

Chemical Analysis Report

CEN-DIST-2020-08-07-01

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

Event Description: **Lake Ann/Florida/Jane**

Request ID: **RQ-2020-08-03-61**

Customer: **CEN-DIST**

Project ID: **SMP**

Send Reports to:

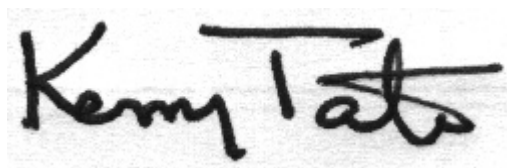
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Certified by: Kerry Tate, Ph.D., Environmental Administrator

Date Certified: 31-AUG-2020 11:41

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

Case Narrative

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

Results for the following analytical groups are included in this report: Nutrients and Pesticides.

Scientific notation may be used in reporting very large or small values. Values reported using scientific notation will take the form of the following example: 1.3E+03, which is equivalent to 1.3×10^3 or 1300.

Unless otherwise noted, analytical values for soil and sediment samples are reported on a dry weight basis, and analytical values for waste and tissue samples are reported on a wet weight basis.

Results for TNI accredited tests met requirements established by The NELAC Institute. A double asterisk (**) is used to indicate an analyte/matrix/method for which the laboratory is not TNI accredited 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: Lake Ann @ Center

Collection Date/Time: 08/06/2020 11:45

Field ID: G2CE0097

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2189137	EPA 180.1 Rev. 2.0	Turbidity	3.4		NTU	P385792	
	EPA 300.0 Rev. 2.1	Chloride	17		mg Cl/L	P385891	
		Sulfate	13		mg SO4/L	P385896	
	SM 2120 B-2011	Color (true)	37	A	PCU	P385795	
	SM 2320 B-2011	Total Alkalinity	23		mg CaCO3/L	P385856	RPD
	SM 2540 C-2011	TDS	95		mg/L	P386178	
	SM 2540 D-2011	TSS	4	I	mg/L	P386219	
2189138	SM 4500 F-C-2011	Fluoride	0.039	I	mg F/L	P385858	
	EPA 350.1 Rev. 2.0	Ammonia-N	0.005		mg N/L	P386693	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.81		mg N/L	P385882	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P385821	
	EPA 365.1 Rev. 2.0	Total-P	0.024		mg P/L	P385869	
2189139	SM 5310 B-2011	Organic Carbon	9.5		mg C/L	P385884	
	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P385788	
2189145	EPA 8321B	2,4-D	0.16		ug/L	P385887	
		Acesulfame K**	0.10	U	ug/L	P385867	MS
		AMPA**	0.10	U	ug/L	P385867	
		Sucralose**	0.59		ug/L	P385867	
		Acetaminophen**	0.0080	U	ug/L	P385887	
		Acetamiprid**	0.0020	U	ug/L	P385887	
		Endothall**	0.25	U	ug/L	P385867	
		Glufosinate**	0.10	U	ug/L	P385867	
		Glyphosate**	0.10	U	ug/L	P385867	
		Afidopyropen**	0.0020	U	ug/L	P385887	
		Bentazon	0.029		ug/L	P385887	
		Benzovindiflupyr**	0.0020	U	ug/L	P385887	
		Carbamazepine**	8.0E-04	U	ug/L	P385887	
		Clothianidin**	0.0081		ug/L	P385887	
		Dinotefuran**	0.0020	U	ug/L	P385887	
		Diuron	0.0020	U	ug/L	P385887	
		Fenuron	0.016	U	ug/L	P385887	
		Fluridone**	0.0013	I	ug/L	P385887	
		Imazapyr**	0.027		ug/L	P385887	
		Hydrocodone**	0.0020	U	ug/L	P385887	
		Ibuprofen**	0.020	U	ug/L	P385887	
		Imidacloprid	0.024		ug/L	P385887	
		Linuron	0.0040	U	ug/L	P385887	
		Mandestrobin**	0.0020	U	ug/L	P385887	
		MCP	0.0020	U	ug/L	P385887	
		Naproxen**	0.0080	U	ug/L	P385887	
		Primidone**	0.0040	U	ug/L	P385887	
		Pyraclostrobin**	0.0020	U	ug/L	P385887	
		Thiamethoxam**	0.0020	U	ug/L	P385887	

Field ID: G2CE0097

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2189145	EPA 8321B	Tolfenpyrad**	0.0020	U	ug/L	P385887	
		Triclopyr**	0.0040	U	ug/L	P385887	

Ref. Method and Comment:

SM 2540 D-2011: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample.

