

Chemical Analysis Report

NW-DIST-2022-09-23-02

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

Event Description: **Twin Lakes Continuous Monitoring**
Request ID: **RQ-2022-09-19-36**
Customer: **NW-DIST**
Project ID: **SMP**

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Date Certified: 17-OCT-2022 10:03



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: Metals, 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: Coleman Lake

Collection Date/Time: 09/21/2022 11:45

Field ID: G3NW0216

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2359078	DEP SOP: NU-094-1	Color (true)	48		PCU	P420030	
	EPA 180.1 Rev. 2.0	Turbidity	4.6		NTU	P420048	
	EPA 300.0 Rev. 2.1	Chloride	22		mg Cl/L	P420330	
		Sulfate	8.3		mg SO4/L	P420333	
	SM 2320 B-2011	Total Alkalinity	54		mg CaCO3/L	P420379	
	SM 2540 C-2011	TDS	132		mg/L	P420487	
	SM 2540 D-2011	TSS	5	I	mg/L	P420476	
2359079	SM 4500-F- C-2011	Fluoride	0.090	I	mg F/L	P420383	
	EPA 350.1 Rev. 2.0	Ammonia-N	0.005		mg N/L	P420586	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.96		mg N/L	P420199	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P420439	
	EPA 365.1 Rev. 2.0	Total-P	0.17		mg P/L	P420302	
2359086	SM 5310 B-2011	Organic Carbon	7.4		mg C/L	P420387	
	EPA 8321B	2,4-D	0.0020	U	ug/L	P420123	
		Acesulfame K	0.12	I	ug/L	P419980	
		2,4,5-T	0.0040	U	ug/L	P420123	
		AMPA	0.10	U	ug/L	P419980	
		Acetaminophen	0.0080	U	ug/L	P420123	
		Acetamiprid	0.0020	U	ug/L	P420123	
		Endothall	0.25	U	ug/L	P419980	
		Glufosinate	0.10	U	ug/L	P419980	
		Glyphosate	0.10	U	ug/L	P419980	
		Afidopyropen	0.0020	U	ug/L	P420123	
		Bentazon	0.0071		ug/L	P420123	
		Sucralose	5.3		ug/L	P419980	
		Benzovindiflupyr	0.0020	U	ug/L	P420123	
		Carbamazepine	0.0052		ug/L	P420123	
		Clothianidin	0.0034	I	ug/L	P420123	
		Dinotefuran	0.0020	U	ug/L	P420123	
		Diuron	0.0045	I	ug/L	P420123	
		Fenuron	0.032	U	ug/L	P420123	
		Fluridone	8.0E-04	U	ug/L	P420123	
		Imazapyr	0.0040	U	ug/L	P420123	
		Hydrocodone	0.0020	U	ug/L	P420123	
		Ibuprofen	0.020	U	ug/L	P420123	
		Imidacloprid	0.033		ug/L	P420123	
		Linuron	0.0040	U	ug/L	P420123	
		Mandestrobin	0.0020	U	ug/L	P420123	
		MCP	0.0020	U	ug/L	P420123	
		Naproxen	0.0080	U	ug/L	P420123	
		Primidone	0.0086	I	ug/L	P420123	
		Pyraclostrobin	0.0020	U	ug/L	P420123	
		Silvex	0.0040	U	ug/L	P420123	
		Thiamethoxam	0.0020	U	ug/L	P420123	

Field ID: G3NW0216

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2359086	EPA 8321B	Tolfenpyrad	0.0020	U	ug/L	P420123	
		Triclopyr	0.0040	U	ug/L	P420123	
2359087	EPA 200.7 Rev. 4.4	Calcium	16.9		mg/L	P420197	
		Iron	62	I	ug/L	P420197	
		Magnesium	2.86		mg/L	P420197	
		Potassium	2.5		mg/L	P420197	
		Sodium	17.7		mg/L	P420197	
		Strontium	212		ug/L	P420197	
		Tin	3.0	U	ug/L	P420197	
		Titanium	0.75	U	ug/L	P420197	
		Vanadium	2.0	U	ug/L	P420197	
		Zinc	5.0	U	ug/L	P420197	
	EPA 200.8 Rev. 5.4	Aluminum	84		ug/L	P420197	
		Antimony	0.15	I	ug/L	P420197	
		Arsenic	3.18		ug/L	P420197	
		Barium	3.45		ug/L	P420197	
		Beryllium	0.010	U	ug/L	P420197	
		Boron	55.1		ug/L	P420197	
		Cadmium	0.020	U	ug/L	P420197	
		Chromium	0.52	I	ug/L	P420197	
		Cobalt	0.033	I	ug/L	P420197	
		Copper	1.01		ug/L	P420197	
		Lead	0.20	U	ug/L	P420197	
		Manganese	4.47		ug/L	P420197	
		Molybdenum	0.43	I	ug/L	P420197	
		Nickel	0.50	U	ug/L	P420197	
		Selenium	0.20	U	ug/L	P420197	
		Silver	0.010	U	ug/L	P420197	
		Thallium	0.10	U	ug/L	P420197	
	SM 2340 B-2011	Hardness	54.0		mg/L	P420197	

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.

