

Chemical Analysis Report

SO-DIST-2022-12-21-03

Florida DEP Laboratory
2600 Blair Stone Road
Tallahassee, FL 32399-2400
DOH Accreditation E31780

Event Description: **2022 SMP : Arbuckle**
Request ID: **RQ-2022-12-19-22**
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: William Mullen

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Certified by: Colin Wright, Program Administrator

Date Certified: 17-JAN-2023 12:43

A handwritten signature in black ink, appearing to read "Colin Wright", is shown on a light-colored background.

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: 12/20/2022 10:50

Field ID: G4SD0172

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2377057	DEP SOP: NU-094-1	Color (true)	220		PCU	P423845	
	EPA 180.1 Rev. 2.0	Turbidity	3.2		NTU	P423848	
	EPA 300.0 Rev. 2.1	Chloride	32		mg Cl/L	P424400	
		Sulfate	17		mg SO4/L	P424209	
	SM 2320 B-2011	Total Alkalinity	14	Q	mg CaCO3/L	P424167	
	SM 2540 C-2015	TDS	146		mg/L	P424227	
	SM 2540 D-2015	TSS	4	I	mg/L	P424117	
2377058	SM 4500-F- C-2011	Fluoride	0.039	I	mg F/L	P424515	
	EPA 350.1 Rev. 2.0	Ammonia-N	0.18		mg N/L	P424305	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	2.2		mg N/L	P424049	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.059		mg N/L	P424014	
	EPA 365.1 Rev. 2.0	Total-P	0.068		mg P/L	P424135	
2377066	SM 5310 B-2011	Organic Carbon	31		mg C/L	P424182	
	EPA 8321B	2,4-D	0.42		ug/L	P423825	
		Acesulfame K	0.10	U	ug/L	P423755	
		2,4,5-T	0.0040	U	ug/L	P423825	
		AMPA	0.10	U	ug/L	P423755	
		Acetaminophen	0.0080	U	ug/L	P423825	
		Acetamiprid	0.0020	U	ug/L	P423825	
		Endothall	0.25	U	ug/L	P423755	MS
		Glufosinate	0.10	U	ug/L	P423755	
		Glyphosate	0.25	I	ug/L	P423755	
		Afidopyropen	0.0020	U	ug/L	P423825	
		Bentazon	0.0015	I	ug/L	P423825	
		Sucralose	0.052		ug/L	P423755	
		Benzovindiflupyr	0.0020	U	ug/L	P423825	
		Carbamazepine	8.0E-04	U	ug/L	P423825	
		Clothianidin	0.0020	U	ug/L	P423825	
		Dinotefuran	0.0020	U	ug/L	P423825	
		Diuron	0.0020	U	ug/L	P423825	
		Fenuron	0.032	U	ug/L	P423825	
		Fluridone	8.0E-04	U	ug/L	P423825	
		Imazapyr	0.0040	U	ug/L	P423825	
		Hydrocodone	0.0020	U	ug/L	P423825	
		Ibuprofen	0.20	U	ug/L	P423825	
		Imidacloprid	0.0026	I	ug/L	P423825	
		Linuron	0.0040	U	ug/L	P423825	
		Mandestrobin	0.0020	U	ug/L	P423825	
		MCPP	0.0040	U	ug/L	P423825	
		Naproxen	0.0080	U	ug/L	P423825	
		Primidone	0.0040	U	ug/L	P423825	
		Pyraclostrobin	0.0020	U	ug/L	P423825	
		Silvex	0.0040	U	ug/L	P423825	
		Thiamethoxam	0.0020	U	ug/L	P423825	

Field ID: G4SD0172

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2377066	EPA 8321B	Tolfenpyrad	0.0020	U	ug/L	P423825	
		Triclopyr	0.0040	U	ug/L	P423825	

Ref. Method and Comment:
SM 2320 B-2011: The sample was analyzed out of hold time because the HVAC system in the laboratory was down resulting in excessively cold temperatures.

