

Chemical Analysis Report

TLH-ROC-2019-08-28-02

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

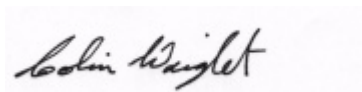
Event Description: **Run 7**
Request ID: **RQ-2019-06-24-35**
Customer: **TLH-ROC**
Project ID: **SMP**

Send Reports to:
FL Dept. of Environmental Protection
2600 Blair Stone Rd
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Certified by: Colin Wright, Program Administrator

Date Certified: 19-SEP-2019 11:57

A handwritten signature in black ink, appearing to read "Colin Wright", is displayed on a light-colored rectangular 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: Tenmile Creek @ NW Turkey Pin Pond Rd

Collection Date/Time: 08/28/2019 14:25

Field ID: G2TLHR0022

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2115469	EPA 8321B	Acesulfame K**	0.10	U	ug/L	P369883	
		2,4-D	0.0020	UJ	ug/L	P370004	MS
		AMPA**	0.10	U	ug/L	P369883	
		Sucralose**	0.038	I	ug/L	P369883	
		Acetaminophen**	0.0080	U	ug/L	P370004	
		Endothall**	0.25	U	ug/L	P369883	
		Acetamiprid**	0.0020	U	ug/L	P370004	
		Glufosinate**	0.10	U	ug/L	P369883	
		Glyphosate**	0.10	U	ug/L	P369883	
		Afidopyropen**	0.0020	UJ	ug/L	P370004	
		Bentazon	8.0E-04	U	ug/L	P370004	
		Benzovindiflupyr**	0.0020	UJ	ug/L	P370004	
		Carbamazepine**	8.0E-04	U	ug/L	P370004	
		Clothianidin**	0.0020	U	ug/L	P370004	
		Dinotefuran**	0.0020	U	ug/L	P370004	
		Diuron	0.0020	U	ug/L	P370004	
		Fenuron	0.016	U	ug/L	P370004	
		Fluridone**	8.0E-04	U	ug/L	P370004	
		Imazapyr**	0.0040	U	ug/L	P370004	
		Hydrocodone**	0.0020	U	ug/L	P370004	
		Ibuprofen**	0.020	U	ug/L	P370004	
		Imidacloprid	0.0020	UJ	ug/L	P370004	MS
		Linuron	0.0040	U	ug/L	P370004	
		Mandestrobin**	0.0020	UJ	ug/L	P370004	
		MCPP	0.0020	UJ	ug/L	P370004	MS
		Naproxen**	0.0080	U	ug/L	P370004	
		Primidone**	0.0040	U	ug/L	P370004	
		Pyraclostrobin**	0.0020	U	ug/L	P370004	
		Thiamethoxam**	0.0020	UJ	ug/L	P370004	MS
		Tolfenpyrad**	0.0020	U	ug/L	P370004	
		Triclopyr**	0.0040	UJ	ug/L	P370004	MS

Ref. Method and Comment:

EPA 8321B: J - second source check standards for some analytes were not available for analysis. Refer to the narrative for an explanation of QC Codes.

