

Chemical Analysis Report

SO-DIST-2020-12-22-01

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

Event Description: **SMP: Lake Apthorpe**
Request ID: **RQ-2020-12-21-31**
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: Chris Hormuth

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

Date Certified: 13-JAN-2021 08:09

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 Apthorpe

Collection Date/Time: 12/21/2020 12:30

Field ID: G4SD0185

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2215468	EPA 180.1 Rev. 2.0	Turbidity	1.7		NTU	P391624	
	EPA 300.0 Rev. 2.1	Chloride	18	A	mg Cl/L	P392041	
		Sulfate	25	A	mg SO4/L	P392043	
	SM 2120 B-2011	Color (true)	42		PCU	P391633	
	SM 2320 B-2011	Total Alkalinity	12		mg CaCO3/L	P391745	
	SM 2540 C-2011	TDS	105	A	mg/L	P391953	
	SM 2540 D-2011	TSS	2	IA	mg/L	P391960	
	SM 4500 F-C-2011	Fluoride	0.048	I	mg F/L	P391747	
2215469	EPA 350.1 Rev. 2.0	Ammonia-N	0.004	I	mg N/L	P391733	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.55		mg N/L	P391838	MS
	EPA 353.2 Rev. 2.0	NO2NO3-N	1.1		mg N/L	P391659	
	EPA 365.1 Rev. 2.0	Total-P	0.011		mg P/L	P391689	
	SM 5310 B-2011	Organic Carbon	8.5		mg C/L	P391750	
2215470	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P391630	
2215472	EPA 8321B	2,4-D	0.0043	I	ug/L	P391621	
		Acesulfame K**	0.10	U	ug/L	P391600	
		AMPA**	0.10	U	ug/L	P391600	
		Sucralose**	0.54		ug/L	P391600	
		Acetaminophen**	0.0080	U	ug/L	P391621	
		Acetamiprid**	0.0020	U	ug/L	P391621	
		Endothall**	0.25	U	ug/L	P391600	
		Glufosinate**	0.10	U	ug/L	P391600	
		Glyphosate**	0.10	U	ug/L	P391600	MS
		Afidopyropen**	0.0020	U	ug/L	P391621	
		Bentazon	0.0040		ug/L	P391621	MS
		Benzovindiflupyr**	0.0020	U	ug/L	P391621	
		Carbamazepine**	8.0E-04	U	ug/L	P391621	
		Clothianidin**	0.025		ug/L	P391621	
		Dinotefuran**	0.0020	U	ug/L	P391621	
		Diuron	0.0052	I	ug/L	P391621	
		Fenuron	0.016	U	ug/L	P391621	
		Fluridone**	0.0036		ug/L	P391621	
		Imazapyr**	0.0062	I	ug/L	P391621	
		Hydrocodone**	0.0020	U	ug/L	P391621	
		Ibuprofen**	0.020	U	ug/L	P391621	
		Imidacloprid	0.28		ug/L	P391621	
		Linuron	0.0040	U	ug/L	P391621	
		Mandestrobin**	0.0020	U	ug/L	P391621	
		MCP	0.0020	U	ug/L	P391621	
		Naproxen**	0.0080	U	ug/L	P391621	RPD
		Primidone**	0.0042	I	ug/L	P391621	
		Pyraclostrobin**	0.0020	U	ug/L	P391621	
		Thiamethoxam**	0.043		ug/L	P391621	

Field ID: G4SD0185

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2215472	EPA 8321B	Tolfenpyrad**	0.0020	U	ug/L	P391621	
		Triclopyr**	0.0040	U	ug/L	P391621	

Ref. Method and Comment:
SM 2540 D-2011: 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: P391624

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P392041

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P392043

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P391733

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P391838

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P391659

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P391689

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P391630

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

Reference Method: EPA 8321B
Batch ID: P391600

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: P391600

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

Reference Method: EPA 8321B
Batch ID: P391621

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: P391633

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2320 B-2011
Batch ID: P391745