EPA 8321B: MS accuracy for bentazon and 2,4-D could not be assessed due to high concentration of parameter in the spiked sample.

Sample Location: Lake Florida @ Center of Lake

Collection Date/Time: 08/06/2020 10:58

Field ID: G2CE0150

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2189140	EPA 180.1 Rev. 2.0	Turbidity	2.8		NTU	P385792	
	EPA 300.0 Rev. 2.1	Chloride	17		mg Cl/L	P385891	
		Sulfate	5.4		mg SO4/L	P385896	
	SM 2120 B-2011	Color (true)	71		PCU	P385795	
	SM 2320 B-2011	Total Alkalinity	34		mg CaCO3/L	P385856	RPD
	SM 2540 C-2011	TDS	99		mg/L	P386178	
	SM 2540 D-2011	TSS	3	I	mg/L	P386219	
	SM 4500 F-C-2011	Fluoride	0.087	I	mg F/L	P385858	
2189141	EPA 350.1 Rev. 2.0	Ammonia-N	0.009	J	mg N/L	P386693	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.87		mg N/L	P385882	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P385821	
	EPA 365.1 Rev. 2.0	Total-P	0.052		mg P/L	P385869	
	SM 5310 B-2011	Organic Carbon	13		mg C/L	P385884	
2189142	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P385788	

Ref. Method and Comment:

SM 2540 D-2011: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample.

EPA 350.1 Rev. 2.0: Sample appears to be heterogenous with respect to Ammonia analysis.

Quality Assurance Report Method Blank Results

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P385792

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P385891

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P385896

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P386693

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P385882

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P385821

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P385869

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P385788

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

Reference Method: EPA 8321B
Batch ID: P385867

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: P385867

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

Reference Method: EPA 8321B
Batch ID: P385887

Component	Result	Code	Units
2,4-D	0.0020	U	ug/L
Acetaminophen	0.0080	U	ug/L
Acetamiprid	0.0020	U	ug/L
Afidopyropen	0.0020	U	ug/L
Bentazon	8.0E-04	U	ug/L
Benzovindiflupyr	0.0020	U	ug/L
Carbamazepine	8.0E-04	U	ug/L
Clothianidin	0.0020	U	ug/L
Dinotefuran	0.0020	U	ug/L
Diuron	0.0020	U	ug/L
Fenuron	0.016	U	ug/L
Fluridone	8.0E-04	U	ug/L
Hydrocodone	0.0020	U	ug/L
Ibuprofen	0.020	U	ug/L
Imazapyr	0.0040	U	ug/L
Imidacloprid	0.0020	U	ug/L
Linuron	0.0040	U	ug/L
Mandestrobin	0.0020	U	ug/L
MCPP	0.0020	U	ug/L
Naproxen	0.0080	U	ug/L
Primidone	0.0040	U	ug/L
Pyraclostrobin	0.0020	U	ug/L
Thiamethoxam	0.0020	U	ug/L
Tolfenpyrad	0.0020	U	ug/L
Triclopyr	0.0040	U	ug/L

Reference Method: SM 2120 B-2011
Batch ID: P385795

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2320 B-2011
Batch ID: P385856

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

Reference Method: SM 2540 C-2011
Batch ID: P386178

Component	Result	Code	Units
TDS	15	U	mg/L

Quality Assurance Report Method Blank Results

Reference Method: SM 2540 D-2011
Batch ID: P386219

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500 F-C-2011
Batch ID: P385858

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-2011
Batch ID: P385884

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: P385891

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P385896

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P386693

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P385882

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P385821

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
NO2NO3-N	95.0		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P385869

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P385788

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

Reference Method: EPA 8321B
Batch ID: P385867

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Acesulfame K	150		P	40 - 150
AMPA	89.0		P	40 - 150
Endothall	92.1		P	40 - 150
Glufosinate	93.4		P	40 - 150
Glyphosate	80.5		P	40 - 140
Sucralose	98.9		P	40 - 150

