

Chemical Analysis Report

NW-DIST-2022-02-10-01

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

Event Description: **Dune Lakes Run**
Request ID: **RQ-2022-02-07-55**
Customer: **NW-DIST**
Project ID: **SMP**

Send Reports to:
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160 Government Center
Suite 208
Pensacola, FL 32502-5794
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Certified by: Liang Lin, Environmental Administrator

Date Certified: 08-MAR-2022 10:18

A handwritten signature in black ink, appearing to read "Liang Lin", is written over a light gray, textured 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: Western Lake

Collection Date/Time: 02/09/2022 10:50

Field ID: G3NW0007

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2304974	EPA 180.1 Rev. 2.0	Turbidity	0.70	I	NTU	P409701	
	SM 2320 B-2011	Total Alkalinity	46		mg CaCO3/L	P410036	
	SM 2540 D-2011	TSS	4	IA	mg/L	P409985	
	SM 4500 F-C-2011	Fluoride	0.37	I	mg F/L	P410039	
2304976	EPA 350.1 Rev. 2.0	Ammonia-N	0.003	I	mg N/L	P410280	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.27	I	mg N/L	P409731	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P410052	
	EPA 365.1 Rev. 2.0	Total-P	0.005	I	mg P/L	P409831	
	SM 5310 B-2011	Organic Carbon	8.0		mg C/L	P410735	
2304978	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P409696	

Ref. Method and Comment:

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

Sample Location: Alligator Lake

Collection Date/Time: 02/09/2022 12:35

Field ID: G3NW0219

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2304975	EPA 180.1 Rev. 2.0	Turbidity	0.85	I	NTU	P409701	
	SM 2320 B-2011	Total Alkalinity	14		mg CaCO3/L	P409858	
	SM 2540 D-2011	TSS	3	U	mg/L	P409828	
	SM 4500 F-C-2011	Fluoride	0.14		mg F/L	P409861	
2304977	EPA 350.1 Rev. 2.0	Ammonia-N	0.011		mg N/L	P410280	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.48		mg N/L	P409734	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.007	I	mg N/L	P410052	
	EPA 365.1 Rev. 2.0	Total-P	0.007	I	mg P/L	P409831	
	SM 5310 B-2011	Organic Carbon	14		mg C/L	P410384	
2304979	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P409696	

Ref. Method and Comment:

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

Sample Location: Eastern Lake off of Center

Collection Date/Time: 02/09/2022 12:00

Field ID: G3NW0124

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2304989	EPA 8321B	2,4-D	0.0020	U	ug/L	P409686	
		Acesulfame K	0.10	U	ug/L	P409584	
		2,4,5-T	0.0040	U	ug/L	P409686	
		AMPA	10	U	ug/L	P409584	
		Acetaminophen	0.0080	U	ug/L	P409686	
		Acetamiprid	0.0020	U	ug/L	P409686	
		Endothall	0.25	U	ug/L	P409584	
		Glufosinate	10	U	ug/L	P409584	
		Glyphosate	10	U	ug/L	P409584	
		Afidopyropen	0.0020	U	ug/L	P409686	
		Bentazon	8.0E-04	U	ug/L	P409686	
		Sucralose	0.047		ug/L	P409584	
		Benzovindiflupyr	0.0020	U	ug/L	P409686	
		Carbamazepine	8.0E-04	U	ug/L	P409686	
		Clothianidin	0.0020	U	ug/L	P409686	MS
		Dinotefuran	0.0020	U	ug/L	P409686	MS
		Diuron	0.0020	U	ug/L	P409686	
		Fenuron	0.016	U	ug/L	P409686	
		Fluridone	9.5E-04	I	ug/L	P409686	
		Imazapyr	0.0043	I	ug/L	P409686	
		Hydrocodone	0.0020	U	ug/L	P409686	
		Ibuprofen	0.020	UJ	ug/L	P409686	CCV
		Imidacloprid	0.012		ug/L	P409686	MS
		Linuron	0.0040	U	ug/L	P409686	
		Mandestrobin	0.0020	U	ug/L	P409686	
		MCPP	0.0040	U	ug/L	P409686	MS
		Naproxen	0.0080	U	ug/L	P409686	
		Primidone	0.0040	U	ug/L	P409686	MS
		Pyraclostrobin	0.0020	U	ug/L	P409686	
		Silvex	0.0040	U	ug/L	P409686	MS
		Thiamethoxam	0.0020	U	ug/L	P409686	MS
		Tolfenpyrad	0.0020	U	ug/L	P409686	
		Triclopyr	0.0040	U	ug/L	P409686	MS, RPD

Ref. Method and Comment:

EPA 8321B: Refer to the Lab Analysis Report for an explanation of QC Codes.