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

Reference Method: SM 2540 C-2011
Batch ID: P391953

Component	Result	Code	Units
TDS	15	U	mg/L

Quality Assurance Report

Method Blank Results

Reference Method: SM 2540 D-2011
Batch ID: P391960

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500 F-C-2011
Batch ID: P391747

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-2011
Batch ID: P391750

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: P392041

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Chloride	98.9		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P392043

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Sulfate	99.0		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P391733

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P391838

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Kjeldahl Nitrogen	107		P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P391659

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: P391689

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P391630

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
O-Phosphate-P	99.6		P	90 - 110

Reference Method: EPA 8321B
Batch ID: P391600

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Acesulfame K	112		P	40 - 150
AMPA	65.1		P	40 - 150
Endothall	95.7		P	40 - 150
Glufosinate	102		P	40 - 150
Glyphosate	99.4		P	40 - 140
Sucralose	102		P	40 - 150

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 8321B
Batch ID: P391621

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2,4-D	96.7		P	30 - 160
Acetaminophen	74.2		P	30 - 150
Acetamiprid	91.7		P	30 - 160
Afidopyropen	77.3		P	30 - 160
Bentazon	30.5		P	30 - 150
Benzovindiflupyr	84.3		P	30 - 160
Carbamazepine	104		P	30 - 160
Clothianidin	82.2		P	30 - 160
Dinotefuran	87.9		P	30 - 160
Diuron	82.4		P	30 - 160
Fenuron	97.6		P	30 - 160
Fluridone	89.6		P	30 - 160
Hydrocodone	94.4		P	30 - 160
Ibuprofen	58.2		P	30 - 160
Imazapyr	84.5		P	30 - 160
Imidacloprid	101		P	30 - 160
Linuron	86.0		P	30 - 160
Mandestrobin	105		P	30 - 160
MCPP	105		P	30 - 160
Naproxen	59.5		P	30 - 160
Primidone	89.0		P	30 - 160
Pyraclostrobin	80.0		P	30 - 160
Thiamethoxam	93.4		P	30 - 160
Tolfenpyrad	50.5		P	30 - 160
Triclopyr	101		P	30 - 160

Reference Method: SM 2120 B-2011
Batch ID: P391633

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Color (true)	102		P	85 - 115

Reference Method: SM 2320 B-2011
Batch ID: P391745

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	97.2		P	93 - 104

Reference Method: SM 4500 F-C-2011
Batch ID: P391747

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	96.7		P	90 - 106

Reference Method: SM 5310 B-2011
Batch ID: P391750

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	101		P	85 - 115

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P392041

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2215468	Chloride	97.5		P	90 - 110
2215984	Chloride	97.6		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P392043

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2215468	Sulfate	97.0		P	90 - 110
2215984	Sulfate	99.8		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P391733

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2215458	Ammonia-N	97.8	100	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P391838

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2215416	Kjeldahl Nitrogen	106	113	P/F	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P391659

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2215475	NO2NO3-N	98.5	98.5	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P391689

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2215368	Total-P	102	99.5	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P391630

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2215470	O-Phosphate-P	100	98.3	P/P	90 - 110

Reference Method: EPA 8321B
Batch ID: P391600

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2215358	Acesulfame K	105	105	P/P	40 - 150
2215358	AMPA	75.7	71.1	P/P	40 - 150
2215358	Endothall	116	118	P/P	40 - 150
2215358	Glufosinate	95.9	103	P/P	40 - 150
2215358	Glyphosate	172	160	F/F	40 - 140
2215358	Sucralose	98.7	102	P/P	40 - 150

