

Chemical Analysis Report

SO-DIST-2023-07-27-01

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

Event Description: **2023 SMP: Desoto Shenanigans**
Request ID: **RQ-2023-07-24-45**
Customer: **SO-DIST**
Project ID: **SMP**

Send Reports to:
FL Dept. of Environmental Protection
FLDEP South District Office
2295 Victoria Ave. Suite 314
Fort Myers, FL 33901-3381
Attn: Monica Jaeger

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Certified by: Thekkekalathil Chandrasekhar, Environmental Consultant

Date Certified: 10-AUG-2023 14:03



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: HORSE CREEK

Collection Date/Time: 07/26/2023 09:25

Field ID: G3SD0157

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2427249	EPA 8270E	Aldrin	0.67	U	ng/L	P433162	
		Alpha-BHC	0.10	U	ng/L	P433162	
		Alpha-Chlordane	0.21	U	ng/L	P433162	
		PCB-1016	2.1	U	ng/L	P433162	
		Beta-BHC	0.10	U	ng/L	P433162	
		PCB-1221	2.1	U	ng/L	P433162	
		Beta-Cyfluthrin	1.3	U	ng/L	P433162	
		PCB-1232	2.1	U	ng/L	P433162	
		Bifenthrin	0.51	U	ng/L	P433162	
		PCB-1242	2.1	U	ng/L	P433162	
		Carbophenothion	0.92	U	ng/L	P433162	
		PCB-1248	2.1	U	ng/L	P433162	
		Chlorothalonil	3.7	U	ng/L	P433162	
		PCB-1254	2.1	U	ng/L	P433162	
		Cis-Nonachlor	0.21	U	ng/L	P433162	
		PCB-1260	2.1	U	ng/L	P433162	
		Cypermethrin	1.5	U	ng/L	P433162	
		Dacthal	0.15	U	ng/L	P433162	
		DDD-p,p'	0.26	U	ng/L	P433162	
		DDE-p,p'	0.21	U	ng/L	P433162	
		DDT-p,p'	0.82	U	ng/L	P433162	
		Delta-BHC	0.41	U	ng/L	P433162	
		Deltamethrin	1.3	U	ng/L	P433162	
		Dichlobenil	0.26	U	ng/L	P433162	
		Dicofol	1.3	U	ng/L	P433162	
		Dieldrin	0.41	U	ng/L	P433162	
		Endosulfan I	0.41	U	ng/L	P433162	
		Endosulfan II	0.92	U	ng/L	P433162	
		Endosulfan Sulfate	0.31	U	ng/L	P433162	
		Endrin	0.92	U	ng/L	P433162	
		Endrin Aldehyde	0.77	U	ng/L	P433162	
		Endrin Ketone	0.41	U	ng/L	P433162	
		Esfenvalerate	0.77	U	ng/L	P433162	
		Ethalfuralin	0.15	U	ng/L	P433162	
		Fenpropathrin	0.26	U	ng/L	P433162	
		Gamma-BHC	0.13	U	ng/L	P433162	
		Gamma-Chlordane	0.21	U	ng/L	P433162	
		Heptachlor	0.21	U	ng/L	P433162	
		Heptachlor Epoxide	0.26	U	ng/L	P433162	
		Hexachlorobenzene**	1.0	U	ng/L	P433162	
		Kepone	14	UJ	ng/L	P433162	CCV
		Lambda-Cyhalothrin	0.77	U	ng/L	P433162	
		Methoprene	0.77	U	ng/L	P433162	
		Methoxychlor	0.31	U	ng/L	P433162	

Field ID: G3SD0157

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2427249	EPA 8270E	MGK-264	0.21	U	ng/L	P433162	
		Mirex	0.36	U	ng/L	P433162	
		Oxychlordane	0.31	U	ng/L	P433162	
		Permethrin	1.6	U	ng/L	P433162	
		Phenothrin	0.92	U	ng/L	P433162	
		Piperonyl Butoxide	0.75	I	ng/L	P433162	
		Prallethrin	2.1	U	ng/L	P433162	
		Tau-Fluvalinate	0.26	U	ng/L	P433162	
		Tetramethrin	0.77	U	ng/L	P433162	
		Trans-Nonachlor	0.21	U	ng/L	P433162	
		Triclosan Methyl	0.15	U	ng/L	P433162	
		Trifluralin	0.21	U	ng/L	P433162	
	EPA 8276	Chlordane	2.1	U	ng/L	P433162	
		Toxaphene	30	I	ng/L	P433162	

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

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

Quality Assurance Report Method Blank Results

Reference Method: DEP SOP: NU-094-1
Batch ID: P433136

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P433138

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P433239

Component	Result	Code	Units
Calcium	0.075	U	mg/L
Chromium	1.0	U	ug/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: P433239

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
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: P433278

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Quality Assurance Report Method Blank Results

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P433407

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P433445

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P433218

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P433168

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P433152

Component	Result	Code	Units
Total-P	0.010	U	mg P/L

Reference Method: EPA 8270E
Batch ID: P433162

Component	Result	Code	Units
Aldrin	0.65	U	ng/L
Aldrin	0.65	U	ng/L
Alpha-BHC	0.10	U	ng/L
Alpha-BHC	0.10	U	ng/L
Alpha-Chlordane	0.20	U	ng/L
Alpha-Chlordane	0.20	U	ng/L
Beta-BHC	0.10	U	ng/L
Beta-BHC	0.10	U	ng/L
Beta-Cyfluthrin	1.2	U	ng/L
Beta-Cyfluthrin	1.2	U	ng/L
Bifenthrin	0.50	U	ng/L
Bifenthrin	0.50	U	ng/L
Carbophenothion	0.90	U	ng/L
Carbophenothion	0.90	U	ng/L
Chlorothalonil	3.6	U	ng/L
Chlorothalonil	3.6	U	ng/L
Cis-Nonachlor	0.20	U	ng/L
Cis-Nonachlor	0.20	U	ng/L
Cypermethrin	1.5	U	ng/L
Cypermethrin	1.5	U	ng/L
Dacthal	0.15	U	ng/L
Dacthal	0.15	U	ng/L

