1.72
	Acetaminophen	82.2		116	118		2.21
	AMPA	103		94.0	92.8		1.37
	Bentazon	64.9		36.3	36.7		0.308
	Carbamazepine	85.2		74.9	71.9		3.99
	Diuron	83.0		66.4	62.4		5.81
	Endothall	100		25.1	20.9		18.5
	Fenuron	101		80.6	83.3		3.35
	Fluridone	101		87.0	80.8		3.32
	Glufosinate	94.1		80.5	85.4		5.80
	Glyphosate	107		89.8	89.1		0.769
	Hydrocodone	96.7		79.7	78.8		1.14
	Ibuprofen	75.9		87.0	87.9		1.12
	Imazapyr	74.4					24.4
	Imidacloprid	111		167	184		7.98
	Linuron	82.4		70.5	66.6		5.72
	MCPP	79.2		79.5	88.5		10.6
	Naproxen	70.7		50.3	51.7		2.75
	Primidone	94.4		102	109		6.24
SM 2120 B SM 2320 B-97 SM 2540 C-97 SM 4500 F-C-97 SM 5310 B-00	Pyraclostrobin	78.1		76.3	78.7		3.10
	Sucralose	99.4		109	101		5.41
	Triclopyr	50.5		40.6	47.4		15.6
	Color (true)	100				1.57	
	Total Alkalinity	102				0.477	
	TDS					4.62	
	Fluoride	93.6		92.6	93.1		0.474
	Organic Carbon	97.1		101			0.488

Reference Method Descriptions

Method / DoH Cert #
EPA 180.1 Rev. 2.0 /
E31780

Description
Turbidity in aqueous matrices

Associated Samples
2061675

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 200.7 Rev. 4.4 / E31780	Total Recoverable Metals analysis using ICP emission spectroscopy for aqueous samples supporting Clean Water Act Projects	2061696
EPA 200.8 Rev. 5.4 / E31780	Total Recoverable Metals analysis using ICP-MS for aqueous samples supporting Clean Water Act Projects	2061696
EPA 300.0 Rev. 2.1 / E31780	Chloride in aqueous matrices	2061675
EPA 300.0 Rev. 2.1 / E31780	Sulfate in aqueous matrices	2061675
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	2061676
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	2061676
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	2061676
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	2061676
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	2061677
EPA 8270D / E31780	Organonitrogen and phosphorus pesticides in water matrices by GC/MS/MS	2061713
EPA 8321B / E31780	Pesticides, herbicides, and other chemicals in water matrices by HPLC/MS/MS	2061695
EPA 8321B / E31780	Water soluble organic compounds by HPLC/MS/MS	2061695
SM 2120 B / E31780	True Color measured at 450 nm	2061675
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO3/L	2061675
SM 2540 C-97 / E31780	Total Dissolved Solids in aqueous matrices	2061675
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices using a maximum of 250 mL of sample	2061675
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	2061675
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	2061676

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	02/12/2019			02/12/2019 16:03	Adrian Shelby	2061675
EPA 200.7 Rev. 4.4	02/12/2019	02/13/2019 16:35	Elliott D. Healy	02/14/2019 14:58	Betina Topolski	2061696
EPA 200.8 Rev. 5.4	02/12/2019	02/13/2019 16:35	Elliott D. Healy	02/16/2019 03:22	Allison Taylor	2061696
	02/12/2019	02/13/2019 16:35	Elliott D. Healy	02/19/2019 15:22	Allison Taylor	2061696
EPA 300.0 Rev. 2.1	02/12/2019			02/22/2019 23:25	Lipi Saha	2061675
EPA 350.1 Rev. 2.0	02/12/2019			02/15/2019 12:39	Ping Hua	2061676
EPA 351.2 Rev. 2.0	02/12/2019	02/13/2019 12:15	Adrian Shelby	02/14/2019 12:49	Joseph Suarez	2061676
EPA 353.2 Rev. 2.0	02/12/2019			02/18/2019 12:21	Beverly Y. Sanders	2061676
EPA 365.1 Rev. 2.0	02/12/2019	02/13/2019 12:40	Sima Feizi	02/14/2019 13:07	Rosalyn Ballman	2061676
EPA 365.1 Rev. 2.0 dissolved	02/12/2019			02/12/2019 15:24	Jhamieka S. Greenwood	2061677
EPA 8270D	02/12/2019	02/13/2019 11:45	Fe-Val Siddell	02/14/2019 18:42	Vandana T. Nagar	2061713
EPA 8321B	02/12/2019	02/12/2019 12:00	Hoor Shaik	02/20/2019 06:40	Juyoung Kim	2061695
	02/12/2019	02/13/2019 14:30	Rebecca Ware	02/13/2019 19:44	Mohammad Ghaffari	2061695
	02/12/2019	02/13/2019 14:30	Rebecca Ware	02/14/2019 13:31	Mohammad Ghaffari	2061695
	02/12/2019	02/13/2019 14:30	Rebecca Ware	02/16/2019 13:42	Mohammad Ghaffari	2061695
SM 2120 B	02/12/2019			02/12/2019 16:17	Chelsea Hernandez	2061675
SM 2320 B-97	02/12/2019			02/16/2019 15:57	Dale L. Simmons	2061675
SM 2540 C-97	02/12/2019			02/13/2019 15:22	Yijie Li	2061675
SM 2540 D-97	02/12/2019			02/13/2019 15:22	Yijie Li	2061675
SM 4500 F-C-97	02/12/2019			02/16/2019 15:57	Dale L. Simmons	2061675
SM 5310 B-00	02/12/2019			02/14/2019 19:24	Chelsea Hernandez	2061676