Chemical Analysis Report

SO-DIST-2019-04-16-01

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

Event Description: **Sarasota Cricks**
Request ID: **RQ-2019-04-22-15**
Customer: **SO-DIST**
Project ID: **SMP**

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FLDEP South District Office
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Certified by: Colin Wright, Program Administrator

Date Certified: 02-MAY-2019 12:32

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: NorthCreek@OaksCreekCt **Collection Date/Time: 04/15/2019 10:30**

Field ID: G3SD0064 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2078237	EPA 8321B	2,4-D	0.048		ug/L	P362252	
		Acesulfame K**	0.18	I	ug/L	P362188	MS
		AMPA**	2.1	I	ug/L	P362188	
		Sucralose**	0.75		ug/L	P362188	
		Endothall**	0.25	U	ug/L	P362188	
		Acetaminophen**	0.0080	U	ug/L	P362252	
		Glufosinate**	1.0	U	ug/L	P362188	
		Glyphosate**	4.0		ug/L	P362188	
		Bentazon	0.014		ug/L	P362252	
		Carbamazepine**	0.0010	I	ug/L	P362252	
		Diuron	0.0020	U	ug/L	P362252	
		Fenuron	0.016	U	ug/L	P362252	
		Fluridone**	0.076	J	ug/L	P362252	MS
		Imazapyr**	0.079		ug/L	P362252	
		Hydrocodone**	0.0020	U	ug/L	P362252	
		Ibuprofen**	0.020	U	ug/L	P362252	
		Imidacloprid	0.0063	IJ	ug/L	P362252	MS
		Linuron	0.0040	U	ug/L	P362252	
		MCPP	0.0020	U	ug/L	P362252	
		Naproxen**	0.0080	U	ug/L	P362252	
		Primidone**	0.0067	I	ug/L	P362252	
		Pyraclostrobin**	0.0020	U	ug/L	P362252	
		Triclopyr**	0.0040	U	ug/L	P362252	

Ref. Method and Comment:
EPA 8321B: Refer to the narrative for an explanation of QC Codes.
EPA 8321B: MDL elevated due to matrix interference.

Sample Location: NorthCreek(Tidal)@41 **Collection Date/Time: 04/15/2019 10:55**

Field ID: G3SD0089 Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2078239	EPA 8321B	2,4-D	0.015		ug/L	P362252	
		Acesulfame K**	0.13	I	ug/L	P362188	MS
		AMPA**	0.10	UJ	ug/L	P362188	SUR
		Sucralose**	0.82		ug/L	P362188	
		Endothall**	0.25	U	ug/L	P362188	
		Acetaminophen**	0.0080	U	ug/L	P362252	
		Glufosinate**	0.10	UJ	ug/L	P362188	SUR
		Bentazon	0.012		ug/L	P362252	
		Glyphosate**	0.41	J	ug/L	P362188	SUR
		Carbamazepine**	0.0013	I	ug/L	P362252	
		Diuron	0.0036	I	ug/L	P362252	
		Fenuron	0.016	U	ug/L	P362252	
		Fluridone**	0.38		ug/L	P362252	MS
		Imazapyr**	0.19		ug/L	P362252	
		Hydrocodone**	0.0020	U	ug/L	P362252	
		Ibuprofen**	0.020	U	ug/L	P362252	
		Imidacloprid	0.020		ug/L	P362252	MS
		Linuron	0.0040	U	ug/L	P362252	
		MCPP	0.0022	I	ug/L	P362252	
		Naproxen**	0.0080	U	ug/L	P362252	
		Primidone**	0.0065	I	ug/L	P362252	
		Pyraclostrobin**	0.0020	U	ug/L	P362252	
		Triclopyr**	0.0040	U	ug/L	P362252	

Ref. Method and Comment:
EPA 8321B: Refer to the narrative for an explanation of QC Codes. Surrogate spike recovery exceeding the control limits. Results confirmed in re-extraction.

