

Chemical Analysis Report

NE-DIST-2017-08-17-01

Florida Department of Environmental Protection
Central Laboratory
2600 Blair Stone Road
Tallahassee, FL 32399-2400
DOH Accreditation E31780

Event Description: **HAWTHORNE LAKES-7/31/17**

Request ID: **RQ-2017-07-31-10**

Customer: **NE-DIST**

Project ID: **SMP**

Send Reports to:
FL Dept. of Environmental Protection
8800 Baymeadows Way W
Suite 100
Jacksonville, FL 32256-7577
Attn: Nicole Frederick

For additional information please contact
Colin Wright, Ph.D.
Liang-Tsair Lin, Ph.D.
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Certified by: Colin Wright, Program Administrator

Date Certified: 13-SEP-2017 11:38



NON-CONFORMANCE REPORT INCLUDED

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 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: LITTLE ORANGE LAKE-CENTER

Collection Date/Time: 08/16/2017 10:40

Field ID: G1NE0040 08172017

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1922100	EPA 180.1 Rev. 2.0	Turbidity	1.1		NTU	P330438	
	EPA 300.0 Rev. 2.1	Chloride	8.6		mg Cl/L	P330624	
		Sulfate	0.90		mg SO4/L	P330625	
	SM 2120 B	Color (true)	370		PCU	P330433	
	SM 2320 B-97	Total Alkalinity	5.1	Y	mg CaCO3/L	P330701	
	SM 2540 C-97	TDS	80	Y	mg/L	P330977	
	SM 2540 D-97	TSS	2	UY	mg/L	P330681	
	SM 4500 F-C-97	Fluoride	0.079	I	mg F/L	P330705	
1922101	EPA 350.1 Rev. 2.0	Ammonia-N	0.23		mg N/L	P330556	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.4		mg N/L	P330453	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.017		mg N/L	P330565	
	EPA 365.1 Rev. 2.0	Total-P	0.39		mg P/L	P330503	
	SM 5310 B-00	Organic Carbon	29		mg C/L	P330661	
1922102	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.32		mg P/L	P330428	
1922129	EPA 200.7 Rev. 4.4	Calcium	3.79		mg/L	P330427	
		Iron	580		ug/L	P330427	
		Magnesium	1.41		mg/L	P330427	
		Potassium	3.2		mg/L	P330427	
		Sodium	4.6		mg/L	P330427	
		Zinc	5.0	U	ug/L	P330427	
	EPA 200.8 Rev. 5.4	Arsenic	1.21		ug/L	P330427	
		Cadmium	0.020	U	ug/L	P330427	
		Chromium	0.47	I	ug/L	P330427	
		Copper	0.40	I	ug/L	P330427	
		Lead	0.19	I	ug/L	P330427	
		Nickel	0.20	I	ug/L	P330587	
		Silver	0.010	U	ug/L	P330427	

Ref. Method and Comment:

SM 2320 B-97: Sample was left out at room temperature over weekend, should be stored below 6 degC.

SM 2540 C-97: Sample was left out at room temperature over weekend, should be stored below 6 degC.

SM 2540 D-97: .Batch relative percent difference is unavailable because of low analyte concentration in the QC sample. Sample was left out at room temperature over weekend, should be stored below 6 degC.

EPA 351.2 Rev. 2.0: Batch matrix spike recoveries are unavailable because of high analyte concentration in the QC sample.

SM 5310 B-00: Batch matrix spike recoveries are unavailable because of high analyte concentration in the QC sample.

Sample Location: LITTLE ORANGE LAKE-CENTER

Collection Date/Time: 08/16/2017 10:40

Field ID: G1NE0040 08172017

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1922118	EPA 8321B	Glyphosate**	0.50	U	ug/L	P330489	
		Pyraclostrobin**	0.0020	U	ug/L	P330487	RPD
		Sucralose**	0.027	I	ug/L	P330383	
	USGS O-2060-01	2,4-D	0.0044		ug/L	P330253	
		Diuron	8.0E-04	U	ug/L	P330253	
		Fenuron	0.0080	U	ug/L	P330253	
		Imidacloprid	8.0E-04	U	ug/L	P330253	MS

Field ID: G1NE0040 08172017

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1922118	USGS O-2060-01	Bentazon	8.0E-04	U	ug/L	P330253	MS
		Linuron	0.0040	U	ug/L	P330253	
		Acetaminophen**	0.0080	U	ug/L	P330253	
		MCPD	0.0020	U	ug/L	P330253	
		Carbamazepine**	4.0E-04	U	ug/L	P330253	
		Triclopyr**	0.0040	U	ug/L	P330253	
		Primidone**	0.0040	U	ug/L	P330253	
		Fluridone**	4.0E-04	U	ug/L	P330253	
1922121	EPA 8270D	Aldrin	4.2	U	ng/L	P330385	RPD
		Alpha-BHC	2.1	U	ng/L	P330385	
		Beta-BHC	4.2	U	ng/L	P330385	
		Delta-BHC	4.2	U	ng/L	P330385	
		Gamma-BHC	4.2	U	ng/L	P330385	
		Carbophenothion	4.2	U	ng/L	P330385	
		Chlorothalonil	2.1	U	ng/L	P330385	
		Cypermethrin	21	U	ng/L	P330385	
		DDD-p,p'	3.2	U	ng/L	P330385	
		DDE-p,p'	3.2	U	ng/L	P330385	
		DDT-p,p'	3.2	U	ng/L	P330385	
		Dieldrin	4.2	U	ng/L	P330385	
		Endosulfan I	4.2	U	ng/L	P330385	
		Endosulfan II	4.2	U	ng/L	P330385	
		Endosulfan Sulfate	2.1	U	ng/L	P330385	
		Endrin	2.1	U	ng/L	P330385	
		Endrin Aldehyde	2.1	U	ng/L	P330385	
		Heptachlor	1.6	U	ng/L	P330385	
		Heptachlor Epoxide	2.1	U	ng/L	P330385	
		Methoxychlor	4.2	U	ng/L	P330385	
		Mirex	2.1	U	ng/L	P330385	
		Permethrin	11	U	ng/L	P330385	
		Trifluralin	1.1	U	ng/L	P330385	
		Alpha-Chlordane	1.1	U	ng/L	P330385	
		Gamma-Chlordane	1.1	U	ng/L	P330385	
		Endrin Ketone	2.1	U	ng/L	P330385	
		Dicofol	32	U	ng/L	P330385	
		Chlordane**	2.6	U	ng/L	P330385	
		Toxaphene**	13	U	ng/L	P330385	
1922122	EPA 8270D	Alachlor	0.24	U	ng/L	P330463	
		Ametryn	0.31	U	ng/L	P330463	
		Atrazine	0.24	U	ng/L	P330463	
		Atrazine Desethyl	1.4	U	ng/L	P330463	RPD
		Azinphos Methyl	2.2	U	ng/L	P330463	
		Bromacil	0.48	U	ng/L	P330463	RPD
		Butylate	0.38	U	ng/L	P330463	RPD
		Chlorpyrifos Ethyl	0.24	U	ng/L	P330463	

Field ID: G1NE0040 08172017

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1922122	EPA 8270D	Chlorpyrifos Methyl	0.096	U	ng/L	P330463	
		Demeton	1.9	U	ng/L	P330463	
		Diazinon	0.12	U	ng/L	P330463	
		Disulfoton	0.48	U	ng/L	P330463	
		EPTC	1.2	U	ng/L	P330463	RPD
		Ethion	0.14	U	ng/L	P330463	
		Ethoprop	0.096	U	ng/L	P330463	
		Fenamiphos	0.24	U	ng/L	P330463	
		Fipronil	0.24	U	ng/L	P330463	MS, RPD
		Fipronil Sulfide	0.14	U	ng/L	P330463	MS, RPD
		Fipronil Sulfone	0.14	U	ng/L	P330463	RPD
		Hexazinone	0.48	U	ng/L	P330463	MS, RPD
		Malathion	0.33	U	ng/L	P330463	
		Metribuzin	0.19	UJ	ng/L	P330463	LCS, MS
		Mevinphos	0.48	U	ng/L	P330463	
		Molinate	0.29	U	ng/L	P330463	MS, RPD
		Norflurazon	0.48	U	ng/L	P330463	RPD
		Pendimethalin	0.96	U	ng/L	P330463	
		Phorate	0.24	U	ng/L	P330463	
		Prometon	0.86	U	ng/L	P330463	
		Prometryn	0.19	U	ng/L	P330463	
		Simazine	0.48	U	ng/L	P330463	
		Terbufos	0.096	U	ng/L	P330463	
		Terbuthylazine	0.41	U	ng/L	P330463	
		Fonofos	0.19	U	ng/L	P330463	
		Metalaxyl	0.19	U	ng/L	P330463	
		Metolachlor	0.39	I	ng/L	P330463	
		Acetochlor	0.24	U	ng/L	P330463	
		Cyanazine	0.48	U	ng/L	P330463	RPD
		Parathion Ethyl	0.24	U	ng/L	P330463	
		Parathion Methyl	0.24	U	ng/L	P330463	

Ref. Method and Comment:

EPA 8321B: MS accuracy for sucralose could not be assessed due to high concentration of parameter in the spiked sample.

EPA 8270D: MS accuracy for Atrazine, Metalaxyl and Fipronil Sulfone not assessed due to high content of these parameters in the sample spiked.

Refer to the narrative for an explanation of QC Codes.

