

Chemical Analysis Report

SE-DIST-2024-03-19-01

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

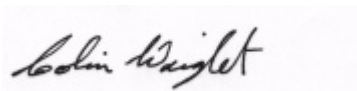
Event Description: **SMP - Sugar**
Request ID: **RQ-2024-02-26-47**
Customer: **SE-DIST**
Project ID: **SMP**

Send Reports to:
FL Dept. of Environmental Protection
FL Dept. of Environmental Protection
2199 South Rock Road
Fort Pierce, FL 34945
Attn: Andrew Luering

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

Certified by: Colin Wright, Program Administrator

Date Certified: 05-APR-2024 08:48

A handwritten signature in black ink, appearing to read "Colin Wright", is displayed on a light blue rectangular background.

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: PELICAN RIVER AT MCCLURE

Collection Date/Time: 03/18/2024 11:40

Field ID: G5SE0059

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2476351	DEP SOP: NU-094-1	Color (true)	33		PCU	P442990	
	EPA 180.1 Rev. 2.0	Turbidity	27		NTU	P443002	
	EPA 300.0 Rev. 2.1	Chloride	77		mg Cl/L	P443472	
		Sulfate	38		mg SO4/L	P443475	
	SM 2320 B-2011	Total Alkalinity	115		mg CaCO3/L	P443096	
	SM 2540 C-2015	TDS	342		mg/L	P443506	
	SM 2540 D-2015	TSS	25		mg/L	P443500	
	SM 4500-F- C-2011	Fluoride	0.19		mg F/L	P443099	
2476352	EPA 350.1 Rev. 2.0	Ammonia-N	0.21		mg N/L	P443206	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.4		mg N/L	P442995	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.27		mg N/L	P443220	
	EPA 365.1 Rev. 2.0	Total-P	0.16		mg P/L	P443194	
	SM 5310 B-2014	Organic Carbon	14		mg C/L	P443247	

Ref. Method and Comment:
SM 2540 D-2015: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample.
SM 4500-F- C-2011: Batch matrix spike recoveries are unavailable because of high analyte concentration in the QC sample.

Sample Location: FARM CANAL AT HWY 98 AND SR 717

Collection Date/Time: 03/18/2024 12:10

Field ID: G5SE0091

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2476353	DEP SOP: NU-094-1	Color (true)	29		PCU	P442990	
	EPA 180.1 Rev. 2.0	Turbidity	27		NTU	P443002	
	EPA 300.0 Rev. 2.1	Chloride	52		mg Cl/L	P443472	
		Sulfate	25		mg SO4/L	P443475	
	SM 2320 B-2011	Total Alkalinity	103		mg CaCO3/L	P443161	
	SM 2540 C-2015	TDS	272		mg/L	P443506	
	SM 2540 D-2015	TSS	16		mg/L	P443500	
2476354	SM 4500-F- C-2011	Fluoride	0.17		mg F/L	P443163	
	EPA 350.1 Rev. 2.0	Ammonia-N	0.017		mg N/L	P443206	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.1		mg N/L	P442995	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.28		mg N/L	P443220	
	EPA 365.1 Rev. 2.0	Total-P	0.13		mg P/L	P443194	
2476366	SM 5310 B-2014	Organic Carbon	13		mg C/L	P443247	
	EPA 8270E	Aldrin	0.67	U	ng/L	P443347	
		Alpha-BHC	0.10	U	ng/L	P443347	
		Alpha-Chlordane	0.21	U	ng/L	P443347	
		PCB-1016	2.1	U	ng/L	P443347	
		Beta-BHC	0.10	U	ng/L	P443347	
		PCB-1221	2.1	U	ng/L	P443347	
		Beta-Cyfluthrin	1.3	U	ng/L	P443347	
		PCB-1232	2.1	U	ng/L	P443347	
		Bifenthrin	0.52	U	ng/L	P443347	
		PCB-1242	2.1	U	ng/L	P443347	
		PCB-1248	2.1	U	ng/L	P443347	
		Chlorothalonil	3.7	U	ng/L	P443347	
		PCB-1254	2.1	U	ng/L	P443347	
		Cis-Nonachlor	0.21	U	ng/L	P443347	
		PCB-1260	2.1	U	ng/L	P443347	
		Cypermethrin	1.6	U	ng/L	P443347	
		Dacthal	0.16	U	ng/L	P443347	
		DDD-p,p'	0.26	U	ng/L	P443347	
		DDE-p,p'	0.21	U	ng/L	P443347	
		DDT-p,p'	0.83	U	ng/L	P443347	
		Delta-BHC	0.41	U	ng/L	P443347	
		Deltamethrin	1.3	U	ng/L	P443347	
		Dichlobenil	0.26	U	ng/L	P443347	
		Dicofol	1.3	U	ng/L	P443347	
		Diieldrin	0.41	U	ng/L	P443347	
		Endosulfan I	0.41	U	ng/L	P443347	
		Endosulfan II	0.93	U	ng/L	P443347	
		Endosulfan Sulfate	0.31	U	ng/L	P443347	
		Endrin	0.93	U	ng/L	P443347	
		Endrin Aldehyde	0.78	U	ng/L	P443347	
		Endrin Ketone	0.41	U	ng/L	P443347	

