

Chemical Analysis Report

SW-DIST-2023-03-07-01

Florida DEP Laboratory
2600 Blair Stone Road
Tallahassee, FL 32399-2400
DOH Accreditation E31780

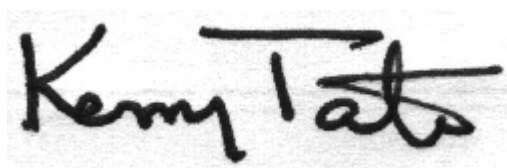
Event Description: **Sarasota Run**
Request ID: **RQ-2023-02-27-25**
Customer: **SW-DIST**
Project ID: **SMP**

Send Reports to:
FL Dept. of Environmental Protection
FL Dept. of Environmental Protection
13051 N. Telecom Parkway
Temple Terrace, FL 33637-0926
Attn: Ben Paswater

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

Certified by: Kerry Tate, Ph.D., Environmental Administrator

Date Certified: 04-APR-2023 10:48

A handwritten signature in black ink that reads "Kerry Tate". The signature is written in a cursive, flowing style with a horizontal line extending from the end of the name.

Case Narrative

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

Results for the following analytical groups are included in this report: Metals, Nutrients and Pesticides.

Scientific notation may be used in reporting very large or small values. Values reported using scientific notation will take the form of the following example: 1.3E+03, which is equivalent to 1.3×10^3 or 1300.

Unless otherwise noted, analytical values for soil and sediment samples are reported on a dry weight basis, and analytical values for waste and tissue samples are reported on a wet weight basis.

Results for TNI accredited tests met requirements established by The NELAC Institute. A double asterisk (**) is used to indicate an analyte/matrix/method for which the laboratory is not TNI accredited by the Florida Department of Health Environmental Laboratory Certification Program or where accreditation for that field of testing is not applicable.

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

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

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

Precision is reported as relative percent difference unless otherwise noted.

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

QC Codes used in this report may include:

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

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

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

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

Sample Location: Hudson Bayou Tidal by Marie Selby Botanical Gardens

Collection Date/Time: 03/06/2023 11:50

Field ID: G3SW0108

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2392067	EPA 180.1 Rev. 2.0	Turbidity	4.3		NTU	P426816	
	SM 2320 B-2011	Total Alkalinity	122		mg CaCO3/L	P426973	
	SM 2540 D-2015	TSS	5	I	mg/L	P427281	
	SM 4500-F- C-2011	Fluoride	1.3		mg F/L	P426974	
2392068	EPA 350.1 Rev. 2.0	Ammonia-N	0.026		mg N/L	P426866	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.63		mg N/L	P427379	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P427007	
	EPA 365.1 Rev. 2.0	Total-P	0.078		mg P/L	P426920	
	SM 5310 B-2011	Organic Carbon	4.2		mg C/L	P427058	

Sample Location: Island Park Boat Basin off Dock

Collection Date/Time: 03/06/2023 12:15

Field ID: G3SW0061

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2392065	EPA 180.1 Rev. 2.0	Turbidity	2.4		NTU	P426816	
	SM 2320 B-2011	Total Alkalinity	120		mg CaCO3/L	P426973	
	SM 2540 D-2015	TSS	7	I	mg/L	P427281	
	SM 4500-F- C-2011	Fluoride	1.3		mg F/L	P426974	
2392066	EPA 350.1 Rev. 2.0	Ammonia-N	0.007		mg N/L	P426866	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.55		mg N/L	P427789	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P427007	
	EPA 365.1 Rev. 2.0	Total-P	0.057		mg P/L	P427059	
	SM 5310 B-2011	Organic Carbon	3.5	I	mg C/L	P427058	
2392077	EPA 200.7 Rev. 4.4	Calcium	425		mg/L	P426978	
		Iron	120	U	ug/L	P426978	
		Magnesium	1.30E+03		mg/L	P426978	
		Strontium	8.12E+03		ug/L	P426978	
	EPA 200.8 Rev. 5.4	Tin	300	U	ug/L	P426978	
		Titanium	3.0	U	ug/L	P426978	
		Vanadium	8.0	U	ug/L	P426978	
		Zinc	20	U	ug/L	P426978	
		Aluminum	59	I	ug/L	P426978	
		Antimony	0.50	U	ug/L	P426978	
		Arsenic	2.19		ug/L	P426978	
		Beryllium	0.040	U	ug/L	P426978	
		Cadmium	0.20	U	ug/L	P426978	
		Chromium	4.0	U	ug/L	P426978	
		Cobalt	0.080	U	ug/L	P426978	
		Copper	3.9		ug/L	P426978	
		Lead	3.0	U	ug/L	P426978	
		Manganese	6.4		ug/L	P426978	
		Molybdenum	12.9		ug/L	P426978	
		Nickel	2.0	U	ug/L	P426978	
		Selenium	0.83	I	ug/L	P426978	
		Silver	0.050	U	ug/L	P426978	
		Thallium	1.5	U	ug/L	P426978	

Ref. Method and Comment:

EPA 200.7 Rev. 4.4: Batch matrix spike recoveries for calcium and magnesium are unavailable because of high analyte concentration in the QC sample.

EPA 200.8 Rev. 5.4: The copper result was confirmed in the undigested sample on 03/16/2023.

