

Chemical Analysis Report

SO-DIST-2019-10-22-02

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

Event Description: **2019 Roberts Canal**
Request ID: **RQ-2019-10-21-70**
Customer: **SO-DIST**
Project ID: **SMP**

Send Reports to:
FL Dept. of Environmental Protection
FLDEP South District Office
2295 Victoria Ave. Suite 364
Fort Myers, FL 33901-3381
Attn: Nicole Reistad

For additional information please contact
Colin Wright, Ph.D.
Liang-Tsair Lin, Ph.D.
Kerry Tate, Ph.D.
Dr. rer. nat. Bettina Steinbock
Thekkekalathil Chandrasekhar, Ph.D, QA Officer
Phone (850) 245-8085

Certified by: Thekkekalathil Chandrasekhar, Chemist Administrator

Date Certified: 12-NOV-2019 11:27



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: Robert's Canal @SR80

Collection Date/Time: 10/21/2019 11:15

Field ID: G3SD0146

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2130203	EPA 180.1 Rev. 2.0	Turbidity	4.2		NTU	P372958	
	EPA 300.0 Rev. 2.1	Chloride	38		mg Cl/L	P373558	
		Sulfate	19		mg SO4/L	P373563	
	SM 2120 B	Color (true)	110		PCU	P372942	
	SM 2320 B-97	Total Alkalinity	179	A	mg CaCO3/L	P373213	
	SM 2540 C-97	TDS	302	A	mg/L	P373320	
	SM 2540 D-97	TSS	7	IA	mg/L	P373291	
	SM 4500 F-C-97	Fluoride	0.24		mg F/L	P373218	
2130204	EPA 350.1 Rev. 2.0	Ammonia-N	0.053		mg N/L	P373187	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.1		mg N/L	P373133	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.26		mg N/L	P373122	
	EPA 365.1 Rev. 2.0	Total-P	0.094		mg P/L	P373006	
	SM 5310 B-00	Organic Carbon	21		mg C/L	P373166	
2130205	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.066		mg P/L	P372950	
2130209	EPA 8321B	2,4-D	0.016		ug/L	P372914	
		Acesulfame K**	0.10	U	ug/L	P373022	
		AMPA**	0.29	I	ug/L	P373022	
		Sucralose**	0.010	U	ug/L	P373022	
		Acetaminophen**	0.0080	U	ug/L	P372914	
		Acetamiprid**	0.0020	U	ug/L	P372914	
		Endothall**	0.25	U	ug/L	P373022	
		Glufosinate**	0.10	U	ug/L	P373022	
		Glyphosate**	0.52		ug/L	P373022	
		Afidopyropen**	0.0020	UJ	ug/L	P372914	
		Bentazon	0.023		ug/L	P372914	
		Benzovindiflupyr**	0.0020	UJ	ug/L	P372914	
		Carbamazepine**	8.0E-04	U	ug/L	P372914	
		Clothianidin**	0.0043	I	ug/L	P372914	
		Dinotefuran**	0.0020	U	ug/L	P372914	
		Diuron	0.0067	I	ug/L	P372914	
		Fenuron	0.016	U	ug/L	P372914	
		Fluridone**	0.0057		ug/L	P372914	
		Imazapyr**	0.15		ug/L	P372914	
		Hydrocodone**	0.0020	U	ug/L	P372914	
		Ibuprofen**	0.020	U	ug/L	P372914	
		Imidacloprid	0.017		ug/L	P372914	MS
		Linuron	0.0040	U	ug/L	P372914	
		Mandestrobin**	0.0020	UJ	ug/L	P372914	
		MCPP	0.0020	U	ug/L	P372914	
		Naproxen**	0.0080	U	ug/L	P372914	
		Primidone**	0.0040	U	ug/L	P372914	
		Pyraclostrobin**	0.0020	U	ug/L	P372914	
		Thiamethoxam**	0.0030	I	ug/L	P372914	

Field ID: G3SD0146

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2130209	EPA 8321B	Tolfenpyrad**	0.0020	U	ug/L	P372914	
		Triclopyr**	0.0040	U	ug/L	P372914	

Ref. Method and Comment:

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

EPA 8321B: J - second source check standards for some analytes were not available for analysis.