Quality Assurance Report Method Blank Results

Reference Method: DEP SOP: NU-094-1
Batch ID: P423845

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P423848

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P424209

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P424400

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P424305

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P424049

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P424014

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P424135

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

Reference Method: EPA 8321B
Batch ID: P423755

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: P423755

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

Reference Method: EPA 8321B
Batch ID: P423825

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
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	0.032	U	ug/L
Fluridone	8.0E-04	U	ug/L
Hydrocodone	0.0020	U	ug/L
Ibuprofen	0.20	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	0.0040	U	ug/L
Naproxen	0.0080	U	ug/L
Primidone	0.0040	U	ug/L
Pyraclostrobin	0.0020	U	ug/L
Silvex	0.0040	U	ug/L
Thiamethoxam	0.0020	U	ug/L
Tolfenpyrad	0.0020	U	ug/L
Triclopyr	0.0040	U	ug/L

Reference Method: SM 2320 B-2011
Batch ID: P424167

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

Reference Method: SM 2540 C-2015
Batch ID: P424227

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-2015
Batch ID: P424117

Component	Result	Code	Units
TSS	2	U	mg/L

Quality Assurance Report

Method Blank Results

Reference Method: SM 4500-F- C-2011
Batch ID: P424515

Component	Result	Code	Units
Fluoride	0.025	U	mg F/L

Reference Method: SM 5310 B-2011
Batch ID: P424182

Component	Result	Code	Units
Organic Carbon	0.50	U	mg C/L

Quality Assurance Report

Laboratory Control Sample Accuracy

Reference Method: DEP SOP: NU-094-1
Batch ID: P423845

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Color (true)	97.7		P	90 - 110

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P423848

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P424209

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Sulfate	96.6		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P424400

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P424305

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Ammonia-N	95.6		P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P424049

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P424014

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
NO2NO3-N	104		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P424135

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

Reference Method: EPA 8321B
Batch ID: P423755

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Acesulfame K	71.4		P	40 - 150
AMPA	90.8		P	40 - 150
Endothall	124		P	40 - 150
Glufosinate	106		P	40 - 150

Quality Assurance Report

Laboratory Control Sample Accuracy

Reference Method: EPA 8321B

Batch ID: P423755

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Glyphosate	108		P	40 - 150
Sucralose	122		P	40 - 150

Reference Method: EPA 8321B

Batch ID: P423825

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2,4-D	89.5		P	40 - 150
2,4,5-T	76.1		P	40 - 150
Acetaminophen	80.5		P	30 - 150
Acetamiprid	73.3		P	40 - 150
Afidopyropen	56.1		P	30 - 150
Bentazon	97.4		P	30 - 150
Benzovindiflupyr	79.9		P	40 - 150
Carbamazepine	90.0		P	40 - 150
Clothianidin	82.5		P	40 - 150
Dinotefuran	81.8		P	40 - 150
Diuron	90.9		P	40 - 150
Fenuron	93.9		P	40 - 150
Fluridone	89.2		P	40 - 150
Hydrocodone	86.1		P	40 - 150
Ibuprofen	91.6		P	40 - 150
Imazapyr	88.3		P	40 - 150
Imidacloprid	90.3		P	40 - 150
Linuron	68.5		P	40 - 150
Mandestrobin	88.3		P	40 - 150
MCPP	97.9		P	40 - 150
Naproxen	84.9		P	40 - 150
Primidone	85.2		P	40 - 150
Pyraclostrobin	76.5		P	40 - 150
Silvex	77.8		P	40 - 150
Thiamethoxam	87.8		P	40 - 150
Tolfenpyrad	48.0		P	30 - 150
Triclopyr	80.2		P	40 - 150

Reference Method: SM 2320 B-2011

Batch ID: P424167

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	95.0		P	94 - 106

Reference Method: SM 2540 C-2015

Batch ID: P424227

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
TDS	96.9		P	90 - 110

Reference Method: SM 2540 D-2015

Batch ID: P424117

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
TSS	88.6		P	85 - 106

Quality Assurance Report

Laboratory Control Sample Accuracy

Reference Method: SM 4500-F- C-2011
Batch ID: P424515

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	98.9		P	96 - 104

Reference Method: SM 5310 B-2011
Batch ID: P424182

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

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P424209

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2376969	Sulfate	95.4		P	90 - 110
2377150	Sulfate	95.4		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P424400

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2376969	Chloride	97.8		P	90 - 110
2377150	Chloride	100		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P424305

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2377017	Ammonia-N	99.6	98.0	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P424049

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2376971	Kjeldahl Nitrogen	101	99.3	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P424014

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2376951	NO2NO3-N	98.5		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P424135

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2377087	Total-P	105	105	P/P	90 - 110