Sample Location: Whitaker Bayou @ Ringling College of Art

Collection Date/Time: 03/06/2023 12:40

Field ID: G3SW0060

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2392074	EPA 8270E	Aldrin	0.66	U	ng/L	P426759	
		Alpha-BHC	0.10	U	ng/L	P426759	
		Alpha-Chlordane	0.20	U	ng/L	P426759	
		PCB-1016	2.0	U	ng/L	P426759	
		Beta-BHC	0.10	U	ng/L	P426759	
		PCB-1221	2.0	U	ng/L	P426759	
		Beta-Cyfluthrin	1.3	U	ng/L	P426759	
		PCB-1232	2.0	U	ng/L	P426759	
		Bifenthrin	0.51	U	ng/L	P426759	
		PCB-1242	2.0	U	ng/L	P426759	
		Carbophenothion	0.92	U	ng/L	P426759	
		PCB-1248	2.0	U	ng/L	P426759	
		Chlorothalonil	3.7	U	ng/L	P426759	
		PCB-1254	2.0	U	ng/L	P426759	
		Cis-Nonachlor	0.20	U	ng/L	P426759	
		PCB-1260	2.0	U	ng/L	P426759	
		Cypermethrin	1.5	U	ng/L	P426759	
		Dacthal	0.15	U	ng/L	P426759	
		DDD-p,p'	0.26	UJ	ng/L	P426759	CCV
		DDE-p,p'	0.20	U	ng/L	P426759	
		DDT-p,p'	0.26	U	ng/L	P426759	
		Delta-BHC	0.41	U	ng/L	P426759	
		Deltamethrin	1.3	U	ng/L	P426759	
		Dichlobenil	1.1	I	ng/L	P426759	
		Dicofol	1.3	U	ng/L	P426759	
		Dieldrin	0.41	U	ng/L	P426759	
		Endosulfan I	0.41	U	ng/L	P426759	
		Endosulfan II	0.41	U	ng/L	P426759	RPD
		Endosulfan Sulfate	0.31	U	ng/L	P426759	
		Endrin	0.41	U	ng/L	P426759	
		Endrin Aldehyde	0.77	U	ng/L	P426759	MS
		Endrin Ketone	0.41	U	ng/L	P426759	
		Esfenvalerate	0.77	U	ng/L	P426759	
		Ethalfuralin	0.15	U	ng/L	P426759	
		Fenpropathrin	0.26	U	ng/L	P426759	
		Gamma-BHC	0.13	U	ng/L	P426759	RPD
		Gamma-Chlordane	0.20	U	ng/L	P426759	
		Heptachlor	0.20	U	ng/L	P426759	
		Heptachlor Epoxide	0.26	U	ng/L	P426759	
		Hexachlorobenzene**	1.0	U	ng/L	P426759	
		Kepone	5.1	U	ng/L	P426759	
		Lambda-Cyhalothrin	0.77	U	ng/L	P426759	
		Methoprene	0.77	U	ng/L	P426759	
		Methoxychlor	0.31	U	ng/L	P426759	

Field ID: G3SW0060

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2392074	EPA 8270E	MGK-264	0.20	U	ng/L	P426759	
		Mirex	0.36	U	ng/L	P426759	
		Oxychlordane	0.31	U	ng/L	P426759	
		Permethrin	1.6	U	ng/L	P426759	
		Phenothrin	0.92	U	ng/L	P426759	
		Piperonyl Butoxide	0.19	I	ng/L	P426759	
		Prallethrin	2.0	U	ng/L	P426759	
		Tau-Fluvalinate	0.26	U	ng/L	P426759	
		Tetramethrin	0.77	U	ng/L	P426759	
		Trans-Nonachlor	0.20	U	ng/L	P426759	
		Triclosan Methyl	0.15	U	ng/L	P426759	
		Trifluralin	0.20	U	ng/L	P426759	
	EPA 8276	Chlordane	2.0	U	ng/L	P426759	
		Toxaphene	15	U	ng/L	P426759	

Ref. Method and Comment:
EPA 8270E: 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: P426816

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P426978

Component	Result	Code	Units
Calcium	0.075	U	mg/L
Iron	30	U	ug/L
Magnesium	0.040	U	mg/L
Strontium	2.0	U	ug/L
Tin	3.0	U	ug/L
Titanium	0.75	U	ug/L
Vanadium	2.0	U	ug/L
Zinc	5.0	U	ug/L

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P426978

Component	Result	Code	Units
Aluminum	5.0	U	ug/L
Antimony	0.050	U	ug/L
Arsenic	0.050	U	ug/L
Beryllium	0.010	U	ug/L
Cadmium	0.020	U	ug/L
Chromium	0.40	U	ug/L
Cobalt	0.020	U	ug/L
Copper	0.40	U	ug/L
Lead	0.20	U	ug/L
Manganese	0.10	U	ug/L
Molybdenum	0.15	U	ug/L
Nickel	0.50	U	ug/L
Selenium	0.20	U	ug/L
Silver	0.010	U	ug/L
Thallium	0.10	U	ug/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P426866

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P427379

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P427789

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

Quality Assurance Report Method Blank Results

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P427007

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P426920

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P427059

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

Reference Method: EPA 8270E
Batch ID: P426759

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
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	3.6	U	ng/L
Chlorothalonil	3.6	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	0.25	U	ng/L
Dichlobenil	0.25	U	ng/L

Quality Assurance Report Method Blank Results

Reference Method: EPA 8270E

Batch ID: P426759

Component	Result	Code	Units
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
Ethalfuralin	0.15	U	ng/L
Ethalfuralin	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
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
Methoprene	0.75	U	ng/L
Methoprene	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	0.35	U	ng/L
Mirex	0.35	U	ng/L
Oxychlordane	0.30	U	ng/L
Oxychlordane	0.30	U	ng/L
PCB-1016	2.0	U	ng/L
PCB-1016	2.0	U	ng/L
PCB-1221	2.0	U	ng/L
PCB-1221	2.0	U	ng/L
PCB-1232	2.0	U	ng/L
PCB-1232	2.0	U	ng/L

Quality Assurance Report Method Blank Results

Reference Method: EPA 8270E

Batch ID: P426759

Component	Result	Code	Units
PCB-1242	2.0	U	ng/L
PCB-1242	2.0	U	ng/L
PCB-1248	2.0	U	ng/L
PCB-1248	2.0	U	ng/L
PCB-1254	2.0	U	ng/L
PCB-1254	2.0	U	ng/L
PCB-1260	2.0	U	ng/L
PCB-1260	2.0	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: P426759

Component	Result	Code	Units
Chlordane	2.0	U	ng/L
Chlordane	2.0	U	ng/L
Toxaphene	15	U	ng/L
Toxaphene	15	U	ng/L