Quality Assurance Report Method Blank Results

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P372958

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P373558

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P373563

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P373187

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P373133

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P373122

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P373006

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P372950

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

Reference Method: EPA 8321B
Batch ID: P372914

Component	Result	Code	Units
2,4-D	0.0020	U	ug/L
Acetaminophen	0.0080	U	ug/L
Acetamiprid	0.0020	U	ug/L
Afidopyropen	0.0020	U	ug/L

Quality Assurance Report

Method Blank Results

Reference Method: EPA 8321B
Batch ID: P372914

Component	Result	Code	Units
Bentazon	8.0E-04	U	ug/L
Benzovindiflupyr	0.0020	U	ug/L
Carbamazepine	8.0E-04	U	ug/L
Clothianidin	0.0020	U	ug/L
Dinotefuran	0.0020	U	ug/L
Diuron	0.0020	U	ug/L
Fenuron	0.016	U	ug/L
Fluridone	8.0E-04	U	ug/L
Hydrocodone	0.0020	U	ug/L
Ibuprofen	0.020	U	ug/L
Imazapyr	0.0040	U	ug/L
Imidacloprid	0.0020	U	ug/L
Linuron	0.0040	U	ug/L
Mandestrobin	0.0020	U	ug/L
MCPP	0.0020	U	ug/L
Naproxen	0.0080	U	ug/L
Primidone	0.0040	U	ug/L
Pyraclostrobin	0.0020	U	ug/L
Thiamethoxam	0.0020	U	ug/L
Tolfenpyrad	0.0020	U	ug/L
Triclopyr	0.0040	U	ug/L

Reference Method: EPA 8321B
Batch ID: P373022

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: P372942

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2320 B-97
Batch ID: P373213

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

Reference Method: SM 2540 C-97
Batch ID: P373320

Component	Result	Code	Units
TDS	15	U	mg/L

Quality Assurance Report

Method Blank Results

Reference Method: SM 2540 D-97
Batch ID: P373291

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500 F-C-97
Batch ID: P373218

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-00
Batch ID: P373166

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: P373558

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P373563

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P373187

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Ammonia-N	94.9		P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P373133

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Kjeldahl Nitrogen	93.7		P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P373122

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P373006

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total-P	97.0		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P372950

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
O-Phosphate-P	98.1		P	90 - 110

Reference Method: EPA 8321B
Batch ID: P372914

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2,4-D	126		P	40 - 160
Acetaminophen	81.3		P	30 - 160
Acetamiprid	88.8		P	40 - 160
Afidopyropen	74.1		P	40 - 160
Bentazon	78.8		P	30 - 160
Benzovindiflupyr	81.5		P	40 - 160
Carbamazepine	95.6		P	40 - 160
Clothianidin	74.0		P	40 - 160
Dinotefuran	88.1		P	40 - 160
Diuron	89.5		P	40 - 160

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 8321B
Batch ID: P372914

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fenuron	97.8		P	40 - 160
Fluridone	90.7		P	40 - 160
Hydrocodone	94.8		P	40 - 160
Ibuprofen	79.8		P	30 - 160
Imazapyr	97.7		P	40 - 160
Imidacloprid	89.4		P	40 - 160
Linuron	70.5		P	40 - 160
Mandestrobin	88.7		P	40 - 160
MCPP	101		P	40 - 160
Naproxen	76.2		P	40 - 160
Primidone	93.0		P	40 - 160
Pyraclostrobin	82.8		P	30 - 160
Thiamethoxam	96.4		P	40 - 160
Tolfenpyrad	52.0		P	40 - 160
Triclopyr	93.8		P	30 - 160

Reference Method: EPA 8321B
Batch ID: P373022

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Acesulfame K	103		P	40 - 150
AMPA	107		P	40 - 150
Endothall	96.7		P	40 - 150
Glufosinate	101		P	40 - 150
Glyphosate	111		P	40 - 140
Sucralose	80.7		P	40 - 150

Reference Method: SM 2120 B
Batch ID: P372942

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Color (true)	98.7		P	85 - 115

Reference Method: SM 2320 B-97
Batch ID: P373213

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

Reference Method: SM 4500 F-C-97
Batch ID: P373218

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	94.8		P	92 - 103

Reference Method: SM 5310 B-00
Batch ID: P373166

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	104		P	85 - 115

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P373558

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2129964	Chloride	102		P	90 - 110
2130016	Chloride	103		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P373563