Quality Assurance Report

Laboratory Control Sample Accuracy

Reference Method: EPA 8321B

Batch ID: P385887

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2,4-D	113		P	30 - 160
Acetaminophen	76.4		P	30 - 160
Acetamiprid	72.8		P	30 - 160
Afidopyropen	50.6		P	30 - 160
Bentazon	44.1		P	30 - 160
Benzovindiflupyr	76.0		P	30 - 160
Carbamazepine	54.1		P	30 - 160
Clothianidin	67.3		P	30 - 160
Dinotefuran	90.8		P	30 - 160
Diuron	52.0		P	30 - 160
Fenuron	98.5		P	30 - 160
Fluridone	74.7		P	30 - 160
Hydrocodone	88.8		P	30 - 160
Ibuprofen	64.2		P	30 - 160
Imazapyr	68.3		P	30 - 160
Imidacloprid	81.3		P	30 - 160
Linuron	54.9		P	30 - 160
Mandestrobin	75.6		P	30 - 160
MCPP	105		P	30 - 160
Naproxen	68.5		P	30 - 160
Primidone	57.8		P	30 - 160
Pyraclostrobin	66.5		P	30 - 160
Thiamethoxam	71.7		P	30 - 160
Tolfenpyrad	52.0		P	30 - 160
Triclopyr	85.9		P	30 - 160

Reference Method: SM 2120 B-2011

Batch ID: P385795

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

Reference Method: SM 2320 B-2011

Batch ID: P385856

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	102		P	93 - 104

Reference Method: SM 4500 F-C-2011

Batch ID: P385858

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	100		P	90 - 106

Reference Method: SM 5310 B-2011

Batch ID: P385884

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

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
 Batch ID: P385891

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2188987	Chloride	102		P	90 - 110
2189101	Chloride	103		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
 Batch ID: P385896

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2188987	Sulfate	103		P	90 - 110
2189101	Sulfate	104		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
 Batch ID: P386693

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2189102	Ammonia-N	102	101	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
 Batch ID: P385882

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2189138	Kjeldahl Nitrogen	100	95.4	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
 Batch ID: P385821

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2189090	NO2NO3-N	95.0	95.5	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
 Batch ID: P385869

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2189090	Total-P	103	103	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
 Batch ID: P385788

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2189103	O-Phosphate-P	96.9	96.8	P/P	90 - 110

Reference Method: EPA 8321B
 Batch ID: P385867

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2189117	Acesulfame K	157	155	F/F	40 - 150
2189117	AMPA	75.8	80.7	P/P	40 - 150
2189117	Endothall	106	117	P/P	40 - 150
2189117	Glufosinate	97.1	100	P/P	40 - 150
2189117	Glyphosate	61.1	62.9	P/P	40 - 140
2189117	Sucralose	89.6	68.3	P/P	40 - 150

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 8321B
Batch ID: P385887

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2189145	Acetaminophen	70.4	75.8	P/P	30 - 160
2189145	Acetamiprid	54.8	62.3	P/P	30 - 160
2189145	Afidopyropen	45.3	53.9	P/P	30 - 160
2189145	Benzovindiflupyr	66.6	73.1	P/P	30 - 160
2189145	Carbamazepine	43.3	46.0	P/P	30 - 160
2189145	Clothianidin	39.3	51.4	P/P	30 - 160
2189145	Dinotefuran	72.7	78.8	P/P	30 - 160
2189145	Diuron	38.1	39.3	P/P	30 - 160
2189145	Fenuron	71.9	74.2	P/P	30 - 160
2189145	Fluridone	67.5	74.0	P/P	30 - 160
2189145	Hydrocodone	60.9	68.4	P/P	30 - 160
2189145	Ibuprofen	58.9	58.4	P/P	30 - 160
2189145	Imazapyr	80.8	77.8	P/P	30 - 160
2189145	Imidacloprid	77.4	89.4	P/P	30 - 160
2189145	Linuron	46.1	50.2	P/P	30 - 160
2189145	Mandestrobin	68.9	75.6	P/P	30 - 160
2189145	MCP	92.5	98.6	P/P	30 - 160
2189145	Naproxen	70.0	69.8	P/P	30 - 160
2189145	Primidone	60.0	59.5	P/P	30 - 160
2189145	Pyraclostrobin	63.6	68.8	P/P	30 - 160
2189145	Thiamethoxam	58.4	63.7	P/P	30 - 160
2189145	Tolfenpyrad	47.1	56.6	P/P	30 - 160
2189145	Triclopyr	84.3	85.6	P/P	30 - 160

