

Chemical Analysis Report

SO-DIST-2016-04-12-02

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

Event Description: **SMP: Lake Letta**
Request ID: **RQ-2016-04-04-19**
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

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Certified by: Thekkekalathil Chandrasekhar, Chemist Administrator Date Certified: 09-MAY-2016 14:55



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: Lake Letta @ Center

Collection Date/Time: 04/11/2016 11:40

Field ID: SD041116-5

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1788468	EPA 180.1 Rev. 2.0	Turbidity	1.6	A	NTU	P302122	
	EPA 300.0 Rev. 2.1	Chloride	18	A	mg Cl/L	P302310	
		Sulfate	24	A	mg SO4/L	P302316	
	SM 2120 B	Color (true)	15		PCU	P302079	
	SM 2320 B-97	Total Alkalinity	21		mg CaCO3/L	P302423	
	SM 2540 C-97	TDS	92	A	mg/L	P302837	
	SM 2540 D-97	TSS	4	I	mg/L	P302824	
	SM 4500 F-C-97	Fluoride	0.091	I	mg F/L	P302426	
1788469	EPA 350.1 Rev. 2.0	Ammonia-N	0.006		mg N/L	P302565	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.51		mg N/L	P302842	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.20		mg N/L	P302260	
	EPA 365.1 Rev. 2.0	Total-P	0.017		mg P/L	P302570	
	SM 5310 B-00	Organic Carbon	5.7		mg C/L	P302646	
1788470	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P302105	
1788473	EPA 8321B	Glyphosate**	10	U	ug/L	P302237	
	USGS O-2060-01	2,4-D	0.33		ug/L	P302127	
		Diuron	0.0061	I	ug/L	P302127	
		Fenuron	0.0080	U	ug/L	P302127	
		2,4,5-T	0.0020	U	ug/L	P302127	
		Acifluorfen	0.0020	U	ug/L	P302127	
		Imidacloprid	0.097		ug/L	P302127	
		Bentazon	0.029		ug/L	P302127	
		Linuron	0.0040	U	ug/L	P302127	
		Acetaminophen**	0.0040	UJ	ug/L	P302127	LCS
		Carbamazepine**	5.8E-04	I	ug/L	P302127	
		Silvex	0.0020	U	ug/L	P302127	
		Primidone**	0.0080	U	ug/L	P302127	
		Fluridone**	0.0013	I	ug/L	P302127	
1788474	EPA 8321B	Pyraclostrobin**	0.0020	U	ug/L	P302393	
1788475	DEP SOP: GC-011-5 (based on EPA 608 and 617)	Aldrin	0.0020	U	ug/L	P302199	
		Alpha-BHC	0.0020	U	ug/L	P302199	
		Beta-BHC	0.0020	U	ug/L	P302199	
		Delta-BHC	0.0020	U	ug/L	P302199	
		Gamma-BHC	0.0020	U	ug/L	P302199	
		Carbophenothion	0.0060	U	ug/L	P302199	
		Chlordane	0.020	UJ	ug/L	P302199	CCV
		Chlorothalonil	0.0080	U	ug/L	P302199	
		Cypermethrin	0.012	U	ug/L	P302199	
		DDD-p,p'	0.0040	U	ug/L	P302199	
		DDE-p,p'	0.0040	U	ug/L	P302199	
		DDT-p,p'	0.0040	U	ug/L	P302199	
		Dicofol	0.024	UJ	ug/L	P302199	CCV

Field ID: SD041116-5

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1788475	DEP SOP: GC-011-5 (based on EPA 608 and 617)	Dieldrin	0.0020	U	ug/L	P302199	
		Endosulfan I	0.0020	U	ug/L	P302199	
		Endosulfan II	0.0020	U	ug/L	P302199	
		Endosulfan Sulfate	0.0040	U	ug/L	P302199	
		Endrin	0.0040	U	ug/L	P302199	
		Endrin Aldehyde	0.0040	U	ug/L	P302199	
		Heptachlor	0.0020	U	ug/L	P302199	
		Heptachlor Epoxide	0.0020	U	ug/L	P302199	
		Methoxychlor	0.010	U	ug/L	P302199	
		Mirex	0.0040	U	ug/L	P302199	
		Permethrin	0.010	U	ug/L	P302199	
		Trifluralin	0.0080	U	ug/L	P302199	
1788476	EPA 8270D	Ametryn**	0.32	U	ng/L	P302303	
		Atrazine**	13		ng/L	P302303	
		Chlorpyrifos Ethyl**	0.11	I	ng/L	P302303	
		Chlorpyrifos Methyl**	0.099	U	ng/L	P302303	
		Disulfoton**	0.32	U	ng/L	P302303	
		Ethion**	0.15	U	ng/L	P302303	
		Ethoprop**	0.099	UJ	ng/L	P302303	MS
		Hexazinone**	9.0		ng/L	P302303	
		Malathion**	0.35	U	ng/L	P302303	
		Metribuzin**	0.20	U	ng/L	P302303	
		Mevinphos**	0.50	U	ng/L	P302303	
		Norflurazon**	230		ng/L	P302303	
		Phorate**	0.25	U	ng/L	P302303	
		Prometryn**	0.20	U	ng/L	P302303	
		Simazine**	4.9	J	ng/L	P302303	MS
		Atrazine Desethyl**	2.8	I	ng/L	P302303	
		Prometon**	1.0	I	ng/L	P302303	
		Fipronil**	0.25	U	ng/L	P302303	
		Molinate**	0.30	U	ng/L	P302303	
		Pendimethalin**	2.0	U	ng/L	P302303	
		Terbufos**	0.099	U	ng/L	P302303	
		EPTC**	1.2	UJ	ng/L	P302303	MS
		Terbuthylazine**	0.42	U	ng/L	P302303	
		Bromacil**	40		ng/L	P302303	
		Fipronil Sulfide**	0.15	UJ	ng/L	P302303	MS
		Fipronil Sulfone**	0.15	UJ	ng/L	P302303	MS, RPD
		Alachlor**	0.25	U	ng/L	P302303	
		Azinphos Methyl**	2.2	U	ng/L	P302303	
		Butylate**	0.40	U	ng/L	P302303	
		Demeton**	0.99	U	ng/L	P302303	
		Diazinon**	0.12	U	ng/L	P302303	
		Fenamiphos**	0.25	U	ng/L	P302303	

Field ID: SD041116-5

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1788476	EPA 8270D	Fonofos**	0.20	U	ng/L	P302303	
		Metalaxyl**	52		ng/L	P302303	
		Metolachlor**	2.0		ng/L	P302303	
		Acetochlor**	0.25	U	ng/L	P302303	
		Cyanazine**	0.50	U	ng/L	P302303	
		Parathion Ethyl**	0.25	U	ng/L	P302303	
		Parathion Methyl**	0.25	U	ng/L	P302303	

Ref. Method and Comment:

SM 2540 D-97: The precision data is unavailable due to the low analyte concentration in the QC sample.

