

Chemical Analysis Report

SO-DIST-2016-09-20-01

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

Event Description: **SMP: Philippi and Philippi Trib**
Request ID: **RQ-2016-09-19-27**
Customer: **SO-DIST**
Project ID: **SMP**

Send Reports to:
FL Dept. of Environmental Protection
FLDEP South District Office
2295 Victoria Ave. Suite 364
Fort Myers, FL 33901
Attn: Ben Paswater

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

Certified by: Liang Lin, Environmental Administrator

Date Certified: 18-OCT-2016 17:05

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: 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 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: Phillippi Creek @ Pinecraft Park

Collection Date/Time: 09/19/2016 11:30

Field ID: G3SD09192016-1

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1832947	EPA 180.1 Rev. 2.0	Turbidity	19		NTU	P311555	
	EPA 300.0 Rev. 2.1	Chloride	46		mg Cl/L	P312186	
		Sulfate	81		mg SO4/L	P312253	
	SM 2120 B	Color (true)	76		PCU	P311543	
	SM 2320 B-97	Total Alkalinity	142		mg CaCO3/L	P311803	
	SM 2540 C-97	TDS	382		mg/L	P311826	
	SM 2540 D-97	TSS	22		mg/L	P311892	
	SM 4500 F-C-97	Fluoride	0.43		mg F/L	P311805	
1832950	EPA 350.1 Rev. 2.0	Ammonia-N	0.16		mg N/L	P311990	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.99		mg N/L	P311886	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.46	Y	mg N/L	P312333	
	EPA 365.1 Rev. 2.0	Total-P	0.64		mg P/L	P312145	
	SM 5310 B-00	Organic Carbon	14	Y	mg C/L	P312732	
1832953	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.25		mg P/L	P311526	

Ref. Method and Comment:

SM 2540 C-97: The reported result is consistent with the laboratory conductivity, 583 umhos/cm.

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

EPA 353.2 Rev. 2.0: Sample was left out at room temperature overnight, should be stored at 4 degC.

SM 5310 B-00: Sample was left out at room temperature overnight, should be stored at 4 degC.

Sample Location: Phillippi Creek @ Pinecraft Park dup

Collection Date/Time: 09/19/2016 11:35

Field ID: G3SD09192016-D

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1832948	EPA 180.1 Rev. 2.0	Turbidity	20		NTU	P311555	
	EPA 300.0 Rev. 2.1	Chloride	46		mg Cl/L	P312186	
		Sulfate	80		mg SO4/L	P312253	
	SM 2120 B	Color (true)	78		PCU	P311543	
	SM 2320 B-97	Total Alkalinity	142		mg CaCO3/L	P311803	
	SM 2540 C-97	TDS	364		mg/L	P311826	
	SM 2540 D-97	TSS	23		mg/L	P311892	
	SM 4500 F-C-97	Fluoride	0.43		mg F/L	P311805	
1832951	EPA 350.1 Rev. 2.0	Ammonia-N	0.16		mg N/L	P311990	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.0		mg N/L	P311886	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.46	Y	mg N/L	P312334	
	EPA 365.1 Rev. 2.0	Total-P	0.64		mg P/L	P312145	
	SM 5310 B-00	Organic Carbon	14	Y	mg C/L	P312732	
1832954	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.25		mg P/L	P311526	

Ref. Method and Comment:

SM 2540 C-97: The reported result is consistent with the laboratory conductivity, 583 umhos/cm.

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

EPA 353.2 Rev. 2.0: Sample was left out at room temperature overnight, should be stored at 4 degC.

SM 5310 B-00: Sample was left out at room temperature overnight, should be stored at 4 degC.

Sample Location: Walker Creek at 32nd Street

Collection Date/Time: 09/19/2016 10:40

Field ID: G3SD09192016-2

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1832949	EPA 180.1 Rev. 2.0	Turbidity	4.7		NTU	P311555	
	EPA 300.0 Rev. 2.1	Chloride	190		mg Cl/L	P312187	
		Sulfate	110		mg SO4/L	P312192	
	SM 2120 B	Color (true)	69	A	PCU	P311542	
	SM 2320 B-97	Total Alkalinity	183		mg CaCO3/L	P311803	
	SM 2540 C-97	TDS	679		mg/L	P311826	
	SM 2540 D-97	TSS	3	I	mg/L	P311892	
	SM 4500 F-C-97	Fluoride	0.64		mg F/L	P311805	
1832952	EPA 350.1 Rev. 2.0	Ammonia-N	0.037		mg N/L	P311990	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.3		mg N/L	P311886	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.57	Y	mg N/L	P312334	
	EPA 365.1 Rev. 2.0	Total-P	0.30		mg P/L	P312145	
	SM 5310 B-00	Organic Carbon	16	Y	mg C/L	P312732	
1832955	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.21		mg P/L	P311526	

Ref. Method and Comment:

SM 2540 C-97: The reported result is consistent with the laboratory conductivity, 1189 umhos/cm.

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

EPA 353.2 Rev. 2.0: Sample was left out at room temperature overnight, should be stored at 4 degC.

SM 5310 B-00: Sample was left out at room temperature overnight, should be stored at 4 degC.