Sample Location: MOSS LEE LAKE CENTER

Collection Date/Time: 08/16/2017 11:00

Field ID: G1NE0200 08172017

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1922091	EPA 180.1 Rev. 2.0	Turbidity	0.85		NTU	P330438	
	EPA 300.0 Rev. 2.1	Chloride	9.8		mg Cl/L	P330470	
		Sulfate	0.78		mg SO4/L	P330468	
	SM 2120 B	Color (true)	200		PCU	P330433	
	SM 2320 B-97	Total Alkalinity	1.5	I	mg CaCO3/L	P330700	
	SM 2540 C-97	TDS	57		mg/L	P330977	

Field ID: G1NE0200 08172017

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1922091	SM 2540 D-97	TSS	2	U	mg/L	P330681	
	SM 4500 F-C-97	Fluoride	0.083	I	mg F/L	P330703	
1922094	EPA 350.1 Rev. 2.0	Ammonia-N	0.055		mg N/L	P330556	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.5		mg N/L	P330453	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P330565	
	EPA 365.1 Rev. 2.0	Total-P	0.041		mg P/L	P330503	
	SM 5310 B-00	Organic Carbon	26		mg C/L	P330661	
1922097	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.009	I	mg P/L	P330428	

Ref. Method and Comment:

SM 2540 D-97: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample.

EPA 351.2 Rev. 2.0: Batch matrix spike recoveries are unavailable because of high analyte concentration in the QC sample.

SM 5310 B-00: Batch matrix spike recoveries are unavailable because of high analyte concentration in the QC sample.

Sample Location: HOLDENS POND CENTER

Collection Date/Time: 08/16/2017 11:15

Field ID: G1NE0199 08172017

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1922092	EPA 180.1 Rev. 2.0	Turbidity	2.0		NTU	P330438	
	EPA 300.0 Rev. 2.1	Chloride	8.8		mg Cl/L	P330624	
		Sulfate	0.52		mg SO4/L	P330625	
	SM 2120 B	Color (true)	260		PCU	P330433	
	SM 2320 B-97	Total Alkalinity	3.5	Y	mg CaCO3/L	P330700	
	SM 2540 C-97	TDS	56	Y	mg/L	P330977	
	SM 2540 D-97	TSS	2	IY	mg/L	P330681	
	SM 4500 F-C-97	Fluoride	0.081	I	mg F/L	P330703	
1922095	EPA 350.1 Rev. 2.0	Ammonia-N	0.004	I	mg N/L	P330556	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.3		mg N/L	P330453	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P330565	
	EPA 365.1 Rev. 2.0	Total-P	0.18		mg P/L	P330503	
	SM 5310 B-00	Organic Carbon	28		mg C/L	P330661	
1922098	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.12		mg P/L	P330428	

Ref. Method and Comment:

SM 2320 B-97: Sample was left out at room temperature over weekend, should be stored below 6 degC.

SM 2540 C-97: Sample was left out at room temperature over weekend, should be stored below 6 degC.

SM 2540 D-97: .Batch relative percent difference is unavailable because of low analyte concentration in the QC sample. Sample was left out at room temperature over weekend, should be stored below 6 degC.

EPA 351.2 Rev. 2.0: Batch matrix spike recoveries are unavailable because of high analyte concentration in the QC sample.

SM 5310 B-00: Batch matrix spike recoveries are unavailable because of high analyte concentration in the QC sample.

Sample Location: LAKE JEFFORDS CENTER

Collection Date/Time: 08/16/2017 12:00

Field ID: G1NE0041 08172017

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1922093	EPA 180.1 Rev. 2.0	Turbidity	2.2		NTU	P330438	
	EPA 300.0 Rev. 2.1	Chloride	17	A	mg Cl/L	P330624	
		Sulfate	5.9	A	mg SO4/L	P330625	
	SM 2120 B	Color (true)	180		PCU	P330433	
	SM 2320 B-97	Total Alkalinity	0.65	UY	mg CaCO3/L	P330700	

Field ID: G1NE0041 08172017

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1922093	SM 2540 C-97	TDS	58	Y	mg/L	P330977	
	SM 2540 D-97	TSS	2	UY	mg/L	P330681	
	SM 4500 F-C-97	Fluoride	0.053	I	mg F/L	P330703	
1922096	EPA 350.1 Rev. 2.0	Ammonia-N	0.003	I	mg N/L	P330556	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.56		mg N/L	P330453	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P330565	
	EPA 365.1 Rev. 2.0	Total-P	0.075		mg P/L	P330503	
	SM 5310 B-00	Organic Carbon	13		mg C/L	P330661	
1922099	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.046		mg P/L	P330428	

Ref. Method and Comment:

SM 2320 B-97: Sample was left out at room temperature over weekend, should be stored below 6 degC.

SM 2540 C-97: Sample was left out at room temperature over weekend, should be stored below 6 degC.

SM 2540 D-97: .Batch relative percent difference is unavailable because of low analyte concentration in the QC sample. Sample was left out at room temperature over weekend, should be stored below 6 degC.

EPA 351.2 Rev. 2.0: Batch matrix spike recoveries are unavailable because of high analyte concentration in the QC sample.

SM 5310 B-00: Batch matrix spike recoveries are unavailable because of high analyte concentration in the QC sample.

Non-Conformance Report

NCR ID: 6606

<u>Event(s)</u>	<u>Job(s)</u>	<u>Sample(s)</u>	<u>Test(s)</u>
NE-DIST-2017-08-17-01	TLH-2017-08-17-19	1922092	
NE-DIST-2017-08-17-01	TLH-2017-08-17-19	1922093	
NE-DIST-2017-08-17-01	TLH-2017-08-17-19	1922100	

NCR Type: CUSTODY

NCR Category: General

Observation: Samples not stored in refrigerator over the weekend 8/18/2017 thru 8/21/2017.

Resolution: Samples returned to refrigerator the morning of 8/21/2017. All analyses requiring refrigeration that were analyzed after 8/18/2017 will be Y qualified for incorrect preservation.

Authorized by/Date: Peter D. Kaus 8/28/2017

The Non-Conformance Report details exceptions or problems encountered with the events/jobs/samples/test.
 Please address questions to:

Chemistry Colin Wright (850) 245-8085
 Biology Cheryl Swanson (850) 245-8177

Quality Assurance Report Method Blank Results

Reference Method: EPA 180.1 Rev. 2.0
 Batch ID: P330438

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 200.7 Rev. 4.4
 Batch ID: P330427

Component	Result	Code	Units
Calcium	0.075	U	mg/L
Iron	30	U	ug/L
Magnesium	0.040	U	mg/L

Quality Assurance Report Method Blank Results

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P330427

Component	Result	Code	Units
Potassium	0.30	U	mg/L
Sodium	0.50	U	mg/L
Zinc	5.0	U	ug/L

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P330427

Component	Result	Code	Units
Arsenic	0.050	U	ug/L
Cadmium	0.020	U	ug/L
Chromium	0.40	U	ug/L
Copper	0.20	U	ug/L
Lead	0.050	U	ug/L
Silver	0.010	U	ug/L

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P330587

Component	Result	Code	Units
Nickel	0.20	U	ug/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P330468

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P330470

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P330624

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P330625

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P330556

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

Quality Assurance Report Method Blank Results

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P330453

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P330565

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P330503

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P330428

Component	Result	Code	Units
O-Phosphate-P	0.004	U	mg P/L

Reference Method: EPA 8270D
Batch ID: P330385

Component	Result	Code	Units
Aldrin	4.0	U	ng/L
Alpha-BHC	2.0	U	ng/L
Alpha-Chlordane	1.0	U	ng/L
Beta-BHC	4.0	U	ng/L
Carbophenothion	4.0	U	ng/L
Chlorothalonil	2.0	U	ng/L
Cypermethrin	20	U	ng/L
DDD-p,p'	3.0	U	ng/L
DDE-p,p'	3.0	U	ng/L
DDT-p,p'	3.0	U	ng/L
Delta-BHC	4.0	U	ng/L
Dicofol	30	U	ng/L
Dieldrin	4.0	U	ng/L
Endosulfan I	4.0	U	ng/L
Endosulfan II	4.0	U	ng/L
Endosulfan Sulfate	2.0	U	ng/L
Endrin	2.0	U	ng/L
Endrin Aldehyde	2.0	U	ng/L
Endrin Ketone	2.0	U	ng/L
Gamma-BHC	4.0	U	ng/L
Gamma-Chlordane	1.0	U	ng/L
Heptachlor	1.5	U	ng/L
Heptachlor Epoxide	2.0	U	ng/L
Methoxychlor	4.0	U	ng/L
Mirex	2.0	U	ng/L
Permethrin	10	U	ng/L
Trifluralin	1.0	U	ng/L

Quality Assurance Report Method Blank Results

Reference Method: EPA 8270D

Batch ID: P330463

Component	Result	Code	Units
Acetochlor	0.25	U	ng/L
Alachlor	0.25	U	ng/L
Ametryn	0.32	U	ng/L
Atrazine	0.25	U	ng/L
Atrazine Desethyl	1.5	U	ng/L
Azinphos Methyl	2.2	U	ng/L
Bromacil	0.50	U	ng/L
Butylate	0.40	U	ng/L
Chlorpyrifos Ethyl	0.25	U	ng/L
Chlorpyrifos Methyl	0.10	U	ng/L
Cyanazine	0.50	U	ng/L
Demeton	2.0	U	ng/L
Diazinon	0.12	U	ng/L
Disulfoton	0.50	U	ng/L
EPTC	1.2	U	ng/L
Ethion	0.15	U	ng/L
Ethoprop	0.10	U	ng/L
Fenamiphos	0.25	U	ng/L
Fipronil	0.25	U	ng/L
Fipronil Sulfide	0.15	U	ng/L
Fipronil Sulfone	0.15	U	ng/L
Fonofos	0.20	U	ng/L
Hexazinone	0.50	U	ng/L
Malathion	0.35	U	ng/L
Metaxyl	0.20	U	ng/L
Metolachlor	0.25	U	ng/L
Metribuzin	0.20	U	ng/L
Mevinphos	0.50	U	ng/L
Molinate	0.30	U	ng/L
Norflurazon	0.50	U	ng/L
Parathion Ethyl	0.25	U	ng/L
Parathion Methyl	0.25	U	ng/L
Pendimethalin	1.0	U	ng/L
Phorate	0.25	U	ng/L
Prometon	0.90	U	ng/L
Prometryn	0.20	U	ng/L
Simazine	0.50	U	ng/L
Terbufos	0.10	U	ng/L
Terbuthylazine	0.42	U	ng/L

