

Chemical Analysis Report

SO-DIST-2023-10-25-02

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

Event Description: **2023 SMP: Desoto Shenanigans**
Request ID: **RQ-2023-10-23-20**
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: Nicole Reistad

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

Certified by: Thekkekalathil Chandrasekhar, Environmental Consultant

Date Certified: 17-NOV-2023 10:04



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: BOBCAT CREEK IN PRESERVE EAST

Collection Date/Time: 10/24/2023 12:30

Field ID: G3SD0131

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2447072	DEP SOP: NU-094-1	Color (true)	180		PCU	P436995	
	EPA 180.1 Rev. 2.0	Turbidity	4.8		NTU	P436988	
	EPA 300.0 Rev. 2.1	Chloride	33		mg Cl/L	P437502	
		Sulfate	14		mg SO4/L	P437506	
	SM 2320 B-2011	Total Alkalinity	82	A	mg CaCO3/L	P437314	
	SM 2540 C-2015	TDS	234		mg/L	P437390	
	SM 2540 D-2015	TSS	2	I	mg/L	P437270	
2447073	SM 4500-F- C-2011	Fluoride	0.46		mg F/L	P437316	
	EPA 350.1 Rev. 2.0	Ammonia-N	0.023		mg N/L	P437140	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.0		mg N/L	P437009	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.12		mg N/L	P437167	
	EPA 365.1 Rev. 2.0	Total-P	0.81		mg P/L	P437017	
2447080	SM 5310 B-2011	Organic Carbon	22		mg C/L	P437225	
	EPA 200.7 Rev. 4.4	Calcium	32.1		mg/L	P437091	
		Iron	1.70E+03		ug/L	P437091	
		Magnesium	9.40		mg/L	P437091	
		Potassium	0.85	I	mg/L	P437091	
		Sodium	21.7		mg/L	P437091	
		Strontium	353		ug/L	P437091	
		Tin	3.0	U	ug/L	P437091	
		Titanium	2.4	I	ug/L	P437091	
		Vanadium	2.0	U	ug/L	P437091	
		Zinc	5.0	U	ug/L	P437091	
	EPA 200.8 Rev. 5.4	Aluminum	80		ug/L	P437091	
		Antimony	0.081	I	ug/L	P437091	
		Arsenic	1.22		ug/L	P437091	
		Barium	7.71		ug/L	P437091	
		Beryllium	0.017	I	ug/L	P437091	
		Boron	42.2		ug/L	P437091	
		Cadmium	0.020	U	ug/L	P437091	
		Chromium	1.9		ug/L	P437091	
		Cobalt	0.165		ug/L	P437091	
		Copper	0.40	U	ug/L	P437091	
		Lead	0.20	U	ug/L	P437091	
		Manganese	11.0		ug/L	P437091	
		Molybdenum	0.47	I	ug/L	P437091	
		Nickel	0.63	I	ug/L	P437091	
		Selenium	0.20	U	ug/L	P437091	
		Silver	0.010	U	ug/L	P437091	
		Thallium	0.10	U	ug/L	P437091	
	SM 2340 B-2011	Hardness	119		mg/L	P437091	

Ref. Method and Comment:

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

SM 4500-F- C-2011: Batch matrix spike recoveries are unavailable because of high analyte concentration in the QC sample.

Sample Location: HORSE CREEK

Collection Date/Time: 10/24/2023 11:45

Field ID: G3SD0157

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2447079	EPA 8270E	Aldrin	0.70	U	ng/L	P437103	
		Alpha-BHC	0.11	U	ng/L	P437103	
		Alpha-Chlordane	0.22	U	ng/L	P437103	
		PCB-1016	2.2	U	ng/L	P437103	
		Beta-BHC	0.11	U	ng/L	P437103	
		PCB-1221	2.2	U	ng/L	P437103	
		Beta-Cyfluthrin	1.4	U	ng/L	P437103	
		PCB-1232	2.2	U	ng/L	P437103	
		Bifenthrin	0.54	U	ng/L	P437103	
		PCB-1242	2.2	U	ng/L	P437103	
		Carbophenothion	0.98	U	ng/L	P437103	
		PCB-1248	2.2	U	ng/L	P437103	
		Chlorothalonil	3.9	U	ng/L	P437103	
		PCB-1254	2.2	U	ng/L	P437103	
		Cis-Nonachlor	0.22	U	ng/L	P437103	
		PCB-1260	2.2	U	ng/L	P437103	
		Cypermethrin	1.6	U	ng/L	P437103	
		Dacthal	0.16	U	ng/L	P437103	
		DDD-p,p'	0.27	U	ng/L	P437103	
		DDE-p,p'	0.22	U	ng/L	P437103	MS
		DDT-p,p'	0.87	U	ng/L	P437103	
		Delta-BHC	0.43	U	ng/L	P437103	
		Deltamethrin	1.4	U	ng/L	P437103	
		Dichlobenil	0.27	U	ng/L	P437103	
		Dicofol	1.4	U	ng/L	P437103	
		Dieldrin	0.43	U	ng/L	P437103	
		Endosulfan I	0.43	U	ng/L	P437103	
		Endosulfan II	0.98	UJ	ng/L	P437103	LCS
		Endosulfan Sulfate	0.33	U	ng/L	P437103	
		Endrin	0.98	U	ng/L	P437103	
		Endrin Aldehyde	0.81	U	ng/L	P437103	RPD
		Endrin Ketone	0.43	U	ng/L	P437103	
		Esfenvalerate	0.81	U	ng/L	P437103	
		Ethalfuralin	0.16	U	ng/L	P437103	
		Fenpropathrin	0.27	U	ng/L	P437103	
		Gamma-BHC	0.14	U	ng/L	P437103	
		Gamma-Chlordane	0.22	U	ng/L	P437103	MS
		Heptachlor	0.22	U	ng/L	P437103	
		Heptachlor Epoxide	0.27	U	ng/L	P437103	
		Hexachlorobenzene**	1.1	U	ng/L	P437103	
		Kepone	15	U	ng/L	P437103	
		Lambda-Cyhalothrin	0.81	U	ng/L	P437103	
		Methoprene	0.81	U	ng/L	P437103	
		Methoxychlor	0.33	U	ng/L	P437103	