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 8321B
 Batch ID: P391621

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2214884	2,4-D	77.1	75.2	P/P	30 - 160
2214884	Acetaminophen	66.8	62.0	P/P	30 - 150
2214884	Acetamiprid	84.9	82.6	P/P	30 - 160
2214884	Afidopyropen	61.9	58.2	P/P	30 - 160
2214884	Bentazon	15.7	14.6	F/F	30 - 150
2214884	Benzovindiflupyr	72.5	82.0	P/P	30 - 160
2214884	Carbamazepine	84.8	82.4	P/P	30 - 160
2214884	Clothianidin	80.9	73.4	P/P	30 - 160
2214884	Dinotefuran	104	96.3	P/P	30 - 160
2214884	Diuron	66.1	59.4	P/P	30 - 160
2214884	Fenuron	73.3	69.0	P/P	30 - 160
2214884	Fluridone	66.5	70.6	P/P	30 - 160
2214884	Hydrocodone	88.5	83.2	P/P	30 - 160
2214884	Ibuprofen	53.3	54.1	P/P	30 - 160
2214884	Imazapyr	91.1	88.4	P/P	30 - 160
2214884	Imidacloprid	138	118	P/P	30 - 160
2214884	Linuron	82.7	70.9	P/P	30 - 160
2214884	Mandestrobin	92.7	69.9	P/P	30 - 160
2214884	MCPP	84.2	72.2	P/P	30 - 160
2214884	Naproxen	60.3	32.2	P/P	30 - 160
2214884	Primidone	78.9	67.1	P/P	30 - 160
2214884	Pyraclostrobin	71.7	69.9	P/P	30 - 160
2214884	Thiamethoxam	122	119	P/P	30 - 160
2214884	Tolfenpyrad	47.3	50.0	P/P	30 - 160
2214884	Triclopyr	82.8	83.0	P/P	30 - 160

Reference Method: SM 4500 F-C-2011
 Batch ID: P391747

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2215319	Fluoride	94.5	95.0	P/P	94 - 107

Reference Method: SM 5310 B-2011
 Batch ID: P391750

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2214867	Organic Carbon	101	101	P/P	85 - 115

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P391624

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2215485	Turbidity	4.15	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P392041

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2215468	Chloride	0.00329	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P392043

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2215468	Sulfate	0.448	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P391733

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2215458	Ammonia-N	2.08	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P391838

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2215416	Kjeldahl Nitrogen	3.42	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P391659

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2215475	NO2NO3-N	0.0	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P391689

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2215368	Total-P	1.76	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P391630

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2215470	O-Phosphate-P	2.21	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 8321B
Batch ID: P391600

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2215358	Acesulfame K	0.330	Spike	P	0 - 30
2215358	AMPA	5.91	Spike	P	0 - 30
2215358	Endothall	1.24	Spike	P	0 - 30
2215358	Glufosinate	6.63	Spike	P	0 - 30
2215358	Glyphosate	7.06	Spike	P	0 - 30
2215358	Sucralose	2.92	Spike	P	0 - 30

Reference Method: EPA 8321B
Batch ID: P391621

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2214884	2,4-D	2.55	Spike	P	0 - 30
2214884	Acetaminophen	7.36	Spike	P	0 - 30
2214884	Acetamiprid	2.80	Spike	P	0 - 30
2214884	Afidopyropen	6.16	Spike	P	0 - 30
2214884	Bentazon	7.31	Spike	P	0 - 30
2214884	Benzovindiflupyr	12.3	Spike	P	0 - 30
2214884	Carbamazepine	2.93	Spike	P	0 - 30
2214884	Clothianidin	9.75	Spike	P	0 - 30
2214884	Dinotefuran	7.81	Spike	P	0 - 30
2214884	Diuron	10.6	Spike	P	0 - 30
2214884	Fenuron	6.04	Spike	P	0 - 30
2214884	Fluridone	6.03	Spike	P	0 - 30
2214884	Hydrocodone	6.26	Spike	P	0 - 30
2214884	Ibuprofen	1.64	Spike	P	0 - 30
2214884	Imazapyr	2.99	Spike	P	0 - 30
2214884	Imidacloprid	10.4	Spike	P	0 - 30
2214884	Linuron	15.3	Spike	P	0 - 30
2214884	Mandestrobin	28.1	Spike	P	0 - 30
2214884	MCP	15.3	Spike	P	0 - 30
2214884	Naproxen	60.8	Spike	F	0 - 30
2214884	Primidone	16.2	Spike	P	0 - 30
2214884	Pyraclostrobin	2.53	Spike	P	0 - 30
2214884	Thiamethoxam	2.72	Spike	P	0 - 30
2214884	Tolfenpyrad	5.62	Spike	P	0 - 30
2214884	Triclopyr	0.219	Spike	P	0 - 30

