

Chemical Analysis Report

TLH-ROC-2019-09-10-01

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

Event Description: **WBID 758**
Request ID: **RQ-2019-09-02-70**
Customer: **TLH-ROC**
Project ID: **SMP**

Send Reports to:
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2600 Blair Stone Rd
Tallahassee, FL 32399
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Certified by: Colin Wright, Program Administrator

Date Certified: 30-SEP-2019 12:04

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: Nutrients and Pesticides.

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

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

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

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

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

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

Precision is reported as relative percent difference unless otherwise noted.

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

QC Codes used in this report may include:

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

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

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

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

Sample Location: Lexington Creek 100m downstream N Meridian Rd **Collection Date/Time: 09/10/2019 09:15**

Field ID: G1TLHR0109

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2117478	EPA 180.1 Rev. 2.0	Turbidity	4.1	A	NTU	P370438	
	EPA 300.0 Rev. 2.1	Chloride	8.6		mg Cl/L	P370810	
		Sulfate	1.1		mg SO4/L	P370813	
	SM 2120 B	Color (true)	21		PCU	P370441	
	SM 2320 B-97	Total Alkalinity	30		mg CaCO3/L	P370695	
	SM 2540 C-97	TDS	53		mg/L	P371060	
	SM 2540 D-97	TSS	7	I	mg/L	P370875	
	SM 4500 F-C-97	Fluoride	0.091	I	mg F/L	P370698	
	EPA 350.1 Rev. 2.0	Ammonia-N	0.007		mg N/L	P370665	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.15	I	mg N/L	P370505	
2117479	EPA 353.2 Rev. 2.0	NO2NO3-N	0.12		mg N/L	P370467	
	EPA 365.1 Rev. 2.0	Total-P	0.20		mg P/L	P370563	
	SM 5310 B-00	Organic Carbon	2.0		mg C/L	P370677	
	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.13		mg P/L	P370434	
	EPA 8321B	Aldicarb	0.020	U	ug/L	P370422	
2117488		Aldicarb Sulfone	0.0020	U	ug/L	P370422	
		Aldicarb Sulfoxide	0.0020	U	ug/L	P370422	
		Carbaryl	0.0020	U	ug/L	P370422	
		Carbofuran	0.0020	U	ug/L	P370422	
		3-Hydroxycarbofuran	0.0020	U	ug/L	P370422	
		Methiocarb	0.0020	U	ug/L	P370422	
		Methomyl	0.0020	U	ug/L	P370422	
		Oxamyl	0.0020	U	ug/L	P370422	
		Propoxur	0.0020	U	ug/L	P370422	
		Acesulfame K**	0.10	U	ug/L	P370512	
2117489		2,4-D	0.0020	U	ug/L	P370371	MS
		AMPA**	0.26	I	ug/L	P370512	
		Sucralose**	0.37		ug/L	P370512	MS
		Acetaminophen**	0.0080	U	ug/L	P370371	
		Endothall**	0.25	U	ug/L	P370512	
		Acetamiprid**	0.0020	U	ug/L	P370371	
		Glufosinate**	0.10	U	ug/L	P370512	
		Glyphosate**	0.10	U	ug/L	P370512	
		Afidopyropen**	0.0020	UJ	ug/L	P370371	
		Bentazon	0.0024	I	ug/L	P370371	
		Benzovindiflupyr**	0.0020	UJ	ug/L	P370371	
		Carbamazepine**	8.0E-04	U	ug/L	P370371	
		Clothianidin**	0.0020	U	ug/L	P370371	
		Dinotefuran**	0.0020	U	ug/L	P370371	
		Diuron	0.0020	U	ug/L	P370371	
		Fenuron	0.016	U	ug/L	P370371	
		Fluridone**	8.0E-04	U	ug/L	P370371	

