

Chemical Analysis Report

SO-DIST-2020-09-04-03

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

Event Description: **Small Highlands lakes**
Request ID: **RQ-2020-08-31-55**
Customer: **SO-DIST**
Project ID: **SMP**

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FLDEP South District Office
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Date Certified: 28-SEP-2020 11:11



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: 09/03/2020 09:40

Field ID: G4SD0185

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2194621	EPA 180.1 Rev. 2.0	Turbidity	2.9	A	NTU	P387000	
	EPA 300.0 Rev. 2.1	Chloride	18		mg Cl/L	P387331	
		Sulfate	24		mg SO4/L	P387334	
	SM 2120 B-2011	Color (true)	72	A	PCU	P387010	
	SM 2320 B-2011	Total Alkalinity	15		mg CaCO3/L	P387126	
	SM 2540 C-2011	TDS	107		mg/L	P387385	
	SM 2540 D-2011	TSS	2	I	mg/L	P387378	
	SM 4500 F-C-2011	Fluoride	0.046	I	mg F/L	P387130	
2194622	EPA 350.1 Rev. 2.0	Ammonia-N	0.006		mg N/L	P387292	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.88		mg N/L	P387212	MS
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.22		mg N/L	P387138	
	EPA 365.1 Rev. 2.0	Total-P	0.015		mg P/L	P387731	MS
	SM 5310 B-2011	Organic Carbon	11		mg C/L	P387314	
2194623	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P387012	
2194634	EPA 8321B	2,4-D	0.0094		ug/L	P387048	
		Acesulfame K**	0.10	U	ug/L	P386984	MS
		AMPA**	0.10	U	ug/L	P386984	
		Sucralose**	0.41		ug/L	P386984	
		Acetaminophen**	0.0080	U	ug/L	P387048	
		Endothall**	0.25	U	ug/L	P386984	
		Acetamiprid**	0.0020	U	ug/L	P387048	
		Glufosinate**	0.10	U	ug/L	P386984	
		Glyphosate**	0.10	U	ug/L	P386984	
		Afidopyropen**	0.0020	U	ug/L	P387048	
		Bentazon	0.0027	I	ug/L	P387048	
		Benzovindiflupyr**	0.0020	U	ug/L	P387048	
		Carbamazepine**	8.0E-04	U	ug/L	P387048	
		Clothianidin**	0.011		ug/L	P387048	
		Dinotefuran**	0.0020	U	ug/L	P387048	
		Diuron	0.0043	I	ug/L	P387048	
		Fenuron	0.016	U	ug/L	P387048	
		Fluridone**	0.0036		ug/L	P387048	
		Imazapyr**	0.0075	I	ug/L	P387048	
		Hydrocodone**	0.0020	U	ug/L	P387048	
		Ibuprofen**	0.020	U	ug/L	P387048	
		Imidacloprid	0.17		ug/L	P387048	
		Linuron	0.0040	U	ug/L	P387048	
		Mandestrobin**	0.0020	U	ug/L	P387048	
		MCP	0.0020	U	ug/L	P387048	
		Naproxen**	0.0080	U	ug/L	P387048	
		Primidone**	0.0040	U	ug/L	P387048	
		Pyraclostrobin**	0.0020	U	ug/L	P387048	
		Thiamethoxam**	0.019		ug/L	P387048	

Field ID: G4SD0185

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2194634	EPA 8321B	Tolfenpyrad**	0.0020	U	ug/L	P387048	
		Triclopyr**	0.0040	U	ug/L	P387048	

Ref. Method and Comment:
SM 2540 D-2011: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample.
EPA 365.1 Rev. 2.0 dissolved: O-Phosphate-P: Batch matrix spike recoveries and relative percent difference are unavailable because of high analyte concentration in the QC sample.
EPA 8321B: MS accuracy for some analytes could not be assessed due to high concentration of parameter in the spiked sample.
EPA 8321B: MS accuracy for endothall could not be assessed due to a high concentration in the spiked sample.

