

Chemical Analysis Report

NE-DIST-2023-07-19-01

Florida DEP Laboratory
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Tallahassee, FL 32399-2400
DOH Accreditation E31780

Event Description: **St. Augustine 2023**
Request ID: **RQ-2023-07-10-18**
Customer: **NE-DIST**
Project ID: **SMP**

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Certified by: Dr. rer. nat. Bettina Steinbock, Environmental Administrator

Date Certified: 03-AUG-2023 15:07



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: MOULTRIE CR AT US 1

Collection Date/Time: 07/18/2023 10:10

Field ID: 27010055

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2425090	EPA 200.7 Rev. 4.4	Calcium	250		mg/L	P432913	
		Iron	450		ug/L	P432913	
		Magnesium	737		mg/L	P432913	
		Potassium	217		mg/L	P432913	
		Sodium	5.88E+03		mg/L	P432913	
		Strontium	3.95E+03		ug/L	P432913	
		Tin	9.0	U	ug/L	P432913	
		Titanium	5.8	I	ug/L	P432913	
		Vanadium	6.0	U	ug/L	P432913	
		Zinc	82		ug/L	P432913	
	EPA 200.8 Rev. 5.4	Aluminum	537		ug/L	P432913	
		Antimony	0.20	U	ug/L	P432913	
		Arsenic	3.06		ug/L	P432913	
		Barium	12.2		ug/L	P432913	
		Beryllium	0.069	I	ug/L	P432913	
		Boron	2.36E+03		ug/L	P432913	
		Cadmium	0.080	U	ug/L	P432913	
		Chromium	1.6	U	ug/L	P432913	
		Cobalt	0.18	I	ug/L	P432913	
		Copper	2.1	I	ug/L	P432913	
		Lead	0.80	U	ug/L	P432913	
		Manganese	25.0		ug/L	P432913	
		Molybdenum	7.0		ug/L	P432913	
		Nickel	2.0	U	ug/L	P432913	
		Selenium	0.80	U	ug/L	P432913	
		Silver	0.040	U	ug/L	P432913	
		Thallium	0.40	U	ug/L	P432913	
	SM 2340 B-2011	Hardness	3.66E+03		mg/L	P432913	

Ref. Method and Comment:

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

Sample Location: SAN SEBASTIAN R AT SR 16

Collection Date/Time: 07/18/2023 11:15

Field ID: 27010058

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2425079	DEP SOP: NU-094-1	Color (true)	81		PCU	P432722	
	EPA 180.1 Rev. 2.0	Turbidity	17		NTU	P432716	
	EPA 300.0 Rev. 2.1	Chloride	7.5E+03		mg Cl/L	P433120	
		Sulfate	1.1E+03		mg SO4/L	P433123	
	SM 2320 B-2011	Total Alkalinity	131		mg CaCO3/L	P433013	
	SM 2540 C-2015	TDS	1.37E+04		mg/L	P433231	
	SM 2540 D-2015	TSS	26		mg/L	P433086	
2425081	SM 4500-F- C-2011	Fluoride	0.60		mg F/L	P433014	
	EPA 350.1 Rev. 2.0	Ammonia-N	0.003	I	mg N/L	P432862	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.96		mg N/L	P432907	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P432891	
	EPA 365.1 Rev. 2.0	Total-P	0.13		mg P/L	P432823	
	SM 5310 B-2011	Organic Carbon	16		mg C/L	P432911	

Ref. Method and Comment:

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

Sample Location: SAN SEBASTIAN RIVER AT HIDDEN HARBOR MARINA **Collection Date/Time: 07/18/2023 10:50**

Field ID: 27010088

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2425080	DEP SOP: NU-094-1	Color (true)	27	A	PCU	P432721	
	EPA 180.1 Rev. 2.0	Turbidity	7.3		NTU	P432716	
	EPA 300.0 Rev. 2.1	Chloride	1.6E+04		mg Cl/L	P433120	
		Sulfate	2.3E+03		mg SO4/L	P433123	
	SM 2320 B-2011	Total Alkalinity	115		mg CaCO3/L	P433013	
	SM 2540 C-2015	TDS	2.86E+04		mg/L	P433231	
	SM 2540 D-2015	TSS	9	IA	mg/L	P433086	
	SM 4500-F- C-2011	Fluoride	1.1		mg F/L	P433014	
2425082	EPA 350.1 Rev. 2.0	Ammonia-N	0.17		mg N/L	P432862	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.68		mg N/L	P432907	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.059		mg N/L	P432891	
	EPA 365.1 Rev. 2.0	Total-P	0.088		mg P/L	P432823	
	SM 5310 B-2011	Organic Carbon	6.4		mg C/L	P432911	

Ref. Method and Comment:

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

Sample Location: RED HOUSE BR AT WOODLAWN RD

Collection Date/Time: 07/18/2023 11:50

Field ID: 27010061

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2425089	EPA 8270E	Aldrin	0.68	U	ng/L	P432706	
		Alpha-BHC	0.10	U	ng/L	P432706	
		Alpha-Chlordane	0.21	U	ng/L	P432706	
		PCB-1016	2.1	U	ng/L	P432706	MS
		Beta-BHC	0.10	U	ng/L	P432706	
		PCB-1221	2.1	U	ng/L	P432706	
		Beta-Cyfluthrin	1.3	U	ng/L	P432706	
		PCB-1232	2.1	U	ng/L	P432706	
		Bifenthrin	0.52	U	ng/L	P432706	
		PCB-1242	2.1	U	ng/L	P432706	
		PCB-1248	2.1	U	ng/L	P432706	
		Chlorothalonil	3.8	U	ng/L	P432706	
		PCB-1254	2.1	U	ng/L	P432706	
		Cis-Nonachlor	0.21	U	ng/L	P432706	
		PCB-1260	2.1	U	ng/L	P432706	MS
		Cypermethrin	1.6	U	ng/L	P432706	
		Dacthal	0.16	U	ng/L	P432706	
		DDD-p,p'	0.26	U	ng/L	P432706	
		DDE-p,p'	0.21	U	ng/L	P432706	
		DDT-p,p'	0.84	U	ng/L	P432706	
		Delta-BHC	0.42	U	ng/L	P432706	
		Deltamethrin	1.3	U	ng/L	P432706	
		Dichlobenil	0.26	U	ng/L	P432706	
		Dicofol	1.3	U	ng/L	P432706	
		Dieldrin	0.42	U	ng/L	P432706	
		Endosulfan I	0.42	U	ng/L	P432706	
		Endosulfan II	0.94	U	ng/L	P432706	
		Endosulfan Sulfate	0.31	U	ng/L	P432706	
		Endrin	0.94	U	ng/L	P432706	
		Endrin Aldehyde	0.78	U	ng/L	P432706	
		Endrin Ketone	0.42	U	ng/L	P432706	
		Esfenvalerate	0.78	U	ng/L	P432706	
		Ethalfuralin	0.16	U	ng/L	P432706	
		Fenpropathrin	0.26	U	ng/L	P432706	
		Gamma-BHC	0.13	U	ng/L	P432706	
		Gamma-Chlordane	0.21	U	ng/L	P432706	
		Heptachlor	0.21	U	ng/L	P432706	
		Heptachlor Epoxide	0.26	U	ng/L	P432706	
		Hexachlorobenzene**	1.0	U	ng/L	P432706	
		Kepone	14	UJ	ng/L	P432706	CCV
		Lambda-Cyhalothrin	0.78	U	ng/L	P432706	
		Methoprene	0.78	U	ng/L	P432706	
		Methoxychlor	0.31	U	ng/L	P432706	
		MGK-264	0.21	U	ng/L	P432706	