Field ID: G5SE0091

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2476366	EPA 8270E	Esfenvalerate	0.78	U	ng/L	P443347	
		Ethalfuralin	0.16	U	ng/L	P443347	
		Fenpropathrin	0.26	U	ng/L	P443347	
		Gamma-BHC	0.13	U	ng/L	P443347	
		Gamma-Chlordane	0.21	U	ng/L	P443347	
		Heptachlor	0.21	U	ng/L	P443347	
		Heptachlor Epoxide	0.26	U	ng/L	P443347	
		Hexachlorobenzene**	1.0	U	ng/L	P443347	
		Kepone	14	U	ng/L	P443347	
		Lambda-Cyhalothrin	0.78	U	ng/L	P443347	
		Methoprene	0.78	U	ng/L	P443347	
		Methoxychlor	0.31	U	ng/L	P443347	
		MGK-264	0.21	U	ng/L	P443347	
		Mirex	0.36	U	ng/L	P443347	
		Oxychlordane	0.31	U	ng/L	P443347	
		Permethrin	1.7	U	ng/L	P443347	
		Phenothrin	0.93	U	ng/L	P443347	
		Piperonyl Butoxide	2.7		ng/L	P443347	
		Prallethrin	2.1	U	ng/L	P443347	
		Tau-Fluvalinate	0.26	U	ng/L	P443347	
		Tetramethrin	0.78	U	ng/L	P443347	
		Trans-Nonachlor	0.21	U	ng/L	P443347	
		Triclosan Methyl	0.16	U	ng/L	P443347	
		Trifluralin	0.21	U	ng/L	P443347	
	EPA 8276	Chlordane	2.1	U	ng/L	P443347	
		Toxaphene	16	U	ng/L	P443347	
2476367	EPA 200.7 Rev. 4.4	Calcium	44.3		mg/L	P442982	
		Iron	960		ug/L	P442982	
		Magnesium	11.5		mg/L	P442982	
		Potassium	5.6		mg/L	P442982	
		Sodium	29.9		mg/L	P442982	
		Strontium	741		ug/L	P442982	
		Tin	3.0	U	ug/L	P442982	
		Titanium	8.2		ug/L	P442982	
		Vanadium	2.6	I	ug/L	P442982	
		Zinc	5.0	U	ug/L	P442982	
	EPA 200.8 Rev. 5.4	Aluminum	520		ug/L	P442982	
		Antimony	0.14	I	ug/L	P442982	
		Arsenic	1.44		ug/L	P442982	
		Barium	32.0		ug/L	P442982	
		Beryllium	0.040	I	ug/L	P442982	
		Boron	55.3		ug/L	P442982	
		Cadmium	0.020	U	ug/L	P442982	
		Chromium	4.5		ug/L	P442982	
		Cobalt	0.203		ug/L	P442982	

Field ID: G5SE0091

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2476367	EPA 200.8 Rev. 5.4	Copper	1.01		ug/L	P442982	
		Lead	0.44		ug/L	P442982	
		Manganese	13.3		ug/L	P442982	
		Molybdenum	0.79		ug/L	P442982	
		Nickel	1.4	I	ug/L	P442982	
		Selenium	0.29	I	ug/L	P442982	MS
		Silver	0.010	U	ug/L	P442982	
		Thallium	0.10	U	ug/L	P442982	
	SM 2340 B-2011	Hardness	158		mg/L	P442982	

Ref. Method and Comment:
SM 2540 D-2015: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample.

Quality Assurance Report
Method Blank Results

Reference Method: DEP SOP: NU-094-1
Batch ID: P442990

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P443002

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P442982

Component	Result	Code	Units
Calcium	0.075	U	mg/L
Iron	30	U	ug/L
Magnesium	0.040	U	mg/L
Potassium	0.30	U	mg/L
Sodium	0.50	U	mg/L
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: P442982

Component	Result	Code	Units
Aluminum	5.0	U	ug/L
Antimony	0.050	U	ug/L
Arsenic	0.050	U	ug/L
Barium	0.20	U	ug/L
Beryllium	0.010	U	ug/L
Boron	2.0	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 300.0 Rev. 2.1
Batch ID: P443472

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Quality Assurance Report Method Blank Results

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P443475

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P443206

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P442995

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P443220

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P443194

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

Reference Method: EPA 8270E
Batch ID: P443347

Component	Result	Code	Units
Aldrin	0.65	U	ng/L
Alpha-BHC	0.10	U	ng/L
Alpha-Chlordane	0.20	U	ng/L
Beta-BHC	0.10	U	ng/L
Beta-Cyfluthrin	1.2	U	ng/L
Bifenthrin	0.50	U	ng/L
Chlorothalonil	3.6	U	ng/L
Cis-Nonachlor	0.20	U	ng/L
Cypermethrin	1.5	U	ng/L
Dacthal	0.15	U	ng/L
DDD-p,p'	0.25	U	ng/L
DDE-p,p'	0.20	U	ng/L
DDT-p,p'	0.80	U	ng/L
Delta-BHC	0.40	U	ng/L
Deltamethrin	1.2	U	ng/L
Dichlobenil	0.25	U	ng/L
Dicofol	1.2	U	ng/L
Dieldrin	0.40	U	ng/L
Endosulfan I	0.40	U	ng/L
Endosulfan II	0.90	U	ng/L
Endosulfan Sulfate	0.30	U	ng/L
Endrin	0.90	U	ng/L

Quality Assurance Report Method Blank Results

Reference Method: EPA 8270E

Batch ID: P443347

Component	Result	Code	Units
Endrin Aldehyde	0.75	U	ng/L
Endrin Ketone	0.40	U	ng/L
Esfenvalerate	0.75	U	ng/L
Ethalfuralin	0.15	U	ng/L
Fenpropathrin	0.25	U	ng/L
Gamma-BHC	0.12	U	ng/L
Gamma-Chlordane	0.20	U	ng/L
Heptachlor	0.20	U	ng/L
Heptachlor Epoxide	0.25	U	ng/L
Hexachlorobenzene	1.0	U	ng/L
Kepone	14	U	ng/L
Lambda-Cyhalothrin	0.75	U	ng/L
Methoprene	0.75	U	ng/L
Methoxychlor	0.30	U	ng/L
MGK-264	0.20	U	ng/L
Mirex	0.35	U	ng/L
Oxychlordane	0.30	U	ng/L
PCB-1016	2.0	U	ng/L
PCB-1221	2.0	U	ng/L
PCB-1232	2.0	U	ng/L
PCB-1242	2.0	U	ng/L
PCB-1248	2.0	U	ng/L
PCB-1254	2.0	U	ng/L
PCB-1260	2.0	U	ng/L
Permethrin	1.6	U	ng/L
Phenothrin	0.90	U	ng/L
Piperonyl Butoxide	0.15	U	ng/L
Prallethrin	2.0	U	ng/L
Tau-Fluvalinate	0.25	U	ng/L
Tetramethrin	0.75	U	ng/L
Trans-Nonachlor	0.20	U	ng/L
Triclosan Methyl	0.15	U	ng/L
Trifluralin	0.20	U	ng/L

Reference Method: EPA 8276

Batch ID: P443347

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

Reference Method: SM 2320 B-2011

Batch ID: P443096

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

Reference Method: SM 2320 B-2011

Batch ID: P443161

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

Quality Assurance Report
Method Blank Results

Reference Method: SM 2540 C-2015
Batch ID: P443506

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-2015
Batch ID: P443500

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500-F- C-2011
Batch ID: P443099

Component	Result	Code	Units
Fluoride	0.025	U	mg F/L

Reference Method: SM 4500-F- C-2011
Batch ID: P443163

Component	Result	Code	Units
Fluoride	0.025	U	mg F/L

Reference Method: SM 5310 B-2014
Batch ID: P443247

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

Quality Assurance Report
Laboratory Control Sample Accuracy

Reference Method: DEP SOP: NU-094-1
Batch ID: P442990

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Color (true)	95.7		P	90 - 110

