Chemical Analysis Report

TLH-ROC-2017-11-15-05

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

Event Description: **SMP 2017 kit A-b/t/m PCR-FILTER & PCR-HF183**
Request ID: **RQ-2017-10-30-55**
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: Thekkekalathil Chandrasekhar, Chemist Administrator Date Certified: 05-DEC-2017 12:00

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: STEINHATCHEE RIVER @ SOUTH CANAL RD. Collection Date/Time: 11/15/2017 10:45

Field ID: G1TLHR0064-2017-05 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1946638	EPA 180.1 Rev. 2.0	Turbidity	1.2		NTU	P335363	
	EPA 300.0 Rev. 2.1	Chloride	7.9		mg Cl/L	P335505	
	SM 2120 B	Color (true)	260		PCU	P335468	
	SM 2320 B-97	Total Alkalinity	142		mg CaCO3/L	P335918	
	SM 2540 C-97	TDS	235		mg/L	P335831	
	SM 2540 D-97	TSS	2	I	mg/L	P335838	
	SM 4500 F-C-97	Fluoride	0.13		mg F/L	P335921	
1946640	EPA 350.1 Rev. 2.0	Ammonia-N	0.023		mg N/L	P336211	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.76		mg N/L	P335949	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.030		mg N/L	P335890	
	EPA 365.1 Rev. 2.0	Total-P	0.10		mg P/L	P335672	
	SM 5310 B-00	Organic Carbon	26		mg C/L	P335967	
1946642	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.090		mg P/L	P335475	
1946650	EPA 8321B	Sucralose**	0.010	U	ug/L	P335617	
	USGS O-2060-01	2,4-D	0.0020	U	ug/L	P335331	
		Diuron	8.0E-04	U	ug/L	P335331	MS
		Fenuron	0.0080	U	ug/L	P335331	
		Imidacloprid	8.0E-04	U	ug/L	P335331	
		Bentazon	8.0E-04	U	ug/L	P335331	
		Linuron	0.0040	U	ug/L	P335331	
		Acetaminophen**	0.0080	U	ug/L	P335331	
		MCPP	0.0020	U	ug/L	P335331	MS
		Carbamazepine**	4.0E-04	U	ug/L	P335331	
		Triclopyr**	0.0040	U	ug/L	P335331	MS
		Primidone**	0.0040	U	ug/L	P335331	
		Fluridone**	4.0E-04	U	ug/L	P335331	

Ref. Method and Comment:
SM 2540 D-97: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample.
EPA 353.2 Rev. 2.0: NO2NO3-N: Batch matrix spike recoveries are unavailable because of high analyte concentration in the QC sample.
USGS O-2060-01: Fenuron was detected in the method blank slightly above the MDL.

Sample Location: SUGAR CREEK @ SUWANNEE RIVER Collection Date/Time: 11/15/2017 12:45

Field ID: G1TLHR0047-2017-05 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1946639	EPA 180.1 Rev. 2.0	Turbidity	2.9	A	NTU	P335363	
	EPA 300.0 Rev. 2.1	Chloride	10	A	mg Cl/L	P335505	
	SM 2120 B	Color (true)	51	A	PCU	P335468	
	SM 2320 B-97	Total Alkalinity	51		mg CaCO3/L	P335918	
	SM 2540 C-97	TDS	104		mg/L	P335831	
	SM 2540 D-97	TSS	3	I	mg/L	P335838	
	SM 4500 F-C-97	Fluoride	0.45		mg F/L	P335921	
1946641	EPA 350.1 Rev. 2.0	Ammonia-N	0.006		mg N/L	P336211	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.38		mg N/L	P335949	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.56		mg N/L	P335890	

