

Chemical Analysis Report

TLH-ROC-2018-08-22-02

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

Event Description: **Run 7**
Request ID: **RQ-2018-08-20-60**
Customer: **TLH-ROC**
Project ID: **SMP**

Send Reports to:
FL Dept. of Environmental Protection
2600 Blair Stone Rd
Tallahassee, FL 32399
Attn: Michael Eckles

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

Certified by: Colin Wright, Program Administrator

Date Certified: 12-SEP-2018 09:54

A handwritten signature in black ink, appearing to read "Colin Wright", is shown on a light-colored background.

Case Narrative

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

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

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

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

Results for TNI accredited tests met requirements established by The NELAC Institute. A double asterisk (**) is used to indicate an analyte/matrix/method for which the laboratory is not TNI accredited 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: CROOKED RIVER @ POST 46

Collection Date/Time: 08/22/2018 13:25

Field ID: G2TLHR0038

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2019161	EPA 180.1 Rev. 2.0	Turbidity	2.0		NTU	P350782	
	EPA 300.0 Rev. 2.1	Chloride	14		mg Cl/L	P350986	
		Sulfate	1.0		mg SO4/L	P350989	
	SM 2120 B	Color (true)	580		PCU	P350676	
	SM 2320 B-97	Total Alkalinity	4.2		mg CaCO3/L	P350902	
	SM 2540 C-97	TDS	128		mg/L	P351022	
	SM 2540 D-97	TSS	3	I	mg/L	P351017	
	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P350904	
2019162	EPA 350.1 Rev. 2.0	Ammonia-N	0.018		mg N/L	P350841	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.2		mg N/L	P350752	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.009	I	mg N/L	P350855	
	EPA 365.1 Rev. 2.0	Total-P	0.029		mg P/L	P350909	
	SM 5310 B-00	Organic Carbon	45		mg C/L	P350876	
2019163	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.007	I	mg P/L	P350695	

Ref. Method and Comment:

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

Sample Location: Gully Branch 80m North of Gully Branch Rd

Collection Date/Time: 08/22/2018 14:10

Field ID: G2TLHR0006

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2019164	EPA 180.1 Rev. 2.0	Turbidity	4.0		NTU	P350782	
	EPA 300.0 Rev. 2.1	Chloride	3.5		mg Cl/L	P350986	
		Sulfate	0.20	U	mg SO4/L	P350989	
	SM 2120 B	Color (true)	480		PCU	P350676	
	SM 2320 B-97	Total Alkalinity	0.65	U	mg CaCO3/L	P350902	
	SM 2540 C-97	TDS	82		mg/L	P351022	
	SM 2540 D-97	TSS	4	I	mg/L	P351017	
	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P350904	
2019165	EPA 350.1 Rev. 2.0	Ammonia-N	0.023		mg N/L	P350841	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.2		mg N/L	P350752	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P350855	
	EPA 365.1 Rev. 2.0	Total-P	0.016		mg P/L	P350909	
	SM 5310 B-00	Organic Carbon	40		mg C/L	P350876	
2019166	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P350695	
2019171	EPA 8321B	Aldicarb	0.020	U	ug/L	P350552	
		Aldicarb Sulfone	0.0020	U	ug/L	P350552	
		Aldicarb Sulfoxide	0.0020	U	ug/L	P350552	MS
		Carbaryl	0.0020	U	ug/L	P350552	
		Carbofuran	0.0020	U	ug/L	P350552	
		3-Hydroxycarbofuran	0.0020	U	ug/L	P350552	
		Methiocarb	0.0020	U	ug/L	P350552	
		Methomyl	0.0020	U	ug/L	P350552	
		Oxamyl	0.0020	U	ug/L	P350552	
		Propoxur	0.0020	U	ug/L	P350552	
		2,4-D	0.0020	U	ug/L	P350552	MS
		Bentazon	8.0E-04	U	ug/L	P350552	
		MCP	0.0020	U	ug/L	P350552	MS
2019172		Triclopyr**	0.0040	U	ug/L	P350552	MS
		Imidacloprid	0.0020	U	ug/L	P350552	
		Diuron	0.0020	U	ug/L	P350552	
		Pyraclostrobin**	0.0020	U	ug/L	P350552	
		Primidone**	0.0040	U	ug/L	P350552	
		Linuron	0.0040	U	ug/L	P350552	
		Acetaminophen**	0.0080	U	ug/L	P350552	
		Fenuron	0.016	U	ug/L	P350552	
		Imazapyr**	0.0040	U	ug/L	P350552	
		Carbamazepine**	8.0E-04	U	ug/L	P350552	
		Fluridone**	4.0E-04	U	ug/L	P350552	
		Hydrocodone**	8.0E-04	U	ug/L	P350552	
		Naproxen**	0.0080	U	ug/L	P350552	
		Ibuprofen**	0.020	U	ug/L	P350552	
		Sucralose**	0.010	U	ug/L	P350504	
		Glyphosate**	0.10	U	ug/L	P350504	

