

Chemical Analysis Report

TLH-ROC-2019-01-10-01

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

Event Description: **Run 3**
Request ID: **RQ-2018-12-31-30**
Customer: **TLH-ROC**
Project ID: **SMP**

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

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Certified by: Kerry Tate, Ph.D., Environmental Administrator

Date Certified: 29-JAN-2019 13:05

A handwritten signature in black ink that reads "Kerry Tate". The signature is written in a cursive, flowing style with a horizontal line above the first name.

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 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: SWEETWATER BRANCH @ CODY CHURCH RD Collection Date/Time: 01/10/2019 09:20

Field ID: G1TLHR0040

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2053621	EPA 180.1 Rev. 2.0	Turbidity	3.9	A	NTU	P357235	
	EPA 300.0 Rev. 2.1	Chloride	5.3		mg Cl/L	P357336	
		Sulfate	0.63		mg SO4/L	P357338	
	SM 2120 B	Color (true)	96		PCU	P357176	
	SM 2320 B-97	Total Alkalinity	7.8		mg CaCO3/L	P357545	
	SM 2540 C-97	TDS	37		mg/L	P357355	RPD
	SM 2540 D-97	TSS	3	I	mg/L	P357357	
	SM 4500 F-C-97	Fluoride	0.047	I	mg F/L	P357519	
2053623	EPA 350.1 Rev. 2.0	Ammonia-N	0.012		mg N/L	P357365	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.50		mg N/L	P357278	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.034		mg N/L	P357210	
	EPA 365.1 Rev. 2.0	Total-P	0.067		mg P/L	P357280	
	SM 5310 B-00	Organic Carbon	7.9		mg C/L	P357327	
2053625	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.036		mg P/L	P357180	
2053633	EPA 8321B	2,4-D	0.0020	U	ug/L	P357055	
		Sucralose**	0.010	U	ug/L	P357257	
		Bentazon	8.0E-04	U	ug/L	P357055	
		MCP	0.0020	U	ug/L	P357055	
		Triclopyr**	0.0040	U	ug/L	P357055	
		Imidacloprid	0.0020	UJ	ug/L	P357055	MS
		Diuron	0.0020	U	ug/L	P357055	
		Pyraclostrobin**	0.0020	U	ug/L	P357055	
		Primidone**	0.0040	U	ug/L	P357055	
		Linuron	0.0040	U	ug/L	P357055	
		Acetaminophen**	0.0080	U	ug/L	P357055	
		Fenuron	0.016	U	ug/L	P357055	
		Imazapyr**	0.0040	U	ug/L	P357055	
		Carbamazepine**	8.0E-04	U	ug/L	P357055	
		Fluridone**	8.0E-04	U	ug/L	P357055	
		Hydrocodone**	0.0020	U	ug/L	P357055	
		Naproxen**	0.0080	U	ug/L	P357055	
		Ibuprofen**	0.020	U	ug/L	P357055	
		Glyphosate**	0.10	U	ug/L	P357257	
		AMPA**	0.10	U	ug/L	P357257	
		Endothall**	0.25	U	ug/L	P357257	
		Glufosinate**	0.10	U	ug/L	P357257	
		Acesulfame K**	0.10	U	ug/L	P357257	

Ref. Method and Comment:

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

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

Sample Location: MOORE BRANCH @ CODY CHURCH

Collection Date/Time: 01/10/2019 09:40

Field ID: G1TLHR0041

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2053622	EPA 180.1 Rev. 2.0	Turbidity	3.6		NTU	P357235	
	EPA 300.0 Rev. 2.1	Chloride	4.8		mg Cl/L	P357336	
		Sulfate	0.90		mg SO4/L	P357338	
	SM 2120 B	Color (true)	71		PCU	P357176	
	SM 2320 B-97	Total Alkalinity	0.65	U	mg CaCO3/L	P357545	
	SM 2540 C-97	TDS	18	I	mg/L	P357355	RPD
	SM 2540 D-97	TSS	8	I	mg/L	P357357	
	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P357519	
2053624	EPA 350.1 Rev. 2.0	Ammonia-N	0.006		mg N/L	P357365	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.31		mg N/L	P357278	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.011		mg N/L	P357210	
	EPA 365.1 Rev. 2.0	Total-P	0.046		mg P/L	P357280	
	SM 5310 B-00	Organic Carbon	7.6		mg C/L	P357327	
2053626	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.023		mg P/L	P357180	
2053634	EPA 8321B	2,4-D	0.0020	U	ug/L	P357055	
		Sucralose**	0.010	U	ug/L	P357257	
		Bentazon	8.0E-04	U	ug/L	P357055	
		MCP	0.0020	U	ug/L	P357055	
		Triclopyr**	0.0040	U	ug/L	P357055	
		Imidacloprid	0.0020	U	ug/L	P357055	MS
		Diuron	0.059		ug/L	P357055	
		Pyraclostrobin**	0.0020	U	ug/L	P357055	
		Primidone**	0.0040	U	ug/L	P357055	
		Linuron	0.0040	U	ug/L	P357055	
		Acetaminophen**	0.0080	U	ug/L	P357055	
		Fenuron	0.016	U	ug/L	P357055	
		Imazapyr**	0.0040	U	ug/L	P357055	
		Carbamazepine**	8.0E-04	U	ug/L	P357055	
		Fluridone**	8.0E-04	U	ug/L	P357055	
		Hydrocodone**	0.0020	U	ug/L	P357055	
		Naproxen**	0.0080	U	ug/L	P357055	
		Ibuprofen**	0.020	U	ug/L	P357055	
		Glyphosate**	0.10	U	ug/L	P357257	
		AMPA**	0.10	U	ug/L	P357257	
		Endothall**	0.25	U	ug/L	P357257	
		Glufosinate**	0.10	U	ug/L	P357257	
		Acesulfame K**	0.10	U	ug/L	P357257	

Ref. Method and Comment:

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

Quality Assurance Report Method Blank Results

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P357235

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P357336

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P357338

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P357365

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P357278

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P357210

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P357280

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P357180

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

Reference Method: EPA 8321B
Batch ID: P357055

Component	Result	Code	Units
2,4-D	0.0020	U	ug/L
Acetaminophen	0.0080	U	ug/L
Bentazon	8.0E-04	U	ug/L
Carbamazepine	8.0E-04	U	ug/L

Quality Assurance Report Method Blank Results

Reference Method: EPA 8321B
Batch ID: P357055

Component	Result	Code	Units
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
MCPP	0.0020	U	ug/L
Naproxen	0.0080	U	ug/L
Primidone	0.0040	U	ug/L
Pyraclostrobin	0.0020	U	ug/L
Triclopyr	0.0040	U	ug/L

Reference Method: EPA 8321B
Batch ID: P357257

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

Reference Method: SM 2120 B
Batch ID: P357176

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2320 B-97
Batch ID: P357545

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

Reference Method: SM 2540 C-97
Batch ID: P357355

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P357357

Component	Result	Code	Units
TSS	2	U	mg/L

Quality Assurance Report

Method Blank Results

Reference Method: SM 4500 F-C-97
Batch ID: P357519

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-00
Batch ID: P357327

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: P357336

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Chloride	106		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
 Batch ID: P357338

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

Reference Method: EPA 350.1 Rev. 2.0
 Batch ID: P357365

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

Reference Method: EPA 351.2 Rev. 2.0
 Batch ID: P357278

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

Reference Method: EPA 353.2 Rev. 2.0
 Batch ID: P357210

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: P357280

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
 Batch ID: P357180

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
O-Phosphate-P	96.5		P	90 - 110

Reference Method: EPA 8321B
 Batch ID: P357055

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2,4-D	67.7		P	40 - 150
Acetaminophen	104		P	30 - 150
Bentazon	73.2		P	30 - 150
Carbamazepine	92.5		P	40 - 150
Diuron	75.0		P	40 - 150
Fenuron	111		P	40 - 150
Fluridone	102		P	40 - 150
Hydrocodone	101		P	40 - 150
Ibuprofen	73.1		P	40 - 150
Imazapyr	91.3		P	40 - 150

Quality Assurance Report

Laboratory Control Sample Accuracy

Reference Method: EPA 8321B
Batch ID: P357055

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Imidacloprid	107		P	40 - 160
Linuron	77.3		P	40 - 150
MCPP	95.4		P	40 - 150
Naproxen	52.5		P	40 - 150
Primidone	92.6		P	40 - 150
Pyraclostrobin	65.0		P	40 - 150
Triclopyr	45.1		P	40 - 150

Reference Method: EPA 8321B
Batch ID: P357257

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Acesulfame K	127		P	40 - 150
AMPA	117		P	40 - 150
Endothall	96.6		P	40 - 150
Glufosinate	98.8		P	40 - 150
Glyphosate	105		P	40 - 140
Sucralose	104		P	40 - 150