Reference Method: SM 2320 B-2011

Batch ID: P426973

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

Reference Method: SM 2540 D-2015

Batch ID: P427281

Component	Result	Code	Units
TSS	3	U	mg/L

Reference Method: SM 4500-F- C-2011

Batch ID: P426974

Component	Result	Code	Units
-----------	--------	------	-------

Quality Assurance Report

Method Blank Results

Reference Method: SM 4500-F- C-2011
Batch ID: P426974

Component	Result	Code	Units
Fluoride	0.025	U	mg F/L

Reference Method: SM 5310 B-2011
Batch ID: P427058

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

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P426816

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Turbidity	99.3		P	90 - 110

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P426978

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Calcium	102		P	85 - 115
Iron	104		P	85 - 115
Magnesium	102		P	85 - 115
Strontium	101		P	85 - 115
Tin	96.0		P	85 - 115
Titanium	101		P	85 - 115
Vanadium	99.5		P	85 - 115
Zinc	97.9		P	85 - 115

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P426978

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Aluminum	99.4		P	85 - 115
Antimony	97.8		P	85 - 115
Arsenic	97.3		P	85 - 115
Beryllium	87.0		P	85 - 115
Cadmium	98.3		P	85 - 115
Chromium	99.2		P	85 - 115
Cobalt	96.5		P	85 - 115
Copper	95.6		P	85 - 115
Lead	96.4		P	85 - 115
Manganese	100		P	85 - 115
Molybdenum	94.8		P	85 - 115
Nickel	98.2		P	85 - 115
Selenium	98.1		P	85 - 115
Silver	96.7		P	85 - 115
Thallium	101		P	85 - 115

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P426866

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Ammonia-N	97.2		P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P427379

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P427789

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

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 353.2 Rev. 2.0

Batch ID: P427007

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

Reference Method: EPA 365.1 Rev. 2.0

Batch ID: P426920

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

Reference Method: EPA 365.1 Rev. 2.0

Batch ID: P427059

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

Reference Method: EPA 8270E

Batch ID: P426759

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Aldrin	51.5		P	10 - 92.0
Alpha-BHC	88.4		P	75 - 107
Alpha-Chlordane	63.2		P	50 - 108
Beta-BHC	82.0		P	36 - 138
Beta-Cyfluthrin	52.2		P	20 - 161
Bifenthrin	41.4		P	10 - 119
Carbophenothion	44.4		P	19 - 94.0
Chlorothalonil	83.2		P	26 - 186
Cis-Nonachlor	62.3		P	42 - 119
Cypermethrin	53.7		P	22 - 150
Dacthal	86.6		P	72 - 119
DDD-p,p'	53.9		P	45 - 107
DDE-p,p'	51.2		P	48 - 106
DDT-p,p'	55.6		P	48 - 110
Delta-BHC	103		P	54 - 140
Deltamethrin	58.9		P	22 - 189
Dichlobenil	79.6		P	36 - 117
Dicofol	51.3		P	46 - 155
Dieldrin	58.1		P	54 - 110
Endosulfan I	60.6		P	59 - 105
Endosulfan II	84.6		P	51 - 118
Endosulfan Sulfate	94.4		P	57 - 121
Endrin	66.2		P	10 - 120
Endrin Aldehyde	70.6		P	34 - 118
Endrin Ketone	139		P	69 - 177
Esfenvalerate	57.7		P	23 - 168
Ethalfuralin	68.1		P	49 - 99.0
Fenpropathrin	57.0		P	34 - 117
Gamma-BHC	80.6		P	72 - 117
Gamma-Chlordane	50.9		P	43 - 106
Heptachlor	79.2		P	41 - 98.0
Heptachlor Epoxide	77.4		P	57 - 106
Hexachlorobenzene	52.1		P	36 - 99.0
Kepone	150		P	16 - 215

Quality Assurance Report

Laboratory Control Sample Accuracy

Reference Method: EPA 8270E

Batch ID: P426759

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Lambda-Cyhalothrin	48.0		P	21 - 177
Methoprene	40.2		P	10 - 119
Methoxychlor	63.1		P	60 - 112
MGK-264	75.4		P	26 - 122
Mirex	39.4		P	10 - 169
Oxychlordan	54.4		P	43 - 105
PCB-1016	74.1		P	48 - 112
PCB-1260	72.3		P	44 - 118
Permethrin	51.3		P	24 - 148
Phenothrin	30.0		P	10 - 106
Piperonyl Butoxide	84.2		P	10 - 139
Prallethrin	51.9		P	17 - 109
Tau-Fluvalinate	39.6		P	13 - 131
Tetramethrin	55.3		P	10 - 132
Trans-Nonachlor	49.2		P	44 - 106
Triclosan Methyl	78.1		P	59 - 109
Trifluralin	64.5		P	44 - 101

Reference Method: EPA 8276

Batch ID: P426759

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Chlordane	98.9		P	61 - 116
Toxaphene	101		P	48 - 124

Reference Method: SM 2320 B-2011

Batch ID: P426973

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	95.9		P	94 - 106

Reference Method: SM 2540 D-2015

Batch ID: P427281

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
TSS	94.8		P	85 - 106

Reference Method: SM 4500-F- C-2011

Batch ID: P426974

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	101		P	96 - 104

Reference Method: SM 5310 B-2011

Batch ID: P427058

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	96.4		P	85 - 115

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 200.7 Rev. 4.4

Batch ID: P426978

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2392119	Iron	96.3	98.0	P/P	70 - 130
2392119	Strontium	101	103	P/P	70 - 130
2392119	Tin	86.6	86.1	P/P	70 - 130
2392119	Titanium	100	104	P/P	70 - 130
2392119	Vanadium	97.5	101	P/P	70 - 130
2392119	Zinc	94.2	95.9	P/P	70 - 130