Sample Location: Lake Damon @ Middle

Collection Date/Time: 09/03/2020 11:00

Field ID: G4SD0168

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2194618	EPA 180.1 Rev. 2.0	Turbidity	1.3		NTU	P386999	
	EPA 300.0 Rev. 2.1	Chloride	17		mg Cl/L	P387331	
		Sulfate	34		mg SO4/L	P387334	
	SM 2120 B-2011	Color (true)	12		PCU	P387010	
	SM 2320 B-2011	Total Alkalinity	12	A	mg CaCO3/L	P387126	
	SM 2540 C-2011	TDS	107		mg/L	P387385	
	SM 2540 D-2011	TSS	2	U	mg/L	P387378	
	SM 4500 F-C-2011	Fluoride	0.12		mg F/L	P387130	
2194619	EPA 350.1 Rev. 2.0	Ammonia-N	0.004	I	mg N/L	P387292	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.35	J	mg N/L	P387212	MS
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P387137	
	EPA 365.1 Rev. 2.0	Total-P	0.012		mg P/L	P387731	MS
	SM 5310 B-2011	Organic Carbon	4.1		mg C/L	P387314	
2194620	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P387012	

Ref. Method and Comment:

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

EPA 351.2 Rev. 2.0: Refer to the Lab Analysis Report for an explanation of QC Codes.

EPA 365.1 Rev. 2.0 dissolved: O-Phosphate-P: Batch matrix spike recoveries and relative percent difference are unavailable because of high analyte concentration in the QC sample.

Quality Assurance Report Method Blank Results

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P386999

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P387000

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P387331

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P387334

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P387292

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P387212

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P387137

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P387138

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P387731

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

Quality Assurance Report Method Blank Results

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P387012

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

Reference Method: EPA 8321B
Batch ID: P386984

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: EPA 8321B
Batch ID: P387048

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: P387010

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Quality Assurance Report

Method Blank Results

Reference Method: SM 2320 B-2011
Batch ID: P387126

Component	Result	Code	Units
Total Alkalinity	0.65	U	mg CaCO ₃ /L

Reference Method: SM 2540 C-2011
Batch ID: P387385

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-2011
Batch ID: P387378

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500 F-C-2011
Batch ID: P387130

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-2011
Batch ID: P387314

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: P387331

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P387334

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Sulfate	98.8		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P387292

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Ammonia-N	99.8		P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P387212

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: P387137

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P387138

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P387731

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total-P	108		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P387012

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

Reference Method: EPA 8321B
Batch ID: P386984

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Acesulfame K	50.5		P	40 - 150
AMPA	41.0		P	40 - 150
Endothall	114		P	40 - 150
Glufosinate	89.8		P	40 - 150

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 8321B
Batch ID: P386984

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Glyphosate	112		P	40 - 140
Sucralose	106		P	40 - 150

Reference Method: EPA 8321B
Batch ID: P387048

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2,4-D	124		P	30 - 160
Acetaminophen	85.5		P	30 - 160
Acetamiprid	73.5		P	30 - 160
Afidopyropen	61.3		P	30 - 160
Bentazon	61.5		P	30 - 160
Benzovindiflupyr	68.8		P	30 - 160
Carbamazepine	62.1		P	30 - 160
Clothianidin	75.4		P	30 - 160
Dinotefuran	86.6		P	30 - 160
Diuron	53.7		P	30 - 160
Fenuron	85.5		P	30 - 160
Fluridone	72.4		P	30 - 160
Hydrocodone	81.4		P	30 - 160
Ibuprofen	70.2		P	30 - 160
Imazapyr	71.6		P	30 - 160
Imidacloprid	106		P	30 - 160
Linuron	75.2		P	30 - 160
Mandestrobin	69.4		P	30 - 160
MCPP	115		P	30 - 160
Naproxen	93.5		P	30 - 160
Primidone	75.8		P	30 - 160
Pyraclostrobin	60.2		P	30 - 160
Thiamethoxam	80.2		P	30 - 160
Tolfenpyrad	43.0		P	30 - 160
Triclopyr	104		P	30 - 160