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2129964	Sulfate	101		P	90 - 110
2130016	Sulfate	101		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P373187

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2130030	Ammonia-N	97.5	96.9	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P373133

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2130212	Kjeldahl Nitrogen	95.7	100	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P373122

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2130116	NO2NO3-N	97.8		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P373006

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2130112	Total-P	103	101	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P372950

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2130113	O-Phosphate-P	98.2	100	P/P	90 - 110

Reference Method: EPA 8321B
Batch ID: P372914

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2130063	2,4-D	140	136	P/P	40 - 160
2130063	Acetaminophen	89.5	83.5	P/P	30 - 160
2130063	Acetamiprid	115	109	P/P	40 - 160
2130063	Afidopyropen	91.1	87.0	P/P	40 - 160
2130063	Bentazon	76.5	74.6	P/P	30 - 160
2130063	Benzovindiflupyr	97.1	90.9	P/P	40 - 160
2130063	Carbamazepine	108	107	P/P	40 - 160
2130063	Clothianidin	99.7	99.5	P/P	40 - 160

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 8321B
Batch ID: P372914

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2130063	Dinotefuran	114	112	P/P	40 - 160
2130063	Diuron	98.1	92.1	P/P	40 - 160
2130063	Fenuron	103	104	P/P	40 - 160
2130063	Fluridone	94.1	91.7	P/P	40 - 160
2130063	Hydrocodone	116	114	P/P	40 - 160
2130063	Ibuprofen	96.5	86.3	P/P	30 - 160
2130063	Imazapyr	122	124	P/P	40 - 160
2130063	Imidacloprid	166	158	F/P	40 - 160
2130063	Linuron	82.9	83.1	P/P	40 - 160
2130063	Mandestrobin	101	95.3	P/P	40 - 160
2130063	MCP	114	111	P/P	40 - 160
2130063	Naproxen	92.8	106	P/P	40 - 160
2130063	Primidone	98.0	111	P/P	40 - 160
2130063	Pyraclostrobin	96.4	94.7	P/P	30 - 160
2130063	Thiamethoxam	152	150	P/P	40 - 160
2130063	Tolfenpyrad	63.4	58.3	P/P	40 - 160
2130063	Triclopyr	116	110	P/P	30 - 160

Reference Method: EPA 8321B
Batch ID: P373022

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2130063	Acesulfame K	52.8	59.7	P/P	40 - 150
2130063	AMPA	89.4	86.6	P/P	40 - 150
2130063	Endothall	95.4	96.1	P/P	40 - 150
2130063	Glufosinate	106	102	P/P	40 - 150
2130063	Glyphosate	97.7	93.5	P/P	40 - 140
2130063	Sucralose	102	123	P/P	40 - 150

Reference Method: SM 4500 F-C-97
Batch ID: P373218

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2130203	Fluoride	96.7	95.9	P/P	89 - 106

Reference Method: SM 5310 B-00
Batch ID: P373166

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2130021	Organic Carbon	100	102	P/P	85 - 115

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P372958

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2130127	Turbidity	8.49	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P373558

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2129964	Chloride	0.0586	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P373563

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2129964	Sulfate	0.441	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P373187

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2130030	Ammonia-N	0.582	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P373133

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2130212	Kjeldahl Nitrogen	3.38	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P373122

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2130116	NO2NO3-N	0.224	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P373006

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2130112	Total-P	1.30	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P372950

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2130113	O-Phosphate-P	2.02	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 8321B
Batch ID: P372914