Sample Location: Walker Creek @32ndSt **Collection Date/Time: 04/15/2019 11:30**

Field ID: G3SD0094 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2078238	EPA 8321B	2,4-D	0.088		ug/L	P362252	
		Acesulfame K**	0.58		ug/L	P362188	MS
		AMPA**	2.4		ug/L	P362188	
		Sucralose**	0.47		ug/L	P362188	
		Acetaminophen**	0.025	I	ug/L	P362252	
		Endothall**	0.25	U	ug/L	P362188	
		Glufosinate**	0.10	U	ug/L	P362188	
		Bentazon	0.039		ug/L	P362252	
		Glyphosate**	6.3		ug/L	P362188	
		Carbamazepine**	0.0018	I	ug/L	P362252	
		Diuron	0.0084		ug/L	P362252	
		Fenuron	0.016	U	ug/L	P362252	
		Fluridone**	0.0058		ug/L	P362252	MS
		Imazapyr**	2.8		ug/L	P362252	
		Hydrocodone**	0.0020	U	ug/L	P362252	
		Ibuprofen**	0.020	U	ug/L	P362252	
		Imidacloprid	0.047		ug/L	P362252	MS
		Linuron	0.0040	U	ug/L	P362252	
		MCPP	0.044		ug/L	P362252	
		Naproxen**	0.0080	U	ug/L	P362252	
		Primidone**	0.0040	U	ug/L	P362252	
		Pyraclostrobin**	0.0020	U	ug/L	P362252	
		Triclopyr**	0.0040	U	ug/L	P362252	

Sample Location: PhillippeCreek@Proctor **Collection Date/Time: 04/15/2019 12:30**

Field ID: G3SD0091 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2078225	EPA 180.1 Rev. 2.0	Turbidity	4.9		NTU	P362259	
	EPA 300.0 Rev. 2.1	Chloride	84		mg Cl/L	P362488	
		Sulfate	130		mg SO4/L	P362490	
	SM 2120 B	Color (true)	45		PCU	P362306	
	SM 2320 B-97	Total Alkalinity	149		mg CaCO3/L	P362571	
	SM 2540 C-97	TDS	526	A	mg/L	P362667	
	SM 2540 D-97	TSS	5	IA	mg/L	P362658	
	SM 4500 F-C-97	Fluoride	0.42		mg F/L	P362576	MS
2078226	EPA 350.1 Rev. 2.0	Ammonia-N	0.031		mg N/L	P362712	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.3		mg N/L	P36287	
	EPA 353.2 Rev. 2.0	NO2NO3-N	3.2		mg N/L	P362598	
	EPA 365.1 Rev. 2.0	Total-P	0.33		mg P/L	P362434	
	SM 5310 B-00	Organic Carbon	14		mg C/L	P362399	
2078227	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.17		mg P/L	P362254	

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: P362259

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P362488

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P362490

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P362712

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P36287

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P362598

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P362434

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P362254

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

Reference Method: EPA 8321B
Batch ID: P362188

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: P362188

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

Reference Method: EPA 8321B
Batch ID: P362252

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
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: SM 2120 B
Batch ID: P362306

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2320 B-97
Batch ID: P362571

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

Reference Method: SM 2540 C-97
Batch ID: P362667

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P362658

Component	Result	Code	Units
TSS	2	U	mg/L

Quality Assurance Report
Method Blank Results

Reference Method: SM 4500 F-C-97
Batch ID: P362576

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-00
Batch ID: P362399

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: P362488

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P362490

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P362712

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P36287

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P362598

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
NO2NO3-N	98.0		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P362434

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: P362254

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

Reference Method: EPA 8321B
Batch ID: P362188

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Acesulfame K	130		P	40 - 150
AMPA	118		P	40 - 150
Endothall	99.8		P	40 - 150
Glufosinate	122		P	40 - 150
Glyphosate	116		P	40 - 140
Sucralose	95.7		P	40 - 150