Reference Method: EPA 8321B
Batch ID: P423755

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2376518	Acesulfame K	46.9	41.6	P/P	40 - 150
2376518	AMPA	87.8	90.6	P/P	40 - 150
2376518	Endothall	157	155	F/F	40 - 150
2376518	Glufosinate	124	124	P/P	40 - 150
2376518	Glyphosate	117	105	P/P	40 - 150
2376518	Sucralose	97.1	101	P/P	40 - 150

Reference Method: EPA 8321B
Batch ID: P423825

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2376968	2,4-D	97.0	75.4	P/P	40 - 150
2376968	2,4,5-T	78.5	60.9	P/P	40 - 150
2376968	Acetaminophen	90.3	86.6	P/P	30 - 150

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 8321B

Batch ID: P423825

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2376968	Acetamiprid	86.9	68.8	P/P	40 - 150
2376968	Afidopyropen	66.9	53.4	P/P	30 - 150
2376968	Bentazon	58.1	64.0	P/P	30 - 150
2376968	Benzovindiflupyr	92.2	79.0	P/P	40 - 150
2376968	Carbamazepine	84.1	77.4	P/P	40 - 150
2376968	Clothianidin	105	90.9	P/P	40 - 150
2376968	Dinotefuran	102	89.8	P/P	40 - 150
2376968	Diuron	85.1	73.9	P/P	40 - 150
2376968	Fenuron	93.1	83.3	P/P	40 - 150
2376968	Fluridone	81.6	78.4	P/P	40 - 150
2376968	Hydrocodone	98.1	84.1	P/P	40 - 150
2376968	Ibuprofen	92.2	80.3	P/P	40 - 150
2376968	Imazapyr	120	105	P/P	40 - 150
2376968	Imidacloprid	143	114	P/P	40 - 150
2376968	Linuron	78.9	71.1	P/P	40 - 150
2376968	Mandestrobin	96.1	85.6	P/P	40 - 150
2376968	MCCP	102	79.0	P/P	40 - 150
2376968	Naproxen	83.4	74.0	P/P	40 - 150
2376968	Primidone	114	98.2	P/P	40 - 150
2376968	Pyraclostrobin	85.3	76.7	P/P	40 - 150
2376968	Silvex	79.8	69.7	P/P	40 - 150
2376968	Thiamethoxam	116	98.4	P/P	40 - 150
2376968	Tolfenpyrad	56.2	52.1	P/P	30 - 150
2376968	Triclopyr	80.2	61.1	P/P	40 - 150

Reference Method: SM 4500-F- C-2011

Batch ID: P424515

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2377253	Fluoride	95.1	97.3	P/P	94 - 104

Reference Method: SM 5310 B-2011

Batch ID: P424182

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2377374	Organic Carbon	97.4	96.8	P/P	85 - 115

Quality Assurance Report Precision

Reference Method: DEP SOP: NU-094-1
Batch ID: P423845

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2376995	Color (true)	1.98	Sample	P	0 - 20

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P423848

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2376906	Turbidity	5.24	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P424209

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2376969	Sulfate	1.76	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P424400

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2376969	Chloride	0.284	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P424305

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2377017	Ammonia-N	1.49	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P424049

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2376971	Kjeldahl Nitrogen	1.00	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P424014

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2376951	NO2NO3-N	0.663	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P424135

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2377087	Total-P	0.499	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 8321B
Batch ID: P423755

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2376518	Acesulfame K	11.9	Spike	P	0 - 30
2376518	AMPA	3.18	Spike	P	0 - 30
2376518	Endothall	0.989	Spike	P	0 - 30
2376518	Glufosinate	0.519	Spike	P	0 - 30
2376518	Glyphosate	10.6	Spike	P	0 - 30
2376518	Sucralose	4.08	Spike	P	0 - 30

