

Chemical Analysis Report

TLH-ROC-2019-11-25-01

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

Event Description: **Run 1**
Request ID: **RQ-2019-11-11-54**
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
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Phone (850) 245-8085

Certified by: Thekkekalathil Chandrasekhar, Chemist Administrator

Date Certified: 11-DEC-2019 13:29



NON-CONFORMANCE REPORT INCLUDED

Case Narrative

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

Results for the following analytical groups are included in this report: 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: Sugar Creek @ Suwannee River

Collection Date/Time: 11/25/2019 10:10

Field ID: G1TLHR0047

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2139100	EPA 180.1 Rev. 2.0	Turbidity	2.6		NTU	P375071	
	EPA 300.0 Rev. 2.1	Chloride	11		mg Cl/L	P375349	
		Sulfate	16	Y	mg SO4/L	P375353	
	SM 2120 B	Color (true)	53	A	PCU	P374890	
	SM 2320 B-97	Total Alkalinity	55	Y	mg CaCO3/L	P375171	
	SM 2540 C-97	TDS	112	Y	mg/L	P375508	
	SM 2540 D-97	TSS	2	IY	mg/L	P375493	
	SM 4500 F-C-97	Fluoride	0.41		mg F/L	P375179	
2139101	EPA 350.1 Rev. 2.0	Ammonia-N	0.006		mg N/L	P375093	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.30		mg N/L	P375062	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.76		mg N/L	P374947	
	EPA 365.1 Rev. 2.0	Total-P	0.73		mg P/L	P375242	
	SM 5310 B-00	Organic Carbon	6.4		mg C/L	P375003	
2139102	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.69		mg P/L	P374906	
2139106	EPA 8321B	Acesulfame K**	0.10	U	ug/L	P374800	
		2,4-D	0.0020	UJ	ug/L	P374831	LCS
		AMPA**	0.10	U	ug/L	P374800	
		Sucralose**	0.019	I	ug/L	P374800	
		Acetaminophen**	0.0080	U	ug/L	P374831	
		Acetamiprid**	0.0020	U	ug/L	P374831	
		Endothall**	0.25	U	ug/L	P374800	
		Glufosinate**	0.10	U	ug/L	P374800	
		Glyphosate**	0.10	U	ug/L	P374800	
		Afidopyropen**	0.0020	UJ	ug/L	P374831	
		Bentazon	9.6E-04	I	ug/L	P374831	
		Benzovindiflupyr**	0.0020	UJ	ug/L	P374831	
		Carbamazepine**	8.0E-04	U	ug/L	P374831	
		Clothianidin**	0.0020	U	ug/L	P374831	
		Dinotefuran**	0.0028	I	ug/L	P374831	
		Diuron	0.0020	U	ug/L	P374831	
		Fenuron	0.016	U	ug/L	P374831	
		Fluridone**	8.0E-04	U	ug/L	P374831	
		Imazapyr**	0.0050	I	ug/L	P374831	
		Hydrocodone**	0.0020	U	ug/L	P374831	
		Ibuprofen**	0.020	U	ug/L	P374831	
		Imidacloprid	0.0043	I	ug/L	P374831	MS
		Linuron	0.0040	U	ug/L	P374831	
		Mandestrobin**	0.0020	UJ	ug/L	P374831	
		MCP	0.0020	U	ug/L	P374831	
		Naproxen**	0.0080	U	ug/L	P374831	
		Primidone**	0.0040	U	ug/L	P374831	
		Pyraclostrobin**	0.0020	U	ug/L	P374831	
		Thiamethoxam**	0.0020	U	ug/L	P374831	

Field ID: G1TLHR0047

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2139106	EPA 8321B	Tolfenpyrad**	0.0020	U	ug/L	P374831	
		Triclopyr**	0.0040	U	ug/L	P374831	

Ref. Method and Comment:

EPA 300.0 Rev. 2.1: Sulfate: Sample was left out at room temperature overnight, should be stored below 6 degC.