Sample Location: Tenmile Creek @ CR274

Collection Date/Time: 08/28/2019 14:40

Field ID: G2TLHR0001

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2115462	EPA 180.1 Rev. 2.0	Turbidity	3.4		NTU	P369966	
	EPA 300.0 Rev. 2.1	Chloride	3.9		mg Cl/L	P370214	
		Sulfate	0.66		mg SO4/L	P370217	
	SM 2120 B	Color (true)	260		PCU	P369943	
	SM 2320 B-97	Total Alkalinity	0.65	U	mg CaCO3/L	P370197	
	SM 2540 C-97	TDS	47		mg/L	P370382	
	SM 2540 D-97	TSS	4	I	mg/L	P370248	
	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P370202	
2115463	EPA 350.1 Rev. 2.0	Ammonia-N	0.095		mg N/L	P370239	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.66		mg N/L	P370145	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.052		mg N/L	P370180	
	EPA 365.1 Rev. 2.0	Total-P	0.020		mg P/L	P370288	
	SM 5310 B-00	Organic Carbon	18		mg C/L	P370115	
2115464	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P369958	
2115470	EPA 8321B	Acesulfame K**	0.10	U	ug/L	P369883	
		2,4-D	0.0020	U	ug/L	P370004	MS
		AMPA**	0.10	U	ug/L	P369883	
		Sucralose**	0.12		ug/L	P369883	
		Acetaminophen**	0.0080	U	ug/L	P370004	
		Endothall**	0.25	U	ug/L	P369883	
		Acetamiprid**	0.0020	U	ug/L	P370004	
		Glufosinate**	0.10	U	ug/L	P369883	
		Glyphosate**	0.10	U	ug/L	P369883	
		Afidopyropen**	0.0020	UJ	ug/L	P370004	
		Bentazon	8.0E-04	U	ug/L	P370004	
		Benzovindiflupyr**	0.0020	UJ	ug/L	P370004	
		Carbamazepine**	8.0E-04	U	ug/L	P370004	
		Clothianidin**	0.0020	U	ug/L	P370004	
		Dinotefuran**	0.0020	U	ug/L	P370004	
		Diuron	0.0020	U	ug/L	P370004	
		Fenuron	0.016	U	ug/L	P370004	
		Fluridone**	8.0E-04	U	ug/L	P370004	
		Imazapyr**	0.0040	U	ug/L	P370004	
		Hydrocodone**	0.0020	U	ug/L	P370004	
		Ibuprofen**	0.020	U	ug/L	P370004	
		Imidacloprid	0.0020	U	ug/L	P370004	MS
		Linuron	0.0040	U	ug/L	P370004	
		Mandestrobin**	0.0020	UJ	ug/L	P370004	
		MCP	0.0020	U	ug/L	P370004	MS
		Naproxen**	0.0080	U	ug/L	P370004	
		Primidone**	0.0040	U	ug/L	P370004	
		Pyraclostrobin**	0.0020	U	ug/L	P370004	
		Thiamethoxam**	0.0020	U	ug/L	P370004	MS

Field ID: G2TLHR0001

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2115470	EPA 8321B	Tolfenpyrad**	0.0020	U	ug/L	P370004	
		Triclopyr**	0.0040	U	ug/L	P370004	MS

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.

Quality Assurance Report Method Blank Results

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P369966

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P370214

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P370217

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P370239

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P370145

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P370180

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P370288

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P369958

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

Reference Method: EPA 8321B
Batch ID: P369883

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

Quality Assurance Report

Method Blank Results

Reference Method: EPA 8321B
Batch ID: P369883

Component	Result	Code	Units
Glyphosate	0.10	U	ug/L
Sucralose	0.010	U	ug/L

Reference Method: EPA 8321B
Batch ID: P370004

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: SM 2120 B
Batch ID: P369943

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2320 B-97
Batch ID: P370197

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

Reference Method: SM 2540 C-97
Batch ID: P370382

Component	Result	Code	Units
TDS	15	U	mg/L

Quality Assurance Report

Method Blank Results

Reference Method: SM 2540 D-97
Batch ID: P370248

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500 F-C-97
Batch ID: P370202

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-00
Batch ID: P370115

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: P370214

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P370217

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P370239

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Ammonia-N	98.2		P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P370145

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Kjeldahl Nitrogen	96.4		P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P370180

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P370288

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total-P	96.4		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P369958

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

Reference Method: EPA 8321B
Batch ID: P369883

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Acesulfame K	137		P	40 - 150
AMPA	132		P	40 - 150
Endothall	95.6		P	40 - 150
Glufosinate	108		P	40 - 150
Glyphosate	110		P	40 - 140
Sucralose	93.0		P	40 - 150