Sample Location: Phillippi Creek @ Pinecraft Park

Collection Date/Time: 09/19/2016 11:30

Field ID: G3SD09192016-1

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1832965	EPA 8321B	Glyphosate**	10	UJ	ug/L	P311485	SUR
	USGS O-2060-01	2,4-D	0.092		ug/L	P311587	
		Diuron	0.23		ug/L	P311587	
		Fenuron	0.0080	U	ug/L	P311587	
		2,4,5-T	0.0020	U	ug/L	P311587	
		Acifluorfen	0.0020	U	ug/L	P311587	
		Imidacloprid	0.17		ug/L	P311587	MS
		Bentazon	0.15		ug/L	P311587	
		Linuron	0.0040	U	ug/L	P311587	
		Acetaminophen**	0.0040	U	ug/L	P311587	
		Carbamazepine**	0.0062		ug/L	P311587	
		Silvex	0.0020	U	ug/L	P311587	
		Primidone**	0.0080	U	ug/L	P311587	
		Fluridone**	0.013		ug/L	P311587	
1832966	EPA 8321B	Pyraclostrobin**	0.0020	U	ug/L	P311563	
1832967	EPA 8270D	Ametryn	2.8		ng/L	P311481	
		Atrazine	40		ng/L	P311481	
		Chlorpyrifos Ethyl	0.30	I	ng/L	P311481	
		Chlorpyrifos Methyl	0.12	U	ng/L	P311481	
		Disulfoton	0.39	U	ng/L	P311481	
		Ethion	0.18	U	ng/L	P311481	MS
		Ethoprop	0.12	U	ng/L	P311481	MS

Field ID: G3SD09192016-1

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1832967	EPA 8270D	Hexazinone	1.9	I	ng/L	P311481	
		Malathion	0.42	U	ng/L	P311481	
		Metribuzin	1.5		ng/L	P311481	
		Mevinphos	0.59	U	ng/L	P311481	MS
		Norflurazon	1.0	I	ng/L	P311481	RPD
		Phorate	0.30	U	ng/L	P311481	
		Prometryn	0.24	U	ng/L	P311481	
		Simazine	1.2	I	ng/L	P311481	
		Atrazine Desethyl	6.6	I	ng/L	P311481	
		Prometon	5.0		ng/L	P311481	
		Fipronil	0.66	I	ng/L	P311481	
		Molinate	0.36	U	ng/L	P311481	
		Pendimethalin	1.8	U	ng/L	P311481	
		Terbufos	0.12	U	ng/L	P311481	
		EPTC	1.5	U	ng/L	P311481	
		Terbuthylazine	0.50	U	ng/L	P311481	
		Bromacil	0.59	U	ng/L	P311481	MS
		Fipronil Sulfide	0.69	I	ng/L	P311481	
		Fipronil Sulfone	1.5		ng/L	P311481	
		Alachlor	0.30	U	ng/L	P311481	
		Azinphos Methyl	2.7	U	ng/L	P311481	
		Butylate	0.47	U	ng/L	P311481	
		Demeton	1.2	U	ng/L	P311481	
		Diazinon	0.15	U	ng/L	P311481	
		Fenamiphos	0.30	U	ng/L	P311481	
		Fonofos	0.24	U	ng/L	P311481	
		Metalaxyl	1.0		ng/L	P311481	
		Metolachlor	1.2	I	ng/L	P311481	MS
		Acetochlor	0.30	U	ng/L	P311481	
		Cyanazine	0.59	U	ng/L	P311481	
		Parathion Ethyl	0.30	U	ng/L	P311481	
		Parathion Methyl	0.30	U	ng/L	P311481	

Ref. Method and Comment:

EPA 8321B: Refer to the narrative for an explanation of QC Codes. Results confirmed.

EPA 8270D: MS accuracy for Atrazine not assessed due to high content of this parameter in the sample spiked.

Non-Conformance Report

NCR ID: 6057

Event(s)

SO-DIST-2016-09-20-01
SO-DIST-2016-09-20-01

Job(s)

TLH-2016-09-20-81
TLH-2016-09-20-81

Sample(s)

1832950
1832951

Test(s)

NCR Type: CUSTODY

NCR Category: General

Observation: Sample not stored in refrigerator the night of 09/29/2016.

Non-Conformance Report

NCR ID: 6057

Event(s)

Job(s)

Sample(s)

Test(s)

Resolution: Sample returned to refrigerator in the morning on 9/30/2016. All analyses requiring refrigeration that were prepared or, if preparation is not required, analyzed on or after 09/30/2016 will be Y qualified for incorrect preservation.

Authorised by/Date: Colin Wright 10/18/2016

NCR ID: 6058

Event(s)

Job(s)

Sample(s)

Test(s)

SO-DIST-2016-09-20-01

TLH-2016-09-20-81

1832952

NCR Type: CUSTODY

NCR Category: General

Observation: Sample not stored in refrigerator the night of 09/29/2016.

Resolution: Sample returned to refrigerator in the morning on 9/30/2016. All analyses requiring refrigeration that were prepared or, if preparation is not required, analyzed on or after 09/30/2016 will be Y qualified for incorrect preservation.

Authorised by/Date: Colin Wright 10/18/2016

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: P311555

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P312186

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P312187

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P312192

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Quality Assurance Report

Method Blank Results

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P312253

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P311990

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P311886

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P312333

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P312334

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P312145

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P311526

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

Reference Method: EPA 8270D
Batch ID: P311481

Component	Result	Code	Units
Acetochlor	0.25	U	ng/L
Alachlor	0.25	U	ng/L
Ametryn	0.32	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

Quality Assurance Report Method Blank Results

Reference Method: EPA 8270D
Batch ID: P311481

Component	Result	Code	Units
Cyanazine	0.50	U	ng/L
Demeton	1.0	U	ng/L
Diazinon	0.12	U	ng/L
Disulfoton	0.32	U	ng/L
EPTC	1.2	U	ng/L
Ethion	0.15	U	ng/L
Ethoprop	0.10	U	ng/L
Fenamiphos	0.25	U	ng/L
Fipronil	0.25	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
Metaxyl	0.20	U	ng/L
Metolachlor	0.25	U	ng/L
Metribuzin	0.20	U	ng/L
Mevinphos	0.50	U	ng/L
Molinate	0.30	U	ng/L
Norflurazon	0.50	U	ng/L
Parathion Ethyl	0.25	U	ng/L
Parathion Methyl	0.25	U	ng/L
Pendimethalin	1.5	U	ng/L
Phorate	0.25	U	ng/L
Prometon	0.90	U	ng/L
Prometryn	0.20	U	ng/L
Simazine	0.50	U	ng/L
Terbufos	0.10	U	ng/L
Terbutylazine	0.42	U	ng/L

