Chemical Analysis Report

CEN-DIST-2021-08-20-03

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

Event Description: **Apopka LVI**
Request ID: **RQ-2021-08-16-59**
Customer: **CEN-DIST**
Project ID: **SMP**

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

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

Certified by: Thekkekalathil Chandrasekhar, Environmental Consultant Date Certified: 16-SEP-2021 12:05

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 by the Florida Department of Health Environmental Laboratory Certification Program or where accreditation for that field of testing is not applicable.

Any significant anomalies or deviations from established protocols are documented in Non-Conformance Reports, which, where appropriate, are included within this analytical report. Additional comments related to specific analytical tests may be included as remarks following the analytical results for each sample. Such comments and remarks are for informational purposes only and are not intended to convey judgement about the usability of the reported data.

A quality control report on the performance of the test method for the submitted samples is included. Uncertainty associated with the analytical results contained in this report can be estimated from the reported quality assurance results and from published quality control acceptance limits for each analytical test. Matrix quality control results (matrix spike recoveries and matrix sample precision) pertain only to the matrix sample tested and do not necessarily reflect test method performance for other samples.

Typical matrix quality control (QC) measurements may include matrix spike recovery, matrix spike duplicate recovery, matrix spike precision and matrix sample precision. Not all matrix QC results may be available or reportable; where they are not an explanation is provided. Typical reasons for unavailable QC results include, but are not limited to, a) insufficient matrix sample to perform some or all QC measurements; b) analyte concentration in the sample replicated was too low for a meaningful measurement of precision and c) analyte concentration in the matrix sample spiked was too high (relative to the amount of analyte spiked) for a meaningful measurement of recovery. Where matrix QC results are unavailable, other method performance metrics (e.g., LCS recovery, LCS precision, surrogate recovery) may be used to assess performance of the method. Comments explaining any missing QC measurements are not intended to convey any adverse conclusions about the quality of the reported data.

Precision is reported as relative percent difference unless otherwise noted.

Quality Control codes as defined below may be used in this report to indicate results that are associated with one or more quality control elements which did not fall within established test method criteria. Such results may be qualified as estimates using a J qualifier as required by 62-160 F.A.C. Explanations are included in the report for any results that were reported as estimates for other reasons.

QC Codes used in this report may include:

LCS – Recovery for the batch Laboratory Control Sample (LCS) was outside existing control limits;
MS – Recovery for the batch matrix spike (MS) was outside existing control limits;
CCV – Recovery for a continuing calibration verification (CCV) standard was outside existing control limits;
SUR – Recovery of a surrogate (SUR) for associated analytes was outside existing control limits;
RPD – The precision, measured as relative percent difference (RPD), of batch replicate measurements was outside existing control limits;
RSD – The precision, measured as relative standard deviation (RSD), of batch replicate measurements was outside existing control limits;
SMP – Sample - used precision derived from replicate analyses of a sample;

The following data qualifiers are used, where applicable, in this report as specified in 62-160 F.A.C.

A - Value reported is the mean of two or more determinations.
B - Results based on colony counts outside the acceptable range.
I - The reported value is between the laboratory method detection limit and the laboratory practical quantitation limit.
J - Estimated value and/or the analysis did not meet established quality control criteria.
K - Actual value is known to be less than value given.
L - Actual value is known to be greater than value given.
N - Presumptive evidence of presence of material.
O - Sampled, but analysis lost or not performed.
Q - Sample held beyond normal holding time.
T - Value reported is less than the criterion of detection.
U - Material was analyzed for but not detected. The reported value is the method detection limit for the sample analyzed.
V - Analyte was detected in both sample and method blank.
X - Too few individuals to calculate SCI value.
Y - The laboratory analysis was from an unpreserved or improperly preserved sample. The data may not be accurate.
Z - Colonies were too numerous to count (TNTC).

Quality control information from overflow laboratories may not be included in this report. Please refer to the associated report from the overflow laboratory for additional information.

Sample Location: Lake Apopka @ Center **Collection Date/Time: 08/19/2021 12:45**

Field ID: G1CE0112 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2271098	EPA 180.1 Rev. 2.0	Turbidity	9.2		NTU	P402776	
	EPA 300.0 Rev. 2.1	Chloride	33	A	mg Cl/L	P403164	
	SM 2120 B-2011	Color (true)	14		PCU	P402778	
	SM 2320 B-2011	Total Alkalinity	108		mg CaCO3/L	P402851	
	SM 2540 C-2011	TDS	180		mg/L	P403217	
	SM 2540 D-2011	TSS	24	I	mg/L	P403200	
	SM 4500 F-C-2011	Fluoride	0.24		mg F/L	P402854	
2271099	EPA 350.1 Rev. 2.0	Ammonia-N	0.011		mg N/L	P403081	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	2.2		mg N/L	P403261	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P403070	
	EPA 365.1 Rev. 2.0	Total-P	0.042		mg P/L	P402893	
	SM 5310 B-2011	Organic Carbon	18		mg C/L	P403372	
2271100	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P402771	
2271102	EPA 8270E	Aldrin	0.68	U	ng/L	P402975	
		Alpha-BHC	0.10	U	ng/L	P402975	
		Alpha-Chlordane	0.21	U	ng/L	P402975	
		Beta-BHC	0.10	U	ng/L	P402975	
		Beta-Cyfluthrin**	1.3	U	ng/L	P402975	
		Bifenthrin**	0.52	U	ng/L	P402975	
		Carbophenothion	0.94	U	ng/L	P402975	
		Chlorothalonil	0.52	U	ng/L	P402975	
		Cis-Nonachlor**	0.21	U	ng/L	P402975	
		Cypermethrin	1.6	U	ng/L	P402975	
		Dacthal**	0.16	U	ng/L	P402975	
		DDD-p,p'	2.3		ng/L	P402975	
		DDE-p,p'	0.21	U	ng/L	P402975	
		DDT-p,p'	0.26	U	ng/L	P402975	
		Delta-BHC	0.42	U	ng/L	P402975	
		Deltamethrin**	1.3	U	ng/L	P402975	
		Dichlobenil**	0.10	U	ng/L	P402975	
		Dicofol	1.3	U	ng/L	P402975	
		Dieldrin	1.2	I	ng/L	P402975	
		Endosulfan I	0.42	U	ng/L	P402975	
		Endosulfan II	0.42	U	ng/L	P402975	
		Endosulfan Sulfate	0.31	U	ng/L	P402975	
		Endrin	0.42	UJ	ng/L	P402975	LCS, MS
		Endrin Aldehyde	0.78	UJ	ng/L	P402975	LCS, MS
		Endrin Ketone	0.42	UJ	ng/L	P402975	LCS
		Esfenvalerate**	0.78	U	ng/L	P402975	
		Ethalfluralin**	0.16	U	ng/L	P402975	
		Fenpropathrin**	0.26	U	ng/L	P402975	
		Gamma-BHC	0.13	U	ng/L	P402975	
		Gamma-Chlordane	0.26	I	ng/L	P402975	