USGS O-2060-01: MS accuracy for bentazon could not be assessed due to high concentration of parameter in the spiked sample. Results confirmed in re-extraction.

USGS O-2060-01: Results confirmed in re-extraction. Refer to the narrative for an explanation of QC Codes.

DEP SOP: GC-011-5 (based on EPA 608 and 617): Refer to the narrative for an explanation of QC Codes.

EPA 8270D: MS accuracy for Atrazine, Metalaxyl, Bromacil and Norflurazon not assessed due to high content of these parameters in the sample spiked. Refer to the narrative for an explanation of QC Codes.

Quality Assurance Report

Method Blank Results

Reference Method: DEP SOP: GC-011-5 (based on EPA 608 and 617)

Batch ID: P302199

Component	Result	Code	Units
Aldrin	0.0020	U	ug/L
Alpha-BHC	0.0020	U	ug/L
Beta-BHC	0.0020	U	ug/L
Carbophenothion	0.0060	U	ug/L
Chlordane	0.020	U	ug/L
Chlorothalonil	0.0080	U	ug/L
Cypermethrin	0.012	U	ug/L
DDD-p,p'	0.0040	U	ug/L
DDE-p,p'	0.0040	U	ug/L
DDT-p,p'	0.0040	U	ug/L
Delta-BHC	0.0020	U	ug/L
Dicofol	0.024	U	ug/L
Dieldrin	0.0020	U	ug/L
Endosulfan I	0.0020	U	ug/L
Endosulfan II	0.0020	U	ug/L
Endosulfan Sulfate	0.0040	U	ug/L
Endrin	0.0040	U	ug/L
Endrin Aldehyde	0.0040	U	ug/L
Gamma-BHC	0.0020	U	ug/L
Heptachlor	0.0020	U	ug/L
Heptachlor Epoxide	0.0020	U	ug/L
Methoxychlor	0.010	U	ug/L
Mirex	0.0040	U	ug/L
Permethrin	0.010	U	ug/L
Trifluralin	0.0080	U	ug/L

Reference Method: EPA 180.1 Rev. 2.0

Batch ID: P302122

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Quality Assurance Report Method Blank Results

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P302310

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P302316

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P302565

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P302842

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P302260

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P302570

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P302105

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

Reference Method: EPA 8270D
Batch ID: P302303

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	0.10	U	ng/L
Chlorpyrifos Methyl	0.10	U	ng/L

Quality Assurance Report Method Blank Results

Reference Method: EPA 8270D

Batch ID: P302303

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	2.0	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: P302237

Component	Result	Code	Units
Glyphosate	10	U	ug/L

Reference Method: EPA 8321B

Batch ID: P302393

Component	Result	Code	Units
Pyraclostrobin	0.0020	U	ug/L

Reference Method: SM 2120 B

Batch ID: P302079

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2320 B-97

Batch ID: P302423

Component	Result	Code	Units
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Quality Assurance Report Method Blank Results

Reference Method: SM 2320 B-97
Batch ID: P302423

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

Reference Method: SM 2540 C-97
Batch ID: P302837

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P302824

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500 F-C-97
Batch ID: P302426

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-00
Batch ID: P302646

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

Reference Method: USGS O-2060-01
Batch ID: P302127

Component	Result	Code	Units
2,4,5-T	0.0020	U	ug/L
2,4-D	0.0020	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	0.0020	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: DEP SOP: GC-011-5 (based on EPA 608 and 617)
Batch ID: P302199

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
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Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: DEP SOP: GC-011-5 (based on EPA 608 and 617)

Batch ID: P302199

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Aldrin	98.6	82.3	P/P	70 - 130
Alpha-BHC	78.0	74.1	P/P	70 - 130
Beta-BHC	93.4	82.9	P/P	70 - 130
DDD-p,p'	93.4	89.5	P/P	70 - 130
DDE-p,p'	90.7	85.5	P/P	70 - 130
DDT-p,p'	117	97.6	P/P	70 - 130
Delta-BHC	89.0	81.1	P/P	70 - 130
Dieldrin	90.3	85.5	P/P	70 - 130
Endosulfan I	98.8	78.5	P/P	70 - 130
Endosulfan II	99.9	93.5	P/P	70 - 130
Endosulfan Sulfate	113	101	P/P	70 - 130
Endrin	111	102	P/P	81 - 147
Endrin Aldehyde	93.1	86.3	P/P	70 - 130
Gamma-BHC	84.0	77.0	P/P	70 - 130
Heptachlor	92.6	86.1	P/P	70 - 130
Heptachlor Epoxide	91.9	90.8	P/P	70 - 130
Methoxychlor	122	112	P/P	86 - 145

Reference Method: EPA 300.0 Rev. 2.1

Batch ID: P302310

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Chloride	104		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1

Batch ID: P302316

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

Reference Method: EPA 350.1 Rev. 2.0

Batch ID: P302565

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

Reference Method: EPA 351.2 Rev. 2.0

Batch ID: P302842

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

Reference Method: EPA 353.2 Rev. 2.0

Batch ID: P302260

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

Reference Method: EPA 365.1 Rev. 2.0

Batch ID: P302570

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
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Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 365.1 Rev. 2.0

Batch ID: P302570

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total-P	95.4		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved

Batch ID: P302105

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

Reference Method: EPA 8270D

Batch ID: P302303

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Acetochlor	89.8	101	P/P	84 - 119
Alachlor	89.2	98.9	P/P	84 - 121
Ametryn	110	126	P/P	66 - 127
Atrazine	89.0	100	P/P	72 - 119
Atrazine Desethyl	85.9	101	P/P	21 - 111
Azinphos Methyl	127	138	P/P	79 - 185
Bromacil	82.6	96.7	P/P	39 - 122
Butylate	57.6	59.2	P/P	36 - 94.0
Chlorpyrifos Ethyl	84.7	94.1	P/P	54 - 101
Chlorpyrifos Methyl	85.3	94.6	P/P	28 - 114
Cyanazine	69.0	91.2	P/P	58 - 201
Demeton	63.2	82.9	P/P	57 - 130
Diazinon	86.2	98.3	P/P	79 - 124
Disulfoton	79.5	64.3	P/P	45 - 140
EPTC	58.0	59.7	P/P	43 - 95.0
Ethion	90.3	100	P/P	65 - 125
Ethoprop	81.8	86.4	P/P	69 - 107
Fenamiphos	104	118	P/P	78 - 129
Fipronil	95.3	114	P/P	62 - 125
Fipronil Sulfide	87.9	103	P/P	65 - 119
Fipronil Sulfone	88.0	100	P/P	64 - 122
Fonofos	85.4	93.3	P/P	70 - 112
Hexazinone	99.9	106	P/P	44 - 147
Malathion	98.6	112	P/P	72 - 125
Metaxyl	83.8	93.1	P/P	83 - 113
Metolachlor	87.4	97.7	P/P	85 - 120
Metribuzin	86.5	100	P/P	68 - 129
Mevinphos	84.1	93.0	P/P	35 - 125
Molinate	60.0	66.8	P/P	51 - 100
Norflurazon	101	115	P/P	66 - 127
Parathion Ethyl	87.6	106	P/P	86 - 108
Parathion Methyl	98.8	115	P/P	87 - 125
Pendimethalin	72.9	85.6	P/P	53 - 136
Phorate	90.9	104	P/P	52 - 113
Prometon	89.0	105	P/P	67 - 125
Prometryn	98.6	112	P/P	73 - 114
Simazine	91.5	122	P/P	66 - 123
Terbufos	77.5	88.8	P/P	58 - 116
Terbutylazine	80.5	93.6	P/P	77 - 113

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 8321B
 Batch ID: P302237

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Glyphosate	107		P	40 - 140

Reference Method: EPA 8321B
 Batch ID: P302393

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Pyraclostrobin	96.0		P	40 - 140

Reference Method: SM 2320 B-97
 Batch ID: P302423

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	102		P	95 - 105

Reference Method: SM 4500 F-C-97
 Batch ID: P302426

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	98.0		P	92 - 103

Reference Method: SM 5310 B-00
 Batch ID: P302646

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	92.5		P	85 - 115

Reference Method: USGS O-2060-01
 Batch ID: P302127

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2,4,5-T	88.8		P	40 - 140
2,4-D	86.4		P	40 - 140
Acetaminophen	28.0		F	40 - 140
Acifluorfen	74.0		P	40 - 140
Bentazon	89.2		P	40 - 140
Carbamazepine	104		P	40 - 140
Diuron	94.4		P	40 - 140
Fenuron	98.0		P	40 - 140
Fluridone	99.2		P	40 - 140
Imidacloprid	86.4		P	40 - 160
Linuron	97.2		P	40 - 140
Primidone	92.8		P	40 - 140
Silvex	84.4		P	40 - 140

Quality Assurance Report Matrix Spike Accuracy

Reference Method: DEP SOP: GC-011-5 (based on EPA 608 and 617)
 Batch ID: P302199

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
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Quality Assurance Report Matrix Spike Accuracy

Reference Method: DEP SOP: GC-011-5 (based on EPA 608 and 617)
Batch ID: P302199

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1788475	Aldrin	98.1	91.1	P/P	70 - 130
1788475	Alpha-BHC	89.5	85.0	P/P	70 - 130
1788475	Beta-BHC	90.9	85.7	P/P	70 - 130
1788475	DDD-p,p'	97.5	95.8	P/P	70 - 130
1788475	DDE-p,p'	84.8	84.4	P/P	70 - 130
1788475	DDT-p,p'	119	109	P/P	70 - 130
1788475	Delta-BHC	86.6	81.3	P/P	70 - 130
1788475	Dieldrin	88.3	89.3	P/P	70 - 130
1788475	Endosulfan I	92.3	86.4	P/P	70 - 130
1788475	Endosulfan II	99.7	96.0	P/P	70 - 130
1788475	Endosulfan Sulfate	97.6	96.0	P/P	70 - 130
1788475	Endrin	110	105	P/P	81 - 147
1788475	Endrin Aldehyde	91.5	86.8	P/P	70 - 130
1788475	Gamma-BHC	81.6	79.2	P/P	70 - 130
1788475	Heptachlor	87.0	84.9	P/P	70 - 130
1788475	Heptachlor Epoxide	92.2	88.1	P/P	70 - 130
1788475	Methoxychlor	112	113	P/P	86 - 145

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P302310

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1788468	Chloride	102		P	90 - 110
1788557	Chloride	105		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P302316

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1788468	Sulfate	99.0		P	90 - 110
1788557	Sulfate	102		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P302565

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1788446	Ammonia-N	102	103	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P302842

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1788469	Kjeldahl Nitrogen	101	99.7	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P302260

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1788487	NO2NO3-N	98.2	103	P/P	90 - 110

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 365.1 Rev. 2.0

Batch ID: P302570

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1788444	Total-P	98.1	94.2	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved

Batch ID: P302105

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1788470	O-Phosphate-P	99.7	101	P/P	90 - 110