Reference Method: EPA 8321B
Batch ID: P423825

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2376968	2,4-D	25.1	Spike	P	0 - 30
2376968	2,4,5-T	25.3	Spike	P	0 - 30
2376968	Acetaminophen	4.21	Spike	P	0 - 30
2376968	Acetamiprid	23.2	Spike	P	0 - 30
2376968	Afidopyropen	22.4	Spike	P	0 - 30
2376968	Bentazon	7.43	Spike	P	0 - 30
2376968	Benzovindiflupyr	15.4	Spike	P	0 - 30
2376968	Carbamazepine	7.84	Spike	P	0 - 30
2376968	Clothianidin	12.4	Spike	P	0 - 30
2376968	Dinotefuran	13.0	Spike	P	0 - 30
2376968	Diuron	14.0	Spike	P	0 - 30
2376968	Fenuron	11.1	Spike	P	0 - 30
2376968	Fluridone	3.90	Spike	P	0 - 30
2376968	Hydrocodone	15.5	Spike	P	0 - 30
2376968	Ibuprofen	13.8	Spike	P	0 - 30
2376968	Imazapyr	12.8	Spike	P	0 - 30
2376968	Imidacloprid	18.2	Spike	P	0 - 30
2376968	Linuron	10.3	Spike	P	0 - 30
2376968	Mandestrobin	11.5	Spike	P	0 - 30
2376968	MCPP	25.6	Spike	P	0 - 30
2376968	Naproxen	12.0	Spike	P	0 - 30
2376968	Primidone	14.2	Spike	P	0 - 30
2376968	Pyraclostrobin	10.7	Spike	P	0 - 30
2376968	Silvex	13.5	Spike	P	0 - 30
2376968	Thiamethoxam	16.5	Spike	P	0 - 30
2376968	Tolfenpyrad	7.49	Spike	P	0 - 30
2376968	Triclopyr	27.0	Spike	P	0 - 30

Reference Method: SM 2320 B-2011
Batch ID: P424167

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2377457	Total Alkalinity	0.646	Sample	P	0 - 3.8

Quality Assurance Report Precision

Reference Method: SM 2540 C-2015
Batch ID: P424227

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2376970	TDS	5.76	Sample	P	0 - 10

Reference Method: SM 2540 D-2015
Batch ID: P424117

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2376970	TSS	6.06	Sample	P	0 - 10

Reference Method: SM 4500-F- C-2011
Batch ID: P424515

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2377253	Fluoride	1.42	Spike	P	0 - 1.6

Reference Method: SM 5310 B-2011
Batch ID: P424182

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2377374	Organic Carbon	0.325	Spike	P	0 - 20

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

Quality Assurance Report Surrogates

Lab Sample ID: 2377066

Field Sample ID: G4SD0172

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	2,4-D-d3	82.5	P	30 - 160
EPA 8321B	Acetaminophen-d4	75.8	P	30 - 160
EPA 8321B	Carbamazepine-d10	57.2	P	30 - 160
EPA 8321B	Diuron-d6	47.9	P	30 - 160
EPA 8321B	Endothall-d6	147	P	30 - 160
EPA 8321B	Glyphosate 13C 15N	94.3	P	30 - 160
EPA 8321B	Ibuprofen-d3	77.0	P	30 - 160
EPA 8321B	Primidone-d5	62.6	P	30 - 160
EPA 8321B	Sucralose-d6	60.4	P	30 - 160

Quality Assurance Report Calibration Verification

Reference Method: DEP SOP: NU-094-1

Run ID: A116605

Included Lab Sample IDs: 2377057

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	98.9	96.1	P/P	90 - 110

Reference Method: EPA 180.1 Rev. 2.0

Run ID: A116606

Included Lab Sample IDs: 2377057

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

Reference Method: EPA 8321B

Run ID: A116624

Included Lab Sample IDs: 2377066

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Acesulfame K	82.7	63.2	P/P	60 - 160
Sucralose	129	124	P/P	60 - 160

Reference Method: EPA 8321B

Run ID: A116625

Included Lab Sample IDs: 2377066

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
AMPA	104	98.6	P/P	60 - 160
Endothall	118	118	P/P	60 - 160
Glufosinate	92.8	100	P/P	60 - 160
Glyphosate	101	108	P/P	60 - 160

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A116681

Included Lab Sample IDs: 2377058

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO2NO3-N	105	106	P/P	90 - 110

Reference Method: EPA 8321B

Run ID: A116714

Included Lab Sample IDs: 2377066

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
2,4-D	93.6	91.5	P/P	50 - 150
2,4,5-T	111	105	P/P	50 - 150
Acetaminophen	105	104	P/P	60 - 160
Acetamiprid	101	98.9	P/P	50 - 150
Afidopyropen	80.8	95.5	P/P	50 - 150
Bentazon	118	111	P/P	50 - 160
Benzovindiflupyr	97.5	107	P/P	50 - 150
Carbamazepine	113	108	P/P	60 - 150
Clothianidin	92.1	94.7	P/P	60 - 150
Dinotefuran	93.8	95.9	P/P	50 - 150
Diuron	119	120	P/P	60 - 160
Fenuron	94.9	98.6	P/P	60 - 150