Field ID: G1CE0112 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2271102	EPA 8270E	Heptachlor	0.21	U	ng/L	P402975	
		Heptachlor Epoxide	0.26	U	ng/L	P402975	
		Hexachlorobenzene	1.0	U	ng/L	P402975	
		Kepone**	5.2	UJ	ng/L	P402975	CCV
		Lambda-Cyhalothrin**	0.78	U	ng/L	P402975	
		Methoxychlor	0.31	U	ng/L	P402975	
		MGK-264**	0.21	U	ng/L	P402975	
		Mirex	0.73	U	ng/L	P402975	
		Permethrin	1.7	U	ng/L	P402975	
		Phenothrin**	0.94	U	ng/L	P402975	
		Piperonyl Butoxide**	0.16	UJ	ng/L	P402975	LCS, MS
		Prallethrin**	7.0	I J	ng/L	P402975	LCS
		Tau-Fluvalinate**	0.26	U	ng/L	P402975	
		Tetramethrin**	0.78	UJ	ng/L	P402975	LCS, RPD
		Trans-Nonachlor**	0.21	U	ng/L	P402975	
		Triclosan Methyl**	0.16	U	ng/L	P402975	
		Trifluralin	0.21	U	ng/L	P402975	
	EPA 8276	Chlordane	5.2	U	ng/L	P402975	
		Toxaphene	31	U	ng/L	P402975	
2271103	EPA 8321B	2,4-D	0.068		ug/L	P402808	
		Acesulfame K	0.10	U	ug/L	P402720	MS
		2,4,5-T	0.0040	U	ug/L	P402808	
		AMPA	0.10	U	ug/L	P402720	
		Acetaminophen	0.019	I	ug/L	P402808	
		Acetamiprid	0.0020	U	ug/L	P402808	
		Endothall	0.25	U	ug/L	P402720	MS
		Glufosinate	0.10	U	ug/L	P402720	
		Glyphosate	0.10	U	ug/L	P402720	
		Afidopyropen	0.0020	U	ug/L	P402808	
		Bentazon	0.0024	I	ug/L	P402808	
		Sucralose	0.63		ug/L	P402720	
		Benzovindiflupyr	0.0020	U	ug/L	P402808	
		Carbamazepine	8.0E-04	U	ug/L	P402808	
		Clothianidin	0.0020	U	ug/L	P402808	
		Dinotefuran	0.0020	U	ug/L	P402808	
		Diuron	0.0020	U	ug/L	P402808	
		Fenuron	0.016	U	ug/L	P402808	
		Fluridone	8.0E-04	U	ug/L	P402808	
		Imazapyr	0.0040	U	ug/L	P402808	MS
		Hydrocodone	0.0020	U	ug/L	P402808	
		Ibuprofen	0.020	U	ug/L	P402808	
		Imidacloprid	0.0020	U	ug/L	P402808	MS
		Linuron	0.0040	U	ug/L	P402808	
		Mandestrobin	0.0020	U	ug/L	P402808	
		MCPP	0.0020	U	ug/L	P402808	

Field ID: G1CE0112 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2271103	EPA 8321B	Naproxen	0.0080	U	ug/L	P402808	
		Primidone	0.0040	UJ	ug/L	P402808	SUR
		Pyraclostrobin	0.0020	U	ug/L	P402808	
		Thiamethoxam	0.0020	U	ug/L	P402808	
		Tolfenpyrad	0.0020	U	ug/L	P402808	
		Triclopyr	0.0040	U	ug/L	P402808	

Ref. Method and Comment:
SM 2540 D-2011: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample. The PQL was elevated because of sample matrix interference.
EPA 8270E: Refer to the Lab Analysis Report for an explanation of QC Codes. Precision data for piperonyl butoxide not reported due to low recoveries.
EPA 8321B: MS accuracy for bentazon could not be assessed due to high concentration of parameter in the spiked sample. Results confirmed in re-extraction. Refer to the Lab Analysis Report for an explanation of QC Codes.

Quality Assurance Report
Method Blank Results

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P402776

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P403164

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P403081

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P403261

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P403070

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P402893

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P402771

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

Reference Method: EPA 8270E
Batch ID: P402975

Component	Result	Code	Units
Aldrin	0.65	U	ng/L
Aldrin	0.65	U	ng/L
Alpha-BHC	0.10	U	ng/L
Alpha-BHC	0.10	U	ng/L
Alpha-Chlordane	0.20	U	ng/L
Alpha-Chlordane	0.20	U	ng/L
Beta-BHC	0.10	U	ng/L
Beta-BHC	0.10	U	ng/L
Beta-Cyfluthrin	1.2	U	ng/L
Beta-Cyfluthrin	1.2	U	ng/L

Quality Assurance Report
Method Blank Results

Reference Method: EPA 8270E
Batch ID: P402975

Component	Result	Code	Units
Bifenthrin	0.50	U	ng/L
Bifenthrin	0.50	U	ng/L
Carbophenothion	0.90	U	ng/L
Carbophenothion	0.90	U	ng/L
Chlorothalonil	0.50	U	ng/L
Chlorothalonil	0.50	U	ng/L
Cis-Nonachlor	0.20	U	ng/L
Cis-Nonachlor	0.20	U	ng/L
Cypermethrin	1.5	U	ng/L
Cypermethrin	1.5	U	ng/L
Dacthal	0.15	U	ng/L
Dacthal	0.15	U	ng/L
DDD-p,p'	0.25	U	ng/L
DDD-p,p'	0.25	U	ng/L
DDE-p,p'	0.20	U	ng/L
DDE-p,p'	0.20	U	ng/L
DDT-p,p'	0.25	U	ng/L
DDT-p,p'	0.25	U	ng/L
Delta-BHC	0.40	U	ng/L
Delta-BHC	0.40	U	ng/L
Deltamethrin	1.2	U	ng/L
Deltamethrin	1.2	U	ng/L
Dichlobenil	0.10	U	ng/L
Dichlobenil	0.10	U	ng/L
Dicofol	1.2	U	ng/L
Dicofol	1.2	U	ng/L
Dieldrin	0.40	U	ng/L
Dieldrin	0.40	U	ng/L
Endosulfan I	0.40	U	ng/L
Endosulfan I	0.40	U	ng/L
Endosulfan II	0.40	U	ng/L
Endosulfan II	0.40	U	ng/L
Endosulfan Sulfate	0.30	U	ng/L
Endosulfan Sulfate	0.30	U	ng/L
Endrin	0.40	U	ng/L
Endrin	0.40	U	ng/L
Endrin Aldehyde	0.75	U	ng/L
Endrin Aldehyde	0.75	U	ng/L
Endrin Ketone	0.40	U	ng/L
Endrin Ketone	0.40	U	ng/L
Esfenvalerate	0.75	U	ng/L
Esfenvalerate	0.75	U	ng/L
Ethalfluralin	0.15	U	ng/L
Ethalfluralin	0.15	U	ng/L
Fenpropathrin	0.25	U	ng/L
Fenpropathrin	0.25	U	ng/L
Gamma-BHC	0.12	U	ng/L
Gamma-BHC	0.12	U	ng/L
Gamma-Chlordane	0.20	U	ng/L
Gamma-Chlordane	0.20	U	ng/L
Heptachlor	0.20	U	ng/L
Heptachlor	0.20	U	ng/L