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

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

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

EPA 8321B: J - second source check standards for some analytes were not available for analysis. MS accuracy for 2,4-D and imazapyr could not be assessed due to high concentration of parameter in the spiked sample. MS accuracy and precision for fluridone could not be assessed due to high concentration of parameter in the spiked sample. Refer to the Lab Analysis Report for an explanation of QC Codes.

Non-Conformance Report

NCR ID: 8043

Event(s)

TLH-ROC-2019-11-25-01

Job(s)

TLH-2019-11-25-01

Sample(s)

2139100

Test(s)

NCR Type: SHIPPING/RECEIVING

NCR Category: Preservation Not Intact

Observation: Samples left out at room temperature overnight on 11/26/2019.

Resolution: Samples analyzed after 11/26/2019, were Y qualified for incorrect preservation.

Authorized by/Date: Peter D. Kaus 12/10/2019

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

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

Quality Assurance Report Method Blank Results

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P375071

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P375349

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P375353

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P375093

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P375062

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P374947

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P375242

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P374906

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

Reference Method: EPA 8321B
Batch ID: P374800

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: P374800

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

Reference Method: EPA 8321B
Batch ID: P374831

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: P374890

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2320 B-97
Batch ID: P375171

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

Reference Method: SM 2540 C-97
Batch ID: P375508

Component	Result	Code	Units
TDS	15	U	mg/L

Quality Assurance Report Method Blank Results

Reference Method: SM 2540 D-97
Batch ID: P375493

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500 F-C-97
Batch ID: P375179

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-00
Batch ID: P375003

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: P375349

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P375353

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P375093

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P375062

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P374947

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
NO2NO3-N	98.5		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P375242

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P374906

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

Reference Method: EPA 8321B
Batch ID: P374800

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Acesulfame K	136		P	40 - 150
AMPA	102		P	40 - 150
Endothall	80.9		P	40 - 150
Glufosinate	101		P	40 - 150
Glyphosate	114		P	40 - 140
Sucralose	120		P	40 - 150

Quality Assurance Report

Laboratory Control Sample Accuracy

Reference Method: EPA 8321B

Batch ID: P374831

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2,4-D	171		F	40 - 160
Acetaminophen	90.8		P	30 - 160
Acetamiprid	108		P	40 - 160
Afidopyropen	124		P	40 - 160
Bentazon	85.6		P	30 - 160
Benzovindiflupyr	85.3		P	40 - 160
Carbamazepine	105		P	40 - 160
Clothianidin	107		P	40 - 160
Dinotefuran	109		P	40 - 160
Diuron	87.2		P	40 - 160
Fenuron	116		P	40 - 160
Fluridone	103		P	40 - 160
Hydrocodone	102		P	40 - 160
Ibuprofen	84.4		P	30 - 160
Imazapyr	107		P	40 - 160
Imidacloprid	126		P	40 - 160
Linuron	82.8		P	40 - 160
Mandestrobin	94.7		P	40 - 160
MCPP	149		P	40 - 160
Naproxen	79.3		P	40 - 160
Primidone	96.9		P	40 - 160
Pyraclostrobin	91.7		P	30 - 160
Thiamethoxam	113		P	40 - 160
Tolfenpyrad	60.8		P	40 - 160
Triclopyr	123		P	30 - 160

Reference Method: SM 2120 B

Batch ID: P374890

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Color (true)	101		P	85 - 115

Reference Method: SM 2320 B-97

Batch ID: P375171

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	103		P	98 - 106

Reference Method: SM 4500 F-C-97

Batch ID: P375179

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	94.7		P	92 - 103

Reference Method: SM 5310 B-00

Batch ID: P375003

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	105		P	85 - 115

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P375349

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2138911	Chloride	101		P	90 - 110
2139053	Chloride	101		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P375353

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2138911	Sulfate	101		P	90 - 110
2139053	Sulfate	99.8		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P375093

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2139047	Ammonia-N	96.5	95.8	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P375062

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2139056	Kjeldahl Nitrogen	109	103	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P374947

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2139056	NO2NO3-N	97.9	98.4	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P375242