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P443002

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

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P442982

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Calcium	104		P	80 - 120
Iron	109		P	80 - 120
Magnesium	103		P	80 - 120
Potassium	101		P	80 - 120
Sodium	99.4		P	80 - 120
Strontium	97.1		P	80 - 120
Tin	98.2		P	80 - 120
Titanium	101		P	80 - 120
Vanadium	97.8		P	80 - 120
Zinc	95.7		P	80 - 120

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P442982

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Aluminum	100		P	80 - 120
Antimony	103		P	80 - 120
Arsenic	99.3		P	80 - 120
Barium	102		P	80 - 120
Beryllium	98.4		P	80 - 120
Boron	102		P	80 - 120
Cadmium	101		P	80 - 120
Chromium	101		P	80 - 120
Cobalt	95.4		P	80 - 120
Copper	99.0		P	80 - 120
Lead	93.0		P	80 - 120
Manganese	102		P	80 - 120
Molybdenum	98.5		P	80 - 120
Nickel	96.9		P	80 - 120
Selenium	99.2		P	80 - 120
Silver	99.7		P	80 - 120
Thallium	95.4		P	80 - 120

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P443472

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

Quality Assurance Report

Laboratory Control Sample Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P443475

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P443206

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P442995

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Kjeldahl Nitrogen	97.9		P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P443220

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P443194

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

Reference Method: EPA 8270E
Batch ID: P443347

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Aldrin	61.3		P	30 - 96.0
Alpha-BHC	76.7		P	70 - 109
Alpha-Chlordane	69.3		P	45 - 107
Beta-BHC	99.2		P	64 - 138
Beta-Cyfluthrin	66.1		P	17 - 141
Bifenthrin	55.4		P	10 - 113
Chlorothalonil	76.4		P	26 - 180
Cis-Nonachlor	68.2		P	37 - 102
Cypermethrin	84.9		P	20 - 133
Dacthal	82.9		P	69 - 114
DDD-p,p'	72.4		P	42 - 105
DDE-p,p'	68.9		P	42 - 106
DDT-p,p'	76.4		P	42 - 107
Delta-BHC	101		P	67 - 144
Deltamethrin	84.2		P	15 - 149
Dichlobenil	75.9		P	46 - 117
Dicofol	70.8		P	34 - 114
Dieldrin	71.1		P	50 - 108
Endosulfan I	70.3		P	55 - 104
Endosulfan II	77.9		P	51 - 111
Endosulfan Sulfate	83.3		P	56 - 121
Endrin	73.7		P	10 - 106

Quality Assurance Report

Laboratory Control Sample Accuracy

Reference Method: EPA 8270E
Batch ID: P443347

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Endrin Aldehyde	80.0		P	34 - 114
Endrin Ketone	88.0		P	63 - 177
Esfenvalerate	72.3		P	29 - 143
Ethalfuralin	71.1		P	46 - 96.0
Fenpropathrin	76.2		P	28 - 115
Gamma-BHC	89.8		P	65 - 121
Gamma-Chlordane	69.1		P	39 - 103
Heptachlor	65.7		P	39 - 94.0
Heptachlor Epoxide	73.9		P	54 - 104
Hexachlorobenzene	59.9		P	36 - 100
Kepone	159		P	10 - 225
Lambda-Cyhalothrin	65.5		P	10 - 135
Methoprene	49.3		P	10 - 109
Methoxychlor	86.0		P	52 - 112
MGK-264	74.2		P	44 - 117
Mirex	58.0		P	20 - 90.0
Oxychlordane	69.8		P	44 - 102
PCB-1016	76.0		P	45 - 107
PCB-1260	73.3		P	40 - 118
Permethrin	70.4		P	18 - 135
Phenothrin	53.6		P	10 - 102
Piperonyl Butoxide	103		P	28 - 156
Prallethrin	70.6		P	28 - 113
Tau-Fluvalinate	60.1		P	10 - 123
Tetramethrin	87.8		P	18 - 158
Trans-Nonachlor	72.0		P	39 - 104
Triclosan Methyl	73.0		P	54 - 108
Trifluralin	69.1		P	46 - 97.0

Reference Method: EPA 8276
Batch ID: P443347

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Chlordane	82.1		P	52 - 117
Toxaphene	89.3		P	44 - 125

Reference Method: SM 2320 B-2011
Batch ID: P443096

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	94.8		P	92 - 105

Reference Method: SM 2320 B-2011
Batch ID: P443161

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	97.6		P	92 - 105

Reference Method: SM 2540 C-2015
Batch ID: P443506

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
-----------	---------	---------	-----------	----------------

Quality Assurance Report
Laboratory Control Sample Accuracy

Reference Method: SM 2540 C-2015
Batch ID: P443506

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
TDS	101		P	85 - 115

Reference Method: SM 2540 D-2015
Batch ID: P443500

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
TSS	102		P	85 - 115

Reference Method: SM 4500-F- C-2011
Batch ID: P443099

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	97.5		P	94 - 106

Reference Method: SM 4500-F- C-2011
Batch ID: P443163

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	97.4		P	94 - 106

Reference Method: SM 5310 B-2014
Batch ID: P443247

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	99.3		P	85 - 115

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P442982

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2476210	Calcium	102		P	80 - 120
2476210	Iron	108	106	P/P	80 - 120
2476210	Magnesium	100		P	80 - 120
2476210	Potassium	99.6	98.2	P/P	80 - 120
2476210	Sodium	100		P	80 - 120
2476210	Strontium	97.0	97.5	P/P	80 - 120
2476210	Tin	96.3	96.0	P/P	80 - 120
2476210	Titanium	99.8	99.2	P/P	80 - 120
2476210	Vanadium	96.3	95.8	P/P	80 - 120
2476210	Zinc	92.4	91.4	P/P	80 - 120
2476367	Calcium	101		P	80 - 120
2476367	Iron	104		P	80 - 120
2476367	Magnesium	103		P	80 - 120
2476367	Potassium	99.8		P	80 - 120
2476367	Sodium	99.2		P	80 - 120
2476367	Strontium	94.4		P	80 - 120
2476367	Tin	91.3		P	80 - 120
2476367	Titanium	91.9		P	80 - 120
2476367	Vanadium	94.8		P	80 - 120
2476367	Zinc	92.8		P	80 - 120