Sample Location: Twin Lake eastern lake

Collection Date/Time: 09/21/2022 11:15

Field ID: G3NW0449

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2359074	DEP SOP: NU-094-1	Color (true)	31		PCU	P420030	
	EPA 180.1 Rev. 2.0	Turbidity	3.1		NTU	P420048	
	EPA 300.0 Rev. 2.1	Chloride	17		mg Cl/L	P420330	
		Sulfate	7.0		mg SO4/L	P420333	
	SM 2320 B-2011	Total Alkalinity	52		mg CaCO3/L	P420379	
	SM 2540 C-2011	TDS	97		mg/L	P420487	
	SM 2540 D-2011	TSS	3	I	mg/L	P420476	
	SM 4500-F- C-2011	Fluoride	0.055	I	mg F/L	P420383	
2359076	EPA 350.1 Rev. 2.0	Ammonia-N	0.005		mg N/L	P420735	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.65		mg N/L	P420129	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P420439	
	EPA 365.1 Rev. 2.0	Total-P	0.052		mg P/L	P420302	
	SM 5310 B-2011	Organic Carbon	7.2		mg C/L	P420387	

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: Twin Lake south lobe

Collection Date/Time: 09/21/2022 10:50

Field ID: G3NW0448

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2359075	DEP SOP: NU-094-1	Color (true)	64		PCU	P420030	
	EPA 180.1 Rev. 2.0	Turbidity	2.6		NTU	P420048	
	EPA 300.0 Rev. 2.1	Chloride	23		mg Cl/L	P420330	
		Sulfate	11		mg SO4/L	P420333	
	SM 2320 B-2011	Total Alkalinity	57		mg CaCO3/L	P420379	
	SM 2540 C-2011	TDS	128		mg/L	P420487	
	SM 2540 D-2011	TSS	4	I	mg/L	P420476	
	SM 4500-F- C-2011	Fluoride	0.12		mg F/L	P420383	
2359077	EPA 350.1 Rev. 2.0	Ammonia-N	0.007		mg N/L	P420735	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.90		mg N/L	P420129	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P420439	
	EPA 365.1 Rev. 2.0	Total-P	0.24		mg P/L	P420302	
	SM 5310 B-2011	Organic Carbon	11		mg C/L	P420387	

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: Twin Lake

Collection Date/Time: 09/21/2022 10:30

Field ID: G3NW0215

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2359072	DEP SOP: NU-094-1	Color (true)	50	Q	PCU	P420030	
	EPA 180.1 Rev. 2.0	Turbidity	6.0	A	NTU	P420048	
	EPA 300.0 Rev. 2.1	Chloride	27		mg Cl/L	P420330	
		Sulfate	11		mg SO4/L	P420333	
	SM 2320 B-2011	Total Alkalinity	57		mg CaCO3/L	P420379	
	SM 2540 C-2011	TDS	129		mg/L	P420487	
	SM 2540 D-2011	TSS	12		mg/L	P420476	
2359073	SM 4500-F- C-2011	Fluoride	0.12		mg F/L	P420383	
	EPA 350.1 Rev. 2.0	Ammonia-N	0.057		mg N/L	P420735	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.6		mg N/L	P420129	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P420412	
	EPA 365.1 Rev. 2.0	Total-P	0.51		mg P/L	P420302	
2359085	SM 5310 B-2011	Organic Carbon	9.6		mg C/L	P420387	
	EPA 8321B	2,4-D	0.0020	U	ug/L	P420123	
		Acesulfame K	0.15	I	ug/L	P419980	
		2,4,5-T	0.0040	U	ug/L	P420123	
		AMPA	0.10	U	ug/L	P419980	
		Acetaminophen	0.0080	U	ug/L	P420123	
		Acetamiprid	0.0020	U	ug/L	P420123	
		Endothall	0.25	U	ug/L	P419980	
		Glufosinate	0.10	U	ug/L	P419980	
		Glyphosate	0.10	U	ug/L	P419980	
		Afidopyropen	0.0020	U	ug/L	P420123	
		Bentazon	9.5E-04	I	ug/L	P420123	
		Sucralose	7.8		ug/L	P419980	
		Benzovindiflupyr	0.0020	U	ug/L	P420123	
		Carbamazepine	0.0091		ug/L	P420123	
		Clothianidin	0.0020	U	ug/L	P420123	
		Dinotefuran	0.0066	I	ug/L	P420123	
		Diuron	0.0020	U	ug/L	P420123	
		Fenuron	0.032	U	ug/L	P420123	
		Fluridone	8.0E-04	U	ug/L	P420123	
		Imazapyr	0.0042	I	ug/L	P420123	
		Hydrocodone	0.0020	U	ug/L	P420123	
		Ibuprofen	0.020	U	ug/L	P420123	
		Imidacloprid	0.026		ug/L	P420123	
		Linuron	0.0040	U	ug/L	P420123	
		Mandestrobin	0.0020	U	ug/L	P420123	
		MCPP	0.0020	U	ug/L	P420123	
		Naproxen	0.0080	U	ug/L	P420123	
		Primidone	0.013	I	ug/L	P420123	
		Pyraclostrobin	0.0020	U	ug/L	P420123	
		Silvex	0.0040	U	ug/L	P420123	
		Thiamethoxam	0.0020	U	ug/L	P420123	

Field ID: G3NW0215

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2359085	EPA 8321B	Tolfenpyrad	0.0020	U	ug/L	P420123	
		Triclopyr	0.0040	U	ug/L	P420123	

Ref. Method and Comment:
DEP SOP: NU-094-1: The sample expired upon receipt.
SM 2540 D-2011: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample.