Quality Assurance Report
Method Blank Results

Reference Method: EPA 8270E
Batch ID: P402975

Component	Result	Code	Units
Heptachlor Epoxide	0.25	U	ng/L
Heptachlor Epoxide	0.25	U	ng/L
Hexachlorobenzene	1.0	U	ng/L
Hexachlorobenzene	1.0	U	ng/L
Kepone	5.0	U	ng/L
Kepone	5.0	U	ng/L
Lambda-Cyhalothrin	0.75	U	ng/L
Lambda-Cyhalothrin	0.75	U	ng/L
Methoxychlor	0.30	U	ng/L
Methoxychlor	0.30	U	ng/L
MGK-264	0.20	U	ng/L
MGK-264	0.20	U	ng/L
Mirex	0.70	U	ng/L
Mirex	0.70	U	ng/L
Permethrin	1.6	U	ng/L
Permethrin	1.6	U	ng/L
Phenothrin	0.90	U	ng/L
Phenothrin	0.90	U	ng/L
Piperonyl Butoxide	0.15	U	ng/L
Piperonyl Butoxide	0.15	U	ng/L
Prallethrin	2.0	U	ng/L
Prallethrin	2.0	U	ng/L
Tau-Fluvalinate	0.25	U	ng/L
Tau-Fluvalinate	0.25	U	ng/L
Tetramethrin	0.75	U	ng/L
Tetramethrin	0.75	U	ng/L
Trans-Nonachlor	0.20	U	ng/L
Trans-Nonachlor	0.20	U	ng/L
Triclosan Methyl	0.15	U	ng/L
Triclosan Methyl	0.15	U	ng/L
Trifluralin	0.20	U	ng/L
Trifluralin	0.20	U	ng/L

Reference Method: EPA 8276
Batch ID: P402975

Component	Result	Code	Units
Chlordane	5.0	U	ng/L
Chlordane	5.0	U	ng/L
Toxaphene	30	U	ng/L
Toxaphene	30	U	ng/L

Reference Method: EPA 8321B
Batch ID: P402720

Component	Result	Code	Units
Acesulfame K	0.10	U	ug/L
AMPA	0.10	U	ug/L
Endothall	0.25	U	ug/L
Glufosinate	0.10	U	ug/L
Glyphosate	0.10	U	ug/L
Sucralose	0.010	U	ug/L

Quality Assurance Report
Method Blank Results

Reference Method: EPA 8321B
Batch ID: P402808

Component	Result	Code	Units
2,4-D	0.0020	U	ug/L
2,4,5-T	0.0040	U	ug/L
Acetaminophen	0.0080	U	ug/L
Acetamiprid	0.0020	U	ug/L
Afidopyropen	0.0020	U	ug/L
Bentazon	8.0E-04	U	ug/L
Benzovindiflupyr	0.0020	U	ug/L
Carbamazepine	8.0E-04	U	ug/L
Clothianidin	0.0020	U	ug/L
Dinotefuran	0.0020	U	ug/L
Diuron	0.0020	U	ug/L
Fenuron	0.016	U	ug/L
Fluridone	8.0E-04	U	ug/L
Hydrocodone	0.0020	U	ug/L
Ibuprofen	0.020	U	ug/L
Imazapyr	0.0040	U	ug/L
Imidacloprid	0.0020	U	ug/L
Linuron	0.0040	U	ug/L
Mandestrobin	0.0020	U	ug/L
MCPP	0.0020	U	ug/L
Naproxen	0.0080	U	ug/L
Primidone	0.0040	U	ug/L
Pyraclostrobin	0.0020	U	ug/L
Thiamethoxam	0.0020	U	ug/L
Tolfenpyrad	0.0020	U	ug/L
Triclopyr	0.0040	U	ug/L

Reference Method: SM 2120 B-2011
Batch ID: P402778

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2320 B-2011
Batch ID: P402851

Component	Result	Code	Units
Total Alkalinity	0.65	U	mg CaCO3/L

Reference Method: SM 2540 C-2011
Batch ID: P403217

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-2011
Batch ID: P403200

Component	Result	Code	Units
TSS	2	U	mg/L

Quality Assurance Report
Method Blank Results

Reference Method: SM 4500 F-C-2011
Batch ID: P402854

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-2011
Batch ID: P403372

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

Quality Assurance Report
Laboratory Control Sample Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P403164

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P403081

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P403261

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Kjeldahl Nitrogen	99.6		P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P403070

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P402893

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P402771

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
O-Phosphate-P	107		P	90 - 110

Reference Method: EPA 8270E
Batch ID: P402975

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Aldrin	53.3	56.3	P/P	20 - 150
Alpha-BHC	88.5	89.0	P/P	50 - 150
Alpha-Chlordane	72.1	70.1	P/P	50 - 150
Beta-BHC	117	111	P/P	50 - 150
Beta-Cyfluthrin	90.8	91.3	P/P	50 - 150
Bifenthrin	79.4	89.6	P/P	40 - 150
Carbophenothion	61.7	60.2	P/P	20 - 150
Chlorothalonil	39.2	46.7	P/P	20 - 150
Cis-Nonachlor	79.5	77.4	P/P	50 - 150
Cypermethrin	92.3	88.8	P/P	50 - 150
Dacthal	87.1	87.8	P/P	50 - 150
DDD-p,p'	85.7	81.4	P/P	50 - 150
DDE-p,p'	71.8	74.9	P/P	50 - 150
DDT-p,p'	73.4	68.5	P/P	50 - 150
Delta-BHC	124	121	P/P	50 - 150
Deltamethrin	95.2	97.8	P/P	50 - 150

Quality Assurance Report
Laboratory Control Sample Accuracy

Reference Method: EPA 8270E
Batch ID: P402975

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Dichlobenil	76.2	69.9	P/P	40 - 150
Dicofol	79.9	68.8	P/P	50 - 150
Dieldrin	60.0	61.9	P/P	50 - 150
Endosulfan I	78.9	85.9	P/P	50 - 150
Endosulfan II	84.4	84.6	P/P	50 - 150
Endosulfan Sulfate	101	95.0	P/P	50 - 150
Endrin	4.52	4.44	F/F	50 - 150
Endrin Aldehyde	45.9	43.4	F/F	50 - 150
Endrin Ketone	160	151	F/F	50 - 150
Esfenvalerate	84.4	85.0	P/P	50 - 180
Ethalfluralin	50.6	54.2	P/P	50 - 150
Fenpropathrin	56.0	56.8	P/P	50 - 150
Gamma-BHC	92.3	92.3	P/P	50 - 150
Gamma-Chlordane	72.3	73.4	P/P	50 - 150
Heptachlor	64.4	66.2	P/P	50 - 150
Heptachlor Epoxide	79.8	79.9	P/P	50 - 150
Hexachlorobenzene	75.2	71.8	P/P	50 - 150
Kepone	82.9	68.3	P/P	30 - 180
Lambda-Cyhalothrin	97.1	98.3	P/P	50 - 200
Methoxychlor	81.2	82.0	P/P	50 - 150
MGK-264	81.9	82.0	P/P	30 - 150
Mirex	64.6	62.4	P/P	50 - 180
Permethrin	98.7	96.4	P/P	50 - 150
Phenothrin	65.4	62.4	P/P	20 - 150
Piperonyl Butoxide	0.534	0.375	F/F	50 - 150
Prallethrin	27.3	27.1	F/F	30 - 150
Tau-Fluvalinate	82.8	80.2	P/P	40 - 150
Tetramethrin	4.37	15.7	F/F	30 - 150
Trans-Nonachlor	69.3	72.5	P/P	50 - 150
Triclosan Methyl	75.8	80.0	P/P	50 - 150
Trifluralin	71.6	74.5	P/P	50 - 150

Reference Method: EPA 8276
Batch ID: P402975

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Chlordane	103	99.8	P/P	56 - 117
Toxaphene	73.5	71.4	P/P	45 - 116

Reference Method: EPA 8321B
Batch ID: P402720

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Acesulfame K	87.4		P	40 - 150
AMPA	97.9		P	40 - 160
Endothall	126		P	40 - 150
Glufosinate	104		P	40 - 160
Glyphosate	91.6		P	40 - 160
Sucralose	106		P	40 - 150