Reference Method: EPA 8276

Batch ID: P330385

Component	Result	Code	Units
Chlordane	2.5	U	ng/L
Toxaphene	12	U	ng/L

Reference Method: EPA 8321B

Batch ID: P330383

Component	Result	Code	Units
Sucralose	0.010	U	ug/L

Quality Assurance Report

Method Blank Results

Reference Method: EPA 8321B
Batch ID: P330487

Component	Result	Code	Units
Pyraclostrobin	0.0020	U	ug/L

Reference Method: EPA 8321B
Batch ID: P330489

Component	Result	Code	Units
Glyphosate	0.50	U	ug/L

Reference Method: SM 2120 B
Batch ID: P330433

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2320 B-97
Batch ID: P330700

Component	Result	Code	Units
Total Alkalinity	0.65	U	mg CaCO3/L

Reference Method: SM 2320 B-97
Batch ID: P330701

Component	Result	Code	Units
Total Alkalinity	0.65	U	mg CaCO3/L

Reference Method: SM 2540 C-97
Batch ID: P330977

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P330681

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500 F-C-97
Batch ID: P330703

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 4500 F-C-97
Batch ID: P330705

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Quality Assurance Report Method Blank Results

Reference Method: SM 5310 B-00
 Batch ID: P330661

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

Reference Method: USGS O-2060-01
 Batch ID: P330253

Component	Result	Code	Units
2,4-D	8.0E-04	U	ug/L
Acetaminophen	0.0080	U	ug/L
Bentazon	8.0E-04	U	ug/L
Carbamazepine	4.0E-04	U	ug/L
Diuron	8.0E-04	U	ug/L
Fenuron	0.0080	U	ug/L
Fluridone	4.0E-04	U	ug/L
Imidacloprid	8.0E-04	U	ug/L
Linuron	0.0040	U	ug/L
MCP	0.0020	U	ug/L
Primidone	0.0040	U	ug/L
Triclopyr	0.0040	U	ug/L

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 200.7 Rev. 4.4
 Batch ID: P330427

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Calcium	104		P	85 - 115
Iron	102		P	85 - 115
Magnesium	103		P	85 - 115
Potassium	97.9		P	85 - 115
Sodium	96.0		P	85 - 115
Zinc	94.6		P	85 - 115

Reference Method: EPA 200.8 Rev. 5.4
 Batch ID: P330427

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Arsenic	105		P	85 - 115
Cadmium	95.9		P	85 - 115
Chromium	100		P	85 - 115
Copper	101		P	85 - 115
Lead	98.7		P	85 - 115
Silver	102		P	85 - 115

Reference Method: EPA 200.8 Rev. 5.4
 Batch ID: P330587

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

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P330468

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Sulfate	96.6		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P330470

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Chloride	97.5		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P330624

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P330625

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Sulfate	98.5		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P330556

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Ammonia-N	105		P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P330453

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Kjeldahl Nitrogen	99.1		P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P330565

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
NO2NO3-N	105		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P330503

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total-P	98.4		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P330428

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
O-Phosphate-P	96.6		P	90 - 110

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 8270D
Batch ID: P330385

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Aldrin	36.2	35.4	P/P	26 - 88.0
Alpha-BHC	82.9	76.3	P/P	63 - 114
Alpha-Chlordane	78.7	76.4	P/P	56 - 117
Beta-BHC	87.0	78.4	P/P	57 - 138
Carbophenothion	62.8	81.7	P/P	36 - 148
Chlorothalonil	47.9	39.0	P/P	26 - 173
Cypermethrin	79.4	84.3	P/P	42 - 159
DDD-p,p'	85.7	81.1	P/P	62 - 126
DDE-p,p'	76.3	75.3	P/P	53 - 115
DDT-p,p'	77.2	77.0	P/P	54 - 117
Delta-BHC	106	94.5	P/P	68 - 158
Dicofol	45.4	36.3	P/P	25 - 114
Dieldrin	81.0	75.2	P/P	59 - 126
Endosulfan I	92.8	86.7	P/P	62 - 138
Endosulfan II	91.7	82.7	P/P	61 - 150
Endosulfan Sulfate	84.3	82.3	P/P	63 - 132
Endrin	105	110	P/P	49 - 148
Endrin Aldehyde	90.8	82.8	P/P	50 - 144
Endrin Ketone	82.7	81.1	P/P	66 - 122
Gamma-BHC	96.7	85.4	P/P	60 - 137
Gamma-Chlordane	74.2	70.9	P/P	54 - 113
Heptachlor	60.9	65.3	P/P	43 - 104
Heptachlor Epoxide	80.0	74.9	P/P	64 - 118
Methoxychlor	96.2	95.8	P/P	63 - 129
Mirex	61.6	66.0	P/P	39 - 93.0
Permethrin	71.5	75.2	P/P	51 - 123
Trifluralin	110	106	P/P	35 - 187

Reference Method: EPA 8270D
Batch ID: P330463

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Acetochlor	87.8	90.8	P/P	78 - 118
Alachlor	89.4	92.0	P/P	77 - 119
Ametryn	76.7	82.7	P/P	61 - 136
Atrazine	94.7	94.7	P/P	73 - 120
Atrazine Desethyl	90.8	76.7	P/P	16 - 122
Azinphos Methyl	108	102	P/P	69 - 186
Bromacil	91.3	80.7	P/P	40 - 125
Butylate	41.6	44.1	P/P	32 - 87.0
Chlorpyrifos Ethyl	92.1	89.2	P/P	53 - 110
Chlorpyrifos Methyl	91.8	93.5	P/P	31 - 119
Cyanazine	178	182	P/P	36 - 224
Demeton	82.3	80.7	P/P	39 - 122
Diazinon	90.9	97.7	P/P	75 - 119
Disulfoton	96.0	97.8	P/P	42 - 139
EPTC	40.5	47.0	P/P	33 - 96.0
Ethion	91.9	92.5	P/P	63 - 127
Ethoprop	69.3	88.6	P/P	65 - 107
Fenamiphos	89.6	80.2	P/P	64 - 137
Fipronil	85.5	79.1	P/P	60 - 126
Fipronil Sulfide	83.4	74.0	P/P	58 - 124

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 8270D
Batch ID: P330463

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fipronil Sulfone	74.1	63.3	P/P	57 - 126
Fonofos	84.4	92.6	P/P	65 - 111
Hexazinone	80.6	86.0	P/P	46 - 151
Malathion	93.0	93.7	P/P	68 - 132
Metalaxyl	81.2	79.0	P/P	51 - 132
Metolachlor	90.0	92.6	P/P	78 - 119
Metribuzin	180	168	F/F	58 - 148
Mevinphos	71.1	70.9	P/P	34 - 128
Molinate	52.6	51.9	P/P	44 - 101
Norflurazon	81.2	73.3	P/P	63 - 129
Parathion Ethyl	90.1	92.3	P/P	80 - 109
Parathion Methyl	97.7	97.0	P/P	74 - 125
Pendimethalin	84.6	86.7	P/P	48 - 134
Phorate	74.1	80.5	P/P	52 - 119
Prometon	79.4	79.0	P/P	69 - 124
Prometryn	83.8	77.8	P/P	66 - 124
Simazine	95.3	91.2	P/P	61 - 134
Terbufos	84.9	90.6	P/P	58 - 115
Terbutylazine	91.4	92.6	P/P	77 - 113

Reference Method: EPA 8276
Batch ID: P330385

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Chlordane	79.9	88.0	P/P	48 - 121
Toxaphene	85.9	98.3	P/P	43 - 135

Reference Method: EPA 8321B
Batch ID: P330383

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Sucralose	125		P	40 - 150

Reference Method: EPA 8321B
Batch ID: P330487

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Pyraclostrobin	110		P	40 - 150

Reference Method: EPA 8321B
Batch ID: P330489

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Glyphosate	109		P	40 - 150

Reference Method: SM 2320 B-97
Batch ID: P330700

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	102		P	95 - 108

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: SM 2320 B-97
Batch ID: P330701

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	102		P	95 - 108

Reference Method: SM 4500 F-C-97
Batch ID: P330703

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	97.2		P	92 - 103

Reference Method: SM 4500 F-C-97
Batch ID: P330705

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	97.7		P	92 - 103

Reference Method: SM 5310 B-00
Batch ID: P330661

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	98.4		P	85 - 115

Reference Method: USGS O-2060-01
Batch ID: P330253

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2,4-D	75.9		P	40 - 150
Acetaminophen	112		P	30 - 150
Bentazon	70.8		P	40 - 150
Carbamazepine	122		P	40 - 150
Diuron	112		P	40 - 150
Fenuron	107		P	40 - 150
Fluridone	107		P	40 - 150
Imidacloprid	96.1		P	40 - 160
Linuron	107		P	40 - 150
MCPP	83.6		P	40 - 150
Primidone	109		P	40 - 150
Triclopyr	79.8		P	40 - 150