Field ID: G3SD0157

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2447079	EPA 8270E	MGK-264	0.22	U	ng/L	P437103	
		Mirex	0.38	U	ng/L	P437103	
		Oxychlordane	0.33	U	ng/L	P437103	
		Permethrin	1.7	U	ng/L	P437103	
		Phenothrin	0.98	U	ng/L	P437103	
		Piperonyl Butoxide	7.3		ng/L	P437103	
		Prallethrin	2.2	U	ng/L	P437103	
		Tau-Fluvalinate	0.27	U	ng/L	P437103	
		Tetramethrin	0.81	U	ng/L	P437103	
		Trans-Nonachlor	0.22	U	ng/L	P437103	
		Triclosan Methyl	0.16	U	ng/L	P437103	
		Trifluralin	0.22	U	ng/L	P437103	
	EPA 8276	Chlordane	2.2	U	ng/L	P437103	
		Toxaphene	16	U	ng/L	P437103	

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

Sample Location: FB

Collection Date/Time: 10/24/2023 12:40

Field ID: FB_10242023

Matrix: W-FIELD-BK

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2447074	DEP SOP: NU-094-1	Color (true)	2.5	U	PCU	P436995	
	EPA 180.1 Rev. 2.0	Turbidity	0.10	U	NTU	P436988	
	EPA 300.0 Rev. 2.1	Chloride	0.20	U	mg Cl/L	P437502	
		Sulfate	0.20	U	mg SO4/L	P437506	
	SM 2320 B-2011	Total Alkalinity	0.65	U	mg CaCO3/L	P437314	
	SM 2540 C-2015	TDS	15	U	mg/L	P437389	
	SM 2540 D-2015	TSS	2	U	mg/L	P437269	
2447075	SM 4500-F- C-2011	Fluoride	0.025	U	mg F/L	P437316	
	EPA 350.1 Rev. 2.0	Ammonia-N	0.002	U	mg N/L	P437140	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.080	U	mg N/L	P437009	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P437167	
	EPA 365.1 Rev. 2.0	Total-P	0.002	U	mg P/L	P437655	
2447081	SM 5310 B-2011	Organic Carbon	0.50	U	mg C/L	P437323	
	EPA 200.7 Rev. 4.4	Calcium	0.075	U	mg/L	P437091	
		Iron	30	U	ug/L	P437091	
		Magnesium	0.040	U	mg/L	P437091	
		Potassium	0.30	U	mg/L	P437091	
		Sodium	0.50	U	mg/L	P437091	
		Strontium	2.0	U	ug/L	P437091	
		Tin	3.0	U	ug/L	P437091	
		Titanium	0.75	U	ug/L	P437091	
		Vanadium	2.0	U	ug/L	P437091	
		Zinc	5.0	U	ug/L	P437091	
	EPA 200.8 Rev. 5.4	Aluminum	5.0	U	ug/L	P437091	
		Antimony	0.050	U	ug/L	P437091	
		Arsenic	0.050	U	ug/L	P437091	
		Barium	0.20	U	ug/L	P437091	
		Beryllium	0.010	U	ug/L	P437091	
		Boron	2.0	U	ug/L	P437091	
		Cadmium	0.020	U	ug/L	P437091	
		Chromium	0.40	U	ug/L	P437091	
		Cobalt	0.020	U	ug/L	P437091	
		Copper	0.40	U	ug/L	P437091	
		Lead	0.20	U	ug/L	P437091	
		Manganese	0.10	U	ug/L	P437091	
		Molybdenum	0.15	U	ug/L	P437091	
		Nickel	0.50	U	ug/L	P437091	
		Selenium	0.20	U	ug/L	P437091	
		Silver	0.010	U	ug/L	P437091	
		Thallium	0.10	U	ug/L	P437091	

Ref. Method and Comment:

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

SM 4500-F- C-2011: Batch matrix spike recoveries are unavailable because of high analyte concentration in the QC sample.

Quality Assurance Report Method Blank Results

Reference Method: DEP SOP: NU-094-1
Batch ID: P436995

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P436988

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P437091

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: P437091

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: P437502

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: P437506

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P437140

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P437009

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P437167

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P437017

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P437655

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

Reference Method: EPA 8270E
Batch ID: P437103

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
Carbophenothion	0.90	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'	0.82	I	ng/L
Delta-BHC	0.40	U	ng/L
Deltamethrin	1.2	U	ng/L

Quality Assurance Report Method Blank Results

Reference Method: EPA 8270E

Batch ID: P437103

Component	Result	Code	Units
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
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: P437103

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

Reference Method: SM 2320 B-2011

Batch ID: P437314

Component	Result	Code	Units
-----------	--------	------	-------

Quality Assurance Report

Method Blank Results

Reference Method: SM 2320 B-2011
Batch ID: P437314

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

Reference Method: SM 2540 C-2015
Batch ID: P437389

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 C-2015
Batch ID: P437390

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-2015
Batch ID: P437269

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 2540 D-2015
Batch ID: P437270

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500-F- C-2011
Batch ID: P437316

Component	Result	Code	Units
Fluoride	0.025	U	mg F/L

Reference Method: SM 5310 B-2011
Batch ID: P437225

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

Reference Method: SM 5310 B-2011
Batch ID: P437323

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: P436995

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Color (true)	99.4		P	90 - 110

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P436988

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

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P437091

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Calcium	106		P	85 - 115
Iron	112		P	85 - 115
Magnesium	105		P	85 - 115
Potassium	103		P	85 - 115
Sodium	107		P	85 - 115
Strontium	99.9		P	85 - 115
Tin	98.7		P	85 - 115
Titanium	102		P	85 - 115
Vanadium	101		P	85 - 115
Zinc	98.2		P	85 - 115

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P437091

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Aluminum	99.3		P	85 - 115
Antimony	97.3		P	85 - 115
Arsenic	97.1		P	85 - 115
Barium	101		P	85 - 115
Beryllium	93.8		P	85 - 115
Boron	102		P	85 - 115
Cadmium	100		P	85 - 115
Chromium	98.9		P	85 - 115
Cobalt	95.2		P	85 - 115
Copper	93.9		P	85 - 115
Lead	91.9		P	85 - 115
Manganese	98.8		P	85 - 115
Molybdenum	96.9		P	85 - 115
Nickel	93.6		P	85 - 115
Selenium	99.2		P	85 - 115
Silver	105		P	85 - 115
Thallium	96.1		P	85 - 115

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P437502

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

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P437506

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P437140

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Ammonia-N	99.2		P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P437009

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Kjeldahl Nitrogen	97.6		P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P437167