EPA 8321B: Some MDLs are elevated due to required dilution of sample matrix.

Quality Assurance Report Method Blank Results

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P409701

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P410280

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P409731

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P409734

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P410052

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P409831

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P409696

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

Reference Method: EPA 8321B
Batch ID: P409584

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

Quality Assurance Report Method Blank Results

Reference Method: EPA 8321B

Batch ID: P409686

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	0.016	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	0.0040	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: P409858

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

Reference Method: SM 2320 B-2011

Batch ID: P410036

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

Reference Method: SM 2540 D-2011

Batch ID: P409828

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 2540 D-2011

Batch ID: P409985

Component	Result	Code	Units
TSS	3	U	mg/L

Quality Assurance Report

Method Blank Results

Reference Method: SM 4500 F-C-2011
Batch ID: P409861

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 4500 F-C-2011
Batch ID: P410039

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-2011
Batch ID: P410384

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

Reference Method: SM 5310 B-2011
Batch ID: P410735

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

Quality Assurance Report

Laboratory Control Sample Accuracy

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P409701

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Turbidity	96.3		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P410280

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P409731

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P409734

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P410052

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
NO2NO3-N	99.0		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P409831

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P409696

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

Reference Method: EPA 8321B
Batch ID: P409584

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Acesulfame K	95.4		P	40 - 150
AMPA	95.0		P	40 - 150
Endothall	61.7		P	40 - 150
Glufosinate	105		P	40 - 150
Glyphosate	92.5		P	40 - 150
Sucralose	90.3		P	40 - 150

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 8321B

Batch ID: P409686

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2,4-D	148		P	40 - 150
2,4,5-T	118		P	40 - 150
Acetaminophen	113		P	30 - 150
Acetamiprid	118		P	40 - 150
Afidopyropen	124		P	40 - 150
Bentazon	105		P	30 - 150
Benzovindiflupyr	147		P	40 - 150
Carbamazepine	136		P	40 - 150
Clothianidin	137		P	40 - 150
Dinotefuran	120		P	40 - 150
Diuron	112		P	40 - 150
Fenuron	104		P	40 - 150
Fluridone	119		P	40 - 150
Hydrocodone	105		P	40 - 150
Ibuprofen	130		P	40 - 150
Imazapyr	121		P	40 - 150
Imidacloprid	118		P	40 - 150
Linuron	103		P	40 - 150
Mandestrobin	105		P	40 - 150
MCPP	146		P	40 - 150
Naproxen	79.2		P	40 - 150
Primidone	135		P	40 - 150
Pyraclostrobin	97.0		P	40 - 150
Silvex	114		P	40 - 150
Thiamethoxam	125		P	40 - 150
Tolfenpyrad	88.3		P	30 - 150
Triclopyr	113		P	40 - 150

Reference Method: SM 2320 B-2011

Batch ID: P409858

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	96.4		P	94 - 106

Reference Method: SM 2320 B-2011

Batch ID: P410036

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	98.8		P	94 - 106

Reference Method: SM 4500 F-C-2011

Batch ID: P409861

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	99.7		P	93 - 104

Reference Method: SM 4500 F-C-2011

Batch ID: P410039

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	96.8		P	93 - 104

Quality Assurance Report

Laboratory Control Sample Accuracy

Reference Method: SM 5310 B-2011
Batch ID: P410384

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	95.0		P	85 - 115

Reference Method: SM 5310 B-2011
Batch ID: P410735

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

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P410280

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2303682	Ammonia-N	96.0	104	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P409731

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2304965	Kjeldahl Nitrogen	103	100	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P409734

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2305230	Kjeldahl Nitrogen	100	100	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P410052

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2304976	NO2NO3-N	98.3	99.3	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P409831

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2305261	Total-P	96.1	96.6	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P409696

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2304896	O-Phosphate-P	98.6	99.6	P/P	90 - 110

Reference Method: EPA 8321B
Batch ID: P409584

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2304429	Acesulfame K	97.0	98.2	P/P	40 - 150
2304429	AMPA	54.5	53.6	P/P	40 - 150
2304429	Endothall	89.1	89.8	P/P	40 - 150
2304429	Glufosinate	86.1	84.8	P/P	40 - 150
2304429	Glyphosate	70.3	64.7	P/P	40 - 150
2304429	Sucralose	91.1	94.3	P/P	40 - 150