Reference Method: EPA 8270D

Batch ID: P302303

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1788476	Acetochlor	97.7	102	P/P	84 - 119
1788476	Alachlor	98.2	101	P/P	84 - 121
1788476	Ametryn	109	122	P/P	66 - 127
1788476	Atrazine Desethyl	42.1	43.3	P/P	21 - 111
1788476	Azinphos Methyl	115	145	P/P	79 - 185
1788476	Butylate	45.8	47.0	P/P	36 - 94.0
1788476	Chlorpyrifos Ethyl	84.6	94.5	P/P	54 - 101
1788476	Chlorpyrifos Methyl	72.5	88.5	P/P	28 - 114
1788476	Cyanazine	74.4	81.6	P/P	58 - 201
1788476	Demeton	61.1	77.1	P/P	57 - 130
1788476	Diazinon	91.3	103	P/P	79 - 124
1788476	Disulfoton	76.4	86.3	P/P	45 - 140
1788476	EPTC	44.5	42.3	P/F	43 - 95.0
1788476	Ethion	92.0	104	P/P	65 - 125
1788476	Ethoprop	64.8	84.5	F/P	69 - 107
1788476	Fenamiphos	87.1	114	P/P	78 - 129
1788476	Fipronil	62.6	69.5	P/P	62 - 125
1788476	Fipronil Sulfide	50.7	61.2	F/F	65 - 119
1788476	Fipronil Sulfone	39.4	54.2	F/F	64 - 122
1788476	Fonofos	73.8	89.3	P/P	70 - 112
1788476	Hexazinone	84.2	102	P/P	44 - 147
1788476	Malathion	94.1	107	P/P	72 - 125
1788476	Metolachlor	98.0	102	P/P	85 - 120
1788476	Metribuzin	86.3	90.9	P/P	68 - 129
1788476	Mevinphos	56.6	73.3	P/P	35 - 125
1788476	Molinate	55.4	63.8	P/P	51 - 100
1788476	Parathion Ethyl	88.7	94.9	P/P	86 - 108
1788476	Parathion Methyl	88.3	101	P/P	87 - 125
1788476	Pendimethalin	78.7	79.3	P/P	53 - 136
1788476	Phorate	80.0	94.9	P/P	52 - 113
1788476	Prometon	94.8	111	P/P	67 - 125
1788476	Prometryn	101	107	P/P	73 - 114
1788476	Simazine	28.1	48.4	F/F	66 - 123
1788476	Terbufos	71.0	92.7	P/P	58 - 116
1788476	Terbutylazine	95.3	101	P/P	77 - 113

Reference Method: EPA 8321B

Batch ID: P302237

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
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Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 8321B
 Batch ID: P302237

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1788473	Glyphosate	60.0	60.6	P/P	40 - 140

Reference Method: EPA 8321B
 Batch ID: P302393

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1788474	Pyraclostrobin	88.4	86.0	P/P	40 - 140

Reference Method: SM 4500 F-C-97
 Batch ID: P302426

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1788402	Fluoride	95.4	96.5	P/P	91 - 105

Reference Method: SM 5310 B-00
 Batch ID: P302646

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1788446	Organic Carbon	97.0	94.0	P/P	85 - 115

Reference Method: USGS O-2060-01
 Batch ID: P302127

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1789536	2,4,5-T	105	88.0	P/P	40 - 140
1789536	2,4-D	113	99.2	P/P	40 - 140
1789536	Acetaminophen	71.6	66.0	P/P	40 - 140
1789536	Acifluorfen	92.0	76.4	P/P	40 - 140
1789536	Carbamazepine	92.4	88.4	P/P	40 - 140
1789536	Diuron	50.0	54.0	P/P	40 - 140
1789536	Fenuron	52.0	50.8	P/P	40 - 140
1789536	Fluridone	88.6	83.0	P/P	40 - 140
1789536	Imidacloprid	140	144	P/P	40 - 160
1789536	Linuron	69.2	74.0	P/P	40 - 140
1789536	Primidone	73.2	80.0	P/P	40 - 140
1789536	Silvex	106	98.4	P/P	40 - 140

Quality Assurance Report Precision

Reference Method: DEP SOP: GC-011-5 (based on EPA 608 and 617)
 Batch ID: P302199

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1788475	Aldrin	7.42	Spike	P	0 - 30
1788475	Alpha-BHC	5.12	Spike	P	0 - 30
1788475	Beta-BHC	5.88	Spike	P	0 - 30
1788475	DDD-p,p'	1.73	Spike	P	0 - 30
1788475	DDE-p,p'	0.432	Spike	P	0 - 30
1788475	DDT-p,p'	8.93	Spike	P	0 - 30

Quality Assurance Report Precision

Reference Method: DEP SOP: GC-011-5 (based on EPA 608 and 617)
Batch ID: P302199

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1788475	Delta-BHC	6.32	Spike	P	0 - 30
1788475	Dieldrin	1.09	Spike	P	0 - 30
1788475	Endosulfan I	6.61	Spike	P	0 - 30
1788475	Endosulfan II	3.81	Spike	P	0 - 30
1788475	Endosulfan Sulfate	1.60	Spike	P	0 - 30
1788475	Endrin	4.08	Spike	P	0 - 30
1788475	Endrin Aldehyde	5.27	Spike	P	0 - 30
1788475	Gamma-BHC	3.00	Spike	P	0 - 30
1788475	Heptachlor	2.38	Spike	P	0 - 30
1788475	Heptachlor Epoxide	4.50	Spike	P	0 - 30
1788475	Methoxychlor	0.448	Spike	P	0 - 30
LFB	Aldrin	18.0	LCS	P	0 - 30
LFB	Alpha-BHC	5.16	LCS	P	0 - 30
LFB	Beta-BHC	11.9	LCS	P	0 - 30
LFB	DDD-p,p'	4.31	LCS	P	0 - 30
LFB	DDE-p,p'	5.91	LCS	P	0 - 30
LFB	DDT-p,p'	17.8	LCS	P	0 - 30
LFB	Delta-BHC	9.26	LCS	P	0 - 30
LFB	Dieldrin	5.46	LCS	P	0 - 30
LFB	Endosulfan I	22.9	LCS	P	0 - 30
LFB	Endosulfan II	6.64	LCS	P	0 - 30
LFB	Endosulfan Sulfate	11.2	LCS	P	0 - 30
LFB	Endrin	7.96	LCS	P	0 - 30
LFB	Endrin Aldehyde	7.55	LCS	P	0 - 30
LFB	Gamma-BHC	8.72	LCS	P	0 - 30
LFB	Heptachlor	7.17	LCS	P	0 - 30
LFB	Heptachlor Epoxide	1.20	LCS	P	0 - 30
LFB	Methoxychlor	8.31	LCS	P	0 - 30

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P302122

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1788468	Turbidity	3.15	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P302310

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1788468	Chloride	0.118	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P302316

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1788468	Sulfate	0.0331	Sample	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P302565

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1788446	Ammonia-N	1.46	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P302842

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1788469	Kjeldahl Nitrogen	1.06	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P302260

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1788487	NO2NO3-N	3.99	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P302570