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P442982

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2476210	Aluminum	99.1	98.1	P/P	80 - 120
2476210	Antimony	106	105	P/P	80 - 120
2476210	Arsenic	99.5	98.3	P/P	80 - 120
2476210	Barium	103	102	P/P	80 - 120
2476210	Beryllium	98.3	99.5	P/P	80 - 120
2476210	Boron	104	103	P/P	80 - 120
2476210	Cadmium	103	103	P/P	80 - 120
2476210	Chromium	98.0	96.4	P/P	80 - 120
2476210	Cobalt	88.9	87.6	P/P	80 - 120
2476210	Copper	93.3	92.8	P/P	80 - 120
2476210	Lead	94.3	92.5	P/P	80 - 120
2476210	Manganese	98.8	98.8	P/P	80 - 120
2476210	Molybdenum	102	102	P/P	80 - 120
2476210	Nickel	91.3	89.6	P/P	80 - 120
2476210	Selenium	77.3	77.2	F/F	80 - 120
2476210	Silver	95.1	93.4	P/P	80 - 120
2476210	Thallium	99.5	97.4	P/P	80 - 120
2476367	Aluminum	101		P	80 - 120
2476367	Antimony	102		P	80 - 120
2476367	Arsenic	101		P	80 - 120
2476367	Barium	104		P	80 - 120
2476367	Beryllium	98.1		P	80 - 120
2476367	Boron	103		P	80 - 120
2476367	Cadmium	101		P	80 - 120
2476367	Chromium	80.2		P	80 - 120
2476367	Cobalt	91.0		P	80 - 120
2476367	Copper	95.2		P	80 - 120

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P442982

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2476367	Lead	95.1		P	80 - 120
2476367	Manganese	98.8		P	80 - 120
2476367	Molybdenum	101		P	80 - 120
2476367	Nickel	87.7		P	80 - 120
2476367	Selenium	98.8		P	80 - 120
2476367	Silver	92.9		P	80 - 120
2476367	Thallium	99.8		P	80 - 120

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P443472

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2476488	Chloride	102		P	90 - 110
2476557	Chloride	99.2		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P443475

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2476488	Sulfate	102		P	90 - 110
2476557	Sulfate	99.7		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P443206

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2476270	Ammonia-N	98.0	99.4	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P442995

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2476465	Kjeldahl Nitrogen	97.2	96.4	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P443220

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2476264	NO2NO3-N	95.5	95.5	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P443194

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2476465	Total-P	103	103	P/P	90 - 110

Reference Method: EPA 8270E
Batch ID: P443347

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2476633	Aldrin	64.9	64.2	P/P	24 - 81.0
2476633	Alpha-BHC	78.3	67.4	P/P	65 - 110

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 8270E
Batch ID: P443347

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2476633	Alpha-Chlordane	72.1	70.8	P/P	43 - 119
2476633	Beta-BHC	108	98.9	P/P	54 - 165
2476633	Beta-Cyfluthrin	133	130	P/P	27 - 165
2476633	Bifenthrin	89.1	92.6	P/P	17 - 117
2476633	Chlorothalonil	135	127	P/P	10 - 255
2476633	Cis-Nonachlor	61.2	63.9	P/P	34 - 98.0
2476633	Cypermethrin	134	132	P/P	25 - 143
2476633	Dacthal	87.7	81.2	P/P	55 - 139
2476633	DDD-p,p'	66.0	67.9	P/P	30 - 109
2476633	DDE-p,p'	59.7	57.3	P/P	35 - 106
2476633	DDT-p,p'	88.2	90.5	P/P	41 - 101
2476633	Delta-BHC	137	119	P/P	58 - 165
2476633	Deltamethrin	156	172	P/P	10 - 194
2476633	Dichlobenil	33.1	44.7	P/P	22 - 114
2476633	Dicofol	81.2	79.3	P/P	17 - 133
2476633	Dieldrin	65.3	62.9	P/P	45 - 129
2476633	Endosulfan I	81.8	80.6	P/P	49 - 104
2476633	Endosulfan II	79.5	77.1	P/P	37 - 117
2476633	Endosulfan Sulfate	82.1	85.2	P/P	38 - 128
2476633	Endrin	65.8	63.9	P/P	35 - 116
2476633	Endrin Aldehyde	58.3	58.5	P/P	19 - 108
2476633	Endrin Ketone	77.8	73.6	P/P	44 - 134
2476633	Esfenvalerate	157	151	P/P	27 - 176
2476633	Ethalfuralin	71.2	73.1	P/P	49 - 100
2476633	Fenpropathrin	104	102	P/P	34 - 117
2476633	Gamma-BHC	104	91.3	P/P	59 - 129
2476633	Gamma-Chlordane	74.1	71.0	P/P	33 - 107
2476633	Heptachlor	56.3	58.2	P/P	37 - 94.0
2476633	Heptachlor Epoxide	78.8	76.8	P/P	38 - 118
2476633	Hexachlorobenzene	48.7	52.4	P/P	35 - 97.0
2476633	Kepone	155	149	P/P	10 - 221
2476633	Lambda-Cyhalothrin	129	124	P/P	23 - 190
2476633	Methoprene	62.4	64.5	P/P	21 - 109
2476633	Methoxychlor	81.4	81.0	P/P	46 - 118
2476633	MGK-264	82.8	79.4	P/P	39 - 122
2476633	Mirex	67.8	71.5	P/P	25 - 90.0
2476633	Oxychlordane	66.4	66.4	P/P	42 - 100
2476633	Permethrin	128	129	P/P	33 - 181
2476633	Phenothrin	122	124	P/P	12 - 125
2476633	Piperonyl Butoxide	114	106	P/P	10 - 178
2476633	Prallethrin	88.6	90.8	P/P	24 - 122
2476633	Tau-Fluvalinate	146	144	P/P	13 - 151
2476633	Tetramethrin	145	131	P/P	16 - 172
2476633	Trans-Nonachlor	83.5	79.6	P/P	39 - 100
2476633	Triclosan Methyl	65.0	62.9	P/P	43 - 110
2476633	Trifluralin	74.1	72.2	P/P	45 - 94.0
2476691	PCB-1016	91.2	86.8	P/P	45 - 107
2476691	PCB-1260	79.6	77.6	P/P	40 - 112

Quality Assurance Report
Matrix Spike Accuracy

Reference Method: EPA 8276
Batch ID: P443347

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2476691	Chlordane	94.2	89.2	P/P	43 - 123
2476691	Toxaphene	103	97.7	P/P	27 - 156