Quality Assurance Report

Laboratory Control Sample Accuracy

Reference Method: EPA 8321B

Batch ID: P370004

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2,4-D	110		P	40 - 160
Acetaminophen	73.1		P	30 - 160
Acetamiprid	87.0		P	40 - 160
Afidopyropen	99.1		P	40 - 160
Bentazon	90.4		P	30 - 160
Benzovindiflupyr	87.2		P	40 - 160
Carbamazepine	94.7		P	40 - 160
Clothianidin	94.1		P	40 - 160
Dinotefuran	82.7		P	40 - 160
Diuron	97.6		P	40 - 160
Fenuron	99.3		P	40 - 160
Fluridone	107		P	40 - 160
Hydrocodone	90.7		P	40 - 160
Ibuprofen	135		P	30 - 160
Imazapyr	75.9		P	40 - 160
Imidacloprid	94.2		P	40 - 160
Linuron	76.7		P	40 - 160
Mandestrobin	95.7		P	40 - 160
MCPP	139		P	40 - 160
Naproxen	112		P	40 - 160
Primidone	82.6		P	40 - 160
Pyraclostrobin	87.1		P	30 - 160
Thiamethoxam	91.7		P	40 - 160
Tolfenpyrad	70.6		P	40 - 160
Triclopyr	75.8		P	30 - 160

Reference Method: SM 2120 B

Batch ID: P369943

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

Reference Method: SM 2320 B-97

Batch ID: P370197

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

Reference Method: SM 4500 F-C-97

Batch ID: P370202

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	97.1		P	92 - 103

Reference Method: SM 5310 B-00

Batch ID: P370115

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	102		P	85 - 115

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P370214

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2115341	Chloride	101	104	P/P	90 - 110
2115493	Chloride	102		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P370217

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2115341	Sulfate	101	104	P/P	90 - 110
2115493	Sulfate	100		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P370239

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2115452	Ammonia-N	98.0	99.0	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P370145

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2115452	Kjeldahl Nitrogen	101	95.1	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P370180

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2115345	NO2NO3-N	100	100	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P370288

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2115322	Total-P	93.9	95.7	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P369958

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2115464	O-Phosphate-P	100	102	P/P	90 - 110

Reference Method: EPA 8321B
Batch ID: P369883

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2114790	Acesulfame K	97.6	81.2	P/P	40 - 150
2114790	AMPA	61.6	64.5	P/P	40 - 150
2114790	Endothall	82.6	92.6	P/P	40 - 150
2114790	Glufosinate	72.5	72.4	P/P	40 - 150
2114790	Glyphosate	94.7	107	P/P	40 - 140
2114790	Sucralose	78.5	91.0	P/P	40 - 150

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 8321B
Batch ID: P370004

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2115469	2,4-D	205	180	F/F	40 - 160
2115469	Acetaminophen	104	83.0	P/P	30 - 160
2115469	Acetamiprid	107	102	P/P	40 - 160
2115469	Afidopyropen	114	99.1	P/P	40 - 160
2115469	Bentazon	56.8	55.7	P/P	30 - 160
2115469	Benzovindiflupyr	114	101	P/P	40 - 160
2115469	Carbamazepine	121	109	P/P	40 - 160
2115469	Clothianidin	139	123	P/P	40 - 160
2115469	Dinotefuran	138	118	P/P	40 - 160
2115469	Diuron	115	102	P/P	40 - 160
2115469	Fenuron	102	93.6	P/P	40 - 160
2115469	Fluridone	127	109	P/P	40 - 160
2115469	Hydrocodone	121	114	P/P	40 - 160
2115469	Ibuprofen	150	144	P/P	30 - 160
2115469	Imazapyr	112	102	P/P	40 - 160
2115469	Imidacloprid	257	210	F/F	40 - 160
2115469	Linuron	87.8	77.1	P/P	40 - 160
2115469	Mandestrobin	113	103	P/P	40 - 160
2115469	MCP	238	221	F/F	40 - 160
2115469	Naproxen	136	133	P/P	40 - 160
2115469	Primidone	117	112	P/P	40 - 160
2115469	Pyraclostrobin	109	108	P/P	30 - 160
2115469	Thiamethoxam	206	178	F/F	40 - 160
2115469	Tolfenpyrad	101	93.7	P/P	40 - 160
2115469	Triclopyr	162	137	F/P	30 - 160

Reference Method: SM 4500 F-C-97
Batch ID: P370202

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2115450	Fluoride	94.7	94.7	P/P	89 - 106

Reference Method: SM 5310 B-00
Batch ID: P370115

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2115476	Organic Carbon	102	102	P/P	85 - 115