Quality Assurance Report Method Blank Results

Reference Method: DEP SOP: NU-094-1
Batch ID: P420030

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P420048

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P420197

Component	Result	Code	Units
Calcium	0.075	U	mg/L
Iron	30	U	ug/L
Magnesium	0.040	U	mg/L
Potassium	0.30	U	mg/L
Sodium	0.50	U	mg/L
Strontium	2.0	U	ug/L
Tin	3.0	U	ug/L
Titanium	0.75	U	ug/L
Vanadium	2.0	U	ug/L
Zinc	5.0	U	ug/L

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P420197

Component	Result	Code	Units
Aluminum	5.0	U	ug/L
Antimony	0.050	U	ug/L
Arsenic	0.050	U	ug/L
Barium	0.20	U	ug/L
Beryllium	0.010	U	ug/L
Boron	2.0	U	ug/L
Cadmium	0.020	U	ug/L
Chromium	0.40	U	ug/L
Cobalt	0.020	U	ug/L
Copper	0.40	U	ug/L
Lead	0.20	U	ug/L
Manganese	0.10	U	ug/L
Molybdenum	0.15	U	ug/L
Nickel	0.50	U	ug/L
Selenium	0.20	U	ug/L
Silver	0.010	U	ug/L
Thallium	0.10	U	ug/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P420330

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Quality Assurance Report Method Blank Results

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P420333

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P420586

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P420735

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P420129

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P420199

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P420412

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P420439

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P420302

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

Reference Method: EPA 8321B
Batch ID: P419980

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: P419980

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

Reference Method: EPA 8321B
Batch ID: P420123

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	0.020	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
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: P420379

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

Reference Method: SM 2540 C-2011
Batch ID: P420487

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-2011
Batch ID: P420476

Component	Result	Code	Units
TSS	2	U	mg/L

Quality Assurance Report

Method Blank Results

Reference Method: SM 4500-F- C-2011
Batch ID: P420383

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-2011
Batch ID: P420387

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: P420030

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Color (true)	98.2		P	90 - 110

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P420048

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

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P420197

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Calcium	103		P	85 - 115
Iron	105		P	85 - 115
Magnesium	102		P	85 - 115
Potassium	98.6		P	85 - 115
Sodium	104		P	85 - 115
Strontium	101		P	85 - 115
Tin	99.2		P	85 - 115
Titanium	101		P	85 - 115
Vanadium	99.4		P	85 - 115
Zinc	96.2		P	85 - 115

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P420197

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Aluminum	98.3		P	85 - 115
Antimony	101		P	85 - 115
Arsenic	102		P	85 - 115
Barium	102		P	85 - 115
Beryllium	94.3		P	85 - 115
Boron	100		P	85 - 115
Cadmium	99.6		P	85 - 115
Chromium	98.5		P	85 - 115
Cobalt	101		P	85 - 115
Copper	99.3		P	85 - 115
Lead	94.5		P	85 - 115
Manganese	98.8		P	85 - 115
Molybdenum	97.7		P	85 - 115
Nickel	99.6		P	85 - 115
Selenium	100		P	85 - 115
Silver	113		P	85 - 115
Thallium	95.6		P	85 - 115

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P420330

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Chloride	98.7		P	90 - 110

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P420333

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P420586

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Ammonia-N	95.2		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P420735

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P420129

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P420199

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: P420412

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P420439

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: P420302

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

Reference Method: EPA 8321B
Batch ID: P419980

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Acesulfame K	99.9		P	40 - 150
AMPA	112		P	40 - 150
Endothall	97.7		P	40 - 150
Glufosinate	91.2		P	40 - 150

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 8321B
Batch ID: P419980

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Glyphosate	109		P	40 - 150
Sucralose	106		P	40 - 150

Reference Method: EPA 8321B
Batch ID: P420123

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2,4-D	74.2		P	30 - 160
2,4,5-T	62.5		P	30 - 160
Acetaminophen	87.8		P	30 - 150
Acetamiprid	79.9		P	30 - 160
Afidopyropen	70.6		P	30 - 160
Bentazon	38.2		P	30 - 150
Benzovindiflupyr	78.3		P	30 - 160
Carbamazepine	76.3		P	30 - 160
Clothianidin	91.9		P	30 - 160
Dinotefuran	95.4		P	30 - 160
Diuron	70.6		P	30 - 160
Fenuron	96.9		P	30 - 160
Fluridone	91.9		P	30 - 160
Hydrocodone	89.2		P	30 - 160
Ibuprofen	58.2		P	30 - 160
Imazapyr	82.9		P	30 - 160
Imidacloprid	120		P	30 - 160
Linuron	72.7		P	30 - 160
Mandestrobin	94.5		P	30 - 160
MCPP	78.3		P	30 - 160
Naproxen	70.0		P	30 - 160
Primidone	86.3		P	30 - 160
Pyraclostrobin	77.5		P	30 - 160
Silvex	63.2		P	30 - 160
Thiamethoxam	95.4		P	30 - 160
Tolfenpyrad	45.2		P	30 - 160
Triclopyr	66.9		P	30 - 160

Reference Method: SM 2320 B-2011
Batch ID: P420379

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	98.6		P	94 - 106

Reference Method: SM 4500-F- C-2011
Batch ID: P420383

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	102		P	96 - 104

Reference Method: SM 5310 B-2011
Batch ID: P420387

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	97.5		P	85 - 115

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 200.7 Rev. 4.4

Batch ID: P420197

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2359311	Calcium	105		P	80 - 120
2359311	Iron	108	107	P/P	80 - 120
2359311	Magnesium	106	105	P/P	80 - 120
2359311	Potassium	103	102	P/P	80 - 120
2359311	Sodium	105		P	80 - 120
2359311	Strontium	104	104	P/P	80 - 120
2359311	Tin	104	103	P/P	80 - 120
2359311	Titanium	108	108	P/P	80 - 120
2359311	Vanadium	105	104	P/P	80 - 120
2359311	Zinc	98.4	98.4	P/P	80 - 120
2359312	Calcium	99.1		P	80 - 120
2359312	Iron	104		P	80 - 120
2359312	Magnesium	99.2		P	80 - 120
2359312	Potassium	98.8		P	80 - 120
2359312	Sodium	101		P	80 - 120
2359312	Strontium	101		P	80 - 120
2359312	Tin	100		P	80 - 120
2359312	Titanium	103		P	80 - 120
2359312	Vanadium	100		P	80 - 120
2359312	Zinc	96.9		P	80 - 120