Reference Method: EPA 8321B
Batch ID: P409686

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2305178	2,4-D	147	114	P/P	40 - 150
2305178	2,4,5-T	132	126	P/P	40 - 150
2305178	Acetaminophen	145	144	P/P	30 - 150
2305178	Acetamiprid	128	98.4	P/P	40 - 150
2305178	Afidopyropen	93.1	82.0	P/P	40 - 150

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 8321B

Batch ID: P409686

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2305178	Bentazon	48.8	59.3	P/P	30 - 150
2305178	Benzovindiflupyr	111	121	P/P	40 - 150
2305178	Carbamazepine	118	131	P/P	40 - 150
2305178	Clothianidin	200	167	F/F	40 - 150
2305178	Dinotefuran	179	157	F/F	40 - 150
2305178	Diuron	64.9	86.3	P/P	40 - 150
2305178	Fenuron	98.3	98.6	P/P	40 - 150
2305178	Fluridone	116	96.0	P/P	40 - 150
2305178	Hydrocodone	135	124	P/P	40 - 150
2305178	Ibuprofen	132	104	P/P	40 - 150
2305178	Imazapyr	121	122	P/P	40 - 150
2305178	Imidacloprid	287	235	F/F	40 - 150
2305178	Linuron	95.2	74.8	P/P	40 - 150
2305178	Mandestrobin	110	100	P/P	40 - 150
2305178	MCPP	174	141	F/P	40 - 150
2305178	Naproxen	101	100	P/P	40 - 150
2305178	Primidone	156	118	F/P	40 - 150
2305178	Pyraclostrobin	111	99.0	P/P	40 - 150
2305178	Silvex	151	120	F/P	40 - 150
2305178	Thiamethoxam	222	203	F/F	40 - 150
2305178	Tolfenpyrad	101	84.4	P/P	30 - 150
2305178	Triclopyr	159	107	F/P	40 - 150

Reference Method: SM 4500 F-C-2011

Batch ID: P409861

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2304920	Fluoride	98.7	98.1	P/P	92 - 107

Reference Method: SM 4500 F-C-2011

Batch ID: P410039

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2305619	Fluoride	97.6	98.3	P/P	92 - 107

Reference Method: SM 5310 B-2011

Batch ID: P410384

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2304631	Organic Carbon	97.7	95.4	P/P	85 - 115

Reference Method: SM 5310 B-2011

Batch ID: P410735

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2305781	Organic Carbon	93.3	93.1	P/P	85 - 115

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P409701

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2305040	Turbidity	12.8	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P410280

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2303682	Ammonia-N	7.09	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P409731

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2304965	Kjeldahl Nitrogen	2.52	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P409734

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2305230	Kjeldahl Nitrogen	0.224	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P410052

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2304976	NO2NO3-N	1.01	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P409831

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2305261	Total-P	0.509	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P409696

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2304896	O-Phosphate-P	0.953	Spike	P	0 - 20

Reference Method: EPA 8321B
Batch ID: P409584

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2304429	Acesulfame K	1.24	Spike	P	0 - 30
2304429	AMPA	1.44	Spike	P	0 - 30

Quality Assurance Report Precision

Reference Method: EPA 8321B
Batch ID: P409584

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2304429	Endothall	0.718	Spike	P	0 - 30
2304429	Glufosinate	1.54	Spike	P	0 - 30
2304429	Glyphosate	6.98	Spike	P	0 - 30
2304429	Sucralose	3.29	Spike	P	0 - 30