Field ID: G1TLHR0109

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2117489	EPA 8321B	Imazapyr**	0.0040	U	ug/L	P370371	
		Hydrocodone**	0.0020	U	ug/L	P370371	
		Ibuprofen**	0.020	U	ug/L	P370371	
		Imidacloprid	0.082		ug/L	P370371	MS
		Linuron	0.0040	U	ug/L	P370371	
		Mandestrobin**	0.0020	UJ	ug/L	P370371	
		MCP	0.0020	U	ug/L	P370371	MS
		Naproxen**	0.0080	U	ug/L	P370371	
		Primidone**	0.0040	U	ug/L	P370371	
		Pyraclostrobin**	0.0020	U	ug/L	P370371	
		Thiamethoxam**	0.0020	U	ug/L	P370371	
		Tolfenpyrad**	0.0020	U	ug/L	P370371	
		Triclopyr**	0.0040	U	ug/L	P370371	
2117490	EPA 8276	Chlordane	5.5	U	ng/L	P370542	
		Toxaphene	33	U	ng/L	P370542	

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: J - second source check standards for some analytes were not available for analysis. MS accuracy for imazapyr could not be assessed due to high concentration of parameter in the spiked sample.

Quality Assurance Report

Method Blank Results

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P370438

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P370810

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P370813

Component	Result	Code	Units
Sulfate	0.20	U	mg SO ₄ /L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P370665

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P370505

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P370467

Component	Result	Code	Units
NO ₂ NO ₃ -N	0.004	U	mg N/L

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P370563

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P370434

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

Reference Method: EPA 8276
Batch ID: P370542

Component	Result	Code	Units
Chlordane	5.0	U	ng/L
Toxaphene	30	U	ng/L

Quality Assurance Report

Method Blank Results

Reference Method: EPA 8321B
Batch ID: P370371

Component	Result	Code	Units
2,4-D	0.0020	U	ug/L
Acetaminophen	0.0080	U	ug/L
Acetamiprid	0.0020	U	ug/L
Afidopyropen	0.0020	U	ug/L
Bentazon	8.0E-04	U	ug/L
Benzovindiflupyr	0.0020	U	ug/L
Carbamazepine	8.0E-04	U	ug/L
Clothianidin	0.0020	U	ug/L
Dinotefuran	0.0020	U	ug/L
Diuron	0.0020	U	ug/L
Fenuron	0.016	U	ug/L
Fluridone	8.0E-04	U	ug/L
Hydrocodone	0.0020	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
Mandestrobin	0.0020	U	ug/L
MCPP	0.0020	U	ug/L
Naproxen	0.0080	U	ug/L
Primidone	0.0040	U	ug/L
Pyraclostrobin	0.0020	U	ug/L
Thiamethoxam	0.0020	U	ug/L
Tolfenpyrad	0.0020	U	ug/L
Triclopyr	0.0040	U	ug/L

Reference Method: EPA 8321B
Batch ID: P370422

Component	Result	Code	Units
3-Hydroxycarbofuran	0.0020	U	ug/L
Aldicarb	0.020	U	ug/L
Aldicarb Sulfone	0.0020	U	ug/L
Aldicarb Sulfoxide	0.0020	U	ug/L
Carbaryl	0.0020	U	ug/L
Carbofuran	0.0020	U	ug/L
Methiocarb	0.0020	U	ug/L
Methomyl	0.0020	U	ug/L
Oxamyl	0.0020	U	ug/L
Propoxur	0.0020	U	ug/L

Reference Method: EPA 8321B
Batch ID: P370512

Component	Result	Code	Units
Acesulfame K	0.10	U	ug/L
AMPA	0.10	U	ug/L
Endothall	0.25	U	ug/L
Glufosinate	0.10	U	ug/L
Glyphosate	0.10	U	ug/L
Sucralose	0.010	U	ug/L

Quality Assurance Report

Method Blank Results

Reference Method: SM 2120 B
Batch ID: P370441

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2320 B-97
Batch ID: P370695

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

Reference Method: SM 2540 C-97
Batch ID: P371060

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P370875

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500 F-C-97
Batch ID: P370698

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-00
Batch ID: P370677

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

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P370810

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P370813

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P370665

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P370505

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P370467

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P370563

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total-P	92.3		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P370434