Reference Method: EPA 8321B
Batch ID: P311485

Component	Result	Code	Units
Glyphosate	10	U	ug/L

Reference Method: EPA 8321B
Batch ID: P311563

Component	Result	Code	Units
Pyraclostrobin	0.0020	U	ug/L

Reference Method: SM 2120 B
Batch ID: P311542

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2120 B
Batch ID: P311543

Component	Result	Code	Units
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Quality Assurance Report

Method Blank Results

Reference Method: SM 2120 B
Batch ID: P311543

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2320 B-97
Batch ID: P311803

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

Reference Method: SM 2540 C-97
Batch ID: P311826

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P311892

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500 F-C-97
Batch ID: P311805

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-00
Batch ID: P312732

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

Reference Method: USGS O-2060-01
Batch ID: P311587

Component	Result	Code	Units
2,4,5-T	0.0020	U	ug/L
2,4-D	0.0040	U	ug/L
Acetaminophen	0.0040	U	ug/L
Acifluorfen	0.0020	U	ug/L
Bentazon	0.0020	U	ug/L
Carbamazepine	4.0E-04	U	ug/L
Diuron	0.0040	U	ug/L
Fenuron	0.0080	U	ug/L
Fluridone	4.0E-04	U	ug/L
Imidacloprid	0.0040	U	ug/L
Linuron	0.0040	U	ug/L
Primidone	0.0080	U	ug/L
Silvex	0.0020	U	ug/L

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P312186

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Chloride	97.4		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P312187

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P312192

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Sulfate	92.6		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P312253

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Sulfate	96.7		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P311990

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P311886

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Kjeldahl Nitrogen	95.2		P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P312333

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
NO2NO3-N	108		P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P312334

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
NO2NO3-N	108		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P312145

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total-P	98.4		P	90 - 110

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 365.1 Rev. 2.0 dissolved
 Batch ID: P311526

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

Reference Method: EPA 8270D
 Batch ID: P311481

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Acetochlor	86.5	92.2	P/P	80 - 119
Alachlor	87.4	94.2	P/P	80 - 120
Ametryn	99.8	105	P/P	60 - 135
Atrazine	98.1	102	P/P	72 - 121
Atrazine Desethyl	69.4	73.3	P/P	14 - 124
Azinphos Methyl	98.0	96.6	P/P	74 - 186
Bromacil	96.8	98.4	P/P	38 - 125
Butylate	48.6	55.5	P/P	34 - 88.0
Chlorpyrifos Ethyl	85.4	87.3	P/P	53 - 108
Chlorpyrifos Methyl	78.1	78.5	P/P	29 - 119
Cyanazine	99.9	107	P/P	30 - 240
Demeton	85.2	82.1	P/P	35 - 127
Diazinon	87.4	94.6	P/P	75 - 121
Disulfoton	89.6	81.8	P/P	40 - 141
EPTC	44.9	51.3	P/P	36 - 96.0
Ethion	77.9	74.6	P/P	64 - 127
Ethoprop	90.1	87.4	P/P	65 - 108
Fenamiphos	91.3	91.9	P/P	62 - 140
Fipronil	92.6	100	P/P	59 - 127
Fipronil Sulfide	87.0	91.2	P/P	55 - 126
Fipronil Sulfone	77.7	78.8	P/P	56 - 127
Fonofos	88.9	89.5	P/P	64 - 111
Hexazinone	92.5	96.3	P/P	43 - 153
Malathion	98.3	95.4	P/P	70 - 129
Metaxyl	86.1	91.0	P/P	49 - 135
Metolachlor	84.6	89.6	P/P	81 - 120
Metribuzin	109	122	P/P	66 - 133
Mevinphos	94.5	89.2	P/P	33 - 128
Molinate	56.2	61.8	P/P	46 - 101
Norflurazon	87.3	94.3	P/P	62 - 131
Parathion Ethyl	88.8	93.3	P/P	80 - 109
Parathion Methyl	89.6	92.1	P/P	76 - 126
Pendimethalin	80.7	79.9	P/P	47 - 137
Phorate	89.3	78.3	P/P	51 - 115
Prometon	93.7	101	P/P	67 - 123
Prometryn	98.4	107	P/P	66 - 122
Simazine	94.6	103	P/P	60 - 134
Terbufos	85.0	86.6	P/P	56 - 116
Terbutylazine	90.4	96.3	P/P	77 - 114

Reference Method: EPA 8321B
 Batch ID: P311485

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Glyphosate	82.8		P	40 - 140

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 8321B
Batch ID: P311563

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Pyraclostrobin	108		P	40 - 140

Reference Method: SM 2320 B-97
Batch ID: P311803

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	103		P	95 - 108

Reference Method: SM 4500 F-C-97
Batch ID: P311805

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	99.2		P	92 - 103

Reference Method: SM 5310 B-00
Batch ID: P312732

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	96.0		P	85 - 115

Reference Method: USGS O-2060-01
Batch ID: P311587

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2,4,5-T	75.6		P	40 - 140
2,4-D	86.8		P	40 - 140
Acetaminophen	116		P	40 - 140
Acifluorfen	49.2		P	40 - 140
Bentazon	97.2		P	40 - 140
Carbamazepine	116		P	40 - 140
Diuron	76.4		P	40 - 140
Fenuron	106		P	40 - 140
Fluridone	84.4		P	40 - 140
Imidacloprid	94.0		P	40 - 160
Linuron	91.6		P	40 - 140
Primidone	96.0		P	40 - 140
Silvex	78.0		P	40 - 140