Quality Assurance Report
Laboratory Control Sample Accuracy

Reference Method: EPA 8321B
Batch ID: P362252

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2,4-D	66.6		P	40 - 150
Acetaminophen	88.0		P	30 - 150
Bentazon	99.8		P	30 - 150
Carbamazepine	81.6		P	40 - 150
Diuron	79.2		P	40 - 150
Fenuron	103		P	40 - 150
Fluridone	110		P	40 - 150
Hydrocodone	74.3		P	40 - 150
Ibuprofen	79.5		P	40 - 150
Imazapyr	78.4		P	40 - 150
Imidacloprid	89.3		P	40 - 150
Linuron	79.3		P	40 - 150
MCPP	80.4		P	40 - 150
Naproxen	52.3		P	40 - 150
Primidone	81.1		P	40 - 150
Pyraclostrobin	90.5		P	40 - 150
Triclopyr	56.2		P	40 - 150

Reference Method: SM 2120 B
Batch ID: P362306

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Color (true)	103		P	85 - 115

Reference Method: SM 2320 B-97
Batch ID: P362571

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	99.6		P	98 - 106

Reference Method: SM 4500 F-C-97
Batch ID: P362576

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	97.8		P	92 - 103

Reference Method: SM 5310 B-00
Batch ID: P362399

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	99.9		P	85 - 115

Quality Assurance Report
Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P362488

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2078163	Chloride	97.6		P	90 - 110
2078254	Chloride	99.1		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P362490

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2078163	Sulfate	102		P	90 - 110
2078254	Sulfate	99.7		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P362712

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2078226	Ammonia-N	101	101	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P36287

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2078194	Kjeldahl Nitrogen	105	105	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P362598

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2078165	NO2NO3-N	98.0	98.5	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P362434

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2078192	Total-P	104	106	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P362254

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2078170	O-Phosphate-P	95.0	95.2	P/P	90 - 110

Reference Method: EPA 8321B
Batch ID: P362188

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2077462	Acesulfame K	168	125	F/P	40 - 150
2077462	AMPA	62.2	73.4	P/P	40 - 150
2077462	Endothall	97.8	103	P/P	40 - 150
2077462	Glufosinate	103	110	P/P	40 - 150
2077462	Glyphosate	86.4	84.6	P/P	40 - 140
2077462	Sucralose	104	98.0	P/P	40 - 150

Quality Assurance Report
Matrix Spike Accuracy

Reference Method: EPA 8321B
Batch ID: P362252

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2078237	2,4-D	86.5	87.4	P/P	40 - 150
2078237	Acetaminophen	77.5	83.3	P/P	30 - 150
2078237	Bentazon	67.3	66.2	P/P	30 - 150
2078237	Carbamazepine	86.6	94.4	P/P	40 - 150
2078237	Diuron	72.2	70.7	P/P	40 - 150
2078237	Fenuron	96.8	109	P/P	40 - 150
2078237	Fluridone	176	72.4	F/P	40 - 150
2078237	Hydrocodone	93.7	94.9	P/P	40 - 150
2078237	Ibuprofen	65.0	61.0	P/P	40 - 150
2078237	Imazapyr	97.0	55.2	P/P	40 - 150
2078237	Imidacloprid	159	170	F/F	40 - 150
2078237	Linuron	70.9	72.5	P/P	40 - 150
2078237	MCPP	101	105	P/P	40 - 150
2078237	Naproxen	69.9	56.9	P/P	40 - 150
2078237	Primidone	67.6	64.2	P/P	40 - 150
2078237	Pyraclostrobin	74.6	80.8	P/P	40 - 150
2078237	Triclopyr	61.2	56.0	P/P	40 - 150

Reference Method: SM 4500 F-C-97
Batch ID: P362576

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2077863	Fluoride	107	105	F/P	89 - 106

Reference Method: SM 5310 B-00
Batch ID: P362399

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2078257	Organic Carbon	98.7	98.5	P/P	85 - 115

Quality Assurance Report
Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P362259