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
O-Phosphate-P	99.6		P	90 - 110

Reference Method: EPA 8276
Batch ID: P370542

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Chlordane	82.3	77.6	P/P	43 - 128
Toxaphene	70.1	66.4	P/P	38 - 140

Reference Method: EPA 8321B
Batch ID: P370371

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2,4-D	139		P	40 - 160
Acetaminophen	85.8		P	30 - 160
Acetamiprid	105		P	40 - 160

Quality Assurance Report

Laboratory Control Sample Accuracy

Reference Method: EPA 8321B

Batch ID: P370371

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Afidopyropen	103		P	40 - 160
Bentazon	136		P	30 - 160
Benzovindiflupyr	88.9		P	40 - 160
Carbamazepine	108		P	40 - 160
Clothianidin	94.8		P	40 - 160
Dinotefuran	96.7		P	40 - 160
Diuron	128		P	40 - 160
Fenuron	110		P	40 - 160
Fluridone	98.9		P	40 - 160
Hydrocodone	101		P	40 - 160
Ibuprofen	85.5		P	30 - 160
Imazapyr	98.6		P	40 - 160
Imidacloprid	97.9		P	40 - 160
Linuron	74.8		P	40 - 160
Mandestrobin	90.4		P	40 - 160
MCPP	158		P	40 - 160
Naproxen	110		P	40 - 160
Primidone	82.0		P	40 - 160
Pyraclostrobin	84.2		P	30 - 160
Thiamethoxam	110		P	40 - 160
Tolfenpyrad	65.9		P	40 - 160
Triclopyr	116		P	30 - 160

Reference Method: EPA 8321B

Batch ID: P370422

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
3-Hydroxycarbofuran	109		P	40 - 160
Aldicarb	113		P	30 - 160
Aldicarb Sulfone	105		P	40 - 160
Aldicarb Sulfoxide	105		P	40 - 160
Carbaryl	113		P	40 - 160
Carbofuran	93.0		P	40 - 160
Methiocarb	80.4		P	40 - 160
Methomyl	90.6		P	40 - 160
Oxamyl	112		P	40 - 160
Propoxur	95.4		P	40 - 160

Reference Method: EPA 8321B

Batch ID: P370512

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Acesulfame K	128		P	40 - 150
AMPA	122		P	40 - 150
Endothall	94.1		P	40 - 150
Glufosinate	119		P	40 - 150
Glyphosate	123		P	40 - 140
Sucralose	146		P	40 - 150

Quality Assurance Report

Laboratory Control Sample Accuracy

Reference Method: SM 2120 B
Batch ID: P370441

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Color (true)	99.3		P	85 - 115

Reference Method: SM 2320 B-97
Batch ID: P370695

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	104		P	98 - 106

Reference Method: SM 4500 F-C-97
Batch ID: P370698

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	98.3		P	92 - 103

Reference Method: SM 5310 B-00
Batch ID: P370677

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	104		P	85 - 115

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P370810

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2117327	Chloride	101	99.9	P/P	90 - 110
2117438	Chloride	100		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P370813

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2117327	Sulfate	101	100	P/P	90 - 110
2117438	Sulfate	102		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P370665

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2117479	Ammonia-N	101	101	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P370505

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2117501	Kjeldahl Nitrogen	102	105	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P370467

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2117479	NO2NO3-N	103	104	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P370563

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2117356	Total-P	99.4	99.7	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P370434

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2117440	O-Phosphate-P	96.2	97.1	P/P	90 - 110

Reference Method: EPA 8276
Batch ID: P370542

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2117894	Chlordane	73.5	80.3	P/P	34 - 136
2117894	Toxaphene	59.1	61.8	P/P	22 - 152

Reference Method: EPA 8321B
Batch ID: P370371

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2116708	2,4-D	151	163	P/F	40 - 160