Quality Assurance Report
Laboratory Control Sample Accuracy

Reference Method: EPA 8321B
Batch ID: P402808

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2,4-D	82.9		P	40 - 150
2,4,5-T	87.1		P	40 - 150
Acetaminophen	75.1		P	30 - 150
Acetamiprid	80.5		P	40 - 150
Afidopyropen	65.6		P	40 - 150
Bentazon	92.0		P	30 - 150
Benzovindiflupyr	78.8		P	40 - 150
Carbamazepine	77.0		P	40 - 150
Clothianidin	74.8		P	40 - 150
Dinotefuran	75.8		P	40 - 150
Diuron	96.1		P	40 - 150
Fenuron	85.3		P	40 - 150
Fluridone	81.8		P	40 - 150
Hydrocodone	77.3		P	40 - 150
Ibuprofen	71.7		P	40 - 150
Imazapyr	91.6		P	40 - 150
Imidacloprid	85.0		P	40 - 150
Linuron	79.4		P	40 - 150
Mandestrobin	77.6		P	40 - 150
MCPP	87.3		P	40 - 150
Naproxen	58.1		P	40 - 150
Primidone	87.9		P	40 - 150
Pyraclostrobin	66.5		P	40 - 150
Thiamethoxam	78.0		P	40 - 150
Tolfenpyrad	35.0		P	30 - 150
Triclopyr	76.0		P	40 - 150

Reference Method: SM 2120 B-2011
Batch ID: P402778

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

Reference Method: SM 2320 B-2011
Batch ID: P402851

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	101		P	94 - 106

Reference Method: SM 4500 F-C-2011
Batch ID: P402854

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	101		P	93 - 104

Reference Method: SM 5310 B-2011
Batch ID: P403372

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	96.8		P	85 - 115

Quality Assurance Report
Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P403164

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2271098	Chloride	102		P	90 - 110
2271402	Chloride	100		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P403081

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2271142	Ammonia-N	94.2	94.8	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P403261

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2271142	Kjeldahl Nitrogen	99.4	104	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P403070

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2271099	NO2NO3-N	99.0	98.5	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P402893

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2271053	Total-P	102	103	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P402771

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2271145	O-Phosphate-P	95.6	97.1	P/P	90 - 110

Reference Method: EPA 8270E
Batch ID: P402975

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2271901	Aldrin	60.2	60.3	P/P	20 - 170
2271901	Alpha-BHC	88.2	86.4	P/P	50 - 170
2271901	Alpha-Chlordane	67.0	71.4	P/P	50 - 170
2271901	Beta-BHC	98.4	102	P/P	50 - 170
2271901	Beta-Cyfluthrin	106	112	P/P	50 - 170
2271901	Bifenthrin	128	125	P/P	40 - 170
2271901	Carbophenothion	63.0	70.7	P/P	20 - 170
2271901	Chlorothalonil	39.8	42.5	P/P	20 - 170
2271901	Cis-Nonachlor	75.8	74.4	P/P	50 - 170
2271901	Cypermethrin	111	112	P/P	50 - 170
2271901	Dacthal	76.6	99.6	P/P	50 - 170
2271901	DDD-p,p'	84.9	90.5	P/P	50 - 170
2271901	DDE-p,p'	71.4	74.9	P/P	50 - 170
2271901	DDT-p,p'	73.6	73.4	P/P	50 - 170
2271901	Delta-BHC	105	100	P/P	50 - 170

Quality Assurance Report
Matrix Spike Accuracy

Reference Method: EPA 8270E
Batch ID: P402975

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2271901	Deltamethrin	115	121	P/P	50 - 170
2271901	Dichlobenil	71.3	76.9	P/P	40 - 170
2271901	Dicofol	62.5	63.6	P/P	50 - 170
2271901	Dieldrin	78.1	86.4	P/P	50 - 170
2271901	Endosulfan I	73.2	75.6	P/P	50 - 170
2271901	Endosulfan II	74.4	76.9	P/P	50 - 170
2271901	Endosulfan Sulfate	71.8	76.9	P/P	50 - 170
2271901	Endrin	34.6	36.2	F/F	50 - 170
2271901	Endrin Aldehyde	41.6	42.2	F/F	50 - 170
2271901	Endrin Ketone	108	113	P/P	50 - 170
2271901	Esfenvalerate	99.7	101	P/P	50 - 180
2271901	Ethalfluralin	67.7	62.0	P/P	50 - 170
2271901	Fenpropathrin	80.8	83.5	P/P	50 - 170
2271901	Gamma-BHC	94.1	93.1	P/P	50 - 170
2271901	Gamma-Chlordane	72.4	74.1	P/P	50 - 170
2271901	Heptachlor	68.2	68.1	P/P	50 - 170
2271901	Heptachlor Epoxide	69.6	88.3	P/P	50 - 170
2271901	Hexachlorobenzene	73.2	73.8	P/P	50 - 170
2271901	Kepone	70.0	75.9	P/P	30 - 180
2271901	Lambda-Cyhalothrin	136	131	P/P	50 - 200
2271901	Methoxychlor	91.0	87.8	P/P	50 - 170
2271901	MGK-264	77.7	85.6	P/P	30 - 170
2271901	Mirex	69.5	69.7	P/P	50 - 180
2271901	Permethrin	129	130	P/P	50 - 170
2271901	Phenothrin	90.5	91.2	P/P	20 - 170
2271901	Piperonyl Butoxide	0.0719	0.712	F/F	50 - 170
2271901	Prallethrin	50.5	50.6	P/P	30 - 170
2271901	Tau-Fluvalinate	95.1	101	P/P	40 - 170
2271901	Tetramethrin	81.5	82.8	P/P	30 - 170
2271901	Trans-Nonachlor	65.2	70.7	P/P	50 - 170
2271901	Triclosan Methyl	72.3	77.0	P/P	50 - 170
2271901	Trifluralin	75.4	74.2	P/P	50 - 170

Reference Method: EPA 8276
Batch ID: P402975

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2270935	Chlordane	82.6	78.9	P/P	47 - 128
2270935	Toxaphene	60.6	76.9	P/P	11 - 163

Reference Method: EPA 8321B
Batch ID: P402720

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2270486	Acesulfame K	154	134	F/P	40 - 150
2270486	AMPA	83.5	84.6	P/P	40 - 160
2270486	Endothall	155	154	F/F	40 - 150
2270486	Glufosinate	84.2	82.7	P/P	40 - 160
2270486	Glyphosate	81.2	82.2	P/P	40 - 160
2270486	Sucralose	112	110	P/P	40 - 150

Quality Assurance Report
Matrix Spike Accuracy

Reference Method: EPA 8321B
Batch ID: P402808

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2270486	2,4-D	107	104	P/P	40 - 150
2270486	2,4,5-T	100	99.1	P/P	40 - 150
2270486	Acetaminophen	85.7	86.3	P/P	30 - 150
2270486	Acetamiprid	94.1	94.9	P/P	40 - 150
2270486	Afidopyropen	80.2	67.1	P/P	40 - 150
2270486	Benzovindiflupyr	80.8	89.7	P/P	40 - 150
2270486	Carbamazepine	89.4	96.8	P/P	40 - 150
2270486	Clothianidin	114	102	P/P	40 - 150
2270486	Dinotefuran	101	108	P/P	40 - 150
2270486	Diuron	78.5	74.7	P/P	40 - 150
2270486	Fenuron	88.6	88.4	P/P	40 - 150
2270486	Fluridone	84.1	85.0	P/P	40 - 150
2270486	Hydrocodone	89.9	88.8	P/P	40 - 150
2270486	Ibuprofen	84.5	70.1	P/P	40 - 150
2270486	Imazapyr	157	133	F/P	40 - 150
2270486	Imidacloprid	142	151	P/F	40 - 150
2270486	Linuron	76.2	85.8	P/P	40 - 150
2270486	Mandestrobin	83.6	84.6	P/P	40 - 150
2270486	MCPP	101	104	P/P	40 - 150
2270486	Naproxen	76.5	80.5	P/P	40 - 150
2270486	Primidone	92.5	91.2	P/P	40 - 150
2270486	Pyraclostrobin	77.8	81.9	P/P	40 - 150
2270486	Thiamethoxam	127	127	P/P	40 - 150
2270486	Tolfenpyrad	50.0	55.1	P/P	30 - 150
2270486	Triclopyr	86.8	92.8	P/P	40 - 150