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1788444	Total-P	3.87	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P302105

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1788470	O-Phosphate-P	1.49	Spike	P	0 - 20

Reference Method: EPA 8270D
Batch ID: P302303

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1788476	Acetochlor	4.00	Spike	P	0 - 30
1788476	Alachlor	3.19	Spike	P	0 - 30
1788476	Ametryn	11.4	Spike	P	0 - 30
1788476	Atrazine	9.78	Spike	P	0 - 30
1788476	Atrazine Desethyl	2.20	Spike	P	0 - 30
1788476	Azinphos Methyl	23.3	Spike	P	0 - 30
1788476	Bromacil	3.09	Spike	P	0 - 30
1788476	Butylate	2.74	Spike	P	0 - 30
1788476	Chlorpyrifos Ethyl	10.8	Spike	P	0 - 30
1788476	Chlorpyrifos Methyl	19.9	Spike	P	0 - 30
1788476	Cyanazine	9.24	Spike	P	0 - 30
1788476	Demeton	23.2	Spike	P	0 - 30
1788476	Diazinon	12.4	Spike	P	0 - 30
1788476	Disulfoton	12.3	Spike	P	0 - 30
1788476	EPTC	5.00	Spike	P	0 - 30
1788476	Ethion	12.1	Spike	P	0 - 30

Quality Assurance Report Precision

Reference Method: EPA 8270D
Batch ID: P302303

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1788476	Ethoprop	26.4	Spike	P	0 - 30
1788476	Fenamiphos	26.9	Spike	P	0 - 30
1788476	Fipronil	10.5	Spike	P	0 - 30
1788476	Fipronil Sulfide	18.8	Spike	P	0 - 30
1788476	Fipronil Sulfone	31.6	Spike	F	0 - 30
1788476	Fonofos	19.0	Spike	P	0 - 30
1788476	Hexazinone	11.9	Spike	P	0 - 30
1788476	Malathion	12.8	Spike	P	0 - 30
1788476	Metalaxyl	1.01	Spike	P	0 - 30
1788476	Metolachlor	3.28	Spike	P	0 - 30
1788476	Metribuzin	5.11	Spike	P	0 - 30
1788476	Mevinphos	25.8	Spike	P	0 - 30
1788476	Molinate	14.2	Spike	P	0 - 30
1788476	Norflurazon	28.2	Spike	P	0 - 30
1788476	Parathion Ethyl	6.73	Spike	P	0 - 30
1788476	Parathion Methyl	13.1	Spike	P	0 - 30
1788476	Pendimethalin	0.828	Spike	P	0 - 30
1788476	Phorate	17.1	Spike	P	0 - 30
1788476	Prometon	12.9	Spike	P	0 - 30
1788476	Prometryn	5.18	Spike	P	0 - 30
1788476	Simazine	12.7	Spike	P	0 - 30
1788476	Terbufos	26.5	Spike	P	0 - 30
1788476	Terbuthylazine	5.64	Spike	P	0 - 30
LFB	Acetochlor	12.1	LCS	P	0 - 30
LFB	Alachlor	10.4	LCS	P	0 - 30
LFB	Ametryn	13.1	LCS	P	0 - 30
LFB	Atrazine	11.7	LCS	P	0 - 30
LFB	Atrazine Desethyl	15.9	LCS	P	0 - 30
LFB	Azinphos Methyl	8.35	LCS	P	0 - 30
LFB	Bromacil	15.8	LCS	P	0 - 30
LFB	Butylate	2.79	LCS	P	0 - 30
LFB	Chlorpyrifos Ethyl	10.4	LCS	P	0 - 30
LFB	Chlorpyrifos Methyl	10.4	LCS	P	0 - 30
LFB	Cyanazine	27.7	LCS	P	0 - 30
LFB	Demeton	26.9	LCS	P	0 - 30
LFB	Diazinon	13.1	LCS	P	0 - 30
LFB	Disulfoton	21.0	LCS	P	0 - 30
LFB	EPTC	2.96	LCS	P	0 - 30
LFB	Ethion	10.3	LCS	P	0 - 30
LFB	Ethoprop	5.51	LCS	P	0 - 30
LFB	Fenamiphos	13.4	LCS	P	0 - 30
LFB	Fipronil	18.1	LCS	P	0 - 30
LFB	Fipronil Sulfide	15.8	LCS	P	0 - 30
LFB	Fipronil Sulfone	12.9	LCS	P	0 - 30
LFB	Fonofos	8.80	LCS	P	0 - 30
LFB	Hexazinone	6.34	LCS	P	0 - 30
LFB	Malathion	12.9	LCS	P	0 - 30
LFB	Metalaxyl	10.5	LCS	P	0 - 30
LFB	Metolachlor	11.2	LCS	P	0 - 30
LFB	Metribuzin	14.5	LCS	P	0 - 30
LFB	Mevinphos	10.0	LCS	P	0 - 30

Quality Assurance Report Precision

Reference Method: EPA 8270D
Batch ID: P302303

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
LFB	Molinate	10.8	LCS	P	0 - 30
LFB	Norflurazon	13.2	LCS	P	0 - 30
LFB	Parathion Ethyl	18.9	LCS	P	0 - 30
LFB	Parathion Methyl	15.2	LCS	P	0 - 30
LFB	Pendimethalin	16.1	LCS	P	0 - 30
LFB	Phorate	13.3	LCS	P	0 - 30
LFB	Prometon	16.4	LCS	P	0 - 30
LFB	Prometryn	13.0	LCS	P	0 - 30
LFB	Simazine	28.5	LCS	P	0 - 30
LFB	Terbufos	13.6	LCS	P	0 - 30
LFB	Terbuthylazine	15.0	LCS	P	0 - 30

Reference Method: EPA 8321B
Batch ID: P302237

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1788473	Glyphosate	0.995	Spike	P	0 - 30

Reference Method: EPA 8321B
Batch ID: P302393

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1788474	Pyraclostrobin	2.75	Spike	P	0 - 30

Reference Method: SM 2120 B
Batch ID: P302079

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1788478	Color (true)	1.14	Sample	P	0 - 20

Reference Method: SM 2320 B-97
Batch ID: P302423

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1788402	Total Alkalinity	0.0236	Sample	P	0 - 4.8

Reference Method: SM 2540 C-97
Batch ID: P302837

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1788468	TDS	7.57	Sample	P	0 - 10