Field ID: 27010061

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2425089	EPA 8270E	Mirex	0.37	U	ng/L	P432706	
		Oxychlordane	0.31	U	ng/L	P432706	
		Permethrin	1.7	U	ng/L	P432706	
		Phenothrin	0.94	U	ng/L	P432706	
		Piperonyl Butoxide	1.7		ng/L	P432706	
		Prallethrin	2.1	U	ng/L	P432706	
		Tau-Fluvalinate	0.26	U	ng/L	P432706	
		Tetramethrin	0.78	U	ng/L	P432706	
		Trans-Nonachlor	0.21	U	ng/L	P432706	
		Triclosan Methyl	0.16	U	ng/L	P432706	
		Trifluralin	0.21	U	ng/L	P432706	
	EPA 8276	Chlordane	2.1	U	ng/L	P432706	MS
		Toxaphene	16	U	ng/L	P432706	

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: P432721

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: DEP SOP: NU-094-1
Batch ID: P432722

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P432716

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P432913

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: P432913

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: P433120

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P433123

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P432862

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P432907

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P432891

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P432823

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

Reference Method: EPA 8270E
Batch ID: P432706

Component	Result	Code	Units
Aldrin	0.65	U	ng/L
Aldrin	0.65	U	ng/L
Alpha-BHC	0.10	U	ng/L
Alpha-BHC	0.10	U	ng/L
Alpha-Chlordane	0.20	U	ng/L
Alpha-Chlordane	0.20	U	ng/L
Beta-BHC	0.10	U	ng/L
Beta-BHC	0.10	U	ng/L
Beta-Cyfluthrin	1.2	U	ng/L
Beta-Cyfluthrin	1.2	U	ng/L
Bifenthrin	0.50	U	ng/L
Bifenthrin	0.50	U	ng/L
Chlorothalonil	3.6	U	ng/L
Chlorothalonil	3.6	U	ng/L
Cis-Nonachlor	0.20	U	ng/L
Cis-Nonachlor	0.20	U	ng/L

Quality Assurance Report

Method Blank Results

Reference Method: EPA 8270E

Batch ID: P432706

Component	Result	Code	Units
Cypermethrin	1.5	U	ng/L
Cypermethrin	1.5	U	ng/L
Dacthal	0.15	U	ng/L
Dacthal	0.15	U	ng/L
DDD-p,p'	0.25	U	ng/L
DDD-p,p'	0.25	U	ng/L
DDE-p,p'	0.20	U	ng/L
DDE-p,p'	0.20	U	ng/L
DDT-p,p'	0.80	U	ng/L
DDT-p,p'	0.80	U	ng/L
Delta-BHC	0.40	U	ng/L
Delta-BHC	0.40	U	ng/L
Deltamethrin	1.2	U	ng/L
Deltamethrin	1.2	U	ng/L
Dichlobenil	0.25	U	ng/L
Dichlobenil	0.25	U	ng/L
Dicofol	1.2	U	ng/L
Dicofol	1.2	U	ng/L
Dieldrin	0.40	U	ng/L
Dieldrin	0.40	U	ng/L
Endosulfan I	0.40	U	ng/L
Endosulfan I	0.40	U	ng/L
Endosulfan II	0.90	U	ng/L
Endosulfan II	0.90	U	ng/L
Endosulfan Sulfate	0.30	U	ng/L
Endosulfan Sulfate	0.30	U	ng/L
Endrin	0.90	U	ng/L
Endrin	0.90	U	ng/L
Endrin Aldehyde	0.75	U	ng/L
Endrin Aldehyde	0.75	U	ng/L
Endrin Ketone	0.40	U	ng/L
Endrin Ketone	0.40	U	ng/L
Esfenvalerate	0.75	U	ng/L
Esfenvalerate	0.75	U	ng/L
Ethalfuralin	0.15	U	ng/L
Ethalfuralin	0.15	U	ng/L
Fenpropathrin	0.25	U	ng/L
Fenpropathrin	0.25	U	ng/L
Gamma-BHC	0.12	U	ng/L
Gamma-BHC	0.12	U	ng/L
Gamma-Chlordane	0.20	U	ng/L
Gamma-Chlordane	0.20	U	ng/L
Heptachlor	0.20	U	ng/L
Heptachlor	0.20	U	ng/L
Heptachlor Epoxide	0.25	U	ng/L
Heptachlor Epoxide	0.25	U	ng/L
Hexachlorobenzene	1.0	U	ng/L
Hexachlorobenzene	1.0	U	ng/L
Kepone	14	U	ng/L
Kepone	14	U	ng/L
Lambda-Cyhalothrin	0.75	U	ng/L
Lambda-Cyhalothrin	0.75	U	ng/L