Reference Method: SM 4500 F-C-2011
Batch ID: P402854

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2271140	Fluoride	99.9	100	P/P	92 - 107

Reference Method: SM 5310 B-2011
Batch ID: P403372

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2271056	Organic Carbon	97.0	96.2	P/P	85 - 115

Quality Assurance Report
Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P402776

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2271052	Turbidity	0.0	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P403164

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2271098	Chloride	0.864	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P403081

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2271142	Ammonia-N	0.527	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P403261

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2271142	Kjeldahl Nitrogen	4.09	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P403070

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2271099	NO2NO3-N	0.506	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P402893

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2271053	Total-P	0.336	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P402771

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2271145	O-Phosphate-P	1.56	Spike	P	0 - 20

Reference Method: EPA 8270E
Batch ID: P402975

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2271901	Aldrin	0.0674	Spike	P	0 - 30
2271901	Alpha-BHC	2.06	Spike	P	0 - 30

Quality Assurance Report
Precision

Reference Method: EPA 8270E
Batch ID: P402975

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2271901	Alpha-Chlordane	5.52	Spike	P	0 - 30
2271901	Beta-BHC	3.25	Spike	P	0 - 30
2271901	Beta-Cyfluthrin	5.90	Spike	P	0 - 30
2271901	Bifenthrin	2.46	Spike	P	0 - 30
2271901	Carbophenothion	11.5	Spike	P	0 - 30
2271901	Chlorothalonil	6.55	Spike	P	0 - 50
2271901	Cis-Nonachlor	1.83	Spike	P	0 - 30
2271901	Cypermethrin	1.09	Spike	P	0 - 30
2271901	Dacthal	26.2	Spike	P	0 - 30
2271901	DDD-p,p'	6.38	Spike	P	0 - 30
2271901	DDE-p,p'	4.78	Spike	P	0 - 30
2271901	DDT-p,p'	0.271	Spike	P	0 - 30
2271901	Delta-BHC	4.91	Spike	P	0 - 30
2271901	Deltamethrin	4.67	Spike	P	0 - 30
2271901	Dichlobenil	7.57	Spike	P	0 - 30
2271901	Dicofol	1.75	Spike	P	0 - 30
2271901	Dieldrin	4.33	Spike	P	0 - 30
2271901	Endosulfan I	3.32	Spike	P	0 - 30
2271901	Endosulfan II	3.42	Spike	P	0 - 30
2271901	Endosulfan Sulfate	6.88	Spike	P	0 - 30
2271901	Endrin	4.64	Spike	P	0 - 30
2271901	Endrin Aldehyde	1.39	Spike	P	0 - 30
2271901	Endrin Ketone	4.46	Spike	P	0 - 30
2271901	Esfenvalerate	1.41	Spike	P	0 - 30
2271901	Ethalfluralin	8.80	Spike	P	0 - 30
2271901	Fenpropathrin	3.30	Spike	P	0 - 30
2271901	Gamma-BHC	1.09	Spike	P	0 - 30
2271901	Gamma-Chlordane	1.65	Spike	P	0 - 30
2271901	Heptachlor	0.133	Spike	P	0 - 30
2271901	Heptachlor Epoxide	8.68	Spike	P	0 - 30
2271901	Hexachlorobenzene	0.803	Spike	P	0 - 30
2271901	Kepone	8.07	Spike	P	0 - 30
2271901	Lambda-Cyhalothrin	3.72	Spike	P	0 - 30
2271901	Methoxychlor	3.56	Spike	P	0 - 30
2271901	MGK-264	9.70	Spike	P	0 - 30
2271901	Mirex	0.274	Spike	P	0 - 30
2271901	Permethrin	0.905	Spike	P	0 - 30
2271901	Phenothrin	0.750	Spike	P	0 - 30
2271901	Prallethrin	0.236	Spike	P	0 - 30
2271901	Tau-Fluvalinate	5.57	Spike	P	0 - 30
2271901	Tetramethrin	1.57	Spike	P	0 - 30
2271901	Trans-Nonachlor	7.01	Spike	P	0 - 30
2271901	Triclosan Methyl	6.31	Spike	P	0 - 30
2271901	Trifluralin	1.59	Spike	P	0 - 30
LFB	Aldrin	5.42	LCS	P	0 - 30
LFB	Alpha-BHC	0.519	LCS	P	0 - 30
LFB	Alpha-Chlordane	2.74	LCS	P	0 - 30
LFB	Beta-BHC	5.36	LCS	P	0 - 30
LFB	Beta-Cyfluthrin	0.624	LCS	P	0 - 30
LFB	Bifenthrin	12.0	LCS	P	0 - 30
LFB	Carbophenothion	2.48	LCS	P	0 - 30

Quality Assurance Report
Precision

Reference Method: EPA 8270E
Batch ID: P402975

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
LFB	Chlorothalonil	17.4	LCS	P	0 - 50
LFB	Cis-Nonachlor	2.71	LCS	P	0 - 30
LFB	Cypermethrin	3.84	LCS	P	0 - 30
LFB	Dacthal	0.792	LCS	P	0 - 30
LFB	DDD-p,p'	5.19	LCS	P	0 - 30
LFB	DDE-p,p'	4.32	LCS	P	0 - 30
LFB	DDT-p,p'	6.98	LCS	P	0 - 30
LFB	Delta-BHC	2.47	LCS	P	0 - 30
LFB	Deltamethrin	2.68	LCS	P	0 - 30
LFB	Dichlobenil	8.71	LCS	P	0 - 30
LFB	Dicofol	15.0	LCS	P	0 - 30
LFB	Dieldrin	3.13	LCS	P	0 - 30
LFB	Endosulfan I	8.50	LCS	P	0 - 30
LFB	Endosulfan II	0.277	LCS	P	0 - 30
LFB	Endosulfan Sulfate	6.54	LCS	P	0 - 30
LFB	Endrin	1.58	LCS	P	0 - 30
LFB	Endrin Aldehyde	5.60	LCS	P	0 - 30
LFB	Endrin Ketone	6.15	LCS	P	0 - 30
LFB	Esfenvalerate	0.682	LCS	P	0 - 30
LFB	Ethalfluralin	6.98	LCS	P	0 - 30
LFB	Fenpropathrin	1.40	LCS	P	0 - 30
LFB	Gamma-BHC	0.0474	LCS	P	0 - 30
LFB	Gamma-Chlordane	1.48	LCS	P	0 - 30
LFB	Heptachlor	2.61	LCS	P	0 - 30
LFB	Heptachlor Epoxide	0.119	LCS	P	0 - 30
LFB	Hexachlorobenzene	4.64	LCS	P	0 - 30
LFB	Kepone	19.2	LCS	P	0 - 30
LFB	Lambda-Cyhalothrin	1.25	LCS	P	0 - 30
LFB	Methoxychlor	0.973	LCS	P	0 - 30
LFB	MGK-264	0.170	LCS	P	0 - 30
LFB	Mirex	3.46	LCS	P	0 - 30
LFB	Permethrin	2.29	LCS	P	0 - 30
LFB	Phenothrin	4.67	LCS	P	0 - 30
LFB	Prallethrin	0.821	LCS	P	0 - 30
LFB	Tau-Fluvalinate	3.19	LCS	P	0 - 30
LFB	Tetramethrin	113	LCS	F	0 - 30
LFB	Trans-Nonachlor	4.50	LCS	P	0 - 30
LFB	Triclosan Methyl	5.38	LCS	P	0 - 30
LFB	Trifluralin	4.01	LCS	P	0 - 30