Field ID: G2TLHR0006

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2019172	EPA 8321B	AMPA**	0.10	U	ug/L	P350504	
		Endothall**	0.10	U	ug/L	P350504	
		Glufosinate**	0.10	U	ug/L	P350504	
		Acesulfame K**	0.10	UJ	ug/L	P350504	MS
2019173	EPA 8270D	Aldrin	4.4	U	ng/L	P350656	
		Alpha-BHC	2.2	U	ng/L	P350656	
		Beta-BHC	4.4	U	ng/L	P350656	
		Delta-BHC	4.4	U	ng/L	P350656	MS
		Gamma-BHC	4.4	U	ng/L	P350656	
		Carbophenothion	4.4	U	ng/L	P350656	
		Chlorothalonil	2.2	U	ng/L	P350656	RPD
		Cypermethrin	22	U	ng/L	P350656	
		DDD-p,p'	3.3	U	ng/L	P350656	
		DDE-p,p'	3.3	U	ng/L	P350656	
		DDT-p,p'	3.3	U	ng/L	P350656	
		Dieldrin	4.4	U	ng/L	P350656	
		Endosulfan I	4.4	U	ng/L	P350656	
		Endosulfan II	4.4	U	ng/L	P350656	
		Endosulfan Sulfate	2.2	U	ng/L	P350656	
		Endrin	2.2	U	ng/L	P350656	
		Endrin Aldehyde	2.2	U	ng/L	P350656	
		Heptachlor	1.6	U	ng/L	P350656	
		Heptachlor Epoxide	2.2	U	ng/L	P350656	
		Methoxychlor	4.4	U	ng/L	P350656	
		Mirex	2.2	U	ng/L	P350656	
		Permethrin	11	U	ng/L	P350656	
		Trifluralin	1.1	U	ng/L	P350656	
		Alpha-Chlordane	1.1	U	ng/L	P350656	
		Gamma-Chlordane	1.1	U	ng/L	P350656	
		Endrin Ketone	2.2	U	ng/L	P350656	MS
		Dicofol	33	U	ng/L	P350656	
	EPA 8276	Chlordane	2.7	UQ	ng/L	P351047	
		Toxaphene	32	UQ	ng/L	P351047	
2019174	EPA 200.7 Rev. 4.4	Calcium	2.05		mg/L	P350680	
		Iron	2.38E+03		ug/L	P350680	
		Magnesium	0.42		mg/L	P350680	
		Potassium	0.30	U	mg/L	P350680	
		Sodium	1.7	I	mg/L	P350680	
		Zinc	5.0	U	ug/L	P350680	
	EPA 200.8 Rev. 5.4	Arsenic	0.42		ug/L	P350680	
		Cadmium	0.020	I	ug/L	P350680	
		Chromium	0.78	I	ug/L	P350680	
		Copper	0.20	I	ug/L	P350680	
		Lead	0.64		ug/L	P350680	
		Nickel	0.62	I	ug/L	P350680	

Field ID: G2TLHR0006

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2019174	EPA 200.8 Rev. 5.4	Silver	0.010	U	ug/L	P350680	

Ref. Method and Comment:

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

EPA 8321B: Refer to the narrative for an explanation of QC Codes.

EPA 8276: The sample expired for preparation due to the need for re-extraction. Insufficient sample to perform duplicate matrix spikes.

EPA 200.8 Rev. 5.4: The lead result was confirmed in the undigested sample on 08/31/2018.

Quality Assurance Report Method Blank Results

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P350782

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P350680

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
Zinc	5.0	U	ug/L

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P350680

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
Nickel	0.20	U	ug/L
Silver	0.010	U	ug/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P350986

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P350989

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P350841

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P350752

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

Quality Assurance Report Method Blank Results

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P350855

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P350909

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P350695

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

Reference Method: EPA 8270D
Batch ID: P350656

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

Reference Method: EPA 8276
Batch ID: P351047

Component	Result	Code	Units
Chlordane	2.5	U	ng/L
Toxaphene	30	U	ng/L

Quality Assurance Report

Method Blank Results

Reference Method: EPA 8321B

Batch ID: P350504

Component	Result	Code	Units
Acesulfame K	0.10	U	ug/L
AMPA	0.10	U	ug/L
Endothall	0.10	U	ug/L
Glufosinate	0.10	U	ug/L
Glyphosate	0.10	U	ug/L
Sucralose	0.010	U	ug/L

Reference Method: EPA 8321B

Batch ID: P350552

Component	Result	Code	Units
2,4-D	0.0020	U	ug/L
3-Hydroxycarbofuran	0.0020	U	ug/L
Acetaminophen	0.0080	U	ug/L
Aldicarb	0.020	U	ug/L
Aldicarb Sulfone	0.0020	U	ug/L
Aldicarb Sulfoxide	0.0020	U	ug/L
Bentazon	8.0E-04	U	ug/L
Carbamazepine	8.0E-04	U	ug/L
Carbaryl	0.0020	U	ug/L
Carbofuran	0.0020	U	ug/L
Diuron	0.0020	U	ug/L
Fenuron	0.016	U	ug/L
Fluridone	4.0E-04	U	ug/L
Hydrocodone	8.0E-04	U	ug/L
Ibuprofen	0.020	U	ug/L
Imazapyr	0.0040	U	ug/L
Imidacloprid	0.0020	U	ug/L
Linuron	0.0040	U	ug/L
MCPP	0.0020	U	ug/L
Methiocarb	0.0020	U	ug/L
Methomyl	0.0020	U	ug/L
Naproxen	0.0080	U	ug/L
Oxamyl	0.0020	U	ug/L
Primidone	0.0040	U	ug/L
Propoxur	0.0020	U	ug/L
Pyraclostrobin	0.0020	U	ug/L
Triclopyr	0.0040	U	ug/L

Reference Method: SM 2120 B

Batch ID: P350676

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2320 B-97

Batch ID: P350902

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

Quality Assurance Report

Method Blank Results

Reference Method: SM 2540 C-97
Batch ID: P351022

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P351017

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500 F-C-97
Batch ID: P350904

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-00
Batch ID: P350876

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

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P350680

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Calcium	107		P	85 - 115
Iron	105		P	85 - 115
Magnesium	108		P	85 - 115
Potassium	102		P	85 - 115
Sodium	101		P	85 - 115
Zinc	102		P	85 - 115

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P350680

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Arsenic	102		P	85 - 115
Cadmium	104		P	85 - 115
Chromium	98.9		P	85 - 115
Copper	97.6		P	85 - 115
Lead	102		P	85 - 115
Nickel	101		P	85 - 115
Silver	99.5		P	85 - 115

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P350986

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P350989

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P350841

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P350752

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P350855

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

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 365.1 Rev. 2.0
 Batch ID: P350909

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
 Batch ID: P350695

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
O-Phosphate-P	96.7		P	90 - 110

Reference Method: EPA 8270D
 Batch ID: P350656

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Aldrin	65.9	76.9	P/P	24 - 89.0
Alpha-BHC	81.5	94.8	P/P	58 - 117
Alpha-Chlordane	85.2	94.2	P/P	56 - 115
Beta-BHC	105	115	P/P	55 - 137
Carbophenothion	89.9	69.8	P/P	37 - 145
Chlorothalonil	85.0	90.1	P/P	26 - 163
Cypermethrin	86.8	96.9	P/P	42 - 156
DDD-p,p'	109	116	P/P	59 - 129
DDE-p,p'	83.9	93.8	P/P	52 - 117
DDT-p,p'	93.2	102	P/P	48 - 128
Delta-BHC	114	118	P/P	59 - 158
Dicofol	91.3	95.3	P/P	19 - 124
Dieldrin	90.9	98.6	P/P	57 - 126
Endosulfan I	92.0	98.9	P/P	59 - 133
Endosulfan II	97.5	112	P/P	58 - 148
Endosulfan Sulfate	116	115	P/P	56 - 135
Endrin	95.7	102	P/P	50 - 140
Endrin Aldehyde	111	88.3	P/P	47 - 141
Endrin Ketone	114	113	P/P	63 - 123
Gamma-BHC	105	115	P/P	59 - 132
Gamma-Chlordane	82.8	91.8	P/P	55 - 112
Heptachlor	70.2	79.0	P/P	45 - 102
Heptachlor Epoxide	89.8	98.7	P/P	61 - 116
Methoxychlor	103	116	P/P	60 - 133
Mirex	76.6	82.3	P/P	40 - 98.0
Permethrin	87.2	95.9	P/P	45 - 131
Trifluralin	77.0	83.4	P/P	38 - 179