Quality Assurance Report

Method Blank Results

Reference Method: EPA 8270E

Batch ID: P432706

Component	Result	Code	Units
Methoprene	0.75	U	ng/L
Methoprene	0.75	U	ng/L
Methoxychlor	0.30	U	ng/L
Methoxychlor	0.30	U	ng/L
MGK-264	0.20	U	ng/L
MGK-264	0.20	U	ng/L
Mirex	0.35	U	ng/L
Mirex	0.35	U	ng/L
Oxychlordane	0.30	U	ng/L
Oxychlordane	0.30	U	ng/L
PCB-1016	2.0	U	ng/L
PCB-1016	2.0	U	ng/L
PCB-1221	2.0	U	ng/L
PCB-1221	2.0	U	ng/L
PCB-1232	2.0	U	ng/L
PCB-1232	2.0	U	ng/L
PCB-1242	2.0	U	ng/L
PCB-1242	2.0	U	ng/L
PCB-1248	2.0	U	ng/L
PCB-1248	2.0	U	ng/L
PCB-1254	2.0	U	ng/L
PCB-1254	2.0	U	ng/L
PCB-1260	2.0	U	ng/L
PCB-1260	2.0	U	ng/L
Permethrin	1.6	U	ng/L
Permethrin	1.6	U	ng/L
Phenothrin	0.90	U	ng/L
Phenothrin	0.90	U	ng/L
Piperonyl Butoxide	0.15	U	ng/L
Piperonyl Butoxide	0.15	U	ng/L
Prallethrin	2.0	U	ng/L
Prallethrin	2.0	U	ng/L
Tau-Fluvalinate	0.25	U	ng/L
Tau-Fluvalinate	0.25	U	ng/L
Tetramethrin	0.75	U	ng/L
Tetramethrin	0.75	U	ng/L
Trans-Nonachlor	0.20	U	ng/L
Trans-Nonachlor	0.20	U	ng/L
Triclosan Methyl	0.15	U	ng/L
Triclosan Methyl	0.15	U	ng/L
Trifluralin	0.20	U	ng/L
Trifluralin	0.20	U	ng/L

Reference Method: EPA 8276

Batch ID: P432706

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

Quality Assurance Report

Method Blank Results

Reference Method: SM 2320 B-2011
Batch ID: P433013

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

Reference Method: SM 2540 C-2015
Batch ID: P433231

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-2015
Batch ID: P433086

Component	Result	Code	Units
TSS	3	U	mg/L

Reference Method: SM 4500-F- C-2011
Batch ID: P433014

Component	Result	Code	Units
Fluoride	0.025	U	mg F/L

Reference Method: SM 5310 B-2011
Batch ID: P432911

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: P432721

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Color (true)	100		P	90 - 110

Reference Method: DEP SOP: NU-094-1
Batch ID: P432722

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Color (true)	101		P	90 - 110

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P432716

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

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P432913

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Calcium	103		P	85 - 115
Iron	106		P	85 - 115
Magnesium	103		P	85 - 115
Potassium	100		P	85 - 115
Sodium	100		P	85 - 115
Strontium	95.7		P	85 - 115
Tin	98.7		P	85 - 115
Titanium	97.3		P	85 - 115
Vanadium	97.9		P	85 - 115
Zinc	101		P	85 - 115

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P432913

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Aluminum	98.5		P	85 - 115
Antimony	102		P	85 - 115
Arsenic	100		P	85 - 115
Barium	104		P	85 - 115
Beryllium	94.2		P	85 - 115
Boron	98.9		P	85 - 115
Cadmium	100		P	85 - 115
Chromium	96.8		P	85 - 115
Cobalt	97.9		P	85 - 115
Copper	96.6		P	85 - 115
Lead	95.3		P	85 - 115
Manganese	97.0		P	85 - 115
Molybdenum	97.6		P	85 - 115
Nickel	96.4		P	85 - 115
Selenium	101		P	85 - 115
Silver	103		P	85 - 115
Thallium	97.6		P	85 - 115

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P433120

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P433123

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Sulfate	97.1		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P432862

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: P432907

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: P432891

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P432823

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

Reference Method: EPA 8270E
Batch ID: P432706

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Aldrin	61.6		P	30 - 96.0
Alpha-BHC	82.0		P	70 - 109
Alpha-Chlordane	72.8		P	45 - 107
Beta-BHC	70.4		P	64 - 138
Beta-Cyfluthrin	66.6		P	17 - 141
Bifenthrin	57.6		P	10 - 113
Chlorothalonil	36.2		P	26 - 180
Cis-Nonachlor	74.8		P	37 - 102
Cypermethrin	101		P	20 - 133
Dacthal	85.2		P	69 - 114
DDD-p,p'	80.2		P	42 - 105
DDE-p,p'	75.5		P	42 - 106
DDT-p,p'	85.3		P	42 - 107
Delta-BHC	88.7		P	67 - 144
Deltamethrin	89.3		P	15 - 149
Dichlobenil	85.1		P	46 - 117

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 8270E

Batch ID: P432706

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Dicofol	63.2		P	34 - 114
Dieldrin	87.3		P	50 - 108
Endosulfan I	89.4		P	55 - 104
Endosulfan II	78.0		P	51 - 111
Endosulfan Sulfate	87.7		P	56 - 121
Endrin	76.7		P	10 - 106
Endrin Aldehyde	77.4		P	34 - 114
Endrin Ketone	95.3		P	63 - 177
Esfenvalerate	94.6		P	29 - 143
Ethalfuralin	65.6		P	46 - 96.0
Fenpropathrin	85.3		P	28 - 115
Gamma-BHC	84.8		P	65 - 121
Gamma-Chlordane	74.8		P	39 - 103
Heptachlor	67.0		P	39 - 94.0
Heptachlor Epoxide	86.3		P	54 - 104
Hexachlorobenzene	76.4		P	36 - 100
Kepone	35.1		P	10 - 225
Lambda-Cyhalothrin	78.2		P	10 - 135
Methoprene	60.6		P	10 - 109
Methoxychlor	79.6		P	52 - 112
MGK-264	93.9		P	44 - 117
Mirex	60.2		P	20 - 90.0
Oxychlordane	82.2		P	44 - 102
PCB-1016	73.4		P	45 - 107
PCB-1260	77.7		P	40 - 112
Permethrin	87.2		P	18 - 135
Phenothrin	76.4		P	10 - 102
Piperonyl Butoxide	143		P	28 - 156
Prallethrin	81.9		P	28 - 113
Tau-Fluvalinate	73.7		P	10 - 123
Tetramethrin	118		P	18 - 158
Trans-Nonachlor	74.0		P	39 - 104
Triclosan Methyl	83.9		P	54 - 108
Trifluralin	63.7		P	46 - 97.0

Reference Method: EPA 8276

Batch ID: P432706

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Chlordane	78.7		P	52 - 117
Toxaphene	88.8		P	44 - 125