Reference Method: SM 2120 B
Batch ID: P357176

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Color (true)	100		P	85 - 115

Reference Method: SM 2320 B-97
Batch ID: P357545

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	101		P	98 - 107

Reference Method: SM 4500 F-C-97
Batch ID: P357519

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

Reference Method: SM 5310 B-00
Batch ID: P357327

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	98.0		P	85 - 115

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P357336

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2053641	Chloride	94.3		P	90 - 110
2053644	Chloride	93.4		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P357338

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2053641	Sulfate	93.1		P	90 - 110
2053644	Sulfate	97.1		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P357365

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2053648	Ammonia-N	101	99.5	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P357278

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2053647	Kjeldahl Nitrogen	106	97.8	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P357210

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2053549	NO2NO3-N	102	101	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P357280

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2053647	Total-P	102	98.0	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P357180

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2053649	O-Phosphate-P	92.7	93.9	P/P	90 - 110

Reference Method: EPA 8321B
Batch ID: P357055

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2053633	2,4-D	82.2	74.7	P/P	40 - 150
2053633	Acetaminophen	113	109	P/P	30 - 150
2053633	Bentazon	37.5	35.0	P/P	30 - 150
2053633	Carbamazepine	81.6	78.5	P/P	40 - 150
2053633	Diuron	65.5	62.7	P/P	40 - 150
2053633	Fenuron	88.3	85.3	P/P	40 - 150
2053633	Fluridone	89.1	91.5	P/P	40 - 150
2053633	Hydrocodone	109	105	P/P	40 - 150

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 8321B
Batch ID: P357055

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2053633	Ibuprofen	67.1	62.3	P/P	40 - 150
2053633	Imazapyr	114	107	P/P	40 - 150
2053633	Imidacloprid	196	192	F/F	40 - 160
2053633	Linuron	66.0	67.3	P/P	40 - 150
2053633	MCP	111	102	P/P	40 - 150
2053633	Naproxen	51.3	53.8	P/P	40 - 150
2053633	Primidone	96.9	91.0	P/P	40 - 150
2053633	Pyraclostrobin	65.1	64.4	P/P	40 - 150
2053633	Triclopyr	61.6	56.3	P/P	40 - 150

Reference Method: EPA 8321B
Batch ID: P357257

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2053633	Acesulfame K	104	104	P/P	40 - 150
2053633	AMPA	113	116	P/P	40 - 150
2053633	Endothall	87.1	85.0	P/P	40 - 150
2053633	Glufosinate	103	81.9	P/P	40 - 150
2053633	Glyphosate	101	76.1	P/P	40 - 140
2053633	Sucralose	104	109	P/P	40 - 150

Reference Method: SM 4500 F-C-97
Batch ID: P357519

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2053643	Fluoride	99.3	100	P/P	91 - 105

Reference Method: SM 5310 B-00
Batch ID: P357327

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2053623	Organic Carbon	99.8	98.2	P/P	85 - 115

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P357235

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2053621	Turbidity	0.772	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P357336

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2053641	Chloride	0.472	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P357338

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2053641	Sulfate	0.553	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P357365

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2053648	Ammonia-N	1.26	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P357278

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2053647	Kjeldahl Nitrogen	5.16	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P357210

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2053549	NO2NO3-N	0.985	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P357280

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2053647	Total-P	3.60	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P357180

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2053649	O-Phosphate-P	1.29	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 8321B
Batch ID: P357055

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2053633	2,4-D	9.54	Spike	P	0 - 30
2053633	Acetaminophen	4.04	Spike	P	0 - 30
2053633	Bentazon	6.81	Spike	P	0 - 30
2053633	Carbamazepine	3.85	Spike	P	0 - 30
2053633	Diuron	4.38	Spike	P	0 - 30
2053633	Fenuron	3.48	Spike	P	0 - 30
2053633	Fluridone	2.63	Spike	P	0 - 30
2053633	Hydrocodone	3.30	Spike	P	0 - 30
2053633	Ibuprofen	7.35	Spike	P	0 - 30
2053633	Imazapyr	5.97	Spike	P	0 - 30
2053633	Imidacloprid	2.04	Spike	P	0 - 30
2053633	Linuron	1.96	Spike	P	0 - 30
2053633	MCP	9.02	Spike	P	0 - 30
2053633	Naproxen	4.75	Spike	P	0 - 30
2053633	Primidone	6.28	Spike	P	0 - 30
2053633	Pyraclostrobin	1.04	Spike	P	0 - 30
2053633	Triclopyr	9.09	Spike	P	0 - 30

