

Chemical Analysis Report

SO-DIST-2021-04-23-01

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

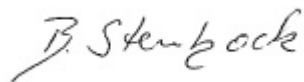
Event Description: **2021 SMP : Way Up There**
Request ID: **RQ-2021-04-19-59**
Customer: **SO-DIST**
Project ID: **SMP**

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FLDEP South District Office
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Date Certified: 17-MAY-2021 09:26



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: Arbuckle Branch

Collection Date/Time: 04/22/2021 12:00

Field ID: G4SD0172

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2242034	EPA 8321B	2,4-D	0.0020	U	ug/L	P396984	
		Acesulfame K	0.10	U	ug/L	P397199	
		2,4,5-T	0.0040	U	ug/L	P396984	
		AMPA	0.10	U	ug/L	P397199	
		Sucralose	0.069		ug/L	P397199	
		Acetaminophen	0.0080	U	ug/L	P396984	
		Acetamiprid	0.0020	U	ug/L	P396984	
		Endothall	0.25	U	ug/L	P397199	
		Glufosinate	0.10	U	ug/L	P397199	
		Glyphosate	0.10	U	ug/L	P397199	
		Afidopyropen	0.0020	U	ug/L	P396984	
		Bentazon	0.0049		ug/L	P396984	
		Benzovindiflupyr	0.0020	U	ug/L	P396984	
		Carbamazepine	8.0E-04	U	ug/L	P396984	
		Clothianidin	0.0020	U	ug/L	P396984	
		Dinotefuran	0.0020	U	ug/L	P396984	
		Diuron	0.0020	U	ug/L	P396984	
		Fenuron	0.016	U	ug/L	P396984	
		Fluridone	8.0E-04	U	ug/L	P396984	
		Imazapyr	0.0040	U	ug/L	P396984	
		Hydrocodone	0.0020	U	ug/L	P396984	
		Ibuprofen	0.020	U	ug/L	P396984	
		Imidacloprid	0.030		ug/L	P396984	MS
		Linuron	0.0040	U	ug/L	P396984	
		Mandestrobin	0.0020	U	ug/L	P396984	
		MCPP	0.0020	U	ug/L	P396984	MS
		Naproxen	0.0080	U	ug/L	P396984	
		Primidone	0.0040	U	ug/L	P396984	
		Pyraclostrobin	0.0020	U	ug/L	P396984	
		Thiamethoxam	0.0020	U	ug/L	P396984	MS
		Tolfenpyrad	0.0020	U	ug/L	P396984	
		Triclopyr	0.0040	U	ug/L	P396984	MS

Ref. Method and Comment:

EPA 8321B: MS accuracy for some analytes could not be assessed due to high concentration of parameter in the spiked sample.

Sample Location: Arbuckle Branch Near RR

Collection Date/Time: 04/22/2021 13:20

Field ID: G4SD0197

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2242035	EPA 8321B	2,4-D	0.0020	U	ug/L	P396984	
		Acesulfame K	0.10	U	ug/L	P397199	
		2,4,5-T	0.0040	U	ug/L	P396984	
		AMPA	0.10	U	ug/L	P397199	
		Sucralose	0.070		ug/L	P397199	
		Acetaminophen	0.027	I	ug/L	P396984	
		Acetamiprid	0.0020	U	ug/L	P396984	
		Endothall	0.25	U	ug/L	P397199	
		Glufosinate	0.10	U	ug/L	P397199	
		Glyphosate	0.10	U	ug/L	P397199	
		Afidopyropen	0.0020	U	ug/L	P396984	
		Bentazon	0.0036		ug/L	P396984	
		Benzovindiflupyr	0.0020	U	ug/L	P396984	
		Carbamazepine	8.0E-04	U	ug/L	P396984	
		Clothianidin	0.0020	U	ug/L	P396984	
		Dinotefuran	0.0020	U	ug/L	P396984	
		Diuron	0.0020	U	ug/L	P396984	
		Fenuron	0.016	U	ug/L	P396984	
		Fluridone	8.0E-04	U	ug/L	P396984	
		Imazapyr	0.0040	U	ug/L	P396984	
		Hydrocodone	0.0020	U	ug/L	P396984	
		Ibuprofen	0.020	U	ug/L	P396984	
		Imidacloprid	0.020		ug/L	P396984	MS
		Linuron	0.0040	U	ug/L	P396984	
		Mandestrobin	0.0020	U	ug/L	P396984	
		MCPP	0.0020	U	ug/L	P396984	MS
		Naproxen	0.0080	U	ug/L	P396984	
		Primidone	0.0040	U	ug/L	P396984	
		Pyraclostrobin	0.0020	U	ug/L	P396984	
		Thiamethoxam	0.0020	U	ug/L	P396984	MS
		Tolfenpyrad	0.0020	U	ug/L	P396984	
		Triclopyr	0.0040	U	ug/L	P396984	MS