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 8321B
Batch ID: P370371

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2116708	Acetaminophen	79.5	85.1	P/P	30 - 160
2116708	Acetamiprid	117	123	P/P	40 - 160
2116708	Afidopyropen	117	128	P/P	40 - 160
2116708	Bentazon	76.0	82.0	P/P	30 - 160
2116708	Benzovindiflupyr	92.3	97.9	P/P	40 - 160
2116708	Carbamazepine	94.9	102	P/P	40 - 160
2116708	Clothianidin	92.9	104	P/P	40 - 160
2116708	Dinotefuran	111	116	P/P	40 - 160
2116708	Diuron	109	113	P/P	40 - 160
2116708	Fenuron	88.4	95.6	P/P	40 - 160
2116708	Fluridone	91.8	96.6	P/P	40 - 160
2116708	Hydrocodone	83.2	105	P/P	40 - 160
2116708	Ibuprofen	82.8	82.2	P/P	30 - 160
2116708	Imidacloprid	186	196	F/F	40 - 160
2116708	Linuron	68.5	70.5	P/P	40 - 160
2116708	Mandestrobin	88.4	93.9	P/P	40 - 160
2116708	MCCP	163	174	F/F	40 - 160
2116708	Naproxen	89.8	106	P/P	40 - 160
2116708	Primidone	89.4	94.4	P/P	40 - 160
2116708	Pyraclostrobin	91.7	90.9	P/P	30 - 160
2116708	Thiamethoxam	149	156	P/P	40 - 160
2116708	Tolfenpyrad	68.1	71.4	P/P	40 - 160
2116708	Triclopyr	137	125	P/P	30 - 160

Reference Method: EPA 8321B
Batch ID: P370422

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2116928	3-Hydroxycarbofuran	93.4	98.9	P/P	40 - 160
2116928	Aldicarb	78.3	93.7	P/P	30 - 160
2116928	Aldicarb Sulfone	101	110	P/P	40 - 160
2116928	Aldicarb Sulfoxide	52.3	55.4	P/P	40 - 160
2116928	Carbaryl	81.7	88.9	P/P	40 - 160
2116928	Carbofuran	65.3	68.7	P/P	40 - 160
2116928	Methiocarb	64.5	70.6	P/P	40 - 160
2116928	Methomyl	69.8	76.4	P/P	40 - 160
2116928	Oxamyl	92.4	96.4	P/P	40 - 160
2116928	Propoxur	67.0	70.5	P/P	40 - 160

Reference Method: EPA 8321B
Batch ID: P370512

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2117252	Acesulfame K	94.2	124	P/P	40 - 150
2117252	AMPA	68.0	69.3	P/P	40 - 150
2117252	Endothall	69.5	73.0	P/P	40 - 150
2117252	Glufosinate	94.6	93.8	P/P	40 - 150
2117252	Glyphosate	123	113	P/P	40 - 140
2117252	Sucralose	165	153	F/F	40 - 150

Quality Assurance Report Matrix Spike Accuracy

Reference Method: SM 4500 F-C-97
Batch ID: P370698

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2117328	Fluoride	99.1	98.5	P/P	89 - 106

Reference Method: SM 5310 B-00
Batch ID: P370677

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2117305	Organic Carbon	106	108	P/P	85 - 115

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P370438

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2117478	Turbidity	4.58	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P370810

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2117327	Chloride	0.684	Spike	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P370813

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2117327	Sulfate	0.909	Spike	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P370665

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2117479	Ammonia-N	0.145	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P370505

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2117501	Kjeldahl Nitrogen	2.09	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P370467

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2117479	NO2NO3-N	0.908	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P370563

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2117356	Total-P	0.252	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P370434

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2117440	O-Phosphate-P	0.931	Spike	P	0 - 20

Quality Assurance Report

Precision

Reference Method: EPA 8276

Batch ID: P370542

Replicated

Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2117894	Chlordane	8.88	Spike	P	0 - 30
2117894	Toxaphene	4.58	Spike	P	0 - 30
LFB	Chlordane	5.87	LCS	P	0 - 30
LFB	Toxaphene	5.45	LCS	P	0 - 30