Quality Assurance Report

Method Blank Results

Reference Method: EPA 8270E

Batch ID: P433162

Component	Result	Code	Units
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
Methoprene	0.75	U	ng/L
Methoprene	0.75	U	ng/L
Methoxychlor	0.30	U	ng/L
Methoxychlor	0.30	U	ng/L

Quality Assurance Report Method Blank Results

Reference Method: EPA 8270E
Batch ID: P433162

Component	Result	Code	Units
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: P433162

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

Reference Method: SM 2320 B-2011
Batch ID: P433354

Component	Result	Code	Units
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Quality Assurance Report

Method Blank Results

Reference Method: SM 2320 B-2011
Batch ID: P433354

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

Reference Method: SM 2540 C-2015
Batch ID: P433608

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-2015
Batch ID: P433521

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500-F- C-2011
Batch ID: P433357

Component	Result	Code	Units
Fluoride	0.025	U	mg F/L

Reference Method: SM 5310 B-2011
Batch ID: P433375

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: P433136

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Color (true)	99.5		P	90 - 110

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P433138

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

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P433239

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Calcium	101		P	85 - 115
Chromium	99.5		P	85 - 115
Iron	99.9		P	85 - 115
Magnesium	99.5		P	85 - 115
Potassium	102		P	85 - 115
Sodium	111		P	85 - 115
Strontium	103		P	85 - 115
Tin	99.5		P	85 - 115
Titanium	101		P	85 - 115
Vanadium	100		P	85 - 115
Zinc	96.5		P	85 - 115

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P433239

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Aluminum	98.8		P	80 - 120
Antimony	98.9		P	80 - 120
Arsenic	99.7		P	80 - 120
Barium	101		P	80 - 120
Beryllium	93.3		P	80 - 120
Boron	102		P	80 - 120
Cadmium	98.9		P	80 - 120
Cobalt	98.4		P	80 - 120
Copper	95.5		P	85 - 115
Lead	101		P	80 - 120
Manganese	97.0		P	80 - 120
Molybdenum	99.5		P	80 - 120
Nickel	98.2		P	80 - 120
Selenium	98.3		P	80 - 120
Silver	111		P	80 - 120
Thallium	99.9		P	80 - 120

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P433278

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Sulfate	99.7		P	90 - 110

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P433407

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P433445

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Ammonia-N	98.6		P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P433218

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: P433168

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
NO2NO3-N	93.0		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P433152

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total-P	107		P	90 - 110

Reference Method: EPA 8270E
Batch ID: P433162

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Aldrin	41.0		P	30 - 96.0
Alpha-BHC	89.4		P	70 - 109
Alpha-Chlordane	84.1		P	45 - 107
Beta-BHC	77.7		P	64 - 138
Beta-Cyfluthrin	82.1		P	17 - 141
Bifenthrin	50.2		P	10 - 113
Carbophenothion	43.9		P	24 - 91.0
Chlorothalonil	47.8		P	26 - 180
Cis-Nonachlor	79.5		P	37 - 102
Cypermethrin	75.1		P	20 - 133
Dacthal	91.2		P	69 - 114
DDD-p,p'	79.0		P	42 - 105
DDE-p,p'	77.5		P	42 - 106
DDT-p,p'	63.2		P	42 - 107
Delta-BHC	72.6		P	67 - 144
Deltamethrin	99.9		P	15 - 149
Dichlobenil	74.8		P	46 - 117
Dicofol	76.5		P	34 - 114
Dieldrin	62.3		P	50 - 108
Endosulfan I	65.4		P	55 - 104
Endosulfan II	95.7		P	51 - 111
Endosulfan Sulfate	79.8		P	56 - 121

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 8270E

Batch ID: P433162

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Endrin	84.6		P	10 - 106
Endrin Aldehyde	86.0		P	34 - 114
Endrin Ketone	111		P	63 - 177
Esfenvalerate	64.2		P	29 - 143
Ethalfuralin	68.5		P	46 - 96.0
Fenpropathrin	61.7		P	28 - 115
Gamma-BHC	104		P	65 - 121
Gamma-Chlordane	72.8		P	39 - 103
Heptachlor	68.3		P	39 - 94.0
Heptachlor Epoxide	62.8		P	54 - 104
Hexachlorobenzene	43.3		P	36 - 100
Kepone	37.6		P	10 - 225
Lambda-Cyhalothrin	57.6		P	10 - 135
Methoprene	59.1		P	10 - 109
Methoxychlor	86.8		P	52 - 112
MGK-264	70.8		P	44 - 117
Mirex	65.4		P	20 - 90.0
Oxychlordane	74.1		P	44 - 102
PCB-1016	74.6		P	45 - 107
PCB-1260	73.5		P	40 - 112
Permethrin	63.7		P	18 - 135
Phenothrin	38.2		P	10 - 102
Piperonyl Butoxide	95.4		P	28 - 156
Prallethrin	68.1		P	28 - 113
Tau-Fluvalinate	55.4		P	10 - 123
Tetramethrin	62.8		P	18 - 158
Trans-Nonachlor	79.0		P	39 - 104
Triclosan Methyl	59.6		P	54 - 108
Trifluralin	73.5		P	46 - 97.0