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P312186

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1832854	Chloride	93.2		P	90 - 110
1832855	Chloride	99.0		P	90 - 110

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P312187

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1832856	Chloride	99.8		P	90 - 110
1833041	Chloride	99.6		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P312192

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1832856	Sulfate	97.1		P	90 - 110
1833041	Sulfate	96.8		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P312253

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1833924	Sulfate	97.1		P	90 - 110
1834067	Sulfate	96.2		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P311990

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1832847	Ammonia-N	98.3	99.5	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P311886

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1832858	Kjeldahl Nitrogen	96.6	99.0	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P312333

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1832847	NO2NO3-N	108	108	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P312334

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1833336	NO2NO3-N	95.2	95.2	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P312145

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1832857	Total-P	98.0	94.2	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P311526

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1832803	O-Phosphate-P	97.9	98.0	P/P	90 - 110

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 8270D
Batch ID: P311481

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1833369	Acetochlor	78.7	84.1	P/P	77 - 125
1833369	Alachlor	78.9	76.9	P/P	75 - 127
1833369	Ametryn	94.2	98.1	P/P	53 - 150
1833369	Atrazine Desethyl	54.0	39.6	P/P	8.0 - 105
1833369	Azinphos Methyl	123	133	P/P	63 - 204
1833369	Bromacil	46.2	11.3	P/F	43 - 132
1833369	Butylate	49.8	50.9	P/P	7.0 - 87.0
1833369	Chlorpyrifos Ethyl	54.2	73.5	P/P	53 - 111
1833369	Chlorpyrifos Methyl	69.4	74.9	P/P	38 - 117
1833369	Cyanazine	71.0	59.0	P/P	18 - 222
1833369	Demeton	88.6	104	P/P	10 - 157
1833369	Diazinon	89.7	95.1	P/P	73 - 127
1833369	Disulfoton	85.3	87.3	P/P	43 - 141
1833369	EPTC	47.3	47.8	P/P	11 - 86.0
1833369	Ethion	66.1	66.4	F/F	68 - 130
1833369	Ethoprop	107	113	P/F	60 - 108
1833369	Fenamiphos	64.3	79.4	P/P	56 - 139
1833369	Fipronil	62.6	56.1	P/P	29 - 143
1833369	Fipronil Sulfide	49.5	41.9	P/P	35 - 129
1833369	Fipronil Sulfone	39.7	17.0	P/P	16 - 146
1833369	Fonofos	94.8	97.5	P/P	59 - 112
1833369	Hexazinone	102	112	P/P	68 - 145
1833369	Malathion	75.4	80.1	P/P	69 - 131
1833369	Metalaxyl	73.1	76.9	P/P	67 - 119
1833369	Metolachlor	62.6	70.8	F/F	77 - 124
1833369	Metribuzin	85.4	93.3	P/P	63 - 134
1833369	Mevinphos	130	125	F/P	40 - 127
1833369	Molinate	65.8	74.2	P/P	27 - 98.0
1833369	Norflurazon	53.7	39.6	P/P	39 - 141
1833369	Parathion Ethyl	90.0	98.6	P/P	74 - 113
1833369	Parathion Methyl	111	105	P/P	61 - 133
1833369	Pendimethalin	63.8	71.7	P/P	26 - 179
1833369	Phorate	105	118	P/P	44 - 126
1833369	Prometon	99.7	107	P/P	43 - 147
1833369	Prometryn	82.5	95.3	P/P	68 - 126
1833369	Simazine	88.0	95.5	P/P	47 - 156
1833369	Terbufos	95.3	102	P/P	53 - 125
1833369	Terbuthylazine	83.5	85.2	P/P	76 - 113

Reference Method: EPA 8321B
Batch ID: P311485

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1832965	Glyphosate	68.8	70.4	P/P	40 - 140

Reference Method: EPA 8321B
Batch ID: P311563

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1832966	Pyraclostrobin	129	112	P/P	40 - 140

Quality Assurance Report Matrix Spike Accuracy

Reference Method: SM 4500 F-C-97
Batch ID: P311805

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1832801	Fluoride	98.6	98.0	P/P	91 - 105

Reference Method: SM 5310 B-00
Batch ID: P312732

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1832847	Organic Carbon	93.8	96.6	P/P	85 - 115

Reference Method: USGS O-2060-01
Batch ID: P311587

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1834094	2,4,5-T	78.4	73.6	P/P	40 - 140
1834094	2,4-D	97.6	106	P/P	40 - 140
1834094	Acetaminophen	63.2	50.8	P/P	40 - 140
1834094	Acifluorfen	124	124	P/P	40 - 140
1834094	Bentazon	119	123	P/P	40 - 140
1834094	Carbamazepine	93.2	98.4	P/P	40 - 140
1834094	Diuron	53.9	56.3	P/P	40 - 140
1834094	Fenuron	79.6	82.8	P/P	40 - 140
1834094	Fluridone	65.6	65.6	P/P	40 - 140
1834094	Imidacloprid	173	180	F/F	40 - 160
1834094	Linuron	65.2	68.8	P/P	40 - 140
1834094	Primidone	86.8	91.2	P/P	40 - 140
1834094	Silvex	94.4	96.8	P/P	40 - 140

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P311555

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1832855	Turbidity	8.65	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P312186

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1832855	Chloride	0.338	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P312187

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1832856	Chloride	0.000337	Sample	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P312192

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1832856	Sulfate	0.523	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P312253

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1833924	Sulfate	0.836	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P311990

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1832847	Ammonia-N	1.02	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P311886

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1832858	Kjeldahl Nitrogen	1.87	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P312333

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1832847	NO2NO3-N	0.926	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P312334

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1833336	NO2NO3-N	0.0	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P312145

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1832857	Total-P	3.73	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P311526