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P437017

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P437655

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

Reference Method: EPA 8270E
Batch ID: P437103

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Aldrin	69.0		P	30 - 96.0
Alpha-BHC	87.7		P	70 - 109
Alpha-Chlordane	76.5		P	45 - 107
Beta-BHC	129		P	64 - 138
Beta-Cyfluthrin	92.3		P	17 - 141
Bifenthrin	65.0		P	10 - 113
Carbophenothion	60.7		P	24 - 91.0
Chlorothalonil	56.9		P	26 - 180
Cis-Nonachlor	70.2		P	37 - 102
Cypermethrin	61.8		P	20 - 133
Dacthal	109		P	69 - 114
DDD-p,p'	76.7		P	42 - 105
DDE-p,p'	104		P	42 - 106
DDT-p,p'	66.3		P	42 - 107
Delta-BHC	113		P	67 - 144
Deltamethrin	73.9		P	15 - 149

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 8270E

Batch ID: P437103

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Dichlobenil	105		P	46 - 117
Dicofol	93.9		P	34 - 114
Dieldrin	73.9		P	50 - 108
Endosulfan I	93.4		P	55 - 104
Endosulfan II	112		F	51 - 111
Endosulfan Sulfate	93.4		P	56 - 121
Endrin	73.0		P	10 - 106
Endrin Aldehyde	95.5		P	34 - 114
Endrin Ketone	98.9		P	63 - 177
Esfenvalerate	104		P	29 - 143
Ethalfuralin	78.0		P	46 - 96.0
Fenpropathrin	63.1		P	28 - 115
Gamma-BHC	100		P	65 - 121
Gamma-Chlordane	98.3		P	39 - 103
Heptachlor	86.1		P	39 - 94.0
Heptachlor Epoxide	100		P	54 - 104
Hexachlorobenzene	84.3		P	36 - 100
Kepone	134		P	10 - 225
Lambda-Cyhalothrin	90.4		P	10 - 135
Methoprene	67.8		P	10 - 109
Methoxychlor	108		P	52 - 112
MGK-264	116		P	44 - 117
Mirex	86.3		P	20 - 90.0
Oxychlordane	78.2		P	44 - 102
PCB-1016	106		P	45 - 107
PCB-1260	109		P	40 - 118
Permethrin	101		P	18 - 135
Phenothrin	77.6		P	10 - 102
Piperonyl Butoxide	135		P	28 - 156
Prallethrin	97.3		P	28 - 113
Tau-Fluvalinate	88.6		P	10 - 123
Tetramethrin	79.3		P	18 - 158
Trans-Nonachlor	87.1		P	39 - 104
Triclosan Methyl	76.3		P	54 - 108
Trifluralin	82.6		P	46 - 97.0

Reference Method: EPA 8276

Batch ID: P437103

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Chlordane	69.6		P	52 - 117
Toxaphene	78.9		P	44 - 125

Reference Method: SM 2320 B-2011

Batch ID: P437314

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	100		P	92 - 105

Quality Assurance Report

Laboratory Control Sample Accuracy

Reference Method: SM 2540 C-2015
Batch ID: P437389

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

Reference Method: SM 2540 C-2015
Batch ID: P437390

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

Reference Method: SM 2540 D-2015
Batch ID: P437269

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

Reference Method: SM 2540 D-2015
Batch ID: P437270

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
TSS	94.4		P	85 - 115

Reference Method: SM 4500-F- C-2011
Batch ID: P437316

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	99.6		P	94 - 106

Reference Method: SM 5310 B-2011
Batch ID: P437225

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	94.8		P	85 - 115

Reference Method: SM 5310 B-2011
Batch ID: P437323

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	96.4		P	85 - 115

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 200.7 Rev. 4.4

Batch ID: P437091

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2446928	Calcium	102		P	80 - 120
2446928	Iron	110	109	P/P	80 - 120
2446928	Magnesium	103		P	80 - 120
2446928	Potassium	102	101	P/P	80 - 120
2446928	Sodium	106	105	P/P	80 - 120
2446928	Strontium	98.2	97.4	P/P	80 - 120
2446928	Tin	95.5	95.4	P/P	80 - 120
2446928	Titanium	101	101	P/P	80 - 120
2446928	Vanadium	99.5	99.5	P/P	80 - 120
2446928	Zinc	94.0	94.0	P/P	80 - 120
2447188	Calcium	98.7		P	80 - 120
2447188	Iron	109		P	80 - 120
2447188	Magnesium	103		P	80 - 120
2447188	Potassium	102		P	80 - 120
2447188	Sodium	106		P	80 - 120
2447188	Strontium	98.0		P	80 - 120
2447188	Tin	95.2		P	80 - 120
2447188	Titanium	101		P	80 - 120
2447188	Vanadium	100		P	80 - 120
2447188	Zinc	97.5		P	80 - 120

Reference Method: EPA 200.8 Rev. 5.4

Batch ID: P437091

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2446928	Aluminum	96.6	97.7	P/P	80 - 120
2446928	Antimony	98.0	99.5	P/P	80 - 120
2446928	Arsenic	96.3	98.9	P/P	80 - 120
2446928	Barium	100	101	P/P	80 - 120
2446928	Beryllium	94.0	93.9	P/P	80 - 120
2446928	Boron	101	104	P/P	80 - 120
2446928	Cadmium	99.7	101	P/P	80 - 120
2446928	Chromium	99.2	100	P/P	80 - 120
2446928	Cobalt	91.3	93.1	P/P	80 - 120
2446928	Copper	91.4	92.3	P/P	80 - 120
2446928	Lead	90.6	92.8	P/P	80 - 120
2446928	Manganese	97.7	99.6	P/P	80 - 120
2446928	Molybdenum	97.2	100	P/P	80 - 120
2446928	Nickel	89.7	91.2	P/P	80 - 120
2446928	Selenium	97.3	98.0	P/P	80 - 120
2446928	Silver	105	106	P/P	80 - 120
2446928	Thallium	97.4	100	P/P	80 - 120
2447188	Aluminum	96.7		P	80 - 120
2447188	Antimony	99.5		P	80 - 120
2447188	Arsenic	95.8		P	80 - 120
2447188	Barium	99.7		P	80 - 120
2447188	Beryllium	94.9		P	80 - 120
2447188	Boron	105		P	80 - 120
2447188	Cadmium	101		P	80 - 120
2447188	Chromium	98.8		P	80 - 120
2447188	Cobalt	92.4		P	80 - 120
2447188	Copper	89.0		P	80 - 120

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P437091

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2447188	Lead	93.2		P	80 - 120
2447188	Manganese	96.1		P	80 - 120
2447188	Molybdenum	98.8		P	80 - 120
2447188	Nickel	90.4		P	80 - 120
2447188	Selenium	96.5		P	80 - 120
2447188	Silver	105		P	80 - 120
2447188	Thallium	100		P	80 - 120

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P437502

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2447180	Chloride	102		P	90 - 110
2447214	Chloride	102		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P437506

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2447180	Sulfate	102		P	90 - 110
2447214	Sulfate	100		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P437140