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2138547	Total-P	96.8	101	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P374906

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2139179	O-Phosphate-P	93.5	94.1	P/P	90 - 110

Reference Method: EPA 8321B
Batch ID: P374800

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2139106	Acesulfame K	93.0	89.3	P/P	40 - 150
2139106	AMPA	129	117	P/P	40 - 150
2139106	Endothall	83.1	73.8	P/P	40 - 150
2139106	Glufosinate	118	100	P/P	40 - 150
2139106	Glyphosate	138	129	P/P	40 - 140
2139106	Sucralose	61.1	69.1	P/P	40 - 150

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 8321B
Batch ID: P374831

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2139035	Acetaminophen	87.0	87.7	P/P	30 - 160
2139035	Acetamiprid	104	111	P/P	40 - 160
2139035	Afidopyropen	109	120	P/P	40 - 160
2139035	Bentazon	51.7	50.5	P/P	30 - 160
2139035	Benzovindiflupyr	78.5	82.0	P/P	40 - 160
2139035	Carbamazepine	84.4	88.0	P/P	40 - 160
2139035	Clothianidin	96.8	106	P/P	40 - 160
2139035	Dinotefuran	119	125	P/P	40 - 160
2139035	Diuron	69.3	70.8	P/P	40 - 160
2139035	Fenuron	98.2	101	P/P	40 - 160
2139035	Hydrocodone	100	104	P/P	40 - 160
2139035	Ibuprofen	75.4	82.8	P/P	30 - 160
2139035	Imidacloprid	164	171	F/F	40 - 160
2139035	Linuron	70.4	72.3	P/P	40 - 160
2139035	Mandestrobin	85.7	87.3	P/P	40 - 160
2139035	MCCP	121	129	P/P	40 - 160
2139035	Naproxen	75.6	72.9	P/P	40 - 160
2139035	Primidone	95.9	94.9	P/P	40 - 160
2139035	Pyraclostrobin	83.7	87.8	P/P	30 - 160
2139035	Thiamethoxam	139	142	P/P	40 - 160
2139035	Tolfenpyrad	59.0	59.3	P/P	40 - 160
2139035	Triclopyr	117	123	P/P	30 - 160

Reference Method: SM 4500 F-C-97
Batch ID: P375179

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2139112	Fluoride	96.5	97.1	P/P	89 - 106

Reference Method: SM 5310 B-00
Batch ID: P375003

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2139056	Organic Carbon	102	100	P/P	85 - 115

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P375071

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2139108	Turbidity	2.91	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P375349

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2138911	Chloride	0.0150	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P375353

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2138911	Sulfate	0.0819	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P375093

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2139047	Ammonia-N	0.395	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P375062

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2139056	Kjeldahl Nitrogen	3.83	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P374947

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2139056	NO2NO3-N	0.487	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P375242

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2138547	Total-P	3.68	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P374906

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2139179	O-Phosphate-P	0.408	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 8321B
Batch ID: P374800

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2139106	Acesulfame K	4.07	Spike	P	0 - 30
2139106	AMPA	9.05	Spike	P	0 - 30
2139106	Endothall	11.8	Spike	P	0 - 30
2139106	Glufosinate	16.3	Spike	P	0 - 30
2139106	Glyphosate	6.63	Spike	P	0 - 30
2139106	Sucralose	12.2	Spike	P	0 - 30

