

Chemical Analysis Report

SO-DIST-2024-02-08-01

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

Event Description: **2024 SMP : LaBella-Ella-Ella**
Request ID: **RQ-2024-02-05-38**
Customer: **SO-DIST**
Project ID: **SMP**

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FLDEP South District Office
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Certified by: Chris Bowen, Environmental Administrator

Date Certified: 04-MAR-2024 12:20



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: Caloosa above Bridge St

Collection Date/Time: 02/07/2024 08:45

Field ID: G3SD0178

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2467404	DEP SOP: NU-094-1	Color (true)	76	A	PCU	P441150	
	EPA 180.1 Rev. 2.0	Turbidity	4.3		NTU	P441144	
	EPA 300.0 Rev. 2.1	Chloride	49		mg Cl/L	P441881	
		Sulfate	20		mg SO4/L	P441846	
	SM 2320 B-2011	Total Alkalinity	110		mg CaCO3/L	P441619	
	SM 2540 C-2015	TDS	278		mg/L	P441653	
	SM 2540 D-2015	TSS	3	I	mg/L	P441543	
	SM 4500-F- C-2011	Fluoride	0.18		mg F/L	P441623	MS
2467408	EPA 350.1 Rev. 2.0	Ammonia-N	0.026		mg N/L	P441227	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.1		mg N/L	P441265	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.088		mg N/L	P441299	
	EPA 365.1 Rev. 2.0	Total-P	0.069		mg P/L	P441417	MS
	SM 5310 B-2014	Organic Carbon	17		mg C/L	P441427	

Ref. Method and Comment:
EPA 300.0 Rev. 2.1: Sulfate: Batch matrix spike recoveries for one of two spiked samples are unavailable because of high analyte concentration in the QC sample.
SM 2540 D-2015: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample.

Sample Location: Caloosahatchee River above S 78

Collection Date/Time: 02/07/2024 09:15

Field ID: G3SD0150

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2467405	DEP SOP: NU-094-1	Color (true)	140		PCU	P441150	
	EPA 180.1 Rev. 2.0	Turbidity	7.6		NTU	P441145	
	EPA 300.0 Rev. 2.1	Chloride	44	A	mg Cl/L	P441881	
		Sulfate	18		mg SO4/L	P441846	
	SM 2320 B-2011	Total Alkalinity	86		mg CaCO3/L	P441619	
	SM 2540 C-2015	TDS	225		mg/L	P441653	
	SM 2540 D-2015	TSS	9	I	mg/L	P441543	
	SM 4500-F- C-2011	Fluoride	0.15		mg F/L	P441623	MS
2467409	EPA 350.1 Rev. 2.0	Ammonia-N	0.050		mg N/L	P441227	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.2		mg N/L	P441265	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.077		mg N/L	P441299	
	EPA 365.1 Rev. 2.0	Total-P	0.10		mg P/L	P441417	MS
	SM 5310 B-2014	Organic Carbon	20		mg C/L	P441427	

Ref. Method and Comment:
 EPA 300.0 Rev. 2.1: Sulfate: Batch matrix spike recoveries for one of two spiked samples are unavailable because of high analyte concentration in the QC sample.
 SM 2540 D-2015: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample.

Sample Location: Cyress Branch at SR78

Collection Date/Time: 02/07/2024 10:00

Field ID: G3SD0223

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2467466	EPA 200.7 Rev. 4.4	Calcium	9.47		mg/L	P441235	
		Iron	1.05E+03		ug/L	P441235	
		Magnesium	2.47		mg/L	P441235	
		Potassium	0.77	I	mg/L	P441235	
		Sodium	11.8		mg/L	P441235	
		Strontium	35.6		ug/L	P441235	
		Tin	3.0	U	ug/L	P441235	
		Titanium	1.1	I	ug/L	P441235	
		Vanadium	2.0	U	ug/L	P441235	
		Zinc	5.0	U	ug/L	P441235	
	EPA 200.8 Rev. 5.4	Aluminum	196		ug/L	P441235	
		Antimony	0.050	U	ug/L	P441235	
		Arsenic	0.83		ug/L	P441235	
		Barium	6.42		ug/L	P441235	
		Beryllium	0.021	I	ug/L	P441235	
		Boron	17.1		ug/L	P441235	
		Cadmium	0.020	U	ug/L	P441235	
		Chromium	0.92	I	ug/L	P441235	
		Cobalt	0.144		ug/L	P441235	
		Copper	0.44	I	ug/L	P441235	
		Lead	0.31	I	ug/L	P441235	
		Manganese	7.06		ug/L	P441235	
		Molybdenum	0.15	U	ug/L	P441235	
		Nickel	0.50	U	ug/L	P441235	
		Selenium	0.20	U	ug/L	P441235	
		Silver	0.010	U	ug/L	P441235	
		Thallium	0.10	U	ug/L	P441235	
	SM 2340 B-2011	Hardness	33.8		mg/L	P441235	

Sample Location: Pollywog Creek at SR 78

Collection Date/Time: 02/07/2024 10:40

Field ID: G3SD0098

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2467467	EPA 200.7 Rev. 4.4	Calcium	12.3		mg/L	P441235	
		Iron	930		ug/L	P441235	
		Magnesium	3.68		mg/L	P441235	
		Potassium	1.4		mg/L	P441235	
		Sodium	17.1		mg/L	P441235	
		Strontium	199		ug/L	P441235	
		Tin	3.0	U	ug/L	P441235	
		Titanium	0.82	I	ug/L	P441235	
		Vanadium	2.0	U	ug/L	P441235	
		Zinc	5.0	U	ug/L	P441235	
	EPA 200.8 Rev. 5.4	Aluminum	161		ug/L	P441235	
		Antimony	0.050	U	ug/L	P441235	
		Arsenic	0.95		ug/L	P441235	
		Barium	9.52		ug/L	P441235	
		Beryllium	0.041		ug/L	P441235	
		Boron	22.3		ug/L	P441235	
		Cadmium	0.020	U	ug/L	P441235	
		Chromium	0.88	I	ug/L	P441235	
		Cobalt	0.192		ug/L	P441235	
		Copper	0.40	U	ug/L	P441235	
		Lead	0.20	U	ug/L	P441235	
		Manganese	7.22		ug/L	P441235	
		Molybdenum	0.15	I	ug/L	P441235	
		Nickel	0.63	I	ug/L	P441235	
		Selenium	0.20	U	ug/L	P441235	
		Silver	0.010	U	ug/L	P441235	
		Thallium	0.10	U	ug/L	P441235	
	SM 2340 B-2011	Hardness	45.8		mg/L	P441235	