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2447086	Ammonia-N	96.2	98.8	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P437009

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2447041	Kjeldahl Nitrogen	99.4	100	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P437167

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2447041	NO2NO3-N	95.5	97.5	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P437017

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2447086	Total-P	107	108	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P437655

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2448704	Total-P	102	103	P/P	90 - 110

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 8270E

Batch ID: P437103

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2447115	Aldrin	52.9	59.5	P/P	24 - 81.0
2447115	Alpha-BHC	78.0	86.1	P/P	65 - 110
2447115	Alpha-Chlordane	55.5	76.1	P/P	43 - 119
2447115	Beta-BHC	125	157	P/P	54 - 165
2447115	Beta-Cyfluthrin	75.7	76.2	P/P	27 - 165
2447115	Bifenthrin	60.5	78.9	P/P	17 - 117
2447115	Carbophenothion	64.9	69.1	P/P	21 - 108
2447115	Chlorothalonil	121	62.4	P/P	10 - 255
2447115	Cis-Nonachlor	64.3	70.6	P/P	34 - 98.0
2447115	Cypermethrin	66.6	59.8	P/P	25 - 143
2447115	Dacthal	102	102	P/P	55 - 139
2447115	DDD-p,p'	71.5	75.4	P/P	30 - 109
2447115	DDE-p,p'	89.0	109	P/F	35 - 106
2447115	DDT-p,p'	68.1	73.1	P/P	41 - 101
2447115	Delta-BHC	136	131	P/P	58 - 165
2447115	Deltamethrin	78.2	78.3	P/P	10 - 194
2447115	Dichlobenil	63.7	82.7	P/P	22 - 114
2447115	Dicofol	72.8	90.9	P/P	17 - 133
2447115	Dieldrin	70.7	74.9	P/P	45 - 129
2447115	Endosulfan I	92.3	104	P/P	49 - 104
2447115	Endosulfan II	93.1	94.6	P/P	37 - 117
2447115	Endosulfan Sulfate	85.7	99.8	P/P	38 - 128
2447115	Endrin	69.9	76.7	P/P	35 - 116
2447115	Endrin Aldehyde	35.1	81.8	P/P	19 - 108
2447115	Endrin Ketone	97.8	98.9	P/P	44 - 134
2447115	Esfenvalerate	117	130	P/P	27 - 176
2447115	Ethalfuralin	63.9	79.1	P/P	49 - 100
2447115	Fenpropathrin	58.4	77.3	P/P	34 - 117
2447115	Gamma-BHC	97.3	120	P/P	59 - 129
2447115	Gamma-Chlordane	92.3	111	P/F	33 - 107
2447115	Heptachlor	87.4	93.1	P/P	37 - 94.0
2447115	Heptachlor Epoxide	62.9	85.4	P/P	38 - 118
2447115	Hexachlorobenzene	50.1	69.7	P/P	35 - 97.0
2447115	Kepone	80.5	115	P/P	10 - 221
2447115	Lambda-Cyhalothrin	69.4	76.6	P/P	23 - 190
2447115	Methoprene	80.5	72.2	P/P	21 - 109
2447115	Methoxychlor	101	104	P/P	46 - 118
2447115	MGK-264	119	118	P/P	39 - 122
2447115	Mirex	76.9	87.8	P/P	25 - 90.0
2447115	Oxychlordane	84.7	91.8	P/P	42 - 100
2447115	Permethrin	67.6	75.0	P/P	33 - 181
2447115	Phenothrin	58.5	76.0	P/P	12 - 125
2447115	Piperonyl Butoxide	76.4	105	P/P	10 - 178
2447115	Prallethrin	95.4	94.4	P/P	24 - 122
2447115	Tau-Fluvalinate	99.9	106	P/P	13 - 151
2447115	Tetramethrin	77.3	91.3	P/P	16 - 172
2447115	Trans-Nonachlor	75.8	89.7	P/P	39 - 100
2447115	Triclosan Methyl	76.1	71.5	P/P	43 - 110
2447115	Trifluralin	64.3	80.1	P/P	45 - 94.0
2447123	PCB-1016	105	100	P/P	45 - 107
2447123	PCB-1260	76.5	69.9	P/P	40 - 112

Quality Assurance Report

Matrix Spike Accuracy

Reference Method: EPA 8276
Batch ID: P437103

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2447123	Chlordane	75.2	73.7	P/P	43 - 123
2447123	Toxaphene	88.8	85.5	P/P	27 - 156

Reference Method: SM 5310 B-2011
Batch ID: P437225

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2447193	Organic Carbon	94.5	94.9	P/P	85 - 115

Reference Method: SM 5310 B-2011
Batch ID: P437323

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2447811	Organic Carbon	94.9	95.6	P/P	85 - 115

Quality Assurance Report Precision

Reference Method: DEP SOP: NU-094-1
Batch ID: P436995

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2447013	Color (true)	5.56	Sample	P	0 - 20

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P436988

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2446930	Turbidity	19.1	Sample	P	0 - 20

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P437091

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2446928	Calcium	0.333	Spike	P	0 - 20
2446928	Iron	0.731	Spike	P	0 - 20
2446928	Magnesium	0.573	Spike	P	0 - 20
2446928	Potassium	0.824	Spike	P	0 - 20
2446928	Sodium	0.284	Spike	P	0 - 20
2446928	Strontium	0.749	Spike	P	0 - 20
2446928	Tin	0.0875	Spike	P	0 - 20
2446928	Titanium	0.0360	Spike	P	0 - 20
2446928	Vanadium	0.0142	Spike	P	0 - 20
2446928	Zinc	0.00372	Spike	P	0 - 20

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P437091

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2446928	Aluminum	1.12	Spike	P	0 - 20
2446928	Antimony	1.42	Spike	P	0 - 20
2446928	Arsenic	2.62	Spike	P	0 - 20
2446928	Barium	0.792	Spike	P	0 - 20
2446928	Beryllium	0.176	Spike	P	0 - 20
2446928	Boron	2.46	Spike	P	0 - 20
2446928	Cadmium	1.48	Spike	P	0 - 20
2446928	Chromium	1.02	Spike	P	0 - 20
2446928	Cobalt	2.00	Spike	P	0 - 20
2446928	Copper	1.02	Spike	P	0 - 20
2446928	Lead	2.41	Spike	P	0 - 20
2446928	Manganese	1.91	Spike	P	0 - 20
2446928	Molybdenum	2.64	Spike	P	0 - 20
2446928	Nickel	1.68	Spike	P	0 - 20
2446928	Selenium	0.691	Spike	P	0 - 20
2446928	Silver	1.23	Spike	P	0 - 20
2446928	Thallium	2.80	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P437502