Reference Method: SM 2120 B-2011
Batch ID: P391633

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2215415	Color (true)	1.26	Sample	P	0 - 20

Reference Method: SM 2320 B-2011
Batch ID: P391745

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2215319	Total Alkalinity	1.16	Sample	P	0 - 8.1

Quality Assurance Report Precision

Reference Method: SM 2540 C-2011
Batch ID: P391953

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2215468	TDS	1.90	Sample	P	0 - 10

Reference Method: SM 4500 F-C-2011
Batch ID: P391747

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2215319	Fluoride	0.477	Spike	P	0 - 2.8

Reference Method: SM 5310 B-2011
Batch ID: P391750

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2214867	Organic Carbon	0.172	Spike	P	0 - 20

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

Quality Assurance Report Surrogates

Lab Sample ID: 2215472
Field Sample ID: G4SD0185

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	2,4-D-d3	54.0	P	30 - 160
EPA 8321B	Acetaminophen-d4	76.5	P	30 - 160
EPA 8321B	Carbamazepine-d10	76.1	P	30 - 160
EPA 8321B	Diuron-d6	62.5	P	30 - 160
EPA 8321B	Endothall-d6	99.7	P	40 - 160
EPA 8321B	Endothall-d6	99.7	P	40 - 160
EPA 8321B	Glyphosate 13C 15N	89.1	P	40 - 160
EPA 8321B	Glyphosate 13C 15N	89.1	P	40 - 160
EPA 8321B	Ibuprofen-d3	44.7	P	30 - 160
EPA 8321B	Primidone-d5	95.1	P	30 - 160
EPA 8321B	Sucralose-d6	93.8	P	30 - 160
EPA 8321B	Sucralose-d6	93.8	P	30 - 160

Quality Assurance Report Calibration Verification

Reference Method: EPA 180.1 Rev. 2.0

Run ID: A102728

Included Lab Sample IDs: 2215468

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Turbidity	100	101	P/P	95 - 105

Reference Method: EPA 365.1 Rev. 2.0 dissolved

Run ID: A102730

Included Lab Sample IDs: 2215470

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	97.8	99.3	P/P	90 - 110

Reference Method: SM 2120 B-2011

Run ID: A102732

Included Lab Sample IDs: 2215468

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	103	104	P/P	90 - 115

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A102742

Included Lab Sample IDs: 2215469

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

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A102784

Included Lab Sample IDs: 2215469

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	99.1	98.1	P/P	90 - 110

Reference Method: SM 2320 B-2011

Run ID: A102789

Included Lab Sample IDs: 2215468

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	93.0	95.4	P/P	90 - 110

Reference Method: SM 4500 F-C-2011

Run ID: A102789

Included Lab Sample IDs: 2215468

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	99.5	99.1	P/P	90 - 110

Reference Method: SM 5310 B-2011

Run ID: A102792

Included Lab Sample IDs: 2215469

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	104	101	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A102799

Included Lab Sample IDs: 2215469

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	100	99.2	P/P	90 - 110

Reference Method: EPA 8321B

Run ID: A102836

Included Lab Sample IDs: 2215472

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Acesulfame K	141	108	P/P	60 - 160
AMPA	75.6	79.8	P/P	60 - 160
Endothall	85.5	97.5	P/P	60 - 160
Glufosinate	96.1	96.1	P/P	60 - 160
Glyphosate	99.7	100	P/P	60 - 160

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A102855

Included Lab Sample IDs: 2215469

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

Reference Method: EPA 8321B

Run ID: A102859

Included Lab Sample IDs: 2215472

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Sucralose	94.3	100	P/P	60 - 160

Reference Method: EPA 300.0 Rev. 2.1

Run ID: A102875

Included Lab Sample IDs: 2215468

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	99.3	99.8	P/P	90 - 110
Sulfate	98.7	99.5	P/P	90 - 110