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2078162	Turbidity	5.42	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P362488

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2078254	Chloride	0.813	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P362490

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2078254	Sulfate	1.12	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P362712

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2078226	Ammonia-N	0.226	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P36287

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2078194	Kjeldahl Nitrogen	0.211	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P362598

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2078165	NO2NO3-N	0.270	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P362434

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2078192	Total-P	2.13	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P362254

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2078170	O-Phosphate-P	0.179	Spike	P	0 - 20

Quality Assurance Report
Precision

Reference Method: EPA 8321B
Batch ID: P362188

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2077462	Acesulfame K	25.8	Spike	P	0 - 30
2077462	AMPA	4.51	Spike	P	0 - 30
2077462	Endothall	5.45	Spike	P	0 - 30
2077462	Glufosinate	6.91	Spike	P	0 - 30
2077462	Glyphosate	0.537	Spike	P	0 - 30
2077462	Sucralose	4.33	Spike	P	0 - 30

Reference Method: EPA 8321B
Batch ID: P362252

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2078237	2,4-D	0.554	Spike	P	0 - 30
2078237	Acetaminophen	7.21	Spike	P	0 - 30
2078237	Bentazon	0.814	Spike	P	0 - 30
2078237	Carbamazepine	8.15	Spike	P	0 - 30
2078237	Diuron	2.18	Spike	P	0 - 30
2078237	Fenuron	12.0	Spike	P	0 - 30
2078237	Fluridone	20.4	Spike	P	0 - 30
2078237	Hydrocodone	1.28	Spike	P	0 - 30
2078237	Ibuprofen	6.24	Spike	P	0 - 30
2078237	Imazapyr	24.0	Spike	P	0 - 30
2078237	Imidacloprid	6.54	Spike	P	0 - 30
2078237	Linuron	2.32	Spike	P	0 - 30
2078237	MCPP	4.19	Spike	P	0 - 30
2078237	Naproxen	20.6	Spike	P	0 - 30
2078237	Primidone	4.56	Spike	P	0 - 30
2078237	Pyraclostrobin	8.08	Spike	P	0 - 30
2078237	Triclopyr	8.83	Spike	P	0 - 30

Reference Method: SM 2120 B
Batch ID: P362306

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2078162	Color (true)	2.75	Sample	P	0 - 20

Reference Method: SM 2320 B-97
Batch ID: P362571

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2077863	Total Alkalinity	0.283	Sample	P	0 - 2.8

Reference Method: SM 2540 C-97
Batch ID: P362667

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2078225	TDS	5.51	Sample	P	0 - 10

Quality Assurance Report
Precision

Reference Method: SM 4500 F-C-97
Batch ID: P362576

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2077863	Fluoride	1.44	Spike	P	0 - 2.5

Reference Method: SM 5310 B-00
Batch ID: P362399

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2078257	Organic Carbon	0.104	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: 2078237
Field Sample ID: G3SD0064

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	2,4-D-d3	61.9	P	30 - 160
EPA 8321B	Acetaminophen-d4	82.1	P	30 - 160
EPA 8321B	Carbamazepine-d10	78.6	P	30 - 160
EPA 8321B	Diuron-d6	70.4	P	30 - 160
EPA 8321B	Endothall-d6	107	P	30 - 160
EPA 8321B	Endothall-d6	107	P	30 - 160
EPA 8321B	Glyphosate 13C 15N	137	P	30 - 160
EPA 8321B	Glyphosate 13C 15N	137	P	30 - 160
EPA 8321B	Ibuprofen-d3	50.6	P	30 - 160
EPA 8321B	Primidone-d5	71.5	P	30 - 160
EPA 8321B	Sucralose-d6	101	P	30 - 160
EPA 8321B	Sucralose-d6	101	P	30 - 160