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P369966

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2115502	Turbidity	4.45	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P370214

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2115341	Chloride	1.95	Spike	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P370217

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2115341	Sulfate	2.59	Spike	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P370239

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2115452	Ammonia-N	0.924	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P370145

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2115452	Kjeldahl Nitrogen	5.52	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P370180

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2115345	NO2NO3-N	0.499	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P370288

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2115322	Total-P	1.70	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P369958

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2115464	O-Phosphate-P	1.88	Spike	P	0 - 20

Quality Assurance Report

Precision

Reference Method: EPA 8321B

Batch ID: P369883

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2114790	Acesulfame K	18.3	Spike	P	0 - 30
2114790	AMPA	3.04	Spike	P	0 - 30
2114790	Endothall	11.4	Spike	P	0 - 30
2114790	Glufosinate	0.171	Spike	P	0 - 30
2114790	Glyphosate	7.91	Spike	P	0 - 30
2114790	Sucralose	14.7	Spike	P	0 - 30

Reference Method: EPA 8321B

Batch ID: P370004

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2115469	2,4-D	13.0	Spike	P	0 - 30
2115469	Acetaminophen	22.4	Spike	P	0 - 30
2115469	Acetamiprid	4.65	Spike	P	0 - 30
2115469	Afidopyropen	13.7	Spike	P	0 - 30
2115469	Bentazon	1.91	Spike	P	0 - 30
2115469	Benzovindiflupyr	11.5	Spike	P	0 - 30
2115469	Carbamazepine	10.1	Spike	P	0 - 30
2115469	Clothianidin	12.1	Spike	P	0 - 30
2115469	Dinotefuran	16.1	Spike	P	0 - 30
2115469	Diuron	11.9	Spike	P	0 - 30
2115469	Fenuron	8.16	Spike	P	0 - 30
2115469	Fluridone	15.8	Spike	P	0 - 30
2115469	Hydrocodone	6.14	Spike	P	0 - 30
2115469	Ibuprofen	4.27	Spike	P	0 - 30
2115469	Imazapyr	9.35	Spike	P	0 - 30
2115469	Imidacloprid	20.2	Spike	P	0 - 30
2115469	Linuron	12.9	Spike	P	0 - 30
2115469	Mandestrobin	9.43	Spike	P	0 - 30
2115469	MCP	7.30	Spike	P	0 - 30
2115469	Naproxen	2.65	Spike	P	0 - 30
2115469	Primidone	4.61	Spike	P	0 - 30
2115469	Pyraclostrobin	1.19	Spike	P	0 - 30
2115469	Thiamethoxam	14.8	Spike	P	0 - 30
2115469	Tolfenpyrad	7.84	Spike	P	0 - 30
2115469	Triclopyr	17.1	Spike	P	0 - 30

Reference Method: SM 2120 B

Batch ID: P369943

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2115451	Color (true)	0.838	Sample	P	0 - 20

Reference Method: SM 2320 B-97

Batch ID: P370197

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2115450	Total Alkalinity	0.287	Sample	P	0 - 2.8

Quality Assurance Report Precision

Reference Method: SM 2540 C-97
Batch ID: P370382

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2115182	TDS	4.62	Sample	P	0 - 10

Reference Method: SM 4500 F-C-97
Batch ID: P370202

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2115450	Fluoride	0.0	Spike	P	0 - 2.5

Reference Method: SM 5310 B-00
Batch ID: P370115

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2115476	Organic Carbon	0.0	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: 2115469
Field Sample ID: G2TLHR0022

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	2,4-D-d3	103	P	30 - 160
EPA 8321B	Acetaminophen-d4	94.4	P	30 - 160
EPA 8321B	Carbamazepine-d10	109	P	30 - 160
EPA 8321B	Diuron-d6	115	P	30 - 160
EPA 8321B	Endothall-d6	92.8	P	30 - 160
EPA 8321B	Endothall-d6	92.8	P	30 - 160
EPA 8321B	Glyphosate 13C 15N	112	P	30 - 160
EPA 8321B	Glyphosate 13C 15N	112	P	30 - 160
EPA 8321B	Ibuprofen-d3	120	P	30 - 160
EPA 8321B	Primidone-d5	125	P	30 - 160
EPA 8321B	Sucralose-d6	83.3	P	30 - 160
EPA 8321B	Sucralose-d6	83.3	P	30 - 160