Reference Method: EPA 8276
 Batch ID: P351047

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Chlordane	84.9	77.3	P/P	47 - 125
Toxaphene	71.0	63.9	P/P	46 - 147

Reference Method: EPA 8321B
 Batch ID: P350504

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Acesulfame K	77.2		P	40 - 150

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 8321B
Batch ID: P350504

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
AMPA	147		P	40 - 150
Endothall	86.9		P	40 - 150
Glufosinate	112		P	40 - 150
Glyphosate	98.5		P	40 - 140
Sucralose	89.4		P	40 - 150

Reference Method: EPA 8321B
Batch ID: P350552

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2,4-D	86.0		P	40 - 150
3-Hydroxycarbofuran	93.6		P	40 - 150
Acetaminophen	113		P	30 - 150
Aldicarb	74.6		P	30 - 150
Aldicarb Sulfone	102		P	40 - 150
Aldicarb Sulfoxide	99.7		P	40 - 150
Bentazon	124		P	30 - 150
Carbamazepine	73.5		P	40 - 150
Carbaryl	56.4		P	40 - 150
Carbofuran	74.2		P	40 - 150
Diuron	79.4		P	40 - 150
Fenuron	104		P	40 - 150
Fluridone	70.9		P	40 - 150
Hydrocodone	95.7		P	40 - 150
Ibuprofen	99.1		P	40 - 150
Imazapyr	89.1		P	40 - 150
Imidacloprid	104		P	40 - 160
Linuron	58.1		P	40 - 150
MCPP	99.3		P	40 - 150
Methiocarb	54.6		P	40 - 150
Methomyl	91.1		P	40 - 150
Naproxen	82.8		P	40 - 150
Oxamyl	106		P	40 - 150
Primidone	102		P	40 - 150
Propoxur	78.9		P	40 - 150
Pyraclostrobin	61.7		P	40 - 150
Triclopyr	104		P	40 - 150

Reference Method: SM 2120 B
Batch ID: P350676

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Color (true)	98.3		P	85 - 115

Reference Method: SM 2320 B-97
Batch ID: P350902

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	104		P	98 - 107

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: SM 4500 F-C-97
Batch ID: P350904

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	96.6		P	91 - 105

Reference Method: SM 5310 B-00
Batch ID: P350876

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: P350680

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2019133	Calcium	108	109	P/P	80 - 120
2019133	Iron	106	107	P/P	80 - 120
2019133	Magnesium	109	110	P/P	80 - 120
2019133	Potassium	107	107	P/P	80 - 120
2019133	Sodium	102	102	P/P	80 - 120
2019133	Zinc	102	104	P/P	80 - 120
2019437	Calcium	105		P	80 - 120
2019437	Iron	104		P	80 - 120
2019437	Magnesium	103		P	80 - 120
2019437	Potassium	100		P	80 - 120
2019437	Sodium	97.9		P	80 - 120
2019437	Zinc	102		P	80 - 120

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P350680

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2019133	Arsenic	102	100	P/P	80 - 120
2019133	Cadmium	103	101	P/P	80 - 120
2019133	Chromium	97.3	97.7	P/P	80 - 120
2019133	Copper	98.8	96.9	P/P	80 - 120
2019133	Lead	102	99.3	P/P	80 - 120
2019133	Nickel	99.9	98.2	P/P	80 - 120
2019133	Silver	99.0	98.0	P/P	80 - 120
2019437	Arsenic	105		P	80 - 120
2019437	Cadmium	103		P	80 - 120
2019437	Chromium	98.2		P	80 - 120
2019437	Copper	97.0		P	80 - 120
2019437	Lead	103		P	80 - 120
2019437	Nickel	99.3		P	80 - 120
2019437	Silver	99.4		P	80 - 120

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P350986

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2019112	Chloride	101		P	90 - 110
2019302	Chloride	100		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P350989

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2019112	Sulfate	98.6		P	90 - 110
2019302	Sulfate	102		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P350841

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2019126	Ammonia-N	101	102	P/P	90 - 110

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P350752

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2019144	Kjeldahl Nitrogen	106	108	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P350855

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2019141	NO2NO3-N	96.1	99.1	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P350909

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2019393	Total-P	101	96.0	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P350695

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2019127	O-Phosphate-P	96.9	97.4	P/P	90 - 110

Reference Method: EPA 8270D
Batch ID: P350656

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2018949	Aldrin	68.1	58.1	P/P	26 - 96.0
2018949	Alpha-BHC	95.3	73.0	P/P	51 - 123
2018949	Alpha-Chlordane	90.3	78.8	P/P	45 - 120
2018949	Beta-BHC	120	105	P/P	43 - 146
2018949	Carbophenothion	93.3	101	P/P	26 - 179
2018949	Chlorothalonil	125	78.4	P/P	10 - 215
2018949	Cypermethrin	110	86.6	P/P	35 - 169
2018949	DDD-p,p'	112	99.8	P/P	49 - 131
2018949	DDE-p,p'	85.9	74.5	P/P	39 - 127
2018949	DDT-p,p'	96.9	86.2	P/P	49 - 120
2018949	Delta-BHC	229	204	F/F	49 - 187
2018949	Dicofol	118	114	P/P	10 - 129
2018949	Dieldrin	98.0	88.6	P/P	46 - 132
2018949	Endosulfan I	111	96.0	P/P	57 - 130
2018949	Endosulfan II	115	116	P/P	52 - 148
2018949	Endosulfan Sulfate	123	115	P/P	55 - 129
2018949	Endrin	106	91.6	P/P	45 - 133
2018949	Endrin Aldehyde	114	92.3	P/P	26 - 140
2018949	Endrin Ketone	139	122	F/P	60 - 125
2018949	Gamma-BHC	120	105	P/P	50 - 145
2018949	Gamma-Chlordane	88.1	75.0	P/P	44 - 118
2018949	Heptachlor	75.9	65.0	P/P	35 - 106
2018949	Heptachlor Epoxide	96.6	86.4	P/P	52 - 123
2018949	Methoxychlor	117	108	P/P	54 - 132
2018949	Mirex	78.0	62.0	P/P	36 - 107
2018949	Permethrin	99.7	82.4	P/P	47 - 135
2018949	Trifluralin	86.6	73.8	P/P	32 - 228