Reference Method: EPA 200.8 Rev. 5.4

Batch ID: P420197

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2359311	Aluminum	98.9	100	P/P	80 - 120
2359311	Antimony	103	103	P/P	80 - 120
2359311	Arsenic	103	103	P/P	80 - 120
2359311	Barium	103	104	P/P	80 - 120
2359311	Beryllium	96.2	93.8	P/P	80 - 120
2359311	Boron	105	107	P/P	80 - 120
2359311	Cadmium	102	99.6	P/P	80 - 120
2359311	Chromium	103	104	P/P	80 - 120
2359311	Cobalt	100	101	P/P	80 - 120
2359311	Copper	101	99.4	P/P	80 - 120
2359311	Lead	95.8	96.3	P/P	80 - 120
2359311	Manganese	102	101	P/P	80 - 120
2359311	Molybdenum	102	102	P/P	80 - 120
2359311	Nickel	101	101	P/P	80 - 120
2359311	Selenium	100	99.5	P/P	80 - 120
2359311	Silver	113	115	P/P	80 - 120
2359311	Thallium	97.0	98.9	P/P	80 - 120
2359312	Aluminum	96.6		P	80 - 120
2359312	Antimony	105		P	80 - 120
2359312	Arsenic	103		P	80 - 120
2359312	Barium	104		P	80 - 120
2359312	Beryllium	92.8		P	80 - 120
2359312	Boron	102		P	80 - 120
2359312	Cadmium	103		P	80 - 120
2359312	Chromium	102		P	80 - 120
2359312	Cobalt	101		P	80 - 120
2359312	Copper	98.5		P	80 - 120

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P420197

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2359312	Lead	95.2		P	80 - 120
2359312	Manganese	102		P	80 - 120
2359312	Molybdenum	99.5		P	80 - 120
2359312	Nickel	100		P	80 - 120
2359312	Selenium	101		P	80 - 120
2359312	Silver	116		P	80 - 120
2359312	Thallium	97.2		P	80 - 120

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P420330

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2358748	Chloride	93.5		P	90 - 110
2359074	Chloride	95.1		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P420333

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2358748	Sulfate	92.1		P	90 - 110
2359074	Sulfate	93.9		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P420586

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2359126	Ammonia-N	97.2	98.4	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P420735

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2358910	Ammonia-N	96.6	95.6	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P420129

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2358560	Kjeldahl Nitrogen	98.6	103	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P420412

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2358803	NO2NO3-N	95.5		P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P420439

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2359076	NO2NO3-N	103	103	P/P	90 - 110

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 365.1 Rev. 2.0

Batch ID: P420302

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2359127	Total-P	104	102	P/P	90 - 110

Reference Method: EPA 8321B

Batch ID: P419980

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2358851	Acesulfame K	86.6	88.8	P/P	40 - 150
2358851	AMPA	100	106	P/P	40 - 150
2358851	Endothall	126	130	P/P	40 - 150
2358851	Glufosinate	85.2	67.6	P/P	40 - 150
2358851	Glyphosate	85.1	90.0	P/P	40 - 150
2358851	Sucralose	104	104	P/P	40 - 150

Reference Method: EPA 8321B

Batch ID: P420123

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2358657	2,4-D	89.5	87.7	P/P	30 - 160
2358657	2,4,5-T	84.3	82.8	P/P	30 - 160
2358657	Acetaminophen	106	105	P/P	30 - 150
2358657	Acetamiprid	88.4	86.3	P/P	30 - 160
2358657	Afidopyrophen	85.5	86.0	P/P	30 - 160
2358657	Bentazon	42.2	38.5	P/P	30 - 150
2358657	Benzovindiflupyr	84.1	84.6	P/P	30 - 160
2358657	Carbamazepine	77.5	74.1	P/P	30 - 160
2358657	Clothianidin	109	107	P/P	30 - 160
2358657	Dinotefuran	97.1	116	P/P	30 - 160
2358657	Diuron	73.5	74.4	P/P	30 - 160
2358657	Fenuron	93.2	93.3	P/P	30 - 160
2358657	Fluridone	95.5	95.1	P/P	30 - 160
2358657	Hydrocodone	102	101	P/P	30 - 160
2358657	Ibuprofen	75.8	63.9	P/P	30 - 160
2358657	Imazapyr	96.0	97.8	P/P	30 - 160
2358657	Imidacloprid	122	125	P/P	30 - 160
2358657	Linuron	76.9	80.4	P/P	30 - 160
2358657	Mandestrobin	97.4	100	P/P	30 - 160
2358657	MCPP	93.6	92.0	P/P	30 - 160
2358657	Naproxen	101	96.4	P/P	30 - 160
2358657	Primidone	91.6	96.3	P/P	30 - 160
2358657	Pyraclostrobin	86.8	87.4	P/P	30 - 160
2358657	Silvex	77.8	75.1	P/P	30 - 160
2358657	Thiamethoxam	122	125	P/P	30 - 160
2358657	Tolfenpyrad	46.8	47.6	P/P	30 - 160
2358657	Triclopyr	87.2	85.6	P/P	30 - 160