Ref. Method and Comment:

EPA 8321B: MS accuracy for some analytes could not be assessed due to high concentration of parameter in the spiked sample.

Sample Location: ArbuckleCreekNearBranch

Collection Date/Time: 04/22/2021 13:25

Field ID: G4SD0210

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2242025	EPA 180.1 Rev. 2.0	Turbidity	22		NTU	P397089	
	EPA 300.0 Rev. 2.1	Chloride	19		mg Cl/L	P398117	
		Sulfate	35		mg SO4/L	P398118	
	SM 2120 B-2011	Color (true)	110	A	PCU	P397081	
	SM 2320 B-2011	Total Alkalinity	20		mg CaCO3/L	P397395	
	SM 2540 C-2011	TDS	145		mg/L	P397697	
	SM 2540 D-2011	TSS	45		mg/L	P397331	
	SM 4500 F-C-2011	Fluoride	0.064	I	mg F/L	P397397	
2242026	EPA 350.1 Rev. 2.0	Ammonia-N	0.097		mg N/L	P397721	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.5		mg N/L	P397446	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.27		mg N/L	P397402	
	EPA 365.1 Rev. 2.0	Total-P	0.25		mg P/L	P397255	
	SM 5310 B-2011	Organic Carbon	17		mg C/L	P397242	
2242027	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.13		mg P/L	P397073	

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: Batch matrix spike recoveries 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: P397089

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P398117

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P398118

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P397721

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P397446

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P397402

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P397255

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P397073

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

Reference Method: EPA 8321B
Batch ID: P396984

Component	Result	Code	Units
2,4-D	0.0020	U	ug/L
2,4,5-T	0.0040	U	ug/L
Acetaminophen	0.0080	U	ug/L
Acetamiprid	0.0020	U	ug/L

Quality Assurance Report Method Blank Results

Reference Method: EPA 8321B

Batch ID: P396984

Component	Result	Code	Units
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: EPA 8321B

Batch ID: P397199

Component	Result	Code	Units
Acesulfame K	0.10	U	ug/L
AMPA	0.10	U	ug/L
Endothall	0.25	U	ug/L
Glufosinate	0.10	U	ug/L
Glyphosate	0.10	U	ug/L
Sucralose	0.010	U	ug/L

Reference Method: SM 2120 B-2011

Batch ID: P397081

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2320 B-2011

Batch ID: P397395

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

Reference Method: SM 2540 C-2011

Batch ID: P397697

Component	Result	Code	Units
TDS	15	U	mg/L

Quality Assurance Report

Method Blank Results

Reference Method: SM 2540 D-2011
Batch ID: P397331

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500 F-C-2011
Batch ID: P397397

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-2011
Batch ID: P397242

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: P398117

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P398118

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P397721

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: P397446

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P397402

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P397255

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: P397073

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

Reference Method: EPA 8321B
Batch ID: P396984

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2,4-D	151		P	30 - 160
2,4,5-T	138		P	30 - 160
Acetaminophen	112		P	30 - 150
Acetamiprid	111		P	30 - 160
Afidopyropen	92.0		P	30 - 160
Bentazon	44.0		P	30 - 150
Benzovindiflupyr	83.1		P	30 - 160
Carbamazepine	94.7		P	30 - 160
Clothianidin	110		P	30 - 160
Dinotefuran	85.9		P	30 - 160