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 8276

Batch ID: P351047

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2019943	Chlordane	50.5		P	41 - 134
2019943	Toxaphene	59.4		P	39 - 158

Reference Method: EPA 8321B

Batch ID: P350504

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2019172	Acesulfame K	26.4	20.8	F/F	40 - 150
2019172	AMPA	101	99.7	P/P	40 - 150
2019172	Endothall	128	139	P/P	40 - 150
2019172	Glufosinate	105	112	P/P	40 - 150
2019172	Glyphosate	67.1	66.2	P/P	40 - 140
2019172	Sucralose	103	106	P/P	40 - 150

Reference Method: EPA 8321B

Batch ID: P350552

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2019526	3-Hydroxycarbofuran	62.0	62.3	P/P	40 - 150
2019526	Aldicarb	48.0	49.5	P/P	30 - 150
2019526	Aldicarb Sulfone	74.0	73.6	P/P	40 - 150
2019526	Aldicarb Sulfoxide	31.5	32.3	F/F	40 - 150
2019526	Carbaryl	41.3	41.3	P/P	40 - 150
2019526	Carbofuran	48.1	46.6	P/P	40 - 150
2019526	Methiocarb	44.4	44.6	P/P	40 - 150
2019526	Methomyl	65.3	59.4	P/P	40 - 150
2019526	Oxamyl	71.0	71.2	P/P	40 - 150
2019526	Propoxur	46.8	44.4	P/P	40 - 150
2019699	2,4-D	180	141	F/P	40 - 150
2019699	Acetaminophen	135	138	P/P	30 - 150
2019699	Bentazon	99.7	87.8	P/P	30 - 150
2019699	Carbamazepine	56.2	56.9	P/P	40 - 150
2019699	Diuron	64.4	64.8	P/P	40 - 150
2019699	Fenuron	75.4	76.2	P/P	40 - 150
2019699	Fluridone	58.9	57.5	P/P	40 - 150
2019699	Hydrocodone	84.2	80.4	P/P	40 - 150
2019699	Ibuprofen	96.9	92.2	P/P	40 - 150
2019699	Imazapyr	100	91.1	P/P	40 - 150
2019699	Imidacloprid	158	156	P/P	40 - 160
2019699	Linuron	54.8	57.3	P/P	40 - 150
2019699	MCP	162	170	F/F	40 - 150
2019699	Naproxen	109	104	P/P	40 - 150
2019699	Primidone	91.9	91.1	P/P	40 - 150
2019699	Pyraclostrobin	71.0	68.6	P/P	40 - 150
2019699	Triclopyr	182	182	F/F	40 - 150

Reference Method: SM 4500 F-C-97

Batch ID: P350904

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2019112	Fluoride	98.4	98.4	P/P	91 - 105

Quality Assurance Report Matrix Spike Accuracy

Reference Method: SM 5310 B-00
Batch ID: P350876

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2019393	Organic Carbon	99.6	99.4	P/P	85 - 115

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P350782

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2019302	Turbidity	2.99	Sample	P	0 - 20

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P350680

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2019133	Calcium	1.41	Spike	P	0 - 20
2019133	Iron	1.41	Spike	P	0 - 20
2019133	Magnesium	0.918	Spike	P	0 - 20
2019133	Potassium	0.732	Spike	P	0 - 20
2019133	Sodium	0.0594	Spike	P	0 - 20
2019133	Zinc	2.00	Spike	P	0 - 20

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P350680

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2019133	Arsenic	1.96	Spike	P	0 - 20
2019133	Cadmium	2.05	Spike	P	0 - 20
2019133	Chromium	0.403	Spike	P	0 - 20
2019133	Copper	1.97	Spike	P	0 - 20
2019133	Lead	2.82	Spike	P	0 - 20
2019133	Nickel	1.74	Spike	P	0 - 20
2019133	Silver	1.02	Spike	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P350986

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2019112	Chloride	0.922	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P350989

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2019112	Sulfate	0.483	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P350841

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2019126	Ammonia-N	1.35	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P350752

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2019144	Kjeldahl Nitrogen	1.19	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P350855

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2019141	NO2NO3-N	2.28	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P350909

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2019393	Total-P	4.02	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P350695

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2019127	O-Phosphate-P	0.515	Spike	P	0 - 20

Reference Method: EPA 8270D
Batch ID: P350656

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2018949	Aldrin	15.8	Spike	P	0 - 30
2018949	Alpha-BHC	26.5	Spike	P	0 - 30
2018949	Alpha-Chlordane	13.5	Spike	P	0 - 30
2018949	Beta-BHC	13.4	Spike	P	0 - 30
2018949	Carbophenothion	8.30	Spike	P	0 - 30
2018949	Chlorothalonil	45.4	Spike	F	0 - 30
2018949	Cypermethrin	24.2	Spike	P	0 - 30
2018949	DDD-p,p'	11.3	Spike	P	0 - 30
2018949	DDE-p,p'	14.2	Spike	P	0 - 30
2018949	DDT-p,p'	11.7	Spike	P	0 - 30
2018949	Delta-BHC	11.6	Spike	P	0 - 30
2018949	Dicofol	3.40	Spike	P	0 - 30
2018949	Dieldrin	10.0	Spike	P	0 - 30
2018949	Endosulfan I	14.6	Spike	P	0 - 30
2018949	Endosulfan II	0.391	Spike	P	0 - 30
2018949	Endosulfan Sulfate	6.73	Spike	P	0 - 30
2018949	Endrin	14.3	Spike	P	0 - 30
2018949	Endrin Aldehyde	21.2	Spike	P	0 - 30
2018949	Endrin Ketone	13.2	Spike	P	0 - 30
2018949	Gamma-BHC	13.4	Spike	P	0 - 30
2018949	Gamma-Chlordane	16.0	Spike	P	0 - 30
2018949	Heptachlor	15.5	Spike	P	0 - 30
2018949	Heptachlor Epoxide	11.2	Spike	P	0 - 30