Reference Method: SM 4500 F-C-2011
Batch ID: P385858

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2189203	Fluoride	98.8	98.8	P/P	94 - 107

Reference Method: SM 5310 B-2011
Batch ID: P385884

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2189164	Organic Carbon	100	102	P/P	85 - 115

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P385792

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2189101	Turbidity	1.66	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P385891

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2188987	Chloride	0.277	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P385896

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2188987	Sulfate	0.935	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P386693

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2189102	Ammonia-N	0.655	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P385882

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2189138	Kjeldahl Nitrogen	3.01	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P385821

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2189090	NO2NO3-N	0.525	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P385869

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2189090	Total-P	0.214	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P385788

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2189103	O-Phosphate-P	0.0940	Spike	P	0 - 20

Quality Assurance Report

Precision

Reference Method: EPA 8321B

Batch ID: P385867

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2189117	Acesulfame K	0.965	Spike	P	0 - 30
2189117	AMPA	6.22	Spike	P	0 - 30
2189117	Endothall	9.79	Spike	P	0 - 30
2189117	Glufosinate	3.42	Spike	P	0 - 30
2189117	Glyphosate	2.91	Spike	P	0 - 30
2189117	Sucralose	27.1	Spike	P	0 - 30

Reference Method: EPA 8321B

Batch ID: P385887

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2189145	2,4-D	0.323	Spike	P	0 - 30
2189145	Acetaminophen	7.50	Spike	P	0 - 30
2189145	Acetamiprid	12.9	Spike	P	0 - 30
2189145	Afidopyropen	17.3	Spike	P	0 - 30
2189145	Bentazon	2.07	Spike	P	0 - 30
2189145	Benzovindiflupyr	9.26	Spike	P	0 - 30
2189145	Carbamazepine	6.23	Spike	P	0 - 30
2189145	Clothianidin	21.8	Spike	P	0 - 30
2189145	Dinotefuran	8.10	Spike	P	0 - 30
2189145	Diuron	2.98	Spike	P	0 - 30
2189145	Fenuron	3.12	Spike	P	0 - 30
2189145	Fluridone	8.46	Spike	P	0 - 30
2189145	Hydrocodone	11.7	Spike	P	0 - 30
2189145	Ibuprofen	0.866	Spike	P	0 - 30
2189145	Imazapyr	2.59	Spike	P	0 - 30
2189145	Imidacloprid	10.6	Spike	P	0 - 30
2189145	Linuron	8.51	Spike	P	0 - 30
2189145	Mandestrobin	9.22	Spike	P	0 - 30
2189145	MCP	6.40	Spike	P	0 - 30
2189145	Naproxen	0.378	Spike	P	0 - 30
2189145	Primidone	0.716	Spike	P	0 - 30
2189145	Pyraclostrobin	7.84	Spike	P	0 - 30
2189145	Thiamethoxam	8.67	Spike	P	0 - 30
2189145	Tolfenpyrad	18.2	Spike	P	0 - 30
2189145	Triclopyr	1.55	Spike	P	0 - 30

Reference Method: SM 2120 B-2011

Batch ID: P385795

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2189137	Color (true)	1.24	Sample	P	0 - 20

Reference Method: SM 2320 B-2011

Batch ID: P385856

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2189203	Total Alkalinity	9.81	Sample	F	0 - 8.1

Quality Assurance Report Precision

Reference Method: SM 2540 C-2011
Batch ID: P386178

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2189163	TDS	4.26	Sample	P	0 - 10

Reference Method: SM 4500 F-C-2011
Batch ID: P385858

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2189203	Fluoride	0.0	Spike	P	0 - 2.8

Reference Method: SM 5310 B-2011
Batch ID: P385884

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2189164	Organic Carbon	1.72	Spike	P	0 - 20