Reference Method: SM 2320 B-2011

Batch ID: P433013

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	93.8		P	92 - 105

Reference Method: SM 2540 C-2015

Batch ID: P433231

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: P433231

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
TDS	98.0		P	90 - 110

Reference Method: SM 2540 D-2015
Batch ID: P433086

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
TSS	98.5		P	85 - 106

Reference Method: SM 4500-F- C-2011
Batch ID: P433014

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	97.2		P	94 - 106

Reference Method: SM 5310 B-2011
Batch ID: P432911

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	95.8		P	85 - 115

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 200.7 Rev. 4.4

Batch ID: P432913

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2425676	Iron	95.6	101	P/P	80 - 120
2425676	Tin	87.3	86.8	P/P	80 - 120
2425676	Titanium	88.6	94.5	P/P	80 - 120
2425676	Vanadium	95.9	99.7	P/P	80 - 120
2425676	Zinc	92.2	94.8	P/P	80 - 120

Reference Method: EPA 200.8 Rev. 5.4

Batch ID: P432913

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2425676	Aluminum	101	118	P/P	70 - 130
2425676	Antimony	97.3	99.1	P/P	70 - 130
2425676	Arsenic	108	107	P/P	70 - 130
2425676	Barium	101	102	P/P	70 - 130
2425676	Beryllium	89.3	90.3	P/P	70 - 130
2425676	Boron	103	95.8	P/P	70 - 130
2425676	Cadmium	91.6	93.6	P/P	70 - 130
2425676	Chromium	96.3	97.0	P/P	70 - 130
2425676	Cobalt	96.2	95.5	P/P	70 - 130
2425676	Copper	104	104	P/P	70 - 130
2425676	Lead	101	101	P/P	70 - 130
2425676	Manganese	94.0	95.4	P/P	70 - 130
2425676	Molybdenum	109	111	P/P	70 - 130
2425676	Nickel	94.0	94.5	P/P	70 - 130
2425676	Selenium	102	101	P/P	70 - 130
2425676	Silver	91.7	92.9	P/P	70 - 130
2425676	Thallium	103	104	P/P	70 - 130

Reference Method: EPA 300.0 Rev. 2.1

Batch ID: P433120

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2425103	Chloride	98.0		P	90 - 110
2425308	Chloride	99.3		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1

Batch ID: P433123

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2425103	Sulfate	96.3		P	90 - 110
2425308	Sulfate	94.2		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0

Batch ID: P432862

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2424799	Ammonia-N	97.8	98.4	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0

Batch ID: P432907

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P432907

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2425076	Kjeldahl Nitrogen	99.8	98.3	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P432891

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2424914	NO2NO3-N	104	104	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P432823

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2425082	Total-P	94.8	94.6	P/P	90 - 110

Reference Method: EPA 8270E
Batch ID: P432706

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2424476	Aldrin	60.2	54.5	P/P	24 - 81.0
2424476	Alpha-BHC	75.6	76.4	P/P	65 - 110
2424476	Alpha-Chlordane	69.9	84.2	P/P	43 - 119
2424476	Beta-BHC	61.8	63.0	P/P	54 - 165
2424476	Beta-Cyfluthrin	99.1	94.8	P/P	27 - 165
2424476	Bifenthrin	95.8	103	P/P	17 - 117
2424476	Chlorothalonil	76.5	90.1	P/P	10 - 255
2424476	Cis-Nonachlor	69.0	69.4	P/P	34 - 98.0
2424476	Cypermethrin	136	137	P/P	25 - 143
2424476	Dacthal	74.7	85.6	P/P	55 - 139
2424476	DDD-p,p'	69.4	69.9	P/P	30 - 109
2424476	DDE-p,p'	75.3	69.2	P/P	35 - 106
2424476	DDT-p,p'	98.5	97.7	P/P	41 - 101
2424476	Delta-BHC	83.2	89.8	P/P	58 - 165
2424476	Deltamethrin	122	134	P/P	10 - 194
2424476	Dichlobenil	28.5	30.6	P/P	22 - 114
2424476	Dicofol	65.8	63.2	P/P	17 - 133
2424476	Dieldrin	88.1	82.9	P/P	45 - 129
2424476	Endosulfan I	89.4	90.9	P/P	49 - 104
2424476	Endosulfan II	66.5	63.1	P/P	37 - 117
2424476	Endosulfan Sulfate	70.1	67.6	P/P	38 - 128
2424476	Endrin	74.0	68.6	P/P	35 - 116
2424476	Endrin Aldehyde	42.6	45.4	P/P	19 - 108
2424476	Endrin Ketone	81.3	78.7	P/P	44 - 134
2424476	Esfenvalerate	140	151	P/P	27 - 176
2424476	Ethalfuralin	67.7	71.4	P/P	49 - 100
2424476	Fenpropathrin	114	110	P/P	34 - 117
2424476	Gamma-BHC	98.6	91.7	P/P	59 - 129
2424476	Gamma-Chlordane	73.5	73.7	P/P	33 - 107
2424476	Heptachlor	85.2	74.2	P/P	37 - 94.0
2424476	Heptachlor Epoxide	83.6	88.4	P/P	38 - 118
2424476	Hexachlorobenzene	72.5	72.5	P/P	35 - 97.0
2424476	Kepone	16.1	12.2	P/P	10 - 221
2424476	Lambda-Cyhalothrin	122	129	P/P	23 - 190

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 8270E

Batch ID: P432706

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2424476	Methoprene	80.8	87.2	P/P	21 - 109
2424476	Methoxychlor	72.1	75.0	P/P	46 - 118
2424476	MGK-264	90.2	85.7	P/P	39 - 122
2424476	Mirex	64.1	61.3	P/P	25 - 90.0
2424476	Oxychlorane	91.9	93.5	P/P	42 - 100
2424476	Permethrin	123	136	P/P	33 - 181
2424476	Phenothrin	109	123	P/P	12 - 125
2424476	Piperonyl Butoxide	143	153	P/P	10 - 178
2424476	Prallethrin	73.9	73.5	P/P	24 - 122
2424476	Tau-Fluvalinate	133	138	P/P	13 - 151
2424476	Tetramethrin	120	133	P/P	16 - 172
2424476	Trans-Nonachlor	70.0	73.5	P/P	39 - 100
2424476	Triclosan Methyl	75.6	76.2	P/P	43 - 110
2424476	Trifluralin	64.7	66.1	P/P	45 - 94.0
2424521	PCB-1016	44.5	41.1	F/F	45 - 107
2424521	PCB-1260	29.1	28.5	F/F	40 - 112

