

Chemical Analysis Report

NW-DIST-2023-12-05-03

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

Event Description: **Laurel Hill West**
Request ID: **RQ-2023-10-23-07**
Customer: **NW-DIST**
Project ID: **SMP**

Send Reports to:
160 W Government Street
160 Government Center
Suite 208
Pensacola, FL 32502-5794
Attn: Myranda Butler

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

Certified by: Colin Wright, Program Administrator

Date Certified: 28-DEC-2023 10:28

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

Case Narrative

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

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

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

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

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

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

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

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

Precision is reported as relative percent difference unless otherwise noted.

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

QC Codes used in this report may include:

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

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

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

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

Sample Location: Sikes Creek upstream of Harris Stevenson Rd Collection Date/Time: 12/04/2023 11:20

Field ID: G3NW0450

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2454573	EPA 8270E	Aldrin	0.69	U	ng/L	P438606	
		Alpha-BHC	0.11	U	ng/L	P438606	MS
		Alpha-Chlordane	0.21	U	ng/L	P438606	
		PCB-1016	2.1	UJ	ng/L	P438606	MS
		Beta-BHC	0.11	U	ng/L	P438606	
		PCB-1221	2.1	U	ng/L	P438606	
		Beta-Cyfluthrin	1.3	U	ng/L	P438606	
		PCB-1232	2.1	U	ng/L	P438606	
		Bifenthrin	0.53	U	ng/L	P438606	
		PCB-1242	2.1	U	ng/L	P438606	
		PCB-1248	2.1	U	ng/L	P438606	
		Chlorothalonil	3.8	U	ng/L	P438606	
		PCB-1254	2.1	U	ng/L	P438606	
		Cis-Nonachlor	0.21	U	ng/L	P438606	
		PCB-1260	2.1	UJ	ng/L	P438606	MS
		Cypermethrin	1.6	U	ng/L	P438606	
		Dacthal	0.16	U	ng/L	P438606	
		DDD-p,p'	0.27	U	ng/L	P438606	
		DDE-p,p'	0.21	U	ng/L	P438606	
		DDT-p,p'	0.85	U	ng/L	P438606	
		Delta-BHC	0.42	U	ng/L	P438606	
		Deltamethrin	1.3	U	ng/L	P438606	
		Dichlobenil	0.27	U	ng/L	P438606	RPD
		Dicofol	1.3	U	ng/L	P438606	
		Dieldrin	0.42	U	ng/L	P438606	MS
		Endosulfan I	0.42	U	ng/L	P438606	RPD
		Endosulfan II	0.96	U	ng/L	P438606	
		Endosulfan Sulfate	0.32	U	ng/L	P438606	RPD
		Endrin	0.96	U	ng/L	P438606	
		Endrin Aldehyde	0.80	U	ng/L	P438606	RPD
		Endrin Ketone	0.42	U	ng/L	P438606	
		Esfenvalerate	0.80	U	ng/L	P438606	
		Ethalfuralin	0.16	U	ng/L	P438606	
		Fenpropathrin	0.27	U	ng/L	P438606	MS
		Gamma-BHC	0.13	U	ng/L	P438606	MS
		Gamma-Chlordane	0.21	U	ng/L	P438606	
		Heptachlor	0.21	U	ng/L	P438606	
		Heptachlor Epoxide	0.27	U	ng/L	P438606	
		Hexachlorobenzene**	1.1	U	ng/L	P438606	MS, RPD
		Kepone	14	U	ng/L	P438606	
		Lambda-Cyhalothrin	0.80	U	ng/L	P438606	
		Methoprene	0.80	U	ng/L	P438606	
		Methoxychlor	0.32	U	ng/L	P438606	MS
		MGK-264	0.21	U	ng/L	P438606	

Field ID: G3NW0450

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2454573	EPA 8270E	Mirex	0.37	U	ng/L	P438606	MS, RPD
		Oxychlordane	0.32	U	ng/L	P438606	
		Permethrin	1.7	U	ng/L	P438606	
		Phenothrin	0.96	U	ng/L	P438606	
		Piperonyl Butoxide	0.16	U	ng/L	P438606	RPD
		Prallethrin	2.1	U	ng/L	P438606	
		Tau-Fluvalinate	0.27	U	ng/L	P438606	
		Tetramethrin	0.80	U	ng/L	P438606	
		Trans-Nonachlor	0.21	U	ng/L	P438606	SUR
		Triclosan Methyl	0.16	U	ng/L	P438606	
		Trifluralin	0.21	U	ng/L	P438606	
		Chlordane	2.1	UJ	ng/L	P438606	
		Toxaphene	41	J	ng/L	P438606	SUR
2454574	EPA 200.7 Rev. 4.4	Calcium	14.6		mg/L	P438564	
		Iron	310		ug/L	P438564	
		Magnesium	1.94		mg/L	P438564	
		Potassium	0.93	I	mg/L	P438564	
		Sodium	2.3		mg/L	P438564	
		Strontium	16.7		ug/L	P438564	
		Tin	3.0	U	ug/L	P438564	
		Titanium	2.0	I	ug/L	P438564	
		Vanadium	2.0	U	ug/L	P438564	
		Zinc	25		ug/L	P438564	
	EPA 200.8 Rev. 5.4	Aluminum	588		ug/L	P438564	
		Antimony	0.090	I	ug/L	P438564	
		Arsenic	0.42		ug/L	P438564	
		Barium	23.2		ug/L	P438564	
		Beryllium	0.035	I	ug/L	P438564	
		Boron	18.1		ug/L	P438564	
		Cadmium	0.022	I	ug/L	P438564	
		Chromium	0.94	I	ug/L	P438564	
		Cobalt	0.214		ug/L	P438564	
		Copper	0.58	I	ug/L	P438564	
		Lead	0.32	I	ug/L	P438564	
		Manganese	32.8		ug/L	P438564	
		Molybdenum	0.15	U	ug/L	P438564	
		Nickel	0.50	U	ug/L	P438564	
		Selenium	0.20	U	ug/L	P438564	
	SM 2340 B-2011	Silver	0.010	U	ug/L	P438564	
		Thallium	0.10	U	ug/L	P438564	
		Hardness	44.4		mg/L	P438564	

Ref. Method and Comment:
EPA 8270E: Refer to the Lab Analysis Report for an explanation of QC Codes.
EPA 8276: Refer to the Lab Analysis Report for an explanation of QC Codes.