Reference Method: EPA 8321B
Batch ID: P409686

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2305178	2,4-D	25.6	Spike	P	0 - 30
2305178	2,4,5-T	4.68	Spike	P	0 - 30
2305178	Acetaminophen	0.212	Spike	P	0 - 30
2305178	Acetamiprid	25.8	Spike	P	0 - 30
2305178	Afidopyropen	12.7	Spike	P	0 - 30
2305178	Bentazon	19.5	Spike	P	0 - 30
2305178	Benzovindiflupyr	8.20	Spike	P	0 - 30
2305178	Carbamazepine	10.6	Spike	P	0 - 30
2305178	Clothianidin	18.1	Spike	P	0 - 30
2305178	Dinotefuran	12.8	Spike	P	0 - 30
2305178	Diuron	28.3	Spike	P	0 - 30
2305178	Fenuron	0.363	Spike	P	0 - 30
2305178	Fluridone	18.5	Spike	P	0 - 30
2305178	Hydrocodone	8.13	Spike	P	0 - 30
2305178	Ibuprofen	24.2	Spike	P	0 - 30
2305178	Imazapyr	1.03	Spike	P	0 - 30
2305178	Imidacloprid	20.0	Spike	P	0 - 30
2305178	Linuron	24.0	Spike	P	0 - 30
2305178	Mandestrobin	9.71	Spike	P	0 - 30
2305178	MCPP	20.9	Spike	P	0 - 30
2305178	Naproxen	0.895	Spike	P	0 - 30
2305178	Primidone	27.8	Spike	P	0 - 30
2305178	Pyraclostrobin	11.6	Spike	P	0 - 30
2305178	Silvex	22.6	Spike	P	0 - 30
2305178	Thiamethoxam	8.95	Spike	P	0 - 30
2305178	Tolfenpyrad	17.9	Spike	P	0 - 30
2305178	Triclopyr	38.7	Spike	F	0 - 30

Reference Method: SM 2320 B-2011
Batch ID: P409858

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2304920	Total Alkalinity	2.25	Sample	P	0 - 5.2

Reference Method: SM 2320 B-2011
Batch ID: P410036

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2305619	Total Alkalinity	0.976	Sample	P	0 - 5.2

Quality Assurance Report Precision

Reference Method: SM 4500 F-C-2011
Batch ID: P409861

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2304920	Fluoride	0.495	Spike	P	0 - 2.1

Reference Method: SM 4500 F-C-2011
Batch ID: P410039

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2305619	Fluoride	0.476	Spike	P	0 - 2.1

Reference Method: SM 5310 B-2011
Batch ID: P410384

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2304631	Organic Carbon	1.33	Spike	P	0 - 20

Reference Method: SM 5310 B-2011
Batch ID: P410735

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2305781	Organic Carbon	0.182	Spike	P	0 - 20

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

Quality Assurance Report Surrogates

Lab Sample ID: 2304989

Field Sample ID: G3NW0124

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	2,4-D-d3	136	P	30 - 160
EPA 8321B	Acetaminophen-d4	72.3	P	30 - 160
EPA 8321B	Carbamazepine-d10	140	P	30 - 160
EPA 8321B	Diuron-d6	105	P	30 - 160
EPA 8321B	Endothall-d6	78.9	P	30 - 160
EPA 8321B	Glyphosate 13C 15N	97.7	P	30 - 160
EPA 8321B	Ibuprofen-d3	132	P	30 - 160
EPA 8321B	Primidone-d5	75.2	P	30 - 160
EPA 8321B	Sucralose-d6	84.9	P	30 - 160

Quality Assurance Report Calibration Verification

Reference Method: EPA 365.1 Rev. 2.0 dissolved

Run ID: A110338

Included Lab Sample IDs: 2304978, 2304979

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	100	99.3	P/P	90 - 110

Reference Method: EPA 180.1 Rev. 2.0

Run ID: A110339

Included Lab Sample IDs: 2304974, 2304975

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Turbidity	98.5	98.5	P/P	95 - 105

Reference Method: EPA 8321B

Run ID: A110380

Included Lab Sample IDs: 2304989

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
2,4-D	110	125	P/P	50 - 150
2,4,5-T	125	133	P/P	50 - 150
Acetaminophen	112	130	P/P	60 - 160
Acetamiprid	122	117	P/P	50 - 150
Afidopyropen	143	121	P/P	50 - 150
Bentazon	98.1	128	P/P	50 - 160
Benzovindiflupyr	124	137	P/P	50 - 150
Carbamazepine	131	119	P/P	60 - 150
Clothianidin	107	121	P/P	60 - 150
Dinotefuran	108	117	P/P	50 - 150
Diuron	109	125	P/P	60 - 160
Fenuron	93.0	108	P/P	60 - 150
Fluridone	98.6	115	P/P	60 - 160
Hydrocodone	106	117	P/P	60 - 150
Ibuprofen	191*	116	F/P	50 - 160
Imazapyr	94.8	110	P/P	50 - 150
Imidacloprid	97.4	106	P/P	60 - 150
Linuron	104	93.8	P/P	60 - 150
Mandestrobin	124	109	P/P	50 - 150
MCPP	129	125	P/P	50 - 150
Naproxen	121	134	P/P	50 - 160
Primidone	104	90.4	P/P	60 - 150
Pyraclostrobin	128	112	P/P	60 - 150
Silvex	124	144	P/P	50 - 150
Thiamethoxam	102	116	P/P	50 - 150
Tolfenpyrad	131	141	P/P	60 - 150
Triclopyr	121	123	P/P	50 - 150