Sample Location: Bee Branch at CR78

Collection Date/Time: 02/07/2024 10:55

Field ID: G3SD0226

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2467425	EPA 200.7 Rev. 4.4	Calcium	18.5		mg/L	P441235	
		Iron	800		ug/L	P441235	
		Magnesium	3.82		mg/L	P441235	
		Potassium	2.2		mg/L	P441235	
		Sodium	17.4		mg/L	P441235	
		Strontium	181		ug/L	P441235	
		Tin	3.0	U	ug/L	P441235	
		Titanium	1.0	I	ug/L	P441235	
		Vanadium	2.0	U	ug/L	P441235	
		Zinc	5.0	U	ug/L	P441235	
	EPA 200.8 Rev. 5.4	Aluminum	226		ug/L	P441235	
		Antimony	0.060	I	ug/L	P441235	
		Arsenic	0.79		ug/L	P441235	
		Barium	12.4		ug/L	P441235	
		Beryllium	0.030	I	ug/L	P441235	
		Boron	23.2		ug/L	P441235	
		Cadmium	0.020	U	ug/L	P441235	
		Chromium	0.93	I	ug/L	P441235	
		Cobalt	0.136		ug/L	P441235	
		Copper	0.69	I	ug/L	P441235	
		Lead	0.27	I	ug/L	P441235	
		Manganese	8.37		ug/L	P441235	
		Molybdenum	0.34	I	ug/L	P441235	
		Nickel	0.73	I	ug/L	P441235	
		Selenium	0.20	U	ug/L	P441235	
		Silver	0.010	U	ug/L	P441235	
		Thallium	0.10	U	ug/L	P441235	
	SM 2340 B-2011	Hardness	62.0		mg/L	P441235	
2467465	EPA 8270E	Aldrin	0.67	U	ng/L	P441041	
		Alpha-BHC	0.10	U	ng/L	P441041	
		Alpha-Chlordane	0.21	U	ng/L	P441041	
		PCB-1016	2.1	U	ng/L	P441041	
		Beta-BHC	0.10	U	ng/L	P441041	
		PCB-1221	2.1	U	ng/L	P441041	
		Beta-Cyfluthrin	1.3	U	ng/L	P441041	
		PCB-1232	2.1	U	ng/L	P441041	
		Bifenthrin	0.52	U	ng/L	P441041	
		PCB-1242	2.1	U	ng/L	P441041	
		PCB-1248	2.1	U	ng/L	P441041	
		Chlorothalonil	3.7	U	ng/L	P441041	
		PCB-1254	2.1	U	ng/L	P441041	
		Cis-Nonachlor	0.21	U	ng/L	P441041	
		PCB-1260	2.1	U	ng/L	P441041	
		Cypermethrin	1.6	U	ng/L	P441041	

Field ID: G3SD0226

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2467465	EPA 8270E	Dacthal	0.16	U	ng/L	P441041	
		DDD-p,p'	0.26	U	ng/L	P441041	
		DDE-p,p'	0.21	U	ng/L	P441041	
		DDT-p,p'	0.83	U	ng/L	P441041	
		Delta-BHC	0.41	U	ng/L	P441041	
		Deltamethrin	1.3	U	ng/L	P441041	
		Dichlobenil	0.26	U	ng/L	P441041	
		Dicofol	1.3	UJ	ng/L	P441041	CCV
		Dieldrin	0.41	U	ng/L	P441041	
		Endosulfan I	0.41	UJ	ng/L	P441041	LCS, MS
		Endosulfan II	0.93	U	ng/L	P441041	
		Endosulfan Sulfate	0.31	U	ng/L	P441041	
		Endrin	0.93	U	ng/L	P441041	
		Endrin Aldehyde	0.78	U	ng/L	P441041	
		Endrin Ketone	0.41	U	ng/L	P441041	MS
		Esfenvalerate	0.78	U	ng/L	P441041	
		Ethalfuralin	0.16	U	ng/L	P441041	
		Fenpropathrin	0.26	U	ng/L	P441041	
		Gamma-BHC	0.13	UJ	ng/L	P441041	LCS
		Gamma-Chlordane	0.21	U	ng/L	P441041	MS
		Heptachlor	0.21	U	ng/L	P441041	
		Heptachlor Epoxide	0.26	UJ	ng/L	P441041	LCS, MS
		Hexachlorobenzene**	1.0	U	ng/L	P441041	
		Kepone	14	U	ng/L	P441041	
		Lambda-Cyhalothrin	0.78	U	ng/L	P441041	
		Methoprene	0.78	U	ng/L	P441041	
		Methoxychlor	0.31	U	ng/L	P441041	
		MGK-264	0.21	U	ng/L	P441041	
		Mirex	0.36	U	ng/L	P441041	
		Oxychlordane	0.31	UJ	ng/L	P441041	LCS, MS
		Permethrin	1.7	U	ng/L	P441041	
		Phenothrin	0.93	U	ng/L	P441041	
		Piperonyl Butoxide	0.16	U	ng/L	P441041	
		Prallethrin	2.1	U	ng/L	P441041	
		Tau-Fluvalinate	0.26	U	ng/L	P441041	
		Tetramethrin	0.78	U	ng/L	P441041	
		Trans-Nonachlor	0.21	U	ng/L	P441041	
		Triclosan Methyl	0.16	U	ng/L	P441041	MS
		Trifluralin	0.21	U	ng/L	P441041	
	EPA 8276	Chlordane	2.1	U	ng/L	P441041	
		Toxaphene	16	U	ng/L	P441041	

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: DEP SOP: NU-094-1
Batch ID: P441150

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P441144

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P441145

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P441235

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: P441235

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

Quality Assurance Report Method Blank Results

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P441846

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P441881

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P441227

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P441265

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P441299

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P441417

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

Reference Method: EPA 8270E
Batch ID: P441041

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

Quality Assurance Report

Method Blank Results

Reference Method: EPA 8270E

Batch ID: P441041

Component	Result	Code	Units
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
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: P441041

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

Reference Method: SM 2320 B-2011

Batch ID: P441619

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: P441653

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-2015
Batch ID: P441543

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500-F- C-2011
Batch ID: P441623

Component	Result	Code	Units
Fluoride	0.025	U	mg F/L

Reference Method: SM 5310 B-2014
Batch ID: P441427

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: P441150

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Color (true)	97.7		P	90 - 110