Reference Method: SM 2120 B-2011
Batch ID: P387010

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Color (true)	96.4		P	85 - 115

Reference Method: SM 2320 B-2011
Batch ID: P387126

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	99.4		P	93 - 104

Reference Method: SM 4500 F-C-2011
Batch ID: P387130

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	98.8		P	90 - 106

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: SM 5310 B-2011
Batch ID: P387314

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	98.1		P	85 - 115

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P387331

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2194472	Chloride	99.1		P	90 - 110
2194716	Chloride	98.5		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P387334

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2194472	Sulfate	93.8		P	90 - 110
2194716	Sulfate	95.1		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P387292

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2194619	Ammonia-N	95.3	99.3	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P387212

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2194619	Kjeldahl Nitrogen	107	112	P/F	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P387137

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2194490	NO2NO3-N	100	100	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P387138

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2194622	NO2NO3-N	98.2		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P387731

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2194491	Total-P	109	112	P/F	90 - 110

Reference Method: EPA 8321B
Batch ID: P386984

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2194415	Acesulfame K	30.4	33.8	F/F	40 - 150
2194415	AMPA	72.1	72.4	P/P	40 - 150
2194415	Glufosinate	71.6	82.0	P/P	40 - 150
2194415	Glyphosate	64.5	94.7	P/P	40 - 140
2194415	Sucralose	51.5	58.2	P/P	40 - 150

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 8321B
 Batch ID: P387048

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2194517	Acetaminophen	104	94.5	P/P	30 - 160
2194517	Acetamiprid	70.4	68.3	P/P	30 - 160
2194517	Afidopyropen	45.8	46.5	P/P	30 - 160
2194517	Benzovindiflupyr	61.3	61.1	P/P	30 - 160
2194517	Carbamazepine	56.8	51.3	P/P	30 - 160
2194517	Clothianidin	80.8	72.2	P/P	30 - 160
2194517	Dinotefuran	106	97.7	P/P	30 - 160
2194517	Diuron	44.6	38.1	P/P	30 - 160
2194517	Fenuron	81.4	78.9	P/P	30 - 160
2194517	Hydrocodone	80.6	78.5	P/P	30 - 160
2194517	Ibuprofen	66.2	62.5	P/P	30 - 160
2194517	Imidacloprid	152	135	P/P	30 - 160
2194517	Linuron	61.7	51.2	P/P	30 - 160
2194517	Mandestrobin	73.0	67.9	P/P	30 - 160
2194517	MCP	110	110	P/P	30 - 160
2194517	Naproxen	83.1	70.4	P/P	30 - 160
2194517	Primidone	92.9	87.2	P/P	30 - 160
2194517	Pyraclostrobin	62.8	60.5	P/P	30 - 160
2194517	Thiamethoxam	98.1	88.8	P/P	30 - 160
2194517	Tolfenpyrad	43.5	43.9	P/P	30 - 160
2194517	Triclopyr	114	109	P/P	30 - 160

Reference Method: SM 4500 F-C-2011
 Batch ID: P387130

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2194618	Fluoride	98.5	99.6	P/P	94 - 107

Reference Method: SM 5310 B-2011
 Batch ID: P387314

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2194492	Organic Carbon	96.6	98.4	P/P	85 - 115

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P386999

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2194478	Turbidity	4.72	Sample	P	0 - 20

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P387000

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2194621	Turbidity	11.7	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P387331

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2194472	Chloride	0.0776	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P387334

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2194472	Sulfate	0.218	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P387292

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2194619	Ammonia-N	3.78	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P387212

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2194619	Kjeldahl Nitrogen	4.14	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P387137

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2194490	NO2NO3-N	0.0	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P387138

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2194622	NO2NO3-N	0.708	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P387731

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2194491	Total-P	1.72	Spike	P	0 - 20