Lab Sample ID: 2115470
Field Sample ID: G2TLHR0001

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	2,4-D-d3	112	P	30 - 160
EPA 8321B	Acetaminophen-d4	88.3	P	30 - 160
EPA 8321B	Carbamazepine-d10	96.0	P	30 - 160
EPA 8321B	Diuron-d6	89.7	P	30 - 160
EPA 8321B	Endothall-d6	93.5	P	30 - 160
EPA 8321B	Endothall-d6	93.5	P	30 - 160
EPA 8321B	Glyphosate 13C 15N	103	P	30 - 160
EPA 8321B	Glyphosate 13C 15N	103	P	30 - 160
EPA 8321B	Ibuprofen-d3	126	P	30 - 160
EPA 8321B	Primidone-d5	116	P	30 - 160
EPA 8321B	Sucralose-d6	76.5	P	30 - 160
EPA 8321B	Sucralose-d6	76.5	P	30 - 160

Quality Assurance Report Calibration Verification

Reference Method: SM 2120 B
Run ID: A93891
Included Lab Sample IDs: 2115462

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	102	102	P/P	90 - 115

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Run ID: A93904
Included Lab Sample IDs: 2115464

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	99.3	99.6	P/P	90 - 110

Reference Method: EPA 180.1 Rev. 2.0
Run ID: A93907
Included Lab Sample IDs: 2115462

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

Reference Method: EPA 8321B
Run ID: A93944
Included Lab Sample IDs: 2115469, 2115470

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
AMPA	68.6	125	P/P	60 - 160
Glufosinate	65.3	106	P/P	60 - 160
Glyphosate	77.3	114	P/P	60 - 160

Reference Method: EPA 8321B
Run ID: A93946
Included Lab Sample IDs: 2115469, 2115470

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Acesulfame K	110	100	P/P	60 - 160
Endothall	99.4	107	P/P	60 - 160

Reference Method: SM 5310 B-00
Run ID: A93968
Included Lab Sample IDs: 2115463

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	105	106	P/P	90 - 110

Reference Method: EPA 8321B
Run ID: A93996
Included Lab Sample IDs: 2115469, 2115470

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Sucralose	84.4	88.4	P/P	60 - 160

Quality Assurance Report Calibration Verification

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A93999

Included Lab Sample IDs: 2115463

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

Reference Method: SM 2320 B-97

Run ID: A94004

Included Lab Sample IDs: 2115462

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	105	102	P/P	90 - 110

Reference Method: SM 4500 F-C-97

Run ID: A94004

Included Lab Sample IDs: 2115462

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	97.1	98.1	P/P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1

Run ID: A94012

Included Lab Sample IDs: 2115462

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

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A94015

Included Lab Sample IDs: 2115463

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	92.6	94.5	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A94019

Included Lab Sample IDs: 2115463

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	101	95.9	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A94096

Included Lab Sample IDs: 2115463

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

Reference Method: EPA 8321B

Run ID: A94124

Included Lab Sample IDs: 2115469, 2115470

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
2,4-D	129	99.5	P/P	50 - 150