Quality Assurance Report Precision

Reference Method: SM 4500 F-C-97
Batch ID: P302426

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1788402	Fluoride	0.995	Spike	P	0 - 3.0

Reference Method: SM 5310 B-00
Batch ID: P302646

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1788446	Organic Carbon	1.75	Spike	P	0 - 20

Reference Method: USGS O-2060-01
Batch ID: P302127

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1789536	2,4,5-T	17.4	Spike	P	0 - 30
1789536	2,4-D	12.8	Spike	P	0 - 30
1789536	Acetaminophen	8.14	Spike	P	0 - 30
1789536	Acifluorfen	18.5	Spike	P	0 - 30
1789536	Bentazon	21.2	Spike	P	0 - 30
1789536	Carbamazepine	4.42	Spike	P	0 - 30
1789536	Diuron	7.69	Spike	P	0 - 30
1789536	Fenuron	2.33	Spike	P	0 - 30
1789536	Fluridone	6.39	Spike	P	0 - 30
1789536	Imidacloprid	2.81	Spike	P	0 - 30
1789536	Linuron	6.70	Spike	P	0 - 30
1789536	Primidone	8.88	Spike	P	0 - 30
1789536	Silvex	7.81	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: 1788473
Field Sample ID: SD041116-5

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	Glyphosate 13C 15N	59.0	P	50 - 150
USGS O-2060-01	2,4-D-d3	98.2	P	40 - 150
USGS O-2060-01	Acetaminophen-d4	86.4	P	30 - 150
USGS O-2060-01	Carbamazepine-d10	149	P	40 - 160
USGS O-2060-01	Diuron-d6	86.4	P	40 - 150
USGS O-2060-01	Primidone-d5	128	P	40 - 150

Lab Sample ID: 1788474
Field Sample ID: SD041116-5

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	Diuron-d6	83.0	P	40 - 150

Quality Assurance Report Surrogates

Lab Sample ID: 1788475
Field Sample ID: SD041116-5

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
DEP SOP: GC-011-5 (based on EPA 608 and 617)	Decachlorobiphenyl	54.8	P	44 - 128

Lab Sample ID: 1788476
Field Sample ID: SD041116-5

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8270D	Malathion-d7	96.8	P	67 - 131
EPA 8270D	Simazine-d10	99.7	P	75 - 130

Quality Assurance Report Calibration Verification

Reference Method: EPA 300.0 Rev. 2.1
Run ID: A68804
Included Lab Sample IDs: 1788468

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	103	103	P/P	90 - 110
Sulfate	98.8	101	P/P	90 - 110

Reference Method: SM 2120 B
Run ID: A68822
Included Lab Sample IDs: 1788468

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Run ID: A68831
Included Lab Sample IDs: 1788470

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	101	99.9	P/P	90 - 110

Reference Method: EPA 180.1 Rev. 2.0
Run ID: A68840
Included Lab Sample IDs: 1788468

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

Reference Method: EPA 353.2 Rev. 2.0
Run ID: A68882
Included Lab Sample IDs: 1788469

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO2NO3-N	98.0	98.5	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: EPA 8321B
Run ID: A68897
Included Lab Sample IDs: 1788473

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Glyphosate	98.8	105	P/P	70 - 130

Reference Method: SM 2320 B-97
Run ID: A68927
Included Lab Sample IDs: 1788468

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	99.7	103	P/P	90 - 110

Reference Method: SM 4500 F-C-97
Run ID: A68927
Included Lab Sample IDs: 1788468

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	99.5	98.5	P/P	90 - 110

Reference Method: EPA 8321B
Run ID: A68941
Included Lab Sample IDs: 1788474

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Pyraclostrobin	96.0	97.6	P/P	60 - 150

Reference Method: USGS O-2060-01
Run ID: A68941
Included Lab Sample IDs: 1788473

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Acetaminophen	91.6	100	P/P	60 - 150
Carbamazepine	102	111	P/P	60 - 150
Diuron	86.8	95.2	P/P	60 - 150
Fenuron	93.6	94.4	P/P	60 - 150
Fluridone	86.0	84.8	P/P	60 - 150
Imidacloprid	85.2	88.0	P/P	60 - 150
Linuron	98.8	99.6	P/P	60 - 150
Primidone	70.4	84.0	P/P	60 - 150

Reference Method: USGS O-2060-01
Run ID: A68967
Included Lab Sample IDs: 1788473

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
2,4,5-T	80.0	83.4	P/P	50 - 150
2,4-D	89.4	91.6	P/P	50 - 150
Acifluorfen	103	96.4	P/P	50 - 150
Bentazon	113	97.8	P/P	50 - 150
Silvex	97.6	91.4	P/P	50 - 150

Quality Assurance Report Calibration Verification

Reference Method: EPA 8270D
Run ID: A68968
Included Lab Sample IDs: 1788476

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Acetochlor	94.9		P	80 - 120
Alachlor	97.7		P	80 - 120
Ametryn	89.5		P	80 - 120
Atrazine	101		P	80 - 120
Atrazine Desethyl	94.8		P	80 - 120
Azinphos Methyl	92.7		P	80 - 120
Butylate	98.7		P	80 - 120
Chlorpyrifos Ethyl	98.0		P	80 - 120
Chlorpyrifos Methyl	94.3		P	80 - 120
Cyanazine	88.0		P	80 - 120
Demeton	92.8		P	80 - 120
Diazinon	95.8		P	80 - 120
Disulfoton	101		P	80 - 120
EPTC	98.8		P	80 - 120
Ethion	97.0		P	80 - 120
Ethoprop	94.4		P	80 - 120
Fenamiphos	96.6		P	80 - 120
Fipronil	91.9		P	80 - 120
Fipronil Sulfide	97.2		P	80 - 120
Fipronil Sulfone	97.2		P	80 - 120
Fonofos	96.8		P	80 - 120
Hexazinone	98.9		P	80 - 120
Malathion	91.8		P	80 - 120
Metaxyl	97.0		P	80 - 120
Metolachlor	98.2		P	80 - 120
Metribuzin	93.0		P	80 - 120
Mevinphos	97.6		P	80 - 120
Molinate	99.3		P	80 - 120
Parathion Ethyl	97.5		P	80 - 120
Parathion Methyl	98.7		P	80 - 120
Pendimethalin	94.6		P	80 - 120
Phorate	97.2		P	80 - 120
Prometon	90.5		P	80 - 120
Prometryn	87.0		P	80 - 120
Terbufos	96.4		P	80 - 120
Terbuthylazine	94.8		P	80 - 120