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P330427

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1922083	Calcium	100		P	80 - 120
1922083	Iron	99.9		P	80 - 120
1922083	Magnesium	101		P	80 - 120
1922083	Potassium	98.6		P	80 - 120
1922083	Sodium	98.1		P	80 - 120
1922083	Zinc	97.2		P	80 - 120
1922129	Calcium	104	96.0	P/P	80 - 120

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P330427

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1922129	Iron	104	98.6	P/P	80 - 120
1922129	Magnesium	104	98.7	P/P	80 - 120
1922129	Potassium	96.8	89.2	P/P	80 - 120
1922129	Sodium	95.8		P	80 - 120
1922129	Zinc	96.9	96.4	P/P	80 - 120

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P330427

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1922083	Arsenic	105		P	80 - 120
1922083	Cadmium	98.1		P	80 - 120
1922083	Chromium	103		P	80 - 120
1922083	Copper	101		P	80 - 120
1922083	Lead	99.3		P	80 - 120
1922083	Silver	103		P	80 - 120
1922129	Arsenic	103	103	P/P	80 - 120
1922129	Cadmium	93.4	96.8	P/P	80 - 120
1922129	Chromium	97.6	98.9	P/P	80 - 120
1922129	Copper	97.1	98.1	P/P	80 - 120
1922129	Lead	96.0	98.0	P/P	80 - 120
1922129	Silver	98.8	100	P/P	80 - 120

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P330587

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1922123	Nickel	99.5		P	80 - 120
1922604	Nickel	99.0	101	P/P	80 - 120

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P330468

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1921834	Sulfate	95.4		P	90 - 110
1921879	Sulfate	97.5		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P330470

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1921834	Chloride	96.4		P	90 - 110
1921879	Chloride	98.2		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P330624

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1922093	Chloride	98.7		P	90 - 110

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P330625

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1922093	Sulfate	97.6		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P330556

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1922096	Ammonia-N	108	107	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P330565

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1922033	NO2NO3-N	104	102	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P330503

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1922094	Total-P	97.2	98.8	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P330428

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1922041	O-Phosphate-P	93.8	96.8	P/P	90 - 110

Reference Method: EPA 8270D
Batch ID: P330385

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1922374	Aldrin	51.2	35.5	P/P	22 - 97.0
1922374	Alpha-BHC	90.7	84.0	P/P	43 - 132
1922374	Alpha-Chlordane	84.2	73.4	P/P	36 - 126
1922374	Beta-BHC	89.9	92.5	P/P	41 - 150
1922374	Carbophenothion	93.9	70.4	P/P	13 - 196
1922374	Chlorothalonil	85.4	70.5	P/P	10 - 266
1922374	Cypermethrin	91.8	90.3	P/P	37 - 161
1922374	DDD-p,p'	86.2	84.3	P/P	44 - 131
1922374	DDE-p,p'	89.0	73.5	P/P	32 - 127
1922374	DDT-p,p'	83.5	70.9	P/P	45 - 116
1922374	Delta-BHC	127	125	P/P	50 - 201
1922374	Dicofol	31.3	24.3	P/P	10 - 100
1922374	Dieldrin	107	67.4	P/P	39 - 142
1922374	Endosulfan I	97.8	90.9	P/P	51 - 139
1922374	Endosulfan II	92.3	97.3	P/P	49 - 155
1922374	Endosulfan Sulfate	83.8	89.4	P/P	54 - 136
1922374	Endrin	123	117	P/P	38 - 141
1922374	Endrin Aldehyde	87.5	88.8	P/P	14 - 152
1922374	Endrin Ketone	91.7	93.4	P/P	60 - 128
1922374	Gamma-BHC	109	98.4	P/P	48 - 157
1922374	Gamma-Chlordane	78.8	69.8	P/P	35 - 123
1922374	Heptachlor	66.7	57.4	P/P	25 - 112

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 8270D

Batch ID: P330385

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1922374	Heptachlor Epoxide	90.9	84.1	P/P	48 - 125
1922374	Methoxychlor	100	94.7	P/P	52 - 127
1922374	Mirex	72.5	56.9	P/P	25 - 108
1922374	Permethrin	86.3	75.6	P/P	46 - 133
1922374	Trifluralin	136	123	P/P	29 - 254

Reference Method: EPA 8270D

Batch ID: P330463

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1921573	Acetochlor	81.4	85.2	P/P	74 - 123
1921573	Alachlor	84.0	88.1	P/P	73 - 124
1921573	Ametryn	97.8	85.6	P/P	56 - 149
1921573	Atrazine Desethyl	81.3	33.3	P/P	12 - 103
1921573	Azinphos Methyl	89.9	78.5	P/P	60 - 202
1921573	Bromacil	96.0	48.5	P/P	42 - 133
1921573	Butylate	13.9	19.9	P/P	10 - 85.0
1921573	Chlorpyrifos Ethyl	85.1	83.6	P/P	53 - 113
1921573	Chlorpyrifos Methyl	79.5	79.6	P/P	40 - 115
1921573	Cyanazine	135	79.5	P/P	22 - 210
1921573	Demeton	68.0	70.3	P/P	17 - 149
1921573	Diazinon	82.4	88.7	P/P	72 - 124
1921573	Disulfoton	82.8	83.6	P/P	43 - 139
1921573	EPTC	13.2	21.3	P/P	10 - 86.0
1921573	Ethion	112	87.2	P/P	65 - 131
1921573	Ethoprop	61.2	67.5	P/P	59 - 110
1921573	Fenamiphos	73.4	63.4	P/P	57 - 138
1921573	Fipronil	84.7	33.8	P/F	40 - 130
1921573	Fipronil Sulfide	97.6	9.16	P/F	36 - 128
1921573	Fonofos	73.2	76.7	P/P	60 - 112
1921573	Hexazinone	111	18.2	P/F	69 - 142
1921573	Malathion	95.5	82.9	P/P	68 - 132
1921573	Metolachlor	88.5	89.4	P/P	71 - 124
1921573	Metribuzin	187	134	F/P	61 - 140
1921573	Mevinphos	57.8	61.5	P/P	38 - 130
1921573	Molinate	22.3	34.4	F/P	23 - 99.0
1921573	Norflurazon	79.9	48.1	P/P	39 - 139
1921573	Parathion Ethyl	91.4	81.0	P/P	75 - 111
1921573	Parathion Methyl	93.3	85.1	P/P	64 - 130
1921573	Pendimethalin	85.3	82.5	P/P	26 - 173
1921573	Phorate	53.3	61.4	P/P	43 - 127
1921573	Prometon	91.6	83.2	P/P	50 - 144
1921573	Prometryn	91.8	87.1	P/P	69 - 126
1921573	Simazine	96.2	81.5	P/P	51 - 152
1921573	Terbufos	71.4	77.2	P/P	54 - 125
1921573	Terbutylazine	90.7	83.2	P/P	76 - 113

Reference Method: EPA 8276

Batch ID: P330385

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1921425	Chlordane	85.8	92.9	P/P	44 - 134

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 8276
 Batch ID: P330385

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1921425	Toxaphene	91.2	99.5	P/P	36 - 147

Reference Method: EPA 8321B
 Batch ID: P330487

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1922598	Pyraclostrobin	111	75.3	P/P	40 - 150

Reference Method: EPA 8321B
 Batch ID: P330489

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1922118	Glyphosate	106	108	P/P	40 - 150

Reference Method: SM 4500 F-C-97
 Batch ID: P330703

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1922010	Fluoride	99.0	100	P/P	91 - 105

Reference Method: SM 4500 F-C-97
 Batch ID: P330705

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1922331	Fluoride	101	98.2	P/P	91 - 105

Reference Method: USGS O-2060-01
 Batch ID: P330253

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1922240	2,4-D	125	105	P/P	40 - 150
1922240	Acetaminophen	120	109	P/P	30 - 150
1922240	Bentazon	38.4	34.5	F/F	40 - 150
1922240	Carbamazepine	98.6	91.9	P/P	40 - 150
1922240	Diuron	80.5	79.5	P/P	40 - 150
1922240	Fenuron	78.8	73.9	P/P	40 - 150
1922240	Fluridone	88.4	77.2	P/P	40 - 150
1922240	Imidacloprid	240	236	F/F	40 - 160
1922240	Linuron	104	99.6	P/P	40 - 150
1922240	MCP	89.3	90.3	P/P	40 - 150
1922240	Primidone	123	120	P/P	40 - 150
1922240	Triclopyr	91.4	91.6	P/P	40 - 150

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
 Batch ID: P330438

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

Reference Method: EPA 180.1 Rev. 2.0
 Batch ID: P330438

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1922085	Turbidity	3.04	Sample	P	0 - 20

Reference Method: EPA 200.7 Rev. 4.4
 Batch ID: P330427

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1922129	Calcium	4.16	Spike	P	0 - 20
1922129	Iron	4.78	Spike	P	0 - 20
1922129	Magnesium	3.99	Spike	P	0 - 20
1922129	Potassium	4.37	Spike	P	0 - 20
1922129	Sodium	0.720	Spike	P	0 - 20
1922129	Zinc	0.540	Spike	P	0 - 20

Reference Method: EPA 200.8 Rev. 5.4
 Batch ID: P330427

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1922129	Arsenic	0.0999	Spike	P	0 - 20
1922129	Cadmium	3.56	Spike	P	0 - 20
1922129	Chromium	1.28	Spike	P	0 - 20
1922129	Copper	0.932	Spike	P	0 - 20
1922129	Lead	2.04	Spike	P	0 - 20
1922129	Silver	1.43	Spike	P	0 - 20