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P441144

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

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P441145

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

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P441235

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Calcium	109		P	85 - 115
Iron	114		P	85 - 115
Magnesium	108		P	85 - 115
Potassium	102		P	85 - 115
Sodium	104		P	85 - 115
Strontium	97.1		P	85 - 115
Tin	97.4		P	85 - 115
Titanium	103		P	85 - 115
Vanadium	101		P	85 - 115
Zinc	96.7		P	85 - 115

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P441235

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Aluminum	101		P	85 - 115
Antimony	100		P	85 - 115
Arsenic	103		P	85 - 115
Barium	101		P	85 - 115
Beryllium	97.2		P	85 - 115
Boron	105		P	85 - 115
Cadmium	99.4		P	85 - 115
Chromium	104		P	85 - 115
Cobalt	102		P	85 - 115
Copper	102		P	85 - 115
Lead	95.8		P	85 - 115
Manganese	103		P	85 - 115
Molybdenum	99.5		P	85 - 115
Nickel	102		P	85 - 115
Selenium	104		P	85 - 115
Silver	104		P	85 - 115
Thallium	101		P	85 - 115

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P441846

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P441881

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P441227

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P441265

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P441299

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P441417

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

Reference Method: EPA 8270E
Batch ID: P441041

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Aldrin	86.3		P	30 - 96.0
Alpha-BHC	95.8		P	70 - 109
Alpha-Chlordane	76.0		P	45 - 107
Beta-BHC	125		P	64 - 138
Beta-Cyfluthrin	54.7		P	17 - 141
Bifenthrin	49.9		P	10 - 113
Chlorothalonil	77.1		P	26 - 180
Cis-Nonachlor	78.6		P	37 - 102
Cypermethrin	41.1		P	20 - 133
Dacthal	83.6		P	69 - 114
DDD-p,p'	64.2		P	42 - 105
DDE-p,p'	75.3		P	42 - 106
DDT-p,p'	77.4		P	42 - 107
Delta-BHC	95.7		P	67 - 144
Deltamethrin	61.9		P	15 - 149
Dichlobenil	47.9		P	46 - 117

Quality Assurance Report

Laboratory Control Sample Accuracy

Reference Method: EPA 8270E

Batch ID: P441041

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Dicofol	50.7		P	34 - 114
Dieldrin	78.2		P	50 - 108
Endosulfan I	113		F	55 - 104
Endosulfan II	102		P	51 - 111
Endosulfan Sulfate	89.9		P	56 - 121
Endrin	87.5		P	10 - 106
Endrin Aldehyde	51.7		P	34 - 114
Endrin Ketone	153		P	63 - 177
Esfenvalerate	55.2		P	29 - 143
Ethalfuralin	78.8		P	46 - 96.0
Fenpropathrin	61.2		P	28 - 115
Gamma-BHC	49.4		F	65 - 121
Gamma-Chlordane	93.2		P	39 - 103
Heptachlor	71.2		P	39 - 94.0
Heptachlor Epoxide	111		F	54 - 104
Hexachlorobenzene	54.6		P	36 - 100
Kepone	112		P	10 - 225
Lambda-Cyhalothrin	54.8		P	10 - 135
Methoprene	45.1		P	10 - 109
Methoxychlor	81.2		P	52 - 112
MGK-264	73.0		P	44 - 117
Mirex	62.6		P	20 - 90.0
Oxychlordane	105		F	44 - 102
PCB-1016	83.3		P	45 - 107
PCB-1260	80.2		P	40 - 118
Permethrin	55.8		P	18 - 135
Phenothrin	43.4		P	10 - 102
Piperonyl Butoxide	70.2		P	28 - 156
Prallethrin	72.2		P	28 - 113
Tau-Fluvalinate	42.2		P	10 - 123
Tetramethrin	58.9		P	18 - 158
Trans-Nonachlor	80.0		P	39 - 104
Triclosan Methyl	102		P	54 - 108
Trifluralin	83.4		P	46 - 97.0

Reference Method: EPA 8276

Batch ID: P441041

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Chlordane	92.2		P	52 - 117
Toxaphene	93.1		P	44 - 125

Reference Method: SM 2320 B-2011

Batch ID: P441619

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	95.7		P	92 - 105

Reference Method: SM 2540 C-2015

Batch ID: P441653

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

Reference Method: SM 2540 C-2015
Batch ID: P441653

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
TDS	95.6		P	85 - 115

Reference Method: SM 2540 D-2015
Batch ID: P441543

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
TSS	108		P	85 - 115

Reference Method: SM 4500-F- C-2011
Batch ID: P441623

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	104		P	94 - 106

Reference Method: SM 5310 B-2014
Batch ID: P441427

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	97.2		P	85 - 115

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P441235

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2467221	Calcium	106		P	80 - 120
2467221	Iron	114	113	P/P	80 - 120
2467221	Magnesium	106		P	80 - 120
2467221	Potassium	102		P	80 - 120
2467221	Sodium	103		P	80 - 120
2467221	Strontium	95.0	94.4	P/P	80 - 120
2467221	Tin	94.0	93.1	P/P	80 - 120
2467221	Titanium	102	99.1	P/P	80 - 120
2467221	Vanadium	101	99.6	P/P	80 - 120
2467221	Zinc	94.2	93.4	P/P	80 - 120
2467412	Calcium	109		P	80 - 120
2467412	Iron	114		P	80 - 120
2467412	Magnesium	113		P	80 - 120
2467412	Potassium	101		P	80 - 120
2467412	Sodium	104		P	80 - 120
2467412	Strontium	95.8		P	80 - 120
2467412	Tin	94.8		P	80 - 120
2467412	Titanium	99.3		P	80 - 120
2467412	Vanadium	102		P	80 - 120
2467412	Zinc	97.6		P	80 - 120

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P441235

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2467221	Aluminum	100	102	P/P	80 - 120
2467221	Antimony	104	102	P/P	80 - 120
2467221	Arsenic	104	105	P/P	80 - 120
2467221	Barium	104	102	P/P	80 - 120
2467221	Beryllium	97.5	97.8	P/P	80 - 120
2467221	Boron	103	105	P/P	80 - 120
2467221	Cadmium	102	102	P/P	80 - 120
2467221	Chromium	105	104	P/P	80 - 120
2467221	Cobalt	102	103	P/P	80 - 120
2467221	Copper	102	102	P/P	80 - 120
2467221	Lead	96.9	96.9	P/P	80 - 120
2467221	Manganese	104	105	P/P	80 - 120
2467221	Molybdenum	102	103	P/P	80 - 120
2467221	Nickel	103	104	P/P	80 - 120
2467221	Selenium	103	104	P/P	80 - 120
2467221	Silver	103	102	P/P	80 - 120
2467221	Thallium	104	104	P/P	80 - 120
2467412	Aluminum	102		P	80 - 120
2467412	Antimony	102		P	80 - 120
2467412	Arsenic	102		P	80 - 120
2467412	Barium	102		P	80 - 120
2467412	Beryllium	97.4		P	80 - 120
2467412	Boron	104		P	80 - 120
2467412	Cadmium	103		P	80 - 120
2467412	Chromium	104		P	80 - 120
2467412	Cobalt	102		P	80 - 120
2467412	Copper	101		P	80 - 120