Reference Method: EPA 200.8 Rev. 5.4

Batch ID: P426978

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2392119	Aluminum	104	101	P/P	70 - 130
2392119	Antimony	106	105	P/P	70 - 130
2392119	Arsenic	109	108	P/P	70 - 130
2392119	Beryllium	97.2	92.4	P/P	70 - 130
2392119	Cadmium	101	98.7	P/P	70 - 130
2392119	Chromium	98.1	97.6	P/P	70 - 130
2392119	Cobalt	108	106	P/P	70 - 130
2392119	Copper	112	110	P/P	70 - 130
2392119	Lead	102	101	P/P	70 - 130
2392119	Manganese	93.1	92.2	P/P	70 - 130
2392119	Molybdenum	108	107	P/P	70 - 130
2392119	Nickel	112	111	P/P	70 - 130
2392119	Selenium	106	104	P/P	70 - 130
2392119	Silver	94.8	93.1	P/P	70 - 130
2392119	Thallium	108	105	P/P	70 - 130

Reference Method: EPA 350.1 Rev. 2.0

Batch ID: P426866

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2391931	Ammonia-N	104	103	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0

Batch ID: P427379

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2392697	Kjeldahl Nitrogen	103	109	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0

Batch ID: P427789

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2392649	Kjeldahl Nitrogen	105	101	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0

Batch ID: P427007

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2392066	NO2NO3-N	104	105	P/P	90 - 110

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P426920

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2392255	Total-P	93.1	93.6	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P427059

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2392066	Total-P	91.9	91.0	P/P	90 - 110

Reference Method: EPA 8270E
Batch ID: P426759

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2391615	PCB-1016	81.3	81.0	P/P	46 - 111
2391615	PCB-1260	71.8	72.7	P/P	45 - 114
2391675	Aldrin	62.4	57.3	P/P	20 - 82.0
2391675	Alpha-BHC	86.9	76.6	P/P	71 - 109
2391675	Alpha-Chlordane	67.6	60.9	P/P	42 - 106
2391675	Beta-BHC	83.4	69.2	P/P	69 - 180
2391675	Beta-Cyfluthrin	51.2	54.6	P/P	18 - 175
2391675	Bifenthrin	38.5	42.7	P/P	21 - 128
2391675	Carbophenothion	57.8	57.9	P/P	10 - 126
2391675	Chlorothalonil	90.1	80.0	P/P	10 - 300
2391675	Cis-Nonachlor	58.5	52.5	P/P	34 - 106
2391675	Cypermethrin	50.0	55.1	P/P	22 - 158
2391675	Dacthal	87.3	71.8	P/P	54 - 116
2391675	DDD-p,p'	52.9	49.1	P/P	34 - 107
2391675	DDE-p,p'	53.0	47.5	P/P	33 - 110
2391675	DDT-p,p'	54.5	58.5	P/P	50 - 122
2391675	Delta-BHC	103	84.2	P/P	77 - 193
2391675	Deltamethrin	54.9	63.3	P/P	10 - 195
2391675	Dichlobenil	52.2	46.0	P/P	25 - 113
2391675	Dicofol	49.0	50.8	P/P	38 - 247
2391675	Dieldrin	59.3	51.5	P/P	45 - 118
2391675	Endosulfan I	59.1	56.4	P/P	51 - 106
2391675	Endosulfan II	80.9	57.0	P/P	37 - 122
2391675	Endosulfan Sulfate	90.8	80.6	P/P	43 - 132
2391675	Endrin	63.4	52.4	P/P	29 - 101
2391675	Endrin Aldehyde	12.5	14.4	F/F	19 - 110
2391675	Endrin Ketone	131	114	P/P	60 - 140
2391675	Esfenvalerate	56.3	60.7	P/P	26 - 199
2391675	Ethalfuralin	64.3	64.9	P/P	45 - 99.0
2391675	Fenpropathrin	55.0	53.2	P/P	35 - 120
2391675	Gamma-BHC	125	99.8	P/P	63 - 128
2391675	Gamma-Chlordane	51.7	50.2	P/P	40 - 104
2391675	Heptachlor	73.4	70.6	P/P	36 - 97.0
2391675	Heptachlor Epoxide	80.8	68.1	P/P	49 - 184
2391675	Hexachlorobenzene	39.4	39.5	P/P	39 - 96.0
2391675	Kepone	77.9	81.3	P/P	10 - 217
2391675	Lambda-Cyhalothrin	45.0	48.3	P/P	21 - 193
2391675	Methoprene	38.1	39.5	P/P	20 - 106
2391675	Methoxychlor	56.1	54.7	P/P	53 - 118
2391675	MGK-264	80.9	66.9	P/P	40 - 118

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 8270E

Batch ID: P426759

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2391675	Mirex	41.8	43.7	P/P	26 - 92.0
2391675	Oxychlordane	57.9	54.7	P/P	44 - 99.0
2391675	Permethrin	51.8	52.2	P/P	33 - 182
2391675	Phenothrin	36.6	39.3	P/P	10 - 129
2391675	Piperonyl Butoxide	79.7	78.9	P/P	10 - 211
2391675	Prallethrin	58.0	50.4	P/P	24 - 113
2391675	Tau-Fluvalinate	40.8	44.7	P/P	14 - 149
2391675	Tetramethrin	57.7	57.4	P/P	17 - 151
2391675	Trans-Nonachlor	51.0	46.7	P/P	42 - 102
2391675	Triclosan Methyl	53.2	52.3	P/P	48 - 108
2391675	Trifluralin	65.4	63.8	P/P	47 - 96.0

Reference Method: EPA 8276

Batch ID: P426759

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2391615	Chlordane	85.8	91.6	P/P	53 - 126
2391615	Toxaphene	88.6	93.8	P/P	56 - 211

Reference Method: SM 4500-F- C-2011

Batch ID: P426974

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2389690	Fluoride	98.7	98.7	P/P	94 - 104

Reference Method: SM 5310 B-2011

Batch ID: P427058

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2392855	Organic Carbon	90.1	87.1	P/P	85 - 115

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P426816

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2392022	Turbidity	13.3	Sample	P	0 - 20