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1832803	O-Phosphate-P	0.0894	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 8270D
Batch ID: P311481

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1833369	Acetochlor	6.55	Spike	P	0 - 30
1833369	Alachlor	2.64	Spike	P	0 - 30
1833369	Ametryn	4.03	Spike	P	0 - 30
1833369	Atrazine	2.23	Spike	P	0 - 30
1833369	Atrazine Desethyl	26.2	Spike	P	0 - 30
1833369	Azinphos Methyl	7.84	Spike	P	0 - 30
1833369	Bromacil	12.8	Spike	P	0 - 30
1833369	Butylate	2.26	Spike	P	0 - 30
1833369	Chlorpyrifos Ethyl	27.2	Spike	P	0 - 30
1833369	Chlorpyrifos Methyl	7.58	Spike	P	0 - 30
1833369	Cyanazine	18.5	Spike	P	0 - 30
1833369	Demeton	16.2	Spike	P	0 - 30
1833369	Diazinon	5.78	Spike	P	0 - 30
1833369	Disulfoton	2.33	Spike	P	0 - 30
1833369	EPTC	1.11	Spike	P	0 - 30
1833369	Ethion	0.490	Spike	P	0 - 30
1833369	Ethoprop	5.78	Spike	P	0 - 30
1833369	Fenamiphos	21.0	Spike	P	0 - 30
1833369	Fipronil	8.53	Spike	P	0 - 30
1833369	Fipronil Sulfide	9.54	Spike	P	0 - 30
1833369	Fipronil Sulfone	27.3	Spike	P	0 - 30
1833369	Fonofos	2.82	Spike	P	0 - 30
1833369	Hexazinone	9.68	Spike	P	0 - 30
1833369	Malathion	4.35	Spike	P	0 - 30
1833369	Metalaxyl	4.98	Spike	P	0 - 30
1833369	Metolachlor	9.28	Spike	P	0 - 30
1833369	Metribuzin	8.85	Spike	P	0 - 30
1833369	Mevinphos	3.90	Spike	P	0 - 30
1833369	Molinate	11.9	Spike	P	0 - 30
1833369	Norflurazon	30.3	Spike	F	0 - 30
1833369	Parathion Ethyl	9.14	Spike	P	0 - 30
1833369	Parathion Methyl	5.38	Spike	P	0 - 30
1833369	Pendimethalin	11.6	Spike	P	0 - 30
1833369	Phorate	12.0	Spike	P	0 - 30
1833369	Prometon	7.21	Spike	P	0 - 30
1833369	Prometryn	14.4	Spike	P	0 - 30
1833369	Simazine	8.21	Spike	P	0 - 30
1833369	Terbufos	6.36	Spike	P	0 - 30
1833369	Terbuthylazine	1.99	Spike	P	0 - 30
LFB	Acetochlor	6.40	LCS	P	0 - 30
LFB	Alachlor	7.56	LCS	P	0 - 30
LFB	Ametryn	4.82	LCS	P	0 - 30
LFB	Atrazine	4.33	LCS	P	0 - 30
LFB	Atrazine Desethyl	5.56	LCS	P	0 - 30
LFB	Azinphos Methyl	1.42	LCS	P	0 - 30
LFB	Bromacil	1.56	LCS	P	0 - 30
LFB	Butylate	13.4	LCS	P	0 - 30
LFB	Chlorpyrifos Ethyl	2.18	LCS	P	0 - 30
LFB	Chlorpyrifos Methyl	0.523	LCS	P	0 - 30
LFB	Cyanazine	6.82	LCS	P	0 - 30
LFB	Demeton	3.64	LCS	P	0 - 30

Quality Assurance Report Precision

Reference Method: EPA 8270D
Batch ID: P311481

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
LFB	Diazinon	7.92	LCS	P	0 - 30
LFB	Disulfoton	9.16	LCS	P	0 - 30
LFB	EPTC	13.4	LCS	P	0 - 30
LFB	Ethion	4.38	LCS	P	0 - 30
LFB	Ethoprop	3.05	LCS	P	0 - 30
LFB	Fenamiphos	0.658	LCS	P	0 - 30
LFB	Fipronil	7.96	LCS	P	0 - 30
LFB	Fipronil Sulfide	4.73	LCS	P	0 - 30
LFB	Fipronil Sulfone	1.46	LCS	P	0 - 30
LFB	Fonofos	0.672	LCS	P	0 - 30
LFB	Hexazinone	4.07	LCS	P	0 - 30
LFB	Malathion	3.00	LCS	P	0 - 30
LFB	Metalaxyl	5.56	LCS	P	0 - 30
LFB	Metolachlor	5.65	LCS	P	0 - 30
LFB	Metribuzin	10.9	LCS	P	0 - 30
LFB	Mevinphos	5.87	LCS	P	0 - 30
LFB	Molinate	9.35	LCS	P	0 - 30
LFB	Norflurazon	7.62	LCS	P	0 - 30
LFB	Parathion Ethyl	4.93	LCS	P	0 - 30
LFB	Parathion Methyl	2.80	LCS	P	0 - 30
LFB	Pendimethalin	0.991	LCS	P	0 - 30
LFB	Phorate	13.0	LCS	P	0 - 30
LFB	Prometon	7.68	LCS	P	0 - 30
LFB	Prometryn	8.30	LCS	P	0 - 30
LFB	Simazine	8.52	LCS	P	0 - 30
LFB	Terbufos	1.81	LCS	P	0 - 30
LFB	Terbutylazine	6.28	LCS	P	0 - 30

Reference Method: EPA 8321B
Batch ID: P311485

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1832965	Glyphosate	2.30	Spike	P	0 - 30

Reference Method: EPA 8321B
Batch ID: P311563

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1832966	Pyraclostrobin	14.0	Spike	P	0 - 30