Reference Method: EPA 350.1 Rev. 2.0
Run ID: A68974
Included Lab Sample IDs: 1788469

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

Reference Method: SM 5310 B-00
Run ID: A68999
Included Lab Sample IDs: 1788469

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	96.5	95.4	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A69063

Included Lab Sample IDs: 1788469

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

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A69109

Included Lab Sample IDs: 1788469

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

Reference Method: EPA 8270D

Run ID: A69130

Included Lab Sample IDs: 1788476

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Bromacil	103		P	80 - 120
Norflurazon	101		P	80 - 120
Simazine	105		P	80 - 120

Reference Method: DEP SOP: GC-011-5 (based on EPA 608 and 617)

Run ID: A69143

Included Lab Sample IDs: 1788475

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Aldrin	97.3	93.9	P/P	85 - 115
Alpha-BHC	96.5	92.0	P/P	85 - 115
Beta-BHC	100	95.6	P/P	85 - 115
Carbophenothion	96.8	101	P/P	90 - 110
Chlordane	86.0	84.1*	P/F	85 - 115
Chlorothalonil	102	102	P/P	90 - 110
Cypermethrin	88.8	99.2	P/P	85 - 115
DDD-p,p'	99.6	93.2	P/P	85 - 115
DDE-p,p'	97.4	94.2	P/P	85 - 115
DDT-p,p'	96.3	92.3	P/P	85 - 115
Delta-BHC	96.9	92.2	P/P	85 - 115
Dicofol	119*	97.9	F/P	90 - 110
Dieldrin	97.8	94.4	P/P	85 - 115
Endosulfan I	98.1	94.8	P/P	85 - 115
Endosulfan II	98.8	96.1	P/P	85 - 115
Endosulfan Sulfate	98.4	95.6	P/P	85 - 115
Endrin	93.2	89.4	P/P	85 - 115
Endrin Aldehyde	100	99.4	P/P	85 - 115
Gamma-BHC	97.4	92.8	P/P	85 - 115
Heptachlor	98.2	94.1	P/P	85 - 115
Heptachlor Epoxide	98.8	95.0	P/P	85 - 115
Methoxychlor	99.6	98.0	P/P	90 - 110
Mirex	97.6	99.0	P/P	90 - 110
Permethrin	96.3	102	P/P	90 - 110
Trifluralin	101	100	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
DEP SOP: GC-011-5 (based on EPA 608 and 617)	Aldrin	98.6	82.3	98.1	91.1	18.0		7.42
	Alpha-BHC	78.0	74.1	89.5	85.0	5.16		5.12
	Beta-BHC	93.4	82.9	90.9	85.7	11.9		5.88
	DDD-p,p'	93.4	89.5	97.5	95.8	4.31		1.73
	DDE-p,p'	90.7	85.5	84.8	84.4	5.91		0.432
	DDT-p,p'	117	97.6	119	109	17.8		8.93
	Delta-BHC	89.0	81.1	86.6	81.3	9.26		6.32
	Dieldrin	90.3	85.5	88.3	89.3	5.46		1.09
	Endosulfan I	98.8	78.5	92.3	86.4	22.9		6.61
	Endosulfan II	99.9	93.5	99.7	96.0	6.64		3.81
	Endosulfan Sulfate	113	101	97.6	96.0	11.2		1.60
	Endrin	111	102	110	105	7.96		4.08
	Endrin Aldehyde	93.1	86.3	91.5	86.8	7.55		5.27
	Gamma-BHC	84.0	77.0	81.6	79.2	8.72		3.00
	Heptachlor	92.6	86.1	87.0	84.9	7.17		2.38
	Heptachlor Epoxide	91.9	90.8	92.2	88.1	1.20		4.50
	Methoxychlor	122	112	112	113	8.31		0.448
EPA 180.1 Rev. 2.0	Turbidity						3.15	
EPA 300.0 Rev. 2.1	Chloride	104		102	105		0.118	
	Sulfate	100		99.0	102		0.0331	
EPA 350.1 Rev. 2.0	Ammonia-N	104		102	103			1.46
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	102		101	99.7			1.06
EPA 353.2 Rev. 2.0	NO2NO3-N	102		98.2	103			3.99
EPA 365.1 Rev. 2.0	Total-P	95.4		98.1	94.2			3.87
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	102		99.7	101			1.49
EPA 8270D	Acetochlor	89.8	101	97.7	102	12.1		4.00
	Alachlor	89.2	98.9	98.2	101	10.4		3.19
	Ametryn	110	126	109	122	13.1		11.4
	Atrazine	89.0	100			11.7		9.78
	Atrazine Desethyl	85.9	101	42.1	43.3	15.9		2.20
	Azinphos Methyl	127	138	115	145	8.35		23.3
	Bromacil	82.6	96.7			15.8		3.09
	Butylate	57.6	59.2	45.8	47.0	2.79		2.74
	Chlorpyrifos Ethyl	84.7	94.1	84.6	94.5	10.4		10.8
	Chlorpyrifos Methyl	85.3	94.6	72.5	88.5	10.4		19.9
	Cyanazine	69.0	91.2	74.4	81.6	27.7		9.24
	Demeton	63.2	82.9	61.1	77.1	26.9		23.2
	Diazinon	86.2	98.3	91.3	103	13.1		12.4
	Disulfoton	79.5	64.3	76.4	86.3	21.0		12.3
	EPTC	58.0	59.7	44.5	42.3	2.96		5.00
	Ethion	90.3	100	92.0	104	10.3		12.1
	Ethoprop	81.8	86.4	64.8	84.5	5.51		26.4
	Fenamiphos	104	118	87.1	114	13.4		26.9
	Fipronil	95.3	114	62.6	69.5	18.1		10.5
	Fipronil Sulfide	87.9	103	50.7	61.2	15.8		18.8