Reference Method: EPA 8321B

Run ID: A110387

Included Lab Sample IDs: 2304989

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
AMPA	97.2	99.2	P/P	60 - 160
Glufosinate	105	104	P/P	60 - 160
Glyphosate	95.7	95.4	P/P	60 - 160

Quality Assurance Report Calibration Verification

Reference Method: EPA 8321B
Run ID: A110393
Included Lab Sample IDs: 2304989

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Acesulfame K	98.4	72.7	P/P	60 - 160
Endothall	83.6	60.4	P/P	60 - 160
Sucralose	84.8	71.4	P/P	60 - 160

Reference Method: SM 2320 B-2011
Run ID: A110414
Included Lab Sample IDs: 2304975

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	100	98.7	P/P	90 - 110

Reference Method: SM 4500 F-C-2011
Run ID: A110414
Included Lab Sample IDs: 2304975

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

Reference Method: EPA 351.2 Rev. 2.0
Run ID: A110427
Included Lab Sample IDs: 2304976, 2304977

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	94.8	102	P/P	90 - 110
Kjeldahl Nitrogen	99.2	96.4	P/P	90 - 110

Reference Method: SM 2320 B-2011
Run ID: A110482
Included Lab Sample IDs: 2304974

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	96.8	94.4	P/P	90 - 110

Reference Method: SM 4500 F-C-2011
Run ID: A110482
Included Lab Sample IDs: 2304974

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	99.1	98.0	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Run ID: A110486
Included Lab Sample IDs: 2304976, 2304977

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

Quality Assurance Report Calibration Verification

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A110521

Included Lab Sample IDs: 2304976, 2304977

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	99.8	99.5	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A110582

Included Lab Sample IDs: 2304976, 2304977

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

Reference Method: SM 5310 B-2011

Run ID: A110636

Included Lab Sample IDs: 2304977

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	95.4	96.1	P/P	90 - 110

Reference Method: SM 5310 B-2011

Run ID: A110788

Included Lab Sample IDs: 2304976

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	95.2	96.5	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	96.3				12.8	
EPA 350.1 Rev. 2.0	Ammonia-N	102	96.0	104			7.09
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	101	103	100			2.52
	Kjeldahl Nitrogen	99.6	100	100			0.224
EPA 353.2 Rev. 2.0	NO ₂ NO ₃ -N	99.0	98.3	99.3			1.01
EPA 365.1 Rev. 2.0	Total-P	103	96.1	96.6			0.509
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	102	98.6	99.6			0.953
EPA 8321B	2,4-D	148	114	147			25.6
	2,4,5-T	118	126	132			4.68
	Acesulfame K	95.4	97.0	98.2			1.24
	Acetaminophen	113	144	145			0.212
	Acetamiprid	118	98.4	128			25.8
	Afidopyropen	124	82.0	93.1			12.7
	AMPA	95.0	54.5	53.6			1.44
	Bentazon	105	59.3	48.8			19.5
	Benzovindiflupyr	147	121	111			8.20
	Carbamazepine	136	131	118			10.6
	Clothianidin	137	167	200			18.1
	Dinotefuran	120	157	179			12.8
	Diuron	112	86.3	64.9			28.3
	Endothall	61.7	89.1	89.8			0.718
	Fenuron	104	98.6	98.3			0.363
	Fluridone	119	96.0	116			18.5
	Glufosinate	105	86.1	84.8			1.54
	Glyphosate	92.5	70.3	64.7			6.98
	Hydrocodone	105	124	135			8.13
	Ibuprofen	130	104	132			24.2
	Imazapyr	121	122	121			1.03
	Imidacloprid	118	235	287			20.0
	Linuron	103	74.8	95.2			24.0
	Mandestrobin	105	100	110			9.71
	MCPP	146	141	174			20.9
	Naproxen	79.2	100	101			0.895
	Primidone	135	118	156			27.8
	Pyraclostrobin	97.0	99.0	111			11.6
	Silvex	114	120	151			22.6
	Sucralose	90.3	91.1	94.3			3.29
	Thiamethoxam	125	203	222			8.95
	Tolfenpyrad	88.3	84.4	101			17.9
	Triclopyr	113	107	159			38.7
SM 2320 B-2011	Total Alkalinity	96.4				2.25	
	Total Alkalinity	98.8				0.976	
SM 4500 F-C-2011	Fluoride	99.7	98.7	98.1			0.495
	Fluoride	96.8	97.6	98.3			0.476
SM 5310 B-2011	Organic Carbon	95.0	97.7	95.4			1.33
	Organic Carbon	98.4	93.3	93.1			0.182