**Sample Location: East Branch Pine Log Creek above Bear Bay
 Flats Road**

Collection Date/Time: 12/04/2023 12:30

Field ID: G4NW0208

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2454560	DEP SOP: NU-094-1	Color (true)	110		PCU	P438516	
	EPA 180.1 Rev. 2.0	Turbidity	11		NTU	P438524	
	EPA 300.0 Rev. 2.1	Chloride	7.7		mg Cl/L	P438812	
		Sulfate	7.7		mg SO4/L	P438816	
	SM 2320 B-2011	Total Alkalinity	5.7		mg CaCO3/L	P438936	
	SM 2540 C-2015	TDS	64		mg/L	P439143	
	SM 2540 D-2015	TSS	2	U	mg/L	P439129	
	SM 4500-F- C-2011	Fluoride	0.035	I	mg F/L	P438938	
2454561	EPA 350.1 Rev. 2.0	Ammonia-N	0.012		mg N/L	P438574	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.65		mg N/L	P438609	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.039		mg N/L	P438676	
	EPA 365.1 Rev. 2.0	Total-P	0.050		mg P/L	P438620	
	SM 5310 B-2011	Organic Carbon	15		mg C/L	P438605	

Quality Assurance Report Method Blank Results

Reference Method: DEP SOP: NU-094-1
Batch ID: P438516

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P438524

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P438564

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: P438564

Component	Result	Code	Units
Aluminum	5.0	U	ug/L
Antimony	0.050	U	ug/L
Arsenic	0.050	U	ug/L
Barium	0.20	U	ug/L
Beryllium	0.010	U	ug/L
Boron	2.0	U	ug/L
Cadmium	0.020	U	ug/L
Chromium	0.40	U	ug/L
Cobalt	0.020	U	ug/L
Copper	0.40	U	ug/L
Lead	0.20	U	ug/L
Manganese	0.10	U	ug/L
Molybdenum	0.15	U	ug/L
Nickel	0.50	U	ug/L
Selenium	0.20	U	ug/L
Silver	0.010	U	ug/L
Thallium	0.10	U	ug/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P438812

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Quality Assurance Report Method Blank Results

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P438816

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P438574

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P438609

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P438676

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P438620

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

Reference Method: EPA 8270E
Batch ID: P438606

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

Quality Assurance Report

Method Blank Results

Reference Method: EPA 8270E

Batch ID: P438606

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

Reference Method: EPA 8276

Batch ID: P438606

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

Reference Method: SM 2320 B-2011

Batch ID: P438936

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

Reference Method: SM 2540 C-2015

Batch ID: P439143

Component	Result	Code	Units
TDS	15	U	mg/L

Quality Assurance Report

Method Blank Results

Reference Method: SM 2540 D-2015
Batch ID: P439129

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500-F- C-2011
Batch ID: P438938

Component	Result	Code	Units
Fluoride	0.025	U	mg F/L

Reference Method: SM 5310 B-2011
Batch ID: P438605

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: P438516

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

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P438524

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

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P438564

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Calcium	106		P	85 - 115
Iron	112		P	85 - 115
Magnesium	107		P	85 - 115
Potassium	101		P	85 - 115
Sodium	103		P	85 - 115
Strontium	96.7		P	85 - 115
Tin	97.8		P	85 - 115
Titanium	101		P	85 - 115
Vanadium	98.0		P	85 - 115
Zinc	94.8		P	85 - 115

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P438564

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Aluminum	99.0		P	85 - 115
Antimony	101		P	85 - 115
Arsenic	101		P	85 - 115
Barium	101		P	85 - 115
Beryllium	96.4		P	85 - 115
Boron	100		P	85 - 115
Cadmium	99.1		P	85 - 115
Chromium	101		P	85 - 115
Cobalt	99.0		P	85 - 115
Copper	97.3		P	85 - 115
Lead	95.0		P	85 - 115
Manganese	99.7		P	85 - 115
Molybdenum	97.9		P	85 - 115
Nickel	98.3		P	85 - 115
Selenium	100		P	85 - 115
Silver	100		P	85 - 115
Thallium	99.1		P	85 - 115

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P438812

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

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P438816

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P438574

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Ammonia-N	96.8		P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P438609

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Kjeldahl Nitrogen	94.2		P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P438676

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P438620

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

Reference Method: EPA 8270E
Batch ID: P438606

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Aldrin	42.2		P	30 - 96.0
Alpha-BHC	80.3		P	70 - 109
Alpha-Chlordane	92.0		P	45 - 107
Beta-BHC	104		P	64 - 138
Beta-Cyfluthrin	88.9		P	17 - 141
Bifenthrin	59.7		P	10 - 113
Chlorothalonil	87.7		P	26 - 180
Cis-Nonachlor	87.9		P	37 - 102
Cypermethrin	94.0		P	20 - 133
Dacthal	86.3		P	69 - 114
DDD-p,p'	90.4		P	42 - 105
DDE-p,p'	64.4		P	42 - 106
DDT-p,p'	69.2		P	42 - 107
Delta-BHC	102		P	67 - 144
Deltamethrin	98.1		P	15 - 149
Dichlobenil	82.1		P	46 - 117
Dicofol	72.8		P	34 - 114
Dieldrin	75.7		P	50 - 108
Endosulfan I	83.6		P	55 - 104
Endosulfan II	90.2		P	51 - 111
Endosulfan Sulfate	77.2		P	56 - 121
Endrin	92.7		P	10 - 106