Reference Method: EPA 8321B

Batch ID: P370371

Replicated

Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2116708	2,4-D	7.67	Spike	P	0 - 30
2116708	Acetaminophen	6.71	Spike	P	0 - 30
2116708	Acetamiprid	5.24	Spike	P	0 - 30
2116708	Afidopyropen	8.78	Spike	P	0 - 30
2116708	Bentazon	7.64	Spike	P	0 - 30
2116708	Benzovindiflupyr	5.89	Spike	P	0 - 30
2116708	Carbamazepine	7.28	Spike	P	0 - 30
2116708	Clothianidin	10.9	Spike	P	0 - 30
2116708	Dinotefuran	4.47	Spike	P	0 - 30
2116708	Diuron	3.20	Spike	P	0 - 30
2116708	Fenuron	7.91	Spike	P	0 - 30
2116708	Fluridone	5.07	Spike	P	0 - 30
2116708	Hydrocodone	23.2	Spike	P	0 - 30
2116708	Ibuprofen	0.724	Spike	P	0 - 30
2116708	Imazapyr	0.420	Spike	P	0 - 30
2116708	Imidacloprid	5.37	Spike	P	0 - 30
2116708	Linuron	2.87	Spike	P	0 - 30
2116708	Mandestrobin	6.03	Spike	P	0 - 30
2116708	MCP	6.14	Spike	P	0 - 30
2116708	Naproxen	16.6	Spike	P	0 - 30
2116708	Primidone	5.41	Spike	P	0 - 30
2116708	Pyraclostrobin	0.861	Spike	P	0 - 30
2116708	Thiamethoxam	4.78	Spike	P	0 - 30
2116708	Tolfenpyrad	4.83	Spike	P	0 - 30
2116708	Triclopyr	9.51	Spike	P	0 - 30

Reference Method: EPA 8321B

Batch ID: P370422

Replicated

Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2116928	3-Hydroxycarbofuran	5.71	Spike	P	0 - 30
2116928	Aldicarb	17.8	Spike	P	0 - 30
2116928	Aldicarb Sulfone	7.96	Spike	P	0 - 30
2116928	Aldicarb Sulfoxide	5.81	Spike	P	0 - 30
2116928	Carbaryl	8.44	Spike	P	0 - 30
2116928	Carbofuran	5.11	Spike	P	0 - 30
2116928	Methiocarb	9.03	Spike	P	0 - 30
2116928	Methomyl	8.99	Spike	P	0 - 30
2116928	Oxamyl	4.25	Spike	P	0 - 30
2116928	Propoxur	5.05	Spike	P	0 - 30

Quality Assurance Report Precision

Reference Method: EPA 8321B
 Batch ID: P370512

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2117252	Acesulfame K	25.8	Spike	P	0 - 30
2117252	AMPA	0.691	Spike	P	0 - 30
2117252	Endothall	4.86	Spike	P	0 - 30
2117252	Glufosinate	0.774	Spike	P	0 - 30
2117252	Glyphosate	3.36	Spike	P	0 - 30
2117252	Sucralose	6.19	Spike	P	0 - 30

Reference Method: SM 2120 B
 Batch ID: P370441

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2117355	Color (true)	2.22	Sample	P	0 - 20

Reference Method: SM 2320 B-97
 Batch ID: P370695

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2117328	Total Alkalinity	0.530	Sample	P	0 - 2.8

Reference Method: SM 2540 C-97
 Batch ID: P371060

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2117336	TDS	0.713	Sample	P	0 - 10

Reference Method: SM 4500 F-C-97
 Batch ID: P370698

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2117328	Fluoride	0.482	Spike	P	0 - 2.5

Reference Method: SM 5310 B-00
 Batch ID: P370677

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2117305	Organic Carbon	1.07	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: 2117488
Field Sample ID: G1TLHR0109