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2130063	2,4-D	3.19	Spike	P	0 - 30
2130063	Acetaminophen	6.98	Spike	P	0 - 30
2130063	Acetamiprid	5.18	Spike	P	0 - 30
2130063	Afidopyropen	4.65	Spike	P	0 - 30
2130063	Bentazon	2.34	Spike	P	0 - 30
2130063	Benzovindiflupyr	6.66	Spike	P	0 - 30
2130063	Carbamazepine	0.602	Spike	P	0 - 30
2130063	Clothianidin	0.195	Spike	P	0 - 30
2130063	Dinotefuran	1.54	Spike	P	0 - 30
2130063	Diuron	6.41	Spike	P	0 - 30
2130063	Fenuron	1.17	Spike	P	0 - 30
2130063	Fluridone	2.65	Spike	P	0 - 30
2130063	Hydrocodone	1.46	Spike	P	0 - 30
2130063	Ibuprofen	11.2	Spike	P	0 - 30
2130063	Imazapyr	1.74	Spike	P	0 - 30
2130063	Imidacloprid	3.65	Spike	P	0 - 30
2130063	Linuron	0.212	Spike	P	0 - 30
2130063	Mandestrobin	5.37	Spike	P	0 - 30
2130063	MCPP	3.00	Spike	P	0 - 30
2130063	Naproxen	13.6	Spike	P	0 - 30
2130063	Primidone	12.1	Spike	P	0 - 30
2130063	Pyraclostrobin	1.86	Spike	P	0 - 30
2130063	Thiamethoxam	1.36	Spike	P	0 - 30
2130063	Tolfenpyrad	8.44	Spike	P	0 - 30
2130063	Triclopyr	5.62	Spike	P	0 - 30

Reference Method: EPA 8321B
Batch ID: P373022

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2130063	Acesulfame K	12.3	Spike	P	0 - 30
2130063	AMPA	3.19	Spike	P	0 - 30
2130063	Endothall	0.692	Spike	P	0 - 30
2130063	Glufosinate	4.38	Spike	P	0 - 30
2130063	Glyphosate	4.31	Spike	P	0 - 30
2130063	Sucralose	17.1	Spike	P	0 - 30

Reference Method: SM 2120 B
Batch ID: P372942

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2130114	Color (true)	1.29	Sample	P	0 - 20

Reference Method: SM 2320 B-97
Batch ID: P373213

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2130203	Total Alkalinity	0.276	Sample	P	0 - 2.8

Quality Assurance Report Precision

Reference Method: SM 2540 C-97
Batch ID: P373320

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2130203	TDS	1.99	Sample	P	0 - 10

Reference Method: SM 4500 F-C-97
Batch ID: P373218

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2130203	Fluoride	0.520	Spike	P	0 - 2.5

Reference Method: SM 5310 B-00
Batch ID: P373166

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2130021	Organic Carbon	1.55	Spike	P	0 - 20

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

Quality Assurance Report Surrogates

Lab Sample ID: 2130209
Field Sample ID: G3SD0146

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	2,4-D-d3	101	P	30 - 160
EPA 8321B	Acetaminophen-d4	63.1	P	30 - 160
EPA 8321B	Bentazon-d7	42.6	P	30 - 160
EPA 8321B	Carbamazepine-d10	84.4	P	30 - 160
EPA 8321B	Diuron-d6	71.3	P	30 - 160
EPA 8321B	Endothall-d6	83.0	P	30 - 160
EPA 8321B	Endothall-d6	83.0	P	30 - 160
EPA 8321B	Glyphosate 13C 15N	59.3	P	30 - 160
EPA 8321B	Glyphosate 13C 15N	59.3	P	30 - 160
EPA 8321B	Ibuprofen-d3	78.1	P	30 - 160
EPA 8321B	Primidone-d5	87.6	P	30 - 160
EPA 8321B	Sucralose-d6	86.2	P	30 - 160
EPA 8321B	Sucralose-d6	86.2	P	30 - 160

Quality Assurance Report Calibration Verification

Reference Method: SM 2120 B
 Run ID: A95155
 Included Lab Sample IDs: 2130203

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	99.5	100	P/P	90 - 115

Reference Method: EPA 365.1 Rev. 2.0 dissolved
 Run ID: A95157
 Included Lab Sample IDs: 2130205

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	100	99.7	P/P	90 - 110

Reference Method: EPA 180.1 Rev. 2.0
 Run ID: A95160
 Included Lab Sample IDs: 2130203

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Turbidity	98.5	98.0	P/P	95 - 105

Reference Method: EPA 365.1 Rev. 2.0
 Run ID: A95207
 Included Lab Sample IDs: 2130204