Reference Method: EPA 8321B
Batch ID: P357257

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2053633	Acesulfame K	0.310	Spike	P	0 - 30
2053633	AMPA	2.49	Spike	P	0 - 30
2053633	Endothall	2.40	Spike	P	0 - 30
2053633	Glufosinate	23.1	Spike	P	0 - 30
2053633	Glyphosate	28.4	Spike	P	0 - 30
2053633	Sucralose	4.95	Spike	P	0 - 30

Reference Method: SM 2120 B
Batch ID: P357176

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2053642	Color (true)	3.96	Sample	P	0 - 20

Reference Method: SM 2320 B-97
Batch ID: P357545

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2053643	Total Alkalinity	0.393	Sample	P	0 - 1.6

Reference Method: SM 2540 C-97
Batch ID: P357355

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2053418	TDS	13.1	Sample	F	0 - 10

Quality Assurance Report Precision

Reference Method: SM 4500 F-C-97
Batch ID: P357519

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2053643	Fluoride	0.983	Spike	P	0 - 3.5

Reference Method: SM 5310 B-00
Batch ID: P357327

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2053623	Organic Carbon	1.16	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: 2053633
 Field Sample ID: G1TLHR0040

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	2,4-D-d3	91.2	P	30 - 160
EPA 8321B	Acetaminophen-d4	120	P	30 - 160
EPA 8321B	Carbamazepine-d10	89.0	P	30 - 160
EPA 8321B	Diuron-d6	75.0	P	30 - 160
EPA 8321B	Endothall-d6	88.1	P	40 - 160
EPA 8321B	Endothall-d6	88.1	P	40 - 160
EPA 8321B	Glyphosate 13C 15N	50.2	P	40 - 160
EPA 8321B	Glyphosate 13C 15N	50.2	P	40 - 160
EPA 8321B	Ibuprofen-d3	72.3	P	30 - 160
EPA 8321B	Primidone-d5	112	P	30 - 160
EPA 8321B	Sucralose-d6	111	P	40 - 160
EPA 8321B	Sucralose-d6	111	P	40 - 160

Lab Sample ID: 2053634
 Field Sample ID: G1TLHR0041

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	2,4-D-d3	74.1	P	30 - 160
EPA 8321B	Acetaminophen-d4	107	P	30 - 160
EPA 8321B	Carbamazepine-d10	80.6	P	30 - 160
EPA 8321B	Diuron-d6	66.3	P	30 - 160
EPA 8321B	Endothall-d6	106	P	40 - 160
EPA 8321B	Endothall-d6	106	P	40 - 160
EPA 8321B	Glyphosate 13C 15N	53.0	P	40 - 160
EPA 8321B	Glyphosate 13C 15N	53.0	P	40 - 160
EPA 8321B	Ibuprofen-d3	56.3	P	30 - 160
EPA 8321B	Primidone-d5	102	P	30 - 160
EPA 8321B	Sucralose-d6	116	P	40 - 160
EPA 8321B	Sucralose-d6	116	P	40 - 160

Quality Assurance Report Calibration Verification

Reference Method: SM 2120 B

Run ID: A88775

Included Lab Sample IDs: 2053621, 2053622

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	99.8	101	P/P	90 - 115

Reference Method: EPA 365.1 Rev. 2.0 dissolved

Run ID: A88776

Included Lab Sample IDs: 2053625, 2053626

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	99.1	99.4	P/P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1

Run ID: A88788

Included Lab Sample IDs: 2053621, 2053622

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	101	99.8	P/P	90 - 110
Sulfate	100	99.5	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A88791

Included Lab Sample IDs: 2053623, 2053624

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

Reference Method: EPA 180.1 Rev. 2.0

Run ID: A88797

Included Lab Sample IDs: 2053621, 2053622

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

Reference Method: SM 5310 B-00

Run ID: A88833

Included Lab Sample IDs: 2053623, 2053624

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	101	100	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A88850

Included Lab Sample IDs: 2053623, 2053624

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	101	100	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A88851

Included Lab Sample IDs: 2053623, 2053624

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

Quality Assurance Report Calibration Verification

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A88860

Included Lab Sample IDs: 2053623

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

Reference Method: EPA 8321B

Run ID: A88872

Included Lab Sample IDs: 2053633, 2053634

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
AMPA	112	115	P/P	60 - 160
Glufosinate	105	100	P/P	60 - 160
Glyphosate	111	116	P/P	60 - 160