Reference Method: EPA 8321B
Batch ID: P374831

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2139035	2,4-D	3.72	Spike	P	0 - 30
2139035	Acetaminophen	0.800	Spike	P	0 - 30
2139035	Acetamiprid	6.84	Spike	P	0 - 30
2139035	Afidopyropen	9.03	Spike	P	0 - 30
2139035	Bentazon	1.70	Spike	P	0 - 30
2139035	Benzovindiflupyr	4.41	Spike	P	0 - 30
2139035	Carbamazepine	4.11	Spike	P	0 - 30
2139035	Clothianidin	8.72	Spike	P	0 - 30
2139035	Dinotefuran	4.83	Spike	P	0 - 30
2139035	Diuron	1.15	Spike	P	0 - 30
2139035	Fenuron	3.27	Spike	P	0 - 30
2139035	Hydrocodone	3.97	Spike	P	0 - 30
2139035	Ibuprofen	9.40	Spike	P	0 - 30
2139035	Imazapyr	6.38	Spike	P	0 - 30
2139035	Imidacloprid	4.10	Spike	P	0 - 30
2139035	Linuron	2.65	Spike	P	0 - 30
2139035	Mandestrobin	1.88	Spike	P	0 - 30
2139035	MCP	6.20	Spike	P	0 - 30
2139035	Naproxen	3.59	Spike	P	0 - 30
2139035	Primidone	1.03	Spike	P	0 - 30
2139035	Pyraclostrobin	4.69	Spike	P	0 - 30
2139035	Thiamethoxam	2.45	Spike	P	0 - 30
2139035	Tolfenpyrad	0.567	Spike	P	0 - 30
2139035	Triclopyr	4.33	Spike	P	0 - 30

Reference Method: SM 2120 B
Batch ID: P374890

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2139100	Color (true)	0.923	Sample	P	0 - 20

Reference Method: SM 2320 B-97
Batch ID: P375171

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2139112	Total Alkalinity	0.465	Sample	P	0 - 2.8

Quality Assurance Report Precision

Reference Method: SM 2540 C-97
Batch ID: P375508

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2139046	TDS	7.35	Sample	P	0 - 10

Reference Method: SM 4500 F-C-97
Batch ID: P375179

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2139112	Fluoride	0.487	Spike	P	0 - 2.5

Reference Method: SM 5310 B-00
Batch ID: P375003

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2139056	Organic Carbon	1.65	Spike	P	0 - 20

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

Quality Assurance Report Surrogates

Lab Sample ID: 2139106

Field Sample ID: G1TLHR0047

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	2,4-D-d3	123	P	30 - 160
EPA 8321B	Acetaminophen-d4	87.4	P	30 - 160
EPA 8321B	Carbamazepine-d10	86.9	P	30 - 160
EPA 8321B	Diuron-d6	76.6	P	30 - 160
EPA 8321B	Endothall-d6	114	P	30 - 160
EPA 8321B	Endothall-d6	114	P	30 - 160
EPA 8321B	Glyphosate 13C 15N	128	P	30 - 160
EPA 8321B	Glyphosate 13C 15N	128	P	30 - 160
EPA 8321B	Ibuprofen-d3	63.7	P	30 - 160
EPA 8321B	Primidone-d5	82.9	P	30 - 160
EPA 8321B	Sucralose-d6	77.4	P	30 - 160
EPA 8321B	Sucralose-d6	77.4	P	30 - 160

Quality Assurance Report Calibration Verification

Reference Method: SM 2120 B
Run ID: A95976
Included Lab Sample IDs: 2139100

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	101	104	P/P	90 - 115

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Run ID: A95979
Included Lab Sample IDs: 2139102

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	91.8	90.9	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Run ID: A96002
Included Lab Sample IDs: 2139101

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

Reference Method: SM 5310 B-00
Run ID: A96029
Included Lab Sample IDs: 2139101

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	102	106	P/P	90 - 110

Reference Method: EPA 8321B
Run ID: A96033
Included Lab Sample IDs: 2139106

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Acesulfame K	139	117	P/P	60 - 160
Endothall	79.4	74.2	P/P	60 - 160

Reference Method: EPA 8321B
Run ID: A96036
Included Lab Sample IDs: 2139106

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
AMPA	142	145	P/P	60 - 160
Glufosinate	114	105	P/P	60 - 160
Glyphosate	107	113	P/P	60 - 160

Reference Method: EPA 180.1 Rev. 2.0
Run ID: A96050
Included Lab Sample IDs: 2139100