Reference Method: EPA 8276
Batch ID: P402975

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2270935	Chlordane	4.47	Spike	P	0 - 30
2270935	Toxaphene	23.7	Spike	P	0 - 30
LFB	Chlordane	3.32	LCS	P	0 - 30
LFB	Toxaphene	2.88	LCS	P	0 - 30

Quality Assurance Report
Precision

Reference Method: EPA 8321B
Batch ID: P402720

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2270486	Acesulfame K	13.1	Spike	P	0 - 30
2270486	AMPA	1.20	Spike	P	0 - 30
2270486	Endothall	0.531	Spike	P	0 - 30
2270486	Glufosinate	1.84	Spike	P	0 - 30
2270486	Glyphosate	1.21	Spike	P	0 - 30
2270486	Sucralose	1.31	Spike	P	0 - 30

Reference Method: EPA 8321B
Batch ID: P402808

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2270486	2,4-D	2.53	Spike	P	0 - 30
2270486	2,4,5-T	1.19	Spike	P	0 - 30
2270486	Acetaminophen	0.572	Spike	P	0 - 30
2270486	Acetamiprid	0.839	Spike	P	0 - 30
2270486	Afidopyropen	17.7	Spike	P	0 - 30
2270486	Bentazon	4.63	Spike	P	0 - 30
2270486	Benzovindiflupyr	10.4	Spike	P	0 - 30
2270486	Carbamazepine	7.90	Spike	P	0 - 30
2270486	Clothianidin	10.7	Spike	P	0 - 30
2270486	Dinotefuran	5.97	Spike	P	0 - 30
2270486	Diuron	4.62	Spike	P	0 - 30
2270486	Fenuron	0.216	Spike	P	0 - 30
2270486	Fluridone	1.02	Spike	P	0 - 30
2270486	Hydrocodone	1.23	Spike	P	0 - 30
2270486	Ibuprofen	18.7	Spike	P	0 - 30
2270486	Imazapyr	11.1	Spike	P	0 - 30
2270486	Imidacloprid	4.03	Spike	P	0 - 30
2270486	Linuron	11.8	Spike	P	0 - 30
2270486	Mandestrobin	1.20	Spike	P	0 - 30
2270486	MCPP	2.30	Spike	P	0 - 30
2270486	Naproxen	5.06	Spike	P	0 - 30
2270486	Primidone	1.46	Spike	P	0 - 30
2270486	Pyraclostrobin	5.05	Spike	P	0 - 30
2270486	Thiamethoxam	0.0550	Spike	P	0 - 30
2270486	Tolfenpyrad	9.75	Spike	P	0 - 30
2270486	Triclopyr	6.74	Spike	P	0 - 30

Reference Method: SM 2120 B-2011
Batch ID: P402778

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2270864	Color (true)	1.02	Sample	P	0 - 20

Reference Method: SM 2320 B-2011
Batch ID: P402851

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits

Quality Assurance Report
Precision

Reference Method: SM 2320 B-2011
Batch ID: P402851

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2271140	Total Alkalinity	1.71	Sample	P	0 - 5.2

Reference Method: SM 2540 C-2011
Batch ID: P403217

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2270495	TDS	2.88	Sample	P	0 - 10

Reference Method: SM 4500 F-C-2011
Batch ID: P402854

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2271140	Fluoride	0.472	Spike	P	0 - 2.1

Reference Method: SM 5310 B-2011
Batch ID: P403372

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2271056	Organic Carbon	0.421	Spike	P	0 - 20

* Sample, spike and/or laboratory control sample precision (LCS) is reported.

Quality Assurance Report
Surrogates

Lab Sample ID: 2271102
Field Sample ID: G1CE0112

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8270E	Decachlorobiphenyl	60.9	P	35 - 120
EPA 8270E	Tetrachloro-m-xylene	56.9	P	30 - 110
EPA 8276	Decachlorobiphenyl	54.9	P	29 - 92.0
EPA 8276	PCNB	63.5	P	43 - 134

Lab Sample ID: 2271103
Field Sample ID: G1CE0112

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	2,4-D-d3	93.9	P	30 - 160
EPA 8321B	Acetaminophen-d4	36.6	P	30 - 160
EPA 8321B	Carbamazepine-d10	76.7	P	30 - 160
EPA 8321B	Diuron-d6	73.4	P	30 - 160
EPA 8321B	Endothall-d6	102	P	30 - 160
EPA 8321B	Glyphosate 13C 15N	89.0	P	30 - 160
EPA 8321B	Ibuprofen-d3	56.4	P	30 - 160
EPA 8321B	Primidone-d5	25.4	F	30 - 160
EPA 8321B	Sucralose-d6	102	P	30 - 160

Quality Assurance Report
Calibration Verification

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Run ID: A107370
Included Lab Sample IDs: 2271100

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	102	100	P/P	90 - 110

Reference Method: EPA 180.1 Rev. 2.0
Run ID: A107371
Included Lab Sample IDs: 2271098

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

Reference Method: SM 2120 B-2011
Run ID: A107372
Included Lab Sample IDs: 2271098

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

Reference Method: EPA 8321B
Run ID: A107376
Included Lab Sample IDs: 2271103

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
AMPA	109	103	P/P	60 - 160
Glufosinate	99.9	102	P/P	60 - 160
Glyphosate	106	103	P/P	60 - 160

Reference Method: EPA 8321B
Run ID: A107377
Included Lab Sample IDs: 2271103

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Acesulfame K	83.4	82.1	P/P	60 - 160
Endothall	140	141	P/P	60 - 160
Sucralose	109	107	P/P	60 - 160

Reference Method: SM 2320 B-2011
Run ID: A107408
Included Lab Sample IDs: 2271098

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

Reference Method: SM 4500 F-C-2011
Run ID: A107408
Included Lab Sample IDs: 2271098

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

Quality Assurance Report
Calibration Verification

Reference Method: EPA 300.0 Rev. 2.1
Run ID: A107449
Included Lab Sample IDs: 2271098