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	Carbaryl-d7	126	P	30 - 160

Lab Sample ID: 2117489
Field Sample ID: G1TLHR0109

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	2,4-D-d3	140	P	30 - 160
EPA 8321B	Acetaminophen-d4	86.2	P	30 - 160
EPA 8321B	Carbamazepine-d10	95.3	P	30 - 160
EPA 8321B	Diuron-d6	111	P	30 - 160
EPA 8321B	Endothall-d6	86.6	P	30 - 160
EPA 8321B	Endothall-d6	86.6	P	30 - 160
EPA 8321B	Glyphosate 13C 15N	93.1	P	30 - 160
EPA 8321B	Glyphosate 13C 15N	93.1	P	30 - 160
EPA 8321B	Ibuprofen-d3	73.7	P	30 - 160
EPA 8321B	Primidone-d5	85.8	P	30 - 160
EPA 8321B	Sucralose-d6	129	P	30 - 160
EPA 8321B	Sucralose-d6	129	P	30 - 160

Lab Sample ID: 2117490
Field Sample ID: G1TLHR0109

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8276	Decachlorobiphenyl	37.0	P	30 - 103
EPA 8276	PCNB	86.5	P	37 - 143

Quality Assurance Report Calibration Verification

Reference Method: EPA 365.1 Rev. 2.0 dissolved

Run ID: A94105

Included Lab Sample IDs: 2117480

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	99.0	98.9	P/P	90 - 110

Reference Method: EPA 180.1 Rev. 2.0

Run ID: A94106

Included Lab Sample IDs: 2117478

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Turbidity	102	99.5	P/P	95 - 105

Reference Method: SM 2120 B

Run ID: A94107

Included Lab Sample IDs: 2117478

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	100	100	P/P	90 - 115

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A94120

Included Lab Sample IDs: 2117479

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO2NO3-N	101	104	P/P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1

Run ID: A94159

Included Lab Sample IDs: 2117478

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

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A94202

Included Lab Sample IDs: 2117479

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	97.9	99.3	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A94203

Included Lab Sample IDs: 2117479

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	107	100	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A94212

Included Lab Sample IDs: 2117479

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

Quality Assurance Report Calibration Verification

Reference Method: SM 5310 B-00
Run ID: A94219
Included Lab Sample IDs: 2117479

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

Reference Method: SM 2320 B-97
Run ID: A94232
Included Lab Sample IDs: 2117478

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

Reference Method: SM 4500 F-C-97
Run ID: A94232
Included Lab Sample IDs: 2117478

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	99.5	102	P/P	90 - 110

Reference Method: EPA 8321B
Run ID: A94238
Included Lab Sample IDs: 2117489

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
AMPA	119	117	P/P	60 - 160
Glufosinate	113	120	P/P	60 - 160
Glyphosate	116	120	P/P	60 - 160

Reference Method: EPA 8321B
Run ID: A94243
Included Lab Sample IDs: 2117489

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Acesulfame K	125	125	P/P	60 - 160
Endothall	98.2	104	P/P	60 - 160

Reference Method: EPA 8276
Run ID: A94396
Included Lab Sample IDs: 2117490

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chlordane	104		P	80 - 120
Toxaphene	95.0		P	80 - 120

Reference Method: EPA 8321B
Run ID: A94400
Included Lab Sample IDs: 2117489

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
2,4-D	113	101	P/P	50 - 150
3-Hydroxycarbofuran	119	120	P/P	60 - 150
Acetaminophen	104	109	P/P	60 - 160
Acetamiprid	114	108	P/P	50 - 150
Afidopyropen	109	109	P/P	50 - 150