Reference Method: EPA 8276

Batch ID: P433162

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Chlordane	84.0		P	52 - 117
Toxaphene	99.4		P	44 - 125

Reference Method: SM 2320 B-2011

Batch ID: P433354

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

Reference Method: SM 2540 C-2015

Batch ID: P433608

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
TDS	94.3		P	90 - 110

Quality Assurance Report

Laboratory Control Sample Accuracy

Reference Method: SM 2540 D-2015
Batch ID: P433521

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
TSS	94.9		P	85 - 106

Reference Method: SM 4500-F- C-2011
Batch ID: P43357

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	95.4		P	94 - 106

Reference Method: SM 5310 B-2011
Batch ID: P433375

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	93.2		P	85 - 115

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 200.7 Rev. 4.4

Batch ID: P433239

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2427266	Calcium	93.0		P	80 - 120
2427266	Chromium	101	98.3	P/P	80 - 120
2427266	Iron	100	101	P/P	80 - 120
2427266	Magnesium	98.6	99.9	P/P	80 - 120
2427266	Potassium	103	99.6	P/P	80 - 120
2427266	Sodium	103		P	80 - 120
2427266	Strontium	104	103	P/P	80 - 120
2427266	Tin	97.0	96.7	P/P	80 - 120
2427266	Titanium	102	99.6	P/P	80 - 120
2427266	Vanadium	102	100	P/P	80 - 120
2427266	Zinc	97.4	95.4	P/P	80 - 120
2427396	Calcium	91.5		P	80 - 120
2427396	Chromium	97.3		P	80 - 120
2427396	Iron	101		P	80 - 120
2427396	Magnesium	100		P	80 - 120
2427396	Potassium	101		P	80 - 120
2427396	Sodium	107		P	80 - 120
2427396	Strontium	104		P	80 - 120
2427396	Tin	94.6		P	80 - 120
2427396	Titanium	100		P	80 - 120
2427396	Vanadium	99.6		P	80 - 120
2427396	Zinc	92.7		P	80 - 120

Reference Method: EPA 200.8 Rev. 5.4

Batch ID: P433239

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2427266	Aluminum	101	99.3	P/P	80 - 120
2427266	Antimony	100	99.5	P/P	80 - 120
2427266	Arsenic	100	99.3	P/P	80 - 120
2427266	Barium	103	101	P/P	80 - 120
2427266	Beryllium	97.1	96.4	P/P	80 - 120
2427266	Boron	103	101	P/P	80 - 120
2427266	Cadmium	102	99.2	P/P	80 - 120
2427266	Cobalt	97.0	95.6	P/P	80 - 120
2427266	Copper	98.4	93.7	P/P	80 - 120
2427266	Lead	103	102	P/P	80 - 120
2427266	Manganese	97.8	96.0	P/P	80 - 120
2427266	Molybdenum	99.7	98.5	P/P	80 - 120
2427266	Nickel	98.2	96.7	P/P	80 - 120
2427266	Selenium	98.1	96.3	P/P	80 - 120
2427266	Silver	109	109	P/P	80 - 120
2427266	Thallium	104	103	P/P	80 - 120
2427396	Aluminum	94.9		P	80 - 120
2427396	Antimony	95.6		P	80 - 120
2427396	Arsenic	92.5		P	80 - 120
2427396	Barium	96.8		P	80 - 120
2427396	Beryllium	92.0		P	80 - 120
2427396	Boron	95.8		P	80 - 120
2427396	Cadmium	94.2		P	80 - 120
2427396	Cobalt	90.3		P	80 - 120
2427396	Copper	85.9		P	80 - 120

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P433239

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2427396	Lead	96.4		P	80 - 120
2427396	Manganese	93.8		P	80 - 120
2427396	Molybdenum	94.8		P	80 - 120
2427396	Nickel	92.2		P	80 - 120
2427396	Selenium	91.3		P	80 - 120
2427396	Silver	106		P	80 - 120
2427396	Thallium	96.6		P	80 - 120

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P433278

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2427188	Sulfate	100		P	90 - 110
2427210	Sulfate	101		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P433407

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2427501	Chloride	102		P	90 - 110
2427752	Chloride	102		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P433445

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2427257	Ammonia-N	99.0	100	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P433218

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2427240	Kjeldahl Nitrogen	101	94.1	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P433168

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2427237	NO2NO3-N	93.8	93.4	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P433152

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2427258	Total-P	109	109	P/P	90 - 110

Reference Method: EPA 8270E
Batch ID: P433162

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2427281	Aldrin	44.0	51.4	P/P	24 - 81.0
2427281	Alpha-BHC	85.8	90.1	P/P	65 - 110