Reference Method: EPA 200.8 Rev. 5.4
 Batch ID: P330587

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1922604	Nickel	1.86	Spike	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
 Batch ID: P330468

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1921834	Sulfate	1.79	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
 Batch ID: P330470

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1921834	Chloride	0.0423	Sample	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P330624

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1922093	Chloride	2.87	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P330625

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1922093	Sulfate	2.64	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P330556

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1922096	Ammonia-N	0.552	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P330453

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1922094	Kjeldahl Nitrogen	0.314	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P330565

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1922033	NO2NO3-N	0.976	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P330503

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1922094	Total-P	1.49	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P330428

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1922041	O-Phosphate-P	2.51	Spike	P	0 - 20

Reference Method: EPA 8270D
Batch ID: P330385

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1922374	Aldrin	36.4	Spike	F	0 - 30
1922374	Alpha-BHC	7.67	Spike	P	0 - 30

Quality Assurance Report Precision

Reference Method: EPA 8270D
Batch ID: P330385

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1922374	Alpha-Chlordane	13.7	Spike	P	0 - 30
1922374	Beta-BHC	2.87	Spike	P	0 - 30
1922374	Carbophenothion	28.5	Spike	P	0 - 30
1922374	Chlorothalonil	19.2	Spike	P	0 - 30
1922374	Cypermethrin	1.62	Spike	P	0 - 30
1922374	DDD-p,p'	2.23	Spike	P	0 - 30
1922374	DDE-p,p'	19.1	Spike	P	0 - 30
1922374	DDT-p,p'	16.4	Spike	P	0 - 30
1922374	Delta-BHC	1.61	Spike	P	0 - 30
1922374	Dicofol	25.2	Spike	P	0 - 30
1922374	Dieldrin	9.45	Spike	P	0 - 30
1922374	Endosulfan I	7.32	Spike	P	0 - 30
1922374	Endosulfan II	5.28	Spike	P	0 - 30
1922374	Endosulfan Sulfate	6.46	Spike	P	0 - 30
1922374	Endrin	5.00	Spike	P	0 - 30
1922374	Endrin Aldehyde	1.43	Spike	P	0 - 30
1922374	Endrin Ketone	1.91	Spike	P	0 - 30
1922374	Gamma-BHC	10.0	Spike	P	0 - 30
1922374	Gamma-Chlordane	12.2	Spike	P	0 - 30
1922374	Heptachlor	15.0	Spike	P	0 - 30
1922374	Heptachlor Epoxide	5.89	Spike	P	0 - 30
1922374	Methoxychlor	5.56	Spike	P	0 - 30
1922374	Mirex	24.1	Spike	P	0 - 30
1922374	Permethrin	13.1	Spike	P	0 - 30
1922374	Trifluralin	9.87	Spike	P	0 - 30
LFB	Aldrin	2.35	LCS	P	0 - 30
LFB	Alpha-BHC	8.28	LCS	P	0 - 30
LFB	Alpha-Chlordane	2.93	LCS	P	0 - 30
LFB	Beta-BHC	10.3	LCS	P	0 - 30
LFB	Carbophenothion	26.1	LCS	P	0 - 30
LFB	Chlorothalonil	20.5	LCS	P	0 - 30
LFB	Cypermethrin	6.09	LCS	P	0 - 30
LFB	DDD-p,p'	5.56	LCS	P	0 - 30
LFB	DDE-p,p'	1.29	LCS	P	0 - 30
LFB	DDT-p,p'	0.188	LCS	P	0 - 30
LFB	Delta-BHC	11.2	LCS	P	0 - 30
LFB	Dicofol	22.4	LCS	P	0 - 30
LFB	Dieldrin	7.39	LCS	P	0 - 30
LFB	Endosulfan I	6.75	LCS	P	0 - 30
LFB	Endosulfan II	10.4	LCS	P	0 - 30
LFB	Endosulfan Sulfate	2.38	LCS	P	0 - 30
LFB	Endrin	4.13	LCS	P	0 - 30
LFB	Endrin Aldehyde	9.15	LCS	P	0 - 30
LFB	Endrin Ketone	1.94	LCS	P	0 - 30
LFB	Gamma-BHC	12.5	LCS	P	0 - 30
LFB	Gamma-Chlordane	4.57	LCS	P	0 - 30
LFB	Heptachlor	7.00	LCS	P	0 - 30
LFB	Heptachlor Epoxide	6.59	LCS	P	0 - 30
LFB	Methoxychlor	0.466	LCS	P	0 - 30
LFB	Mirex	6.94	LCS	P	0 - 30
LFB	Permethrin	5.00	LCS	P	0 - 30

Quality Assurance Report Precision

Reference Method: EPA 8270D
Batch ID: P330385

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
LFB	Trifluralin	3.36	LCS	P	0 - 30

Reference Method: EPA 8270D
Batch ID: P330463

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1921573	Acetochlor	4.52	Spike	P	0 - 30
1921573	Alachlor	4.86	Spike	P	0 - 30
1921573	Ametryn	13.2	Spike	P	0 - 30
1921573	Atrazine	24.6	Spike	P	0 - 30
1921573	Atrazine Desethyl	45.9	Spike	F	0 - 30
1921573	Azinphos Methyl	13.5	Spike	P	0 - 30
1921573	Bromacil	51.0	Spike	F	0 - 30
1921573	Butylate	35.3	Spike	F	0 - 30
1921573	Chlorpyrifos Ethyl	1.88	Spike	P	0 - 30
1921573	Chlorpyrifos Methyl	0.143	Spike	P	0 - 30
1921573	Cyanazine	51.6	Spike	F	0 - 30
1921573	Demeton	3.27	Spike	P	0 - 30
1921573	Diazinon	7.37	Spike	P	0 - 30
1921573	Disulfoton	0.966	Spike	P	0 - 30
1921573	EPTC	47.2	Spike	F	0 - 30
1921573	Ethion	24.5	Spike	P	0 - 30
1921573	Ethoprop	9.80	Spike	P	0 - 30
1921573	Fenamiphos	14.7	Spike	P	0 - 30
1921573	Fipronil	48.8	Spike	F	0 - 30
1921573	Fipronil Sulfide	66.3	Spike	F	0 - 30
1921573	Fipronil Sulfone	76.3	Spike	F	0 - 30
1921573	Fonofos	4.58	Spike	P	0 - 30
1921573	Hexazinone	63.4	Spike	F	0 - 30
1921573	Malathion	14.2	Spike	P	0 - 30
1921573	Metalaxyl	26.6	Spike	P	0 - 30
1921573	Metolachlor	0.958	Spike	P	0 - 30
1921573	Metribuzin	26.5	Spike	P	0 - 30
1921573	Mevinphos	6.34	Spike	P	0 - 30
1921573	Molinate	42.8	Spike	F	0 - 30
1921573	Norflurazon	49.6	Spike	F	0 - 30
1921573	Parathion Ethyl	12.1	Spike	P	0 - 30
1921573	Parathion Methyl	9.24	Spike	P	0 - 30
1921573	Pendimethalin	3.33	Spike	P	0 - 30
1921573	Phorate	14.1	Spike	P	0 - 30
1921573	Prometon	9.70	Spike	P	0 - 30
1921573	Prometryn	5.21	Spike	P	0 - 30
1921573	Simazine	16.6	Spike	P	0 - 30
1921573	Terbufos	7.82	Spike	P	0 - 30
1921573	Terbutylazine	8.64	Spike	P	0 - 30
LFB	Acetochlor	3.39	LCS	P	0 - 30
LFB	Alachlor	2.93	LCS	P	0 - 30
LFB	Ametryn	7.44	LCS	P	0 - 30
LFB	Atrazine	0.0125	LCS	P	0 - 30
LFB	Atrazine Desethyl	16.8	LCS	P	0 - 30

Quality Assurance Report Precision

Reference Method: EPA 8270D
Batch ID: P330463

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
LFB	Azinphos Methyl	6.38	LCS	P	0 - 30
LFB	Bromacil	12.3	LCS	P	0 - 30
LFB	Butylate	5.86	LCS	P	0 - 30
LFB	Chlorpyrifos Ethyl	3.20	LCS	P	0 - 30
LFB	Chlorpyrifos Methyl	1.88	LCS	P	0 - 30
LFB	Cyanazine	2.69	LCS	P	0 - 30
LFB	Demeton	1.95	LCS	P	0 - 30
LFB	Diazinon	7.14	LCS	P	0 - 30
LFB	Disulfoton	1.80	LCS	P	0 - 30
LFB	EPTC	14.9	LCS	P	0 - 30
LFB	Ethion	0.691	LCS	P	0 - 30
LFB	Ethoprop	24.5	LCS	P	0 - 30
LFB	Fenamiphos	11.1	LCS	P	0 - 30
LFB	Fipronil	7.70	LCS	P	0 - 30
LFB	Fipronil Sulfide	12.0	LCS	P	0 - 30
LFB	Fipronil Sulfone	15.7	LCS	P	0 - 30
LFB	Fonofos	9.30	LCS	P	0 - 30
LFB	Hexazinone	6.47	LCS	P	0 - 30
LFB	Malathion	0.760	LCS	P	0 - 30
LFB	Metalaxyl	2.74	LCS	P	0 - 30
LFB	Metolachlor	2.86	LCS	P	0 - 30
LFB	Metribuzin	7.00	LCS	P	0 - 30
LFB	Mevinphos	0.284	LCS	P	0 - 30
LFB	Molinate	1.41	LCS	P	0 - 30
LFB	Norflurazon	10.3	LCS	P	0 - 30
LFB	Parathion Ethyl	2.45	LCS	P	0 - 30
LFB	Parathion Methyl	0.679	LCS	P	0 - 30
LFB	Pendimethalin	2.39	LCS	P	0 - 30
LFB	Phorate	8.32	LCS	P	0 - 30
LFB	Prometon	0.431	LCS	P	0 - 30
LFB	Prometryn	7.36	LCS	P	0 - 30
LFB	Simazine	4.33	LCS	P	0 - 30
LFB	Terbufos	6.43	LCS	P	0 - 30
LFB	Terbuthylazine	1.26	LCS	P	0 - 30