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	99.5	99.4	P/P	90 - 110

Reference Method: EPA 8321B
Run ID: A107499
Included Lab Sample IDs: 2271103

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
2,4-D	128	96.4	P/P	50 - 150
2,4,5-T	97.6	116	P/P	50 - 150
Acetaminophen	108	113	P/P	60 - 160
Acetamiprid	96.7	108	P/P	50 - 150
Afidopyropen	96.9	120	P/P	50 - 150
Bentazon	87.9	97.4	P/P	50 - 160
Benzovindiflupyr	99.4	98.1	P/P	50 - 150
Carbamazepine	98.3	106	P/P	60 - 150
Clothianidin	104	117	P/P	60 - 150
Dinotefuran	107	108	P/P	50 - 150
Diuron	101	118	P/P	60 - 160
Fenuron	97.1	103	P/P	60 - 150
Fluridone	102	100	P/P	60 - 160
Hydrocodone	98.8	103	P/P	60 - 150
Ibuprofen	105	90.4	P/P	50 - 160
Imazapyr	96.8	111	P/P	50 - 150
Imidacloprid	94.8	123	P/P	60 - 150
Linuron	84.4	103	P/P	60 - 150
Mandestrobin	106	110	P/P	50 - 150
MCPP	92.6	98.2	P/P	50 - 150
Naproxen	90.6	148	P/P	50 - 160
Primidone	95.0	131	P/P	60 - 150
Pyraclostrobin	103	116	P/P	60 - 150
Thiamethoxam	103	113	P/P	50 - 150
Tolfenpyrad	98.3	105	P/P	60 - 150
Triclopyr	93.5	94.9	P/P	50 - 150

Reference Method: EPA 353.2 Rev. 2.0
Run ID: A107506
Included Lab Sample IDs: 2271099

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO2NO3-N	100	99.5	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Run ID: A107511
Included Lab Sample IDs: 2271099

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	97.8	97.7	P/P	90 - 110

Quality Assurance Report
Calibration Verification

Reference Method: EPA 8270E
Run ID: A107525
Included Lab Sample IDs: 2271102

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Aldrin	97.8		P	80 - 120
Alpha-BHC	97.9		P	80 - 120
Alpha-Chlordane	97.1		P	80 - 120
Beta-BHC	102		P	80 - 120
Beta-Cyfluthrin	108		P	80 - 120
Bifenthrin	103		P	80 - 120
Carbophenothion	102		P	80 - 120
Chlorothalonil	97.7		P	80 - 120
Cis-Nonachlor	104		P	80 - 120
Cypermethrin	106		P	80 - 120
Dacthal	96.5		P	80 - 120
DDD-p,p'	103		P	80 - 120
DDE-p,p'	96.4		P	80 - 120
DDT-p,p'	98.6		P	80 - 120
Delta-BHC	103		P	80 - 120
Deltamethrin	97.4		P	80 - 120
Dichlobenil	98.0		P	80 - 120
Dicofol	91.7		P	80 - 120
Dieldrin	87.9		P	80 - 120
Endosulfan I	99.6		P	80 - 120
Endosulfan II	104		P	80 - 120
Endosulfan Sulfate	105		P	80 - 120
Endrin	105		P	80 - 120
Endrin Aldehyde	97.9		P	80 - 120
Endrin Ketone	99.7		P	80 - 120
Esfenvalerate	97.3		P	80 - 120
Ethalfluralin	96.8		P	80 - 120
Fenpropathrin	102		P	80 - 120
Gamma-BHC	109		P	80 - 120
Gamma-Chlordane	97.8		P	80 - 120
Heptachlor	98.4		P	80 - 120
Heptachlor Epoxide	97.5		P	80 - 120
Hexachlorobenzene	96.4		P	80 - 120
Kepone	77.3*		F	80 - 120
Lambda-Cyhalothrin	110		P	80 - 120
Methoxychlor	93.6		P	80 - 120
MGK-264	98.1		P	80 - 120
Mirex	104		P	80 - 120
Permethrin	103		P	80 - 120
Phenothrin	105		P	80 - 120
Piperonyl Butoxide	103		P	80 - 120
Prallethrin	104		P	80 - 120
Tau-Fluvalinate	103		P	80 - 120
Tetramethrin	114		P	80 - 120
Trans-Nonachlor	96.7		P	80 - 120
Triclosan Methyl	95.8		P	80 - 120
Trifluralin	97.8		P	80 - 120

Quality Assurance Report
Calibration Verification

Reference Method: EPA 365.1 Rev. 2.0
Run ID: A107534
Included Lab Sample IDs: 2271099

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

Reference Method: EPA 351.2 Rev. 2.0
Run ID: A107619
Included Lab Sample IDs: 2271099

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	99.8	98.4	P/P	90 - 110

Reference Method: EPA 8276
Run ID: A107636
Included Lab Sample IDs: 2271102

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chlordane	95.3		P	80 - 120
Toxaphene	96.8		P	80 - 120

Reference Method: SM 5310 B-2011
Run ID: A107644
Included Lab Sample IDs: 2271099

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	98.0	98.0	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		Precision		
						LCS	SMP	MS
EPA 180.1 Rev. 2.0	Turbidity						0.0	
EPA 300.0 Rev. 2.1	Chloride	102		102	100		0.864	
EPA 350.1 Rev. 2.0	Ammonia-N	97.4		94.2	94.8			0.527
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	99.6		99.4	104			4.09
EPA 353.2 Rev. 2.0	NO2NO3-N	99.5		99.0	98.5			0.506
EPA 365.1 Rev. 2.0	Total-P	106		102	103			0.336
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	107		95.6	97.1			1.56
EPA 8270E	Aldrin	53.3	56.3	60.2	60.3	5.42		0.0674
	Alpha-BHC	88.5	89.0	88.2	86.4	0.519		2.06
	Alpha-Chlordane	72.1	70.1	67.0	71.4	2.74		5.52
	Beta-BHC	117	111	98.4	102	5.36		3.25
	Beta-Cyfluthrin	90.8	91.3	106	112	0.624		5.90
	Bifenthrin	79.4	89.6	128	125	12.0		2.46
	Carbophenothion	61.7	60.2	63.0	70.7	2.48		11.5
	Chlorothalonil	39.2	46.7	39.8	42.5	17.4		6.55
	Cis-Nonachlor	79.5	77.4	75.8	74.4	2.71		1.83
	Cypermethrin	92.3	88.8	111	112	3.84		1.09
	Dacthal	87.1	87.8	76.6	99.6	0.792		26.2
	DDD-p,p'	85.7	81.4	84.9	90.5	5.19		6.38
	DDE-p,p'	71.8	74.9	71.4	74.9	4.32		4.78
	DDT-p,p'	73.4	68.5	73.6	73.4	6.98		0.271
	Delta-BHC	124	121	105	100	2.47		4.91
	Deltamethrin	95.2	97.8	115	121	2.68		4.67
	Dichlobenil	76.2	69.9	71.3	76.9	8.71		7.57
	Dicofol	79.9	68.8	62.5	63.6	15.0		1.75
	Dieldrin	60.0	61.9	78.1	86.4	3.13		4.33
	Endosulfan I	78.9	85.9	73.2	75.6	8.50		3.32
	Endosulfan II	84.4	84.6	74.4	76.9	0.277		3.42
	Endosulfan Sulfate	101	95.0	71.8	76.9	6.54		6.88
	Endrin	4.52	4.44	34.6	36.2	1.58		4.64
	Endrin Aldehyde	45.9	43.4	41.6	42.2	5.60		1.39
	Endrin Ketone	160	151	108	113	6.15		4.46
	Esfenvalerate	84.4	85.0	99.7	101	0.682		1.41
	Ethalfluralin	50.6	54.2	67.7	62.0	6.98		8.80
	Fenpropathrin	56.0	56.8	80.8	83.5	1.40		3.30
	Gamma-BHC	92.3	92.3	94.1	93.1	0.0474		1.09
	Gamma-Chlordane	72.3	73.4	72.4	74.1	1.48		1.65
	Heptachlor	64.4	66.2	68.2	68.1	2.61		0.133
	Heptachlor Epoxide	79.8	79.9	69.6	88.3	0.119		8.68
	Hexachlorobenzene	75.2	71.8	73.2	73.8	4.64		0.803
	Kepone	82.9	68.3	70.0	75.9	19.2		8.07
	Lambda-Cyhalothrin	97.1	98.3	136	131	1.25		3.72
	Methoxychlor	81.2	82.0	91.0	87.8	0.973		3.56
	MGK-264	81.9	82.0	77.7	85.6	0.170		9.70
	Mirex	64.6	62.4	69.5	69.7	3.46		0.274
	Permethrin	98.7	96.4	129	130	2.29		0.905
	Phenothrin	65.4	62.4	90.5	91.2	4.67		0.750
	Piperonyl Butoxide	0.534	0.375	0.0719	0.712			
	Prallethrin	27.3	27.1	50.5	50.6	0.821		0.236
	Tau-Fluvalinate	82.8	80.2	95.1	101	3.19		5.57
	Tetramethrin	4.37	15.7	81.5	82.8	113		1.57
	Trans-Nonachlor	69.3	72.5	65.2	70.7	4.50		7.01
	Triclosan Methyl	75.8	80.0	72.3	77.0	5.38		6.31
	Trifluralin	71.6	74.5	75.4	74.2	4.01		1.59