Quality Assurance Report

Calibration Verification

Reference Method: EPA 8321B

Run ID: A94124

Included Lab Sample IDs: 2115469, 2115470

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
2,4-D	99.5	115	P/P	50 - 150
Acetaminophen	83.8	96.0	P/P	60 - 160
Acetaminophen	96.0	101	P/P	60 - 160
Acetamiprid	104	108	P/P	50 - 150
Acetamiprid	108	107	P/P	50 - 150
Afidopyropen	104	100	P/P	50 - 150
Afidopyropen	109	104	P/P	50 - 150
Bentazon	93.6	93.3	P/P	50 - 160
Bentazon	96.3	93.6	P/P	50 - 160
Benzovindiflupyr	104	105	P/P	50 - 150
Benzovindiflupyr	105	107	P/P	50 - 150
Carbamazepine	112	112	P/P	60 - 150
Carbamazepine	112	114	P/P	60 - 150
Clothianidin	106	111	P/P	60 - 150
Clothianidin	117	106	P/P	60 - 150
Dinotefuran	95.4	97.8	P/P	50 - 150
Dinotefuran	97.6	95.4	P/P	50 - 150
Diuron	107	108	P/P	60 - 150
Diuron	108	93.9	P/P	60 - 150
Fenuron	105	106	P/P	60 - 150
Fenuron	106	111	P/P	60 - 150
Fluridone	117	122	P/P	60 - 160
Fluridone	123	117	P/P	60 - 160
Hydrocodone	102	113	P/P	60 - 150
Hydrocodone	99.7	102	P/P	60 - 150
Ibuprofen	105	103	P/P	50 - 160
Ibuprofen	91.3	105	P/P	50 - 160
Imazapyr	77.5	89.4	P/P	50 - 150
Imazapyr	80.9	77.5	P/P	50 - 150
Imidacloprid	100	103	P/P	60 - 150
Imidacloprid	93.9	100	P/P	60 - 150
Linuron	89.5	92.4	P/P	60 - 150
Linuron	93.1	89.5	P/P	60 - 150
Mandestrobin	120	121	P/P	50 - 150
Mandestrobin	126	120	P/P	50 - 150
MCPP	123	124	P/P	50 - 150
MCPP	128	123	P/P	50 - 150
Naproxen	114	121	P/P	50 - 160
Naproxen	121	119	P/P	50 - 160
Primidone	104	99.4	P/P	60 - 150
Primidone	99.4	99.9	P/P	60 - 150
Pyraclostrobin	115	120	P/P	60 - 150
Pyraclostrobin	118	115	P/P	60 - 150
Thiamethoxam	104	107	P/P	50 - 150
Thiamethoxam	106	104	P/P	50 - 150
Tolfenpyrad	130	139	P/P	60 - 150
Tolfenpyrad	136	130	P/P	60 - 150
Triclopyr	115	126	P/P	50 - 150
Triclopyr	123	115	P/P	50 - 150

Quality Assurance Report

Calibration Verification

* 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						4.45	
EPA 300.0 Rev. 2.1	Chloride	101	101	104	102			1.95
	Sulfate	102	101	104	100			2.59
EPA 350.1 Rev. 2.0	Ammonia-N	98.2	98.0	99.0				0.924
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	96.4	101	95.1				5.52
EPA 353.2 Rev. 2.0	NO ₂ NO ₃ -N	102	100	100				0.499
EPA 365.1 Rev. 2.0	Total-P	96.4	93.9	95.7				1.70
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	99.3	100	102				1.88
EPA 8321B	2,4-D	110	205	180				13.0
	Acesulfame K	137	97.6	81.2				18.3
	Acetaminophen	73.1	104	83.0				22.4
	Acetamiprid	87.0	107	102				4.65
	Afidopyropen	99.1	114	99.1				13.7
	AMPA	132	61.6	64.5				3.04
	Bentazon	90.4	56.8	55.7				1.91
	Benzovindiflupyr	87.2	114	101				11.5
	Carbamazepine	94.7	121	109				10.1
	Clothianidin	94.1	139	123				12.1
	Dinotefuran	82.7	138	118				16.1
	Diuron	97.6	115	102				11.9
	Endothall	95.6	82.6	92.6				11.4
	Fenuron	99.3	102	93.6				8.16
	Fluridone	107	127	109				15.8
	Glufosinate	108	72.5	72.4				0.171
	Glyphosate	110	94.7	107				7.91
	Hydrocodone	90.7	121	114				6.14
	Ibuprofen	135	150	144				4.27
	Imazapyr	75.9	112	102				9.35
	Imidacloprid	94.2	257	210				20.2
	Linuron	76.7	87.8	77.1				12.9
	Mandestrobin	95.7	113	103				9.43
	MCPP	139	238	221				7.30
	Naproxen	112	136	133				2.65
	Primidone	82.6	117	112				4.61
	Pyraclostrobin	87.1	109	108				1.19
	Sucralose	93.0	78.5	91.0				14.7
	Thiamethoxam	91.7	206	178				14.8
	Tolfenpyrad	70.6	101	93.7				7.84
	Triclopyr	75.8	162	137				17.1
SM 2120 B	Color (true)	99.3					0.838	
SM 2320 B-97	Total Alkalinity	104					0.287	
SM 2540 C-97	TDS						4.62	
SM 4500 F-C-97	Fluoride	97.1	94.7	94.7				0.0
SM 5310 B-00	Organic Carbon	102	102	102				0.0