Lab Sample ID: 2078238
Field Sample ID: G3SD0094

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	2,4-D-d3	47.6	P	30 - 160
EPA 8321B	Acetaminophen-d4	85.9	P	30 - 160
EPA 8321B	Carbamazepine-d10	65.2	P	30 - 160
EPA 8321B	Diuron-d6	57.4	P	30 - 160
EPA 8321B	Endothall-d6	77.0	P	30 - 160
EPA 8321B	Endothall-d6	77.0	P	30 - 160
EPA 8321B	Glyphosate 13C 15N	140	P	30 - 160
EPA 8321B	Glyphosate 13C 15N	140	P	30 - 160
EPA 8321B	Ibuprofen-d3	58.9	P	30 - 160
EPA 8321B	Primidone-d5	55.7	P	30 - 160
EPA 8321B	Sucralose-d6	97.7	P	30 - 160
EPA 8321B	Sucralose-d6	97.7	P	30 - 160

Lab Sample ID: 2078239
Field Sample ID: G3SD0089

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	2,4-D-d3	75.7	P	30 - 160
EPA 8321B	Acetaminophen-d4	90.2	P	30 - 160
EPA 8321B	Carbamazepine-d10	81.1	P	30 - 160
EPA 8321B	Diuron-d6	74.6	P	30 - 160
EPA 8321B	Endothall-d6	31.7	P	30 - 160
EPA 8321B	Endothall-d6	31.7	P	30 - 160
EPA 8321B	Glyphosate 13C 15N	4.70	F	30 - 160
EPA 8321B	Glyphosate 13C 15N	4.70	F	30 - 160
EPA 8321B	Ibuprofen-d3	131	P	30 - 160
EPA 8321B	Primidone-d5	73.0	P	30 - 160
EPA 8321B	Sucralose-d6	101	P	30 - 160
EPA 8321B	Sucralose-d6	101	P	30 - 160

Quality Assurance Report
Calibration Verification

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Run ID: A90757
Included Lab Sample IDs: 2078227

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	98.8	97.2	P/P	90 - 110

Reference Method: EPA 180.1 Rev. 2.0
Run ID: A90758
Included Lab Sample IDs: 2078225

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Turbidity	99.5	100	P/P	95 - 105

Reference Method: EPA 300.0 Rev. 2.1
Run ID: A90760
Included Lab Sample IDs: 2078225

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

Reference Method: SM 2120 B
Run ID: A90769
Included Lab Sample IDs: 2078225

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	102	105	P/P	90 - 115

Reference Method: EPA 8321B
Run ID: A90788
Included Lab Sample IDs: 2078237, 2078238, 2078239

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
AMPA	114	129	P/P	60 - 160
AMPA	96.6	114	P/P	60 - 160
Glufosinate	112	123	P/P	60 - 160
Glufosinate	123	127	P/P	60 - 160
Glyphosate	118	131	P/P	60 - 160
Glyphosate	131	126	P/P	60 - 160

Reference Method: SM 5310 B-00
Run ID: A90810
Included Lab Sample IDs: 2078226

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

Reference Method: EPA 8321B
Run ID: A90825
Included Lab Sample IDs: 2078237, 2078238, 2078239

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Acesulfame K	113	134	P/P	60 - 160
Endothall	105	114	P/P	60 - 160

Quality Assurance Report
Calibration Verification

Reference Method: EPA 365.1 Rev. 2.0
Run ID: A90847
Included Lab Sample IDs: 2078226

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	104	99.9	P/P	90 - 110

Reference Method: EPA 8321B
Run ID: A90848
Included Lab Sample IDs: 2078237, 2078238, 2078239