Reference Method: EPA 8321B

Run ID: A102877

Included Lab Sample IDs: 2215472

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
2,4-D	94.5	86.0	P/P	50 - 150
Acetaminophen	90.6	131	P/P	60 - 160
Acetamiprid	97.1	109	P/P	50 - 150
Afidopyropen	101	111	P/P	50 - 150
Bentazon	88.4	109	P/P	50 - 160
Benzovindiflupyr	96.6	91.4	P/P	50 - 150
Carbamazepine	117	117	P/P	60 - 150
Clothianidin	96.5	112	P/P	60 - 150
Dinotefuran	99.1	101	P/P	50 - 150
Diuron	119	104	P/P	60 - 160
Fenuron	91.2	107	P/P	60 - 150

Quality Assurance Report Calibration Verification

Reference Method: EPA 8321B

Run ID: A102877

Included Lab Sample IDs: 2215472

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluridone	98.3	109	P/P	60 - 160
Hydrocodone	93.7	109	P/P	60 - 150
Ibuprofen	107	88.7	P/P	50 - 160
Imazapyr	77.0	88.1	P/P	50 - 150
Imidacloprid	81.9	98.5	P/P	60 - 150
Linuron	101	91.6	P/P	60 - 150
Mandestrobin	115	124	P/P	50 - 150
MCP	94.1	93.3	P/P	50 - 150
Naproxen	115	126	P/P	50 - 160
Primidone	102	106	P/P	60 - 150
Pyraclostrobin	105	109	P/P	60 - 150
Thiamethoxam	93.3	108	P/P	50 - 150
Tolfenpyrad	120	117	P/P	60 - 150
Triclopyr	102	91.8	P/P	50 - 150

* 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					4.15	
EPA 300.0 Rev. 2.1	Chloride	98.9	97.5	97.6		0.0032	
	Sulfate	99.0	97.0	99.8		0.448	
EPA 350.1 Rev. 2.0	Ammonia-N	99.2	97.8	100			2.08
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	107	106	113			3.42
EPA 353.2 Rev. 2.0	NO ₂ NO ₃ -N	99.5	98.5	98.5			0.0
EPA 365.1 Rev. 2.0	Total-P	102	102	99.5			1.76
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	99.6	100	98.3			2.21
EPA 8321B	2,4-D	96.7	77.1	75.2			2.55
	Acesulfame K	112	105	105			0.330
	Acetaminophen	74.2	66.8	62.0			7.36
	Acetamiprid	91.7	84.9	82.6			2.80
	Afidopyropen	77.3	61.9	58.2			6.16
	AMPA	65.1	75.7	71.1			5.91
	Bentazon	30.5	15.7	14.6			7.31
	Benzovindiflupyr	84.3	72.5	82.0			12.3
	Carbamazepine	104	84.8	82.4			2.93
	Clothianidin	82.2	80.9	73.4			9.75
	Dinotefuran	87.9	104	96.3			7.81
	Diuron	82.4	66.1	59.4			10.6
	Endothall	95.7	116	118			1.24
	Fenuron	97.6	73.3	69.0			6.04
	Fluridone	89.6	66.5	70.6			6.03
	Glufosinate	102	95.9	103			6.63
	Glyphosate	99.4	172	160			7.06
	Hydrocodone	94.4	88.5	83.2			6.26
	Ibuprofen	58.2	53.3	54.1			1.64
	Imazapyr	84.5	91.1	88.4			2.99
	Imidacloprid	101	138	118			10.4
	Linuron	86.0	82.7	70.9			15.3
	Mandestrobin	105	92.7	69.9			28.1
	MCPP	105	84.2	72.2			15.3
	Naproxen	59.5	60.3	32.2			60.8
	Primidone	89.0	78.9	67.1			16.2
	Pyraclostrobin	80.0	71.7	69.9			2.53
	Sucralose	102	98.7	102			2.92
	Thiamethoxam	93.4	122	119			2.72
	Tolfenpyrad	50.5	47.3	50.0			5.62
	Triclopyr	101	82.8	83.0			0.219
SM 2120 B-2011	Color (true)	102				1.26	
SM 2320 B-2011	Total Alkalinity	97.2				1.16	
SM 2540 C-2011	TDS					1.90	
SM 4500 F-C-2011	Fluoride	96.7	94.5	95.0			0.477
SM 5310 B-2011	Organic Carbon	101	101	101			0.172