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	2115462
EPA 300.0 Rev. 2.1 / E31780	Chloride in aqueous matrices	2115462

Reference Method Descriptions

Method / DoH Cert #	Description	<u>Associated Samples</u>
EPA 300.0 Rev. 2.1 / E31780	Sulfate in aqueous matrices	2115462
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	2115463
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	2115463
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	2115463
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	2115463
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	2115464
EPA 8321B / E31780	Pesticides, herbicides, and other chemicals in water matrices by HPLC/MS/MS	2115469, 2115470
EPA 8321B / E31780	Water soluble organic compounds by HPLC/MS/MS	2115469, 2115470
SM 2120 B / E31780	True Color measured at 450 nm	2115462
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO ₃ /L	2115462
SM 2540 C-97 / E31780	Total Dissolved Solids in aqueous matrices	2115462
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices using a maximum of 250 mL of sample	2115462
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	2115462
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	2115463

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	08/28/2019			08/29/2019 17:38	Rosalyn Ballman	2115462
EPA 300.0 Rev. 2.1	08/28/2019			09/05/2019 00:14	Jhamieka S. Greenwood	2115462
EPA 350.1 Rev. 2.0	08/28/2019			09/05/2019 14:23	Ping Hua	2115463
EPA 351.2 Rev. 2.0	08/28/2019	09/04/2019 11:58	Sima Feizi	09/05/2019 14:45	Joseph Suarez	2115463
EPA 353.2 Rev. 2.0	08/28/2019			09/05/2019 09:30	Beverly Y. Sanders	2115463
EPA 365.1 Rev. 2.0	08/28/2019	09/06/2019 13:30	Lipi Saha	09/09/2019 15:26	Rosalyn Ballman	2115463
EPA 365.1 Rev. 2.0 dissolved	08/28/2019			08/29/2019 17:29	Jhamieka S. Greenwood	2115464
EPA 8321B	08/28/2019	08/29/2019 09:45	Rebecca Ware	08/29/2019 18:37	Rebecca Ware	2115469
	08/28/2019	08/29/2019 09:45	Rebecca Ware	08/29/2019 18:51	Rebecca Ware	2115470
	08/28/2019	08/29/2019 09:45	Rebecca Ware	08/30/2019 13:05	Rebecca Ware	2115469
	08/28/2019	08/29/2019 09:45	Rebecca Ware	08/30/2019 13:15	Rebecca Ware	2115470
	08/28/2019	08/29/2019 09:45	Rebecca Ware	09/05/2019 00:33	Rebecca Ware	2115469
	08/28/2019	08/29/2019 09:45	Rebecca Ware	09/05/2019 00:45	Rebecca Ware	2115470
	08/28/2019	09/04/2019 07:00	Fe-Val Siddell	09/05/2019 10:01	Juyoung Kim	2115469
	08/28/2019	09/04/2019 09:00	Fe-Val Siddell	09/05/2019 16:32	Juyoung Kim	2115470
SM 2120 B	08/28/2019			08/29/2019 17:04	Madeline Funaro	2115462
SM 2320 B-97	08/28/2019			09/04/2019 01:20	Dale L. Simmons	2115462
SM 2540 C-97	08/28/2019			08/30/2019 15:41	Yijie Li	2115462
SM 2540 D-97	08/28/2019			08/30/2019 15:41	Yijie Li	2115462
SM 4500 F-C-97	08/28/2019			09/04/2019 01:20	Dale L. Simmons	2115462
SM 5310 B-00	08/28/2019			09/03/2019 18:32	Madeline Funaro	2115463