Reference Method: EPA 8321B
Batch ID: P386984

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2194415	Acesulfame K	10.6	Spike	P	0 - 30
2194415	AMPA	0.198	Spike	P	0 - 30
2194415	Endothall	2.72	Spike	P	0 - 30
2194415	Glufosinate	13.6	Spike	P	0 - 30
2194415	Glyphosate	6.72	Spike	P	0 - 30
2194415	Sucralose	11.6	Spike	P	0 - 30

Reference Method: EPA 8321B
Batch ID: P387048

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2194517	2,4-D	9.43	Spike	P	0 - 30
2194517	Acetaminophen	8.80	Spike	P	0 - 30
2194517	Acetamiprid	2.98	Spike	P	0 - 30
2194517	Afidopyropen	1.59	Spike	P	0 - 30
2194517	Bentazon	1.06	Spike	P	0 - 30
2194517	Benzovindiflupyr	0.351	Spike	P	0 - 30
2194517	Carbamazepine	9.02	Spike	P	0 - 30
2194517	Clothianidin	10.8	Spike	P	0 - 30
2194517	Dinotefuran	7.64	Spike	P	0 - 30
2194517	Diuron	6.69	Spike	P	0 - 30
2194517	Fenuron	3.16	Spike	P	0 - 30
2194517	Fluridone	6.35	Spike	P	0 - 30
2194517	Hydrocodone	2.62	Spike	P	0 - 30
2194517	Ibuprofen	5.70	Spike	P	0 - 30
2194517	Imazapyr	5.88	Spike	P	0 - 30
2194517	Imidacloprid	10.7	Spike	P	0 - 30
2194517	Linuron	18.5	Spike	P	0 - 30
2194517	Mandestrobin	7.25	Spike	P	0 - 30
2194517	MCPP	0.0766	Spike	P	0 - 30
2194517	Naproxen	14.3	Spike	P	0 - 30
2194517	Primidone	5.81	Spike	P	0 - 30
2194517	Pyraclostrobin	3.66	Spike	P	0 - 30
2194517	Thiamethoxam	10.0	Spike	P	0 - 30
2194517	Tolfenpyrad	0.883	Spike	P	0 - 30
2194517	Triclopyr	4.67	Spike	P	0 - 30

Reference Method: SM 2120 B-2011
Batch ID: P387010

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2194621	Color (true)	4.48	Sample	P	0 - 20

Quality Assurance Report Precision

Reference Method: SM 2320 B-2011
Batch ID: P387126

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2194618	Total Alkalinity	3.90	Sample	P	0 - 8.1

Reference Method: SM 2540 C-2011
Batch ID: P387385

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2194481	TDS	5.61	Sample	P	0 - 10

Reference Method: SM 4500 F-C-2011
Batch ID: P387130

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2194618	Fluoride	0.921	Spike	P	0 - 2.8

Reference Method: SM 5310 B-2011
Batch ID: P387314

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2194492	Organic Carbon	1.41	Spike	P	0 - 20

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

Quality Assurance Report Surrogates

Lab Sample ID: 2194634
Field Sample ID: G4SD0185

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	2,4-D-d3	97.6	P	30 - 160
EPA 8321B	Acetaminophen-d4	65.5	P	30 - 160
EPA 8321B	Carbamazepine-d10	55.9	P	30 - 160
EPA 8321B	Diuron-d6	52.8	P	30 - 160
EPA 8321B	Endothall-d6	114	P	30 - 160
EPA 8321B	Endothall-d6	114	P	30 - 160
EPA 8321B	Glyphosate 13C 15N	74.5	P	30 - 160
EPA 8321B	Glyphosate 13C 15N	74.5	P	30 - 160
EPA 8321B	Ibuprofen-d3	64.7	P	30 - 160
EPA 8321B	Primidone-d5	71.8	P	30 - 160
EPA 8321B	Sucralose-d6	64.4	P	30 - 160
EPA 8321B	Sucralose-d6	64.4	P	30 - 160