Quality Assurance Report Calibration Verification

Reference Method: EPA 8321B
 Run ID: A94400
 Included Lab Sample IDs: 2117488

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Aldicarb	136	129	P/P	60 - 150
Aldicarb Sulfone	113	101	P/P	50 - 150
Aldicarb Sulfoxide	109	114	P/P	50 - 150
Bentazon	107	99.1	P/P	50 - 160
Benzovindiflupyr	97.9	101	P/P	50 - 150
Carbamazepine	106	109	P/P	60 - 150
Carbaryl	135	128	P/P	60 - 150
Carbofuran	115	117	P/P	50 - 150
Clothianidin	99.2	101	P/P	60 - 150
Dinotefuran	86.4	95.1	P/P	50 - 150
Diuron	136	131	P/P	60 - 150
Fenuron	116	114	P/P	60 - 150
Fluridone	107	103	P/P	60 - 160
Hydrocodone	109	109	P/P	60 - 150
Ibuprofen	91.3	84.1	P/P	50 - 160
Imazapyr	113	103	P/P	50 - 150
Imidacloprid	103	88.9	P/P	60 - 150
Linuron	94.0	98.7	P/P	60 - 150
Mandestrobin	111	108	P/P	50 - 150
MCPP	103	99.6	P/P	50 - 150
Methiocarb	105	101	P/P	50 - 150
Methomyl	110	112	P/P	50 - 150
Naproxen	103	72.4	P/P	50 - 160
Oxamyl	113	115	P/P	50 - 150
Primidone	92.4	93.6	P/P	60 - 150
Propoxur	113	110	P/P	50 - 150
Pyraclostrobin	111	103	P/P	60 - 150
Thiamethoxam	106	106	P/P	50 - 150
Tolfenpyrad	115	111	P/P	60 - 150
Triclopyr	97.7	82.8	P/P	50 - 150

Reference Method: EPA 8321B
 Run ID: A94533
 Included Lab Sample IDs: 2117489

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Sucralose	139	138	P/P	60 - 160

* 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							4.58	
EPA 300.0 Rev. 2.1	Chloride	100		101	99.9	100			0.684
	Sulfate	101		101	100	102			0.909
EPA 350.1 Rev. 2.0	Ammonia-N	102		101	101				0.145
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	102		102	105				2.09
EPA 353.2 Rev. 2.0	NO ₂ NO ₃ -N	100		103	104				0.908
EPA 365.1 Rev. 2.0	Total-P	92.3		99.4	99.7				0.252
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	99.6		96.2	97.1				0.931
EPA 8276	Chlordane	82.3	77.6	73.5	80.3		5.87		8.88
	Toxaphene	70.1	66.4	59.1	61.8		5.45		4.58
EPA 8321B	2,4-D	139		151	163				7.67
	3-Hydroxycarbofuran	109		93.4	98.9				5.71
	Acesulfame K	128		94.2	124				25.8
	Acetaminophen	85.8		79.5	85.1				6.71
	Acetamiprid	105		117	123				5.24
	Afidopyropen	103		117	128				8.78
	Aldicarb	113		78.3	93.7				17.8
	Aldicarb Sulfone	105		101	110				7.96
	Aldicarb Sulfoxide	105		52.3	55.4				5.81
	AMPA	122		69.3	68.0				0.691
	Bentazon	136		76.0	82.0				7.64
	Benzovindiflupyr	88.9		92.3	97.9				5.89
	Carbamazepine	108		94.9	102				7.28
	Carbaryl	113		81.7	88.9				8.44
	Carbofuran	93.0		65.3	68.7				5.11
	Clothianidin	94.8		92.9	104				10.9
	Dinotefuran	96.7		111	116				4.47
	Diuron	128		109	113				3.20
	Endothall	94.1		69.5	73.0				4.86
	Fenuron	110		88.4	95.6				7.91
	Fluridone	98.9		91.8	96.6				5.07
	Glufosinate	119		93.8	94.6				0.774
	Glyphosate	123		123	113				3.36
	Hydrocodone	101		83.2	105				23.2
	Ibuprofen	85.5		82.8	82.2				0.724
	Imazapyr	98.6							0.420
	Imidacloprid	97.9		186	196				5.37
	Linuron	74.8		68.5	70.5				2.87
	Mandestrobin	90.4		88.4	93.9				6.03
	MCPP	158		163	174				6.14
	Methiocarb	80.4		64.5	70.6				9.03
	Methomyl	90.6		69.8	76.4				8.99
	Naproxen	110		89.8	106				16.6
	Oxamyl	112		92.4	96.4				4.25
	Primidone	82.0		89.4	94.4				5.41
	Propoxur	95.4		67.0	70.5				5.05
	Pyraclostrobin	84.2		91.7	90.9				0.861
	Sucralose	146		165	153				6.19
	Thiamethoxam	110		149	156				4.78
	Tolfenpyrad	65.9		68.1	71.4				4.83
	Triclopyr	116		137	125				9.51
SM 2120 B	Color (true)	99.3						2.22	
SM 2320 B-97	Total Alkalinity	104						0.530	
SM 2540 C-97	TDS							0.713	