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2447180	Chloride	1.72	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P437506

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2447180	Sulfate	1.84	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P437140

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2447086	Ammonia-N	2.37	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P437009

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2447041	Kjeldahl Nitrogen	0.447	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P437167

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2447041	NO2NO3-N	1.18	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P437017

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2447086	Total-P	1.09	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P437655

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2448704	Total-P	0.978	Spike	P	0 - 20

Reference Method: EPA 8270E
Batch ID: P437103

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2447115	Aldrin	11.9	Spike	P	0 - 41
2447115	Alpha-BHC	9.78	Spike	P	0 - 25

Quality Assurance Report Precision

Reference Method: EPA 8270E

Batch ID: P437103

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2447115	Alpha-Chlordane	25.2	Spike	P	0 - 32
2447115	Beta-BHC	22.0	Spike	P	0 - 33
2447115	Beta-Cyfluthrin	0.699	Spike	P	0 - 43
2447115	Bifenthrin	26.4	Spike	P	0 - 52
2447115	Carbophenothion	6.22	Spike	P	0 - 30
2447115	Chlorothalonil	64.1	Spike	P	0 - 82
2447115	Cis-Nonachlor	9.27	Spike	P	0 - 33
2447115	Cypermethrin	10.8	Spike	P	0 - 51
2447115	Dacthal	0.241	Spike	P	0 - 27
2447115	DDD-p,p'	5.25	Spike	P	0 - 39
2447115	DDE-p,p'	20.6	Spike	P	0 - 31
2447115	DDT-p,p'	7.13	Spike	P	0 - 29
2447115	Delta-BHC	3.76	Spike	P	0 - 35
2447115	Deltamethrin	0.0514	Spike	P	0 - 100
2447115	Dichlobenil	25.9	Spike	P	0 - 40
2447115	Dicofol	22.1	Spike	P	0 - 37
2447115	Dieldrin	4.04	Spike	P	0 - 27
2447115	Endosulfan I	11.7	Spike	P	0 - 23
2447115	Endosulfan II	1.57	Spike	P	0 - 34
2447115	Endosulfan Sulfate	15.2	Spike	P	0 - 36
2447115	Endrin	9.21	Spike	P	0 - 45
2447115	Endrin Aldehyde	79.9	Spike	F	0 - 76
2447115	Endrin Ketone	1.12	Spike	P	0 - 43
2447115	Esfenvalerate	10.6	Spike	P	0 - 51
2447115	Ethalfuralin	21.3	Spike	P	0 - 22
2447115	Fenpropathrin	27.9	Spike	P	0 - 49
2447115	Gamma-BHC	20.8	Spike	P	0 - 28
2447115	Gamma-Chlordane	18.2	Spike	P	0 - 40
2447115	Heptachlor	6.33	Spike	P	0 - 29
2447115	Heptachlor Epoxide	17.3	Spike	P	0 - 33
2447115	Hexachlorobenzene	32.7	Spike	P	0 - 36
2447115	Kepone	22.1	Spike	P	0 - 85
2447115	Lambda-Cyhalothrin	9.87	Spike	P	0 - 55
2447115	Methoprene	10.9	Spike	P	0 - 53
2447115	Methoxychlor	2.94	Spike	P	0 - 50
2447115	MGK-264	0.677	Spike	P	0 - 43
2447115	Mirex	13.2	Spike	P	0 - 40
2447115	Oxychlordane	8.04	Spike	P	0 - 31
2447115	Permethrin	10.4	Spike	P	0 - 50
2447115	Phenothrin	26.0	Spike	P	0 - 58
2447115	Piperonyl Butoxide	28.4	Spike	P	0 - 100
2447115	Prallethrin	1.05	Spike	P	0 - 39
2447115	Tau-Fluvalinate	5.90	Spike	P	0 - 54
2447115	Tetramethrin	16.6	Spike	P	0 - 51
2447115	Trans-Nonachlor	16.8	Spike	P	0 - 39
2447115	Triclosan Methyl	6.29	Spike	P	0 - 31
2447115	Trifluralin	21.9	Spike	P	0 - 22
2447123	PCB-1016	4.27	Spike	P	0 - 25
2447123	PCB-1260	8.99	Spike	P	0 - 30

Quality Assurance Report Precision

Reference Method: EPA 8276
Batch ID: P437103

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2447123	Chlordane	1.98	Spike	P	0 - 28
2447123	Toxaphene	3.80	Spike	P	0 - 27

Reference Method: SM 2320 B-2011
Batch ID: P437314

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2447072	Total Alkalinity	1.41	Sample	P	0 - 3.9

Reference Method: SM 2540 C-2015
Batch ID: P437389

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2446593	TDS	6.02	Sample	P	0 - 10

Reference Method: SM 2540 C-2015
Batch ID: P437390

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2446954	TDS	4.70	Sample	P	0 - 10

Reference Method: SM 4500-F- C-2011
Batch ID: P437316

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2447072	Fluoride	0.477	Spike	P	0 - 1.9

Reference Method: SM 5310 B-2011
Batch ID: P437225

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2447193	Organic Carbon	0.227	Spike	P	0 - 20

Reference Method: SM 5310 B-2011
Batch ID: P437323

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2447811	Organic Carbon	0.548	Spike	P	0 - 20

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

Quality Assurance Report Surrogates

Lab Sample ID: 2447079
Field Sample ID: G3SD0157

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8270E	Decachlorobiphenyl	96.1	P	37 - 129
EPA 8270E	Decachlorobiphenyl	44.7	P	26 - 115
EPA 8270E	Tetrachloro-m-xylene	44.7	P	30 - 101
EPA 8270E	Tetrachloro-m-xylene	60.2	P	29 - 95.0
EPA 8276	Decachlorobiphenyl	63.8	P	28 - 102
EPA 8276	PCNB	106	P	49 - 115

Quality Assurance Report Calibration Verification

Reference Method: EPA 180.1 Rev. 2.0

Run ID: A122354

Included Lab Sample IDs: 2447072, 2447074

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

Reference Method: DEP SOP: NU-094-1

Run ID: A122356

Included Lab Sample IDs: 2447072, 2447074

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	100	98.7	P/P	90 - 110
Color (true)	100	100	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A122399

Included Lab Sample IDs: 2447073

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	100	99.7	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A122418

Included Lab Sample IDs: 2447073, 2447075

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	94.3	93.8	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A122439

Included Lab Sample IDs: 2447073, 2447075

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	99.0	98.5	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A122447

Included Lab Sample IDs: 2447073, 2447075

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO2NO3-N	100	99.5	P/P	90 - 110