Quality Assurance Report Precision

Reference Method: EPA 8270D
Batch ID: P350656

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2018949	Methoxychlor	8.66	Spike	P	0 - 30
2018949	Mirex	22.9	Spike	P	0 - 30
2018949	Permethrin	19.1	Spike	P	0 - 30
2018949	Trifluralin	15.9	Spike	P	0 - 30
LFB	Aldrin	15.4	LCS	P	0 - 30
LFB	Alpha-BHC	15.1	LCS	P	0 - 30
LFB	Alpha-Chlordane	10.0	LCS	P	0 - 30
LFB	Beta-BHC	8.88	LCS	P	0 - 30
LFB	Carbophenothion	25.1	LCS	P	0 - 30
LFB	Chlorothalonil	5.90	LCS	P	0 - 30
LFB	Cypermethrin	11.0	LCS	P	0 - 30
LFB	DDD-p,p'	6.14	LCS	P	0 - 30
LFB	DDE-p,p'	11.2	LCS	P	0 - 30
LFB	DDT-p,p'	8.76	LCS	P	0 - 30
LFB	Delta-BHC	4.04	LCS	P	0 - 30
LFB	Dicofol	4.25	LCS	P	0 - 30
LFB	Dieldrin	8.14	LCS	P	0 - 30
LFB	Endosulfan I	7.22	LCS	P	0 - 30
LFB	Endosulfan II	13.4	LCS	P	0 - 30
LFB	Endosulfan Sulfate	0.183	LCS	P	0 - 30
LFB	Endrin	6.13	LCS	P	0 - 30
LFB	Endrin Aldehyde	23.1	LCS	P	0 - 30
LFB	Endrin Ketone	0.862	LCS	P	0 - 30
LFB	Gamma-BHC	8.88	LCS	P	0 - 30
LFB	Gamma-Chlordane	10.4	LCS	P	0 - 30
LFB	Heptachlor	11.9	LCS	P	0 - 30
LFB	Heptachlor Epoxide	9.46	LCS	P	0 - 30
LFB	Methoxychlor	12.4	LCS	P	0 - 30
LFB	Mirex	7.16	LCS	P	0 - 30
LFB	Permethrin	9.42	LCS	P	0 - 30
LFB	Trifluralin	8.05	LCS	P	0 - 30

Reference Method: EPA 8276
Batch ID: P351047

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
LFB	Chlordane	9.34	LCS	P	0 - 30
LFB	Toxaphene	10.5	LCS	P	0 - 30

Reference Method: EPA 8321B
Batch ID: P350504

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2019172	Acesulfame K	23.4	Spike	P	0 - 30
2019172	AMPA	1.04	Spike	P	0 - 30
2019172	Endothall	8.34	Spike	P	0 - 30
2019172	Glufosinate	5.80	Spike	P	0 - 30
2019172	Glyphosate	1.33	Spike	P	0 - 30
2019172	Sucralose	2.64	Spike	P	0 - 30

Quality Assurance Report Precision

Reference Method: EPA 8321B
 Batch ID: P350552

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2019526	3-Hydroxycarbofuran	0.423	Spike	P	0 - 30
2019526	Aldicarb	2.94	Spike	P	0 - 30
2019526	Aldicarb Sulfone	0.455	Spike	P	0 - 30
2019526	Aldicarb Sulfoxide	2.62	Spike	P	0 - 30
2019526	Carbaryl	0.180	Spike	P	0 - 30
2019526	Carbofuran	3.27	Spike	P	0 - 30
2019526	Methiocarb	0.484	Spike	P	0 - 30
2019526	Methomyl	9.42	Spike	P	0 - 30
2019526	Oxamyl	0.290	Spike	P	0 - 30
2019526	Propoxur	5.08	Spike	P	0 - 30
2019699	2,4-D	16.2	Spike	P	0 - 30
2019699	Acetaminophen	2.32	Spike	P	0 - 30
2019699	Bentazon	12.0	Spike	P	0 - 30
2019699	Carbamazepine	1.29	Spike	P	0 - 30
2019699	Diuron	0.587	Spike	P	0 - 30
2019699	Fenuron	1.09	Spike	P	0 - 30
2019699	Fluridone	1.59	Spike	P	0 - 30
2019699	Hydrocodone	4.54	Spike	P	0 - 30
2019699	Ibuprofen	4.93	Spike	P	0 - 30
2019699	Imazapyr	5.71	Spike	P	0 - 30
2019699	Imidacloprid	1.75	Spike	P	0 - 30
2019699	Linuron	4.50	Spike	P	0 - 30
2019699	MCPP	5.31	Spike	P	0 - 30
2019699	Naproxen	4.41	Spike	P	0 - 30
2019699	Primidone	0.918	Spike	P	0 - 30
2019699	Pyraclostrobin	3.38	Spike	P	0 - 30
2019699	Triclopyr	0.0605	Spike	P	0 - 30

Reference Method: SM 2120 B
 Batch ID: P350676

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2019139	Color (true)	1.83	Sample	P	0 - 20

Reference Method: SM 2320 B-97
 Batch ID: P350902

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2019112	Total Alkalinity	0.187	Sample	P	0 - 1.6

Reference Method: SM 2540 C-97
 Batch ID: P351022

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2019110	TDS	3.97	Sample	P	0 - 10

Quality Assurance Report Precision

Reference Method: SM 4500 F-C-97
Batch ID: P350904

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2019112	Fluoride	0.0	Spike	P	0 - 3.5

Reference Method: SM 5310 B-00
Batch ID: P350876

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2019393	Organic Carbon	0.111	Spike	P	0 - 20

* 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: 2019171
Field Sample ID: G2TLHR0006

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	Carbaryl-d7	32.7	P	30 - 160