Reference Method: EPA 8276
Batch ID: P330385

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1921425	Chlordane	7.95	Spike	P	0 - 30
1921425	Toxaphene	8.75	Spike	P	0 - 30
LFB	Chlordane	9.68	LCS	P	0 - 30
LFB	Toxaphene	13.4	LCS	P	0 - 30

Reference Method: EPA 8321B
Batch ID: P330383

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1921620	Sucralose	0.491	Spike	P	0 - 30

Quality Assurance Report Precision

Reference Method: EPA 8321B
Batch ID: P330487

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1922598	Pyraclostrobin	38.4	Spike	F	0 - 30

Reference Method: EPA 8321B
Batch ID: P330489

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1922118	Glyphosate	2.05	Spike	P	0 - 30

Reference Method: SM 2120 B
Batch ID: P330433

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1922104	Color (true)	0.562	Sample	P	0 - 20

Reference Method: SM 2320 B-97
Batch ID: P330700

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1922010	Total Alkalinity	0.156	Sample	P	0 - 4.8

Reference Method: SM 2320 B-97
Batch ID: P330701

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1922331	Total Alkalinity	0.675	Sample	P	0 - 4.8

Reference Method: SM 2540 C-97
Batch ID: P330977

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1922104	TDS	0.560	Sample	P	0 - 10

Reference Method: SM 4500 F-C-97
Batch ID: P330703

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1922010	Fluoride	0.946	Spike	P	0 - 3.0

Reference Method: SM 4500 F-C-97
Batch ID: P330705

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1922331	Fluoride	1.93	Spike	P	0 - 3.0

Quality Assurance Report Precision

Reference Method: SM 5310 B-00
 Batch ID: P330661

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1922080	Organic Carbon	0.0973	Spike	P	0 - 20

Reference Method: USGS O-2060-01
 Batch ID: P330253

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1922240	2,4-D	17.8	Spike	P	0 - 30
1922240	Acetaminophen	9.30	Spike	P	0 - 30
1922240	Bentazon	4.46	Spike	P	0 - 30
1922240	Carbamazepine	7.01	Spike	P	0 - 30
1922240	Diuron	1.33	Spike	P	0 - 30
1922240	Fenuron	6.34	Spike	P	0 - 30
1922240	Fluridone	13.3	Spike	P	0 - 30
1922240	Imidacloprid	1.77	Spike	P	0 - 30
1922240	Linuron	4.03	Spike	P	0 - 30
1922240	MCP	1.09	Spike	P	0 - 30
1922240	Primidone	2.40	Spike	P	0 - 30
1922240	Triclopyr	0.218	Spike	P	0 - 30

* Sample, spike and/or laboratory control sample precision (LCS) is reported.
 Replicate spike precision may be reported when sample results are below quantifiable levels.

Quality Assurance Report Surrogates

Lab Sample ID: 1922118
 Field Sample ID: G1NE0040 08172017

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	Acetaminophen-d4	109	P	30 - 160
EPA 8321B	Acetaminophen-d4	109	P	30 - 160
EPA 8321B	Carbamazepine-d10	79.8	P	30 - 160
EPA 8321B	Carbamazepine-d10	79.8	P	30 - 160
EPA 8321B	Diuron-d6	94.6	P	30 - 160
EPA 8321B	Diuron-d6	68.5	P	30 - 160
EPA 8321B	Diuron-d6	94.6	P	30 - 160
EPA 8321B	Diuron-d6	68.5	P	30 - 160
EPA 8321B	Glyphosate 13C 15N	104	P	40 - 160
EPA 8321B	Primidone-d5	87.6	P	30 - 160
EPA 8321B	Primidone-d5	87.6	P	30 - 160
EPA 8321B	Sucralose-d6	66.5	P	40 - 160
EPA 8321B	Sucralose-d6	66.5	P	40 - 160
USGS O-2060-01	2,4-D-d3	103	P	40 - 160
USGS O-2060-01	Acetaminophen-d4	109	P	30 - 160
USGS O-2060-01	Carbamazepine-d10	79.8	P	30 - 160
USGS O-2060-01	Diuron-d6	94.6	P	30 - 160
USGS O-2060-01	Diuron-d6	68.5	P	30 - 160
USGS O-2060-01	Primidone-d5	87.6	P	30 - 160
USGS O-2060-01	Sucralose-d6	66.5	P	40 - 160

Quality Assurance Report Surrogates

Lab Sample ID: 1922121
Field Sample ID: G1NE0040 08172017

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8270D	Decachlorobiphenyl	60.8	P	39 - 118
EPA 8270D	Tetrachloro-m-xylene	51.0	P	32 - 103
EPA 8276	Decachlorobiphenyl	64.0	P	31 - 100

Lab Sample ID: 1922122
Field Sample ID: G1NE0040 08172017

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8270D	Malathion-d7	111	P	53 - 135
EPA 8270D	Simazine-d10	92.7	P	71 - 126

Quality Assurance Report Calibration Verification

Reference Method: EPA 300.0 Rev. 2.1
Run ID: A78421
Included Lab Sample IDs: 1922091, 1922092, 1922093, 1922100

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	98.5	101	P/P	90 - 110
Chloride	99.7	99.6	P/P	90 - 110
Sulfate	101	101	P/P	90 - 110
Sulfate	101	101	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Run ID: A78481
Included Lab Sample IDs: 1922097, 1922098, 1922099, 1922102

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	99.7	100	P/P	90 - 110
O-Phosphate-P	99.9	99.7	P/P	90 - 110

Reference Method: SM 2120 B
Run ID: A78482
Included Lab Sample IDs: 1922091, 1922092, 1922093, 1922100

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	106	107	P/P	85 - 115
Color (true)	107	108	P/P	85 - 115

Reference Method: EPA 180.1 Rev. 2.0
Run ID: A78483
Included Lab Sample IDs: 1922091, 1922092, 1922093, 1922100

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

Quality Assurance Report Calibration Verification

Reference Method: EPA 200.8 Rev. 5.4

Run ID: A78522

Included Lab Sample IDs: 1922129

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Arsenic	106	102	P/P	90 - 110
Cadmium	98.2	97.7	P/P	90 - 110
Copper	105	101	P/P	90 - 110
Lead	99.1	98.0	P/P	90 - 110
Silver	102	101	P/P	90 - 110

Reference Method: EPA 200.7 Rev. 4.4

Run ID: A78523

Included Lab Sample IDs: 1922129

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Calcium	99.0	97.0	P/P	90 - 110
Iron	98.0	97.3	P/P	90 - 110
Magnesium	98.0	97.3	P/P	90 - 110
Potassium	96.3	94.5	P/P	90 - 110
Sodium	96.7	93.2	P/P	90 - 110
Zinc	97.4	96.5	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A78524

Included Lab Sample IDs: 1922094, 1922095, 1922096, 1922101

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	101	101	P/P	90 - 110
Ammonia-N	101	102	P/P	90 - 110
Ammonia-N	101	101	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A78528

Included Lab Sample IDs: 1922094, 1922095, 1922096, 1922101

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

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A78540

Included Lab Sample IDs: 1922095, 1922096, 1922101

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	103	105	P/P	90 - 110

Reference Method: EPA 8321B

Run ID: A78546

Included Lab Sample IDs: 1922118

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Glyphosate	94.9	106	P/P	70 - 160

Quality Assurance Report Calibration Verification

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A78550

Included Lab Sample IDs: 1922094, 1922095, 1922096, 1922101

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	101	105	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A78559

Included Lab Sample IDs: 1922094

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

Reference Method: SM 5310 B-00

Run ID: A78572

Included Lab Sample IDs: 1922094, 1922095, 1922096, 1922101

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	97.4	97.1	P/P	90 - 110
Organic Carbon	97.8	97.4	P/P	90 - 110

Reference Method: SM 2320 B-97

Run ID: A78580

Included Lab Sample IDs: 1922091, 1922092, 1922093, 1922100

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	102	99.9	P/P	90 - 110
Total Alkalinity	103	99.8	P/P	90 - 110

Reference Method: SM 4500 F-C-97

Run ID: A78580

Included Lab Sample IDs: 1922091, 1922092, 1922093, 1922100

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	98.5	100	P/P	90 - 110
Fluoride	99.0	100	P/P	90 - 110

Reference Method: EPA 200.8 Rev. 5.4

Run ID: A78590

Included Lab Sample IDs: 1922129

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

Reference Method: EPA 200.8 Rev. 5.4

Run ID: A78612

Included Lab Sample IDs: 1922129

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Nickel	100	97.7	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: EPA 8321B
Run ID: A78635
Included Lab Sample IDs: 1922118

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Pyraclostrobin	106	97.3	P/P	60 - 150