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 8270E

Batch ID: P438606

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Endrin Aldehyde	72.0		P	34 - 114
Endrin Ketone	95.4		P	63 - 177
Esfenvalerate	76.6		P	29 - 143
Ethalfuralin	71.7		P	46 - 96.0
Fenpropathrin	66.2		P	28 - 115
Gamma-BHC	94.9		P	65 - 121
Gamma-Chlordane	84.4		P	39 - 103
Heptachlor	68.0		P	39 - 94.0
Heptachlor Epoxide	93.4		P	54 - 104
Hexachlorobenzene	81.3		P	36 - 100
Kepone	92.8		P	10 - 225
Lambda-Cyhalothrin	82.8		P	10 - 135
Methoprene	69.2		P	10 - 109
Methoxychlor	91.4		P	52 - 112
MGK-264	78.8		P	44 - 117
Mirex	60.1		P	20 - 90.0
Oxychlordane	64.9		P	44 - 102
PCB-1016	84.7		P	45 - 107
PCB-1260	110		P	40 - 118
Permethrin	83.5		P	18 - 135
Phenothrin	68.1		P	10 - 102
Piperonyl Butoxide	110		P	28 - 156
Prallethrin	84.3		P	28 - 113
Tau-Fluvalinate	95.4		P	10 - 123
Tetramethrin	88.5		P	18 - 158
Trans-Nonachlor	97.2		P	39 - 104
Triclosan Methyl	80.9		P	54 - 108
Trifluralin	90.3		P	46 - 97.0

Reference Method: EPA 8276

Batch ID: P438606

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Chlordane	99.8		P	52 - 117
Toxaphene	109		P	44 - 125

Reference Method: SM 2320 B-2011

Batch ID: P438936

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	97.7		P	92 - 105

Reference Method: SM 2540 C-2015

Batch ID: P439143

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
TDS	103		P	85 - 115

Reference Method: SM 2540 D-2015

Batch ID: P439129

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

Laboratory Control Sample Accuracy

Reference Method: SM 2540 D-2015
Batch ID: P439129

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
TSS	106		P	85 - 115

Reference Method: SM 4500-F- C-2011
Batch ID: P438938

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	102		P	94 - 106

Reference Method: SM 5310 B-2011
Batch ID: P438605

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

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 200.7 Rev. 4.4

Batch ID: P438564

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2454126	Calcium	102		P	80 - 120
2454126	Iron	110	110	P/P	80 - 120
2454126	Magnesium	104		P	80 - 120
2454126	Potassium	100	101	P/P	80 - 120
2454126	Sodium	98.8	100	P/P	80 - 120
2454126	Strontium	94.7	96.4	P/P	80 - 120
2454126	Tin	97.5	98.4	P/P	80 - 120
2454126	Titanium	102	102	P/P	80 - 120
2454126	Vanadium	97.4	98.3	P/P	80 - 120
2454126	Zinc	93.1	93.1	P/P	80 - 120
2454174	Calcium	99.2		P	75 - 125
2454174	Iron	91.0		P	75 - 125
2454174	Magnesium	102		P	75 - 125
2454174	Potassium	101		P	75 - 125
2454174	Sodium	94.3		P	75 - 125
2454174	Strontium	97.0		P	75 - 125
2454174	Tin	92.9		P	75 - 125
2454174	Titanium	88.6		P	75 - 125
2454174	Vanadium	97.7		P	75 - 125
2454174	Zinc	94.4		P	75 - 125

Reference Method: EPA 200.8 Rev. 5.4

Batch ID: P438564

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2454126	Aluminum	99.1	98.5	P/P	80 - 120
2454126	Antimony	103	103	P/P	80 - 120
2454126	Arsenic	98.2	97.6	P/P	80 - 120
2454126	Barium	101	102	P/P	80 - 120
2454126	Beryllium	96.2	96.1	P/P	80 - 120
2454126	Boron	104	103	P/P	80 - 120
2454126	Cadmium	103	102	P/P	80 - 120
2454126	Chromium	103	102	P/P	80 - 120
2454126	Cobalt	95.9	94.6	P/P	80 - 120
2454126	Copper	91.8	91.8	P/P	80 - 120
2454126	Lead	95.0	94.7	P/P	80 - 120
2454126	Manganese	103	99.8	P/P	80 - 120
2454126	Molybdenum	100	99.0	P/P	80 - 120
2454126	Nickel	93.7	93.2	P/P	80 - 120
2454126	Selenium	98.2	98.1	P/P	80 - 120
2454126	Silver	101	101	P/P	80 - 120
2454126	Thallium	101	101	P/P	80 - 120
2454174	Aluminum	111		P	80 - 120
2454174	Antimony	98.3		P	80 - 120
2454174	Arsenic	97.9		P	80 - 120
2454174	Barium	99.0		P	80 - 120
2454174	Beryllium	88.8		P	80 - 120
2454174	Boron	102		P	80 - 120
2454174	Cadmium	102		P	80 - 120
2454174	Chromium	103		P	80 - 120
2454174	Cobalt	95.5		P	80 - 120
2454174	Copper	91.4		P	80 - 120

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 200.8 Rev. 5.4

Batch ID: P438564

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2454174	Lead	94.7		P	80 - 120
2454174	Manganese	97.3		P	80 - 120
2454174	Molybdenum	99.1		P	80 - 120
2454174	Nickel	93.1		P	80 - 120
2454174	Selenium	98.5		P	80 - 120
2454174	Silver	99.0		P	80 - 120
2454174	Thallium	102		P	80 - 120