Reference Method: EPA 8276

Batch ID: P432706

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2424521	Chlordane	34.7	36.3	F/F	43 - 123
2424521	Toxaphene	43.3	38.7	P/P	27 - 156

Reference Method: SM 4500-F- C-2011

Batch ID: P433014

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2424792	Fluoride	98.4	99.1	P/P	94 - 106

Reference Method: SM 5310 B-2011

Batch ID: P432911

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2425432	Organic Carbon	94.6	94.5	P/P	85 - 115

Quality Assurance Report Precision

Reference Method: DEP SOP: NU-094-1
Batch ID: P432721

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2425080	Color (true)	3.11	Sample	P	0 - 20

Reference Method: DEP SOP: NU-094-1
Batch ID: P432722

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2424698	Color (true)	10.9	Sample	P	0 - 20

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P432716

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2424822	Turbidity	9.66	Sample	P	0 - 20

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P432913

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2425676	Calcium	4.06	Spike	P	0 - 20
2425676	Iron	4.61	Spike	P	0 - 20
2425676	Magnesium	5.47	Spike	P	0 - 20
2425676	Potassium	5.52	Spike	P	0 - 20
2425676	Sodium	3.62	Spike	P	0 - 20
2425676	Strontium	4.00	Spike	P	0 - 20
2425676	Tin	0.636	Spike	P	0 - 20
2425676	Titanium	5.29	Spike	P	0 - 20
2425676	Vanadium	3.85	Spike	P	0 - 20
2425676	Zinc	2.77	Spike	P	0 - 20

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P432913

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2425676	Aluminum	11.2	Spike	P	0 - 20
2425676	Antimony	1.77	Spike	P	0 - 20
2425676	Arsenic	0.335	Spike	P	0 - 20
2425676	Barium	0.587	Spike	P	0 - 20
2425676	Beryllium	1.05	Spike	P	0 - 20
2425676	Boron	0.929	Spike	P	0 - 20
2425676	Cadmium	2.18	Spike	P	0 - 20
2425676	Chromium	0.754	Spike	P	0 - 20
2425676	Cobalt	0.713	Spike	P	0 - 20
2425676	Copper	0.530	Spike	P	0 - 20
2425676	Lead	0.533	Spike	P	0 - 20
2425676	Manganese	1.03	Spike	P	0 - 20
2425676	Molybdenum	1.96	Spike	P	0 - 20
2425676	Nickel	0.554	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P432913

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2425676	Selenium	0.680	Spike	P	0 - 20
2425676	Silver	1.24	Spike	P	0 - 20
2425676	Thallium	0.933	Spike	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P433120

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2425103	Chloride	0.0914	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P433123

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2425103	Sulfate	0.286	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P432862

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2424799	Ammonia-N	0.345	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P432907

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2425076	Kjeldahl Nitrogen	1.12	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P432891

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2424914	NO2NO3-N	0.962	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P432823

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2425082	Total-P	0.120	Spike	P	0 - 20

Reference Method: EPA 8270E
Batch ID: P432706

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: P432706

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2424476	Aldrin	9.99	Spike	P	0 - 41
2424476	Alpha-BHC	1.03	Spike	P	0 - 25
2424476	Alpha-Chlordane	18.6	Spike	P	0 - 32
2424476	Beta-BHC	1.91	Spike	P	0 - 33
2424476	Beta-Cyfluthrin	4.48	Spike	P	0 - 43
2424476	Bifenthrin	6.89	Spike	P	0 - 52
2424476	Chlorothalonil	16.4	Spike	P	0 - 82
2424476	Cis-Nonachlor	0.499	Spike	P	0 - 33
2424476	Cypermethrin	0.525	Spike	P	0 - 51
2424476	Dacthal	13.6	Spike	P	0 - 27
2424476	DDD-p,p'	0.738	Spike	P	0 - 39
2424476	DDE-p,p'	8.40	Spike	P	0 - 31
2424476	DDT-p,p'	0.801	Spike	P	0 - 29
2424476	Delta-BHC	7.65	Spike	P	0 - 35
2424476	Deltamethrin	9.79	Spike	P	0 - 100
2424476	Dichlobenil	7.06	Spike	P	0 - 40
2424476	Dicofol	3.92	Spike	P	0 - 37
2424476	Dieldrin	6.07	Spike	P	0 - 27
2424476	Endosulfan I	1.64	Spike	P	0 - 23
2424476	Endosulfan II	5.27	Spike	P	0 - 34
2424476	Endosulfan Sulfate	3.74	Spike	P	0 - 36
2424476	Endrin	7.65	Spike	P	0 - 45
2424476	Endrin Aldehyde	6.37	Spike	P	0 - 76
2424476	Endrin Ketone	3.25	Spike	P	0 - 43
2424476	Esfenvalerate	7.38	Spike	P	0 - 51
2424476	Ethalfuralin	5.29	Spike	P	0 - 22
2424476	Fenpropathrin	3.32	Spike	P	0 - 49
2424476	Gamma-BHC	7.23	Spike	P	0 - 28
2424476	Gamma-Chlordane	0.191	Spike	P	0 - 40
2424476	Heptachlor	13.7	Spike	P	0 - 29
2424476	Heptachlor Epoxide	5.50	Spike	P	0 - 33
2424476	Hexachlorobenzene	0.0517	Spike	P	0 - 36
2424476	Kepone	27.6	Spike	P	0 - 85
2424476	Lambda-Cyhalothrin	5.93	Spike	P	0 - 55
2424476	Methoprene	7.65	Spike	P	0 - 53
2424476	Methoxychlor	4.01	Spike	P	0 - 50
2424476	MGK-264	5.08	Spike	P	0 - 43
2424476	Mirex	4.55	Spike	P	0 - 40
2424476	Oxychlordane	1.70	Spike	P	0 - 31
2424476	Permethrin	9.75	Spike	P	0 - 50
2424476	Phenothrin	11.4	Spike	P	0 - 58
2424476	Piperonyl Butoxide	6.18	Spike	P	0 - 100
2424476	Prallethrin	0.565	Spike	P	0 - 39
2424476	Tau-Fluvalinate	3.72	Spike	P	0 - 54
2424476	Tetramethrin	10.1	Spike	P	0 - 51
2424476	Trans-Nonachlor	4.84	Spike	P	0 - 39
2424476	Triclosan Methyl	0.815	Spike	P	0 - 31
2424476	Trifluralin	2.14	Spike	P	0 - 22
2424521	PCB-1016	7.85	Spike	P	0 - 25
2424521	PCB-1260	2.30	Spike	P	0 - 30