Reference Method Descriptions

Method	Description	Associated Samples
EPA 180.1 Rev. 2.0	Turbidity in aqueous matrices	2304974, 2304975
EPA 350.1 Rev. 2.0	Ammonia in aqueous matrices as mg N/L	2304976, 2304977
EPA 351.2 Rev. 2.0	Total Kjeldahl Nitrogen in aqueous matrices	2304976, 2304977

Reference Method Descriptions

Method	Description	<u>Associated Samples</u>
EPA 353.2 Rev. 2.0	Nitrite/Nitrate in aqueous matrices as mg N/L	2304976, 2304977
EPA 365.1 Rev. 2.0	Total Phosphorus in aqueous matrices as mg P/L	2304976, 2304977
EPA 365.1 Rev. 2.0 dissolved	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	2304978, 2304979
EPA 8321B	Pesticides, herbicides, and other chemicals in water matrices by HPLC/MS/MS	2304989
SM 2320 B-2011	Alkalinity in aqueous matrices as mg CaCO ₃ /L	2304974, 2304975
SM 2540 D-2011	Total Suspended Solids in aqueous matrices using a maximum of 250 mL of sample	2304974, 2304975
SM 4500 F-C-2011	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	2304974, 2304975
SM 5310 B-2011	Nonpurgeable Organic Carbon in aqueous matrices	2304976, 2304977

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	02/10/2022			02/10/2022 15:27	Khloe J Berg	2304974
	02/10/2022			02/10/2022 15:28	Khloe J Berg	2304975
EPA 350.1 Rev. 2.0	02/10/2022			02/23/2022 15:13	Judith K. Clark	2304976
	02/10/2022			02/23/2022 15:14	Judith K. Clark	2304977
EPA 351.2 Rev. 2.0	02/10/2022	02/14/2022 16:13	Samantha L Bates	02/15/2022 16:17	Alexandra J Mattheus	2304976
	02/10/2022	02/15/2022 09:06	Samantha L Bates	02/15/2022 17:31	Alexandra J Mattheus	2304977
EPA 353.2 Rev. 2.0	02/10/2022			02/17/2022 18:04	Nathaniel J Jones	2304976
	02/10/2022			02/17/2022 18:12	Nathaniel J Jones	2304977
EPA 365.1 Rev. 2.0	02/10/2022	02/16/2022 14:20	Simonne.V. Calhoun	02/21/2022 14:29	Sarah A Nixon	2304976
	02/10/2022	02/16/2022 14:20	Simonne.V. Calhoun	02/21/2022 14:30	Sarah A Nixon	2304977
EPA 365.1 Rev. 2.0 dissolved	02/10/2022			02/10/2022 16:02	James L Waggeberby	2304978
	02/10/2022			02/10/2022 16:03	James L Waggeberby	2304979
EPA 8321B	02/10/2022	02/11/2022 09:00	Hoor Shaik	02/12/2022 06:28	Juyoung Kim	2304989
	02/10/2022	02/11/2022 09:00	Umesh Chiluwal	02/11/2022 18:32	Umesh Chiluwal	2304989
	02/10/2022	02/11/2022 09:00	Umesh Chiluwal	02/11/2022 19:38	Umesh Chiluwal	2304989
SM 2320 B-2011	02/10/2022			02/15/2022 09:28	Dale L. Simmons	2304975
	02/10/2022			02/18/2022 06:05	Dale L. Simmons	2304974
SM 2540 D-2011	02/10/2022			02/11/2022 14:02	Yijie Li	2304974
	02/10/2022			02/11/2022 15:30	Simonne.V. Calhoun	2304975
SM 4500 F-C-2011	02/10/2022			02/15/2022 09:28	Dale L. Simmons	2304975
	02/10/2022			02/18/2022 03:52	Dale L. Simmons	2304974
SM 5310 B-2011	02/10/2022			02/25/2022 06:04	Touraj Touran	2304977
	02/10/2022			03/07/2022 00:14	Touraj Touran	2304976