Reference Method: SM 2120 B
Batch ID: P311542

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1832949	Color (true)	0.120	Sample	P	0 - 20

Quality Assurance Report Precision

Reference Method: SM 2120 B
 Batch ID: P311543

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1832854	Color (true)	0.262	Sample	P	0 - 20

Reference Method: SM 2320 B-97
 Batch ID: P311803

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1832801	Total Alkalinity	0.177	Sample	P	0 - 4.8

Reference Method: SM 2540 C-97
 Batch ID: P311826

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1832856	TDS	4.30	Sample	P	0 - 10

Reference Method: SM 4500 F-C-97
 Batch ID: P311805

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1832801	Fluoride	0.525	Spike	P	0 - 3.0

Reference Method: SM 5310 B-00
 Batch ID: P312732

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1832847	Organic Carbon	1.63	Spike	P	0 - 20

Reference Method: USGS O-2060-01
 Batch ID: P311587

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1834094	2,4,5-T	6.32	Spike	P	0 - 30
1834094	2,4-D	6.15	Spike	P	0 - 30
1834094	Acetaminophen	19.7	Spike	P	0 - 30
1834094	Acifluorfen	0.0	Spike	P	0 - 30
1834094	Bentazon	3.31	Spike	P	0 - 30
1834094	Carbamazepine	5.43	Spike	P	0 - 30
1834094	Diuron	3.33	Spike	P	0 - 30
1834094	Fenuron	3.94	Spike	P	0 - 30
1834094	Fluridone	0.0	Spike	P	0 - 30
1834094	Imidacloprid	3.47	Spike	P	0 - 30
1834094	Linuron	5.37	Spike	P	0 - 30
1834094	Primidone	4.94	Spike	P	0 - 30
1834094	Silvex	2.51	Spike	P	0 - 30

* 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: 1832965
Field Sample ID: G3SD09192016-1

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	Glyphosate 13C 15N	19.2	F	50 - 150
USGS O-2060-01	2,4-D-d3	131	P	40 - 150
USGS O-2060-01	Acetaminophen-d4	64.8	P	30 - 150
USGS O-2060-01	Carbamazepine-d10	98.8	P	40 - 160
USGS O-2060-01	Diuron-d6	54.6	P	40 - 150
USGS O-2060-01	Primidone-d5	84.4	P	40 - 150

Lab Sample ID: 1832966
Field Sample ID: G3SD09192016-1

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	Diuron-d6	86.2	P	40 - 150

Lab Sample ID: 1832967
Field Sample ID: G3SD09192016-1

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8270D	Malathion-d7	95.0	P	65 - 132
EPA 8270D	Simazine-d10	91.3	P	72 - 128

Quality Assurance Report Calibration Verification

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Run ID: A71736
Included Lab Sample IDs: 1832953, 1832954, 1832955

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	99.6	100	P/P	90 - 110

Reference Method: SM 2120 B
Run ID: A71739
Included Lab Sample IDs: 1832947, 1832948, 1832949

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	96.4	97.0	P/P	85 - 115
Color (true)	97.2	96.4	P/P	85 - 115

Reference Method: EPA 180.1 Rev. 2.0
Run ID: A71745
Included Lab Sample IDs: 1832947, 1832948, 1832949

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

Reference Method: SM 2320 B-97
Run ID: A71811
Included Lab Sample IDs: 1832947, 1832948, 1832949

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	101	104	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: SM 4500 F-C-97

Run ID: A71811

Included Lab Sample IDs: 1832947, 1832948, 1832949

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	99.5	100	P/P	90 - 110

Reference Method: EPA 8321B

Run ID: A71842

Included Lab Sample IDs: 1832965

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Glyphosate	132	148	P/P	70 - 160

Reference Method: EPA 8321B

Run ID: A71853

Included Lab Sample IDs: 1832966

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Pyraclostrobin	91.2	92.0	P/P	60 - 150

Reference Method: USGS O-2060-01

Run ID: A71853

Included Lab Sample IDs: 1832965

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Acetaminophen	77.2	76.8	P/P	60 - 150
Carbamazepine	104	109	P/P	60 - 150
Diuron	83.6	73.2	P/P	60 - 150
Fenuron	92.4	96.8	P/P	60 - 150
Fluridone	78.0	79.2	P/P	60 - 150
Imidacloprid	85.6	80.8	P/P	60 - 150
Linuron	92.8	94.4	P/P	60 - 150
Primidone	70.4	83.6	P/P	60 - 150

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A71879

Included Lab Sample IDs: 1832950, 1832951, 1832952

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

Reference Method: EPA 300.0 Rev. 2.1

Run ID: A71882

Included Lab Sample IDs: 1832947, 1832948, 1832949

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	97.3	97.3	P/P	90 - 110
Chloride	97.7	97.2	P/P	90 - 110
Sulfate	98.2	98.1	P/P	90 - 110
Sulfate	98.7	95.1	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A71891

Included Lab Sample IDs: 1832950, 1832951, 1832952

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	102	97.7	P/P	90 - 110

Reference Method: USGS O-2060-01

Run ID: A71899

Included Lab Sample IDs: 1832965

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
2,4,5-T	87.4	83.2	P/P	50 - 150
2,4-D	92.0	94.6	P/P	50 - 150
Acifluorfen	107	120	P/P	50 - 150
Bentazon	93.2	99.2	P/P	50 - 150
Silvex	88.6	79.8	P/P	50 - 150

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A71974

Included Lab Sample IDs: 1832950, 1832951, 1832952

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

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A71983

Included Lab Sample IDs: 1832950, 1832951, 1832952

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO2NO3-N	102	104	P/P	90 - 110
NO2NO3-N	104	104	P/P	90 - 110