Quality Assurance Report Precision

Reference Method: EPA 8276
Batch ID: P432706

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2424521	Chlordane	4.69	Spike	P	0 - 28
2424521	Toxaphene	8.93	Spike	P	0 - 27

Reference Method: SM 2320 B-2011
Batch ID: P433013

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2424792	Total Alkalinity	0.0499	Sample	P	0 - 3.9

Reference Method: SM 2540 C-2015
Batch ID: P433231

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2424591	TDS	6.28	Sample	P	0 - 10

Reference Method: SM 4500-F- C-2011
Batch ID: P433014

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2424792	Fluoride	0.477	Spike	P	0 - 1.9

Reference Method: SM 5310 B-2011
Batch ID: P432911

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2425432	Organic Carbon	0.0834	Spike	P	0 - 20

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

Quality Assurance Report Surrogates

Lab Sample ID: 2425089
Field Sample ID: 27010061

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8270E	Decachlorobiphenyl	70.9	P	37 - 129
EPA 8270E	Decachlorobiphenyl	64.3	P	26 - 115
EPA 8270E	Tetrachloro-m-xylene	48.0	P	30 - 101
EPA 8270E	Tetrachloro-m-xylene	54.3	P	29 - 95.0
EPA 8276	Decachlorobiphenyl	51.1	P	28 - 102
EPA 8276	PCNB	80.6	P	49 - 115

Quality Assurance Report Calibration Verification

Reference Method: EPA 180.1 Rev. 2.0

Run ID: A120498

Included Lab Sample IDs: 2425079, 2425080

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Turbidity	101	100	P/P	95 - 105

Reference Method: DEP SOP: NU-094-1

Run ID: A120499

Included Lab Sample IDs: 2425079, 2425080

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	101	103	P/P	90 - 110
Color (true)	102	101	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A120559

Included Lab Sample IDs: 2425081, 2425082

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	98.3	98.1	P/P	90 - 110

Reference Method: EPA 8270E

Run ID: A120572

Included Lab Sample IDs: 2425089

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
PCB-1016	103		P	80 - 120
PCB-1260	106		P	80 - 120

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A120576

Included Lab Sample IDs: 2425081

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

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A120577

Included Lab Sample IDs: 2425081, 2425082

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

Reference Method: SM 5310 B-2011

Run ID: A120583

Included Lab Sample IDs: 2425081, 2425082

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	95.3	95.6	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A120585

Included Lab Sample IDs: 2425082

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
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Quality Assurance Report Calibration Verification

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A120585

Included Lab Sample IDs: 2425082

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

Reference Method: EPA 8270E

Run ID: A120595

Included Lab Sample IDs: 2425089

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Aldrin	106		P	80 - 120
Alpha-BHC	98.6		P	80 - 120
Alpha-Chlordane	101		P	80 - 120
Beta-BHC	100		P	80 - 120
Beta-Cyfluthrin	101		P	80 - 120
Bifenthrin	101		P	80 - 120
Chlorothalonil	106		P	80 - 120
Cis-Nonachlor	105		P	80 - 120
Cypermethrin	112		P	80 - 120
Dacthal	103		P	80 - 120
DDD-p,p'	112		P	80 - 120
DDE-p,p'	102		P	80 - 120
DDT-p,p'	104		P	80 - 120
Delta-BHC	96.8		P	80 - 120
Deltamethrin	96.1		P	80 - 120
Dichlobenil	112		P	80 - 120
Dicofol	92.7		P	80 - 120
Dieldrin	105		P	80 - 120
Endosulfan I	101		P	80 - 120
Endosulfan II	112		P	80 - 120
Endosulfan Sulfate	105		P	80 - 120
Endrin	105		P	80 - 120
Endrin Aldehyde	107		P	80 - 120
Endrin Ketone	99.4		P	80 - 120
Esfenvalerate	113		P	80 - 120
Ethalfuralin	104		P	80 - 120
Fenpropathrin	110		P	80 - 120
Gamma-BHC	102		P	80 - 120
Gamma-Chlordane	102		P	80 - 120
Heptachlor	92.5		P	80 - 120
Heptachlor Epoxide	104		P	80 - 120
Hexachlorobenzene	106		P	80 - 120
Kepone	25.0*		F	80 - 120
Lambda-Cyhalothrin	114		P	80 - 120
Methoprene	107		P	80 - 120
Methoxychlor	98.1		P	80 - 120
MGK-264	106		P	80 - 120
Mirex	103		P	80 - 120
Oxychlordane	106		P	80 - 120
Permethrin	112		P	80 - 120
Phenothrin	111		P	80 - 120
Piperonyl Butoxide	111		P	80 - 120
Prallethrin	100		P	80 - 120
Tau-Fluvalinate	103		P	80 - 120

Quality Assurance Report Calibration Verification

Reference Method: EPA 8270E
Run ID: A120595
Included Lab Sample IDs: 2425089

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Tetramethrin	107		P	80 - 120
Trans-Nonachlor	98.9		P	80 - 120
Triclosan Methyl	96.6		P	80 - 120
Trifluralin	100		P	80 - 120

Reference Method: EPA 8276
Run ID: A120633
Included Lab Sample IDs: 2425089

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chlordane	99.2		P	80 - 120
Toxaphene	100		P	80 - 120

Reference Method: EPA 200.8 Rev. 5.4
Run ID: A120636
Included Lab Sample IDs: 2425090

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Aluminum	99.4	99.1	P/P	90 - 110
Antimony	97.4	97.7	P/P	90 - 110
Arsenic	98.9	97.8	P/P	90 - 110
Barium	99.7	98.9	P/P	90 - 110
Beryllium	98.6	97.4	P/P	90 - 110
Boron	93.4	97.4	P/P	90 - 110
Cadmium	98.3	97.2	P/P	90 - 110
Chromium	96.2	96.2	P/P	90 - 110
Cobalt	98.2	95.7	P/P	90 - 110
Copper	96.7	96.3	P/P	90 - 110
Lead	92.9	91.5	P/P	90 - 110
Manganese	97.2	95.9	P/P	90 - 110
Molybdenum	97.3	95.6	P/P	90 - 110
Nickel	97.3	94.9	P/P	90 - 110
Selenium	99.9	97.6	P/P	90 - 110
Silver	101	100	P/P	90 - 110
Thallium	95.8	93.9	P/P	90 - 110

Reference Method: SM 2320 B-2011
Run ID: A120639
Included Lab Sample IDs: 2425079, 2425080