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 8270E

Batch ID: P433162

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2427281	Alpha-Chlordane	66.5	79.6	P/P	43 - 119
2427281	Beta-BHC	83.4	79.0	P/P	54 - 165
2427281	Beta-Cyfluthrin	87.6	94.0	P/P	27 - 165
2427281	Bifenthrin	62.1	64.8	P/P	17 - 117
2427281	Carbophenothion	57.5	51.1	P/P	21 - 108
2427281	Chlorothalonil	82.0	65.8	P/P	10 - 255
2427281	Cis-Nonachlor	68.0	77.9	P/P	34 - 98.0
2427281	Cypermethrin	89.9	84.6	P/P	25 - 143
2427281	Dacthal	81.6	90.0	P/P	55 - 139
2427281	DDD-p,p'	66.4	74.5	P/P	30 - 109
2427281	DDE-p,p'	70.1	78.0	P/P	35 - 106
2427281	DDT-p,p'	66.5	68.0	P/P	41 - 101
2427281	Delta-BHC	93.5	79.4	P/P	58 - 165
2427281	Deltamethrin	96.8	111	P/P	10 - 194
2427281	Dichlobenil	66.6	66.1	P/P	22 - 114
2427281	Dicofol	70.3	81.6	P/P	17 - 133
2427281	Dieldrin	67.6	64.4	P/P	45 - 129
2427281	Endosulfan I	74.7	69.1	P/P	49 - 104
2427281	Endosulfan II	88.8	101	P/P	37 - 117
2427281	Endosulfan Sulfate	72.4	73.6	P/P	38 - 128
2427281	Endrin	71.0	81.7	P/P	35 - 116
2427281	Endrin Aldehyde	72.1	76.3	P/P	19 - 108
2427281	Endrin Ketone	109	118	P/P	44 - 134
2427281	Esfenvalerate	82.6	86.0	P/P	27 - 176
2427281	Ethalfuralin	68.1	71.1	P/P	49 - 100
2427281	Fenpropathrin	72.5	78.9	P/P	34 - 117
2427281	Gamma-BHC	109	111	P/P	59 - 129
2427281	Gamma-Chlordane	68.0	75.3	P/P	33 - 107
2427281	Heptachlor	72.7	81.2	P/P	37 - 94.0
2427281	Heptachlor Epoxide	66.7	59.7	P/P	38 - 118
2427281	Hexachlorobenzene	48.7	44.7	P/P	35 - 97.0
2427281	Kepone	34.2	32.1	P/P	10 - 221
2427281	Lambda-Cyhalothrin	75.1	70.9	P/P	23 - 190
2427281	Methoprene	63.5	63.6	P/P	21 - 109
2427281	Methoxychlor	75.9	90.5	P/P	46 - 118
2427281	MGK-264	81.9	82.7	P/P	39 - 122
2427281	Mirex	63.5	70.4	P/P	25 - 90.0
2427281	Oxychlordane	67.3	73.6	P/P	42 - 100
2427281	Permethrin	75.6	84.2	P/P	33 - 181
2427281	Phenothrin	64.2	61.8	P/P	12 - 125
2427281	Piperonyl Butoxide	109	102	P/P	10 - 178
2427281	Prallethrin	61.0	67.7	P/P	24 - 122
2427281	Tau-Fluvalinate	80.6	76.4	P/P	13 - 151
2427281	Tetramethrin	80.6	77.2	P/P	16 - 172
2427281	Trans-Nonachlor	71.0	78.5	P/P	39 - 100
2427281	Triclosan Methyl	69.8	61.2	P/P	43 - 110
2427281	Trifluralin	68.1	66.3	P/P	45 - 94.0
2427568	PCB-1016	66.7	65.8	P/P	45 - 107
2427568	PCB-1260	69.2	82.0	P/P	40 - 112

Quality Assurance Report

Matrix Spike Accuracy

Reference Method: EPA 8276
Batch ID: P433162

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2427568	Chlordane	72.1	76.6	P/P	43 - 123
2427568	Toxaphene	87.0	91.6	P/P	27 - 156

Reference Method: SM 4500-F- C-2011
Batch ID: P433357

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2427094	Fluoride	98.1	97.5	P/P	94 - 106

Reference Method: SM 5310 B-2011
Batch ID: P433375

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2427096	Organic Carbon	91.8	95.5	P/P	85 - 115

Quality Assurance Report Precision

Reference Method: DEP SOP: NU-094-1
Batch ID: P433136

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2427188	Color (true)	4.00	Sample	P	0 - 20

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P433138

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2427188	Turbidity	3.23	Sample	P	0 - 20

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P433239

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2427266	Calcium	0.257	Spike	P	0 - 20
2427266	Chromium	2.39	Spike	P	0 - 20
2427266	Iron	0.510	Spike	P	0 - 20
2427266	Magnesium	0.893	Spike	P	0 - 20
2427266	Potassium	2.43	Spike	P	0 - 20
2427266	Sodium	0.578	Spike	P	0 - 20
2427266	Strontium	1.67	Spike	P	0 - 20
2427266	Tin	0.242	Spike	P	0 - 20
2427266	Titanium	2.74	Spike	P	0 - 20
2427266	Vanadium	2.24	Spike	P	0 - 20
2427266	Zinc	2.13	Spike	P	0 - 20

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P433239

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2427266	Aluminum	1.64	Spike	P	0 - 20
2427266	Antimony	0.941	Spike	P	0 - 20
2427266	Arsenic	1.13	Spike	P	0 - 20
2427266	Barium	2.01	Spike	P	0 - 20
2427266	Beryllium	0.745	Spike	P	0 - 20
2427266	Boron	1.31	Spike	P	0 - 20
2427266	Cadmium	2.52	Spike	P	0 - 20
2427266	Cobalt	1.47	Spike	P	0 - 20
2427266	Copper	4.29	Spike	P	0 - 20
2427266	Lead	1.50	Spike	P	0 - 20
2427266	Manganese	1.48	Spike	P	0 - 20
2427266	Molybdenum	1.17	Spike	P	0 - 20
2427266	Nickel	1.54	Spike	P	0 - 20
2427266	Selenium	1.80	Spike	P	0 - 20
2427266	Silver	0.387	Spike	P	0 - 20
2427266	Thallium	0.539	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P433278

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2427188	Sulfate	0.932	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P433407

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2427501	Chloride	0.0568	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P433445

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2427257	Ammonia-N	1.08	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P433218

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2427240	Kjeldahl Nitrogen	5.23	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P433168