Quality Assurance Report Calibration Verification

Reference Method: EPA 180.1 Rev. 2.0

Run ID: A100828

Included Lab Sample IDs: 2194618, 2194621

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

Reference Method: SM 2120 B-2011

Run ID: A100830

Included Lab Sample IDs: 2194618, 2194621

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	97.7	98.2	P/P	90 - 115

Reference Method: EPA 365.1 Rev. 2.0 dissolved

Run ID: A100831

Included Lab Sample IDs: 2194620, 2194623

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	97.4	96.9	P/P	90 - 110

Reference Method: SM 2320 B-2011

Run ID: A100873

Included Lab Sample IDs: 2194618, 2194621

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	103	99.2	P/P	90 - 110
Total Alkalinity	103	101	P/P	90 - 110

Reference Method: SM 4500 F-C-2011

Run ID: A100873

Included Lab Sample IDs: 2194618, 2194621

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	101	101	P/P	90 - 110
Fluoride	96.7	95.9	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A100874

Included Lab Sample IDs: 2194619, 2194622

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO2NO3-N	100	99.5	P/P	90 - 110
NO2NO3-N	99.5	100	P/P	90 - 110

Reference Method: EPA 8321B

Run ID: A100901

Included Lab Sample IDs: 2194634

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Acesulfame K	60.0	160	P/P	60 - 160
Endothall	121	105	P/P	60 - 160

Quality Assurance Report Calibration Verification

Reference Method: EPA 8321B
Run ID: A100905
Included Lab Sample IDs: 2194634

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
AMPA	70.3	77.5	P/P	60 - 160
Glufosinate	81.7	98.2	P/P	60 - 160
Glyphosate	133	143	P/P	60 - 160

Reference Method: EPA 350.1 Rev. 2.0
Run ID: A100944
Included Lab Sample IDs: 2194619, 2194622

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	101	99.9	P/P	90 - 110
Ammonia-N	99.9	99.5	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Run ID: A100951
Included Lab Sample IDs: 2194619, 2194622

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	102	97.6	P/P	90 - 110
Kjeldahl Nitrogen	97.6	103	P/P	90 - 110

Reference Method: SM 5310 B-2011
Run ID: A100952
Included Lab Sample IDs: 2194619, 2194622

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	97.6	97.8	P/P	90 - 110

Reference Method: EPA 8321B
Run ID: A100956
Included Lab Sample IDs: 2194634

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Sucralose	101	106	P/P	60 - 160

Reference Method: EPA 300.0 Rev. 2.1
Run ID: A100958
Included Lab Sample IDs: 2194618, 2194621

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

Reference Method: EPA 8321B
Run ID: A101044
Included Lab Sample IDs: 2194634

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
2,4-D	128	116	P/P	50 - 150
Acetaminophen	106	120	P/P	60 - 160
Acetamiprid	121	124	P/P	50 - 150
Afidopyropen	96.4	94.0	P/P	50 - 150

Quality Assurance Report Calibration Verification

Reference Method: EPA 8321B
 Run ID: A101044
 Included Lab Sample IDs: 2194634

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Bentazon	111	118	P/P	50 - 160
Benzovindiflupyr	104	124	P/P	50 - 150
Carbamazepine	105	107	P/P	60 - 150
Clothianidin	93.6	102	P/P	60 - 150
Dinotefuran	99.1	104	P/P	50 - 150
Diuron	98.5	107	P/P	60 - 160
Fenuron	114	120	P/P	60 - 150
Fluridone	113	118	P/P	60 - 160
Hydrocodone	109	114	P/P	60 - 150
Ibuprofen	91.8	90.1	P/P	50 - 160
Imazapyr	132	126	P/P	50 - 160
Imidacloprid	103	111	P/P	60 - 150
Linuron	101	103	P/P	60 - 150
Mandestrobin	108	109	P/P	50 - 150
MCPP	111	114	P/P	50 - 150
Naproxen	90.3	144	P/P	50 - 160
Primidone	99.9	113	P/P	60 - 150
Pyraclostrobin	102	112	P/P	60 - 150
Thiamethoxam	105	116	P/P	50 - 150
Tolfenpyrad	108	119	P/P	60 - 150
Triclopyr	119	107	P/P	50 - 150