Reference Method: EPA 200.8 Rev. 5.4

Run ID: A122474

Included Lab Sample IDs: 2447081

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Aluminum	98.1	99.3	P/P	90 - 110
Antimony	97.1	96.9	P/P	90 - 110
Arsenic	98.6	97.1	P/P	90 - 110
Barium	99.3	99.8	P/P	90 - 110
Beryllium	98.2	97.5	P/P	90 - 110
Boron	100	101	P/P	90 - 110
Cadmium	99.6	101	P/P	90 - 110
Chromium	102	102	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: EPA 200.8 Rev. 5.4

Run ID: A122474

Included Lab Sample IDs: 2447081

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Cobalt	96.2	94.3	P/P	90 - 110
Copper	94.6	93.1	P/P	90 - 110
Lead	93.4	93.3	P/P	90 - 110
Manganese	101	101	P/P	90 - 110
Molybdenum	98.4	98.6	P/P	90 - 110
Nickel	96.6	94.8	P/P	90 - 110
Selenium	101	101	P/P	90 - 110
Silver	99.5	99.9	P/P	90 - 110
Thallium	97.3	98.4	P/P	90 - 110

Reference Method: EPA 200.7 Rev. 4.4

Run ID: A122477

Included Lab Sample IDs: 2447080, 2447081

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Calcium	103	104	P/P	90 - 110
Calcium	103	104	P/P	95 - 105
Iron	102	102	P/P	90 - 110
Iron	102	103	P/P	95 - 105
Magnesium	102	102	P/P	90 - 110
Magnesium	103	103	P/P	95 - 105
Potassium	100	101	P/P	95 - 105
Potassium	102	99.5	P/P	90 - 110
Sodium	101	101	P/P	90 - 110
Sodium	101	101	P/P	95 - 105
Strontium	98.2	98.7	P/P	90 - 110
Strontium	99.9	99.3	P/P	95 - 105
Tin	100	100	P/P	95 - 105
Tin	99.8	100	P/P	90 - 110
Titanium	101	101	P/P	90 - 110
Titanium	101	101	P/P	95 - 105
Vanadium	101	100	P/P	95 - 105
Vanadium	99.6	99.9	P/P	90 - 110
Zinc	101	100	P/P	95 - 105
Zinc	99.4	99.5	P/P	90 - 110

Reference Method: SM 5310 B-2011

Run ID: A122481

Included Lab Sample IDs: 2447073

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	97.0	97.4	P/P	90 - 110

Reference Method: EPA 200.8 Rev. 5.4

Run ID: A122498

Included Lab Sample IDs: 2447080

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Aluminum	102	97.9	P/P	90 - 110
Antimony	98.7	97.7	P/P	90 - 110
Arsenic	96.0	95.7	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: EPA 200.8 Rev. 5.4

Run ID: A122498

Included Lab Sample IDs: 2447080

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Barium	98.8	99.2	P/P	90 - 110
Beryllium	99.1	96.8	P/P	90 - 110
Boron	104	102	P/P	90 - 110
Cadmium	102	101	P/P	90 - 110
Chromium	102	102	P/P	90 - 110
Cobalt	94.6	94.4	P/P	90 - 110
Copper	93.1	92.6	P/P	90 - 110
Lead	94.2	94.4	P/P	90 - 110
Manganese	102	102	P/P	90 - 110
Molybdenum	98.2	97.5	P/P	90 - 110
Nickel	93.6	93.1	P/P	90 - 110
Selenium	98.7	99.7	P/P	90 - 110
Silver	99.5	99.4	P/P	90 - 110
Thallium	98.4	99.0	P/P	90 - 110

Reference Method: SM 2320 B-2011

Run ID: A122537

Included Lab Sample IDs: 2447072, 2447074

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	97.7	99.0	P/P	90 - 110
Total Alkalinity	99.0	95.8	P/P	90 - 110

Reference Method: SM 4500-F- C-2011

Run ID: A122537

Included Lab Sample IDs: 2447072, 2447074

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

Reference Method: SM 5310 B-2011

Run ID: A122540

Included Lab Sample IDs: 2447075

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	97.6	98.2	P/P	90 - 110

Reference Method: EPA 8276

Run ID: A122571

Included Lab Sample IDs: 2447079

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chlordane	103		P	80 - 120
Toxaphene	105		P	80 - 120

Reference Method: EPA 300.0 Rev. 2.1

Run ID: A122610

Included Lab Sample IDs: 2447072, 2447074

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

Quality Assurance Report Calibration Verification

Reference Method: EPA 300.0 Rev. 2.1

Run ID: A122610

Included Lab Sample IDs: 2447072, 2447074

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	99.9	101	P/P	90 - 110
Sulfate	99.5	101	P/P	90 - 110

Reference Method: EPA 8270E

Run ID: A122621

Included Lab Sample IDs: 2447079

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Aldrin	112		P	80 - 120
Alpha-BHC	98.3		P	80 - 120
Alpha-Chlordane	95.9		P	80 - 120
Beta-BHC	101		P	80 - 120
Beta-Cyfluthrin	108		P	80 - 120
Bifenthrin	96.8		P	80 - 120
Carbophenothion	82.0		P	80 - 120
Chlorothalonil	97.4		P	80 - 120
Cis-Nonachlor	85.9		P	80 - 120
Cypermethrin	98.8		P	80 - 120
Dacthal	116		P	80 - 120
DDD-p,p'	93.9		P	80 - 120
DDE-p,p'	99.9		P	80 - 120
DDT-p,p'	112		P	80 - 120
Delta-BHC	98.0		P	80 - 120
Deltamethrin	93.2		P	80 - 120
Dichlobenil	105		P	80 - 120
Dieldrin	91.8		P	80 - 120
Endosulfan I	98.7		P	80 - 120
Endosulfan II	111		P	80 - 120
Endosulfan Sulfate	112		P	80 - 120
Endrin	83.1		P	80 - 120
Endrin Aldehyde	91.8		P	80 - 120
Endrin Ketone	82.9		P	80 - 120
Esfenvalerate	117		P	80 - 120
Ethalfuralin	105		P	80 - 120
Fenpropathrin	88.5		P	80 - 120
Gamma-BHC	101		P	80 - 120
Gamma-Chlordane	99.0		P	80 - 120
Heptachlor	90.6		P	80 - 120
Heptachlor Epoxide	103		P	80 - 120
Hexachlorobenzene	108		P	80 - 120
Lambda-Cyhalothrin	117		P	80 - 120
Methoprene	94.5		P	80 - 120
MGK-264	110		P	80 - 120
Mirex	116		P	80 - 120
Oxychlordane	102		P	80 - 120
Permethrin	118		P	80 - 120
Phenothrin	120		P	80 - 120
Piperonyl Butoxide	103		P	80 - 120
Prallethrin	102		P	80 - 120
Tau-Fluvalinate	113		P	80 - 120
Tetramethrin	90.3		P	80 - 120