Reference Method: SM 4500-F- C-2011
Batch ID: P443163

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2476710	Fluoride	100	100	P/P	94 - 106

Reference Method: SM 5310 B-2014
Batch ID: P443247

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2476262	Organic Carbon	96.9	99.3	P/P	85 - 115

Quality Assurance Report Precision

Reference Method: DEP SOP: NU-094-1
Batch ID: P442990

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2476213	Color (true)	5.01	Sample	P	0 - 20

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P443002

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2476212	Turbidity	0.791	Sample	P	0 - 20

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P442982

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2476210	Calcium	0.295	Spike	P	0 - 20
2476210	Iron	1.16	Spike	P	0 - 20
2476210	Magnesium	1.04	Spike	P	0 - 20
2476210	Potassium	1.12	Spike	P	0 - 20
2476210	Sodium	0.568	Spike	P	0 - 20
2476210	Strontium	0.371	Spike	P	0 - 20
2476210	Tin	0.369	Spike	P	0 - 20
2476210	Titanium	0.665	Spike	P	0 - 20
2476210	Vanadium	0.498	Spike	P	0 - 20
2476210	Zinc	1.05	Spike	P	0 - 20

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P442982

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2476210	Aluminum	1.04	Spike	P	0 - 20
2476210	Antimony	0.757	Spike	P	0 - 20
2476210	Arsenic	1.25	Spike	P	0 - 20
2476210	Barium	0.610	Spike	P	0 - 20
2476210	Beryllium	1.14	Spike	P	0 - 20
2476210	Boron	0.128	Spike	P	0 - 20
2476210	Cadmium	0.00984	Spike	P	0 - 20
2476210	Chromium	1.68	Spike	P	0 - 20
2476210	Cobalt	1.55	Spike	P	0 - 20
2476210	Copper	0.509	Spike	P	0 - 20
2476210	Lead	1.91	Spike	P	0 - 20
2476210	Manganese	0.0425	Spike	P	0 - 20
2476210	Molybdenum	0.448	Spike	P	0 - 20
2476210	Nickel	1.92	Spike	P	0 - 20
2476210	Selenium	0.142	Spike	P	0 - 20
2476210	Silver	1.80	Spike	P	0 - 20
2476210	Thallium	2.13	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P443472

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2476488	Chloride	3.48	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P443475

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2476488	Sulfate	3.79	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P443206

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2476270	Ammonia-N	1.42	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P442995

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2476465	Kjeldahl Nitrogen	0.550	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P443220

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2476264	NO2NO3-N	0.0	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P443194

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2476465	Total-P	0.416	Spike	P	0 - 20

Reference Method: EPA 8270E
Batch ID: P443347

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2476633	Aldrin	1.08	Spike	P	0 - 41
2476633	Alpha-BHC	15.0	Spike	P	0 - 25
2476633	Alpha-Chlordane	1.76	Spike	P	0 - 32
2476633	Beta-BHC	9.23	Spike	P	0 - 33
2476633	Beta-Cyfluthrin	2.69	Spike	P	0 - 43
2476633	Bifenthrin	3.90	Spike	P	0 - 52
2476633	Chlorothalonil	5.67	Spike	P	0 - 82
2476633	Cis-Nonachlor	4.38	Spike	P	0 - 33
2476633	Cypermethrin	2.07	Spike	P	0 - 51

Quality Assurance Report Precision

Reference Method: EPA 8270E
Batch ID: P443347

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2476633	Dacthal	7.66	Spike	P	0 - 27
2476633	DDD-p,p'	2.87	Spike	P	0 - 39
2476633	DDE-p,p'	4.12	Spike	P	0 - 31
2476633	DDT-p,p'	2.59	Spike	P	0 - 29
2476633	Delta-BHC	13.8	Spike	P	0 - 35
2476633	Deltamethrin	9.57	Spike	P	0 - 100
2476633	Dichlobenil	29.9	Spike	P	0 - 40
2476633	Dicofol	2.32	Spike	P	0 - 37
2476633	Dieldrin	3.76	Spike	P	0 - 27
2476633	Endosulfan I	1.42	Spike	P	0 - 23
2476633	Endosulfan II	3.05	Spike	P	0 - 34
2476633	Endosulfan Sulfate	3.67	Spike	P	0 - 36
2476633	Endrin	2.93	Spike	P	0 - 45
2476633	Endrin Aldehyde	0.452	Spike	P	0 - 76
2476633	Endrin Ketone	5.53	Spike	P	0 - 43
2476633	Esfenvalerate	3.74	Spike	P	0 - 51
2476633	Ethalfuralin	2.66	Spike	P	0 - 22
2476633	Fenpropathrin	2.18	Spike	P	0 - 49
2476633	Gamma-BHC	13.2	Spike	P	0 - 28
2476633	Gamma-Chlordane	4.28	Spike	P	0 - 40
2476633	Heptachlor	3.49	Spike	P	0 - 29
2476633	Heptachlor Epoxide	2.51	Spike	P	0 - 33
2476633	Hexachlorobenzene	7.31	Spike	P	0 - 36
2476633	Kepone	4.24	Spike	P	0 - 85
2476633	Lambda-Cyhalothrin	4.17	Spike	P	0 - 55
2476633	Methoprene	3.35	Spike	P	0 - 53
2476633	Methoxychlor	0.448	Spike	P	0 - 50
2476633	MGK-264	4.28	Spike	P	0 - 43
2476633	Mirex	5.36	Spike	P	0 - 40
2476633	Oxychlordane	0.0588	Spike	P	0 - 31
2476633	Permethrin	0.646	Spike	P	0 - 50
2476633	Phenothrin	1.82	Spike	P	0 - 58
2476633	Piperonyl Butoxide	6.75	Spike	P	0 - 100
2476633	Prallethrin	2.51	Spike	P	0 - 39
2476633	Tau-Fluvalinate	1.78	Spike	P	0 - 54
2476633	Tetramethrin	10.5	Spike	P	0 - 51
2476633	Trans-Nonachlor	4.79	Spike	P	0 - 39
2476633	Triclosan Methyl	3.23	Spike	P	0 - 31
2476633	Trifluralin	2.64	Spike	P	0 - 22
2476691	PCB-1016	4.88	Spike	P	0 - 25
2476691	PCB-1260	2.53	Spike	P	0 - 30

Reference Method: EPA 8276
Batch ID: P443347

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2476691	Chlordane	5.41	Spike	P	0 - 28
2476691	Toxaphene	5.00	Spike	P	0 - 27