Reference Method: EPA 300.0 Rev. 2.1

Batch ID: P438812

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2454598	Chloride	97.8		P	90 - 110
2454778	Chloride	102		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1

Batch ID: P438816

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2454598	Sulfate	98.8		P	90 - 110
2454778	Sulfate	102		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0

Batch ID: P438574

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2454299	Ammonia-N	95.2	99.4	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0

Batch ID: P438609

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2454512	Kjeldahl Nitrogen	99.0	107	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0

Batch ID: P438676

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2454512	NO2NO3-N	96.0	98.5	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Batch ID: P438620

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2454579	Total-P	109	109	P/P	90 - 110

Reference Method: EPA 8270E

Batch ID: P438606

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2454573	PCB-1016	91.3	114	P/F	45 - 107
2454573	PCB-1260	110	130	P/F	40 - 112

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 8270E

Batch ID: P438606

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2455436	Aldrin	40.5	36.2	P/P	24 - 81.0
2455436	Alpha-BHC	55.5	58.9	F/F	65 - 110
2455436	Alpha-Chlordane	51.8	56.8	P/P	43 - 119
2455436	Beta-BHC	89.3	75.7	P/P	54 - 165
2455436	Beta-Cyfluthrin	64.0	61.5	P/P	27 - 165
2455436	Bifenthrin	46.9	56.2	P/P	17 - 117
2455436	Chlorothalonil	94.7	76.6	P/P	10 - 255
2455436	Cis-Nonachlor	58.0	57.6	P/P	34 - 98.0
2455436	Cypermethrin	42.3	55.5	P/P	25 - 143
2455436	Dacthal	72.7	63.5	P/P	55 - 139
2455436	DDD-p,p'	49.8	66.2	P/P	30 - 109
2455436	DDE-p,p'	56.4	55.2	P/P	35 - 106
2455436	DDT-p,p'	52.7	43.0	P/P	41 - 101
2455436	Delta-BHC	87.1	69.8	P/P	58 - 165
2455436	Deltamethrin	53.7	39.3	P/P	10 - 194
2455436	Dichlobenil	81.4	49.6	P/P	22 - 114
2455436	Dicofol	53.5	52.5	P/P	17 - 133
2455436	Dieldrin	22.9	22.1	F/F	45 - 129
2455436	Endosulfan I	64.5	50.1	P/P	49 - 104
2455436	Endosulfan II	57.7	66.6	P/P	37 - 117
2455436	Endosulfan Sulfate	98.5	51.9	P/P	38 - 128
2455436	Endrin	49.6	62.3	P/P	35 - 116
2455436	Endrin Aldehyde	72.6	28.7	P/P	19 - 108
2455436	Endrin Ketone	57.7	72.6	P/P	44 - 134
2455436	Esfenvalerate	60.4	71.5	P/P	27 - 176
2455436	Ethalfuralin	64.3	54.2	P/P	49 - 100
2455436	Fenpropathrin	42.3	33.4	P/F	34 - 117
2455436	Gamma-BHC	67.2	54.3	P/F	59 - 129
2455436	Gamma-Chlordane	47.9	50.4	P/P	33 - 107
2455436	Heptachlor	50.8	43.4	P/P	37 - 94.0
2455436	Heptachlor Epoxide	69.9	52.6	P/P	38 - 118
2455436	Hexachlorobenzene	29.4	48.8	F/P	35 - 97.0
2455436	Kepone	37.1	33.5	P/P	10 - 221
2455436	Lambda-Cyhalothrin	42.9	55.0	P/P	23 - 190
2455436	Methoprene	46.9	37.9	P/P	21 - 109
2455436	Methoxychlor	42.8	58.8	F/P	46 - 118
2455436	MGK-264	68.4	53.6	P/P	39 - 122
2455436	Mirex	49.2	36.6	P/P	25 - 90.0
2455436	Oxychlordane	53.5	35.3	P/F	42 - 100
2455436	Permethrin	51.1	61.2	P/P	33 - 181
2455436	Phenothrin	55.5	70.7	P/P	12 - 125
2455436	Piperonyl Butoxide	86.9	69.1	P/P	10 - 178
2455436	Prallethrin	51.8	46.1	P/P	24 - 122
2455436	Tau-Fluvalinate	53.1	93.0	P/P	13 - 151
2455436	Tetramethrin	65.5	64.2	P/P	16 - 172
2455436	Trans-Nonachlor	58.5	51.2	P/P	39 - 100
2455436	Triclosan Methyl	63.1	47.0	P/P	43 - 110
2455436	Trifluralin	60.7	49.2	P/P	45 - 94.0

Quality Assurance Report

Matrix Spike Accuracy

Reference Method: EPA 8276
Batch ID: P438606

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2454573	Chlordane	80.5	101	P/P	43 - 123
2454573	Toxaphene	71.2	95.2	P/P	27 - 156

Reference Method: SM 4500-F- C-2011
Batch ID: P438938

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2454527	Fluoride	101	101	P/P	94 - 106

Reference Method: SM 5310 B-2011
Batch ID: P438605

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2454325	Organic Carbon	98.7	96.0	P/P	85 - 115

Quality Assurance Report Precision

Reference Method: DEP SOP: NU-094-1
Batch ID: P438516

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2454597	Color (true)	4.66	Sample	P	0 - 20

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P438524

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2454474	Turbidity	3.01	Sample	P	0 - 20

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P438564

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2454126	Calcium	1.36	Spike	P	0 - 20
2454126	Iron	0.0183	Spike	P	0 - 20
2454126	Magnesium	0.200	Spike	P	0 - 20
2454126	Potassium	0.236	Spike	P	0 - 20
2454126	Sodium	0.992	Spike	P	0 - 20
2454126	Strontium	1.75	Spike	P	0 - 20
2454126	Tin	0.950	Spike	P	0 - 20
2454126	Titanium	0.0394	Spike	P	0 - 20
2454126	Vanadium	0.836	Spike	P	0 - 20
2454126	Zinc	0.0541	Spike	P	0 - 20