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

Quality Assurance Report Surrogates

Lab Sample ID: 2189145
Field Sample ID: G2CE0097

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	2,4-D-d3	101	P	30 - 160
EPA 8321B	Acetaminophen-d4	70.9	P	30 - 160
EPA 8321B	Carbamazepine-d10	43.0	P	30 - 160
EPA 8321B	Diuron-d6	48.6	P	30 - 160
EPA 8321B	Endothall-d6	110	P	30 - 160
EPA 8321B	Endothall-d6	110	P	30 - 160
EPA 8321B	Glyphosate 13C 15N	52.2	P	30 - 160
EPA 8321B	Glyphosate 13C 15N	52.2	P	30 - 160
EPA 8321B	Ibuprofen-d3	70.0	P	30 - 160
EPA 8321B	Primidone-d5	55.7	P	30 - 160
EPA 8321B	Sucralose-d6	56.0	P	30 - 160
EPA 8321B	Sucralose-d6	56.0	P	30 - 160

Quality Assurance Report Calibration Verification

Reference Method: EPA 365.1 Rev. 2.0 dissolved

Run ID: A100348

Included Lab Sample IDs: 2189139, 2189142

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	97.4	98.0	P/P	90 - 110
O-Phosphate-P	98.0	97.4	P/P	90 - 110

Reference Method: EPA 180.1 Rev. 2.0

Run ID: A100349

Included Lab Sample IDs: 2189137, 2189140

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Turbidity	101	102	P/P	95 - 105

Reference Method: SM 2120 B-2011

Run ID: A100351

Included Lab Sample IDs: 2189137, 2189140

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	103	103	P/P	90 - 115

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A100367

Included Lab Sample IDs: 2189138, 2189141

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO2NO3-N	97.0	98.5	P/P	90 - 110

Reference Method: SM 2320 B-2011

Run ID: A100379

Included Lab Sample IDs: 2189137, 2189140

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	99.6	99.5	P/P	90 - 110

Reference Method: SM 4500 F-C-2011

Run ID: A100379

Included Lab Sample IDs: 2189137, 2189140

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	100	102	P/P	90 - 110

Reference Method: SM 5310 B-2011

Run ID: A100385

Included Lab Sample IDs: 2189138, 2189141

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	100	102	P/P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1

Run ID: A100386

Included Lab Sample IDs: 2189137, 2189140

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

Quality Assurance Report Calibration Verification

Reference Method: EPA 300.0 Rev. 2.1

Run ID: A100386

Included Lab Sample IDs: 2189137, 2189140

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

Reference Method: EPA 8321B

Run ID: A100407

Included Lab Sample IDs: 2189145

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
2,4-D	124	119	P/P	50 - 150
Acetaminophen	125	133	P/P	60 - 160
Acetamiprid	123	127	P/P	50 - 150
Afidopyropen	107	93.5	P/P	50 - 150
Bentazon	92.9	151	P/P	50 - 160
Benzovindiflupyr	119	105	P/P	50 - 150
Carbamazepine	113	110	P/P	60 - 150
Clothianidin	109	106	P/P	60 - 150
Dinotefuran	103	107	P/P	50 - 150
Diuron	112	114	P/P	60 - 160
Fenuron	125	126	P/P	60 - 150
Fluridone	115	110	P/P	60 - 160
Hydrocodone	124	114	P/P	60 - 150
Ibuprofen	91.3	116	P/P	50 - 160
Imazapyr	108	106	P/P	50 - 150
Imidacloprid	108	92.4	P/P	60 - 150
Linuron	112	103	P/P	60 - 150
Mandestrobin	108	123	P/P	50 - 150
MCPP	100	97.8	P/P	50 - 150
Naproxen	80.4	138	P/P	50 - 160
Primidone	109	101	P/P	60 - 150
Pyraclostrobin	107	98.8	P/P	60 - 150
Thiamethoxam	119	104	P/P	50 - 150
Tolfenpyrad	106	108	P/P	60 - 150
Triclopyr	103	95.7	P/P	50 - 150

Reference Method: EPA 8321B

Run ID: A100408

Included Lab Sample IDs: 2189145

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
AMPA	81.0	91.7	P/P	60 - 160
Glufosinate	82.8	91.8	P/P	60 - 160
Glyphosate	80.8	91.2	P/P	60 - 160

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A100416

Included Lab Sample IDs: 2189138, 2189141

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	104	105	P/P	90 - 110
Kjeldahl Nitrogen	105	93.2	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A100427