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 8321B

Batch ID: P396984

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Diuron	78.4		P	30 - 160
Fenuron	103		P	30 - 160
Fluridone	103		P	30 - 160
Hydrocodone	111		P	30 - 160
Ibuprofen	77.4		P	30 - 160
Imazapyr	111		P	30 - 160
Imidacloprid	114		P	30 - 160
Linuron	77.8		P	30 - 160
Mandestrobin	98.6		P	30 - 160
MCPP	158		P	30 - 160
Naproxen	111		P	30 - 160
Primidone	103		P	30 - 160
Pyraclostrobin	76.6		P	30 - 160
Thiamethoxam	121		P	30 - 160
Tolfenpyrad	49.9		P	30 - 160
Triclopyr	150		P	30 - 160

Reference Method: EPA 8321B

Batch ID: P397199

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Acesulfame K	99.2		P	40 - 150
AMPA	80.6		P	40 - 150
Endothall	87.2		P	40 - 150
Glufosinate	81.5		P	40 - 150
Glyphosate	98.4		P	40 - 140
Sucralose	106		P	40 - 150

Reference Method: SM 2120 B-2011

Batch ID: P397081

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

Reference Method: SM 2320 B-2011

Batch ID: P397395

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	100		P	93 - 104

Reference Method: SM 4500 F-C-2011

Batch ID: P397397

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	95.9		P	90 - 106

Reference Method: SM 5310 B-2011

Batch ID: P397242

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	96.2		P	85 - 115

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P398117

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2241786	Chloride	98.7		P	90 - 110
2242025	Chloride	98.4		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P398118

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2241786	Sulfate	102		P	90 - 110
2242025	Sulfate	98.9		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P397721

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2242683	Ammonia-N	100	101	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P397402

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2241928	NO2NO3-N	98.6	99.6	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P397255

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2241888	Total-P	106	104	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P397073

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2241929	O-Phosphate-P	94.5	94.0	P/P	90 - 110

Reference Method: EPA 8321B
Batch ID: P396984

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2241346	2,4-D	154	158	P/P	30 - 160
2241346	2,4,5-T	146	150	P/P	30 - 160
2241346	Acetaminophen	111	91.8	P/P	30 - 150
2241346	Acetamiprid	115	120	P/P	30 - 160
2241346	Afidopyropen	104	102	P/P	30 - 160
2241346	Benzovindiflupyr	100	98.5	P/P	30 - 160
2241346	Carbamazepine	96.4	90.0	P/P	30 - 160
2241346	Clothianidin	125	127	P/P	30 - 160
2241346	Dinotefuran	155	156	P/P	30 - 160
2241346	Diuron	73.3	56.6	P/P	30 - 160
2241346	Fenuron	118	111	P/P	30 - 160
2241346	Fluridone	120	121	P/P	30 - 160
2241346	Hydrocodone	131	132	P/P	30 - 160
2241346	Ibuprofen	102	76.7	P/P	30 - 160

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 8321B

Batch ID: P396984

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2241346	Imidacloprid	244	236	F/F	30 - 160
2241346	Linuron	78.6	81.6	P/P	30 - 160
2241346	Mandestrobin	107	110	P/P	30 - 160
2241346	MCPP	181	184	F/F	30 - 160
2241346	Naproxen	89.7	99.3	P/P	30 - 160
2241346	Primidone	131	119	P/P	30 - 160
2241346	Pyraclostrobin	98.5	99.1	P/P	30 - 160
2241346	Thiamethoxam	195	196	F/F	30 - 160
2241346	Tolfenpyrad	66.3	70.6	P/P	30 - 160
2241346	Triclopyr	163	152	F/P	30 - 160

Reference Method: EPA 8321B

Batch ID: P397199

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2241899	Acesulfame K	64.6	69.6	P/P	40 - 150
2241899	AMPA	97.2	103	P/P	40 - 150
2241899	Endothall	76.8	86.7	P/P	40 - 150
2241899	Glufosinate	95.4	93.6	P/P	40 - 150
2241899	Glyphosate	76.9	76.6	P/P	40 - 140
2241899	Sucralose	50.3	50.1	P/P	40 - 150