Quality Assurance Report

Matrix Spike Accuracy

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P441235

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2467412	Lead	98.1		P	80 - 120
2467412	Manganese	104		P	80 - 120
2467412	Molybdenum	101		P	80 - 120
2467412	Nickel	103		P	80 - 120
2467412	Selenium	103		P	80 - 120
2467412	Silver	104		P	80 - 120
2467412	Thallium	104		P	80 - 120

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P441846

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2467588	Sulfate	108		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P441881

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2467405	Chloride	93.7		P	90 - 110
2467544	Chloride	95.4		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P441227

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2467253	Ammonia-N	96.0	96.2	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P441265

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2467408	Kjeldahl Nitrogen	99.9	103	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P441299

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2467187	NO2NO3-N	101	102	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P441417

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2467545	Total-P	107	113	P/F	90 - 110

Reference Method: EPA 8270E
Batch ID: P441041

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2466705	Aldrin	71.9	67.0	P/P	24 - 81.0
2466705	Alpha-BHC	96.3	85.2	P/P	65 - 110
2466705	Alpha-Chlordane	70.2	53.6	P/P	43 - 119

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 8270E
Batch ID: P441041

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2466705	Beta-BHC	97.2	99.8	P/P	54 - 165
2466705	Beta-Cyfluthrin	88.8	84.7	P/P	27 - 165
2466705	Bifenthrin	75.9	62.8	P/P	17 - 117
2466705	Chlorothalonil	106	91.0	P/P	10 - 255
2466705	Cis-Nonachlor	64.6	59.8	P/P	34 - 98.0
2466705	Cypermethrin	79.7	73.5	P/P	25 - 143
2466705	Dacthal	73.7	70.9	P/P	55 - 139
2466705	DDD-p,p'	55.6	49.4	P/P	30 - 109
2466705	DDE-p,p'	66.1	60.1	P/P	35 - 106
2466705	DDT-p,p'	77.2	64.0	P/P	41 - 101
2466705	Delta-BHC	97.7	99.4	P/P	58 - 165
2466705	Deltamethrin	113	97.7	P/P	10 - 194
2466705	Dichlobenil	23.1	22.9	P/P	22 - 114
2466705	Dicofol	58.1	48.7	P/P	17 - 133
2466705	Dieldrin	66.7	64.5	P/P	45 - 129
2466705	Endosulfan I	155	146	F/F	49 - 104
2466705	Endosulfan II	90.2	88.1	P/P	37 - 117
2466705	Endosulfan Sulfate	71.0	69.4	P/P	38 - 128
2466705	Endrin	75.8	71.9	P/P	35 - 116
2466705	Endrin Aldehyde	23.8	25.3	P/P	19 - 108
2466705	Endrin Ketone	203	177	F/F	44 - 134
2466705	Esfenvalerate	96.0	87.0	P/P	27 - 176
2466705	Ethalfuralin	69.5	65.2	P/P	49 - 100
2466705	Fenpropathrin	78.7	71.1	P/P	34 - 117
2466705	Gamma-BHC	68.3	69.7	P/P	59 - 129
2466705	Gamma-Chlordane	132	95.7	F/P	33 - 107
2466705	Heptachlor	78.1	67.8	P/P	37 - 94.0
2466705	Heptachlor Epoxide	152	126	F/F	38 - 118
2466705	Hexachlorobenzene	41.6	42.4	P/P	35 - 97.0
2466705	Kepone	57.0	56.5	P/P	10 - 221
2466705	Lambda-Cyhalothrin	82.3	77.4	P/P	23 - 190
2466705	Methoprene	78.5	64.2	P/P	21 - 109
2466705	Methoxychlor	97.2	86.5	P/P	46 - 118
2466705	MGK-264	72.3	65.2	P/P	39 - 122
2466705	Mirex	58.8	47.4	P/P	25 - 90.0
2466705	Oxychlordane	163	136	F/F	42 - 100
2466705	Permethrin	87.2	76.5	P/P	33 - 181
2466705	Phenothrin	80.5	67.8	P/P	12 - 125
2466705	Piperonyl Butoxide	92.1	74.4	P/P	10 - 178
2466705	Prallethrin	77.6	65.3	P/P	24 - 122
2466705	Tau-Fluvalinate	73.0	65.9	P/P	13 - 151
2466705	Tetramethrin	101	90.8	P/P	16 - 172
2466705	Trans-Nonachlor	67.6	61.2	P/P	39 - 100
2466705	Triclosan Methyl	129	107	F/P	43 - 110
2466705	Trifluralin	81.4	69.8	P/P	45 - 94.0
2467402	PCB-1016	82.7	83.1	P/P	45 - 107
2467402	PCB-1260	60.0	59.7	P/P	40 - 112

Reference Method: EPA 8276
Batch ID: P441041

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

Reference Method: EPA 8276
Batch ID: P441041

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2467402	Chlordane	77.8	93.4	P/P	43 - 123
2467402	Toxaphene	77.4	92.7	P/P	27 - 156

Reference Method: SM 4500-F- C-2011
Batch ID: P441623

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2467031	Fluoride	107	107	F/F	94 - 106

Reference Method: SM 5310 B-2014
Batch ID: P441427

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2467408	Organic Carbon	99.2	101	P/P	85 - 115

Quality Assurance Report Precision

Reference Method: DEP SOP: NU-094-1
Batch ID: P441150

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2467404	Color (true)	4.42	Sample	P	0 - 20

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P441144

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2467030	Turbidity	3.19	Sample	P	0 - 20

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P441145

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2467544	Turbidity	6.78	Sample	P	0 - 20

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P441235

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2467221	Calcium	0.0995	Spike	P	0 - 20
2467221	Iron	0.788	Spike	P	0 - 20
2467221	Magnesium	0.136	Spike	P	0 - 20
2467221	Potassium	0.0867	Spike	P	0 - 20
2467221	Sodium	0.0566	Spike	P	0 - 20
2467221	Strontium	0.606	Spike	P	0 - 20
2467221	Tin	1.01	Spike	P	0 - 20
2467221	Titanium	2.99	Spike	P	0 - 20
2467221	Vanadium	0.921	Spike	P	0 - 20
2467221	Zinc	0.762	Spike	P	0 - 20