Reference Method: SM 4500-F- C-2011

Batch ID: P420383

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2358674	Fluoride	100	100	P/P	94 - 104

Quality Assurance Report

Matrix Spike Accuracy

Reference Method: SM 5310 B-2011
Batch ID: P420387

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2358936	Organic Carbon	100	97.9	P/P	85 - 115

Quality Assurance Report Precision

Reference Method: DEP SOP: NU-094-1
Batch ID: P420030

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2358935	Color (true)	2.45	Sample	P	0 - 20

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P420048

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2359072	Turbidity	5.66	Sample	P	0 - 20

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P420197

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2359311	Calcium	2.42	Spike	P	0 - 20
2359311	Iron	1.03	Spike	P	0 - 20
2359311	Magnesium	0.704	Spike	P	0 - 20
2359311	Potassium	0.209	Spike	P	0 - 20
2359311	Sodium	0.394	Spike	P	0 - 20
2359311	Strontium	0.116	Spike	P	0 - 20
2359311	Tin	1.38	Spike	P	0 - 20
2359311	Titanium	0.391	Spike	P	0 - 20
2359311	Vanadium	0.914	Spike	P	0 - 20
2359311	Zinc	0.0564	Spike	P	0 - 20

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P420197

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2359311	Aluminum	0.927	Spike	P	0 - 20
2359311	Antimony	0.218	Spike	P	0 - 20
2359311	Arsenic	0.00455	Spike	P	0 - 20
2359311	Barium	0.309	Spike	P	0 - 20
2359311	Beryllium	2.59	Spike	P	0 - 20
2359311	Boron	2.47	Spike	P	0 - 20
2359311	Cadmium	1.93	Spike	P	0 - 20
2359311	Chromium	0.342	Spike	P	0 - 20
2359311	Cobalt	0.376	Spike	P	0 - 20
2359311	Copper	2.07	Spike	P	0 - 20
2359311	Lead	0.569	Spike	P	0 - 20
2359311	Manganese	0.391	Spike	P	0 - 20
2359311	Molybdenum	0.0696	Spike	P	0 - 20
2359311	Nickel	0.570	Spike	P	0 - 20
2359311	Selenium	0.886	Spike	P	0 - 20
2359311	Silver	2.18	Spike	P	0 - 20
2359311	Thallium	1.83	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P420330

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2358748	Chloride	0.236	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P420333

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2358748	Sulfate	0.0504	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P420586

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2359126	Ammonia-N	1.09	Spike	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P420735

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2358910	Ammonia-N	0.922	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P420129

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2358560	Kjeldahl Nitrogen	2.43	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P420199

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2359611	Kjeldahl Nitrogen	0.562	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P420412

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2358803	NO2NO3-N	0.175	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P420439

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2359076	NO2NO3-N	0.0	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 365.1 Rev. 2.0

Batch ID: P420302

Replicated

Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2359127	Total-P	1.78	Spike	P	0 - 20

Reference Method: EPA 8321B

Batch ID: P419980

Replicated

Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2358851	Acesulfame K	2.46	Spike	P	0 - 30
2358851	AMPA	5.11	Spike	P	0 - 30
2358851	Endothall	2.70	Spike	P	0 - 30
2358851	Glufosinate	23.1	Spike	P	0 - 30
2358851	Glyphosate	5.63	Spike	P	0 - 30
2358851	Sucralose	0.187	Spike	P	0 - 30

Reference Method: EPA 8321B

Batch ID: P420123

Replicated

Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2358657	2,4-D	1.88	Spike	P	0 - 30
2358657	2,4,5-T	1.81	Spike	P	0 - 30
2358657	Acetaminophen	0.379	Spike	P	0 - 30
2358657	Acetamiprid	2.35	Spike	P	0 - 30
2358657	Afidopyropen	0.608	Spike	P	0 - 30
2358657	Bentazon	8.16	Spike	P	0 - 30
2358657	Benzovindiflupyr	0.571	Spike	P	0 - 30
2358657	Carbamazepine	4.47	Spike	P	0 - 30
2358657	Clothianidin	1.60	Spike	P	0 - 30
2358657	Dinotefuran	17.4	Spike	P	0 - 30
2358657	Diuron	1.16	Spike	P	0 - 30
2358657	Fenuron	0.0381	Spike	P	0 - 30
2358657	Fluridone	0.511	Spike	P	0 - 30
2358657	Hydrocodone	0.646	Spike	P	0 - 30
2358657	Ibuprofen	17.0	Spike	P	0 - 30
2358657	Imazapyr	1.61	Spike	P	0 - 30
2358657	Imidacloprid	2.34	Spike	P	0 - 30
2358657	Linuron	4.39	Spike	P	0 - 30
2358657	Mandestrobin	2.67	Spike	P	0 - 30
2358657	MCPP	1.69	Spike	P	0 - 30
2358657	Naproxen	4.32	Spike	P	0 - 30
2358657	Primidone	5.05	Spike	P	0 - 30
2358657	Pyraclostrobin	0.623	Spike	P	0 - 30
2358657	Silvex	3.52	Spike	P	0 - 30
2358657	Thiamethoxam	2.16	Spike	P	0 - 30
2358657	Tolfenpyrad	1.58	Spike	P	0 - 30
2358657	Triclopyr	1.83	Spike	P	0 - 30