Quality Assurance Report Calibration Verification

Reference Method: EPA 8270E
Run ID: A122621
Included Lab Sample IDs: 2447079

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Trans-Nonachlor	96.6		P	80 - 120
Triclosan Methyl	90.0		P	80 - 120
Trifluralin	96.7		P	80 - 120

Reference Method: EPA 8270E
Run ID: A122623
Included Lab Sample IDs: 2447079

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Dicofol	98.6		P	80 - 120
Kepone	99.0		P	80 - 120
Methoxychlor	100		P	80 - 120

Reference Method: EPA 8270E
Run ID: A122685
Included Lab Sample IDs: 2447079

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
PCB-1016	100		P	80 - 120
PCB-1260	108		P	80 - 120

Reference Method: EPA 365.1 Rev. 2.0
Run ID: A122712
Included Lab Sample IDs: 2447075

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	101	100	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			Precision SMP	MS
			LCS				
DEP SOP: NU-094-1	Color (true)	99.4				5.56	
EPA 180.1 Rev. 2.0	Turbidity	104				19.1	
EPA 200.7 Rev. 4.4	Calcium	106	102	98.7			0.333
	Iron	112	110	109	109		0.731
	Magnesium	105	103	103			0.573
	Potassium	103	102	101	102		0.824
	Sodium	107	106	105	106		0.284
	Strontium	99.9	98.2	97.4	98.0		0.749
	Tin	98.7	95.5	95.4	95.2		0.0875
	Titanium	102	101	101	101		0.0360
	Vanadium	101	99.5	99.5	100		0.0142
	Zinc	98.2	94.0	94.0	97.5		0.0037
EPA 200.8 Rev. 5.4	Aluminum	99.3	96.7	96.6	97.7		1.12
	Antimony	97.3	99.5	98.0	99.5		1.42
	Arsenic	97.1	95.8	96.3	98.9		2.62
	Barium	101	99.7	100	101		0.792
	Beryllium	93.8	94.9	94.0	93.9		0.176
	Boron	102	105	101	104		2.46
	Cadmium	100	101	99.7	101		1.48
	Chromium	98.9	98.8	99.2	100		1.02
	Cobalt	95.2	92.4	91.3	93.1		2.00
	Copper	93.9	89.0	91.4	92.3		1.02
	Lead	91.9	93.2	90.6	92.8		2.41
	Manganese	98.8	96.1	97.7	99.6		1.91
	Molybdenum	96.9	98.8	97.2	100		2.64
	Nickel	93.6	90.4	89.7	91.2		1.68
	Selenium	99.2	96.5	97.3	98.0		0.691
	Silver	105	105	105	106		1.23
	Thallium	96.1	100	97.4	100		2.80
EPA 300.0 Rev. 2.1	Chloride	101	102	102		1.72	
	Sulfate	101	102	100		1.84	
EPA 350.1 Rev. 2.0	Ammonia-N	99.2	96.2	98.8			2.37
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	97.6	99.4	100			0.447
EPA 353.2 Rev. 2.0	NO2NO3-N	99.0	95.5	97.5			1.18
EPA 365.1 Rev. 2.0	Total-P	106	107	108			1.09
	Total-P	99.8	102	103			0.978
EPA 8270E	Aldrin	69.0	52.9	59.5			11.9
	Alpha-BHC	87.7	78.0	86.1			9.78
	Alpha-Chlordane	76.5	55.5	76.1			25.2
	Beta-BHC	129	125	157			22.0
	Beta-Cyfluthrin	92.3	75.7	76.2			0.699
	Bifenthrin	65.0	60.5	78.9			26.4
	Carbophenothion	60.7	64.9	69.1			6.22
	Chlorothalonil	56.9	121	62.4			64.1
	Cis-Nonachlor	70.2	64.3	70.6			9.27
	Cypermethrin	61.8	66.6	59.8			10.8
	Dacthal	109	102	102			0.241
	DDD-p,p'	76.7	71.5	75.4			5.25
	DDE-p,p'	104	89.0	109			20.6
	DDT-p,p'	66.3	68.1	73.1			7.13
	Delta-BHC	113	136	131			3.76
	Deltamethrin	73.9	78.2	78.3			0.0514
	Dichlobenil	105	63.7	82.7			25.9
	Dicofol	93.9	72.8	90.9			22.1

Quality Assurance Report Summary

Ref. Method	Analyte	LCS % Recovery	MS % Recovery		Precision LCS	SMP	MS
EPA 8270E	Dieldrin	73.9	70.7	74.9			4.04
	Endosulfan I	93.4	92.3	104			11.7
	Endosulfan II	112	93.1	94.6			1.57
	Endosulfan Sulfate	93.4	85.7	99.8			15.2
	Endrin	73.0	69.9	76.7			9.21
	Endrin Aldehyde	95.5	35.1	81.8			79.9
	Endrin Ketone	98.9	97.8	98.9			1.12
	Esfenvalerate	104	117	130			10.6
	Ethalfuralin	78.0	63.9	79.1			21.3
	Fenpropathrin	63.1	58.4	77.3			27.9
	Gamma-BHC	100	97.3	120			20.8
	Gamma-Chlordane	98.3	92.3	111			18.2
	Heptachlor	86.1	87.4	93.1			6.33
	Heptachlor Epoxide	100	62.9	85.4			17.3
	Hexachlorobenzene	84.3	50.1	69.7			32.7
	Kepone	134	80.5	115			22.1
	Lambda-Cyhalothrin	90.4	69.4	76.6			9.87
	Methoprene	67.8	80.5	72.2			10.9
	Methoxychlor	108	101	104			2.94
	MGK-264	116	119	118			0.677
	Mirex	86.3	76.9	87.8			13.2
	Oxychlordane	78.2	84.7	91.8			8.04
	PCB-1016	106	105	100			4.27
	PCB-1260	109	76.5	69.9			8.99
	Permethrin	101	67.6	75.0			10.4
	Phenothrin	77.6	58.5	76.0			26.0
	Piperonyl Butoxide	135	76.4	105			28.4
	Prallethrin	97.3	95.4	94.4			1.05
	Tau-Fluvalinate	88.6	99.9	106			5.90
	Tetramethrin	79.3	77.3	91.3			16.6
	Trans-Nonachlor	87.1	75.8	89.7			16.8
	Triclosan Methyl	76.3	76.1	71.5			6.29
	Trifluralin	82.6	64.3	80.1			21.9
EPA 8276	Chlordane	69.6	75.2	73.7			1.98
	Toxaphene	78.9	88.8	85.5			3.80
SM 2320 B-2011	Total Alkalinity	100				1.41	
SM 2540 C-2015	TDS	93.2				6.02	
	TDS	93.2				4.70	
SM 2540 D-2015	TSS	108					
	TSS	94.4					
SM 4500-F- C-2011	Fluoride	99.6					0.477
SM 5310 B-2011	Organic Carbon	94.8	94.5	94.9			0.227
	Organic Carbon	96.4	94.9	95.6			0.548