Quality Assurance Report

Precision

Reference Method: SM 2320 B-2011
Batch ID: P443096

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2476207	Total Alkalinity	0.142	Sample	P	0 - 3.9

Reference Method: SM 2320 B-2011
Batch ID: P443161

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2476710	Total Alkalinity	2.38	Sample	P	0 - 3.9

Reference Method: SM 2540 C-2015
Batch ID: P443506

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2476263	TDS	3.19	Sample	P	0 - 10

Reference Method: SM 4500-F- C-2011
Batch ID: P443099

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2476207	Fluoride	0.516	Spike	P	0 - 1.9

Reference Method: SM 4500-F- C-2011
Batch ID: P443163

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2476710	Fluoride	0.0	Spike	P	0 - 1.9

Reference Method: SM 5310 B-2014
Batch ID: P443247

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2476262	Organic Carbon	2.03	Spike	P	0 - 15

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

Quality Assurance Report
Surrogates

Lab Sample ID: 2476366
Field Sample ID: G5SE0091

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8270E	Decachlorobiphenyl	88.7	P	37 - 129
EPA 8270E	Decachlorobiphenyl	92.6	P	26 - 115
EPA 8270E	Tetrachloro-m-xylene	72.2	P	30 - 101
EPA 8270E	Tetrachloro-m-xylene	45.6	P	29 - 95.0
EPA 8276	Decachlorobiphenyl	71.2	P	23 - 110
EPA 8276	PCNB	88.9	P	51 - 130

Quality Assurance Report
Calibration Verification

Reference Method: DEP SOP: NU-094-1
Run ID: A124833
Included Lab Sample IDs: 2476351, 2476353

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	99.0	96.4	P/P	90 - 110

Reference Method: EPA 180.1 Rev. 2.0
Run ID: A124838
Included Lab Sample IDs: 2476351, 2476353

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

Reference Method: EPA 200.7 Rev. 4.4
Run ID: A124879
Included Lab Sample IDs: 2476367

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Calcium	103	103	P/P	90 - 110
Iron	102	101	P/P	90 - 110
Magnesium	103	102	P/P	90 - 110
Potassium	101	100	P/P	90 - 110
Sodium	98.9	98.4	P/P	90 - 110
Strontium	99.3	98.4	P/P	90 - 110
Tin	101	101	P/P	90 - 110
Titanium	101	100	P/P	90 - 110
Vanadium	99.8	99.1	P/P	90 - 110
Zinc	99.1	98.7	P/P	90 - 110

Reference Method: SM 2320 B-2011
Run ID: A124880
Included Lab Sample IDs: 2476351

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	94.5	98.6	P/P	90 - 110

Reference Method: SM 4500-F- C-2011
Run ID: A124880
Included Lab Sample IDs: 2476351

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

Reference Method: EPA 200.8 Rev. 5.4
Run ID: A124881
Included Lab Sample IDs: 2476367

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Aluminum	97.6	98.9	P/P	90 - 110
Antimony	98.6	99.2	P/P	90 - 110
Arsenic	97.8	97.3	P/P	90 - 110
Barium	100	99.5	P/P	90 - 110
Beryllium	95.5	96.5	P/P	90 - 110
Boron	93.9	97.1	P/P	90 - 110
Cadmium	99.2	100	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: EPA 200.8 Rev. 5.4

Run ID: A124881

Included Lab Sample IDs: 2476367

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chromium	95.5	93.9	P/P	90 - 110
Cobalt	91.6	90.1	P/P	90 - 110
Copper	96.5	94.2	P/P	90 - 110
Lead	93.1	92.3	P/P	90 - 110
Manganese	95.9	93.4	P/P	90 - 110
Molybdenum	98.2	97.3	P/P	90 - 110
Nickel	94.7	93.3	P/P	90 - 110
Selenium	99.0	98.4	P/P	90 - 110
Silver	94.5	94.2	P/P	90 - 110
Thallium	98.3	98.0	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A124898

Included Lab Sample IDs: 2476352, 2476354

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	100	92.9	P/P	90 - 110

Reference Method: SM 2320 B-2011

Run ID: A124909

Included Lab Sample IDs: 2476353

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	98.8	95.0	P/P	90 - 110

Reference Method: SM 4500-F- C-2011

Run ID: A124909

Included Lab Sample IDs: 2476353

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	99.5	101	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A124932

Included Lab Sample IDs: 2476352, 2476354

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	98.1	97.3	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A124943

Included Lab Sample IDs: 2476352, 2476354

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO2NO3-N	100	99.0	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A124947

Included Lab Sample IDs: 2476352, 2476354

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
-----------	---------	---------	------------	----------------

Quality Assurance Report Calibration Verification

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A124947

Included Lab Sample IDs: 2476352, 2476354

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	101	99.8	P/P	90 - 110

Reference Method: SM 5310 B-2014

Run ID: A124956

Included Lab Sample IDs: 2476352, 2476354

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	100	125	P/P	85 - 115

Reference Method: EPA 300.0 Rev. 2.1

Run ID: A125018

Included Lab Sample IDs: 2476351, 2476353

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	101	98.3	P/P	90 - 110
Sulfate	102	99.5	P/P	90 - 110

Reference Method: EPA 8276

Run ID: A125057

Included Lab Sample IDs: 2476366

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chlordane	92.9		P	80 - 120
Toxaphene	95.4		P	80 - 120

Reference Method: EPA 8270E

Run ID: A125099

Included Lab Sample IDs: 2476366

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Aldrin	102		P	80 - 120
Alpha-BHC	97.9		P	80 - 120
Alpha-Chlordane	104		P	80 - 120
Beta-BHC	95.5		P	80 - 120
Beta-Cyfluthrin	94.3		P	80 - 120
Bifenthrin	103		P	80 - 120
Chlorothalonil	105		P	80 - 120
Cis-Nonachlor	101		P	80 - 120
Cypermethrin	94.3		P	80 - 120
Dacthal	96.7		P	80 - 120
DDD-p,p'	103		P	80 - 120
DDE-p,p'	105		P	80 - 120
DDT-p,p'	104		P	80 - 120
Delta-BHC	94.0		P	80 - 120
Deltamethrin	98.6		P	80 - 120
Dichlobenil	107		P	80 - 120
Dicofol	99.6		P	80 - 120
Dieldrin	104		P	80 - 120
Endosulfan I	104		P	80 - 120
Endosulfan II	106		P	80 - 120
Endosulfan Sulfate	99.5		P	80 - 120