Field ID: G1TLHR0047-2017-05 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1946641	EPA 365.1 Rev. 2.0	Total-P	0.72		mg P/L	P335672	
	SM 5310 B-00	Organic Carbon	4.9		mg C/L	P335967	
1946643	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.68		mg P/L	P335475	
1946651	EPA 8321B	Sucralose**	0.049		ug/L	P335617	
	USGS O-2060-01	2,4-D	0.0020	U	ug/L	P335331	
		Diuron	8.0E-04	U	ug/L	P335331	MS
		Fenuron	0.0080	U	ug/L	P335331	
		Imidacloprid	0.011		ug/L	P335331	
		Bentazon	8.0E-04	U	ug/L	P335331	
		Linuron	0.0040	U	ug/L	P335331	
		Acetaminophen**	0.0080	U	ug/L	P335331	
		MCPP	0.0020	U	ug/L	P335331	MS
		Carbamazepine**	4.0E-04	U	ug/L	P335331	
		Triclopyr**	0.0040	U	ug/L	P335331	MS
		Primidone**	0.0040	U	ug/L	P335331	
		Fluridone**	4.0E-04	U	ug/L	P335331	

Ref. Method and Comment:
SM 2540 D-97: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample.
EPA 353.2 Rev. 2.0: NO2NO3-N: Batch matrix spike recoveries are unavailable because of high analyte concentration in the QC sample.
USGS O-2060-01: Fenuron was detected in the method blank slightly above the MDL.

Quality Assurance Report
Method Blank Results

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P335363

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P335505

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P336211

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P335949

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P335890

Component	Result	Code	Units

Quality Assurance Report
Method Blank Results

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P335890

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P335672

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P335475

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

Reference Method: EPA 8321B
Batch ID: P335617

Component	Result	Code	Units
Sucralose	0.010	U	ug/L

Reference Method: SM 2120 B
Batch ID: P335468

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2320 B-97
Batch ID: P335918

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

Reference Method: SM 2540 C-97
Batch ID: P335831

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P335838

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500 F-C-97
Batch ID: P335921

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Quality Assurance Report
Method Blank Results

Reference Method: SM 5310 B-00
Batch ID: P335967

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

Reference Method: USGS O-2060-01
Batch ID: P335331

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	4.0E-04	U	ug/L
Diuron	8.0E-04	U	ug/L
Fenuron	0.023	I	ug/L
Fluridone	4.0E-04	U	ug/L
Imidacloprid	8.0E-04	U	ug/L
Linuron	0.0040	U	ug/L
MCPP	0.0020	U	ug/L
Primidone	0.0040	U	ug/L
Triclopyr	0.0040	U	ug/L

Quality Assurance Report
Laboratory Control Sample Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P335505

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Chloride	96.6		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P336211

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Ammonia-N	97.5		P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P335949

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P335890

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P335672

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total-P	98.7		P	90 - 110

Quality Assurance Report
Laboratory Control Sample Accuracy

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P335475

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

Reference Method: EPA 8321B
Batch ID: P335617

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Sucralose	118		P	40 - 150

Reference Method: SM 2320 B-97
Batch ID: P335918

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	101		P	95 - 108

Reference Method: SM 4500 F-C-97
Batch ID: P335921

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	94.3		P	92 - 103

Reference Method: SM 5310 B-00
Batch ID: P335967

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	95.2		P	85 - 115

Reference Method: USGS O-2060-01
Batch ID: P335331

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2,4-D	67.8	71.5	P/P	40 - 150
Acetaminophen	112	115	P/P	30 - 150
Bentazon	61.6	62.1	P/P	30 - 150
Carbamazepine	129	130	P/P	40 - 150
Diuron	105	104	P/P	40 - 150
Fenuron	115	119	P/P	40 - 150
Fluridone	129	133	P/P	40 - 150
Imidacloprid	101	106	P/P	40 - 160
Linuron	101	108	P/P	40 - 150
MCPP	71.6	76.1	P/P	40 - 150
Primidone	102	97.6	P/P	40 - 150
Triclopyr	72.4	79.7	P/P	40 - 150

Quality Assurance Report
Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P335505

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1946639	Chloride	96.4		P	90 - 110