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P438564

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2454126	Aluminum	0.620	Spike	P	0 - 20
2454126	Antimony	0.203	Spike	P	0 - 20
2454126	Arsenic	0.524	Spike	P	0 - 20
2454126	Barium	0.333	Spike	P	0 - 20
2454126	Beryllium	0.142	Spike	P	0 - 20
2454126	Boron	0.534	Spike	P	0 - 20
2454126	Cadmium	0.463	Spike	P	0 - 20
2454126	Chromium	0.935	Spike	P	0 - 20
2454126	Cobalt	1.32	Spike	P	0 - 20
2454126	Copper	0.0215	Spike	P	0 - 20
2454126	Lead	0.317	Spike	P	0 - 20
2454126	Manganese	1.82	Spike	P	0 - 20
2454126	Molybdenum	0.982	Spike	P	0 - 20
2454126	Nickel	0.505	Spike	P	0 - 20
2454126	Selenium	0.0587	Spike	P	0 - 20
2454126	Silver	0.177	Spike	P	0 - 20
2454126	Thallium	0.125	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P438812

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2454598	Chloride	1.22	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P438816

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2454598	Sulfate	1.55	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P438574

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2454299	Ammonia-N	2.42	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P438609

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2454512	Kjeldahl Nitrogen	5.58	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P438676

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2454512	NO2NO3-N	2.57	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P438620

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2454579	Total-P	0.0219	Spike	P	0 - 20

Reference Method: EPA 8270E
Batch ID: P438606

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2454573	PCB-1016	22.4	Spike	P	0 - 25
2454573	PCB-1260	17.0	Spike	P	0 - 30
2455436	Aldrin	11.3	Spike	P	0 - 41
2455436	Alpha-BHC	5.87	Spike	P	0 - 25
2455436	Alpha-Chlordane	9.06	Spike	P	0 - 32
2455436	Beta-BHC	16.5	Spike	P	0 - 33
2455436	Beta-Cyfluthrin	3.95	Spike	P	0 - 43
2455436	Bifenthrin	18.2	Spike	P	0 - 52
2455436	Chlorothalonil	21.1	Spike	P	0 - 82

Quality Assurance Report Precision

Reference Method: EPA 8270E
Batch ID: P438606

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2455436	Cis-Nonachlor	0.665	Spike	P	0 - 33
2455436	Cypermethrin	27.1	Spike	P	0 - 51
2455436	Dacthal	13.5	Spike	P	0 - 27
2455436	DDD-p,p'	28.2	Spike	P	0 - 39
2455436	DDE-p,p'	2.15	Spike	P	0 - 31
2455436	DDT-p,p'	20.2	Spike	P	0 - 29
2455436	Delta-BHC	22.0	Spike	P	0 - 35
2455436	Deltamethrin	31.1	Spike	P	0 - 100
2455436	Dichlobenil	48.5	Spike	F	0 - 40
2455436	Dicofol	1.90	Spike	P	0 - 37
2455436	Dieldrin	1.08	Spike	P	0 - 27
2455436	Endosulfan I	25.2	Spike	F	0 - 23
2455436	Endosulfan II	14.4	Spike	P	0 - 34
2455436	Endosulfan Sulfate	61.9	Spike	F	0 - 36
2455436	Endrin	22.7	Spike	P	0 - 45
2455436	Endrin Aldehyde	86.8	Spike	F	0 - 76
2455436	Endrin Ketone	22.9	Spike	P	0 - 43
2455436	Esfenvalerate	16.8	Spike	P	0 - 51
2455436	Ethalfuralin	17.2	Spike	P	0 - 22
2455436	Fenpropathrin	23.4	Spike	P	0 - 49
2455436	Gamma-BHC	21.3	Spike	P	0 - 28
2455436	Gamma-Chlordane	5.11	Spike	P	0 - 40
2455436	Heptachlor	15.9	Spike	P	0 - 29
2455436	Heptachlor Epoxide	25.0	Spike	P	0 - 33
2455436	Hexachlorobenzene	49.5	Spike	F	0 - 36
2455436	Kepone	3.63	Spike	P	0 - 85
2455436	Lambda-Cyhalothrin	24.7	Spike	P	0 - 55
2455436	Methoprene	21.3	Spike	P	0 - 53
2455436	Methoxychlor	31.7	Spike	P	0 - 50
2455436	MGK-264	24.2	Spike	P	0 - 43
2455436	Mirex	29.3	Spike	P	0 - 40
2455436	Oxychlordane	41.1	Spike	F	0 - 31
2455436	Permethrin	18.0	Spike	P	0 - 50
2455436	Phenothrin	24.1	Spike	P	0 - 58
2455436	Piperonyl Butoxide	22.8	Spike	P	0 - 100
2455436	Prallethrin	11.7	Spike	P	0 - 39
2455436	Tau-Fluvalinate	54.7	Spike	F	0 - 54
2455436	Tetramethrin	2.07	Spike	P	0 - 51
2455436	Trans-Nonachlor	13.3	Spike	P	0 - 39
2455436	Triclosan Methyl	29.2	Spike	P	0 - 31
2455436	Trifluralin	21.1	Spike	P	0 - 22

Reference Method: EPA 8276
Batch ID: P438606

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2454573	Chlordane	22.5	Spike	P	0 - 28
2454573	Toxaphene	25.0	Spike	P	0 - 27

Quality Assurance Report Precision

Reference Method: SM 2320 B-2011
Batch ID: P438936

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2454527	Total Alkalinity	0.165	Sample	P	0 - 3.9