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P426978

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2392119	Calcium	0.367	Spike	P	0 - 20
2392119	Iron	1.62	Spike	P	0 - 20
2392119	Magnesium	0.261	Spike	P	0 - 20
2392119	Strontium	1.06	Spike	P	0 - 20
2392119	Tin	0.618	Spike	P	0 - 20
2392119	Titanium	3.92	Spike	P	0 - 20
2392119	Vanadium	3.13	Spike	P	0 - 20
2392119	Zinc	1.83	Spike	P	0 - 20

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P426978

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2392119	Aluminum	2.39	Spike	P	0 - 20
2392119	Antimony	0.516	Spike	P	0 - 20
2392119	Arsenic	0.879	Spike	P	0 - 20
2392119	Beryllium	5.11	Spike	P	0 - 20
2392119	Cadmium	2.20	Spike	P	0 - 20
2392119	Chromium	0.512	Spike	P	0 - 20
2392119	Cobalt	2.20	Spike	P	0 - 20
2392119	Copper	1.50	Spike	P	0 - 20
2392119	Lead	1.01	Spike	P	0 - 20
2392119	Manganese	0.771	Spike	P	0 - 20
2392119	Molybdenum	1.25	Spike	P	0 - 20
2392119	Nickel	1.11	Spike	P	0 - 20
2392119	Selenium	1.26	Spike	P	0 - 20
2392119	Silver	1.80	Spike	P	0 - 20
2392119	Thallium	2.63	Spike	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P426866

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2391931	Ammonia-N	0.570	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P427379

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2392697	Kjeldahl Nitrogen	5.24	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P427789

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2392649	Kjeldahl Nitrogen	3.99	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P427007

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2392066	NO2NO3-N	0.477	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P426920

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2392255	Total-P	0.566	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P427059

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2392066	Total-P	0.996	Spike	P	0 - 20

Reference Method: EPA 8270E
Batch ID: P426759

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2391615	PCB-1016	0.404	Spike	P	0 - 32
2391615	PCB-1260	1.24	Spike	P	0 - 31
2391675	Aldrin	8.47	Spike	P	0 - 41
2391675	Alpha-BHC	12.6	Spike	P	0 - 25
2391675	Alpha-Chlordane	10.4	Spike	P	0 - 33
2391675	Beta-BHC	18.7	Spike	P	0 - 36
2391675	Beta-Cyfluthrin	6.38	Spike	P	0 - 42
2391675	Bifenthrin	10.2	Spike	P	0 - 53
2391675	Carbophenothion	0.307	Spike	P	0 - 49
2391675	Chlorothalonil	11.9	Spike	P	0 - 71
2391675	Cis-Nonachlor	10.8	Spike	P	0 - 29
2391675	Cypermethrin	9.75	Spike	P	0 - 40
2391675	Dacthal	19.5	Spike	P	0 - 26
2391675	DDD-p,p'	7.33	Spike	P	0 - 39
2391675	DDE-p,p'	10.9	Spike	P	0 - 33
2391675	DDT-p,p'	7.17	Spike	P	0 - 40
2391675	Delta-BHC	20.2	Spike	P	0 - 37
2391675	Deltamethrin	14.1	Spike	P	0 - 100
2391675	Dichlobenil	12.8	Spike	P	0 - 40
2391675	Dicofol	3.64	Spike	P	0 - 31
2391675	Dieldrin	13.0	Spike	P	0 - 27
2391675	Endosulfan I	4.73	Spike	P	0 - 23
2391675	Endosulfan II	34.7	Spike	F	0 - 28

Quality Assurance Report Precision

Reference Method: EPA 8270E

Batch ID: P426759

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2391675	Endosulfan Sulfate	11.8	Spike	P	0 - 38
2391675	Endrin	19.1	Spike	P	0 - 63
2391675	Endrin Aldehyde	14.0	Spike	P	0 - 60
2391675	Endrin Ketone	14.0	Spike	P	0 - 37
2391675	Esfenvalerate	7.51	Spike	P	0 - 52
2391675	Ethalfuralin	0.941	Spike	P	0 - 23
2391675	Fenpropathrin	3.39	Spike	P	0 - 32
2391675	Gamma-BHC	22.6	Spike	F	0 - 17
2391675	Gamma-Chlordane	2.87	Spike	P	0 - 40
2391675	Heptachlor	3.89	Spike	P	0 - 29
2391675	Heptachlor Epoxide	17.1	Spike	P	0 - 25
2391675	Hexachlorobenzene	0.0733	Spike	P	0 - 36
2391675	Kepone	2.40	Spike	P	0 - 93
2391675	Lambda-Cyhalothrin	7.17	Spike	P	0 - 55
2391675	Methoprene	3.62	Spike	P	0 - 53
2391675	Methoxychlor	2.48	Spike	P	0 - 29
2391675	MGK-264	19.0	Spike	P	0 - 35
2391675	Mirex	4.44	Spike	P	0 - 46
2391675	Oxychlordane	5.63	Spike	P	0 - 29
2391675	Permethrin	0.849	Spike	P	0 - 44
2391675	Phenothrin	7.21	Spike	P	0 - 56
2391675	Piperonyl Butoxide	0.979	Spike	P	0 - 100
2391675	Prallethrin	14.2	Spike	P	0 - 42
2391675	Tau-Fluvalinate	9.19	Spike	P	0 - 54
2391675	Tetramethrin	0.433	Spike	P	0 - 51
2391675	Trans-Nonachlor	8.82	Spike	P	0 - 37
2391675	Triclosan Methyl	1.60	Spike	P	0 - 31
2391675	Trifluralin	2.55	Spike	P	0 - 30

Reference Method: EPA 8276

Batch ID: P426759

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2391615	Chlordane	6.56	Spike	P	0 - 25
2391615	Toxaphene	5.74	Spike	P	0 - 26

Reference Method: SM 2320 B-2011

Batch ID: P426973

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2391097	Total Alkalinity	0.191	Sample	P	0 - 3.8

Reference Method: SM 2540 D-2015

Batch ID: P427281

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2392061	TSS	9.01	Sample	P	0 - 10

Quality Assurance Report Precision

Reference Method: SM 4500-F- C-2011
Batch ID: P426974

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2389690	Fluoride	0.0	Spike	P	0 - 1.6