Quality Assurance Report Precision

Reference Method: SM 2320 B-2011
Batch ID: P420379

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2358674	Total Alkalinity	1.87	Sample	P	0 - 3.8

Reference Method: SM 2540 C-2011
Batch ID: P420487

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2358674	TDS	3.48	Sample	P	0 - 10

Reference Method: SM 4500-F- C-2011
Batch ID: P420383

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2358674	Fluoride	0.0	Spike	P	0 - 1.6

Reference Method: SM 5310 B-2011
Batch ID: P420387

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2358936	Organic Carbon	1.71	Spike	P	0 - 20

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

Quality Assurance Report Surrogates

Lab Sample ID: 2359085

Field Sample ID: G3NW0215

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	2,4-D-d3	104	P	30 - 160
EPA 8321B	Acetaminophen-d4	110	P	30 - 160
EPA 8321B	Carbamazepine-d10	65.9	P	30 - 160
EPA 8321B	Diuron-d6	62.9	P	30 - 160
EPA 8321B	Endothall-d6	97.6	P	30 - 160
EPA 8321B	Glyphosate 13C 15N	139	P	30 - 160
EPA 8321B	Ibuprofen-d3	71.5	P	30 - 160
EPA 8321B	Primidone-d5	107	P	30 - 160
EPA 8321B	Sucralose-d6	100	P	30 - 160

Lab Sample ID: 2359086

Field Sample ID: G3NW0216

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	2,4-D-d3	88.2	P	30 - 160
EPA 8321B	Acetaminophen-d4	111	P	30 - 160
EPA 8321B	Carbamazepine-d10	69.3	P	30 - 160
EPA 8321B	Diuron-d6	65.6	P	30 - 160
EPA 8321B	Endothall-d6	92.6	P	30 - 160
EPA 8321B	Glyphosate 13C 15N	85.2	P	30 - 160
EPA 8321B	Ibuprofen-d3	88.0	P	30 - 160
EPA 8321B	Primidone-d5	104	P	30 - 160
EPA 8321B	Sucralose-d6	101	P	30 - 160

Quality Assurance Report Calibration Verification

Reference Method: DEP SOP: NU-094-1

Run ID: A114911

Included Lab Sample IDs: 2359072, 2359074, 2359075, 2359078

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	99.6	100	P/P	90 - 110

Reference Method: EPA 180.1 Rev. 2.0

Run ID: A114918

Included Lab Sample IDs: 2359072, 2359074, 2359075, 2359078

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

Reference Method: EPA 8321B

Run ID: A114978

Included Lab Sample IDs: 2359085, 2359086

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
AMPA	109	113	P/P	60 - 160
Endothall	79.8	85.8	P/P	60 - 160
Glufosinate	77.0	83.2	P/P	60 - 160
Glyphosate	109	109	P/P	60 - 160

Reference Method: EPA 8321B

Run ID: A114979

Included Lab Sample IDs: 2359085, 2359086

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Acesulfame K	109	111	P/P	60 - 160
Sucralose	106	105	P/P	60 - 160

Reference Method: EPA 8321B

Run ID: A114983

Included Lab Sample IDs: 2359085, 2359086

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
2,4-D	86.8	95.9	P/P	50 - 150
2,4,5-T	88.4	94.7	P/P	50 - 150
Acetaminophen	95.8	99.4	P/P	60 - 160
Acetamiprid	99.7	102	P/P	50 - 150
Afidopyropen	93.5	103	P/P	50 - 150
Bentazon	89.9	98.7	P/P	50 - 160
Benzovindiflupyr	100	106	P/P	50 - 150
Carbamazepine	99.8	105	P/P	60 - 150
Clothianidin	100	102	P/P	60 - 150
Dinotefuran	101	107	P/P	50 - 150
Diuron	103	113	P/P	60 - 160
Fenuron	103	104	P/P	60 - 150
Fluridone	106	109	P/P	60 - 160
Hydrocodone	98.6	103	P/P	60 - 150
Ibuprofen	72.8	85.0	P/P	50 - 160
Imazapyr	89.2	92.2	P/P	50 - 150
Imidacloprid	90.3	96.6	P/P	60 - 150
Linuron	111	105	P/P	60 - 150
Mandestrobin	95.6	108	P/P	50 - 150

Quality Assurance Report Calibration Verification

Reference Method: EPA 8321B

Run ID: A114983

Included Lab Sample IDs: 2359085, 2359086

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
MCPD	91.0	92.8	P/P	50 - 150
Naproxen	61.6	95.1	P/P	50 - 160
Primidone	101	104	P/P	60 - 150
Pyraclostrobin	101	107	P/P	60 - 150
Silvex	83.9	103	P/P	50 - 150
Thiamethoxam	100	105	P/P	50 - 150
Tolfenpyrad	97.6	100	P/P	60 - 150
Triclopyr	96.5	92.7	P/P	50 - 150

Reference Method: EPA 300.0 Rev. 2.1

Run ID: A114999

Included Lab Sample IDs: 2359072, 2359074, 2359075, 2359078

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	99.0	99.7	P/P	90 - 110
Chloride	99.7	99.9	P/P	90 - 110
Sulfate	99.0	99.7	P/P	90 - 110
Sulfate	99.7	99.7	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A115009