Reference Method: SM 2540 C-2015
Batch ID: P439143

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2454289	TDS	3.89	Sample	P	0 - 10

Reference Method: SM 2540 D-2015
Batch ID: P439129

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2454289	TSS	8.33	Sample	P	0 - 10

Reference Method: SM 4500-F- C-2011
Batch ID: P438938

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2454527	Fluoride	0.0	Spike	P	0 - 1.9

Reference Method: SM 5310 B-2011
Batch ID: P438605

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2454325	Organic Carbon	2.10	Spike	P	0 - 20

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

Quality Assurance Report Surrogates

Lab Sample ID: 2454573
Field Sample ID: G3NW0450

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8270E	Decachlorobiphenyl	99.3	P	37 - 129
EPA 8270E	Decachlorobiphenyl	93.9	P	26 - 115
EPA 8270E	Tetrachloro-m-xylene	49.3	P	30 - 101
EPA 8270E	Tetrachloro-m-xylene	44.8	P	29 - 95.0
EPA 8276	Decachlorobiphenyl	103	F	28 - 102
EPA 8276	PCNB	109	P	49 - 115

Quality Assurance Report Calibration Verification

Reference Method: DEP SOP: NU-094-1

Run ID: A123030

Included Lab Sample IDs: 2454560

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	105	104	P/P	90 - 110

Reference Method: EPA 180.1 Rev. 2.0

Run ID: A123033

Included Lab Sample IDs: 2454560

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

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A123057

Included Lab Sample IDs: 2454561

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	98.1	100	P/P	90 - 110

Reference Method: SM 5310 B-2011

Run ID: A123065

Included Lab Sample IDs: 2454561

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	94.3	99.4	P/P	85 - 115

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A123088

Included Lab Sample IDs: 2454561

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

Reference Method: EPA 200.8 Rev. 5.4

Run ID: A123091

Included Lab Sample IDs: 2454574

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Aluminum	99.5	99.7	P/P	90 - 110
Antimony	101	99.7	P/P	90 - 110
Arsenic	97.7	98.3	P/P	90 - 110
Barium	98.7	99.1	P/P	90 - 110
Beryllium	96.1	96.1	P/P	90 - 110
Boron	101	102	P/P	90 - 110
Cadmium	100	99.7	P/P	90 - 110
Chromium	106	101	P/P	90 - 110
Cobalt	97.7	97.0	P/P	90 - 110
Copper	94.8	94.7	P/P	90 - 110
Lead	95.3	94.5	P/P	90 - 110
Manganese	104	101	P/P	90 - 110
Molybdenum	97.5	98.6	P/P	90 - 110
Nickel	96.3	96.7	P/P	90 - 110
Selenium	99.0	99.4	P/P	90 - 110
Silver	97.5	97.6	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: EPA 200.8 Rev. 5.4

Run ID: A123091

Included Lab Sample IDs: 2454574

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Thallium	96.7	96.5	P/P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1

Run ID: A123118

Included Lab Sample IDs: 2454560

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	103	101	P/P	90 - 110
Sulfate	102	99.7	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A123168

Included Lab Sample IDs: 2454561

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	97.7	96.1	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A123180

Included Lab Sample IDs: 2454561

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

Reference Method: EPA 200.7 Rev. 4.4

Run ID: A123206

Included Lab Sample IDs: 2454574

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Calcium	101	103	P/P	90 - 110
Iron	102	103	P/P	90 - 110
Magnesium	103	104	P/P	90 - 110
Potassium	102	102	P/P	90 - 110
Sodium	96.9	98.5	P/P	90 - 110
Strontium	98.3	99.6	P/P	90 - 110
Tin	102	103	P/P	90 - 110
Titanium	104	104	P/P	90 - 110
Vanadium	100	101	P/P	90 - 110
Zinc	99.8	101	P/P	90 - 110

Reference Method: SM 2320 B-2011

Run ID: A123207

Included Lab Sample IDs: 2454560

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	97.8	94.3	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: SM 4500-F- C-2011

Run ID: A123207

Included Lab Sample IDs: 2454560

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	102	103	P/P	90 - 110

Reference Method: EPA 8270E

Run ID: A123257

Included Lab Sample IDs: 2454573

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
PCB-1016	93.3		P	80 - 120
PCB-1260	86.9		P	80 - 120

Reference Method: EPA 8276

Run ID: A123318

Included Lab Sample IDs: 2454573

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chlordane	96.7		P	80 - 120
Toxaphene	92.5		P	80 - 120

Reference Method: EPA 8270E

Run ID: A123394

Included Lab Sample IDs: 2454573

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Aldrin	101		P	80 - 120
Alpha-BHC	103		P	80 - 120
Alpha-Chlordane	88.2		P	80 - 120
Beta-BHC	89.2		P	80 - 120
Beta-Cyfluthrin	99.9		P	80 - 120
Bifenthrin	87.8		P	80 - 120
Chlorothalonil	96.4		P	80 - 120
Cis-Nonachlor	100		P	80 - 120
Cypermethrin	98.2		P	80 - 120
Dacthal	112		P	80 - 120
DDD-p,p'	110		P	80 - 120
DDE-p,p'	88.9		P	80 - 120
DDT-p,p'	93.9		P	80 - 120
Delta-BHC	91.3		P	80 - 120
Deltamethrin	98.0		P	80 - 120
Dichlobenil	91.5		P	80 - 120
Dicofol	98.0		P	80 - 120
Dieldrin	94.0		P	80 - 120
Endosulfan I	95.2		P	80 - 120
Endosulfan II	100		P	80 - 120
Endosulfan Sulfate	92.1		P	80 - 120
Endrin	99.3		P	80 - 120
Endrin Aldehyde	96.7		P	80 - 120
Endrin Ketone	101		P	80 - 120
Esfenvalerate	98.6		P	80 - 120
Ethalfuralin	88.1		P	80 - 120
Fenpropathrin	87.0		P	80 - 120
Gamma-BHC	85.3		P	80 - 120