Reference Method Descriptions

Method	Description	Associated Samples
EPA 180.1 Rev. 2.0	Turbidity in aqueous matrices	2215468
EPA 300.0 Rev. 2.1	Chloride in aqueous matrices	2215468
EPA 300.0 Rev. 2.1	Sulfate in aqueous matrices	2215468
EPA 350.1 Rev. 2.0	Ammonia in aqueous matrices as mg N/L	2215469
EPA 351.2 Rev. 2.0	Total Kjeldahl Nitrogen in aqueous matrices	2215469

Reference Method Descriptions

Method	Description	<u>Associated Samples</u>
EPA 353.2 Rev. 2.0	Nitrite/Nitrate in aqueous matrices as mg N/L	2215469
EPA 365.1 Rev. 2.0	Total Phosphorus in aqueous matrices as mg P/L	2215469
EPA 365.1 Rev. 2.0 dissolved	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	2215470
EPA 8321B	Pesticides, herbicides, and other chemicals in water matrices by HPLC/MS/MS	2215472
EPA 8321B	Water soluble organic compounds by HPLC/MS/MS	2215472
SM 2120 B-2011	True Color measured at 450 nm (not valid for NPDES monitoring)	2215468
SM 2320 B-2011	Alkalinity in aqueous matrices as mg CaCO ₃ /L	2215468
SM 2540 C-2011	Total Dissolved Solids in aqueous matrices	2215468
SM 2540 D-2011	Total Suspended Solids in aqueous matrices using a maximum of 250 mL of sample	2215468
SM 4500 F-C-2011	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	2215468
SM 5310 B-2011	Nonpurgeable Organic Carbon in aqueous matrices	2215469

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	12/22/2020			12/22/2020 14:51	Yen Ta	2215468
EPA 300.0 Rev. 2.1	12/22/2020			01/06/2021 21:03	Lipi Saha	2215468
EPA 350.1 Rev. 2.0	12/22/2020			12/27/2020 14:41	Ping Hua	2215469
EPA 351.2 Rev. 2.0	12/22/2020	12/29/2020 10:24	Yen Ta	12/30/2020 16:54	Virginia P. Brown	2215469
EPA 353.2 Rev. 2.0	12/22/2020			12/23/2020 09:58	Beverly Y. Sanders	2215469
EPA 365.1 Rev. 2.0	12/22/2020	12/23/2020 10:14	Yen Ta	12/28/2020 12:56	Shengyu Wang	2215469
EPA 365.1 Rev. 2.0 dissolved	12/22/2020			12/22/2020 15:24	Blanca Fach	2215470
EPA 8321B	12/22/2020	12/22/2020 13:45	Rebecca Ware	12/22/2020 16:41	Rebecca Ware	2215472
	12/22/2020	12/22/2020 13:45	Rebecca Ware	12/31/2020 00:33	Rebecca Ware	2215472
	12/22/2020	12/23/2020 09:00	Hoor Shaik	12/24/2020 18:49	Juyoung Kim	2215472
SM 2120 B-2011	12/22/2020			12/22/2020 15:55	Benjamin T. Nordmann	2215468
SM 2320 B-2011	12/22/2020			12/23/2020 19:04	Dale L. Simmons	2215468
SM 2540 C-2011	12/22/2020			12/26/2020 16:45	Yijie Li	2215468
SM 2540 D-2011	12/22/2020			12/26/2020 16:45	Yijie Li	2215468
SM 4500 F-C-2011	12/22/2020			12/23/2020 19:04	Dale L. Simmons	2215468
SM 5310 B-2011	12/22/2020			12/24/2020 00:12	Madeline Gruver	2215469