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2427237	NO2NO3-N	0.480	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P433152

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2427258	Total-P	0.172	Spike	P	0 - 20

Reference Method: EPA 8270E
Batch ID: P433162

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2427281	Aldrin	15.5	Spike	P	0 - 41
2427281	Alpha-BHC	4.98	Spike	P	0 - 25
2427281	Alpha-Chlordane	17.8	Spike	P	0 - 32
2427281	Beta-BHC	5.43	Spike	P	0 - 33
2427281	Beta-Cyfluthrin	7.07	Spike	P	0 - 43
2427281	Bifenthrin	4.28	Spike	P	0 - 52
2427281	Carbophenothion	11.8	Spike	P	0 - 49
2427281	Chlorothalonil	22.0	Spike	P	0 - 82
2427281	Cis-Nonachlor	13.5	Spike	P	0 - 33

Quality Assurance Report Precision

Reference Method: EPA 8270E
Batch ID: P433162

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2427281	Cypermethrin	6.02	Spike	P	0 - 51
2427281	Dacthal	9.78	Spike	P	0 - 27
2427281	DDD-p,p'	11.5	Spike	P	0 - 39
2427281	DDE-p,p'	10.7	Spike	P	0 - 31
2427281	DDT-p,p'	2.10	Spike	P	0 - 29
2427281	Delta-BHC	16.3	Spike	P	0 - 35
2427281	Deltamethrin	13.5	Spike	P	0 - 100
2427281	Dichlobenil	0.716	Spike	P	0 - 40
2427281	Dicofol	14.9	Spike	P	0 - 37
2427281	Dieldrin	4.77	Spike	P	0 - 27
2427281	Endosulfan I	7.90	Spike	P	0 - 23
2427281	Endosulfan II	12.6	Spike	P	0 - 34
2427281	Endosulfan Sulfate	1.65	Spike	P	0 - 36
2427281	Endrin	13.9	Spike	P	0 - 45
2427281	Endrin Aldehyde	5.73	Spike	P	0 - 76
2427281	Endrin Ketone	8.39	Spike	P	0 - 43
2427281	Esfenvalerate	4.09	Spike	P	0 - 51
2427281	Ethalfuralin	4.20	Spike	P	0 - 22
2427281	Fenpropathrin	8.46	Spike	P	0 - 49
2427281	Gamma-BHC	1.74	Spike	P	0 - 28
2427281	Gamma-Chlordane	10.3	Spike	P	0 - 40
2427281	Heptachlor	11.0	Spike	P	0 - 29
2427281	Heptachlor Epoxide	11.1	Spike	P	0 - 33
2427281	Hexachlorobenzene	8.46	Spike	P	0 - 36
2427281	Kepone	6.23	Spike	P	0 - 85
2427281	Lambda-Cyhalothrin	5.74	Spike	P	0 - 55
2427281	Methoprene	0.247	Spike	P	0 - 53
2427281	Methoxychlor	17.5	Spike	P	0 - 50
2427281	MGK-264	0.942	Spike	P	0 - 43
2427281	Mirex	10.2	Spike	P	0 - 40
2427281	Oxychlordane	8.89	Spike	P	0 - 31
2427281	Permethrin	10.7	Spike	P	0 - 50
2427281	Phenothrin	3.86	Spike	P	0 - 58
2427281	Piperonyl Butoxide	6.29	Spike	P	0 - 100
2427281	Prallethrin	10.4	Spike	P	0 - 39
2427281	Tau-Fluvalinate	5.39	Spike	P	0 - 54
2427281	Tetramethrin	4.27	Spike	P	0 - 51
2427281	Trans-Nonachlor	10.0	Spike	P	0 - 39
2427281	Triclosan Methyl	13.1	Spike	P	0 - 31
2427281	Trifluralin	2.66	Spike	P	0 - 22
2427568	PCB-1016	1.40	Spike	P	0 - 24
2427568	PCB-1260	16.9	Spike	P	0 - 30

Reference Method: EPA 8276
Batch ID: P433162

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2427568	Chlordane	6.12	Spike	P	0 - 28
2427568	Toxaphene	5.10	Spike	P	0 - 27

Quality Assurance Report Precision

Reference Method: SM 2320 B-2011
Batch ID: P433354

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2427094	Total Alkalinity	0.634	Sample	P	0 - 3.9

Reference Method: SM 2540 C-2015
Batch ID: P433608

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2427236	TDS	3.92	Sample	P	0 - 10

Reference Method: SM 4500-F- C-2011
Batch ID: P433357

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2427094	Fluoride	0.500	Spike	P	0 - 1.9

Reference Method: SM 5310 B-2011
Batch ID: P433375

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2427096	Organic Carbon	3.16	Spike	P	0 - 20

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

Quality Assurance Report Surrogates

Lab Sample ID: 2427249
Field Sample ID: G3SD0157

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8270E	Decachlorobiphenyl	88.8	P	37 - 129
EPA 8270E	Decachlorobiphenyl	93.1	P	26 - 115
EPA 8270E	Tetrachloro-m-xylene	62.0	P	30 - 101
EPA 8270E	Tetrachloro-m-xylene	50.1	P	29 - 95.0
EPA 8276	Decachlorobiphenyl	62.1	P	28 - 102
EPA 8276	PCNB	88.5	P	49 - 115

Quality Assurance Report Calibration Verification

Reference Method: DEP SOP: NU-094-1
Run ID: A120689
Included Lab Sample IDs: 2427236

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	97.0	99.2	P/P	90 - 110

Reference Method: EPA 180.1 Rev. 2.0
Run ID: A120690
Included Lab Sample IDs: 2427236