Quality Assurance Report Calibration Verification

Reference Method: EPA 8270E
Run ID: A123394
Included Lab Sample IDs: 2454573

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Gamma-Chlordane	110		P	80 - 120
Heptachlor	102		P	80 - 120
Heptachlor Epoxide	100		P	80 - 120
Hexachlorobenzene	97.9		P	80 - 120
Kepone	82.8		P	80 - 120
Lambda-Cyhalothrin	104		P	80 - 120
Methoprene	97.4		P	80 - 120
Methoxychlor	98.8		P	80 - 120
MGK-264	89.8		P	80 - 120
Mirex	96.6		P	80 - 120
Oxychlordane	82.6		P	80 - 120
Permethrin	101		P	80 - 120
Phenothrin	103		P	80 - 120
Piperonyl Butoxide	106		P	80 - 120
Prallethrin	98.9		P	80 - 120
Tau-Fluvalinate	108		P	80 - 120
Tetramethrin	103		P	80 - 120
Trans-Nonachlor	115		P	80 - 120
Triclosan Methyl	85.8		P	80 - 120
Trifluralin	112		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			LCS	Precision SMP	MS
DEP SOP: NU-094-1	Color (true)	103					4.66	
EPA 180.1 Rev. 2.0	Turbidity	103					3.01	
EPA 200.7 Rev. 4.4	Calcium	106	102	99.2				1.36
	Iron	112	110	110	91.0			0.0183
	Magnesium	107	104	102				0.200
	Potassium	101	100	101	101			0.236
	Sodium	103	98.8	100	94.3			0.992
	Strontium	96.7	94.7	96.4	97.0			1.75
	Tin	97.8	97.5	98.4	92.9			0.950
	Titanium	101	102	102	88.6			0.0394
	Vanadium	98.0	97.4	98.3	97.7			0.836
	Zinc	94.8	93.1	93.1	94.4			0.0541
EPA 200.8 Rev. 5.4	Aluminum	99.0	99.1	98.5	111			0.620
	Antimony	101	103	103	98.3			0.203
	Arsenic	101	98.2	97.6	97.9			0.524
	Barium	101	101	102	99.0			0.333
	Beryllium	96.4	96.2	96.1	88.8			0.142
	Boron	100	104	103	102			0.534
	Cadmium	99.1	103	102	102			0.463
	Chromium	101	103	102	103			0.935
	Cobalt	99.0	95.9	94.6	95.5			1.32
	Copper	97.3	91.8	91.8	91.4			0.0215
	Lead	95.0	95.0	94.7	94.7			0.317
	Manganese	99.7	103	99.8	97.3			1.82
	Molybdenum	97.9	100	99.0	99.1			0.982
	Nickel	98.3	93.7	93.2	93.1			0.505
	Selenium	100	98.2	98.1	98.5			0.0587
	Silver	100	101	101	99.0			0.177
	Thallium	99.1	101	101	102			0.125
EPA 300.0 Rev. 2.1	Chloride	104	97.8	102			1.22	
	Sulfate	102	98.8	102			1.55	
EPA 350.1 Rev. 2.0	Ammonia-N	96.8	95.2	99.4				2.42
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	94.2	99.0	107				5.58
EPA 353.2 Rev. 2.0	NO2NO3-N	99.5	96.0	98.5				2.57
EPA 365.1 Rev. 2.0	Total-P	106	109	109				0.0219
EPA 8270E	Aldrin	42.2	36.2	40.5				11.3
	Alpha-BHC	80.3	58.9	55.5				5.87
	Alpha-Chlordane	92.0	56.8	51.8				9.06
	Beta-BHC	104	75.7	89.3				16.5
	Beta-Cyfluthrin	88.9	61.5	64.0				3.95
	Bifenthrin	59.7	56.2	46.9				18.2
	Chlorothalonil	87.7	76.6	94.7				21.1
	Cis-Nonachlor	87.9	57.6	58.0				0.665
	Cypermethrin	94.0	55.5	42.3				27.1
	Dacthal	86.3	63.5	72.7				13.5
	DDD-p,p'	90.4	66.2	49.8				28.2
	DDE-p,p'	64.4	55.2	56.4				2.15
	DDT-p,p'	69.2	43.0	52.7				20.2
	Delta-BHC	102	69.8	87.1				22.0
	Deltamethrin	98.1	39.3	53.7				31.1
	Dichlobenil	82.1	49.6	81.4				48.5
	Dicofol	72.8	52.5	53.5				1.90
	Dieldrin	75.7	22.1	22.9				1.08
	Endosulfan I	83.6	50.1	64.5				25.2