Quality Assurance Report
Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P335505

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1946672	Chloride	94.9		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P336211

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1946627	Ammonia-N	98.2	99.3	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P335949

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1946595	Kjeldahl Nitrogen	97.9	102	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P335672

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1946679	Total-P	101	100	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P335475

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1946686	O-Phosphate-P	100	97.9	P/P	90 - 110

Reference Method: EPA 8321B
Batch ID: P335617

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1946711	Sucralose	110	113	P/P	40 - 150

Reference Method: SM 4500 F-C-97
Batch ID: P335921

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1946909	Fluoride	97.4	97.4	P/P	91 - 105

Reference Method: SM 5310 B-00
Batch ID: P335967

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1946666	Organic Carbon	102		P	85 - 115

Reference Method: USGS O-2060-01
Batch ID: P335331

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1946407	2,4-D	52.7	52.8	P/P	40 - 150
1946407	Acetaminophen	54.3	50.8	P/P	30 - 150
1946407	Bentazon	39.8	34.5	P/P	30 - 150
1946407	Carbamazepine	40.3	40.0	P/P	40 - 150

Quality Assurance Report
Matrix Spike Accuracy

Reference Method: USGS O-2060-01
Batch ID: P335331

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1946407	Diuron	33.9	34.2	F/F	40 - 150
1946407	Fenuron	48.4	45.8	P/P	40 - 150
1946407	Fluridone	43.7	44.1	P/P	40 - 150
1946407	Imidacloprid	105	105	P/P	40 - 160
1946407	Linuron	49.0	49.4	P/P	40 - 150
1946407	MCPP	39.5	35.1	F/F	40 - 150
1946407	Primidone	47.9	52.9	P/P	40 - 150
1946407	Triclopyr	35.4	30.0	F/F	40 - 150

Quality Assurance Report
Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P335363

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1946639	Turbidity	0.344	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P335505

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1946639	Chloride	0.589	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P336211

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1946627	Ammonia-N	0.827	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P335949

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1946595	Kjeldahl Nitrogen	3.34	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P335890

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1946497	NO2NO3-N	0.162	Spike	P	0 - 20

Quality Assurance Report
Precision

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P335672

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1946679	Total-P	0.306	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P335475

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1946686	O-Phosphate-P	1.63	Spike	P	0 - 20

Reference Method: EPA 8321B
Batch ID: P335617

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1946711	Sucralose	2.17	Spike	P	0 - 30

Reference Method: SM 2120 B
Batch ID: P335468

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1946639	Color (true)	0.360	Sample	P	0 - 20

Reference Method: SM 2320 B-97
Batch ID: P335918

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1946909	Total Alkalinity	0.0586	Sample	P	0 - 4.8

Reference Method: SM 2540 C-97
Batch ID: P335831

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1946582	TDS	4.00	Sample	P	0 - 10

Reference Method: SM 4500 F-C-97
Batch ID: P335921

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1946909	Fluoride	0.0	Spike	P	0 - 3.0

Reference Method: SM 5310 B-00
Batch ID: P335967

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1946666	Organic Carbon	0.551	Spike	P	0 - 20