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	95.6	92.7	P/P	90 - 110

Reference Method: SM 4500-F- C-2011
Run ID: A120639
Included Lab Sample IDs: 2425079, 2425080

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

Quality Assurance Report Calibration Verification

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A120652

Included Lab Sample IDs: 2425081, 2425082

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

Reference Method: EPA 300.0 Rev. 2.1

Run ID: A120686

Included Lab Sample IDs: 2425079, 2425080

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	99.9	100	P/P	90 - 110
Sulfate	98.7	99.8	P/P	90 - 110

Reference Method: EPA 200.7 Rev. 4.4

Run ID: A120773

Included Lab Sample IDs: 2425090

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Calcium	101	101	P/P	90 - 110
Iron	101	101	P/P	90 - 110
Magnesium	100	100	P/P	90 - 110
Potassium	96.3	97.6	P/P	90 - 110
Sodium	96.9	98.0	P/P	90 - 110
Strontium	98.7	93.3	P/P	90 - 110
Tin	101	96.1	P/P	90 - 110
Titanium	100	95.6	P/P	90 - 110
Vanadium	101	96.0	P/P	90 - 110
Zinc	103	98.2	P/P	90 - 110

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

Control limits for initial calibration checks may be different from those for continuing checks, depending on method requirements. Where they are different, both control limits are provided.

Quality Assurance Report Summary

Ref. Method	Analyte	LCS % Recovery		MS % Recovery		LCS	Precision	MS
							SMP	
DEP SOP: NU-094-1	Color (true)	100					3.11	
	Color (true)	101					10.9	
EPA 180.1 Rev. 2.0	Turbidity	100					9.66	
EPA 200.7 Rev. 4.4	Calcium	103						4.06
	Iron	106		95.6	101			4.61
	Magnesium	103						5.47
	Potassium	100						5.52
	Sodium	100						3.62
	Strontium	95.7						4.00
	Tin	98.7		87.3	86.8			0.636
	Titanium	97.3		88.6	94.5			5.29
	Vanadium	97.9		95.9	99.7			3.85
	Zinc	101		92.2	94.8			2.77
EPA 200.8 Rev. 5.4	Aluminum	98.5		101	118			11.2
	Antimony	102		97.3	99.1			1.77
	Arsenic	100		108	107			0.335
	Barium	104		101	102			0.587
	Beryllium	94.2		89.3	90.3			1.05
	Boron	98.9		103	95.8			0.929
	Cadmium	100		91.6	93.6			2.18
	Chromium	96.8		96.3	97.0			0.754
	Cobalt	97.9		96.2	95.5			0.713
	Copper	96.6		104	104			0.530
	Lead	95.3		101	101			0.533
	Manganese	97.0		94.0	95.4			1.03
	Molybdenum	97.6		109	111			1.96
	Nickel	96.4		94.0	94.5			0.554
	Selenium	101		102	101			0.680
	Silver	103		91.7	92.9			1.24
	Thallium	97.6		103	104			0.933
EPA 300.0 Rev. 2.1	Chloride	99.3		98.0	99.3		0.0914	
	Sulfate	97.1		96.3	94.2		0.286	
EPA 350.1 Rev. 2.0	Ammonia-N	94.8		97.8	98.4			0.345
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	100		99.8	98.3			1.12
EPA 353.2 Rev. 2.0	NO2NO3-N	104		104	104			0.962
EPA 365.1 Rev. 2.0	Total-P	98.1		94.8	94.6			0.120
EPA 8270E	Aldrin	61.6		60.2	54.5			9.99
	Alpha-BHC	82.0		75.6	76.4			1.03
	Alpha-Chlordane	72.8		69.9	84.2			18.6
	Beta-BHC	70.4		61.8	63.0			1.91
	Beta-Cyfluthrin	66.6		99.1	94.8			4.48
	Bifenthrin	57.6		95.8	103			6.89
	Chlorothalonil	36.2		76.5	90.1			16.4
	Cis-Nonachlor	74.8		69.0	69.4			0.499
	Cypermethrin	101		136	137			0.525
	Dacthal	85.2		74.7	85.6			13.6
	DDD-p,p'	80.2		69.4	69.9			0.738
	DDE-p,p'	75.5		75.3	69.2			8.40
	DDT-p,p'	85.3		98.5	97.7			0.801
	Delta-BHC	88.7		83.2	89.8			7.65
	Deltamethrin	89.3		122	134			9.79
	Dichlobenil	85.1		28.5	30.6			7.06
	Dicofol	63.2		65.8	63.2			3.92
	Dieldrin	87.3		88.1	82.9			6.07

Quality Assurance Report Summary

Ref. Method	Analyte	LCS % Recovery	MS % Recovery		LCS	Precision	MS
						SMP	
EPA 8270E	Endosulfan I	89.4	89.4	90.9			1.64
	Endosulfan II	78.0	66.5	63.1			5.27
	Endosulfan Sulfate	87.7	70.1	67.6			3.74
	Endrin	76.7	74.0	68.6			7.65
	Endrin Aldehyde	77.4	42.6	45.4			6.37
	Endrin Ketone	95.3	81.3	78.7			3.25
	Esfenvalerate	94.6	140	151			7.38
	Ethalfuralin	65.6	67.7	71.4			5.29
	Fenpropathrin	85.3	114	110			3.32
	Gamma-BHC	84.8	98.6	91.7			7.23
	Gamma-Chlordane	74.8	73.5	73.7			0.191
	Heptachlor	67.0	85.2	74.2			13.7
	Heptachlor Epoxide	86.3	83.6	88.4			5.50
	Hexachlorobenzene	76.4	72.5	72.5			0.0517
	Kepone	35.1	16.1	12.2			27.6
	Lambda-Cyhalothrin	78.2	122	129			5.93
	Methoprene	60.6	80.8	87.2			7.65
	Methoxychlor	79.6	72.1	75.0			4.01
	MGK-264	93.9	90.2	85.7			5.08
	Mirex	60.2	64.1	61.3			4.55
	Oxychlordane	82.2	91.9	93.5			1.70
	PCB-1016	73.4	44.5	41.1			7.85
	PCB-1260	77.7	29.1	28.5			2.30
	Permethrin	87.2	123	136			9.75
	Phenothrin	76.4	109	123			11.4
	Piperonyl Butoxide	143	143	153			6.18
	Prallethrin	81.9	73.9	73.5			0.565
	Tau-Fluvalinate	73.7	133	138			3.72
	Tetramethrin	118	120	133			10.1
	Trans-Nonachlor	74.0	70.0	73.5			4.84
	Triclosan Methyl	83.9	75.6	76.2			0.815
	Trifluralin	63.7	64.7	66.1			2.14
EPA 8276	Chlordane	78.7	34.7	36.3			4.69
	Toxaphene	88.8	43.3	38.7			8.93
SM 2320 B-2011	Total Alkalinity	93.8				0.0499	
SM 2540 C-2015	TDS	98.0				6.28	
SM 2540 D-2015	TSS	98.5					
SM 4500-F- C-2011	Fluoride	97.2	98.4	99.1			0.477
SM 5310 B-2011	Organic Carbon	95.8	94.6	94.5			0.0834