Reference Method: EPA 8321B

Run ID: A88874

Included Lab Sample IDs: 2053633, 2053634

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Acesulfame K	115	110	P/P	60 - 160
Acesulfame K	129	115	P/P	60 - 160
Endothall	84.8	86.2	P/P	60 - 160
Endothall	86.2	78.4	P/P	60 - 160

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A88877

Included Lab Sample IDs: 2053624

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	99.8	100	P/P	90 - 110

Reference Method: SM 4500 F-C-97

Run ID: A88901

Included Lab Sample IDs: 2053621, 2053622

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

Reference Method: SM 2320 B-97

Run ID: A88906

Included Lab Sample IDs: 2053621, 2053622

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	101	99.3	P/P	90 - 110
Total Alkalinity	99.3	102	P/P	90 - 110

Reference Method: EPA 8321B

Run ID: A88926

Included Lab Sample IDs: 2053633, 2053634

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
2,4-D	92.0	79.7	P/P	50 - 150
Acetaminophen	109	113	P/P	60 - 160
Bentazon	107	101	P/P	50 - 160

Quality Assurance Report Calibration Verification

Reference Method: EPA 8321B

Run ID: A88926

Included Lab Sample IDs: 2053633, 2053634

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Carbamazepine	105	106	P/P	60 - 150
Diuron	108	106	P/P	60 - 150
Fenuron	104	107	P/P	60 - 150
Fluridone	106	106	P/P	60 - 160
Hydrocodone	105	99.4	P/P	60 - 150
Ibuprofen	92.1	89.4	P/P	50 - 160
Imazapyr	104	94.1	P/P	50 - 150
Imidacloprid	103	104	P/P	60 - 150
Linuron	108	111	P/P	60 - 150
MCPP	89.6	80.4	P/P	50 - 150
Naproxen	127	96.6	P/P	50 - 160
Primidone	103	105	P/P	60 - 150
Pyraclostrobin	106	109	P/P	60 - 150
Triclopyr	92.7	91.7	P/P	50 - 150

Reference Method: EPA 8321B

Run ID: A88955

Included Lab Sample IDs: 2053633, 2053634

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Sucralose	102	122	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		Precision	
					LCS	MS
EPA 180.1 Rev. 2.0	Turbidity				0.772	
EPA 300.0 Rev. 2.1	Chloride	106	94.3	93.4	0.472	
	Sulfate	105	93.1	97.1	0.553	
EPA 350.1 Rev. 2.0	Ammonia-N	98.4	101	99.5		1.26
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	104	106	97.8		5.16
EPA 353.2 Rev. 2.0	NO ₂ NO ₃ -N	100	102	101		0.985
EPA 365.1 Rev. 2.0	Total-P	103	102	98.0		3.60
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	96.5	92.7	93.9		1.29
EPA 8321B	2,4-D	67.7	82.2	74.7		9.54
	Acesulfame K	127	104	104		0.310
	Acetaminophen	104	113	109		4.04
	AMPA	117	113	116		2.49
	Bentazon	73.2	37.5	35.0		6.81
	Carbamazepine	92.5	81.6	78.5		3.85
	Diuron	75.0	65.5	62.7		4.38
	Endothall	96.6	87.1	85.0		2.40
	Fenuron	111	88.3	85.3		3.48
	Fluridone	102	89.1	91.5		2.63
	Glufosinate	98.8	103	81.9		23.1
	Glyphosate	105	101	76.1		28.4
	Hydrocodone	101	109	105		3.30
	Ibuprofen	73.1	67.1	62.3		7.35
	Imazapyr	91.3	114	107		5.97
	Imidacloprid	107	196	192		2.04
	Linuron	77.3	66.0	67.3		1.96
	MCPP	95.4	111	102		9.02
	Naproxen	52.5	51.3	53.8		4.75
	Primidone	92.6	96.9	91.0		6.28
	Pyraclostrobin	65.0	65.1	64.4		1.04
	Sucralose	104	104	109		4.95
	Triclopyr	45.1	61.6	56.3		9.09
SM 2120 B	Color (true)	100			3.96	
SM 2320 B-97	Total Alkalinity	101			0.393	
SM 2540 C-97	TDS				13.1	
SM 4500 F-C-97	Fluoride	100	99.3	100		0.983
SM 5310 B-00	Organic Carbon	98.0	99.8	98.2		1.16