Reference Method: EPA 8270D

Run ID: A72016

Included Lab Sample IDs: 1832967

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Acetochlor	104		P	80 - 120
Alachlor	105		P	80 - 120
Ametryn	105		P	80 - 120
Atrazine	106		P	80 - 120
Atrazine Desethyl	99.7		P	80 - 120
Azinphos Methyl	91.5		P	80 - 120
Bromacil	108		P	80 - 120
Butylate	103		P	80 - 120
Chlorpyrifos Ethyl	101		P	80 - 120
Chlorpyrifos Methyl	98.1		P	80 - 120
Cyanazine	97.5		P	80 - 120
Demeton	95.9		P	80 - 120
Diazinon	102		P	80 - 120
Disulfoton	95.2		P	80 - 120
EPTC	103		P	80 - 120
Ethion	95.0		P	80 - 120
Ethoprop	101		P	80 - 120
Fenamiphos	96.3		P	80 - 120

Quality Assurance Report Calibration Verification

Reference Method: EPA 8270D
Run ID: A72016
Included Lab Sample IDs: 1832967

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fipronil	103		P	80 - 120
Fipronil Sulfide	100		P	80 - 120
Fipronil Sulfone	100		P	80 - 120
Fonofos	99.0		P	80 - 120
Hexazinone	98.1		P	80 - 120
Malathion	99.9		P	80 - 120
Metalaxyl	99.5		P	80 - 120
Metolachlor	102		P	80 - 120
Metribuzin	98.5		P	80 - 120
Mevinphos	99.4		P	80 - 120
Molinate	104		P	80 - 120
Norflurazon	98.9		P	80 - 120
Parathion Ethyl	96.5		P	80 - 120
Parathion Methyl	98.1		P	80 - 120
Pendimethalin	90.5		P	80 - 120
Phorate	100		P	80 - 120
Prometon	102		P	80 - 120
Prometryn	107		P	80 - 120
Simazine	102		P	80 - 120
Terbufos	96.6		P	80 - 120
Terbutylazine	99.6		P	80 - 120

Reference Method: SM 5310 B-00
Run ID: A72094
Included Lab Sample IDs: 1832950, 1832951, 1832952

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	97.2	98.3	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 SMP	MS
EPA 180.1 Rev. 2.0	Turbidity						8.65	
EPA 300.0 Rev. 2.1	Chloride	97.4		99.0	93.2		0.338	
	Chloride	97.3		99.8	99.6		0.0003	
	Sulfate	92.6		97.1	96.8		0.523	
	Sulfate	96.7		97.1	96.2		0.836	
EPA 350.1 Rev. 2.0	Ammonia-N	101		98.3	99.5			1.02
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	95.2		96.6	99.0			1.87
EPA 353.2 Rev. 2.0	NO2NO3-N	108		108	108			0.926
	NO2NO3-N	108		95.2	95.2			0.0
EPA 365.1 Rev. 2.0	Total-P	98.4		98.0	94.2			3.73
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	102		97.9	98.0			0.0894
EPA 8270D	Acetochlor	86.5	92.2	78.7	84.1	6.40		6.55

Quality Assurance Report Summary

Ref. Method	Analyte	LCS % Recovery		MS % Recovery		Precision	
						LCS	MS
						SMP	
EPA 8270D	Alachlor	87.4	94.2	78.9	76.9	7.56	2.64
	Ametryn	99.8	105	94.2	98.1	4.82	4.03
	Atrazine	98.1	102			4.33	2.23
	Atrazine Desethyl	69.4	73.3	54.0	39.6	5.56	26.2
	Azinphos Methyl	98.0	96.6	123	133	1.42	7.84
	Bromacil	96.8	98.4	46.2	11.3	1.56	12.8
	Butylate	48.6	55.5	49.8	50.9	13.4	2.26
	Chlorpyrifos Ethyl	85.4	87.3	54.2	73.5	2.18	27.2
	Chlorpyrifos Methyl	78.1	78.5	69.4	74.9	0.523	7.58
	Cyanazine	99.9	107	71.0	59.0	6.82	18.5
	Demeton	85.2	82.1	88.6	104	3.64	16.2
	Diazinon	87.4	94.6	89.7	95.1	7.92	5.78
	Disulfoton	89.6	81.8	85.3	87.3	9.16	2.33
	EPTC	44.9	51.3	47.3	47.8	13.4	1.11
	Ethion	77.9	74.6	66.1	66.4	4.38	0.490
	Ethoprop	90.1	87.4	107	113	3.05	5.78
	Fenamiphos	91.3	91.9	64.3	79.4	0.658	21.0
	Fipronil	92.6	100	62.6	56.1	7.96	8.53
	Fipronil Sulfide	87.0	91.2	49.5	41.9	4.73	9.54
	Fipronil Sulfone	77.7	78.8	39.7	17.0	1.46	27.3
	Fonofos	88.9	89.5	94.8	97.5	0.672	2.82
	Hexazinone	92.5	96.3	102	112	4.07	9.68
	Malathion	98.3	95.4	75.4	80.1	3.00	4.35
	Metalaxyl	86.1	91.0	73.1	76.9	5.56	4.98
	Metolachlor	84.6	89.6	62.6	70.8	5.65	9.28
	Metribuzin	109	122	85.4	93.3	10.9	8.85
	Mevinphos	94.5	89.2	130	125	5.87	3.90
	Molinate	56.2	61.8	65.8	74.2	9.35	11.9
	Norflurazon	87.3	94.3	53.7	39.6	7.62	30.3
	Parathion Ethyl	88.8	93.3	90.0	98.6	4.93	9.14
	Parathion Methyl	89.6	92.1	111	105	2.80	5.38
	Pendimethalin	80.7	79.9	63.8	71.7	0.991	11.6
	Phorate	89.3	78.3	105	118	13.0	12.0
	Prometon	93.7	101	99.7	107	7.68	7.21
	Prometryn	98.4	107	82.5	95.3	8.30	14.4
	Simazine	94.6	103	88.0	95.5	8.52	8.21
	Terbufos	85.0	86.6	95.3	102	1.81	6.36
	Terbutylazine	90.4	96.3	83.5	85.2	6.28	1.99
EPA 8321B	Glyphosate	82.8		68.8	70.4		2.30
	Pyraclostrobin	108		129	112		14.0
SM 2120 B	Color (true)					0.120	
	Color (true)					0.262	
SM 2320 B-97	Total Alkalinity	103				0.177	
SM 2540 C-97	TDS					4.30	
SM 4500 F-C-97	Fluoride	99.2		98.6	98.0		0.525
SM 5310 B-00	Organic Carbon	96.0		93.8	96.6		1.63
USGS O-2060-01	2,4,5-T	75.6		78.4	73.6		6.32
	2,4-D	86.8		97.6	106		6.15
	Acetaminophen	116		63.2	50.8		19.7
	Acifluorfen	49.2		124	124		0.0
	Bentazon	97.2		119	123		3.31
	Carbamazepine	116		93.2	98.4		5.43
	Diuron	76.4		53.9	56.3		3.33
	Fenuron	106		79.6	82.8		3.94