Included Lab Sample IDs: 2359073, 2359076, 2359077

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

Reference Method: EPA 200.8 Rev. 5.4

Run ID: A115038

Included Lab Sample IDs: 2359087

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Aluminum	100	102	P/P	90 - 110
Antimony	99.8	101	P/P	90 - 110
Arsenic	102	102	P/P	90 - 110
Barium	99.7	100	P/P	90 - 110
Beryllium	98.2	97.1	P/P	90 - 110
Boron	103	106	P/P	90 - 110
Cadmium	101	101	P/P	90 - 110
Chromium	98.9	99.4	P/P	90 - 110
Cobalt	99.4	98.8	P/P	90 - 110
Copper	97.9	98.2	P/P	90 - 110
Lead	94.9	95.5	P/P	90 - 110
Manganese	99.1	99.1	P/P	90 - 110
Molybdenum	100	99.6	P/P	90 - 110
Nickel	99.2	98.6	P/P	90 - 110
Selenium	100	101	P/P	90 - 110
Silver	100	100	P/P	90 - 110
Thallium	96.6	96.1	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A115043

Included Lab Sample IDs: 2359073, 2359077, 2359079

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	99.7	98.0	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A115048

Included Lab Sample IDs: 2359076

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	98.8	101	P/P	90 - 110

Reference Method: EPA 200.7 Rev. 4.4

Run ID: A115060

Included Lab Sample IDs: 2359087

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Calcium	100	103	P/P	90 - 110
Iron	101	103	P/P	90 - 110
Magnesium	98.8	102	P/P	90 - 110
Potassium	98.9	98.8	P/P	90 - 110
Sodium	102	103	P/P	90 - 110
Strontium	104	98.9	P/P	90 - 110
Tin	104	99.6	P/P	90 - 110
Titanium	105	99.8	P/P	90 - 110
Vanadium	104	98.9	P/P	90 - 110
Zinc	100	97.1	P/P	90 - 110

Reference Method: SM 2320 B-2011

Run ID: A115070

Included Lab Sample IDs: 2359072, 2359074, 2359075, 2359078

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	102	96.5	P/P	90 - 110
Total Alkalinity	96.5	102	P/P	90 - 110

Reference Method: SM 4500-F- C-2011

Run ID: A115070

Included Lab Sample IDs: 2359072, 2359074, 2359075, 2359078

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	102	103	P/P	90 - 110
Fluoride	104	102	P/P	90 - 110

Reference Method: SM 5310 B-2011

Run ID: A115074

Included Lab Sample IDs: 2359073, 2359076, 2359077, 2359079

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	96.7	96.8	P/P	90 - 110
Organic Carbon	96.8	95.8	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A115092

Included Lab Sample IDs: 2359079

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	99.5	103	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A115093

Included Lab Sample IDs: 2359073

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO2NO3-N	104	103	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A115111

Included Lab Sample IDs: 2359076, 2359077, 2359079

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO2NO3-N	104	103	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A115158

Included Lab Sample IDs: 2359079

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	99.1	99.7	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A115220

Included Lab Sample IDs: 2359073, 2359076, 2359077

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	98.5	98.3	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 SMP	MS
DEP SOP: NU-094-1	Color (true)	98.2					2.45	
EPA 180.1 Rev. 2.0	Turbidity	101					5.66	
EPA 200.7 Rev. 4.4	Calcium	103	105	99.1				2.42
	Iron	105	108	107	104			1.03
	Magnesium	102	106	105	99.2			0.704
	Potassium	98.6	103	102	98.8			0.209
	Sodium	104	105	101				0.394
	Strontium	101	104	104	101			0.116
	Tin	99.2	104	103	100			1.38
	Titanium	101	108	108	103			0.391
	Vanadium	99.4	105	104	100			0.914
	Zinc	96.2	98.4	98.4	96.9			0.0564
EPA 200.8 Rev. 5.4	Aluminum	98.3	98.9	100	96.6			0.927
	Antimony	101	103	103	105			0.218
	Arsenic	102	103	103	103			0.0045
	Barium	102	103	104	104			0.309
	Beryllium	94.3	96.2	93.8	92.8			2.59
	Boron	100	105	107	102			2.47
	Cadmium	99.6	102	99.6	103			1.93
	Chromium	98.5	103	104	102			0.342
	Cobalt	101	100	101	101			0.376
	Copper	99.3	101	99.4	98.5			2.07
	Lead	94.5	95.2	95.8	96.3			0.569
	Manganese	98.8	102	101	102			0.391
	Molybdenum	97.7	102	102	99.5			0.0696
	Nickel	99.6	101	101	100			0.570
	Selenium	100	100	99.5	101			0.886
	Silver	113	113	115	116			2.18
	Thallium	95.6	97.0	98.9	97.2			1.83
EPA 300.0 Rev. 2.1	Chloride	98.7	93.5	95.1			0.236	
	Sulfate	96.3	92.1	93.9			0.0504	
EPA 350.1 Rev. 2.0	Ammonia-N	95.2	97.2	98.4				1.09
	Ammonia-N	98.8	96.6	95.6				0.922
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	103	98.6	103				2.43
	Kjeldahl Nitrogen	99.6						0.562
EPA 353.2 Rev. 2.0	NO2NO3-N	104	95.5					0.175
	NO2NO3-N	102	103	103				0.0
EPA 365.1 Rev. 2.0	Total-P	102	104	102				1.78
EPA 8321B	2,4-D	74.2	89.5	87.7				1.88
	2,4,5-T	62.5	84.3	82.8				1.81
	Acesulfame K	99.9	86.6	88.8				2.46
	Acetaminophen	87.8	106	105				0.379
	Acetamiprid	79.9	88.4	86.3				2.35
	Afidopyropen	70.6	85.5	86.0				0.608
	AMPA	112	100	106				5.11
	Bentazon	38.2	42.2	38.5				8.16
	Benzovindiflupyr	78.3	84.1	84.6				0.571
	Carbamazepine	76.3	77.5	74.1				4.47
	Clothianidin	91.9	109	107				1.60
	Dinotefuran	95.4	97.1	116				17.4
	Diuron	70.6	73.5	74.4				1.16
	Endothall	97.7	126	130				2.70
	Fenuron	96.9	93.2	93.3				0.0381
	Fluridone	91.9	95.5	95.1				0.511