Lab Sample ID: 2019172
Field Sample ID: G2TLHR0006

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	2,4-D-d3	81.2	P	30 - 160
EPA 8321B	Acetaminophen-d4	131	P	30 - 160
EPA 8321B	Carbamazepine-d10	53.3	P	30 - 160
EPA 8321B	Diuron-d6	41.4	P	30 - 160
EPA 8321B	Endothall-d6	135	P	40 - 160
EPA 8321B	Glyphosate 13C 15N	75.2	P	40 - 160
EPA 8321B	Ibuprofen-d3	74.6	P	30 - 160
EPA 8321B	Primidone-d5	58.5	P	30 - 160
EPA 8321B	Sucralose-d6	106	P	40 - 160

Lab Sample ID: 2019173
Field Sample ID: G2TLHR0006

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8270D	Decachlorobiphenyl	79.7	P	37 - 117
EPA 8270D	Tetrachloro-m-xylene	66.2	P	34 - 101
EPA 8276	Decachlorobiphenyl	66.9	P	31 - 108
EPA 8276	PCNB	97.7	P	62 - 142

Quality Assurance Report Calibration Verification

Reference Method: SM 2120 B

Run ID: A86089

Included Lab Sample IDs: 2019161, 2019164

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	99.7	101	P/P	90 - 115

Reference Method: EPA 8321B

Run ID: A86094

Included Lab Sample IDs: 2019172

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Acesulfame K	142	88.1	P/P	60 - 160
Endothall	90.7	92.7	P/P	60 - 160

Reference Method: EPA 8321B

Run ID: A86095

Included Lab Sample IDs: 2019172

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
AMPA	82.1	93.0	P/P	60 - 160
Glufosinate	86.8	116	P/P	60 - 160
Glyphosate	88.3	116	P/P	60 - 160

Reference Method: EPA 365.1 Rev. 2.0 dissolved

Run ID: A86099

Included Lab Sample IDs: 2019163, 2019166

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	98.9	98.2	P/P	90 - 110

Reference Method: EPA 8321B

Run ID: A86110

Included Lab Sample IDs: 2019172

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Sucralose	89.4	77.3	P/P	60 - 160

Reference Method: EPA 200.7 Rev. 4.4

Run ID: A86111

Included Lab Sample IDs: 2019174

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Calcium	98.2	103	P/P	90 - 110
Iron	99.5	103	P/P	90 - 110
Magnesium	98.5	102	P/P	90 - 110
Potassium	97.3	101	P/P	90 - 110
Sodium	95.8	98.6	P/P	90 - 110
Zinc	98.9	95.1	P/P	90 - 110

Reference Method: EPA 180.1 Rev. 2.0

Run ID: A86127

Included Lab Sample IDs: 2019161, 2019164

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

Quality Assurance Report Calibration Verification

Reference Method: EPA 8321B

Run ID: A86134

Included Lab Sample IDs: 2019172

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
2,4-D	83.4	104	P/P	50 - 150
Bentazon	85.1	88.2	P/P	50 - 160
Ibuprofen	108	97.5	P/P	50 - 160
MCP	94.4	93.9	P/P	50 - 150
Naproxen	74.5	108	P/P	50 - 160
Triclopyr	96.4	91.5	P/P	50 - 160

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A86149

Included Lab Sample IDs: 2019162, 2019165

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	101	102	P/P	90 - 110
Kjeldahl Nitrogen	102	106	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A86153

Included Lab Sample IDs: 2019162, 2019165

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

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A86155

Included Lab Sample IDs: 2019162, 2019165

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO ₂ NO ₃ -N	99.5	99.5	P/P	90 - 110

Reference Method: SM 5310 B-00

Run ID: A86162

Included Lab Sample IDs: 2019162, 2019165

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	95.4	96.1	P/P	90 - 110
Organic Carbon	96.3	95.4	P/P	90 - 110

Reference Method: SM 2320 B-97

Run ID: A86172

Included Lab Sample IDs: 2019161, 2019164

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	104	100	P/P	90 - 110

Reference Method: SM 4500 F-C-97

Run ID: A86172

Included Lab Sample IDs: 2019161, 2019164

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	99.0	99.5	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: EPA 8270D

Run ID: A86186

Included Lab Sample IDs: 2019173

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Aldrin	93.5		P	80 - 120
Alpha-BHC	97.4		P	80 - 120
Alpha-Chlordane	96.5		P	80 - 120
Beta-BHC	112		P	80 - 120
Carbophenothion	91.1		P	80 - 120
Chlorothalonil	96.0		P	80 - 120
Cypermethrin	95.6		P	80 - 120
DDD-p,p'	104		P	80 - 120
DDE-p,p'	95.4		P	80 - 120
DDT-p,p'	106		P	80 - 120
Delta-BHC	118		P	80 - 120
Dicofol	106		P	80 - 120
Dieldrin	95.6		P	80 - 120
Endosulfan I	93.1		P	80 - 120
Endosulfan II	96.2		P	80 - 120
Endosulfan Sulfate	111		P	80 - 120
Endrin	93.7		P	80 - 120
Endrin Aldehyde	103		P	80 - 120
Endrin Ketone	104		P	80 - 120
Gamma-BHC	112		P	80 - 120
Gamma-Chlordane	96.0		P	80 - 120
Heptachlor	93.0		P	80 - 120
Heptachlor Epoxide	97.5		P	80 - 120
Methoxychlor	105		P	80 - 120
Mirex	102		P	80 - 120
Permethrin	99.6		P	80 - 120
Trifluralin	93.1		P	80 - 120

Reference Method: EPA 300.0 Rev. 2.1

Run ID: A86194

Included Lab Sample IDs: 2019161, 2019164

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

Reference Method: EPA 8321B

Run ID: A86195

Included Lab Sample IDs: 2019171

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
3-Hydroxycarbofuran	115	113	P/P	60 - 150
Acetaminophen	124	118	P/P	60 - 150
Aldicarb	107	112	P/P	60 - 150
Aldicarb Sulfone	107	103	P/P	50 - 150
Aldicarb Sulfoxide	111	107	P/P	50 - 150
Carbamazepine	100	96.0	P/P	60 - 150
Carbaryl	101	103	P/P	60 - 150
Carbofuran	139	140	P/P	50 - 150
Diuron	120	118	P/P	60 - 150
Fenuron	105	107	P/P	60 - 150