Reference Method: SM 4500 F-C-2011

Batch ID: P397397

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2243040	Fluoride	99.5	100	P/P	94 - 107

Reference Method: SM 5310 B-2011

Batch ID: P397242

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2241724	Organic Carbon	97.0	98.0	P/P	85 - 115

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P397089

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2242044	Turbidity	7.52	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P398117

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2241786	Chloride	1.07	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P398118

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2241786	Sulfate	1.16	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P397721

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2242683	Ammonia-N	0.995	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P397446

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2241927	Kjeldahl Nitrogen	0.0382	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P397402

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2241928	NO2NO3-N	0.957	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P397255

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2241888	Total-P	1.76	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P397073

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2241929	O-Phosphate-P	0.531	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 8321B
 Batch ID: P396984

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2241346	2,4-D	2.49	Spike	P	0 - 30
2241346	2,4,5-T	2.47	Spike	P	0 - 30
2241346	Acetaminophen	15.7	Spike	P	0 - 30
2241346	Acetamiprid	4.09	Spike	P	0 - 30
2241346	Afidopyropen	1.46	Spike	P	0 - 30
2241346	Bentazon	16.5	Spike	P	0 - 30
2241346	Benzovindiflupyr	1.66	Spike	P	0 - 30
2241346	Carbamazepine	6.87	Spike	P	0 - 30
2241346	Clothianidin	1.52	Spike	P	0 - 30
2241346	Dinotefuran	0.803	Spike	P	0 - 30
2241346	Diuron	25.7	Spike	P	0 - 30
2241346	Fenuron	5.96	Spike	P	0 - 30
2241346	Fluridone	0.683	Spike	P	0 - 30
2241346	Hydrocodone	0.830	Spike	P	0 - 30
2241346	Ibuprofen	28.5	Spike	P	0 - 30
2241346	Imazapyr	4.89	Spike	P	0 - 30
2241346	Imidacloprid	2.76	Spike	P	0 - 30
2241346	Linuron	3.71	Spike	P	0 - 30
2241346	Mandestrobin	3.57	Spike	P	0 - 30
2241346	MCP	1.32	Spike	P	0 - 30
2241346	Naproxen	10.1	Spike	P	0 - 30
2241346	Primidone	9.53	Spike	P	0 - 30
2241346	Pyraclostrobin	0.678	Spike	P	0 - 30
2241346	Thiamethoxam	0.613	Spike	P	0 - 30
2241346	Tolfenpyrad	6.33	Spike	P	0 - 30
2241346	Triclopyr	6.93	Spike	P	0 - 30

Reference Method: EPA 8321B
 Batch ID: P397199

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2241899	Acesulfame K	7.51	Spike	P	0 - 30
2241899	AMPA	5.48	Spike	P	0 - 30
2241899	Endothall	12.0	Spike	P	0 - 30
2241899	Glufosinate	1.99	Spike	P	0 - 30
2241899	Glyphosate	0.365	Spike	P	0 - 30
2241899	Sucralose	0.408	Spike	P	0 - 30

Reference Method: SM 2120 B-2011
 Batch ID: P397081

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2242025	Color (true)	0.0725	Sample	P	0 - 20

Reference Method: SM 2320 B-2011
 Batch ID: P397395

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
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Quality Assurance Report Precision

Reference Method: SM 2320 B-2011
Batch ID: P397395

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2243040	Total Alkalinity	0.909	Sample	P	0 - 8.1

Reference Method: SM 2540 C-2011
Batch ID: P397697

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2241790	TDS	6.74	Sample	P	0 - 10

Reference Method: SM 4500 F-C-2011
Batch ID: P397397

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2243040	Fluoride	0.467	Spike	P	0 - 2.8

Reference Method: SM 5310 B-2011
Batch ID: P397242

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2241724	Organic Carbon	0.600	Spike	P	0 - 20