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
2,4-D	107	88.3	P/P	50 - 150
Acetaminophen	95.1	99.9	P/P	60 - 160
Bentazon	110	114	P/P	50 - 160
Carbamazepine	103	99.0	P/P	60 - 150
Diuron	95.5	102	P/P	60 - 150
Fenuron	96.9	99.0	P/P	60 - 150
Fluridone	113	63.3	P/P	60 - 160
Fluridone	98.6	87.5	P/P	60 - 160
Hydrocodone	95.5	97.8	P/P	60 - 150
Ibuprofen	151	111	P/P	50 - 160
Imazapyr	101	95.4	P/P	50 - 150
Imazapyr	99.2	100	P/P	50 - 150
Imidacloprid	104	93.9	P/P	60 - 150
Linuron	80.6	96.8	P/P	60 - 150
MCPP	92.7	90.3	P/P	50 - 150
Naproxen	81.3	69.0	P/P	50 - 160
Primidone	78.6	88.5	P/P	60 - 150
Pyraclostrobin	102	101	P/P	60 - 150
Triclopyr	95.2	101	P/P	50 - 150

Reference Method: SM 2320 B-97
Run ID: A90871
Included Lab Sample IDs: 2078225

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	98.1	100	P/P	90 - 110

Reference Method: SM 4500 F-C-97
Run ID: A90871
Included Lab Sample IDs: 2078225

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

Reference Method: EPA 353.2 Rev. 2.0
Run ID: A90880
Included Lab Sample IDs: 2078226

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

Quality Assurance Report
Calibration Verification

Reference Method: EPA 351.2 Rev. 2.0
Run ID: A90919
Included Lab Sample IDs: 2078226

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	103	108	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Run ID: A90946
Included Lab Sample IDs: 2078226

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

Reference Method: EPA 8321B
Run ID: A90984
Included Lab Sample IDs: 2078237, 2078238, 2078239

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Sucralose	102	99.9	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	SMP	MS
EPA 180.1 Rev. 2.0	Turbidity					5.42	
EPA 300.0 Rev. 2.1	Chloride	102	99.1	97.6		0.813	
	Sulfate	102	99.7	102		1.12	
EPA 350.1 Rev. 2.0	Ammonia-N	101	101	101			0.226
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	102	105	105			0.211
EPA 353.2 Rev. 2.0	NO2NO3-N	98.0	98.0	98.5			0.270
EPA 365.1 Rev. 2.0	Total-P	103	104	106			2.13
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	98.4	95.0	95.2			0.179
EPA 8321B	2,4-D	66.6	86.5	87.4			0.554
	Acesulfame K	130	168	125			25.8
	Acetaminophen	88.0	77.5	83.3			7.21
	AMPA	118	62.2	73.4			4.51
	Bentazon	99.8	67.3	66.2			0.814
	Carbamazepine	81.6	86.6	94.4			8.15
	Diuron	79.2	72.2	70.7			2.18
	Endothall	99.8	97.8	103			5.45
	Fenuron	103	96.8	109			12.0
	Fluridone	110	176	72.4			20.4
	Glufosinate	122	103	110			6.91
	Glyphosate	116	86.4	84.6			0.537
	Hydrocodone	74.3	93.7	94.9			1.28
	Ibuprofen	79.5	65.0	61.0			6.24
	Imazapyr	78.4	97.0	55.2			24.0
	Imidacloprid	89.3	159	170			6.54
	Linuron	79.3	70.9	72.5			2.32
	MCPP	80.4	101	105			4.19
	Naproxen	52.3	69.9	56.9			20.6
	Primidone	81.1	67.6	64.2			4.56
	Pyraclostrobin	90.5	74.6	80.8			8.08
	Sucralose	95.7	104	98.0			4.33
	Triclopyr	56.2	61.2	56.0			8.83
SM 2120 B	Color (true)	103				2.75	
SM 2320 B-97	Total Alkalinity	99.6				0.283	
SM 2540 C-97	TDS					5.51	
SM 4500 F-C-97	Fluoride	97.8	107	105			1.44
SM 5310 B-00	Organic Carbon	99.9	98.7	98.5			0.104

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	2078225
EPA 300.0 Rev. 2.1 / E31780	Chloride in aqueous matrices	2078225
EPA 300.0 Rev. 2.1 / E31780	Sulfate in aqueous matrices	2078225
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	2078226
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	2078226
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	2078226
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	2078226