Reference Method: SM 5310 B-2011
Batch ID: P427058

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2392855	Organic Carbon	3.19	Spike	P	0 - 20

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

Quality Assurance Report Surrogates

Lab Sample ID: 2392074

Field Sample ID: G3SW0060

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8270E	Decachlorobiphenyl	78.7	P	29 - 130
EPA 8270E	Decachlorobiphenyl	69.9	P	30 - 118
EPA 8270E	Tetrachloro-m-xylene	57.4	P	29 - 104
EPA 8270E	Tetrachloro-m-xylene	61.5	P	30 - 97.0
EPA 8276	Decachlorobiphenyl	53.6	P	30 - 101
EPA 8276	PCNB	82.7	P	48 - 121

Quality Assurance Report Calibration Verification

Reference Method: EPA 180.1 Rev. 2.0

Run ID: A117854

Included Lab Sample IDs: 2392065, 2392067

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

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A117875

Included Lab Sample IDs: 2392066, 2392068

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	96.4	97.2	P/P	90 - 110

Reference Method: SM 2320 B-2011

Run ID: A117917

Included Lab Sample IDs: 2392065, 2392067

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	95.7	91.0	P/P	90 - 110

Reference Method: SM 4500-F- C-2011

Run ID: A117917

Included Lab Sample IDs: 2392065, 2392067

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

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A117924

Included Lab Sample IDs: 2392066, 2392068

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO2NO3-N	103	103	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A117936

Included Lab Sample IDs: 2392068

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	102	97.2	P/P	90 - 110

Reference Method: EPA 200.8 Rev. 5.4

Run ID: A117947

Included Lab Sample IDs: 2392077

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Aluminum	98.5	98.9	P/P	90 - 110
Antimony	96.1	97.3	P/P	90 - 110
Arsenic	97.8	98.5	P/P	90 - 110
Beryllium	95.6	95.3	P/P	90 - 110
Cadmium	97.4	97.9	P/P	90 - 110
Cobalt	97.2	97.0	P/P	90 - 110
Copper	97.8	99.1	P/P	90 - 110
Manganese	98.6	96.3	P/P	90 - 110
Molybdenum	93.8	94.6	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: EPA 200.8 Rev. 5.4

Run ID: A117947

Included Lab Sample IDs: 2392077

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Nickel	99.3	99.6	P/P	90 - 110
Selenium	99.5	101	P/P	90 - 110

Reference Method: SM 5310 B-2011

Run ID: A117952

Included Lab Sample IDs: 2392066, 2392068

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	96.4	98.8	P/P	90 - 110
Organic Carbon	99.4	96.4	P/P	90 - 110

Reference Method: EPA 8276

Run ID: A117959

Included Lab Sample IDs: 2392074

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chlordane	95.8		P	80 - 120
Toxaphene	92.7		P	80 - 120

Reference Method: EPA 200.8 Rev. 5.4

Run ID: A117969

Included Lab Sample IDs: 2392077

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chromium	98.1	97.8	P/P	90 - 110

Reference Method: EPA 200.8 Rev. 5.4

Run ID: A117985

Included Lab Sample IDs: 2392077

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Lead	95.6	95.3	P/P	90 - 110
Silver	96.8	95.5	P/P	90 - 110
Thallium	98.0	98.1	P/P	90 - 110

Reference Method: EPA 8270E

Run ID: A118028

Included Lab Sample IDs: 2392074

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
PCB-1016	95.7		P	80 - 120
PCB-1260	91.6		P	80 - 120

Reference Method: EPA 8270E

Run ID: A118046

Included Lab Sample IDs: 2392074

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Aldrin	100		P	80 - 120
Alpha-BHC	99.3		P	80 - 120
Alpha-Chlordane	102		P	80 - 120

Quality Assurance Report Calibration Verification

Reference Method: EPA 8270E
 Run ID: A118046
 Included Lab Sample IDs: 2392074

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Beta-BHC	105		P	80 - 120
Beta-Cyfluthrin	95.7		P	80 - 120
Bifenthrin	97.1		P	80 - 120
Carbophenothion	101		P	80 - 120
Chlorothalonil	94.2		P	80 - 120
Cis-Nonachlor	91.5		P	80 - 120
Cypermethrin	102		P	80 - 120
Dacthal	101		P	80 - 120
DDD-p,p'	169*		F	80 - 120
DDE-p,p'	116		P	80 - 120
DDT-p,p'	116		P	80 - 120
Delta-BHC	107		P	80 - 120
Deltamethrin	86.2		P	80 - 120
Dichlobenil	109		P	80 - 120
Dicofol	97.0		P	80 - 120
Dieldrin	95.2		P	80 - 120
Endosulfan I	90.4		P	80 - 120
Endosulfan II	109		P	80 - 120
Endosulfan Sulfate	94.7		P	80 - 120
Endrin	93.8		P	80 - 120
Endrin Aldehyde	81.2		P	80 - 120
Endrin Ketone	93.5		P	80 - 120
Esfenvalerate	90.6		P	80 - 120
Ethalfuralin	99.0		P	80 - 120
Fenpropathrin	99.8		P	80 - 120
Gamma-BHC	109		P	80 - 120
Gamma-Chlordane	97.6		P	80 - 120
Heptachlor	99.1		P	80 - 120
Heptachlor Epoxide	103		P	80 - 120
Hexachlorobenzene	101		P	80 - 120
Kepone	102		P	80 - 120
Lambda-Cyhalothrin	99.7		P	80 - 120
Methoprene	87.1		P	80 - 120
Methoxychlor	98.7		P	80 - 120
MGK-264	102		P	80 - 120
Mirex	90.4		P	80 - 120
Oxychlordane	94.3		P	80 - 120
Permethrin	96.7		P	80 - 120
Phenothrin	94.4		P	80 - 120
Piperonyl Butoxide	104		P	80 - 120
Prallethrin	91.8		P	80 - 120
Tau-Fluvalinate	96.5		P	80 - 120
Tetramethrin	95.6		P	80 - 120
Trans-Nonachlor	97.5		P	80 - 120
Triclosan Methyl	96.0		P	80 - 120
Trifluralin	100		P	80 - 120