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

Reference Method: EPA 353.2 Rev. 2.0
Run ID: A120701
Included Lab Sample IDs: 2427237

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO2NO3-N	94.0	93.0	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Run ID: A120732
Included Lab Sample IDs: 2427237

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	101	104	P/P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Run ID: A120763
Included Lab Sample IDs: 2427236

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	101	102	P/P	90 - 110
Sulfate	100	101	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Run ID: A120769
Included Lab Sample IDs: 2427237

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

Reference Method: EPA 200.8 Rev. 5.4
Run ID: A120776
Included Lab Sample IDs: 2427250

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Aluminum	96.1	94.9	P/P	90 - 110
Antimony	94.6	93.8	P/P	90 - 110
Arsenic	95.6	94.1	P/P	90 - 110
Barium	96.3	95.2	P/P	90 - 110
Beryllium	95.8	94.3	P/P	90 - 110
Boron	97.0	98.0	P/P	90 - 110
Cadmium	96.0	95.8	P/P	90 - 110
Cobalt	94.8	93.0	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: EPA 200.8 Rev. 5.4

Run ID: A120776

Included Lab Sample IDs: 2427250

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Lead	96.4	96.9	P/P	90 - 110
Manganese	93.5	92.9	P/P	90 - 110
Molybdenum	95.3	93.9	P/P	90 - 110
Nickel	95.9	94.7	P/P	90 - 110
Selenium	95.3	93.2	P/P	90 - 110
Silver	98.5	97.5	P/P	90 - 110
Thallium	96.9	98.1	P/P	90 - 110

Reference Method: SM 2320 B-2011

Run ID: A120803

Included Lab Sample IDs: 2427236

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	95.4	93.9	P/P	90 - 110

Reference Method: SM 4500-F- C-2011

Run ID: A120803

Included Lab Sample IDs: 2427236

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

Reference Method: SM 5310 B-2011

Run ID: A120813

Included Lab Sample IDs: 2427237

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	95.4	94.3	P/P	90 - 110

Reference Method: EPA 200.7 Rev. 4.4

Run ID: A120816

Included Lab Sample IDs: 2427250

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Calcium	97.4	95.0	P/P	90 - 110
Chromium	98.0	96.5	P/P	90 - 110
Iron	99.5	98.2	P/P	90 - 110
Magnesium	98.9	97.5	P/P	90 - 110
Potassium	103	101	P/P	90 - 110
Sodium	109	106	P/P	90 - 110
Strontium	105	103	P/P	90 - 110
Tin	97.7	96.4	P/P	90 - 110
Titanium	101	98.2	P/P	90 - 110
Vanadium	100	97.8	P/P	90 - 110
Zinc	95.0	94.0	P/P	90 - 110

Reference Method: EPA 8270E

Run ID: A120819

Included Lab Sample IDs: 2427249

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

Reference Method: EPA 8270E
 Run ID: A120819
 Included Lab Sample IDs: 2427249

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Aldrin	103		P	80 - 120
Alpha-BHC	99.5		P	80 - 120
Alpha-Chlordane	109		P	80 - 120
Beta-BHC	107		P	80 - 120
Beta-Cyfluthrin	113		P	80 - 120
Bifenthrin	108		P	80 - 120
Carbophenothion	102		P	80 - 120
Chlorothalonil	97.9		P	80 - 120
Cis-Nonachlor	108		P	80 - 120
Cypermethrin	111		P	80 - 120
Dacthal	99.4		P	80 - 120
DDD-p,p'	106		P	80 - 120
DDE-p,p'	108		P	80 - 120
DDT-p,p'	101		P	80 - 120
Delta-BHC	100		P	80 - 120
Deltamethrin	112		P	80 - 120
Dichlobenil	112		P	80 - 120
Dicofol	96.8		P	80 - 120
Dieldrin	105		P	80 - 120
Endosulfan I	104		P	80 - 120
Endosulfan II	96.9		P	80 - 120
Endosulfan Sulfate	91.5		P	80 - 120
Endrin	107		P	80 - 120
Endrin Aldehyde	99.6		P	80 - 120
Endrin Ketone	94.4		P	80 - 120
Esfenvalerate	107		P	80 - 120
Ethalfuralin	100		P	80 - 120
Fenpropathrin	112		P	80 - 120
Gamma-BHC	105		P	80 - 120
Gamma-Chlordane	101		P	80 - 120
Heptachlor	81.0		P	80 - 120
Heptachlor Epoxide	107		P	80 - 120
Hexachlorobenzene	107		P	80 - 120
Kepone	56.6*		F	80 - 120
Lambda-Cyhalothrin	111		P	80 - 120
Methoprene	108		P	80 - 120
Methoxychlor	109		P	80 - 120
MGK-264	106		P	80 - 120
Mirex	105		P	80 - 120
Oxychlordane	108		P	80 - 120
Permethrin	109		P	80 - 120
Phenothrin	109		P	80 - 120
Piperonyl Butoxide	109		P	80 - 120
Prallethrin	105		P	80 - 120
Tau-Fluvalinate	105		P	80 - 120
Tetramethrin	107		P	80 - 120
Trans-Nonachlor	106		P	80 - 120
Triclosan Methyl	105		P	80 - 120
Trifluralin	101		P	80 - 120

Quality Assurance Report Calibration Verification

Reference Method: EPA 200.8 Rev. 5.4

Run ID: A120838

Included Lab Sample IDs: 2427250

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

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A120846

Included Lab Sample IDs: 2427237

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	97.0	98.6	P/P	90 - 110

Reference Method: EPA 8276

Run ID: A120861

Included Lab Sample IDs: 2427249

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chlordane	95.2		P	80 - 120
Toxaphene	93.2		P	80 - 120

Reference Method: EPA 8270E

Run ID: A120871

Included Lab Sample IDs: 2427249

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
PCB-1016	96.5		P	80 - 120
PCB-1260	110		P	80 - 120

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

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

Where they are different, both control limits are provided.