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	2078227
EPA 8321B / E31780	Pesticides, herbicides, and other chemicals in water matrices by HPLC/MS/MS	2078237, 2078238, 2078239
EPA 8321B / E31780	Water soluble organic compounds by HPLC/MS/MS	2078237, 2078238, 2078239
SM 2120 B / E31780	True Color measured at 450 nm	2078225
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO3/L	2078225
SM 2540 C-97 / E31780	Total Dissolved Solids in aqueous matrices	2078225
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices using a maximum of 250 mL of sample	2078225
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	2078225
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	2078226

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	04/16/2019			04/16/2019 16:28	Adrian Shelby	2078225
EPA 300.0 Rev. 2.1	04/16/2019			04/18/2019 19:14	Lipi Saha	2078225
EPA 350.1 Rev. 2.0	04/16/2019			04/22/2019 11:22	Ping Hua	2078226
EPA 351.2 Rev. 2.0	04/16/2019	04/22/2019 11:45	Adrian Shelby	04/23/2019 11:33	Joseph Suarez	2078226
EPA 353.2 Rev. 2.0	04/16/2019			04/22/2019 11:57	Beverly Y. Sanders	2078226
EPA 365.1 Rev. 2.0	04/16/2019	04/18/2019 13:40	Sima Feizi	04/19/2019 14:04	Rosalyn Ballman	2078226
EPA 365.1 Rev. 2.0 dissolved	04/16/2019			04/16/2019 15:35	Jhamieka S. Greenwood	2078227
EPA 8321B	04/16/2019	04/16/2019 14:30	Rebecca Ware	04/16/2019 18:38	Rebecca Ware	2078237
	04/16/2019	04/16/2019 14:30	Rebecca Ware	04/16/2019 18:52	Rebecca Ware	2078238
	04/16/2019	04/16/2019 14:30	Rebecca Ware	04/16/2019 19:06	Rebecca Ware	2078239
	04/16/2019	04/16/2019 14:30	Rebecca Ware	04/17/2019 11:45	Rebecca Ware	2078238
	04/16/2019	04/16/2019 14:30	Rebecca Ware	04/17/2019 11:53	Rebecca Ware	2078239
	04/16/2019	04/16/2019 14:30	Rebecca Ware	04/17/2019 14:22	Rebecca Ware	2078237
	04/16/2019	04/16/2019 14:30	Rebecca Ware	04/25/2019 03:55	Rebecca Ware	2078237
	04/16/2019	04/16/2019 14:30	Rebecca Ware	04/25/2019 04:07	Rebecca Ware	2078238
	04/16/2019	04/16/2019 14:30	Rebecca Ware	04/25/2019 04:19	Rebecca Ware	2078239
	04/16/2019	04/18/2019 12:00	Hoor Shaik	04/21/2019 18:39	Juyoung Kim	2078237
	04/16/2019	04/18/2019 12:00	Hoor Shaik	04/21/2019 19:14	Juyoung Kim	2078238
	04/16/2019	04/18/2019 12:00	Hoor Shaik	04/21/2019 19:49	Juyoung Kim	2078239
	04/16/2019	04/18/2019 12:00	Hoor Shaik	04/22/2019 10:18	Juyoung Kim	2078238
	04/16/2019	04/18/2019 12:00	Hoor Shaik	04/22/2019 10:53	Juyoung Kim	2078239
SM 2120 B	04/16/2019			04/16/2019 16:17	Mariam Hanna	2078225
SM 2320 B-97	04/16/2019			04/19/2019 06:02	Samantha Davila	2078225
SM 2540 C-97	04/16/2019			04/17/2019 15:19	Yijie Li	2078225
SM 2540 D-97	04/16/2019			04/17/2019 15:19	Yijie Li	2078225
SM 4500 F-C-97	04/16/2019			04/19/2019 06:02	Samantha Davila	2078225
SM 5310 B-00	04/16/2019			04/17/2019 22:14	Julia Storbeck	2078226