Quality Assurance Report Calibration Verification

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A118052

Included Lab Sample IDs: 2392066

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

Reference Method: EPA 200.7 Rev. 4.4

Run ID: A118115

Included Lab Sample IDs: 2392077

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Calcium	101	101	P/P	90 - 110
Iron	99.6	98.4	P/P	90 - 110
Magnesium	98.8	97.6	P/P	90 - 110
Strontium	103	104	P/P	90 - 110
Tin	101	102	P/P	90 - 110
Titanium	100	102	P/P	90 - 110
Vanadium	101	101	P/P	90 - 110
Zinc	102	102	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A118158

Included Lab Sample IDs: 2392068

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	101	95.3	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A118319

Included Lab Sample IDs: 2392066

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	91.4	91.4	P/P	90 - 110

* Pass/Fail determinations are made for each bracketing calibration verification check.

Control limits for initial calibration checks may be different from those for continuing checks, depending on method requirements.

Where they are different, both control limits are provided.

Quality Assurance Report Summary

Ref. Method	Analyte	LCS % Recovery	MS % Recovery		LCS	Precision SMP	MS
EPA 180.1 Rev. 2.0	Turbidity	99.3				13.3	
EPA 200.7 Rev. 4.4	Calcium	102					0.367
	Iron	104	96.3	98.0			1.62
	Magnesium	102					0.261
	Strontium	101	101	103			1.06
	Tin	96.0	86.6	86.1			0.618
	Titanium	101	100	104			3.92
	Vanadium	99.5	97.5	101			3.13
	Zinc	97.9	94.2	95.9			1.83
EPA 200.8 Rev. 5.4	Aluminum	99.4	104	101			2.39
	Antimony	97.8	106	105			0.516
	Arsenic	97.3	109	108			0.879
	Beryllium	87.0	97.2	92.4			5.11
	Cadmium	98.3	101	98.7			2.20
	Chromium	99.2	98.1	97.6			0.512
	Cobalt	96.5	108	106			2.20
	Copper	95.6	112	110			1.50
	Lead	96.4	102	101			1.01
	Manganese	100	93.1	92.2			0.771
	Molybdenum	94.8	108	107			1.25
	Nickel	98.2	112	111			1.11
	Selenium	98.1	106	104			1.26
	Silver	96.7	94.8	93.1			1.80
	Thallium	101	108	105			2.63
EPA 350.1 Rev. 2.0	Ammonia-N	97.2	104	103			0.570
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	103	103	109			5.24
	Kjeldahl Nitrogen	101	105	101			3.99
EPA 353.2 Rev. 2.0	NO ₂ NO ₃ -N	104	104	105			0.477
EPA 365.1 Rev. 2.0	Total-P	103	93.1	93.6			0.566
	Total-P	101	91.9	91.0			0.996
EPA 8270E	Aldrin	51.5	57.3	62.4			8.47
	Alpha-BHC	88.4	76.6	86.9			12.6
	Alpha-Chlordane	63.2	60.9	67.6			10.4
	Beta-BHC	82.0	69.2	83.4			18.7
	Beta-Cyfluthrin	52.2	54.6	51.2			6.38
	Bifenthrin	41.4	42.7	38.5			10.2
	Carbophenothion	44.4	57.9	57.8			0.307
	Chlorothalonil	83.2	80.0	90.1			11.9
	Cis-Nonachlor	62.3	52.5	58.5			10.8
	Cypermethrin	53.7	55.1	50.0			9.75
	Dacthal	86.6	71.8	87.3			19.5
	DDD-p,p'	53.9	49.1	52.9			7.33
	DDE-p,p'	51.2	47.5	53.0			10.9
	DDT-p,p'	55.6	58.5	54.5			7.17
	Delta-BHC	103	84.2	103			20.2
	Deltamethrin	58.9	63.3	54.9			14.1
	Dichlobenil	79.6	46.0	52.2			12.8
	Dicofol	51.3	50.8	49.0			3.64
	Dieldrin	58.1	51.5	59.3			13.0
	Endosulfan I	60.6	56.4	59.1			4.73
	Endosulfan II	84.6	57.0	80.9			34.7
	Endosulfan Sulfate	94.4	80.6	90.8			11.8
	Endrin	66.2	52.4	63.4			19.1
	Endrin Aldehyde	70.6	14.4	12.5			14.0

Quality Assurance Report Summary

Ref. Method	Analyte	LCS % Recovery	MS % Recovery		Precision LCS	SMP	MS
EPA 8270E	Endrin Ketone	139	114	131			14.0
	Esfenvalerate	57.7	60.7	56.3			7.51
	Ethalfuralin	68.1	64.9	64.3			0.941
	Fenpropathrin	57.0	53.2	55.0			3.39
	Gamma-BHC	80.6	99.8	125			22.6
	Gamma-Chlordane	50.9	51.7	50.2			2.87
	Heptachlor	79.2	73.4	70.6			3.89
	Heptachlor Epoxide	77.4	80.8	68.1			17.1
	Hexachlorobenzene	52.1	39.4	39.5			0.0733
	Kepone	150	77.9	81.3			2.40
	Lambda-Cyhalothrin	48.0	45.0	48.3			7.17
	Methoprene	40.2	38.1	39.5			3.62
	Methoxychlor	63.1	56.1	54.7			2.48
	MGK-264	75.4	80.9	66.9			19.0
	Mirex	39.4	41.8	43.7			4.44
	Oxychlordane	54.4	57.9	54.7			5.63
	PCB-1016	74.1	81.3	81.0			0.404
	PCB-1260	72.3	71.8	72.7			1.24
	Permethrin	51.3	51.8	52.2			0.849
	Phenothrin	30.0	36.6	39.3			7.21
	Piperonyl Butoxide	84.2	79.7	78.9			0.979
	Prallethrin	51.9	58.0	50.4			14.2
	Tau-Fluvalinate	39.6	40.8	44.7			9.19
	Tetramethrin	55.3	57.7	57.4			0.433
	Trans-Nonachlor	49.2	51.0	46.7			8.82
	Triclosan Methyl	78.1	53.2	52.3			1.60
	Trifluralin	64.5	65.4	63.8			2.55
EPA 8276	Chlordane	98.9	85.8	91.6			6.56
	Toxaphene	101	88.6	93.8			5.74
SM 2320 B-2011	Total Alkalinity	95.9				0.191	
SM 2540 D-2015	TSS	94.8				9.01	
SM 4500-F- C-2011	Fluoride	101	98.7	98.7			0.0
SM 5310 B-2011	Organic Carbon	96.4	90.1	87.1			3.19