Quality Assurance Report Summary

Ref. Method	Analyte	LCS % Recovery	MS % Recovery		Precision LCS	SMP	MS
USGS O-2060-01	Fluridone	84.4	65.6	65.6			0.0
	Imidacloprid	94.0	173	180			3.47
	Linuron	91.6	65.2	68.8			5.37
	Primidone	96.0	86.8	91.2			4.94
	Silvex	78.0	94.4	96.8			2.51

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	1832947, 1832948, 1832949
EPA 300.0 Rev. 2.1 / E31780	Chloride in aqueous matrices	1832947, 1832948, 1832949
EPA 300.0 Rev. 2.1 / E31780	Sulfate in aqueous matrices	1832947, 1832948, 1832949
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	1832950, 1832951, 1832952
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	1832950, 1832951, 1832952
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	1832950, 1832951, 1832952
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	1832950, 1832951, 1832952
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	1832953, 1832954, 1832955
EPA 8270D / E31780	Organonitrogen and phosphorus pesticides (ultra trace level) in water matrices by GC/MS/MS	1832967
EPA 8321B / E31780	Glyphosate in water matrices by HPLC/MS/MS	1832965
EPA 8321B / E31780	Pyraclostrobin in water matrices by HPLC/MS/MS	1832966
SM 2120 B / E31780	True Color measured at 450 nm	1832947, 1832948, 1832949
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO ₃ /L	1832947, 1832948, 1832949
SM 2540 C-97 / E31780	Total Dissolved Solids in aqueous matrices	1832947, 1832948, 1832949
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices	1832947, 1832948, 1832949
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	1832947, 1832948, 1832949
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	1832950, 1832951, 1832952
USGS O-2060-01 / E31780	Chlorinated (phenoxy acid) herbicides in water matrices by HPLC/MS/MS	1832965
USGS O-2060-01 / E31780	Urea herbicides and other chemicals in water matrices by HPLC/MS/MS	1832965

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	09/20/2016			09/20/2016 17:03	Blanca Fach	1832947, 1832948, 1832949
EPA 300.0 Rev. 2.1	09/20/2016			09/30/2016	Ping Hua	1832949
	09/20/2016			10/02/2016	Ping Hua	1832947, 1832948
EPA 350.1 Rev. 2.0	09/20/2016			09/27/2016	Sofia Elnemr	1832950, 1832951, 1832952
EPA 351.2 Rev. 2.0	09/20/2016	09/27/2016	Adrian Shelby	09/28/2016	Christopher Armour	1832950, 1832951, 1832952
EPA 353.2 Rev. 2.0	09/20/2016			10/03/2016	Beverly Y. Sanders	1832950, 1832951, 1832952
EPA 365.1 Rev. 2.0	09/20/2016	09/29/2016	Vijayalakshmi Reddy	10/03/2016	Lipi Saha	1832950, 1832951, 1832952
EPA 365.1 Rev. 2.0 dissolved	09/20/2016			09/20/2016 15:42	Julia Storbeck	1832953, 1832954
	09/20/2016			09/20/2016 15:43	Julia Storbeck	1832955
EPA 8270D	09/20/2016	09/22/2016	Fe-Val Siddell	10/04/2016	Irina Carbone	1832967
EPA 8321B	09/20/2016	09/23/2016	Hoor Shaik	09/27/2016	Juyoung Kim	1832966
	09/20/2016	09/23/2016	Juyoung Kim	09/24/2016	Juyoung Kim	1832965
SM 2120 B	09/20/2016			09/20/2016 17:30	Julie Michelle Frank	1832949
	09/20/2016			09/20/2016 17:37	Julie Michelle Frank	1832947
	09/20/2016			09/20/2016 17:38	Julie Michelle Frank	1832948
SM 2320 B-97	09/20/2016			09/24/2016	Dale L. Simmons	1832947, 1832948, 1832949
SM 2540 C-97	09/20/2016			09/22/2016	Yijie Li	1832947, 1832948, 1832949
SM 2540 D-97	09/20/2016			09/22/2016	Yijie Li	1832947, 1832948, 1832949
SM 4500 F-C-97	09/20/2016			09/24/2016	Dale L. Simmons	1832947, 1832948, 1832949
SM 5310 B-00	09/20/2016			10/08/2016	Julie Michelle Frank	1832950, 1832951, 1832952
USGS O-2060-01	09/20/2016	09/23/2016	Hoor Shaik	09/27/2016	Juyoung Kim	1832965
	09/20/2016	09/23/2016	Hoor Shaik	09/28/2016	Juyoung Kim	1832965