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

Quality Assurance Report Surrogates

Lab Sample ID: 2242034

Field Sample ID: G4SD0172

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	2,4-D-d3	121	P	30 - 160
EPA 8321B	Acetaminophen-d4	103	P	30 - 160
EPA 8321B	Carbamazepine-d10	91.8	P	30 - 160
EPA 8321B	Diuron-d6	51.6	P	30 - 160
EPA 8321B	Endothall-d6	82.9	P	40 - 160
EPA 8321B	Endothall-d6	82.9	P	40 - 160
EPA 8321B	Glyphosate 13C 15N	85.8	P	40 - 160
EPA 8321B	Glyphosate 13C 15N	85.8	P	40 - 160
EPA 8321B	Ibuprofen-d3	79.1	P	30 - 160
EPA 8321B	Primidone-d5	120	P	30 - 160
EPA 8321B	Sucralose-d6	68.6	P	30 - 160
EPA 8321B	Sucralose-d6	68.6	P	30 - 160

Lab Sample ID: 2242035

Field Sample ID: G4SD0197

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	2,4-D-d3	122	P	30 - 160
EPA 8321B	Acetaminophen-d4	98.8	P	30 - 160
EPA 8321B	Carbamazepine-d10	90.9	P	30 - 160
EPA 8321B	Diuron-d6	67.2	P	30 - 160
EPA 8321B	Endothall-d6	101	P	40 - 160
EPA 8321B	Endothall-d6	101	P	40 - 160
EPA 8321B	Glyphosate 13C 15N	91.2	P	40 - 160
EPA 8321B	Glyphosate 13C 15N	91.2	P	40 - 160
EPA 8321B	Ibuprofen-d3	89.0	P	30 - 160
EPA 8321B	Primidone-d5	72.0	P	30 - 160
EPA 8321B	Sucralose-d6	68.4	P	30 - 160
EPA 8321B	Sucralose-d6	68.4	P	30 - 160

Quality Assurance Report Calibration Verification

Reference Method: EPA 365.1 Rev. 2.0 dissolved

Run ID: A104944

Included Lab Sample IDs: 2242027

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	101	99.8	P/P	90 - 110

Reference Method: SM 2120 B-2011

Run ID: A104946

Included Lab Sample IDs: 2242025

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	104	105	P/P	90 - 115

Reference Method: EPA 180.1 Rev. 2.0

Run ID: A104949

Included Lab Sample IDs: 2242025

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Turbidity	99.5	101	P/P	95 - 105

Reference Method: SM 5310 B-2011

Run ID: A105019

Included Lab Sample IDs: 2242026

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	96.2	95.4	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A105047

Included Lab Sample IDs: 2242026

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

Reference Method: EPA 8321B

Run ID: A105072

Included Lab Sample IDs: 2242034, 2242035

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Acesulfame K	123	88.1	P/P	40 - 160
Acesulfame K	88.1	86.8	P/P	40 - 160
AMPA	72.0	73.5	P/P	40 - 160
AMPA	73.3	72.0	P/P	40 - 160
Endothall	106	98.4	P/P	40 - 160
Endothall	81.0	106	P/P	40 - 160
Glufosinate	65.8	79.0	P/P	40 - 160
Glufosinate	79.0	73.7	P/P	40 - 160
Glyphosate	103	94.2	P/P	40 - 160
Glyphosate	94.2	87.4	P/P	40 - 160

Reference Method: SM 2320 B-2011

Run ID: A105080

Included Lab Sample IDs: 2242025

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
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Quality Assurance Report Calibration Verification

Reference Method: SM 2320 B-2011

Run ID: A105080

Included Lab Sample IDs: 2242025

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	100	97.7	P/P	90 - 110

Reference Method: SM 4500 F-C-2011

Run ID: A105080

Included Lab Sample IDs: 2242025

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

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A105082

Included Lab Sample IDs: 2242026

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

Reference Method: EPA 8321B

Run ID: A105083

Included Lab Sample IDs: 2242034, 2242035

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Sucralose	109	110	P/P	60 - 160