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P441235

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2467221	Aluminum	1.57	Spike	P	0 - 20
2467221	Antimony	1.25	Spike	P	0 - 20
2467221	Arsenic	0.526	Spike	P	0 - 20
2467221	Barium	1.45	Spike	P	0 - 20
2467221	Beryllium	0.325	Spike	P	0 - 20
2467221	Boron	1.43	Spike	P	0 - 20
2467221	Cadmium	0.132	Spike	P	0 - 20
2467221	Chromium	1.02	Spike	P	0 - 20
2467221	Cobalt	0.183	Spike	P	0 - 20
2467221	Copper	0.220	Spike	P	0 - 20
2467221	Lead	0.00103	Spike	P	0 - 20
2467221	Manganese	0.384	Spike	P	0 - 20
2467221	Molybdenum	0.972	Spike	P	0 - 20
2467221	Nickel	0.816	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P441235

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2467221	Selenium	0.532	Spike	P	0 - 20
2467221	Silver	1.08	Spike	P	0 - 20
2467221	Thallium	0.0100	Spike	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P441846

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2467201	Sulfate	3.45	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P441881

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2467405	Chloride	3.03	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P441227

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2467253	Ammonia-N	0.190	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P441265

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2467408	Kjeldahl Nitrogen	1.72	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P441299

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2467187	NO2NO3-N	0.755	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P441417

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2467545	Total-P	5.07	Spike	P	0 - 20

Reference Method: EPA 8270E
Batch ID: P441041

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
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Quality Assurance Report Precision

Reference Method: EPA 8270E
Batch ID: P441041

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2466705	Aldrin	6.94	Spike	P	0 - 41
2466705	Alpha-BHC	12.3	Spike	P	0 - 25
2466705	Alpha-Chlordane	23.9	Spike	P	0 - 32
2466705	Beta-BHC	2.64	Spike	P	0 - 33
2466705	Beta-Cyfluthrin	4.77	Spike	P	0 - 43
2466705	Bifenthrin	18.8	Spike	P	0 - 52
2466705	Chlorothalonil	14.9	Spike	P	0 - 82
2466705	Cis-Nonachlor	7.66	Spike	P	0 - 33
2466705	Cypermethrin	8.11	Spike	P	0 - 51
2466705	Dacthal	3.96	Spike	P	0 - 27
2466705	DDD-p,p'	11.7	Spike	P	0 - 39
2466705	DDE-p,p'	9.51	Spike	P	0 - 31
2466705	DDT-p,p'	18.7	Spike	P	0 - 29
2466705	Delta-BHC	1.60	Spike	P	0 - 35
2466705	Deltamethrin	14.5	Spike	P	0 - 100
2466705	Dichlobenil	0.720	Spike	P	0 - 40
2466705	Dicofol	17.6	Spike	P	0 - 37
2466705	Dieldrin	3.43	Spike	P	0 - 27
2466705	Endosulfan I	6.04	Spike	P	0 - 23
2466705	Endosulfan II	2.44	Spike	P	0 - 34
2466705	Endosulfan Sulfate	2.26	Spike	P	0 - 36
2466705	Endrin	5.36	Spike	P	0 - 45
2466705	Endrin Aldehyde	6.03	Spike	P	0 - 76
2466705	Endrin Ketone	13.4	Spike	P	0 - 43
2466705	Esfenvalerate	9.77	Spike	P	0 - 51
2466705	Ethalfuralin	6.39	Spike	P	0 - 22
2466705	Fenpropathrin	10.2	Spike	P	0 - 49
2466705	Gamma-BHC	2.01	Spike	P	0 - 28
2466705	Gamma-Chlordane	28.8	Spike	P	0 - 40
2466705	Heptachlor	14.1	Spike	P	0 - 29
2466705	Heptachlor Epoxide	18.0	Spike	P	0 - 33
2466705	Hexachlorobenzene	1.88	Spike	P	0 - 36
2466705	Kepone	0.919	Spike	P	0 - 85
2466705	Lambda-Cyhalothrin	6.17	Spike	P	0 - 55
2466705	Methoprene	20.0	Spike	P	0 - 53
2466705	Methoxychlor	11.6	Spike	P	0 - 50
2466705	MGK-264	10.4	Spike	P	0 - 43
2466705	Mirex	21.6	Spike	P	0 - 40
2466705	Oxychlordane	17.7	Spike	P	0 - 31
2466705	Permethrin	13.1	Spike	P	0 - 50
2466705	Phenothrin	17.1	Spike	P	0 - 58
2466705	Piperonyl Butoxide	21.3	Spike	P	0 - 100
2466705	Prallethrin	17.1	Spike	P	0 - 39
2466705	Tau-Fluvalinate	10.3	Spike	P	0 - 54
2466705	Tetramethrin	10.7	Spike	P	0 - 51
2466705	Trans-Nonachlor	9.99	Spike	P	0 - 39
2466705	Triclosan Methyl	19.0	Spike	P	0 - 31
2466705	Trifluralin	15.3	Spike	P	0 - 22
2467402	PCB-1016	0.493	Spike	P	0 - 25
2467402	PCB-1260	0.489	Spike	P	0 - 30

Quality Assurance Report Precision

Reference Method: EPA 8276
Batch ID: P441041

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2467402	Chlordane	18.3	Spike	P	0 - 28
2467402	Toxaphene	18.0	Spike	P	0 - 27

Reference Method: SM 2320 B-2011
Batch ID: P441619

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2467031	Total Alkalinity	0.591	Sample	P	0 - 3.9

Reference Method: SM 2540 C-2015
Batch ID: P441653

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2467032	TDS	7.14	Sample	P	0 - 10

Reference Method: SM 4500-F- C-2011
Batch ID: P441623

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2467031	Fluoride	0.0	Spike	P	0 - 1.9

Reference Method: SM 5310 B-2014
Batch ID: P441427

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2467408	Organic Carbon	1.59	Spike	P	0 - 15

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

Quality Assurance Report
Surrogates

Lab Sample ID: 2467465
Field Sample ID: G3SD0226

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8270E	Decachlorobiphenyl	80.7	P	37 - 129
EPA 8270E	Decachlorobiphenyl	98.5	P	26 - 115
EPA 8270E	Tetrachloro-m-xylene	66.1	P	30 - 101
EPA 8270E	Tetrachloro-m-xylene	39.3	P	29 - 95.0
EPA 8276	Decachlorobiphenyl	42.3	P	23 - 110
EPA 8276	PCNB	101	P	51 - 130