Reference Method: EPA 365.1 Rev. 2.0
 Run ID: A101180
 Included Lab Sample IDs: 2194619, 2194622

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	93.8	94.2	P/P	90 - 110
Total-P	95.2	93.8	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					4.72	
	Turbidity					11.7	
EPA 300.0 Rev. 2.1	Chloride	100	99.1	98.5		0.0776	
	Sulfate	98.8	93.8	95.1		0.218	
EPA 350.1 Rev. 2.0	Ammonia-N	99.8	95.3	99.3			3.78
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	106	107	112			4.14
EPA 353.2 Rev. 2.0	NO ₂ NO ₃ -N	100	100	100			0.0
	NO ₂ NO ₃ -N	101	98.2				0.708
EPA 365.1 Rev. 2.0	Total-P	108	109	112			1.72
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	98.4					
EPA 8321B	2,4-D	124					9.43
	Acesulfame K	50.5	30.4	33.8			10.6
	Acetaminophen	85.5	104	94.5			8.80
	Acetamiprid	73.5	70.4	68.3			2.98
	Afidopyropen	61.3	45.8	46.5			1.59
	AMPA	41.0	72.1	72.4			0.198
	Bentazon	61.5					1.06
	Benzovindiflupyr	68.8	61.3	61.1			0.351
	Carbamazepine	62.1	56.8	51.3			9.02
	Clothianidin	75.4	80.8	72.2			10.8
	Dinotefuran	86.6	106	97.7			7.64
	Diuron	53.7	44.6	38.1			6.69
	Endothall	114					2.72
	Fenuron	85.5	81.4	78.9			3.16
	Fluridone	72.4					6.35
	Glufosinate	89.8	71.6	82.0			13.6
	Glyphosate	112	64.5	94.7			6.72
	Hydrocodone	81.4	80.6	78.5			2.62
	Ibuprofen	70.2	66.2	62.5			5.70
	Imazapyr	71.6					5.88
	Imidacloprid	106	152	135			10.7
	Linuron	75.2	61.7	51.2			18.5
	Mandestrobin	69.4	73.0	67.9			7.25
	MCPP	115	110	110			0.0766
	Naproxen	93.5	83.1	70.4			14.3
	Primidone	75.8	92.9	87.2			5.81
	Pyraclostrobin	60.2	62.8	60.5			3.66
	Sucralose	106	51.5	58.2			11.6
	Thiamethoxam	80.2	98.1	88.8			10.0
	Tolfenpyrad	43.0	43.5	43.9			0.883
	Triclopyr	104	114	109			4.67
SM 2120 B-2011	Color (true)	96.4				4.48	
SM 2320 B-2011	Total Alkalinity	99.4				3.90	
SM 2540 C-2011	TDS					5.61	
SM 4500 F-C-2011	Fluoride	98.8	98.5	99.6			0.921
SM 5310 B-2011	Organic Carbon	98.1	96.6	98.4			1.41

Reference Method Descriptions

Method	Description	Associated Samples
EPA 180.1 Rev. 2.0	Turbidity in aqueous matrices	2194618, 2194621
EPA 300.0 Rev. 2.1	Chloride in aqueous matrices	2194618, 2194621
EPA 300.0 Rev. 2.1	Sulfate in aqueous matrices	2194618, 2194621