Reference Method Descriptions

Method	Description	Associated Samples
DEP SOP: NU-094-1	True Color measured at 450 nm (not valid for NPDES monitoring)	2425079, 2425080
EPA 180.1 Rev. 2.0	Turbidity in aqueous matrices	2425079, 2425080
EPA 200.7 Rev. 4.4	Total Recoverable Metals analysis using ICP emission spectroscopy for aqueous samples supporting Clean Water Act Projects	2425090
EPA 200.8 Rev. 5.4	Total Recoverable Metals analysis using ICP-MS for aqueous samples supporting Clean Water Act Projects	2425090
EPA 300.0 Rev. 2.1	Chloride in aqueous matrices	2425079, 2425080
EPA 300.0 Rev. 2.1	Sulfate in aqueous matrices	2425079, 2425080
EPA 350.1 Rev. 2.0	Ammonia in aqueous matrices as mg N/L	2425081, 2425082
EPA 351.2 Rev. 2.0	Total Kjeldahl Nitrogen in aqueous matrices	2425081, 2425082

Reference Method Descriptions

Method	Description	<u>Associated Samples</u>
EPA 353.2 Rev. 2.0	Nitrite/Nitrate in aqueous matrices as mg N/L	2425081, 2425082
EPA 365.1 Rev. 2.0	Total Phosphorus in aqueous matrices as mg P/L	2425081, 2425082
EPA 8270E	Organochlorine pesticides, pyrethroids and tracers in water matrices by GC/MS/MS	2425089
EPA 8270E	PCBs in water matrices by GC/MS/MS	2425089
EPA 8276	Chlordane and Toxaphene in water matrices by GC/MS with Negative Chemical Ionization	2425089
SM 2320 B-2011	Alkalinity in aqueous matrices as mg CaCO ₃ /L	2425079, 2425080
SM 2340 B-2011	Hardness by calculation, in aqueous matrices, reported as mg/L CaCO ₃	2425090
SM 2540 C-2015	Total Dissolved Solids in aqueous matrices	2425079, 2425080
SM 2540 D-2015	Total Suspended Solids in aqueous matrices using a maximum of 250 mL of sample	2425079, 2425080
SM 4500-F- C-2011	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	2425079, 2425080
SM 5310 B-2011	Nonpurgeable Organic Carbon in aqueous matrices	2425081, 2425082

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	07/19/2023			07/19/2023 15:21	Samantha L Bates	2425080
	07/19/2023			07/19/2023 15:27	Samantha L Bates	2425079
EPA 180.1 Rev. 2.0	07/19/2023			07/19/2023 14:08	Alexis Price	2425079
	07/19/2023			07/19/2023 14:09	Alexis Price	2425080
EPA 200.7 Rev. 4.4	07/19/2023	07/24/2023 12:50	George D Taylor	08/01/2023 22:47	Chase Roberts	2425090
	07/19/2023	07/24/2023 12:50	George D Taylor	08/01/2023 22:59	Chase Roberts	2425090
EPA 200.8 Rev. 5.4	07/19/2023	07/24/2023 12:50	George D Taylor	07/25/2023 16:27	Emily M Philpot	2425090
	07/19/2023	07/24/2023 12:50	George D Taylor	07/25/2023 17:54	Emily M Philpot	2425090
EPA 300.0 Rev. 2.1	07/19/2023			07/25/2023 18:31	James L Waggeberby	2425079
	07/19/2023			07/25/2023 18:46	James L Waggeberby	2425080
EPA 350.1 Rev. 2.0	07/19/2023			07/21/2023 12:33	Khloe J Berg	2425081
	07/19/2023			07/21/2023 12:35	Khloe J Berg	2425082
EPA 351.2 Rev. 2.0	07/19/2023	07/25/2023 08:58	Dana G. Hughes	07/26/2023 12:07	Ping Hua	2425081
	07/19/2023	07/25/2023 08:58	Dana G. Hughes	07/26/2023 12:09	Ping Hua	2425082
EPA 353.2 Rev. 2.0	07/19/2023			07/24/2023 10:38	Beverly Y. Sanders	2425081
	07/19/2023			07/24/2023 10:39	Beverly Y. Sanders	2425082
EPA 365.1 Rev. 2.0	07/19/2023	07/21/2023 16:45	Adam P Silver	07/24/2023 10:13	James L Waggeberby	2425081
	07/19/2023	07/21/2023 16:45	Adam P Silver	07/24/2023 13:14	Simonne.V. Calhoun	2425082
EPA 8270E	07/19/2023	07/20/2023 08:30	Rasheda Ghaffari	07/22/2023 03:02	Lipi Saha	2425089
	07/19/2023	07/20/2023 08:30	Rasheda Ghaffari	07/24/2023 01:50	Michael Poppell	2425089
EPA 8276	07/19/2023	07/20/2023 08:30	Rasheda Ghaffari	07/25/2023 19:58	Arthur Maknenko	2425089
SM 2320 B-2011	07/19/2023			07/25/2023 21:09	Dale L. Simmons	2425079
	07/19/2023			07/25/2023 21:23	Dale L. Simmons	2425080
SM 2340 B-2011	07/19/2023			08/01/2023 22:59	Chase Roberts	2425090
SM 2540 C-2015	07/19/2023			07/21/2023 17:02	Yijie Li	2425079, 2425080
SM 2540 D-2015	07/19/2023			07/21/2023 17:02	Yijie Li	2425079, 2425080
SM 4500-F- C-2011	07/19/2023			07/25/2023 19:11	Dale L. Simmons	2425079
	07/19/2023			07/25/2023 19:16	Dale L. Simmons	2425080
SM 5310 B-2011	07/19/2023			07/22/2023 02:51	Elise M. Gillis	2425081
	07/19/2023			07/22/2023 03:05	Elise M. Gillis	2425082