Quality Assurance Report Calibration Verification

Reference Method: EPA 180.1 Rev. 2.0

Run ID: A124064

Included Lab Sample IDs: 2467404, 2467405

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Turbidity	99.0	99.5	P/P	95 - 105
Turbidity	99.5	99.5	P/P	95 - 105

Reference Method: DEP SOP: NU-094-1

Run ID: A124066

Included Lab Sample IDs: 2467404, 2467405

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	97.2	99.0	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A124088

Included Lab Sample IDs: 2467408, 2467409

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	96.0	98.5	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A124114

Included Lab Sample IDs: 2467408, 2467409

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

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A124128

Included Lab Sample IDs: 2467408, 2467409

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	103	98.9	P/P	90 - 110
Kjeldahl Nitrogen	98.9	108	P/P	90 - 110

Reference Method: EPA 200.8 Rev. 5.4

Run ID: A124149

Included Lab Sample IDs: 2467425, 2467466, 2467467

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Aluminum	101	99.3	P/P	90 - 110
Antimony	99.4	99.6	P/P	90 - 110
Arsenic	99.7	99.2	P/P	90 - 110
Barium	100	100	P/P	90 - 110
Beryllium	99.1	98.6	P/P	90 - 110
Boron	101	99.8	P/P	90 - 110
Cadmium	97.9	98.5	P/P	90 - 110
Chromium	98.3	98.0	P/P	90 - 110
Cobalt	98.0	97.1	P/P	90 - 110
Copper	99.2	98.0	P/P	90 - 110
Lead	95.0	94.9	P/P	90 - 110
Manganese	98.5	98.1	P/P	90 - 110
Molybdenum	99.7	100	P/P	90 - 110
Nickel	98.7	97.1	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: EPA 200.8 Rev. 5.4

Run ID: A124149

Included Lab Sample IDs: 2467425, 2467466, 2467467

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Selenium	99.7	99.3	P/P	90 - 110
Silver	99.5	100	P/P	90 - 110
Thallium	99.8	100	P/P	90 - 110

Reference Method: SM 5310 B-2014

Run ID: A124169

Included Lab Sample IDs: 2467408, 2467409

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	114	98.8	P/P	70 - 130

Reference Method: EPA 200.7 Rev. 4.4

Run ID: A124178

Included Lab Sample IDs: 2467425, 2467466, 2467467

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Calcium	107	109	P/P	90 - 110
Iron	106	109	P/P	90 - 110
Magnesium	105	108	P/P	90 - 110
Potassium	102	104	P/P	90 - 110
Sodium	102	107	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A124192

Included Lab Sample IDs: 2467408, 2467409

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

Reference Method: SM 2320 B-2011

Run ID: A124236

Included Lab Sample IDs: 2467404, 2467405

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	98.3	95.4	P/P	90 - 110

Reference Method: SM 4500-F- C-2011

Run ID: A124236

Included Lab Sample IDs: 2467404, 2467405

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

Reference Method: EPA 8276

Run ID: A124262

Included Lab Sample IDs: 2467465

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chlordane	91.9		P	80 - 120
Toxaphene	82.7		P	80 - 120

Quality Assurance Report Calibration Verification

Reference Method: EPA 200.7 Rev. 4.4

Run ID: A124304

Included Lab Sample IDs: 2467425, 2467466, 2467467

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Tin	95.5	94.9	P/P	90 - 110
Titanium	98.7	98.3	P/P	90 - 110
Vanadium	97.5	97.8	P/P	90 - 110
Zinc	93.0	92.3	P/P	90 - 110

Reference Method: EPA 8270E

Run ID: A124311

Included Lab Sample IDs: 2467465

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
PCB-1016	96.6		P	80 - 120
PCB-1260	90.0		P	80 - 120

Reference Method: EPA 300.0 Rev. 2.1

Run ID: A124344

Included Lab Sample IDs: 2467404, 2467405

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	105	105	P/P	90 - 110
Chloride	105	105	P/P	90 - 110
Sulfate	106	105	P/P	90 - 110

Reference Method: EPA 200.7 Rev. 4.4

Run ID: A124353

Included Lab Sample IDs: 2467425, 2467466, 2467467

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

Reference Method: EPA 8270E

Run ID: A124457

Included Lab Sample IDs: 2467465

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Aldrin	108		P	80 - 120
Alpha-BHC	108		P	80 - 120
Alpha-Chlordane	114		P	80 - 120
Beta-BHC	102		P	80 - 120
Beta-Cyfluthrin	96.7		P	80 - 120
Bifenthrin	94.2		P	80 - 120
Chlorothalonil	104		P	80 - 120
Cis-Nonachlor	111		P	80 - 120
Cypermethrin	96.3		P	80 - 120
Dacthal	111		P	80 - 120
DDD-p,p'	106		P	80 - 120
DDE-p,p'	107		P	80 - 120
DDT-p,p'	101		P	80 - 120
Delta-BHC	108		P	80 - 120
Deltamethrin	94.8		P	80 - 120
Dichlobenil	101		P	80 - 120
Dicofol	78.8*		F	80 - 120