Reference Method: USGS O-2060-01
Run ID: A78655
Included Lab Sample IDs: 1922118

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
2,4-D	98.8	94.6	P/P	50 - 150
Acetaminophen	104	106	P/P	60 - 150
Bentazon	113	114	P/P	50 - 150
Carbamazepine	114	110	P/P	60 - 150
Diuron	109	109	P/P	60 - 150
Fenuron	103	102	P/P	60 - 150
Fluridone	104	104	P/P	60 - 160
Imidacloprid	108	101	P/P	60 - 150
Linuron	104	107	P/P	60 - 150
MCPP	98.2	97.5	P/P	50 - 150
Primidone	99.6	106	P/P	60 - 150
Triclopyr	107	111	P/P	50 - 150

Reference Method: EPA 8270D
Run ID: A78688
Included Lab Sample IDs: 1922122

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Acetochlor	104		P	80 - 120
Alachlor	107		P	80 - 120
Ametryn	96.9		P	80 - 120
Atrazine	96.5		P	80 - 120
Atrazine Desethyl	94.9		P	80 - 120
Azinphos Methyl	98.7		P	80 - 120
Bromacil	97.3		P	80 - 120
Butylate	101		P	80 - 120
Chlorpyrifos Ethyl	102		P	80 - 120
Chlorpyrifos Methyl	100		P	80 - 120
Cyanazine	94.6		P	80 - 120
Demeton	98.5		P	80 - 120
Diazinon	101		P	80 - 120
Disulfoton	95.7		P	80 - 120
EPTC	105		P	80 - 120
Ethion	97.7		P	80 - 120
Ethoprop	103		P	80 - 120
Fenamiphos	96.8		P	80 - 120
Fipronil	101		P	80 - 120
Fipronil Sulfide	97.6		P	80 - 120
Fipronil Sulfone	101		P	80 - 120
Fonofos	99.4		P	80 - 120
Hexazinone	101		P	80 - 120
Malathion	98.4		P	80 - 120
Metalaxyl	103		P	80 - 120
Metolachlor	109		P	80 - 120

Quality Assurance Report Calibration Verification

Reference Method: EPA 8270D
Run ID: A78688
Included Lab Sample IDs: 1922122

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Metribuzin	103		P	80 - 120
Mevinphos	100		P	80 - 120
Molinate	109		P	80 - 120
Norflurazon	102		P	80 - 120
Parathion Ethyl	95.4		P	80 - 120
Parathion Methyl	97.1		P	80 - 120
Pendimethalin	91.4		P	80 - 120
Phorate	99.1		P	80 - 120
Prometon	96.9		P	80 - 120
Prometryn	98.9		P	80 - 120
Simazine	102		P	80 - 120
Terbufos	97.3		P	80 - 120
Terbuthylazine	101		P	80 - 120

Reference Method: EPA 8276
Run ID: A78704
Included Lab Sample IDs: 1922121

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chlordane	100		P	80 - 120
Toxaphene	102		P	80 - 120

Reference Method: EPA 8270D
Run ID: A78708
Included Lab Sample IDs: 1922121

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Aldrin	96.6		P	80 - 120
Alpha-BHC	96.6		P	80 - 120
Alpha-Chlordane	99.9		P	80 - 120
Beta-BHC	105		P	80 - 120
Carbophenothion	105		P	80 - 120
Chlorothalonil	87.4		P	80 - 120
Cypermethrin	96.1		P	80 - 120
DDD-p,p'	102		P	80 - 120
DDE-p,p'	103		P	80 - 120
DDT-p,p'	105		P	80 - 120
Delta-BHC	98.0		P	80 - 120
Dicofol	93.0		P	80 - 120
Dieldrin	96.6		P	80 - 120
Endosulfan I	94.2		P	80 - 120
Endosulfan II	93.3		P	80 - 120
Endosulfan Sulfate	93.5		P	80 - 120
Endrin	103		P	80 - 120
Endrin Aldehyde	94.4		P	80 - 120
Endrin Ketone	95.9		P	80 - 120
Gamma-BHC	97.6		P	80 - 120
Gamma-Chlordane	98.8		P	80 - 120
Heptachlor	98.0		P	80 - 120
Heptachlor Epoxide	97.0		P	80 - 120
Methoxychlor	106		P	80 - 120

Quality Assurance Report Calibration Verification

Reference Method: EPA 8270D
 Run ID: A78708
 Included Lab Sample IDs: 1922121

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Mirex	101		P	80 - 120
Permethrin	96.5		P	80 - 120
Trifluralin	93.8		P	80 - 120

Reference Method: EPA 8321B
 Run ID: A78750
 Included Lab Sample IDs: 1922118

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Sucralose	120	119	P/P	60 - 150

* Pass/Fail determinations are made for each bracketing calibration verification check.
 Control limits for initial calibration checks may be different from those for continuing checks, depending on method requirements.
 Where they are different, both control limits are provided.

Quality Assurance Report Summary

Ref. Method	Analyte	LCS % Recovery		MS % Recovery			LCS	Precision SMP	MS
EPA 180.1 Rev. 2.0	Turbidity							3.04	
EPA 200.7 Rev. 4.4	Calcium	104		100	104	96.0			4.16
	Iron	102		99.9	104	98.6			4.78
	Magnesium	103		101	104	98.7			3.99
	Potassium	97.9		98.6	96.8	89.2			4.37
	Sodium	96.0		98.1	95.8				0.720
	Zinc	94.6		97.2	96.9	96.4			0.540
EPA 200.8 Rev. 5.4	Arsenic	105		103	103	105			0.0999
	Cadmium	95.9		93.4	96.8	98.1			3.56
	Chromium	100		97.6	98.9	103			1.28
	Copper	101		97.1	98.1	101			0.932
	Lead	98.7		96.0	98.0	99.3			2.04
	Nickel	103		99.5	99.0	101			1.86
	Silver	102		98.8	100	103			1.43
EPA 300.0 Rev. 2.1	Chloride	97.5		96.4	98.2			0.0423	
	Chloride	98.6		98.7				2.87	
	Sulfate	96.6		95.4	97.5			1.79	
	Sulfate	98.5		97.6				2.64	
EPA 350.1 Rev. 2.0	Ammonia-N	105		108	107				0.552
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	99.1							0.314
EPA 353.2 Rev. 2.0	NO2NO3-N	105		104	102				0.976
EPA 365.1 Rev. 2.0	Total-P	98.4		97.2	98.8				1.49
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	96.6		93.8	96.8				2.51
EPA 8270D	Acetochlor	87.8	90.8	81.4	85.2		3.39		4.52
	Alachlor	89.4	92.0	84.0	88.1		2.93		4.86
	Aldrin	36.2	35.4	51.2	35.5		2.35		36.4
	Alpha-BHC	82.9	76.3	90.7	84.0		8.28		7.67
	Alpha-Chlordane	78.7	76.4	84.2	73.4		2.93		13.7
	Ametryn	76.7	82.7	97.8	85.6		7.44		13.2
	Atrazine	94.7	94.7				0.0125		24.6

Quality Assurance Report Summary

Ref. Method	Analyte	LCS % Recovery		MS % Recovery		Precision	
						LCS	MS
						SMP	
EPA 8270D	Atrazine Desethyl	90.8	76.7	81.3	33.3	16.8	45.9
	Azinphos Methyl	108	102	89.9	78.5	6.38	13.5
	Beta-BHC	87.0	78.4	89.9	92.5	10.3	2.87
	Bromacil	91.3	80.7	96.0	48.5	12.3	51.0
	Butylate	41.6	44.1	19.9	13.9	5.86	35.3
	Carbophenothion	62.8	81.7	93.9	70.4	26.1	28.5
	Chlorothalonil	47.9	39.0	85.4	70.5	20.5	19.2
	Chlorpyrifos Ethyl	92.1	89.2	85.1	83.6	3.20	1.88
	Chlorpyrifos Methyl	91.8	93.5	79.5	79.6	1.88	0.143
	Cyanazine	178	182	135	79.5	2.69	51.6
	Cypermethrin	79.4	84.3	91.8	90.3	6.09	1.62
	DDD-p,p'	85.7	81.1	86.2	84.3	5.56	2.23
	DDE-p,p'	76.3	75.3	89.0	73.5	1.29	19.1
	DDT-p,p'	77.2	77.0	83.5	70.9	0.188	16.4
	Delta-BHC	106	94.5	127	125	11.2	1.61
	Demeton	82.3	80.7	68.0	70.3	1.95	3.27
	Diazinon	90.9	97.7	82.4	88.7	7.14	7.37
	Dicofol	45.4	36.3	31.3	24.3	22.4	25.2
	Dieldrin	81.0	75.2	107	67.4	7.39	9.45
	Disulfoton	96.0	97.8	82.8	83.6	1.80	0.966
	Endosulfan I	92.8	86.7	97.8	90.9	6.75	7.32
	Endosulfan II	91.7	82.7	92.3	97.3	10.4	5.28
	Endosulfan Sulfate	84.3	82.3	83.8	89.4	2.38	6.46
	Endrin	105	110	123	117	4.13	5.00
	Endrin Aldehyde	90.8	82.8	87.5	88.8	9.15	1.43
	Endrin Ketone	82.7	81.1	91.7	93.4	1.94	1.91
	EPTC	40.5	47.0	13.2	21.3	14.9	47.2
	Ethion	91.9	92.5	112	87.2	0.691	24.5
	Ethoprop	69.3	88.6	61.2	67.5	24.5	9.80
	Fenamiphos	89.6	80.2	73.4	63.4	11.1	14.7
	Fipronil	85.5	79.1	84.7	33.8	7.70	48.8
	Fipronil Sulfide	83.4	74.0	97.6	9.16	12.0	66.3
	Fipronil Sulfone	74.1	63.3			15.7	76.3
	Fonofos	84.4	92.6	73.2	76.7	9.30	4.58
	Gamma-BHC	96.7	85.4	109	98.4	12.5	10.0
	Gamma-Chlordane	74.2	70.9	78.8	69.8	4.57	12.2
	Heptachlor	60.9	65.3	66.7	57.4	7.00	15.0
	Heptachlor Epoxide	80.0	74.9	90.9	84.1	6.59	5.89
	Hexazinone	80.6	86.0	111	18.2	6.47	63.4
	Malathion	93.0	93.7	95.5	82.9	0.760	14.2
	Metalaxyl	81.2	79.0			2.74	26.6
	Methoxychlor	96.2	95.8	100	94.7	0.466	5.56
	Metolachlor	90.0	92.6	88.5	89.4	2.86	0.958
	Metribuzin	180	168	187	134	7.00	26.5
	Mevinphos	71.1	70.9	57.8	61.5	0.284	6.34
	Mirex	61.6	66.0	72.5	56.9	6.94	24.1
	Molinate	52.6	51.9	22.3	34.4	1.41	42.8
	Norflurazon	81.2	73.3	79.9	48.1	10.3	49.6
	Parathion Ethyl	90.1	92.3	91.4	81.0	2.45	12.1
	Parathion Methyl	97.7	97.0	93.3	85.1	0.679	9.24
	Pendimethalin	84.6	86.7	85.3	82.5	2.39	3.33
	Permethrin	71.5	75.2	86.3	75.6	5.00	13.1
	Phorate	74.1	80.5	53.3	61.4	8.32	14.1
	Prometon	79.4	79.0	91.6	83.2	0.431	9.70