Quality Assurance Report
Precision

Reference Method: USGS O-2060-01
Batch ID: P335331

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1946407	2,4-D	0.227	Spike	P	0 - 30
1946407	Acetaminophen	6.63	Spike	P	0 - 30
1946407	Bentazon	9.69	Spike	P	0 - 30
1946407	Carbamazepine	0.523	Spike	P	0 - 30
1946407	Diuron	0.910	Spike	P	0 - 30
1946407	Fenuron	5.69	Spike	P	0 - 30
1946407	Fluridone	0.645	Spike	P	0 - 30
1946407	Imidacloprid	0.0	Spike	P	0 - 30
1946407	Linuron	0.792	Spike	P	0 - 30
1946407	MCPP	11.7	Spike	P	0 - 30
1946407	Primidone	8.57	Spike	P	0 - 30
1946407	Triclopyr	16.4	Spike	P	0 - 30
LFB	2,4-D	5.28	LCS	P	0 - 30
LFB	Acetaminophen	3.13	LCS	P	0 - 30
LFB	Bentazon	0.816	LCS	P	0 - 30
LFB	Carbamazepine	0.134	LCS	P	0 - 30
LFB	Diuron	0.649	LCS	P	0 - 30
LFB	Fenuron	3.21	LCS	P	0 - 30
LFB	Fluridone	2.70	LCS	P	0 - 30
LFB	Imidacloprid	4.81	LCS	P	0 - 30
LFB	Linuron	6.36	LCS	P	0 - 30
LFB	MCPP	6.00	LCS	P	0 - 30
LFB	Primidone	3.98	LCS	P	0 - 30
LFB	Triclopyr	9.60	LCS	P	0 - 30

* 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: 1946650
Field Sample ID: G1TLHR0064-2017-05

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	Acetaminophen-d4	108	P	30 - 160
EPA 8321B	Carbamazepine-d10	53.9	P	30 - 160
EPA 8321B	Diuron-d6	39.2	P	30 - 160
EPA 8321B	Primidone-d5	55.8	P	30 - 160
EPA 8321B	Sucralose-d6	97.0	P	40 - 160
USGS O-2060-01	2,4-D-d3	40.4	P	30 - 160
USGS O-2060-01	Acetaminophen-d4	108	P	30 - 160
USGS O-2060-01	Carbamazepine-d10	53.9	P	30 - 160
USGS O-2060-01	Diuron-d6	39.2	P	30 - 160
USGS O-2060-01	Primidone-d5	55.8	P	30 - 160
USGS O-2060-01	Sucralose-d6	97.0	P	40 - 160

Quality Assurance Report
Surrogates

Lab Sample ID: 1946651
Field Sample ID: G1TLHR0047-2017-05

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	Acetaminophen-d4	88.2	P	30 - 160
EPA 8321B	Carbamazepine-d10	102	P	30 - 160
EPA 8321B	Diuron-d6	77.5	P	30 - 160
EPA 8321B	Primidone-d5	95.4	P	30 - 160
EPA 8321B	Sucralose-d6	122	P	40 - 160
USGS O-2060-01	2,4-D-d3	52.9	P	30 - 160
USGS O-2060-01	Acetaminophen-d4	88.2	P	30 - 160
USGS O-2060-01	Carbamazepine-d10	102	P	30 - 160
USGS O-2060-01	Diuron-d6	77.5	P	30 - 160
USGS O-2060-01	Primidone-d5	95.4	P	30 - 160
USGS O-2060-01	Sucralose-d6	122	P	40 - 160

Quality Assurance Report
Calibration Verification

Reference Method: EPA 300.0 Rev. 2.1
Run ID: A80230
Included Lab Sample IDs: 1946638, 1946639

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	101	99.9	P/P	90 - 110
Chloride	99.3	100	P/P	90 - 110

Reference Method: EPA 180.1 Rev. 2.0
Run ID: A80289
Included Lab Sample IDs: 1946638, 1946639

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

Reference Method: SM 2120 B
Run ID: A80323
Included Lab Sample IDs: 1946638, 1946639

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	101	106	P/P	85 - 115
Color (true)	107	108	P/P	85 - 115

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Run ID: A80325
Included Lab Sample IDs: 1946642, 1946643

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

Reference Method: EPA 365.1 Rev. 2.0
Run ID: A80452
Included Lab Sample IDs: 1946640, 1946641

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits

Quality Assurance Report
Calibration Verification

Reference Method: EPA 365.1 Rev. 2.0
Run ID: A80452
Included Lab Sample IDs: 1946640, 1946641

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

Reference Method: USGS O-2060-01
Run ID: A80485
Included Lab Sample IDs: 1946650, 1946651