Quality Assurance Report Summary

Ref. Method	Analyte	LCS % Recovery	MS % Recovery			Precision SMP	MS
			LCS				
DEP SOP: NU-094-1	Color (true)	99.5				4.00	
EPA 180.1 Rev. 2.0	Turbidity	99.3				3.23	
EPA 200.7 Rev. 4.4	Calcium	101	93.0	91.5			0.257
	Chromium	99.5	101	98.3	97.3		2.39
	Iron	99.9	100	101	101		0.510
	Magnesium	99.5	98.6	99.9	100		0.893
	Potassium	102	103	99.6	101		2.43
	Sodium	111	103	107			0.578
	Strontium	103	104	103	104		1.67
	Tin	99.5	97.0	96.7	94.6		0.242
	Titanium	101	102	99.6	100		2.74
	Vanadium	100	102	100	99.6		2.24
	Zinc	96.5	97.4	95.4	92.7		2.13
EPA 200.8 Rev. 5.4	Aluminum	98.8	101	99.3	94.9		1.64
	Antimony	98.9	100	99.5	95.6		0.941
	Arsenic	99.7	100	99.3	92.5		1.13
	Barium	101	103	101	96.8		2.01
	Beryllium	93.3	97.1	96.4	92.0		0.745
	Boron	102	103	101	95.8		1.31
	Cadmium	98.9	102	99.2	94.2		2.52
	Cobalt	98.4	97.0	95.6	90.3		1.47
	Copper	95.5	98.4	93.7	85.9		4.29
	Lead	101	103	102	96.4		1.50
	Manganese	97.0	97.8	96.0	93.8		1.48
	Molybdenum	99.5	99.7	98.5	94.8		1.17
	Nickel	98.2	98.2	96.7	92.2		1.54
	Selenium	98.3	98.1	96.3	91.3		1.80
	Silver	111	109	109	106		0.387
	Thallium	99.9	104	103	96.6		0.539
EPA 300.0 Rev. 2.1	Chloride	101	102	102		0.0568	
	Sulfate	99.7	100	101		0.932	
EPA 350.1 Rev. 2.0	Ammonia-N	98.6	99.0	100			1.08
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	100	101	94.1			5.23
EPA 353.2 Rev. 2.0	NO2NO3-N	93.0	93.8	93.4			0.480
EPA 365.1 Rev. 2.0	Total-P	107	109	109			0.172
EPA 8270E	Aldrin	41.0	44.0	51.4			15.5
	Alpha-BHC	89.4	85.8	90.1			4.98
	Alpha-Chlordane	84.1	66.5	79.6			17.8
	Beta-BHC	77.7	83.4	79.0			5.43
	Beta-Cyfluthrin	82.1	87.6	94.0			7.07
	Bifenthrin	50.2	62.1	64.8			4.28
	Carbophenothion	43.9	57.5	51.1			11.8
	Chlorothalonil	47.8	82.0	65.8			22.0
	Cis-Nonachlor	79.5	68.0	77.9			13.5
	Cypermethrin	75.1	89.9	84.6			6.02
	Dacthal	91.2	81.6	90.0			9.78
	DDD-p,p'	79.0	66.4	74.5			11.5
	DDE-p,p'	77.5	70.1	78.0			10.7
	DDT-p,p'	63.2	66.5	68.0			2.10
	Delta-BHC	72.6	93.5	79.4			16.3
	Deltamethrin	99.9	96.8	111			13.5
	Dichlobenil	74.8	66.6	66.1			0.716
	Dicofol	76.5	70.3	81.6			14.9
	Dieldrin	62.3	67.6	64.4			4.77

Quality Assurance Report Summary

Ref. Method	Analyte	LCS % Recovery	MS % Recovery		Precision LCS	SMP	MS
EPA 8270E	Endosulfan I	65.4	74.7	69.1			7.90
	Endosulfan II	95.7	88.8	101			12.6
	Endosulfan Sulfate	79.8	72.4	73.6			1.65
	Endrin	84.6	71.0	81.7			13.9
	Endrin Aldehyde	86.0	72.1	76.3			5.73
	Endrin Ketone	111	109	118			8.39
	Esfenvalerate	64.2	82.6	86.0			4.09
	Ethalfuralin	68.5	68.1	71.1			4.20
	Fenpropathrin	61.7	72.5	78.9			8.46
	Gamma-BHC	104	109	111			1.74
	Gamma-Chlordane	72.8	68.0	75.3			10.3
	Heptachlor	68.3	72.7	81.2			11.0
	Heptachlor Epoxide	62.8	66.7	59.7			11.1
	Hexachlorobenzene	43.3	48.7	44.7			8.46
	Kepone	37.6	34.2	32.1			6.23
	Lambda-Cyhalothrin	57.6	75.1	70.9			5.74
	Methoprene	59.1	63.5	63.6			0.247
	Methoxychlor	86.8	75.9	90.5			17.5
	MGK-264	70.8	81.9	82.7			0.942
	Mirex	65.4	63.5	70.4			10.2
	Oxychlordane	74.1	67.3	73.6			8.89
	PCB-1016	74.6	66.7	65.8			1.40
	PCB-1260	73.5	69.2	82.0			16.9
	Permethrin	63.7	75.6	84.2			10.7
	Phenothrin	38.2	64.2	61.8			3.86
	Piperonyl Butoxide	95.4	109	102			6.29
	Prallethrin	68.1	61.0	67.7			10.4
	Tau-Fluvalinate	55.4	80.6	76.4			5.39
	Tetramethrin	62.8	80.6	77.2			4.27
	Trans-Nonachlor	79.0	71.0	78.5			10.0
	Triclosan Methyl	59.6	69.8	61.2			13.1
	Trifluralin	73.5	68.1	66.3			2.66
EPA 8276	Chlordane	84.0	72.1	76.6			6.12
	Toxaphene	99.4	87.0	91.6			5.10
SM 2320 B-2011	Total Alkalinity	95.7				0.634	
SM 2540 C-2015	TDS	94.3				3.92	
SM 2540 D-2015	TSS	94.9					
SM 4500-F- C-2011	Fluoride	95.4	98.1	97.5			0.500
SM 5310 B-2011	Organic Carbon	93.2	91.8	95.5			3.16