Quality Assurance Report Calibration Verification

Reference Method: EPA 8321B
Run ID: A116714
Included Lab Sample IDs: 2377066

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluridone	102	99.5	P/P	60 - 160
Hydrocodone	105	97.4	P/P	60 - 150
Ibuprofen	147	72.1	P/P	50 - 160
Imazapyr	94.9	99.1	P/P	50 - 150
Imidacloprid	103	97.2	P/P	60 - 150
Linuron	93.8	85.1	P/P	60 - 150
Mandestrobin	106	102	P/P	50 - 150
MCP	105	95.9	P/P	50 - 150
Naproxen	150	99.9	P/P	50 - 160
Primidone	112	110	P/P	60 - 150
Pyraclostrobin	112	111	P/P	60 - 150
Silvex	106	104	P/P	50 - 150
Thiamethoxam	94.6	93.0	P/P	50 - 150
Tolfenpyrad	103	98.7	P/P	60 - 150
Triclopyr	113	97.2	P/P	50 - 150

Reference Method: EPA 300.0 Rev. 2.1
Run ID: A116716
Included Lab Sample IDs: 2377057

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Sulfate	96.2	101	P/P	90 - 110

Reference Method: SM 2320 B-2011
Run ID: A116751
Included Lab Sample IDs: 2377057

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	95.5	95.9	P/P	90 - 110

Reference Method: SM 5310 B-2011
Run ID: A116757
Included Lab Sample IDs: 2377058

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	98.6	98.2	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Run ID: A116758
Included Lab Sample IDs: 2377058

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	98.9	101	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Run ID: A116770
Included Lab Sample IDs: 2377058

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	98.4	99.8	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A116809

Included Lab Sample IDs: 2377058

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	98.0	98.7	P/P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1

Run ID: A116833

Included Lab Sample IDs: 2377057

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	98.5	102	P/P	90 - 110

Reference Method: SM 4500-F- C-2011

Run ID: A116886

Included Lab Sample IDs: 2377057

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	98.6	100	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		Precision	
					LCS	MS
DEP SOP: NU-094-1	Color (true)	97.7			1.98	
EPA 180.1 Rev. 2.0	Turbidity	102			5.24	
EPA 300.0 Rev. 2.1	Chloride	102	97.8	100	0.284	
	Sulfate	96.6	95.4	95.4	1.76	
EPA 350.1 Rev. 2.0	Ammonia-N	95.6	99.6	98.0		1.49
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	105	101	99.3		1.00
EPA 353.2 Rev. 2.0	NO2NO3-N	104	98.5			0.663
EPA 365.1 Rev. 2.0	Total-P	103	105	105		0.499
EPA 8321B	2,4-D	89.5	97.0	75.4		25.1
	2,4,5-T	76.1	78.5	60.9		25.3
	Acesulfame K	71.4	46.9	41.6		11.9
	Acetaminophen	80.5	90.3	86.6		4.21
	Acetamiprid	73.3	86.9	68.8		23.2
	Afidopyropen	56.1	66.9	53.4		22.4
	AMPA	90.8	87.8	90.6		3.18
	Bentazon	97.4	58.1	64.0		7.43
	Benzovindiflupyr	79.9	92.2	79.0		15.4
	Carbamazepine	90.0	84.1	77.4		7.84
	Clothianidin	82.5	105	90.9		12.4
	Dinotefuran	81.8	102	89.8		13.0
	Diuron	90.9	85.1	73.9		14.0
	Endothall	124	157	155		0.989
	Fenuron	93.9	93.1	83.3		11.1
	Fluridone	89.2	81.6	78.4		3.90
	Glufosinate	106	124	124		0.519
	Glyphosate	108	117	105		10.6
	Hydrocodone	86.1	98.1	84.1		15.5
	Ibuprofen	91.6	92.2	80.3		13.8
	Imazapyr	88.3	120	105		12.8
	Imidacloprid	90.3	143	114		18.2
	Linuron	68.5	78.9	71.1		10.3
	Mandestrobin	88.3	96.1	85.6		11.5
	MCPP	97.9	102	79.0		25.6
	Naproxen	84.9	83.4	74.0		12.0
	Primidone	85.2	114	98.2		14.2
	Pyraclostrobin	76.5	85.3	76.7		10.7
	Silvex	77.8	79.8	69.7		13.5
	Sucralose	122	97.1	101		4.08
	Thiamethoxam	87.8	116	98.4		16.5
	Tolfenpyrad	48.0	56.2	52.1		7.49
	Triclopyr	80.2	80.2	61.1		27.0
SM 2320 B-2011	Total Alkalinity	95.0			0.646	
SM 2540 C-2015	TDS	96.9			5.76	
SM 2540 D-2015	TSS	88.6			6.06	
SM 4500-F- C-2011	Fluoride	98.9	95.1	97.3		1.42
SM 5310 B-2011	Organic Carbon	96.6	97.4	96.8		0.325