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

Reference Method: EPA 8321B
 Run ID: A95233
 Included Lab Sample IDs: 2130209

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
2,4-D	97.2	88.6	P/P	50 - 150
Acetaminophen	94.3	89.3	P/P	60 - 160
Acetamiprid	102	103	P/P	50 - 150
Afidopyropen	97.3	94.1	P/P	50 - 150
Bentazon	99.4	101	P/P	50 - 160
Benzovindiflupyr	99.7	101	P/P	50 - 150
Carbamazepine	105	102	P/P	60 - 150
Clothianidin	95.5	97.1	P/P	60 - 150
Dinotefuran	91.9	98.3	P/P	50 - 150
Diuron	105	106	P/P	60 - 150
Fenuron	104	104	P/P	60 - 150
Fluridone	109	110	P/P	60 - 160
Hydrocodone	105	101	P/P	60 - 150
Ibuprofen	87.3	84.6	P/P	50 - 160
Imazapyr	103	104	P/P	50 - 150
Imidacloprid	91.1	96.2	P/P	60 - 150
Linuron	102	108	P/P	60 - 150
Mandestrobin	99.1	94.0	P/P	50 - 150
MCPP	83.9	90.6	P/P	50 - 150
Naproxen	103	110	P/P	50 - 160
Primidone	94.3	100	P/P	60 - 150
Pyraclostrobin	107	97.1	P/P	60 - 150
Thiamethoxam	91.9	94.1	P/P	50 - 150

Quality Assurance Report Calibration Verification

Reference Method: EPA 8321B
Run ID: A95233
Included Lab Sample IDs: 2130209

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Tolfenpyrad	96.0	96.2	P/P	60 - 150
Triclopyr	98.5	102	P/P	50 - 150

Reference Method: EPA 353.2 Rev. 2.0
Run ID: A95239
Included Lab Sample IDs: 2130204

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO2NO3-N	101	100	P/P	90 - 110

Reference Method: SM 5310 B-00
Run ID: A95256
Included Lab Sample IDs: 2130204

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

Reference Method: EPA 350.1 Rev. 2.0
Run ID: A95266
Included Lab Sample IDs: 2130204

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	98.9	98.3	P/P	90 - 110

Reference Method: EPA 8321B
Run ID: A95270
Included Lab Sample IDs: 2130209

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
AMPA	109	106	P/P	60 - 160
Glufosinate	113	103	P/P	60 - 160
Glyphosate	128	106	P/P	60 - 160

Reference Method: EPA 8321B
Run ID: A95273
Included Lab Sample IDs: 2130209

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Acesulfame K	65.9	95.6	P/P	60 - 160
Endothall	96.1	111	P/P	60 - 160

Reference Method: SM 2320 B-97
Run ID: A95274
Included Lab Sample IDs: 2130203

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	102	104	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: SM 4500 F-C-97

Run ID: A95274

Included Lab Sample IDs: 2130203

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

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A95286

Included Lab Sample IDs: 2130204

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	99.0	101	P/P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1

Run ID: A95307

Included Lab Sample IDs: 2130203

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

Reference Method: EPA 8321B

Run ID: A95575

Included Lab Sample IDs: 2130209

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Sucralose	103	131	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		LCS	Precision	MS
						SMP	
EPA 180.1 Rev. 2.0	Turbidity					8.49	
EPA 300.0 Rev. 2.1	Chloride	103	102	103		0.0586	
	Sulfate	102	101	101		0.441	
EPA 350.1 Rev. 2.0	Ammonia-N	94.9	97.5	96.9			0.582
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	93.7	95.7	100			3.38
EPA 353.2 Rev. 2.0	NO ₂ NO ₃ -N	99.5	97.8				0.224
EPA 365.1 Rev. 2.0	Total-P	97.0	103	101			1.30
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	98.1	98.2	100			2.02
EPA 8321B	2,4-D	126	140	136			3.19
	Acesulfame K	103	52.8	59.7			12.3
	Acetaminophen	81.3	89.5	83.5			6.98
	Acetamiprid	88.8	115	109			5.18
	Afidopyropen	74.1	91.1	87.0			4.65
	AMPA	107	89.4	86.6			3.19
	Bentazon	78.8	76.5	74.6			2.34
	Benzovindiflupyr	81.5	97.1	90.9			6.66
	Carbamazepine	95.6	108	107			0.602
	Clothianidin	74.0	99.7	99.5			0.195
	Dinotefuran	88.1	114	112			1.54
	Diuron	89.5	98.1	92.1			6.41
	Endothall	96.7	95.4	96.1			0.692
	Fenuron	97.8	103	104			1.17
	Fluridone	90.7	94.1	91.7			2.65
	Glufosinate	101	106	102			4.38
	Glyphosate	111	97.7	93.5			4.31
	Hydrocodone	94.8	116	114			1.46
	Ibuprofen	79.8	96.5	86.3			11.2
	Imazapyr	97.7	122	124			1.74
	Imidacloprid	89.4	166	158			3.65
	Linuron	70.5	82.9	83.1			0.212
	Mandestrobin	88.7	101	95.3			5.37
	MCPP	101	114	111			3.00
	Naproxen	76.2	92.8	106			13.6
	Primidone	93.0	98.0	111			12.1
	Pyraclostrobin	82.8	96.4	94.7			1.86
	Sucralose	80.7	102	123			17.1
	Thiamethoxam	96.4	152	150			1.36
	Tolfenpyrad	52.0	63.4	58.3			8.44
	Triclopyr	93.8	116	110			5.62
SM 2120 B	Color (true)	98.7				1.29	
SM 2320 B-97	Total Alkalinity	103				0.276	
SM 2540 C-97	TDS					1.99	
SM 4500 F-C-97	Fluoride	94.8	96.7	95.9			0.520
SM 5310 B-00	Organic Carbon	104	100	102			1.55