Included Lab Sample IDs: 2189138, 2189141

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	98.0	97.0	P/P	90 - 110

Reference Method: EPA 8321B

Run ID: A100434

Included Lab Sample IDs: 2189145

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Acesulfame K	159	158	P/P	60 - 160
Endothall	92.6	102	P/P	60 - 160

Reference Method: EPA 8321B

Run ID: A100461

Included Lab Sample IDs: 2189145

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Sucralose	87.3	92.1	P/P	60 - 160

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A100705

Included Lab Sample IDs: 2189138, 2189141

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	102	103	P/P	90 - 110
Ammonia-N	103	105	P/P	90 - 110

* Pass/Fail determinations are made for each bracketing calibration verification check.

Control limits for initial calibration checks may be different from those for continuing checks, depending on method requirements.

Where they are different, both control limits are provided.

Quality Assurance Report Summary

Ref. Method	Analyte	LCS % Recovery	MS % Recovery		LCS	Precision	MS
						SMP	
EPA 180.1 Rev. 2.0	Turbidity					1.66	
EPA 300.0 Rev. 2.1	Chloride	103	102	103		0.277	
	Sulfate	104	103	104		0.935	
EPA 350.1 Rev. 2.0	Ammonia-N	100	102	101			0.655
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	106	100	95.4			3.01
EPA 353.2 Rev. 2.0	NO ₂ NO ₃ -N	95.0	95.0	95.5			0.525
EPA 365.1 Rev. 2.0	Total-P	104	103	103			0.214
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	100	96.9	96.8			0.0940
EPA 8321B	2,4-D	113					0.323
	Acesulfame K	150	157	155			0.965
	Acetaminophen	76.4	70.4	75.8			7.50
	Acetamiprid	72.8	54.8	62.3			12.9
	Afidopyropen	50.6	45.3	53.9			17.3
	AMPA	89.0	75.8	80.7			6.22
	Bentazon	44.1					2.07
	Benzovindiflupyr	76.0	66.6	73.1			9.26
	Carbamazepine	54.1	43.3	46.0			6.23
	Clothianidin	67.3	39.3	51.4			21.8
	Dinotefuran	90.8	72.7	78.8			8.10
	Diuron	52.0	38.1	39.3			2.98
	Endothall	92.1	106	117			9.79
	Fenuron	98.5	71.9	74.2			3.12
	Fluridone	74.7	67.5	74.0			8.46
	Glufosinate	93.4	97.1	100			3.42
	Glyphosate	80.5	61.1	62.9			2.91
	Hydrocodone	88.8	60.9	68.4			11.7
	Ibuprofen	64.2	58.9	58.4			0.866
	Imazapyr	68.3	80.8	77.8			2.59
	Imidacloprid	81.3	77.4	89.4			10.6
	Linuron	54.9	46.1	50.2			8.51
	Mandestrobin	75.6	68.9	75.6			9.22
	MCPP	105	92.5	98.6			6.40
	Naproxen	68.5	70.0	69.8			0.378
	Primidone	57.8	60.0	59.5			0.716
	Pyraclostrobin	66.5	63.6	68.8			7.84
	Sucralose	98.9	89.6	68.3			27.1
	Thiamethoxam	71.7	58.4	63.7			8.67
	Tolfenpyrad	52.0	47.1	56.6			18.2
	Triclopyr	85.9	84.3	85.6			1.55
SM 2120 B-2011	Color (true)	101				1.24	
SM 2320 B-2011	Total Alkalinity	102				9.81	
SM 2540 C-2011	TDS					4.26	
SM 4500 F-C-2011	Fluoride	100	98.8	98.8			0.0
SM 5310 B-2011	Organic Carbon	102	100	102			1.72

Reference Method Descriptions

Method	Description	Associated Samples
EPA 180.1 Rev. 2.0	Turbidity in aqueous matrices	2189137, 2189140
EPA 300.0 Rev. 2.1	Chloride in aqueous matrices	2189137, 2189140
EPA 300.0 Rev. 2.1	Sulfate in aqueous matrices	2189137, 2189140
EPA 350.1 Rev. 2.0	Ammonia in aqueous matrices as mg N/L	2189138, 2189141
EPA 351.2 Rev. 2.0	Total Kjeldahl Nitrogen in aqueous matrices	2189138, 2189141