Quality Assurance Report Calibration Verification

Reference Method: EPA 8270E
Run ID: A125099
Included Lab Sample IDs: 2476366

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Endrin	105		P	80 - 120
Endrin Aldehyde	101		P	80 - 120
Endrin Ketone	101		P	80 - 120
Esfenvalerate	90.9		P	80 - 120
Ethalfuralin	100		P	80 - 120
Fenpropathrin	103		P	80 - 120
Gamma-BHC	95.8		P	80 - 120
Gamma-Chlordane	94.8		P	80 - 120
Heptachlor	111		P	80 - 120
Heptachlor Epoxide	109		P	80 - 120
Hexachlorobenzene	102		P	80 - 120
Kepone	83.7		P	80 - 120
Lambda-Cyhalothrin	92.6		P	80 - 120
Methoprene	108		P	80 - 120
Methoxychlor	102		P	80 - 120
MGK-264	106		P	80 - 120
Mirex	105		P	80 - 120
Oxychlordane	107		P	80 - 120
Permethrin	103		P	80 - 120
Phenothrin	103		P	80 - 120
Piperonyl Butoxide	105		P	80 - 120
Prallethrin	107		P	80 - 120
Tau-Fluvalinate	98.8		P	80 - 120
Tetramethrin	96.4		P	80 - 120
Trans-Nonachlor	88.7		P	80 - 120
Triclosan Methyl	104		P	80 - 120
Trifluralin	99.7		P	80 - 120

Reference Method: EPA 8270E
Run ID: A125101
Included Lab Sample IDs: 2476366

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
PCB-1016	102		P	80 - 120
PCB-1260	101		P	80 - 120

* 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 SMP	MS
			LCS				
DEP SOP: NU-094-1	Color (true)	95.7				5.01	
EPA 180.1 Rev. 2.0	Turbidity	102				0.791	
EPA 200.7 Rev. 4.4	Calcium	104	102	101			0.295
	Iron	109	108	106	104		1.16
	Magnesium	103	100	103			1.04
	Potassium	101	99.6	98.2	99.8		1.12
	Sodium	99.4	100	99.2			0.568
	Strontium	97.1	97.0	97.5	94.4		0.371
	Tin	98.2	96.3	96.0	91.3		0.369
	Titanium	101	99.8	99.2	91.9		0.665
	Vanadium	97.8	96.3	95.8	94.8		0.498
	Zinc	95.7	92.4	91.4	92.8		1.05
EPA 200.8 Rev. 5.4	Aluminum	100	99.1	98.1	101		1.04
	Antimony	103	106	105	102		0.757
	Arsenic	99.3	99.5	98.3	101		1.25
	Barium	102	103	102	104		0.610
	Beryllium	98.4	98.3	99.5	98.1		1.14
	Boron	102	104	103	103		0.128
	Cadmium	101	103	103	101		0.0098
	Chromium	101	98.0	96.4	80.2		1.68
	Cobalt	95.4	88.9	87.6	91.0		1.55
	Copper	99.0	93.3	92.8	95.2		0.509
	Lead	93.0	94.3	92.5	95.1		1.91
	Manganese	102	98.8	98.8	98.8		0.0425
	Molybdenum	98.5	102	102	101		0.448
	Nickel	96.9	91.3	89.6	87.7		1.92
	Selenium	99.2	77.3	77.2	98.8		0.142
	Silver	99.7	95.1	93.4	92.9		1.80
	Thallium	95.4	99.5	97.4	99.8		2.13
EPA 300.0 Rev. 2.1	Chloride	102	102	99.2		3.48	
	Sulfate	103	102	99.7		3.79	
EPA 350.1 Rev. 2.0	Ammonia-N	95.4	98.0	99.4			1.42
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	97.9	97.2	96.4			0.550
EPA 353.2 Rev. 2.0	NO2NO3-N	99.0	95.5	95.5			0.0
EPA 365.1 Rev. 2.0	Total-P	105	103	103			0.416
EPA 8270E	Aldrin	61.3	64.9	64.2			1.08
	Alpha-BHC	76.7	78.3	67.4			15.0
	Alpha-Chlordane	69.3	72.1	70.8			1.76
	Beta-BHC	99.2	108	98.9			9.23
	Beta-Cyfluthrin	66.1	133	130			2.69
	Bifenthrin	55.4	89.1	92.6			3.90
	Chlorothalonil	76.4	135	127			5.67
	Cis-Nonachlor	68.2	61.2	63.9			4.38
	Cypermethrin	84.9	134	132			2.07
	Dacthal	82.9	87.7	81.2			7.66
	DDD-p,p'	72.4	66.0	67.9			2.87
	DDE-p,p'	68.9	59.7	57.3			4.12
	DDT-p,p'	76.4	88.2	90.5			2.59
	Delta-BHC	101	137	119			13.8
	Deltamethrin	84.2	156	172			9.57
	Dichlobenil	75.9	33.1	44.7			29.9
	Dicofol	70.8	81.2	79.3			2.32
	Dieldrin	71.1	65.3	62.9			3.76
	Endosulfan I	70.3	81.8	80.6			1.42

Quality Assurance Report

Summary

Ref. Method	Analyte	LCS % Recovery		MS % Recovery		Precision	
						LCS	SMP
EPA 8270E	Endosulfan II	77.9		79.5	77.1		
	Endosulfan Sulfate	83.3		82.1	85.2		
	Endrin	73.7		65.8	63.9		
	Endrin Aldehyde	80.0		58.3	58.5		
	Endrin Ketone	88.0		77.8	73.6		
	Esfenvalerate	72.3		157	151		
	Ethalfuralin	71.1		71.2	73.1		
	Fenpropathrin	76.2		104	102		
	Gamma-BHC	89.8		104	91.3		
	Gamma-Chlordane	69.1		74.1	71.0		
	Heptachlor	65.7		56.3	58.2		
	Heptachlor Epoxide	73.9		78.8	76.8		
	Hexachlorobenzene	59.9		48.7	52.4		
	Kepone	159		155	149		
	Lambda-Cyhalothrin	65.5		129	124		
	Methoprene	49.3		62.4	64.5		
	Methoxychlor	86.0		81.4	81.0		
	MGK-264	74.2		82.8	79.4		
	Mirex	58.0		67.8	71.5		
	Oxychlordane	69.8		66.4	66.4		
	PCB-1016	76.0		91.2	86.8		
	PCB-1260	73.3		79.6	77.6		
	Permethrin	70.4		128	129		
	Phenothrin	53.6		122	124		
	Piperonyl Butoxide	103		114	106		
	Prallethrin	70.6		88.6	90.8		
	Tau-Fluvalinate	60.1		146	144		
	Tetramethrin	87.8		145	131		
	Trans-Nonachlor	72.0		83.5	79.6		
	Triclosan Methyl	73.0		65.0	62.9		
	Trifluralin	69.1		74.1	72.2		
EPA 8276	Chlordane	82.1		94.2	89.2		
	Toxaphene	89.3		103	97.7		
SM 2320 B-2011	Total Alkalinity	94.8					0.142
	Total Alkalinity	97.6					2.38
SM 2540 C-2015	TDS	101					3.19
SM 2540 D-2015	TSS	102					
SM 4500-F- C-2011	Fluoride	97.5					0.516
	Fluoride	97.4		100	100		0.0
SM 5310 B-2014	Organic Carbon	99.3		96.9	99.3		2.03