Quality Assurance Report Summary

Ref. Method	Analyte	LCS % Recovery		MS % Recovery		Precision	
						LCS	MS
						SMP	
EPA 8270D	Fipronil Sulfone	88.0	100	39.4	54.2	12.9	31.6
	Fonofos	85.4	93.3	73.8	89.3	8.80	19.0
	Hexazinone	106	99.9	84.2	102	6.34	11.9
	Malathion	98.6	112	94.1	107	12.9	12.8
	Metalaxyl	83.8	93.1			10.5	1.01
	Metolachlor	87.4	97.7	98.0	102	11.2	3.28
	Metribuzin	86.5	100	86.3	90.9	14.5	5.11
	Mevinphos	84.1	93.0	56.6	73.3	10.0	25.8
	Molinate	60.0	66.8	55.4	63.8	10.8	14.2
	Norflurazon	101	115			13.2	28.2
	Parathion Ethyl	87.6	106	88.7	94.9	18.9	6.73
	Parathion Methyl	98.8	115	88.3	101	15.2	13.1
	Pendimethalin	72.9	85.6	79.3	78.7	16.1	0.828
	Phorate	90.9	104	80.0	94.9	13.3	17.1
	Prometon	89.0	105	94.8	111	16.4	12.9
	Prometryn	98.6	112	101	107	13.0	5.18
	Simazine	91.5	122	28.1	48.4	28.5	12.7
	Terbufos	77.5	88.8	71.0	92.7	13.6	26.5
	Terbuthylazine	80.5	93.6	95.3	101	15.0	5.64
EPA 8321B	Glyphosate	107		60.0	60.6		0.995
	Pyraclostrobin	96.0		88.4	86.0		2.75
SM 2120 B	Color (true)					1.14	
SM 2320 B-97	Total Alkalinity	102				0.0236	
SM 2540 C-97	TDS					7.57	
SM 4500 F-C-97	Fluoride	98.0		95.4	96.5		0.995
SM 5310 B-00	Organic Carbon	92.5		97.0	94.0		1.75
USGS O-2060-01	2,4,5-T	88.8		105	88.0		17.4
	2,4-D	86.4		113	99.2		12.8
	Acetaminophen	28.0		71.6	66.0		8.14
	Acifluorfen	74.0		92.0	76.4		18.5
	Bentazon	89.2					21.2
	Carbamazepine	104		92.4	88.4		4.42
	Diuron	94.4		50.0	54.0		7.69
	Fenuron	98.0		52.0	50.8		2.33
	Fluridone	99.2		88.6	83.0		6.39
	Imidacloprid	86.4		140	144		2.81
	Linuron	97.2		69.2	74.0		6.70
	Primidone	92.8		73.2	80.0		8.88
	Silvex	84.4		106	98.4		7.81

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
DEP SOP: GC-011-5 (based on EPA 608 and 617) / E31780	Organochlorine pesticides (low levels) in water matrices by GC/ECD.	1788475
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	1788468
EPA 300.0 Rev. 2.1 / E31780	Chloride in aqueous matrices	1788468
EPA 300.0 Rev. 2.1 / E31780	Sulfate in aqueous matrices	1788468
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	1788469

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	1788469
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	1788469
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	1788469
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	1788470
EPA 8270D / E31780	Organonitrogen and phosphorus pesticides (ultra trace level) in water matrices by GC/MS/MS	1788476
EPA 8321B / E31780	Glyphosate in water matrices by HPLC/MS/MS	1788473
EPA 8321B / E31780	Pyraclostrobin in water matrices by HPLC/MS/MS	1788474
SM 2120 B / E31780	True Color measured at 450 nm	1788468
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO ₃ /L	1788468
SM 2540 C-97 / E31780	Total Dissolved Solids in aqueous matrices	1788468
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices	1788468
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	1788468
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	1788469
USGS O-2060-01 / E31780	Chlorinated (phenoxy acid) herbicides in water matrices by HPLC/MS/MS	1788473
USGS O-2060-01 / E31780	Urea herbicides and other chemicals in water matrices by HPLC/MS/MS	1788473

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
DEP SOP: GC-011-5 (based on EPA 608 and 617)	04/12/2016	04/14/2016	Fe-Val Siddell	04/21/2016	Vandana T. Nagar	1788475
EPA 180.1 Rev. 2.0	04/12/2016			04/12/2016 15:22	Sima Feizi	1788468
EPA 300.0 Rev. 2.1	04/12/2016			04/14/2016	Ping Hua	1788468
EPA 350.1 Rev. 2.0	04/12/2016			04/19/2016	Diana M. Turner	1788469
EPA 351.2 Rev. 2.0	04/12/2016	04/25/2016	Sofia Elnemr	04/26/2016	Christopher Armour	1788469
EPA 353.2 Rev. 2.0	04/12/2016			04/14/2016	Peter D. Kaus	1788469
EPA 365.1 Rev. 2.0	04/12/2016	04/20/2016	Christopher Armour	04/21/2016	Lipi Saha	1788469
EPA 365.1 Rev. 2.0 dissolved	04/12/2016			04/12/2016 14:16	Julia Storbeck	1788470
EPA 8270D	04/12/2016	04/15/2016	John Kaba	04/19/2016	Irina Carbone	1788476
	04/12/2016	04/15/2016	John Kaba	04/22/2016	Irina Carbone	1788476
	04/12/2016	04/15/2016	John Kaba	04/23/2016	Irina Carbone	1788476
EPA 8321B	04/12/2016	04/15/2016	Mohammad Ghaffari	04/15/2016	Mohammad Ghaffari	1788473
	04/12/2016	04/18/2016	Hoor Shaik	04/18/2016	Juyoung Kim	1788474
SM 2120 B	04/12/2016			04/12/2016 13:50	Rochelle Y Jackson	1788468
SM 2320 B-97	04/12/2016			04/16/2016	Dale L. Simmons	1788468
SM 2540 C-97	04/12/2016			04/15/2016	Yijie Li	1788468
SM 2540 D-97	04/12/2016			04/15/2016	Yijie Li	1788468
SM 4500 F-C-97	04/12/2016			04/16/2016	Dale L. Simmons	1788468
SM 5310 B-00	04/12/2016			04/19/2016	Sofia Elnemr	1788469
USGS O-2060-01	04/12/2016	04/18/2016	Hoor Shaik	04/18/2016	Juyoung Kim	1788473
	04/12/2016	04/18/2016	Hoor Shaik	04/19/2016	Juyoung Kim	1788473