Reference Method: EPA 8321B

Run ID: A105098

Included Lab Sample IDs: 2242034, 2242035

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
2,4-D	96.4	107	P/P	50 - 150
2,4,5-T	104	103	P/P	50 - 150
Acetaminophen	114	110	P/P	60 - 160
Acetamiprid	122	127	P/P	50 - 150
Afidopyropen	123	139	P/P	50 - 150
Bentazon	150	122	P/P	50 - 160
Benzovindiflupyr	115	128	P/P	50 - 160
Carbamazepine	117	123	P/P	60 - 150
Clothianidin	103	119	P/P	60 - 150
Dinotefuran	136	121	P/P	50 - 150
Diuron	120	98.0	P/P	60 - 160
Fenuron	116	108	P/P	60 - 150
Fluridone	135	133	P/P	60 - 160
Hydrocodone	134	124	P/P	60 - 150
Ibuprofen	80.9	107	P/P	50 - 160
Imazapyr	115	107	P/P	50 - 150
Imidacloprid	114	127	P/P	60 - 150
Linuron	103	104	P/P	60 - 150
Mandestrobin	114	119	P/P	50 - 150
MCPP	102	111	P/P	50 - 150
Naproxen	118	139	P/P	50 - 160
Primidone	94.1	127	P/P	60 - 150
Pyraclostrobin	116	116	P/P	60 - 150

Quality Assurance Report Calibration Verification

Reference Method: EPA 8321B

Run ID: A105098

Included Lab Sample IDs: 2242034, 2242035

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Thiamethoxam	136	135	P/P	50 - 150
Tolfenpyrad	108	123	P/P	60 - 150
Triclopyr	118	110	P/P	50 - 150

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A105110

Included Lab Sample IDs: 2242026

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	101	99.3	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A105202

Included Lab Sample IDs: 2242026

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	99.0	98.4	P/P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1

Run ID: A105392

Included Lab Sample IDs: 2242025

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	100	101	P/P	90 - 110
Sulfate	100	101	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					7.52	
EPA 300.0 Rev. 2.1	Chloride	101	98.7	98.4		1.07	
	Sulfate	102	102	98.9		1.16	
EPA 350.1 Rev. 2.0	Ammonia-N	99.2	100	101			0.995
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	103					0.0382
EPA 353.2 Rev. 2.0	NO ₂ NO ₃ -N	102	98.6	99.6			0.957
EPA 365.1 Rev. 2.0	Total-P	104	106	104			1.76
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	98.4	94.5	94.0			0.531
EPA 8321B	2,4-D	151	154	158			2.49
	2,4,5-T	138	146	150			2.47
	Acesulfame K	99.2	64.6	69.6			7.51
	Acetaminophen	112	111	91.8			15.7
	Acetamiprid	111	115	120			4.09
	Afidopyropen	92.0	104	102			1.46
	AMPA	80.6	97.2	103			5.48
	Bentazon	44.0					16.5
	Benzovindiflupyr	83.1	100	98.5			1.66
	Carbamazepine	94.7	96.4	90.0			6.87
	Clothianidin	110	125	127			1.52
	Dinotefuran	85.9	155	156			0.803
	Diuron	78.4	73.3	56.6			25.7
	Endothall	87.2	76.8	86.7			12.0
	Fenuron	103	118	111			5.96
	Fluridone	103	120	121			0.683
	Glufosinate	81.5	95.4	93.6			1.99
	Glyphosate	98.4	76.9	76.6			0.365
	Hydrocodone	111	131	132			0.830
	Ibuprofen	77.4	102	76.7			28.5
	Imazapyr	111					4.89
	Imidacloprid	114	244	236			2.76
	Linuron	77.8	78.6	81.6			3.71
	Mandestrobin	98.6	107	110			3.57
	MCPP	158	181	184			1.32
	Naproxen	111	89.7	99.3			10.1
	Primidone	103	131	119			9.53
	Pyraclostrobin	76.6	98.5	99.1			0.678
	Sucralose	106	50.3	50.1			0.408
	Thiamethoxam	121	195	196			0.613
	Tolfenpyrad	49.9	66.3	70.6			6.33
	Triclopyr	150	163	152			6.93
SM 2120 B-2011	Color (true)	102				0.0725	
SM 2320 B-2011	Total Alkalinity	100				0.909	
SM 2540 C-2011	TDS					6.74	
SM 4500 F-C-2011	Fluoride	95.9	99.5	100			0.467
SM 5310 B-2011	Organic Carbon	96.2	97.0	98.0			0.600