Reference Method Descriptions

Method	Description	Associated Samples
DEP SOP: NU-094-1	True Color measured at 450 nm (not valid for NPDES monitoring)	2427236
EPA 180.1 Rev. 2.0	Turbidity in aqueous matrices	2427236
EPA 200.7 Rev. 4.4	Total Recoverable Metals analysis using ICP emission spectroscopy for aqueous samples supporting Clean Water Act Projects	2427250
EPA 200.8 Rev. 5.4	Total Recoverable Metals analysis using ICP-MS for aqueous samples supporting Clean Water Act Projects	2427250
EPA 300.0 Rev. 2.1	Chloride in aqueous matrices	2427236
EPA 300.0 Rev. 2.1	Sulfate in aqueous matrices	2427236
EPA 350.1 Rev. 2.0	Ammonia in aqueous matrices as mg N/L	2427237
EPA 351.2 Rev. 2.0	Total Kjeldahl Nitrogen in aqueous matrices	2427237

Reference Method Descriptions

Method	Description	<u>Associated Samples</u>
EPA 353.2 Rev. 2.0	Nitrite/Nitrate in aqueous matrices as mg N/L	2427237
EPA 365.1 Rev. 2.0	Total Phosphorus in aqueous matrices as mg P/L	2427237
EPA 8270E	Organochlorine pesticides, pyrethroids and tracers in water matrices by GC/MS/MS	2427249
EPA 8270E	PCBs in water matrices by GC/MS/MS	2427249
EPA 8276	Chlordane and Toxaphene in water matrices by GC/MS with Negative Chemical Ionization	2427249
SM 2320 B-2011	Alkalinity in aqueous matrices as mg CaCO ₃ /L	2427236
SM 2340 B-2011	Hardness by calculation, in aqueous matrices, reported as mg/L CaCO ₃	2427250
SM 2540 C-2015	Total Dissolved Solids in aqueous matrices	2427236
SM 2540 D-2015	Total Suspended Solids in aqueous matrices using a maximum of 250 mL of sample	2427236
SM 4500-F- C-2011	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	2427236
SM 5310 B-2011	Nonpurgeable Organic Carbon in aqueous matrices	2427237

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	07/27/2023			07/27/2023 16:09	Alexis Price	2427236
EPA 180.1 Rev. 2.0	07/27/2023			07/27/2023 14:43	Alexis Price	2427236
EPA 200.7 Rev. 4.4	07/27/2023	07/31/2023 13:25	George D Taylor	08/02/2023 18:08	Samatha Luckman	2427250
EPA 200.8 Rev. 5.4	07/27/2023	07/31/2023 13:25	George D Taylor	08/01/2023 21:11	Conrad Hartmann	2427250
	07/27/2023	07/31/2023 13:25	George D Taylor	08/03/2023 13:58	Emily M Philpot	2427250
EPA 300.0 Rev. 2.1	07/27/2023			08/01/2023 00:51	James L Waggeberby	2427236
	07/27/2023			08/02/2023 20:42	James L Waggeberby	2427236
EPA 350.1 Rev. 2.0	07/27/2023			08/04/2023 10:58	Ping Hua	2427237
EPA 351.2 Rev. 2.0	07/27/2023	07/31/2023 10:34	Dana G. Hughes	08/01/2023 14:57	Samantha L Bates	2427237
EPA 353.2 Rev. 2.0	07/27/2023			07/28/2023 10:36	Beverly Y. Sanders	2427237
EPA 365.1 Rev. 2.0	07/27/2023	07/28/2023 14:20	Simonne.V. Calhoun	07/31/2023 12:40	Chandler E Cox	2427237
EPA 8270E	07/27/2023	08/01/2023 08:00	Fe-Val Siddell	08/02/2023 19:54	Michael Poppell	2427249
	07/27/2023	08/01/2023 08:00	Fe-Val Siddell	08/04/2023 23:53	Julie Wi	2427249
EPA 8276	07/27/2023	08/01/2023 08:00	Fe-Val Siddell	08/05/2023 14:05	Arthur Maknenko	2427249
SM 2320 B-2011	07/27/2023			08/02/2023 05:42	Dale L. Simmons	2427236
SM 2340 B-2011	07/27/2023			08/02/2023 18:08	Samatha Luckman	2427250
SM 2540 C-2015	07/27/2023			07/31/2023 14:17	Yijie Li	2427236
SM 2540 D-2015	07/27/2023			07/31/2023 14:17	Yijie Li	2427236
SM 4500-F- C-2011	07/27/2023			08/02/2023 05:42	Dale L. Simmons	2427236
SM 5310 B-2011	07/27/2023			08/02/2023 18:54	Elise M. Gillis	2427237