Quality Assurance Report Calibration Verification

Reference Method: EPA 8321B

Run ID: A86195

Included Lab Sample IDs: 2019172

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluridone	107	110	P/P	60 - 160
Hydrocodone	111	115	P/P	60 - 150
Imazapyr	100	107	P/P	50 - 150
Imidacloprid	109	108	P/P	60 - 150
Linuron	102	106	P/P	60 - 150
Methiocarb	111	106	P/P	50 - 150
Methomyl	102	108	P/P	50 - 150
Oxamyl	113	107	P/P	50 - 150
Primidone	113	123	P/P	60 - 150
Propoxur	136	135	P/P	50 - 150
Pyraclostrobin	95.4	94.3	P/P	60 - 150

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A86208

Included Lab Sample IDs: 2019162, 2019165

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

Reference Method: EPA 200.8 Rev. 5.4

Run ID: A86223

Included Lab Sample IDs: 2019174

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Arsenic	95.7	95.9	P/P	90 - 110
Cadmium	95.0	94.6	P/P	90 - 110
Chromium	92.9	92.6	P/P	90 - 110
Copper	93.7	93.3	P/P	90 - 110
Lead	101	101	P/P	90 - 110
Nickel	93.6	94.0	P/P	90 - 110
Silver	94.0	94.2	P/P	90 - 110

Reference Method: EPA 8276

Run ID: A86369

Included Lab Sample IDs: 2019173

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chlordane	94.4		P	80 - 120
Toxaphene	105		P	80 - 120

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

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

Quality Assurance Report Summary

Ref. Method	Analyte	LCS % Recovery		MS % Recovery			LCS	Precision SMP	MS
EPA 180.1 Rev. 2.0	Turbidity							2.99	
EPA 200.7 Rev. 4.4	Calcium	107		108	109	105			1.41
	Iron	105		106	107	104			1.41
	Magnesium	108		109	110	103			0.918
	Potassium	102		107	107	100			0.732
	Sodium	101		102	102	97.9			0.0594
	Zinc	102		102	104	102			2.00
EPA 200.8 Rev. 5.4	Arsenic	102		102	100	105			1.96
	Cadmium	104		103	101	103			2.05
	Chromium	98.9		97.3	97.7	98.2			0.403
	Copper	97.6		98.8	96.9	97.0			1.97
	Lead	102		102	99.3	103			2.82
	Nickel	101		99.9	98.2	99.3			1.74
	Silver	99.5		99.0	98.0	99.4			1.02
EPA 300.0 Rev. 2.1	Chloride	105		101	100			0.922	
	Sulfate	104		98.6	102			0.483	
EPA 350.1 Rev. 2.0	Ammonia-N	97.1		101	102				1.35
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	105		106	108				1.19
EPA 353.2 Rev. 2.0	NO2NO3-N	99.5		96.1	99.1				2.28
EPA 365.1 Rev. 2.0	Total-P	98.5		101	96.0				4.02
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	96.7		96.9	97.4				0.515
EPA 8270D	Aldrin	76.9	65.9	68.1	58.1		15.4		15.8
	Alpha-BHC	94.8	81.5	95.3	73.0		15.1		26.5
	Alpha-Chlordane	94.2	85.2	90.3	78.8		10.0		13.5
	Beta-BHC	115	105	120	105		8.88		13.4
	Carbophenothion	69.8	89.9	93.3	101		25.1		8.30
	Chlorothalonil	90.1	85.0	125	78.4		5.90		45.4
	Cypermethrin	96.9	86.8	110	86.6		11.0		24.2
	DDD-p,p'	116	109	112	99.8		6.14		11.3
	DDE-p,p'	93.8	83.9	85.9	74.5		11.2		14.2
	DDT-p,p'	102	93.2	96.9	86.2		8.76		11.7
	Delta-BHC	118	114	229	204		4.04		11.6
	Dicofol	95.3	91.3	118	114		4.25		3.40
	Dieldrin	98.6	90.9	98.0	88.6		8.14		10.0
	Endosulfan I	98.9	92.0	111	96.0		7.22		14.6
	Endosulfan II	112	97.5	115	116		13.4		0.391
	Endosulfan Sulfate	115	116	123	115		0.183		6.73
	Endrin	102	95.7	106	91.6		6.13		14.3
	Endrin Aldehyde	88.3	111	114	92.3		23.1		21.2
	Endrin Ketone	113	114	139	122		0.862		13.2
	Gamma-BHC	115	105	120	105		8.88		13.4
	Gamma-Chlordane	91.8	82.8	88.1	75.0		10.4		16.0
	Heptachlor	79.0	70.2	75.9	65.0		11.9		15.5
	Heptachlor Epoxide	98.7	89.8	96.6	86.4		9.46		11.2
	Methoxychlor	116	103	117	108		12.4		8.66
	Mirex	82.3	76.6	78.0	62.0		7.16		22.9
	Permethrin	95.9	87.2	99.7	82.4		9.42		19.1
	Trifluralin	83.4	77.0	86.6	73.8		8.05		15.9
EPA 8276	Chlordane	84.9	77.3	50.5			9.34		
	Toxaphene	71.0	63.9	59.4			10.5		
EPA 8321B	2,4-D	86.0		180	141				16.2
	3-Hydroxycarbofuran	93.6		62.0	62.3				0.423
	Acesulfame K	77.2		26.4	20.8				23.4
	Acetaminophen	113		135	138				2.32

Quality Assurance Report Summary

Ref. Method	Analyte	LCS % Recovery	MS % Recovery		LCS	Precision	MS
						SMP	
EPA 8321B	Aldicarb	74.6	48.0	49.5			2.94
	Aldicarb Sulfone	102	74.0	73.6			0.455
	Aldicarb Sulfoxide	99.7	31.5	32.3			2.62
	AMPA	147	101	99.7			1.04
	Bentazon	124	99.7	87.8			12.0
	Carbamazepine	73.5	56.2	56.9			1.29
	Carbaryl	56.4	41.3	41.3			0.180
	Carbofuran	74.2	48.1	46.6			3.27
	Diuron	79.4	64.4	64.8			0.587
	Endothall	86.9	128	139			8.34
	Fenuron	104	75.4	76.2			1.09
	Fluridone	70.9	58.9	57.5			1.59
	Glufosinate	112	105	112			5.80
	Glyphosate	98.5	67.1	66.2			1.33
	Hydrocodone	95.7	84.2	80.4			4.54
	Ibuprofen	99.1	96.9	92.2			4.93
	Imazapyr	89.1	100	91.1			5.71
	Imidacloprid	104	158	156			1.75
	Linuron	58.1	54.8	57.3			4.50
	MCPP	99.3	162	170			5.31
	Methiocarb	54.6	44.4	44.6			0.484
	Methomyl	91.1	65.3	59.4			9.42
	Naproxen	82.8	109	104			4.41
	Oxamyl	106	71.0	71.2			0.290
	Primidone	102	91.9	91.1			0.918
	Propoxur	78.9	46.8	44.4			5.08
	Pyraclostrobin	61.7	71.0	68.6			3.38
	Sucralose	89.4	103	106			2.64
	Triclopyr	104	182	182			0.0605
SM 2120 B	Color (true)	98.3				1.83	
SM 2320 B-97	Total Alkalinity	104				0.187	
SM 2540 C-97	TDS					3.97	
SM 4500 F-C-97	Fluoride	96.6	98.4	98.4			0.0
SM 5310 B-00	Organic Carbon	96.4	99.6	99.4			0.111