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	2130203
EPA 300.0 Rev. 2.1 / E31780	Chloride in aqueous matrices	2130203

Reference Method Descriptions

Method / DoH Cert #	Description	<u>Associated Samples</u>
EPA 300.0 Rev. 2.1 / E31780	Sulfate in aqueous matrices	2130203
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	2130204
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	2130204
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	2130204
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	2130204
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	2130205
EPA 8321B / E31780	Pesticides, herbicides, and other chemicals in water matrices by HPLC/MS/MS	2130209
EPA 8321B / E31780	Water soluble organic compounds by HPLC/MS/MS	2130209
SM 2120 B / E31780	True Color measured at 450 nm	2130203
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO ₃ /L	2130203
SM 2540 C-97 / E31780	Total Dissolved Solids in aqueous matrices	2130203
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices using a maximum of 250 mL of sample	2130203
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	2130203
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	2130204

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	10/22/2019			10/22/2019 17:00	Rosalyn Ballman	2130203
EPA 300.0 Rev. 2.1	10/22/2019			10/31/2019 17:30	Julia Storbeck	2130203
EPA 350.1 Rev. 2.0	10/22/2019			10/24/2019 12:51	Ping Hua	2130204
EPA 351.2 Rev. 2.0	10/22/2019	10/25/2019 10:55	Sima Feizi	10/28/2019 13:46	Jhamieka S. Greenwood	2130204
EPA 353.2 Rev. 2.0	10/22/2019			10/25/2019 10:06	Beverly Y. Sanders	2130204
EPA 365.1 Rev. 2.0	10/22/2019	10/23/2019 14:30	Lipi Saha	10/24/2019 12:13	Lipi Saha	2130204
EPA 365.1 Rev. 2.0 dissolved	10/22/2019			10/22/2019 15:30	Virginia P. Brown	2130205
EPA 8321B	10/22/2019	10/23/2019 12:00	Hoor Shaik	10/24/2019 23:05	Juyoung Kim	2130209
	10/22/2019	10/24/2019 11:00	Rebecca Ware	10/24/2019 13:15	Rebecca Ware	2130209
	10/22/2019	10/24/2019 11:00	Rebecca Ware	10/25/2019 11:15	Rebecca Ware	2130209
	10/22/2019	10/24/2019 11:00	Rebecca Ware	11/06/2019 20:45	Rebecca Ware	2130209
SM 2120 B	10/22/2019			10/22/2019 18:12	Madeline Funaro	2130203
SM 2320 B-97	10/22/2019			10/26/2019 00:12	Dale L. Simmons	2130203
SM 2540 C-97	10/22/2019			10/23/2019 14:58	Yijie Li	2130203
SM 2540 D-97	10/22/2019			10/23/2019 14:58	Yijie Li	2130203
SM 4500 F-C-97	10/22/2019			10/26/2019 00:01	Dale L. Simmons	2130203
SM 5310 B-00	10/22/2019			10/24/2019 20:21	Madeline Funaro	2130204