Quality Assurance Report Summary

Ref. Method	Analyte	LCS % Recovery	MS % Recovery		Precision SMP	MS
			LCS			
SM 4500 F-C-97	Fluoride	98.3	99.1	98.5		0.482
SM 5310 B-00	Organic Carbon	104	106	108		1.07

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	2117478
EPA 300.0 Rev. 2.1 / E31780	Chloride in aqueous matrices	2117478
EPA 300.0 Rev. 2.1 / E31780	Sulfate in aqueous matrices	2117478
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	2117479
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	2117479
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	2117479
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	2117479
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	2117480
EPA 8276 / E31780	Organochlorine pesticides in water matrices by GC/MS with Negative Chemical Ionization	2117490
EPA 8321B / E31780	Carbamates in water matrices by HPLC/MS/MS	2117488
EPA 8321B / E31780	Pesticides, herbicides, and other chemicals in water matrices by HPLC/MS/MS	2117489
EPA 8321B / E31780	Water soluble organic compounds by HPLC/MS/MS	2117489
SM 2120 B / E31780	True Color measured at 450 nm	2117478
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO ₃ /L	2117478
SM 2540 C-97 / E31780	Total Dissolved Solids in aqueous matrices	2117478
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices using a maximum of 250 mL of sample	2117478
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	2117478
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	2117479

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	09/10/2019			09/10/2019 16:59	Samantha Davila	2117478
EPA 300.0 Rev. 2.1	09/10/2019			09/13/2019 21:40	Jhamieka S. Greenwood	2117478
EPA 350.1 Rev. 2.0	09/10/2019			09/13/2019 11:46	Ping Hua	2117479
EPA 351.2 Rev. 2.0	09/10/2019	09/11/2019 14:10	Sima Feizi	09/12/2019 17:02	Julia Storbeck	2117479
EPA 353.2 Rev. 2.0	09/10/2019			09/11/2019 09:52	Beverly Y. Sanders	2117479
EPA 365.1 Rev. 2.0	09/10/2019	09/12/2019 13:45	Lipi Saha	09/13/2019 13:55	Rosalyn Ballman	2117479
EPA 365.1 Rev. 2.0 dissolved	09/10/2019			09/10/2019 16:24	Jhamieka S. Greenwood	2117480
EPA 8276	09/10/2019	09/13/2019 08:00	Fe-Val Siddell	09/20/2019 03:00	Michael Poppell	2117490
EPA 8321B	09/10/2019	09/11/2019 09:00	Hoor Shaik	09/13/2019 16:35	Juyoung Kim	2117489
	09/10/2019	09/12/2019 10:00	Rebecca Ware	09/12/2019 16:52	Rebecca Ware	2117489
	09/10/2019	09/12/2019 10:00	Rebecca Ware	09/13/2019 16:15	Rebecca Ware	2117489
	09/10/2019	09/12/2019 10:00	Rebecca Ware	09/25/2019 13:13	Rebecca Ware	2117489
	09/10/2019	09/12/2019 10:30	Hoor Shaik	09/13/2019 22:21	Juyoung Kim	2117488
SM 2120 B	09/10/2019			09/10/2019 16:51	Madeline Funaro	2117478
SM 2320 B-97	09/10/2019			09/14/2019 04:19	Dale L. Simmons	2117478
SM 2540 C-97	09/10/2019			09/13/2019 15:21	Yijie Li	2117478
SM 2540 D-97	09/10/2019			09/13/2019 15:21	Yijie Li	2117478
SM 4500 F-C-97	09/10/2019			09/14/2019 04:19	Dale L. Simmons	2117478
SM 5310 B-00	09/10/2019			09/13/2019 23:11	Madeline Funaro	2117479