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

Quality Assurance Report Calibration Verification

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A96062

Included Lab Sample IDs: 2139101

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	99.0	98.6	P/P	90 - 110

Reference Method: SM 2320 B-97

Run ID: A96084

Included Lab Sample IDs: 2139100

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

Reference Method: SM 4500 F-C-97

Run ID: A96084

Included Lab Sample IDs: 2139100

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

Reference Method: EPA 8321B

Run ID: A96086

Included Lab Sample IDs: 2139106

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
2,4-D	110	96.9	P/P	50 - 150
Acetaminophen	106	104	P/P	60 - 160
Acetamiprid	106	109	P/P	50 - 150
Afidopyropen	105	126	P/P	50 - 150
Bentazon	64.0	62.7	P/P	50 - 160
Benzovindiflupyr	107	104	P/P	50 - 150
Carbamazepine	97.8	101	P/P	60 - 150
Clothianidin	110	102	P/P	60 - 150
Dinotefuran	96.3	97.0	P/P	50 - 150
Diuron	94.2	85.9	P/P	60 - 150
Fenuron	117	119	P/P	60 - 150
Fluridone	106	112	P/P	60 - 160
Hydrocodone	102	109	P/P	60 - 150
Ibuprofen	97.2	86.1	P/P	50 - 160
Imazapyr	110	101	P/P	50 - 150
Imidacloprid	104	96.6	P/P	60 - 150
Linuron	88.2	92.7	P/P	60 - 150
Mandestrobin	117	116	P/P	50 - 150
MCPP	94.0	89.8	P/P	50 - 150
Naproxen	101	97.6	P/P	50 - 160
Primidone	98.6	94.4	P/P	60 - 150
Pyraclostrobin	101	101	P/P	60 - 150
Thiamethoxam	106	106	P/P	50 - 150
Tolfenpyrad	110	105	P/P	60 - 150
Triclopyr	92.0	102	P/P	50 - 150

Quality Assurance Report Calibration Verification

Reference Method: EPA 300.0 Rev. 2.1

Run ID: A96087

Included Lab Sample IDs: 2139100

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	103	104	P/P	90 - 110
Sulfate	102	104	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A96101

Included Lab Sample IDs: 2139101

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	108	107	P/P	90 - 110

Reference Method: EPA 8321B

Run ID: A96127

Included Lab Sample IDs: 2139106

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Sucralose	110	115	P/P	60 - 160

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A96165

Included Lab Sample IDs: 2139101

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	100	97.6	P/P	90 - 110

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

Quality Assurance Report Summary

Ref. Method	Analyte	LCS % Recovery	MS % Recovery		LCS	Precision SMP	MS
EPA 180.1 Rev. 2.0	Turbidity					2.91	
EPA 300.0 Rev. 2.1	Chloride	102	101	101		0.0150	
	Sulfate	101	101	99.8		0.0819	
EPA 350.1 Rev. 2.0	Ammonia-N	98.5	96.5	95.8			0.395
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	107	109	103			3.83
EPA 353.2 Rev. 2.0	NO ₂ NO ₃ -N	98.5	97.9	98.4			0.487
EPA 365.1 Rev. 2.0	Total-P	104	96.8	101			3.68
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	100	93.5	94.1			0.408
EPA 8321B	2,4-D	171					3.72
	Acesulfame K	136	93.0	89.3			4.07
	Acetaminophen	90.8	87.0	87.7			0.800
	Acetamiprid	108	104	111			6.84
	Afidopyropen	124	109	120			9.03
	AMPA	102	129	117			9.05
	Bentazon	85.6	51.7	50.5			1.70
	Benzovindiflupyr	85.3	78.5	82.0			4.41
	Carbamazepine	105	84.4	88.0			4.11
	Clothianidin	107	96.8	106			8.72
	Dinotefuran	109	119	125			4.83
	Diuron	87.2	69.3	70.8			1.15
	Endothall	80.9	83.1	73.8			11.8
	Fenuron	116	98.2	101			3.27
	Fluridone	103					
	Glufosinate	101	118	100			16.3
	Glyphosate	114	138	129			6.63
	Hydrocodone	102	100	104			3.97
	Ibuprofen	84.4	75.4	82.8			9.40
	Imazapyr	107					6.38
	Imidacloprid	126	164	171			4.10
	Linuron	82.8	70.4	72.3			2.65
	Mandestrobin	94.7	85.7	87.3			1.88
	MCPP	149	121	129			6.20
	Naproxen	79.3	75.6	72.9			3.59
	Primidone	96.9	95.9	94.9			1.03
	Pyraclostrobin	91.7	83.7	87.8			4.69
	Sucralose	120	61.1	69.1			12.2
	Thiamethoxam	113	139	142			2.45
	Tolfenpyrad	60.8	59.0	59.3			0.567
	Triclopyr	123	117	123			4.33
SM 2120 B	Color (true)	101				0.923	
SM 2320 B-97	Total Alkalinity	103				0.465	
SM 2540 C-97	TDS					7.35	
SM 4500 F-C-97	Fluoride	94.7	96.5	97.1			0.487
SM 5310 B-00	Organic Carbon	105	102	100			1.65