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
2,4-D	86.0	75.7	P/P	50 - 150
2,4-D	91.1	83.1	P/P	50 - 150
Acetaminophen	64.1	71.9	P/P	60 - 150
Acetaminophen	91.8	77.0	P/P	60 - 150
Bentazon	114	115	P/P	50 - 150
Bentazon	120	99.6	P/P	50 - 150
Carbamazepine	102	92.1	P/P	60 - 150
Carbamazepine	105	90.9	P/P	60 - 150
Diuron	93.0	87.5	P/P	60 - 150
Diuron	99.2	69.9	P/P	60 - 150
Fenuron	81.2	73.2	P/P	60 - 150
Fenuron	82.6	75.6	P/P	60 - 150
Fluridone	109	90.5	P/P	60 - 160
Fluridone	112	96.0	P/P	60 - 160
Imidacloprid	74.2	67.9	P/P	60 - 150
Imidacloprid	83.8	74.2	P/P	60 - 150
Linuron	100	82.3	P/P	60 - 150
Linuron	94.8	74.8	P/P	60 - 150
MCPP	89.9	79.6	P/P	50 - 150
MCPP	97.8	89.5	P/P	50 - 150
Primidone	88.4	81.5	P/P	60 - 150
Primidone	89.3	66.0	P/P	60 - 150
Triclopyr	90.2	81.4	P/P	50 - 160
Triclopyr	95.6	91.9	P/P	50 - 160

Reference Method: EPA 353.2 Rev. 2.0
Run ID: A80510
Included Lab Sample IDs: 1946640, 1946641

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

Reference Method: SM 2320 B-97
Run ID: A80534
Included Lab Sample IDs: 1946638, 1946639

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	102	99.2	P/P	90 - 110

Reference Method: SM 4500 F-C-97
Run ID: A80534
Included Lab Sample IDs: 1946638, 1946639

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits

Quality Assurance Report
Calibration Verification

Reference Method: SM 4500 F-C-97
Run ID: A80534
Included Lab Sample IDs: 1946638, 1946639

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	97.6	98.1	P/P	90 - 110

Reference Method: EPA 8321B
Run ID: A80536
Included Lab Sample IDs: 1946651

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Sucralose	71.4	68.3	P/P	60 - 150

Reference Method: SM 5310 B-00
Run ID: A80544
Included Lab Sample IDs: 1946640, 1946641

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

Reference Method: EPA 8321B
Run ID: A80568
Included Lab Sample IDs: 1946650

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Sucralose	107	100	P/P	60 - 150

Reference Method: EPA 351.2 Rev. 2.0
Run ID: A80599
Included Lab Sample IDs: 1946640, 1946641

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	92.6	95.5	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Run ID: A80627
Included Lab Sample IDs: 1946640, 1946641

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	102	101	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		Precision		
					LCS	SMP	MS
EPA 180.1 Rev. 2.0	Turbidity					0.344	
EPA 300.0 Rev. 2.1	Chloride	96.6	96.4	94.9		0.589	
EPA 350.1 Rev. 2.0	Ammonia-N	97.5	98.2	99.3			0.827
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	103	97.9	102			3.34

Quality Assurance Report
Summary

Ref. Method	Analyte	LCS % Recovery		MS % Recovery		Precision		
						LCS	SMP	MS
EPA 353.2 Rev. 2.0	NO2NO3-N	104						0.162
EPA 365.1 Rev. 2.0	Total-P	98.7		101	100			0.306
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	99.2		100	97.9			1.63
EPA 8321B	Sucralose	118		110	113			2.17
SM 2120 B	Color (true)						0.360	
SM 2320 B-97	Total Alkalinity	101					0.0586	
SM 2540 C-97	TDS						4.00	
SM 4500 F-C-97	Fluoride	94.3		97.4	97.4			0.0
SM 5310 B-00	Organic Carbon	95.2		102				0.551
USGS O-2060-01	2,4-D	67.8	71.5	52.7	52.8	5.28		0.227
	Acetaminophen	112	115	54.3	50.8	3.13		6.63
	Bentazon	61.6	62.1	39.8	34.5	0.816		9.69
	Carbamazepine	129	130	40.3	40.0	0.134		0.523
	Diuron	105	104	33.9	34.2	0.649		0.910
	Fenuron	115	119	48.4	45.8	3.21		5.69
	Fluridone	129	133	43.7	44.1	2.70		0.645
	Imidacloprid	101	106	105	105	4.81		0.0
	Linuron	101	108	49.0	49.4	6.36		0.792
	MCPP	71.6	76.1	39.5	35.1	6.00		11.7
	Primidone	102	97.6	47.9	52.9	3.98		8.57
	Triclopyr	72.4	79.7	35.4	30.0	9.60		16.4