Quality Assurance Report
Summary

Ref. Method	Analyte	LCS % Recovery		MS % Recovery		Precision		
						LCS	SMP	MS
EPA 8276	Chlordane	103	99.8	82.6	78.9	3.32		4.47
	Toxaphene	73.5	71.4	60.6	76.9	2.88		23.7
EPA 8321B	2,4-D	82.9		107	104			2.53
	2,4,5-T	87.1		100	99.1			1.19
	Acesulfame K	87.4		154	134			13.1
	Acetaminophen	75.1		85.7	86.3			0.572
	Acetamiprid	80.5		94.1	94.9			0.839
	Afidopyropen	65.6		80.2	67.1			17.7
	AMPA	97.9		83.5	84.6			1.20
	Bentazon	92.0						4.63
	Benzovindiflupyr	78.8		80.8	89.7			10.4
	Carbamazepine	77.0		89.4	96.8			7.90
	Clothianidin	74.8		114	102			10.7
	Dinotefuran	75.8		101	108			5.97
	Diuron	96.1		78.5	74.7			4.62
	Endothall	126		155	154			0.531
	Fenuron	85.3		88.6	88.4			0.216
	Fluridone	81.8		84.1	85.0			1.02
	Glufosinate	104		84.2	82.7			1.84
	Glyphosate	91.6		81.2	82.2			1.21
	Hydrocodone	77.3		89.9	88.8			1.23
	Ibuprofen	71.7		84.5	70.1			18.7
	Imazapyr	91.6		157	133			11.1
	Imidacloprid	85.0		142	151			4.03
	Linuron	79.4		76.2	85.8			11.8
	Mandestrobin	77.6		83.6	84.6			1.20
	MCPP	87.3		101	104			2.30
	Naproxen	58.1		76.5	80.5			5.06
	Primidone	87.9		92.5	91.2			1.46
	Pyraclostrobin	66.5		77.8	81.9			5.05
	Sucralose	106		112	110			1.31
	Thiamethoxam	78.0		127	127			0.0550
	Tolfenpyrad	35.0		50.0	55.1			9.75
	Triclopyr	76.0		86.8	92.8			6.74
SM 2120 B-2011	Color (true)	101					1.02	
SM 2320 B-2011	Total Alkalinity	101					1.71	
SM 2540 C-2011	TDS						2.88	
SM 4500 F-C-2011	Fluoride	101		99.9	100			0.472
SM 5310 B-2011	Organic Carbon	96.8		97.0	96.2			0.421

Reference Method Descriptions

Method	Description	Associated Samples
EPA 180.1 Rev. 2.0	Turbidity in aqueous matrices	2271098
EPA 300.0 Rev. 2.1	Chloride in aqueous matrices	2271098
EPA 350.1 Rev. 2.0	Ammonia in aqueous matrices as mg N/L	2271099
EPA 351.2 Rev. 2.0	Total Kjeldahl Nitrogen in aqueous matrices	2271099
EPA 353.2 Rev. 2.0	Nitrite/Nitrate in aqueous matrices as mg N/L	2271099
EPA 365.1 Rev. 2.0	Total Phosphorus in aqueous matrices as mg P/L	2271099
EPA 365.1 Rev. 2.0 dissolved	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	2271100
EPA 8270E	Organochlorine pesticides, pyrethroids and tracers in water matrices by GC/MS/MS	2271102

Reference Method Descriptions

Method	Description	Associated Samples
EPA 8276	Organochlorine pesticides in water matrices by GC/MS with Negative Chemical Ionization	2271102
EPA 8321B	Pesticides, herbicides, and other chemicals in water matrices by HPLC/MS/MS	2271103
SM 2120 B-2011	True Color measured at 450 nm (not valid for NPDES monitoring)	2271098
SM 2320 B-2011	Alkalinity in aqueous matrices as mg CaCO3/L	2271098
SM 2540 C-2011	Total Dissolved Solids in aqueous matrices	2271098
SM 2540 D-2011	Total Suspended Solids in aqueous matrices using a maximum of 250 mL of sample	2271098
SM 4500 F-C-2011	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	2271098
SM 5310 B-2011	Nonpurgeable Organic Carbon in aqueous matrices	2271099

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	08/20/2021			08/20/2021 16:40	Sarah A Nixon	2271098
EPA 300.0 Rev. 2.1	08/20/2021			08/27/2021 20:03	Lipi Saha	2271098
EPA 350.1 Rev. 2.0	08/20/2021			08/27/2021 13:56	Ping Hua	2271099
EPA 351.2 Rev. 2.0	08/20/2021	09/01/2021 12:09	Benjamin T. Nordmann	09/02/2021 12:28	Alexandra J Mattheus	2271099
EPA 353.2 Rev. 2.0	08/20/2021			08/27/2021 10:32	Beverly Y. Sanders	2271099
EPA 365.1 Rev. 2.0	08/20/2021	08/24/2021 14:32	Simonne.V. Calhoun	08/26/2021 17:06	Shengyu Ding	2271099
EPA 365.1 Rev. 2.0 dissolved	08/20/2021			08/20/2021 15:34	James L Waggerby	2271100
EPA 8270E	08/20/2021	08/26/2021 08:00	Rasheda Ghaffari	08/28/2021 05:09	Arthur Maknenko	2271102
EPA 8276	08/20/2021	08/26/2021 08:00	Rasheda Ghaffari	09/01/2021 05:05	Julie Wi	2271102
EPA 8321B	08/20/2021	08/20/2021 13:40	Juyoung Kim	08/20/2021 23:06	Pramila Ghimire	2271103
	08/20/2021	08/20/2021 13:40	Juyoung Kim	08/23/2021 13:37	Juyoung Kim	2271103
	08/20/2021	08/24/2021 09:00	Hoor Shaik	08/26/2021 20:42	Juyoung Kim	2271103
SM 2120 B-2011	08/20/2021			08/20/2021 18:23	Sarah A Nixon	2271098
SM 2320 B-2011	08/20/2021			08/24/2021 01:16	Sarah A Nixon	2271098
SM 2540 C-2011	08/20/2021			08/23/2021 15:36	Yijie Li	2271098
SM 2540 D-2011	08/20/2021			08/23/2021 15:36	Yijie Li	2271098
SM 4500 F-C-2011	08/20/2021			08/24/2021 01:16	Sarah A Nixon	2271098
SM 5310 B-2011	08/20/2021			09/03/2021 00:59	Touraj Touran	2271099