Reference Method Descriptions

Method	Description	Associated Samples
DEP SOP: NU-094-1	True Color measured at 450 nm (not valid for NPDES monitoring)	2447072, 2447074
EPA 180.1 Rev. 2.0	Turbidity in aqueous matrices	2447072, 2447074
EPA 200.7 Rev. 4.4	Total Recoverable Metals analysis using ICP emission spectroscopy for aqueous samples supporting Clean Water Act Projects	2447080, 2447081
EPA 200.8 Rev. 5.4	Total Recoverable Metals analysis using ICP-MS for aqueous samples supporting Clean Water Act Projects	2447080, 2447081

Reference Method Descriptions

Method	Description	Associated Samples
EPA 300.0 Rev. 2.1	Chloride in aqueous matrices	2447072, 2447074
EPA 300.0 Rev. 2.1	Sulfate in aqueous matrices	2447072, 2447074
EPA 350.1 Rev. 2.0	Ammonia in aqueous matrices as mg N/L	2447073, 2447075
EPA 351.2 Rev. 2.0	Total Kjeldahl Nitrogen in aqueous matrices	2447073, 2447075
EPA 353.2 Rev. 2.0	Nitrite/Nitrate in aqueous matrices as mg N/L	2447073, 2447075
EPA 365.1 Rev. 2.0	Total Phosphorus in aqueous matrices as mg P/L	2447073, 2447075
EPA 8270E	Organochlorine pesticides, pyrethroids and tracers in water matrices by GC/MS/MS	2447079
EPA 8270E	PCBs in water matrices by GC/MS/MS	2447079
EPA 8276	Chlordane and Toxaphene in water matrices by GC/MS with Negative Chemical Ionization	2447079
SM 2320 B-2011	Alkalinity in aqueous matrices as mg CaCO ₃ /L	2447072, 2447074
SM 2340 B-2011	Hardness by calculation, in aqueous matrices, reported as mg/L CaCO ₃	2447080
SM 2540 C-2015	Total Dissolved Solids in aqueous matrices	2447072, 2447074
SM 2540 D-2015	Total Suspended Solids in aqueous matrices using a maximum of 250 mL of sample	2447072, 2447074
SM 4500-F- C-2011	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	2447072, 2447074
SM 5310 B-2011	Nonpurgeable Organic Carbon in aqueous matrices	2447073, 2447075

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	10/25/2023			10/25/2023 14:10	Anna M. Plaviak	2447074
	10/25/2023			10/25/2023 14:20	Anna M. Plaviak	2447072
EPA 180.1 Rev. 2.0	10/25/2023			10/25/2023 14:35	Khloe J Berg	2447072
	10/25/2023			10/25/2023 14:37	Khloe J Berg	2447074
EPA 200.7 Rev. 4.4	10/25/2023	10/27/2023 13:55	George D Taylor	10/31/2023 13:02	Chase Roberts	2447081
	10/25/2023	10/27/2023 13:55	George D Taylor	10/31/2023 16:38	Chase Roberts	2447080
EPA 200.8 Rev. 5.4	10/25/2023	10/27/2023 13:55	George D Taylor	10/31/2023 14:00	Conrad Hartmann	2447081
	10/25/2023	10/27/2023 13:55	George D Taylor	11/01/2023 18:49	Conrad Hartmann	2447080
EPA 300.0 Rev. 2.1	10/25/2023			11/07/2023 01:35	James L Waggeberby	2447072
	10/25/2023			11/07/2023 01:50	James L Waggeberby	2447074
EPA 350.1 Rev. 2.0	10/25/2023			10/30/2023 12:51	Ping Hua	2447073
	10/25/2023			10/30/2023 12:53	Ping Hua	2447075
EPA 351.2 Rev. 2.0	10/25/2023	10/26/2023 11:38	Simonne.V. Calhoun	10/27/2023 13:56	Ping Hua	2447073
	10/25/2023	10/26/2023 11:38	Simonne.V. Calhoun	10/27/2023 13:57	Ping Hua	2447075
EPA 353.2 Rev. 2.0	10/25/2023			10/30/2023 15:41	Anna M. Plaviak	2447073
	10/25/2023			10/30/2023 15:43	Anna M. Plaviak	2447075
EPA 365.1 Rev. 2.0	10/25/2023	10/26/2023 12:20	Adam P Silver	10/27/2023 09:06	Simonne.V. Calhoun	2447073
	10/25/2023	11/13/2023 13:18	Adam P Silver	11/14/2023 15:21	James L Waggeberby	2447075
EPA 8270E	10/25/2023	10/31/2023 08:00	Fe-Val Siddell	11/06/2023 05:46	Julie Wi	2447079
	10/25/2023	10/31/2023 08:00	Fe-Val Siddell	11/08/2023 01:43	Julie Wi	2447079
	10/25/2023	10/31/2023 08:00	Fe-Val Siddell	11/10/2023 02:31	Lipi Saha	2447079
EPA 8276	10/25/2023	10/31/2023 08:00	Fe-Val Siddell	11/03/2023 07:38	Arthur Maknenko	2447079
SM 2320 B-2011	10/25/2023			11/02/2023 18:56	Dale L. Simmons	2447072
	10/25/2023			11/02/2023 20:59	Dale L. Simmons	2447074
SM 2340 B-2011	10/25/2023			10/31/2023 16:38	Chase Roberts	2447080
SM 2540 C-2015	10/25/2023			10/27/2023 16:33	Yijie Li	2447072, 2447074
SM 2540 D-2015	10/25/2023			10/27/2023 16:33	Yijie Li	2447072, 2447074
SM 4500-F- C-2011	10/25/2023			11/02/2023 18:45	Dale L. Simmons	2447072
	10/25/2023			11/02/2023 20:59	Dale L. Simmons	2447074
SM 5310 B-2011	10/25/2023			10/31/2023 19:23	Elise M. Gillis	2447073
	10/25/2023			11/02/2023 19:03	Elise M. Gillis	2447075