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	2053621, 2053622
EPA 300.0 Rev. 2.1 / E31780	Chloride in aqueous matrices	2053621, 2053622
EPA 300.0 Rev. 2.1 / E31780	Sulfate in aqueous matrices	2053621, 2053622
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	2053623, 2053624
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	2053623, 2053624
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	2053623, 2053624
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	2053623, 2053624

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	2053625, 2053626
EPA 8321B / E31780	Pesticides, herbicides, and other chemicals in water matrices by HPLC/MS/MS	2053633, 2053634
EPA 8321B / E31780	Water soluble organic compounds by HPLC/MS/MS	2053633, 2053634
SM 2120 B / E31780	True Color measured at 450 nm	2053621, 2053622
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO ₃ /L	2053621, 2053622
SM 2540 C-97 / E31780	Total Dissolved Solids in aqueous matrices	2053621, 2053622
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices using a maximum of 250 mL of sample	2053621, 2053622
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	2053621, 2053622
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	2053623, 2053624

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	01/10/2019			01/11/2019 17:41	Megan Treadwell	2053621, 2053622
EPA 300.0 Rev. 2.1	01/10/2019			01/15/2019 17:09	Lipi Saha	2053621
	01/10/2019			01/15/2019 17:21	Lipi Saha	2053622
EPA 350.1 Rev. 2.0	01/10/2019			01/16/2019 11:51	Ping Hua	2053623
	01/10/2019			01/16/2019 11:53	Ping Hua	2053624
EPA 351.2 Rev. 2.0	01/10/2019	01/15/2019 11:30	Adrian Shelby	01/16/2019 12:28	Joseph Suarez	2053623
	01/10/2019	01/15/2019 11:30	Adrian Shelby	01/16/2019 12:29	Joseph Suarez	2053624
EPA 353.2 Rev. 2.0	01/10/2019			01/14/2019 09:52	Beverly Y. Sanders	2053623
	01/10/2019			01/14/2019 09:54	Beverly Y. Sanders	2053624
EPA 365.1 Rev. 2.0	01/10/2019	01/15/2019 12:00	Sima Feizi	01/16/2019 16:58	Rosalyn Ballman	2053623
	01/10/2019	01/15/2019 12:00	Sima Feizi	01/17/2019 13:00	Rosalyn Ballman	2053624
EPA 365.1 Rev. 2.0 dissolved	01/10/2019			01/11/2019 15:48	Jhamieka S. Greenwood	2053625
	01/10/2019			01/11/2019 15:49	Jhamieka S. Greenwood	2053626
EPA 8321B	01/10/2019	01/16/2019 09:30	Rebecca Ware	01/16/2019 10:50	Rebecca Ware	2053633
	01/10/2019	01/16/2019 09:30	Rebecca Ware	01/16/2019 11:01	Rebecca Ware	2053634
	01/10/2019	01/16/2019 09:30	Rebecca Ware	01/16/2019 13:25	Rebecca Ware	2053633
	01/10/2019	01/16/2019 09:30	Rebecca Ware	01/16/2019 13:52	Rebecca Ware	2053634
	01/10/2019	01/16/2019 09:30	Rebecca Ware	01/22/2019 22:26	Mohammad Ghaffari	2053633
	01/10/2019	01/16/2019 09:30	Rebecca Ware	01/22/2019 22:40	Mohammad Ghaffari	2053634
	01/10/2019	01/17/2019 09:00	Hoor Shaik	01/17/2019 21:52	Juyoung Kim	2053633
	01/10/2019	01/17/2019 09:00	Hoor Shaik	01/17/2019 22:26	Juyoung Kim	2053634
SM 2120 B	01/10/2019			01/11/2019 15:51	Chelsea Hernandez	2053621
	01/10/2019			01/11/2019 15:52	Chelsea Hernandez	2053622
SM 2320 B-97	01/10/2019			01/18/2019 12:29	Dale L. Simmons	2053621
	01/10/2019			01/18/2019 12:55	Dale L. Simmons	2053622
SM 2540 C-97	01/10/2019			01/11/2019 14:55	Mariam Hanna	2053621, 2053622
SM 2540 D-97	01/10/2019			01/11/2019 14:55	Mariam Hanna	2053621, 2053622
SM 4500 F-C-97	01/10/2019			01/17/2019 15:23	Dale L. Simmons	2053621
	01/10/2019			01/17/2019 15:32	Dale L. Simmons	2053622
SM 5310 B-00	01/10/2019			01/15/2019 14:17	Megan Treadwell	2053623
	01/10/2019			01/15/2019 15:14	Megan Treadwell	2053624