Quality Assurance Report Calibration Verification

Reference Method: EPA 8270E
Run ID: A124457
Included Lab Sample IDs: 2467465

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Dieldrin	99.0		P	80 - 120
Endosulfan I	101		P	80 - 120
Endosulfan II	107		P	80 - 120
Endosulfan Sulfate	104		P	80 - 120
Endrin	102		P	80 - 120
Endrin Aldehyde	99.6		P	80 - 120
Endrin Ketone	102		P	80 - 120
Esfenvalerate	96.9		P	80 - 120
Ethalfuralin	92.4		P	80 - 120
Fenpropathrin	89.3		P	80 - 120
Gamma-BHC	90.8		P	80 - 120
Gamma-Chlordane	90.6		P	80 - 120
Heptachlor	87.9		P	80 - 120
Heptachlor Epoxide	106		P	80 - 120
Hexachlorobenzene	107		P	80 - 120
Kepone	104		P	80 - 120
Lambda-Cyhalothrin	96.8		P	80 - 120
Methoprene	104		P	80 - 120
Methoxychlor	101		P	80 - 120
MGK-264	102		P	80 - 120
Mirex	103		P	80 - 120
Oxychlordane	101		P	80 - 120
Permethrin	101		P	80 - 120
Phenothrin	88.4		P	80 - 120
Piperonyl Butoxide	93.9		P	80 - 120
Prallethrin	105		P	80 - 120
Tau-Fluvalinate	87.8		P	80 - 120
Tetramethrin	96.3		P	80 - 120
Trans-Nonachlor	113		P	80 - 120
Triclosan Methyl	89.4		P	80 - 120
Trifluralin	94.5		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)	97.7				4.42	
EPA 180.1 Rev. 2.0	Turbidity	102				3.19	
	Turbidity	103				6.78	
EPA 200.7 Rev. 4.4	Calcium	109	106	109			0.0995
	Iron	114	114	113	114		0.788
	Magnesium	108	106	113			0.136
	Potassium	102	102	101			0.0867
	Sodium	104	103	104			0.0566
	Strontium	97.1	95.0	94.4	95.8		0.606
	Tin	97.4	94.0	93.1	94.8		1.01
	Titanium	103	102	99.1	99.3		2.99
	Vanadium	101	101	99.6	102		0.921
	Zinc	96.7	94.2	93.4	97.6		0.762
EPA 200.8 Rev. 5.4	Aluminum	101	100	102	102		1.57
	Antimony	100	104	102	102		1.25
	Arsenic	103	104	105	102		0.526
	Barium	101	104	102	102		1.45
	Beryllium	97.2	97.5	97.8	97.4		0.325
	Boron	105	103	105	104		1.43
	Cadmium	99.4	102	102	103		0.132
	Chromium	104	105	104	104		1.02
	Cobalt	102	102	103	102		0.183
	Copper	102	102	102	101		0.220
	Lead	95.8	96.9	96.9	98.1		0.0010
	Manganese	103	104	105	104		0.384
	Molybdenum	99.5	101	102	103		0.972
	Nickel	102	103	104	103		0.816
	Selenium	104	103	104	103		0.532
	Silver	104	103	102	104		1.08
	Thallium	101	104	104	104		0.0100
EPA 300.0 Rev. 2.1	Chloride	108	93.7	95.4		3.03	
	Sulfate	110	108			3.45	
EPA 350.1 Rev. 2.0	Ammonia-N	94.8	96.0	96.2			0.190
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	100	99.9	103			1.72
EPA 353.2 Rev. 2.0	NO2NO3-N	102	101	102			0.755
EPA 365.1 Rev. 2.0	Total-P	106	107	113			5.07
EPA 8270E	Aldrin	86.3	71.9	67.0			6.94
	Alpha-BHC	95.8	96.3	85.2			12.3
	Alpha-Chlordane	76.0	70.2	53.6			23.9
	Beta-BHC	125	97.2	99.8			2.64
	Beta-Cyfluthrin	54.7	88.8	84.7			4.77
	Bifenthrin	49.9	75.9	62.8			18.8
	Chlorothalonil	77.1	106	91.0			14.9
	Cis-Nonachlor	78.6	64.6	59.8			7.66
	Cypermethrin	41.1	79.7	73.5			8.11
	Dacthal	83.6	73.7	70.9			3.96
	DDD-p,p'	64.2	55.6	49.4			11.7
	DDE-p,p'	75.3	66.1	60.1			9.51
	DDT-p,p'	77.4	77.2	64.0			18.7
	Delta-BHC	95.7	97.7	99.4			1.60
	Deltamethrin	61.9	113	97.7			14.5
	Dichlobenil	47.9	23.1	22.9			0.720
	Dicofol	50.7	58.1	48.7			17.6
	Dieldrin	78.2	66.7	64.5			3.43

Quality Assurance Report Summary

Ref. Method	Analyte	LCS % Recovery	MS % Recovery		Precision	
			LCS	SMP	MS	
EPA 8270E	Endosulfan I	113	155	146		6.04
	Endosulfan II	102	90.2	88.1		2.44
	Endosulfan Sulfate	89.9	71.0	69.4		2.26
	Endrin	87.5	75.8	71.9		5.36
	Endrin Aldehyde	51.7	23.8	25.3		6.03
	Endrin Ketone	153	203	177		13.4
	Esfenvalerate	55.2	96.0	87.0		9.77
	Ethalfuralin	78.8	69.5	65.2		6.39
	Fenpropathrin	61.2	78.7	71.1		10.2
	Gamma-BHC	49.4	68.3	69.7		2.01
	Gamma-Chlordane	93.2	132	95.7		28.8
	Heptachlor	71.2	78.1	67.8		14.1
	Heptachlor Epoxide	111	152	126		18.0
	Hexachlorobenzene	54.6	41.6	42.4		1.88
	Kepone	112	57.0	56.5		0.919
	Lambda-Cyhalothrin	54.8	82.3	77.4		6.17
	Methoprene	45.1	78.5	64.2		20.0
	Methoxychlor	81.2	97.2	86.5		11.6
	MGK-264	73.0	72.3	65.2		10.4
	Mirex	62.6	58.8	47.4		21.6
	Oxychlordane	105	163	136		17.7
	PCB-1016	83.3	82.7	83.1		0.493
	PCB-1260	80.2	60.0	59.7		0.489
	Permethrin	55.8	87.2	76.5		13.1
	Phenothrin	43.4	80.5	67.8		17.1
	Piperonyl Butoxide	70.2	92.1	74.4		21.3
	Prallethrin	72.2	77.6	65.3		17.1
	Tau-Fluvalinate	42.2	73.0	65.9		10.3
	Tetramethrin	58.9	101	90.8		10.7
	Trans-Nonachlor	80.0	67.6	61.2		9.99
	Triclosan Methyl	102	129	107		19.0
	Trifluralin	83.4	81.4	69.8		15.3
EPA 8276	Chlordane	92.2	77.8	93.4		18.3
	Toxaphene	93.1	77.4	92.7		18.0
SM 2320 B-2011	Total Alkalinity	95.7			0.591	
SM 2540 C-2015	TDS	95.6			7.14	
SM 2540 D-2015	TSS	108				
SM 4500-F- C-2011	Fluoride	104	107	107		0.0
SM 5310 B-2014	Organic Carbon	97.2	99.2	101		1.59

Reference Method Descriptions

Method	Description	Associated Samples
DEP SOP: NU-094-1	True Color measured at 450 nm (not valid for NPDES monitoring)	2467404, 2467405
EPA 180.1 Rev. 2.0	Turbidity in aqueous matrices	2467404, 2467405
EPA 200.7 Rev. 4.4	Total Recoverable Metals analysis using ICP emission spectroscopy for aqueous samples supporting Clean Water Act Projects	2467425, 2467466, 2467467
EPA 200.8 Rev. 5.4	Total Recoverable Metals analysis using ICP-MS for aqueous samples supporting Clean Water Act Projects	2467425, 2467466, 2467467
EPA 300.0 Rev. 2.1	Chloride in aqueous matrices	2467404, 2467405
EPA 300.0 Rev. 2.1	Sulfate in aqueous matrices	2467404, 2467405
EPA 350.1 Rev. 2.0	Ammonia in aqueous matrices as mg N/L	2467408, 2467409
EPA 351.2 Rev. 2.0	Total Kjeldahl Nitrogen in aqueous matrices	2467408, 2467409