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	2139100
EPA 300.0 Rev. 2.1 / E31780	Chloride in aqueous matrices	2139100

Reference Method Descriptions

Method / DoH Cert #	Description	<u>Associated Samples</u>
EPA 300.0 Rev. 2.1 / E31780	Sulfate in aqueous matrices	2139100
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	2139101
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	2139101
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	2139101
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	2139101
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	2139102
EPA 8321B / E31780	Pesticides, herbicides, and other chemicals in water matrices by HPLC/MS/MS	2139106
EPA 8321B / E31780	Water soluble organic compounds by HPLC/MS/MS	2139106
SM 2120 B / E31780	True Color measured at 450 nm	2139100
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO ₃ /L	2139100
SM 2540 C-97 / E31780	Total Dissolved Solids in aqueous matrices	2139100
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices using a maximum of 250 mL of sample	2139100
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	2139100
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	2139101

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	11/25/2019			11/26/2019 18:00	Yen Ta	2139100
EPA 300.0 Rev. 2.1	11/25/2019			12/05/2019 12:20	Lipi Saha	2139100
EPA 350.1 Rev. 2.0	11/25/2019			11/27/2019 12:15	Ping Hua	2139101
EPA 351.2 Rev. 2.0	11/25/2019	12/02/2019 12:34	Sima Feizi	12/03/2019 20:02	Jhamieka S. Greenwood	2139101
EPA 353.2 Rev. 2.0	11/25/2019			11/27/2019 10:10	Beverly Y. Sanders	2139101
EPA 365.1 Rev. 2.0	11/25/2019	12/05/2019 12:06	Yen Ta	12/05/2019 21:32	Julia Storbeck	2139101
EPA 365.1 Rev. 2.0 dissolved	11/25/2019			11/26/2019 17:02	Virginia P. Brown	2139102
EPA 8321B	11/25/2019	11/26/2019 09:45	Rebecca Ware	11/26/2019 11:09	Rebecca Ware	2139106
	11/25/2019	11/26/2019 09:45	Rebecca Ware	11/26/2019 17:04	Rebecca Ware	2139106
	11/25/2019	11/26/2019 09:45	Rebecca Ware	12/03/2019 13:56	Rebecca Ware	2139106
	11/25/2019	11/27/2019 09:00	Hoor Shaik	11/28/2019 05:04	Juyoung Kim	2139106
SM 2120 B	11/25/2019			11/26/2019 16:02	Julia Storbeck	2139100
SM 2320 B-97	11/25/2019			12/02/2019 23:03	Dale L. Simmons	2139100
SM 2540 C-97	11/25/2019			11/27/2019 15:32	Yijie Li	2139100
SM 2540 D-97	11/25/2019			11/27/2019 15:32	Yijie Li	2139100
SM 4500 F-C-97	11/25/2019			12/02/2019 23:03	Dale L. Simmons	2139100
SM 5310 B-00	11/25/2019			11/27/2019 02:28	Lauren Lees	2139101