Reference Method Descriptions

Method	Description	Associated Samples
DEP SOP: NU-094-1	True Color measured at 450 nm (not valid for NPDES monitoring)	2377057
EPA 180.1 Rev. 2.0	Turbidity in aqueous matrices	2377057
EPA 300.0 Rev. 2.1	Chloride in aqueous matrices	2377057

Reference Method Descriptions

Method	Description	<u>Associated Samples</u>
EPA 300.0 Rev. 2.1	Sulfate in aqueous matrices	2377057
EPA 350.1 Rev. 2.0	Ammonia in aqueous matrices as mg N/L	2377058
EPA 351.2 Rev. 2.0	Total Kjeldahl Nitrogen in aqueous matrices	2377058
EPA 353.2 Rev. 2.0	Nitrite/Nitrate in aqueous matrices as mg N/L	2377058
EPA 365.1 Rev. 2.0	Total Phosphorus in aqueous matrices as mg P/L	2377058
EPA 8321B	Pesticides, herbicides, and other chemicals in water matrices by HPLC/MS/MS	2377066
SM 2320 B-2011	Alkalinity in aqueous matrices as mg CaCO ₃ /L	2377057
SM 2540 C-2015	Total Dissolved Solids in aqueous matrices	2377057
SM 2540 D-2015	Total Suspended Solids in aqueous matrices using a maximum of 250 mL of sample	2377057
SM 4500-F- C-2011	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	2377057
SM 5310 B-2011	Nonpurgeable Organic Carbon in aqueous matrices	2377058

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
DEP SOP: NU-094-1	12/21/2022			12/21/2022 15:04	Alexis Price	2377057
EPA 180.1 Rev. 2.0	12/21/2022			12/21/2022 15:08	Anna M. Plaviak	2377057
EPA 300.0 Rev. 2.1	12/21/2022			01/05/2023 22:07	Anna M. Plaviak	2377057
	12/21/2022			01/10/2023 16:46	Anna M. Plaviak	2377057
EPA 350.1 Rev. 2.0	12/21/2022			01/09/2023 15:15	Ping Hua	2377058
EPA 351.2 Rev. 2.0	12/21/2022	01/03/2023 13:30	Simonne.V. Calhoun	01/05/2023 13:21	Samantha L Bates	2377058
EPA 353.2 Rev. 2.0	12/21/2022			12/29/2022 11:03	Beverly Y. Sanders	2377058
EPA 365.1 Rev. 2.0	12/21/2022	01/05/2023 13:37	Adam P Silver	01/06/2023 10:11	James L Waggerby	2377058
EPA 8321B	12/21/2022	12/21/2022 13:45	Umesh Chiluwal	12/21/2022 20:29	Umesh Chiluwal	2377066
	12/21/2022	12/21/2022 13:45	Umesh Chiluwal	12/22/2022 06:23	Umesh Chiluwal	2377066
	12/21/2022	12/22/2022 09:30	June Rhew	01/04/2023 00:09	Juyoung Kim	2377066
SM 2320 B-2011	12/21/2022			01/05/2023 07:17	Dale L. Simmons	2377057
SM 2540 C-2015	12/21/2022			12/22/2022 16:12	Yijie Li	2377057
SM 2540 D-2015	12/21/2022			12/22/2022 16:12	Yijie Li	2377057
SM 4500-F- C-2011	12/21/2022			01/12/2023 17:20	Dale L. Simmons	2377057
SM 5310 B-2011	12/21/2022			01/05/2023 17:55	Khloe J Berg	2377058