Reference Method Descriptions

Method	Description	Associated Samples
EPA 353.2 Rev. 2.0	Nitrite/Nitrate in aqueous matrices as mg N/L	2467408, 2467409
EPA 365.1 Rev. 2.0	Total Phosphorus in aqueous matrices as mg P/L	2467408, 2467409
EPA 8270E	Organochlorine pesticides, pyrethroids and tracers in water matrices by GC/MS/MS	2467465
EPA 8270E	PCBs in water matrices by GC/MS/MS	2467465
EPA 8276	Chlordane and Toxaphene in water matrices by GC/MS with Negative Chemical Ionization	2467465
SM 2320 B-2011	Alkalinity in aqueous matrices as mg CaCO ₃ /L	2467404, 2467405
SM 2340 B-2011	Hardness by calculation, in aqueous matrices, reported as mg/L CaCO ₃	2467425, 2467466, 2467467
SM 2540 C-2015	Total Dissolved Solids in aqueous matrices	2467404, 2467405
SM 2540 D-2015	Total Suspended Solids in aqueous matrices using a maximum of 250 mL of sample	2467404, 2467405
SM 4500-F- C-2011	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	2467404, 2467405
SM 5310 B-2014	Nonpurgeable Organic Carbon in aqueous matrices	2467408, 2467409

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	02/08/2024			02/08/2024 15:30	Anna M. Plaviak	2467404
	02/08/2024			02/08/2024 15:31	Anna M. Plaviak	2467405
EPA 180.1 Rev. 2.0	02/08/2024			02/08/2024 14:06	Dipa Joshi	2467404
	02/08/2024			02/08/2024 14:11	Dipa Joshi	2467405
EPA 200.7 Rev. 4.4	02/08/2024	02/09/2024 12:50	George D Taylor	02/14/2024 17:00	Chase Roberts	2467425
	02/08/2024	02/09/2024 12:50	George D Taylor	02/14/2024 17:07	Chase Roberts	2467466
	02/08/2024	02/09/2024 12:50	George D Taylor	02/14/2024 17:14	Chase Roberts	2467467
	02/08/2024	02/09/2024 12:50	George D Taylor	02/20/2024 23:22	McKinley C Carter	2467425
	02/08/2024	02/09/2024 12:50	George D Taylor	02/20/2024 23:29	McKinley C Carter	2467466
	02/08/2024	02/09/2024 12:50	George D Taylor	02/20/2024 23:37	McKinley C Carter	2467467
	02/08/2024	02/09/2024 12:50	George D Taylor	02/23/2024 11:38	Chase Roberts	2467425
	02/08/2024	02/09/2024 12:50	George D Taylor	02/23/2024 11:42	Chase Roberts	2467466
	02/08/2024	02/09/2024 12:50	George D Taylor	02/23/2024 11:46	Chase Roberts	2467467
	02/08/2024	02/09/2024 12:50	George D Taylor	02/13/2024 19:24	Emily M Philpot	2467425
EPA 200.8 Rev. 5.4	02/08/2024	02/09/2024 12:50	George D Taylor	02/13/2024 19:33	Emily M Philpot	2467466
	02/08/2024	02/09/2024 12:50	George D Taylor	02/13/2024 19:43	Emily M Philpot	2467467
	02/08/2024			02/20/2024 04:49	James L Waggeberby	2467404
EPA 300.0 Rev. 2.1	02/08/2024			02/20/2024 05:05	James L Waggeberby	2467405
	02/08/2024			02/22/2024 13:07	Samantha L Bates	2467405
	02/08/2024			02/22/2024 17:09	Samantha L Bates	2467404
	02/08/2024			02/09/2024 12:36	Kenneth H Lee	2467408
EPA 350.1 Rev. 2.0	02/08/2024			02/09/2024 12:37	Kenneth H Lee	2467409
	02/08/2024	02/12/2024 13:17	Ping Hua	02/13/2024 11:12	Ping Hua	2467408
EPA 351.2 Rev. 2.0	02/08/2024	02/12/2024 13:17	Ping Hua	02/13/2024 11:20	Ping Hua	2467409
	02/08/2024			02/12/2024 13:59	Fadila Guebre	2467408
EPA 353.2 Rev. 2.0	02/08/2024			02/12/2024 14:00	Fadila Guebre	2467409
	02/08/2024	02/14/2024 14:03	Adam P Silver	02/15/2024 10:13	Elise M. Gillis	2467408
	02/08/2024	02/14/2024 14:03	Adam P Silver	02/15/2024 10:14	Elise M. Gillis	2467409
EPA 8270E	02/08/2024	02/12/2024 08:00	Fe-Val Siddell	02/16/2024 22:14	Julie Wi	2467465
	02/08/2024	02/12/2024 08:00	Fe-Val Siddell	02/22/2024 01:07	Vandana T. Nagar	2467465
EPA 8276	02/08/2024	02/12/2024 08:00	Fe-Val Siddell	02/18/2024 12:58	Arthur Maknenko	2467465
SM 2320 B-2011	02/08/2024			02/17/2024 02:08	Dale L. Simmons	2467404
	02/08/2024			02/17/2024 02:21	Dale L. Simmons	2467405
SM 2340 B-2011	02/08/2024			02/14/2024 17:00	Chase Roberts	2467425
	02/08/2024			02/14/2024 17:07	Chase Roberts	2467466
	02/08/2024			02/14/2024 17:14	Chase Roberts	2467467
SM 2540 C-2015	02/08/2024			02/12/2024 15:22	Yijie Li	2467404, 2467405
SM 2540 D-2015	02/08/2024			02/12/2024 15:22	Yijie Li	2467404, 2467405
SM 4500-F- C-2011	02/08/2024			02/17/2024 02:08	Dale L. Simmons	2467404
	02/08/2024			02/17/2024 02:21	Dale L. Simmons	2467405

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
SM 5310 B-2014	02/08/2024			02/13/2024 15:29	Elise M. Gillis	2467408
	02/08/2024			02/13/2024 16:45	Elise M. Gillis	2467409