Reference Method Descriptions

Method	Description	Associated Samples
EPA 180.1 Rev. 2.0	Turbidity in aqueous matrices	2242025
EPA 300.0 Rev. 2.1	Chloride in aqueous matrices	2242025
EPA 300.0 Rev. 2.1	Sulfate in aqueous matrices	2242025
EPA 350.1 Rev. 2.0	Ammonia in aqueous matrices as mg N/L	2242026

Reference Method Descriptions

Method	Description	<u>Associated Samples</u>
EPA 351.2 Rev. 2.0	Total Kjeldahl Nitrogen in aqueous matrices	2242026
EPA 353.2 Rev. 2.0	Nitrite/Nitrate in aqueous matrices as mg N/L	2242026
EPA 365.1 Rev. 2.0	Total Phosphorus in aqueous matrices as mg P/L	2242026
EPA 365.1 Rev. 2.0 dissolved	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	2242027
EPA 8321B	Pesticides, herbicides, and other chemicals in water matrices by HPLC/MS/MS	2242034, 2242035
EPA 8321B	Water soluble organic compounds by HPLC/MS/MS	2242034, 2242035
SM 2120 B-2011	True Color measured at 450 nm (not valid for NPDES monitoring)	2242025
SM 2320 B-2011	Alkalinity in aqueous matrices as mg CaCO ₃ /L	2242025
SM 2540 C-2011	Total Dissolved Solids in aqueous matrices	2242025
SM 2540 D-2011	Total Suspended Solids in aqueous matrices using a maximum of 250 mL of sample	2242025
SM 4500 F-C-2011	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	2242025
SM 5310 B-2011	Nonpurgeable Organic Carbon in aqueous matrices	2242026

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
EPA 180.1 Rev. 2.0	04/23/2021			04/23/2021 16:29	Yen Ta	2242025
EPA 300.0 Rev. 2.1	04/23/2021			05/13/2021 02:01	Lipi Saha	2242025
EPA 350.1 Rev. 2.0	04/23/2021			05/05/2021 17:00	Ping Hua	2242026
EPA 351.2 Rev. 2.0	04/23/2021	04/29/2021 13:24	Benjamin T. Nordmann	04/30/2021 12:18	Virginia P. Brown	2242026
EPA 353.2 Rev. 2.0	04/23/2021			04/29/2021 11:23	Beverly Y. Sanders	2242026
EPA 365.1 Rev. 2.0	04/23/2021	04/27/2021 11:54	Yen Ta	04/28/2021 12:05	Shengyu Ding	2242026
EPA 365.1 Rev. 2.0 dissolved	04/23/2021			04/23/2021 15:22	Blanca Fach	2242027
EPA 8321B	04/23/2021	04/26/2021 09:00	Hoor Shaik	05/01/2021 07:43	Juyoung Kim	2242034
	04/23/2021	04/26/2021 09:00	Hoor Shaik	05/01/2021 08:18	Juyoung Kim	2242035
	04/23/2021	04/27/2021 11:00	Rebecca Ware	04/28/2021 11:43	Rebecca Ware	2242034
	04/23/2021	04/27/2021 11:00	Rebecca Ware	04/28/2021 12:13	Rebecca Ware	2242035
	04/23/2021	04/27/2021 11:00	Rebecca Ware	04/29/2021 04:33	Rebecca Ware	2242034
	04/23/2021	04/27/2021 11:00	Rebecca Ware	04/29/2021 04:45	Rebecca Ware	2242035
SM 2120 B-2011	04/23/2021			04/23/2021 15:57	Madeline Gruver	2242025
SM 2320 B-2011	04/23/2021			04/28/2021 23:54	Dale L. Simmons	2242025
SM 2540 C-2011	04/23/2021			04/27/2021 15:21	Yijie Li	2242025
SM 2540 D-2011	04/23/2021			04/27/2021 15:21	Yijie Li	2242025
SM 4500 F-C-2011	04/23/2021			04/28/2021 23:54	Dale L. Simmons	2242025
SM 5310 B-2011	04/23/2021			04/27/2021 04:14	Lauren Lees	2242026