Reference Method Descriptions

Method	Description	Associated Samples
DEP SOP: NU-094-1	True Color measured at 450 nm (not valid for NPDES monitoring)	2476351, 2476353
EPA 180.1 Rev. 2.0	Turbidity in aqueous matrices	2476351, 2476353
EPA 200.7 Rev. 4.4	Total Recoverable Metals analysis using ICP emission spectroscopy for aqueous samples supporting Clean Water Act Projects	2476367
EPA 200.8 Rev. 5.4	Total Recoverable Metals analysis using ICP-MS for aqueous samples supporting Clean Water Act Projects	2476367
EPA 300.0 Rev. 2.1	Chloride in aqueous matrices	2476351, 2476353
EPA 300.0 Rev. 2.1	Sulfate in aqueous matrices	2476351, 2476353
EPA 350.1 Rev. 2.0	Ammonia in aqueous matrices as mg N/L	2476352, 2476354

Reference Method Descriptions

Method	Description	<u>Associated Samples</u>
EPA 351.2 Rev. 2.0	Total Kjeldahl Nitrogen in aqueous matrices	2476352, 2476354
EPA 353.2 Rev. 2.0	Nitrite/Nitrate in aqueous matrices as mg N/L	2476352, 2476354
EPA 365.1 Rev. 2.0	Total Phosphorus in aqueous matrices as mg P/L	2476352, 2476354
EPA 8270E	Organochlorine pesticides, pyrethroids and tracers in water matrices by GC/MS/MS	2476366
EPA 8270E	PCBs in water matrices by GC/MS/MS	2476366
EPA 8276	Chlordane and Toxaphene in water matrices by GC/MS with Negative Chemical Ionization	2476366
SM 2320 B-2011	Alkalinity in aqueous matrices as mg CaCO ₃ /L	2476351, 2476353
SM 2340 B-2011	Hardness by calculation, in aqueous matrices, reported as mg/L CaCO ₃	2476367
SM 2540 C-2015	Total Dissolved Solids in aqueous matrices	2476351, 2476353
SM 2540 D-2015	Total Suspended Solids in aqueous matrices using a maximum of 250 mL of sample	2476351, 2476353
SM 4500-F- C-2011	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	2476351, 2476353
SM 5310 B-2014	Nonpurgeable Organic Carbon in aqueous matrices	2476352, 2476354

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
DEP SOP: NU-094-1	03/19/2024			03/19/2024 14:48	Jessica K Wilks	2476351
	03/19/2024			03/19/2024 14:49	Jessica K Wilks	2476353
EPA 180.1 Rev. 2.0	03/19/2024			03/19/2024 13:50	Khloe J Berg	2476351
	03/19/2024			03/19/2024 13:51	Khloe J Berg	2476353
EPA 200.7 Rev. 4.4	03/19/2024	03/19/2024 12:05	George D Taylor	03/20/2024 20:01	Conrad Hartmann	2476367
EPA 200.8 Rev. 5.4	03/19/2024	03/19/2024 12:05	George D Taylor	03/20/2024 17:04	McKinley C Carter	2476367
EPA 300.0 Rev. 2.1	03/19/2024			03/27/2024 14:08	James L Waggeberby	2476351
	03/19/2024			03/27/2024 14:23	James L Waggeberby	2476353
EPA 350.1 Rev. 2.0	03/19/2024			03/22/2024 13:22	Ping Hua	2476352
	03/19/2024			03/22/2024 13:23	Ping Hua	2476354
EPA 351.2 Rev. 2.0	03/19/2024	03/20/2024 11:15	Robyn Blevins	03/21/2024 13:09	Robyn Blevins	2476352
	03/19/2024	03/20/2024 11:15	Robyn Blevins	03/21/2024 13:10	Robyn Blevins	2476354
EPA 353.2 Rev. 2.0	03/19/2024			03/22/2024 12:49	Fadila Guebre	2476352
	03/19/2024			03/22/2024 12:50	Fadila Guebre	2476354
EPA 365.1 Rev. 2.0	03/19/2024	03/22/2024 13:06	Josephine W Gitau	03/24/2024 14:17	James L Waggeberby	2476352
	03/19/2024	03/22/2024 13:06	Josephine W Gitau	03/24/2024 14:18	James L Waggeberby	2476354
EPA 8270E	03/19/2024	03/25/2024 08:00	Rasheda Ghaffari	03/28/2024 03:51	Kenedi Mills	2476366
	03/19/2024	03/25/2024 08:00	Rasheda Ghaffari	03/29/2024 03:25	Kenedi Mills	2476366
EPA 8276	03/19/2024	03/25/2024 08:00	Rasheda Ghaffari	03/28/2024 15:16	Arthur Maknenko	2476366
SM 2320 B-2011	03/19/2024			03/20/2024 21:17	Dale L. Simmons	2476351
	03/19/2024			03/21/2024 22:26	Adam P Silver	2476353
SM 2340 B-2011	03/19/2024			03/20/2024 20:01	Conrad Hartmann	2476367
SM 2540 C-2015	03/19/2024			03/22/2024 15:49	Yijie Li	2476351, 2476353
SM 2540 D-2015	03/19/2024			03/22/2024 15:49	Yijie Li	2476351, 2476353
SM 4500-F- C-2011	03/19/2024			03/20/2024 21:17	Dale L. Simmons	2476351
	03/19/2024			03/21/2024 22:26	Adam P Silver	2476353
SM 5310 B-2014	03/19/2024			03/22/2024 09:28	Jessica K Wilks	2476352
	03/19/2024			03/22/2024 09:43	Jessica K Wilks	2476354