Quality Assurance Report Summary

Ref. Method	Analyte	LCS % Recovery	MS % Recovery		Precision	
					LCS	SMP
EPA 8270E	Endosulfan II	90.2	66.6	57.7		
	Endosulfan Sulfate	77.2	51.9	98.5		
	Endrin	92.7	62.3	49.6		
	Endrin Aldehyde	72.0	28.7	72.6		
	Endrin Ketone	95.4	72.6	57.7		
	Esfenvalerate	76.6	71.5	60.4		
	Ethalfuralin	71.7	54.2	64.3		
	Fenpropathrin	66.2	33.4	42.3		
	Gamma-BHC	94.9	54.3	67.2		
	Gamma-Chlordane	84.4	50.4	47.9		
	Heptachlor	68.0	43.4	50.8		
	Heptachlor Epoxide	93.4	52.6	69.9		
	Hexachlorobenzene	81.3	48.8	29.4		
	Kepone	92.8	33.5	37.1		
	Lambda-Cyhalothrin	82.8	55.0	42.9		
	Methoprene	69.2	37.9	46.9		
	Methoxychlor	91.4	58.8	42.8		
	MGK-264	78.8	53.6	68.4		
	Mirex	60.1	36.6	49.2		
	Oxychlordane	64.9	35.3	53.5		
	PCB-1016	84.7	91.3	114		
	PCB-1260	110	110	130		
	Permethrin	83.5	61.2	51.1		
	Phenothrin	68.1	70.7	55.5		
	Piperonyl Butoxide	110	69.1	86.9		
	Prallethrin	84.3	46.1	51.8		
	Tau-Fluvalinate	95.4	93.0	53.1		
	Tetramethrin	88.5	65.5	64.2		
	Trans-Nonachlor	97.2	58.5	51.2		
	Triclosan Methyl	80.9	63.1	47.0		
	Trifluralin	90.3	60.7	49.2		
EPA 8276	Chlordane	99.8	80.5	101		
	Toxaphene	109	71.2	95.2		
SM 2320 B-2011	Total Alkalinity	97.7			0.165	
SM 2540 C-2015	TDS	103			3.89	
SM 2540 D-2015	TSS	106			8.33	
SM 4500-F- C-2011	Fluoride	102	101	101		0.0
SM 5310 B-2011	Organic Carbon	96.9	98.7	96.0		2.10

Reference Method Descriptions

Method	Description	Associated Samples
DEP SOP: NU-094-1	True Color measured at 450 nm (not valid for NPDES monitoring)	2454560
EPA 180.1 Rev. 2.0	Turbidity in aqueous matrices	2454560
EPA 200.7 Rev. 4.4	Total Recoverable Metals analysis using ICP emission spectroscopy for aqueous samples supporting Clean Water Act Projects	2454574
EPA 200.8 Rev. 5.4	Total Recoverable Metals analysis using ICP-MS for aqueous samples supporting Clean Water Act Projects	2454574
EPA 300.0 Rev. 2.1	Chloride in aqueous matrices	2454560
EPA 300.0 Rev. 2.1	Sulfate in aqueous matrices	2454560
EPA 350.1 Rev. 2.0	Ammonia in aqueous matrices as mg N/L	2454561
EPA 351.2 Rev. 2.0	Total Kjeldahl Nitrogen in aqueous matrices	2454561
EPA 353.2 Rev. 2.0	Nitrite/Nitrate in aqueous matrices as mg N/L	2454561

Reference Method Descriptions

Method	Description	<u>Associated Samples</u>
EPA 365.1 Rev. 2.0	Total Phosphorus in aqueous matrices as mg P/L	2454561
EPA 8270E	Organochlorine pesticides, pyrethroids and tracers in water matrices by GC/MS/MS	2454573
EPA 8270E	PCBs in water matrices by GC/MS/MS	2454573
EPA 8276	Chlordane and Toxaphene in water matrices by GC/MS with Negative Chemical Ionization	2454573
SM 2320 B-2011	Alkalinity in aqueous matrices as mg CaCO ₃ /L	2454560
SM 2340 B-2011	Hardness by calculation, in aqueous matrices, reported as mg/L CaCO ₃	2454574
SM 2540 C-2015	Total Dissolved Solids in aqueous matrices	2454560
SM 2540 D-2015	Total Suspended Solids in aqueous matrices using a maximum of 250 mL of sample	2454560
SM 4500-F- C-2011	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	2454560
SM 5310 B-2011	Nonpurgeable Organic Carbon in aqueous matrices	2454561

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	12/05/2023			12/05/2023 16:01	Chandler E Cox	2454560
EPA 180.1 Rev. 2.0	12/05/2023			12/05/2023 15:41	Khloe J Berg	2454560
EPA 200.7 Rev. 4.4	12/05/2023	12/06/2023 15:10	George D Taylor	12/13/2023 14:07	Chase Roberts	2454574
EPA 200.8 Rev. 5.4	12/05/2023	12/06/2023 15:10	George D Taylor	12/07/2023 18:17	Emily M Philpot	2454574
EPA 300.0 Rev. 2.1	12/05/2023			12/09/2023 06:42	Anna M. Plaviak	2454560
EPA 350.1 Rev. 2.0	12/05/2023			12/06/2023 14:32	Ping Hua	2454561
EPA 351.2 Rev. 2.0	12/05/2023	12/07/2023 09:55	Samantha L Bates	12/12/2023 11:19	Samantha L Bates	2454561
EPA 353.2 Rev. 2.0	12/05/2023			12/07/2023 13:59	Fadila Guebre	2454561
EPA 365.1 Rev. 2.0	12/05/2023	12/08/2023 15:43	Adam P Silver	12/13/2023 10:14	James L Waggeberby	2454561
EPA 8270E	12/05/2023	12/08/2023 08:00	Fe-Val Siddell	12/13/2023 00:13	Lipi Saha	2454573
	12/05/2023	12/08/2023 08:00	Fe-Val Siddell	12/20/2023 22:53	Julie Wi	2454573
EPA 8276	12/05/2023	12/08/2023 08:00	Fe-Val Siddell	12/19/2023 06:05	Kenedi Mills	2454573
SM 2320 B-2011	12/05/2023			12/13/2023 03:34	Dale L. Simmons	2454560
SM 2340 B-2011	12/05/2023			12/13/2023 14:07	Chase Roberts	2454574
SM 2540 C-2015	12/05/2023			12/08/2023 16:18	Yijie Li	2454560
SM 2540 D-2015	12/05/2023			12/08/2023 16:18	Yijie Li	2454560
SM 4500-F- C-2011	12/05/2023			12/13/2023 03:34	Dale L. Simmons	2454560
SM 5310 B-2011	12/05/2023			12/07/2023 00:40	Kenneth H Lee	2454561