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	1946638, 1946639
EPA 300.0 Rev. 2.1 / E31780	Chloride in aqueous matrices	1946638, 1946639
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	1946640, 1946641
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	1946640, 1946641
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	1946640, 1946641
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	1946640, 1946641
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	1946642, 1946643
EPA 8321B / E31780	Analysis of sucralose in water matrices by HPLC/MS/MS	1946650, 1946651
SM 2120 B / E31780	True Color measured at 450 nm	1946638, 1946639
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO3/L	1946638, 1946639
SM 2540 C-97 / E31780	Total Dissolved Solids in aqueous matrices	1946638, 1946639
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices	1946638, 1946639
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	1946638, 1946639
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	1946640, 1946641
USGS O-2060-01 / E31780	Chlorinated (phenoxy acid) herbicides in water matrices by HPLC/MS/MS	1946650, 1946651
USGS O-2060-01 / E31780	Urea herbicides and other chemicals in water matrices by HPLC/MS/MS	1946650, 1946651

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	11/15/2017			11/15/2017 16:32	DeAsia Armster	1946638, 1946639
EPA 300.0 Rev. 2.1	11/15/2017			11/16/2017	Julia Storbeck	1946638, 1946639
EPA 350.1 Rev. 2.0	11/15/2017			11/30/2017	Sofia Elnemr	1946640, 1946641
EPA 351.2 Rev. 2.0	11/15/2017	11/28/2017	Adrian Shelby	11/29/2017	Joseph Suarez	1946640, 1946641
EPA 353.2 Rev. 2.0	11/15/2017			11/27/2017	Lauren Bottorf	1946640, 1946641
EPA 365.1 Rev. 2.0	11/15/2017	11/21/2017	Adrian Shelby	11/21/2017	Lipi Saha	1946640, 1946641
EPA 365.1 Rev. 2.0 dissolved	11/15/2017			11/16/2017 14:11	Megan Treadwell	1946642
	11/15/2017			11/16/2017 14:38	Megan Treadwell	1946643
EPA 8321B	11/15/2017	11/22/2017	Mohammad Ghaffari	11/24/2017	Mohammad Ghaffari	1946651
	11/15/2017	11/22/2017	Mohammad Ghaffari	11/29/2017	Mohammad Ghaffari	1946650
SM 2120 B	11/15/2017			11/16/2017 15:25	Tanya Welborn	1946639
	11/15/2017			11/16/2017 16:23	Tanya Welborn	1946638
SM 2320 B-97	11/15/2017			11/27/2017	Dale L. Simmons	1946638, 1946639
SM 2540 C-97	11/15/2017			11/20/2017	Yijie Li	1946638, 1946639
SM 2540 D-97	11/15/2017			11/20/2017	Yijie Li	1946638, 1946639
SM 4500 F-C-97	11/15/2017			11/27/2017	Dale L. Simmons	1946638, 1946639
SM 5310 B-00	11/15/2017			11/27/2017	Ping Hua	1946640, 1946641
USGS O-2060-01	11/15/2017	11/17/2017	Hoor Shaik	11/21/2017	Mohammad Ghaffari	1946650, 1946651