Reference Method Descriptions

Method	Description	Associated Samples
EPA 353.2 Rev. 2.0	Nitrite/Nitrate in aqueous matrices as mg N/L	2189138, 2189141
EPA 365.1 Rev. 2.0	Total Phosphorus in aqueous matrices as mg P/L	2189138, 2189141
EPA 365.1 Rev. 2.0 dissolved	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	2189139, 2189142
EPA 8321B	Pesticides, herbicides, and other chemicals in water matrices by HPLC/MS/MS	2189145
EPA 8321B	Water soluble organic compounds by HPLC/MS/MS	2189145
SM 2120 B-2011	True Color measured at 450 nm (not valid for NPDES monitoring)	2189137, 2189140
SM 2320 B-2011	Alkalinity in aqueous matrices as mg CaCO ₃ /L	2189137, 2189140
SM 2540 C-2011	Total Dissolved Solids in aqueous matrices	2189137, 2189140
SM 2540 D-2011	Total Suspended Solids in aqueous matrices using a maximum of 250 mL of sample	2189137, 2189140
SM 4500 F-C-2011	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	2189137, 2189140
SM 5310 B-2011	Nonpurgeable Organic Carbon in aqueous matrices	2189138, 2189141

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	08/07/2020			08/07/2020 15:13	Blanca Fach	2189137, 2189140
EPA 300.0 Rev. 2.1	08/07/2020			08/08/2020 21:24	Julia Storbeck	2189137
	08/07/2020			08/08/2020 21:37	Julia Storbeck	2189140
EPA 350.1 Rev. 2.0	08/07/2020			08/27/2020 15:09	Virginia P. Brown	2189138
	08/07/2020			08/27/2020 15:17	Virginia P. Brown	2189141
EPA 351.2 Rev. 2.0	08/07/2020	08/11/2020 08:40	Sima Feizi	08/12/2020 14:26	Jhamieka S. Greenwood	2189138
	08/07/2020	08/11/2020 08:40	Sima Feizi	08/12/2020 14:46	Jhamieka S. Greenwood	2189141
EPA 353.2 Rev. 2.0	08/07/2020			08/10/2020 08:32	Beverly Y. Sanders	2189138
	08/07/2020			08/10/2020 08:33	Beverly Y. Sanders	2189141
EPA 365.1 Rev. 2.0	08/07/2020	08/11/2020 11:28	Yen Ta	08/13/2020 08:29	Lipi Saha	2189138
	08/07/2020	08/11/2020 11:28	Yen Ta	08/13/2020 08:30	Lipi Saha	2189141
EPA 365.1 Rev. 2.0 dissolved	08/07/2020			08/07/2020 15:24	Samantha Davila	2189139
	08/07/2020			08/07/2020 15:29	Samantha Davila	2189142
EPA 8321B	08/07/2020	08/11/2020 11:45	Rebecca Ware	08/11/2020 13:22	Rebecca Ware	2189145
	08/07/2020	08/11/2020 11:45	Rebecca Ware	08/12/2020 14:40	Rebecca Ware	2189145
	08/07/2020	08/11/2020 11:45	Rebecca Ware	08/13/2020 12:13	Rebecca Ware	2189145
	08/07/2020	08/12/2020 09:00	Hoor Shaik	08/13/2020 02:00	Juyoung Kim	2189145
SM 2120 B-2011	08/07/2020			08/07/2020 18:36	Julia Storbeck	2189137
	08/07/2020			08/07/2020 18:39	Julia Storbeck	2189140
SM 2320 B-2011	08/07/2020			08/10/2020 18:59	Dale L. Simmons	2189137
	08/07/2020			08/10/2020 19:11	Dale L. Simmons	2189140
SM 2540 C-2011	08/07/2020			08/12/2020 15:12	Yijie Li	2189137, 2189140
SM 2540 D-2011	08/07/2020			08/12/2020 15:12	Yijie Li	2189137, 2189140
SM 4500 F-C-2011	08/07/2020			08/10/2020 18:59	Dale L. Simmons	2189137
	08/07/2020			08/10/2020 19:11	Dale L. Simmons	2189140
SM 5310 B-2011	08/07/2020			08/11/2020 06:29	David Boose	2189138
	08/07/2020			08/11/2020 06:42	David Boose	2189141