Reference Method Descriptions

Method	Description	Associated Samples
EPA 180.1 Rev. 2.0	Turbidity in aqueous matrices	2392065, 2392067
EPA 200.7 Rev. 4.4	Total Recoverable Metals analysis using ICP emission spectroscopy for aqueous samples supporting Clean Water Act Projects	2392077
EPA 200.8 Rev. 5.4	Total Recoverable Metals analysis using ICP-MS for aqueous samples supporting Clean Water Act Projects	2392077
EPA 350.1 Rev. 2.0	Ammonia in aqueous matrices as mg N/L	2392066, 2392068
EPA 351.2 Rev. 2.0	Total Kjeldahl Nitrogen in aqueous matrices	2392066, 2392068
EPA 353.2 Rev. 2.0	Nitrite/Nitrate in aqueous matrices as mg N/L	2392066, 2392068
EPA 365.1 Rev. 2.0	Total Phosphorus in aqueous matrices as mg P/L	2392066, 2392068
EPA 8270E	Organochlorine pesticides, pyrethroids and tracers in water matrices by GC/MS/MS	2392074
EPA 8270E	PCBs in water matrices by GC/MS/MS	2392074
EPA 8276	Chlordane and Toxaphene in water matrices by GC/MS with Negative Chemical Ionization	2392074
SM 2320 B-2011	Alkalinity in aqueous matrices as mg CaCO3/L	2392065, 2392067
SM 2540 D-2015	Total Suspended Solids in aqueous matrices using a maximum of 250 mL of sample	2392065, 2392067
SM 4500-F- C-2011	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	2392065, 2392067

Reference Method Descriptions

Method	Description	<u>Associated Samples</u>
SM 5310 B-2011	Nonpurgeable Organic Carbon in aqueous matrices	2392066, 2392068

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	03/07/2023			03/07/2023 14:34	Anna M. Plaviak	2392065
	03/07/2023			03/07/2023 14:35	Anna M. Plaviak	2392067
EPA 200.7 Rev. 4.4	03/07/2023	03/10/2023 10:15	Vijayalakshmi Reddy	03/21/2023 21:05	McKinley C Carter	2392077
	03/07/2023	03/10/2023 10:15	Vijayalakshmi Reddy	03/21/2023 21:13	McKinley C Carter	2392077
EPA 200.8 Rev. 5.4	03/07/2023	03/10/2023 10:15	Vijayalakshmi Reddy	03/10/2023 18:45	Conrad Hartmann	2392077
	03/07/2023	03/10/2023 10:15	Vijayalakshmi Reddy	03/10/2023 20:32	Conrad Hartmann	2392077
	03/07/2023	03/10/2023 10:15	Vijayalakshmi Reddy	03/13/2023 15:38	Conrad Hartmann	2392077
	03/07/2023	03/10/2023 10:15	Vijayalakshmi Reddy	03/14/2023 14:20	Conrad Hartmann	2392077
	03/07/2023	03/10/2023 10:15	Vijayalakshmi Reddy	03/14/2023 14:29	Conrad Hartmann	2392077
	03/07/2023	03/10/2023 10:15	Vijayalakshmi Reddy	03/14/2023 14:29	Conrad Hartmann	2392077
EPA 350.1 Rev. 2.0	03/07/2023			03/08/2023 14:12	Khloe J Berg	2392066
	03/07/2023			03/08/2023 14:13	Khloe J Berg	2392068
EPA 351.2 Rev. 2.0	03/07/2023	03/21/2023 13:00	Simonne.V. Calhoun	03/23/2023 10:11	Judith K. Clark	2392068
	03/07/2023	03/29/2023 15:39	Simonne.V. Calhoun	03/31/2023 11:01	Judith K. Clark	2392066
EPA 353.2 Rev. 2.0	03/07/2023			03/10/2023 10:25	Beverly Y. Sanders	2392066
	03/07/2023			03/10/2023 10:31	Beverly Y. Sanders	2392068
EPA 365.1 Rev. 2.0	03/07/2023	03/09/2023 13:42	Adam P Silver	03/10/2023 14:15	James L Waggeberby	2392068
	03/07/2023	03/13/2023 16:23	Adam P Silver	03/17/2023 09:44	James L Waggeberby	2392066
EPA 8270E	03/07/2023	03/08/2023 08:00	Fe-Val Siddell	03/13/2023 03:01	Julie Wi	2392074
	03/07/2023	03/08/2023 08:00	Fe-Val Siddell	03/13/2023 03:59	Julie Wi	2392074
EPA 8276	03/07/2023	03/08/2023 08:00	Fe-Val Siddell	03/11/2023 10:28	Lipi Saha	2392074
SM 2320 B-2011	03/07/2023			03/10/2023 01:36	Dale L. Simmons	2392065
	03/07/2023			03/10/2023 01:49	Dale L. Simmons	2392067
SM 2540 D-2015	03/07/2023			03/08/2023 14:08	Yijie Li	2392065, 2392067
SM 4500-F- C-2011	03/07/2023			03/09/2023 21:25	Dale L. Simmons	2392065
	03/07/2023			03/09/2023 21:30	Dale L. Simmons	2392067
SM 5310 B-2011	03/07/2023			03/11/2023 03:26	Elise M. Gillis	2392066
	03/07/2023			03/11/2023 04:15	Elise M. Gillis	2392068