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	2019161, 2019164
EPA 200.7 Rev. 4.4 / E31780	Total Recoverable Metals analysis using ICP emission spectroscopy for aqueous samples supporting Clean Water Act Projects	2019174
EPA 200.8 Rev. 5.4 / E31780	Total Recoverable Metals analysis using ICP-MS for aqueous samples supporting Clean Water Act Projects	2019174
EPA 300.0 Rev. 2.1 / E31780	Chloride in aqueous matrices	2019161, 2019164
EPA 300.0 Rev. 2.1 / E31780	Sulfate in aqueous matrices	2019161, 2019164
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	2019162, 2019165
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	2019162, 2019165
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	2019162, 2019165

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	2019162, 2019165
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	2019163, 2019166
EPA 8270D / E31780	Organochlorine pesticides in water matrices by GC/MS-SIM	2019173
EPA 8276 / E31780	Organochlorine pesticides in water matrices by GC/MS with Negative Chemical Ionization	2019173
EPA 8321B / E31780	Carbamates in water matrices by HPLC/MS/MS	2019171
EPA 8321B / E31780	Pesticides, herbicides, and other chemicals in water matrices by HPLC/MS/MS	2019172
SM 2120 B / E31780	True Color measured at 450 nm	2019161, 2019164
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO ₃ /L	2019161, 2019164
SM 2540 C-97 / E31780	Total Dissolved Solids in aqueous matrices	2019161, 2019164
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices using a maximum of 250 mL of sample	2019161, 2019164
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	2019161, 2019164
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	2019162, 2019165

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	08/22/2018			08/23/2018 17:10	Megan Treadwell	2019161, 2019164
EPA 200.7 Rev. 4.4	08/22/2018	08/23/2018 17:30	Elliott D. Healy	08/24/2018 14:22	Betina Topolski	2019174
EPA 200.8 Rev. 5.4	08/22/2018	08/23/2018 17:30	Elliott D. Healy	08/30/2018 21:55	Allison Taylor	2019174
EPA 300.0 Rev. 2.1	08/22/2018			08/30/2018 15:07	Lipi Saha	2019161
	08/22/2018			08/30/2018 15:19	Lipi Saha	2019164
EPA 350.1 Rev. 2.0	08/22/2018			08/27/2018 12:25	Ping Hua	2019162
	08/22/2018			08/27/2018 12:27	Ping Hua	2019165
EPA 351.2 Rev. 2.0	08/22/2018	08/27/2018 11:00	Adrian Shelby	08/28/2018 12:23	Joseph Suarez	2019162
	08/22/2018	08/27/2018 11:00	Adrian Shelby	08/28/2018 12:28	Joseph Suarez	2019165
EPA 353.2 Rev. 2.0	08/22/2018			08/28/2018 12:37	Lauren Bottorf	2019162
	08/22/2018			08/28/2018 12:38	Lauren Bottorf	2019165
EPA 365.1 Rev. 2.0	08/22/2018	08/29/2018 13:20	Sima Feizi	08/30/2018 12:13	Beverly Y. Sanders	2019162
	08/22/2018	08/29/2018 13:20	Sima Feizi	08/30/2018 12:14	Beverly Y. Sanders	2019165
EPA 365.1 Rev. 2.0 dissolved	08/22/2018			08/23/2018 14:21	Julia Storbeck	2019163, 2019166
EPA 8270D	08/22/2018	08/27/2018 09:31	Rasheda Ghaffari	08/28/2018 19:03	Dinesh Mishra	2019173
EPA 8276	08/22/2018	09/04/2018 03:30	Rasheda Ghaffari	09/08/2018 05:59	Arthur Maknenko	2019173
EPA 8321B	08/22/2018	08/23/2018 12:45	Mohammad Ghaffari	08/23/2018 16:15	Mohammad Ghaffari	2019172
	08/22/2018	08/23/2018 12:45	Mohammad Ghaffari	08/23/2018 21:26	Mohammad Ghaffari	2019172
	08/22/2018	08/23/2018 12:45	Mohammad Ghaffari	08/24/2018 09:25	Mohammad Ghaffari	2019172
	08/22/2018	08/23/2018 13:00	Hoor Shaik	08/26/2018 06:04	Juyoung Kim	2019171
	08/22/2018	08/23/2018 13:00	Hoor Shaik	08/26/2018 07:21	Juyoung Kim	2019172
	08/22/2018	08/23/2018 13:00	Hoor Shaik	08/26/2018 13:34	Juyoung Kim	2019172
SM 2120 B	08/22/2018			08/23/2018 16:07	William L. Brown IV	2019161
	08/22/2018			08/23/2018 16:08	William L. Brown IV	2019164
SM 2320 B-97	08/22/2018			08/28/2018 20:23	Dale L. Simmons	2019161
	08/22/2018			08/28/2018 20:30	Dale L. Simmons	2019164
SM 2540 C-97	08/22/2018			08/24/2018 16:01	Yijie Li	2019161, 2019164
SM 2540 D-97	08/22/2018			08/24/2018 16:01	Yijie Li	2019161, 2019164
SM 4500 F-C-97	08/22/2018			08/28/2018 20:23	Dale L. Simmons	2019161
	08/22/2018			08/28/2018 20:30	Dale L. Simmons	2019164
SM 5310 B-00	08/22/2018			08/28/2018 18:38	Megan Treadwell	2019162
	08/22/2018			08/28/2018 19:19	Megan Treadwell	2019165