Reference Method Descriptions

Method	Description	Associated Samples
EPA 350.1 Rev. 2.0	Ammonia in aqueous matrices as mg N/L	2194619, 2194622
EPA 351.2 Rev. 2.0	Total Kjeldahl Nitrogen in aqueous matrices	2194619, 2194622
EPA 353.2 Rev. 2.0	Nitrite/Nitrate in aqueous matrices as mg N/L	2194619, 2194622
EPA 365.1 Rev. 2.0	Total Phosphorus in aqueous matrices as mg P/L	2194619, 2194622
EPA 365.1 Rev. 2.0 dissolved	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	2194620, 2194623
EPA 8321B	Pesticides, herbicides, and other chemicals in water matrices by HPLC/MS/MS	2194634
EPA 8321B	Water soluble organic compounds by HPLC/MS/MS	2194634
SM 2120 B-2011	True Color measured at 450 nm (not valid for NPDES monitoring)	2194618, 2194621
SM 2320 B-2011	Alkalinity in aqueous matrices as mg CaCO ₃ /L	2194618, 2194621
SM 2540 C-2011	Total Dissolved Solids in aqueous matrices	2194618, 2194621
SM 2540 D-2011	Total Suspended Solids in aqueous matrices using a maximum of 250 mL of sample	2194618, 2194621
SM 4500 F-C-2011	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	2194618, 2194621
SM 5310 B-2011	Nonpurgeable Organic Carbon in aqueous matrices	2194619, 2194622

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	09/04/2020			09/04/2020 15:07	Yen Ta	2194618, 2194621
EPA 300.0 Rev. 2.1	09/04/2020			09/11/2020 11:22	Elliott Rodriguez	2194618
	09/04/2020			09/11/2020 11:36	Elliott Rodriguez	2194621
EPA 350.1 Rev. 2.0	09/04/2020			09/12/2020 13:19	Ping Hua	2194619
	09/04/2020			09/12/2020 13:39	Ping Hua	2194622
EPA 351.2 Rev. 2.0	09/04/2020	09/10/2020 11:36	Sima Feizi	09/11/2020 15:37	Elliott Rodriguez	2194619
	09/04/2020	09/10/2020 11:36	Sima Feizi	09/11/2020 15:48	Elliott Rodriguez	2194622
EPA 353.2 Rev. 2.0	09/04/2020			09/09/2020 11:06	Beverly Y. Sanders	2194619
	09/04/2020			09/09/2020 11:15	Beverly Y. Sanders	2194622
EPA 365.1 Rev. 2.0	09/04/2020	09/23/2020 12:23	Yen Ta	09/24/2020 12:55	Lipi Saha	2194619
	09/04/2020	09/23/2020 12:23	Yen Ta	09/24/2020 13:03	Lipi Saha	2194622
EPA 365.1 Rev. 2.0 dissolved	09/04/2020			09/04/2020 15:13	Samantha Davila	2194620
	09/04/2020			09/04/2020 15:14	Samantha Davila	2194623
EPA 8321B	09/04/2020	09/04/2020 14:30	Rebecca Ware	09/08/2020 18:34	Rebecca Ware	2194634
	09/04/2020	09/04/2020 14:30	Rebecca Ware	09/09/2020 14:50	Rebecca Ware	2194634
	09/04/2020	09/04/2020 14:30	Rebecca Ware	09/11/2020 01:01	Rebecca Ware	2194634
	09/04/2020	09/09/2020 09:00	Hoor Shaik	09/17/2020 18:57	Juyoung Kim	2194634
SM 2120 B-2011	09/04/2020			09/04/2020 15:59	Samantha Davila	2194621
	09/04/2020			09/04/2020 16:00	Samantha Davila	2194618
SM 2320 B-2011	09/04/2020			09/08/2020 16:22	Dale L. Simmons	2194618
	09/04/2020			09/08/2020 20:42	Dale L. Simmons	2194621
SM 2540 C-2011	09/04/2020			09/08/2020 15:01	Yijie Li	2194618, 2194621
SM 2540 D-2011	09/04/2020			09/08/2020 15:26	Yijie Li	2194618, 2194621
SM 4500 F-C-2011	09/04/2020			09/08/2020 16:11	Dale L. Simmons	2194618
	09/04/2020			09/08/2020 20:42	Dale L. Simmons	2194621
SM 5310 B-2011	09/04/2020			09/12/2020 03:31	David Boose	2194619
	09/04/2020			09/12/2020 03:43	David Boose	2194622