Quality Assurance Report Summary

Ref. Method	Analyte	LCS % Recovery		MS % Recovery		Precision	
						LCS	MS
EPA 8270D	Prometryn	83.8	77.8	91.8	87.1	7.36	5.21
	Simazine	95.3	91.2	81.5	96.2	4.33	16.6
	Terbufos	84.9	90.6	71.4	77.2	6.43	7.82
	Terbuthylazine	91.4	92.6	90.7	83.2	1.26	8.64
	Trifluralin	110	106	136	123	3.36	9.87
EPA 8276	Chlordane	79.9	88.0	85.8	92.9	9.68	7.95
	Toxaphene	85.9	98.3	91.2	99.5	13.4	8.75
EPA 8321B	Glyphosate	109		106	108		2.05
	Pyraclostrobin	110		111	75.3		38.4
	Sucralose	125					0.491
SM 2120 B	Color (true)					0.562	
SM 2320 B-97	Total Alkalinity	102				0.156	
	Total Alkalinity	102				0.675	
SM 2540 C-97	TDS					0.560	
SM 4500 F-C-97	Fluoride	97.2		99.0	100		0.946
	Fluoride	97.7		101	98.2		1.93
SM 5310 B-00	Organic Carbon	98.4					0.0973
USGS O-2060-01	2,4-D	75.9		125	105		17.8
	Acetaminophen	112		120	109		9.30
	Bentazon	70.8		38.4	34.5		4.46
	Carbamazepine	122		98.6	91.9		7.01
	Diuron	112		80.5	79.5		1.33
	Fenuron	107		78.8	73.9		6.34
	Fluridone	107		88.4	77.2		13.3
	Imidacloprid	96.1		240	236		1.77
	Linuron	107		104	99.6		4.03
	MCPP	83.6		89.3	90.3		1.09
	Primidone	109		123	120		2.40
	Triclopyr	79.8		91.4	91.6		0.218

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	1922091, 1922092, 1922093, 1922100
EPA 200.7 Rev. 4.4 / E31780	Total Recoverable Metals analysis using ICP emission spectroscopy for aqueous samples supporting Clean Water Act Projects	1922129
EPA 200.8 Rev. 5.4 / E31780	Total Recoverable Metals analysis using ICP-MS for aqueous samples supporting Clean Water Act Projects	1922129
EPA 300.0 Rev. 2.1 / E31780	Chloride in aqueous matrices	1922091, 1922092, 1922093, 1922100
EPA 300.0 Rev. 2.1 / E31780	Sulfate in aqueous matrices	1922091, 1922092, 1922093, 1922100
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	1922094, 1922095, 1922096, 1922101
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	1922094, 1922095, 1922096, 1922101
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	1922094, 1922095, 1922096, 1922101
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	1922094, 1922095, 1922096, 1922101
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	1922097, 1922098, 1922099, 1922102
EPA 8270D / E31780	Organochlorine pesticides in water matrices by GC/MS-SIM	1922121

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 8270D / E31780	Organonitrogen and phosphorus pesticides (ultra trace level) in water matrices by GC/MS/MS	1922122
EPA 8276 / E31780	Organochlorine pesticides in water matrices by GC/MS with Negative Chemical Ionization	1922121
EPA 8321B / E31780	Analysis of sucralose in water matrices by HPLC/MS/MS	1922118
EPA 8321B / E31780	Glyphosate in water matrices by HPLC/MS/MS	1922118
EPA 8321B / E31780	Pyraclostrobin in water matrices by HPLC/MS/MS	1922118
SM 2120 B / E31780	True Color measured at 450 nm	1922091, 1922092, 1922093, 1922100
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO ₃ /L	1922091, 1922092, 1922093, 1922100
SM 2540 C-97 / E31780	Total Dissolved Solids in aqueous matrices	1922091, 1922092, 1922093, 1922100
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices	1922091, 1922092, 1922093, 1922100
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	1922091, 1922092, 1922093, 1922100
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	1922094, 1922095, 1922096, 1922101
USGS O-2060-01 / E31780	Chlorinated (phenoxy acid) herbicides in water matrices by HPLC/MS/MS	1922118
USGS O-2060-01 / E31780	Urea herbicides and other chemicals in water matrices by HPLC/MS/MS	1922118

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
EPA 180.1 Rev. 2.0	08/17/2017			08/17/2017 15:18	DeAsia Armster	1922091, 1922092, 1922093, 1922100
EPA 200.7 Rev. 4.4	08/17/2017	08/17/2017	Elliott D. Healy	08/18/2017	Betina Topolski	1922129
EPA 200.8 Rev. 5.4	08/17/2017	08/17/2017	Elliott D. Healy	08/20/2017	Robert K Palmer	1922129
	08/17/2017	08/17/2017	Elliott D. Healy	08/23/2017	Nadine Brooks	1922129
	08/17/2017	08/21/2017	Elliott D. Healy	08/24/2017	Nadine Brooks	1922129
EPA 300.0 Rev. 2.1	08/17/2017			08/17/2017	Julia Storbeck	1922091
	08/17/2017			08/18/2017	Julia Storbeck	1922092, 1922093, 1922100
EPA 350.1 Rev. 2.0	08/17/2017			08/18/2017	Sofia Elnemr	1922094, 1922095, 1922096, 1922101
EPA 351.2 Rev. 2.0	08/17/2017	08/18/2017	Adrian Shelby	08/21/2017	Joseph Suarez	1922094, 1922095, 1922096, 1922101
EPA 353.2 Rev. 2.0	08/17/2017			08/21/2017	Beverly Y. Sanders	1922094, 1922095, 1922096, 1922101
EPA 365.1 Rev. 2.0	08/17/2017	08/18/2017	Sima Feizi	08/21/2017	Lipi Saha	1922095, 1922096, 1922101
	08/17/2017	08/18/2017	Sima Feizi	08/22/2017	Lipi Saha	1922094
EPA 365.1 Rev. 2.0 dissolved	08/17/2017			08/17/2017 14:12	Megan Treadwell	1922097
	08/17/2017			08/17/2017 14:13	Megan Treadwell	1922098
	08/17/2017			08/17/2017 14:18	Megan Treadwell	1922099
	08/17/2017			08/17/2017 14:19	Megan Treadwell	1922102
EPA 8270D	08/17/2017	08/18/2017	Fe-Val Siddell	08/22/2017	Vandana T. Nagar	1922121
	08/17/2017	08/18/2017	John Kaba	08/24/2017	Irina Carbone	1922122
EPA 8276	08/17/2017	08/18/2017	Fe-Val Siddell	08/22/2017	Vandana T. Nagar	1922121
EPA 8321B	08/17/2017	08/21/2017	Julie Michelle Frank	08/21/2017	Julie Michelle Frank	1922118
	08/17/2017	08/22/2017	Hoor Shaik	08/24/2017	Julie Michelle Frank	1922118
	08/17/2017	08/24/2017	Julie Michelle Frank	08/31/2017	Julie Michelle Frank	1922118
SM 2120 B	08/17/2017			08/17/2017 16:12	Tanya Welborn	1922092
	08/17/2017			08/17/2017 16:13	Tanya Welborn	1922100
	08/17/2017			08/17/2017 16:19	Tanya Welborn	1922091
	08/17/2017			08/17/2017 16:20	Tanya Welborn	1922093
SM 2320 B-97	08/17/2017			08/22/2017	Dale L. Simmons	1922091, 1922092, 1922093
	08/17/2017			08/23/2017	Dale L. Simmons	1922100
SM 2540 C-97	08/17/2017			08/21/2017	DeAsia Armster	1922091, 1922092, 1922093, 1922100
SM 2540 D-97	08/17/2017			08/21/2017	DeAsia Armster	1922091, 1922092, 1922093, 1922100
SM 4500 F-C-97	08/17/2017			08/22/2017	Dale L. Simmons	1922091, 1922092, 1922093
	08/17/2017			08/23/2017	Dale L. Simmons	1922100
SM 5310 B-00	08/17/2017			08/23/2017	Ping Hua	1922094, 1922095, 1922096, 1922101
USGS O-2060-01	08/17/2017	08/21/2017	Hoor Shaik	08/23/2017	Juyoung Kim	1922118