Quality Assurance Report Summary

Ref. Method	Analyte	LCS % Recovery	MS % Recovery		Precision	
					LCS	MS
EPA 8321B	Glufosinate	91.2	85.2	67.6		23.1
	Glyphosate	109	85.1	90.0		5.63
	Hydrocodone	89.2	102	101		0.646
	Ibuprofen	58.2	75.8	63.9		17.0
	Imazapyr	82.9	96.0	97.8		1.61
	Imidacloprid	120	122	125		2.34
	Linuron	72.7	76.9	80.4		4.39
	Mandestrobin	94.5	97.4	100		2.67
	MCPP	78.3	93.6	92.0		1.69
	Naproxen	70.0	101	96.4		4.32
	Primidone	86.3	91.6	96.3		5.05
	Pyraclostrobin	77.5	86.8	87.4		0.623
	Silvex	63.2	77.8	75.1		3.52
	Sucralose	106	104	104		0.187
	Thiamethoxam	95.4	122	125		2.16
	Tolfenpyrad	45.2	46.8	47.6		1.58
	Triclopyr	66.9	87.2	85.6		1.83
SM 2320 B-2011	Total Alkalinity	98.6			1.87	
SM 2540 C-2011	TDS				3.48	
SM 4500-F- C-2011	Fluoride	102	100	100		0.0
SM 5310 B-2011	Organic Carbon	97.5	100	97.9		1.71

Reference Method Descriptions

Method	Description	Associated Samples
DEP SOP: NU-094-1	True Color measured at 450 nm (not valid for NPDES monitoring)	2359072, 2359074, 2359075, 2359078
EPA 180.1 Rev. 2.0	Turbidity in aqueous matrices	2359072, 2359074, 2359075, 2359078
EPA 200.7 Rev. 4.4	Total Recoverable Metals analysis using ICP emission spectroscopy for aqueous samples supporting Clean Water Act Projects	2359087
EPA 200.8 Rev. 5.4	Total Recoverable Metals analysis using ICP-MS for aqueous samples supporting Clean Water Act Projects	2359087
EPA 300.0 Rev. 2.1	Chloride in aqueous matrices	2359072, 2359074, 2359075, 2359078
EPA 300.0 Rev. 2.1	Sulfate in aqueous matrices	2359072, 2359074, 2359075, 2359078
EPA 350.1 Rev. 2.0	Ammonia in aqueous matrices as mg N/L	2359073, 2359076, 2359077, 2359079
EPA 351.2 Rev. 2.0	Total Kjeldahl Nitrogen in aqueous matrices	2359073, 2359076, 2359077, 2359079
EPA 353.2 Rev. 2.0	Nitrite/Nitrate in aqueous matrices as mg N/L	2359073, 2359076, 2359077, 2359079
EPA 365.1 Rev. 2.0	Total Phosphorus in aqueous matrices as mg P/L	2359073, 2359076, 2359077, 2359079
EPA 8321B	Pesticides, herbicides, and other chemicals in water matrices by HPLC/MS/MS	2359085, 2359086
SM 2320 B-2011	Alkalinity in aqueous matrices as mg CaCO ₃ /L	2359072, 2359074, 2359075, 2359078
SM 2340 B-2011	Hardness by calculation, in aqueous matrices, reported as mg/L CaCO ₃	2359087
SM 2540 C-2011	Total Dissolved Solids in aqueous matrices	2359072, 2359074, 2359075, 2359078
SM 2540 D-2011	Total Suspended Solids in aqueous matrices using a maximum of 250 mL of sample	2359072, 2359074, 2359075, 2359078
SM 4500-F- C-2011	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	2359072, 2359074, 2359075, 2359078
SM 5310 B-2011	Nonpurgeable Organic Carbon in aqueous matrices	2359073, 2359076, 2359077, 2359079

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	09/23/2022			09/23/2022 10:36	Samantha L Bates	2359072, 2359078
	09/23/2022			09/23/2022 10:37	Samantha L Bates	2359074, 2359075
EPA 180.1 Rev. 2.0	09/23/2022			09/23/2022 10:25	Chandler E Cox	2359072
	09/23/2022			09/23/2022 10:29	Chandler E Cox	2359078
	09/23/2022			09/23/2022 10:34	Chandler E Cox	2359075
	09/23/2022			09/23/2022 10:35	Chandler E Cox	2359074
EPA 200.7 Rev. 4.4	09/23/2022	09/28/2022 10:45	Megan Whitefoot	10/01/2022 01:04	McKinley C Carter	2359087
EPA 200.8 Rev. 5.4	09/23/2022	09/28/2022 10:45	Megan Whitefoot	09/29/2022 17:52	Emily M Philpot	2359087
EPA 300.0 Rev. 2.1	09/23/2022			09/29/2022 12:53	Anna M. Plaviak	2359074
	09/23/2022			09/29/2022 17:15	Anna M. Plaviak	2359072
	09/23/2022			09/29/2022 17:30	Anna M. Plaviak	2359075
	09/23/2022			09/29/2022 17:45	Anna M. Plaviak	2359078
EPA 350.1 Rev. 2.0	09/23/2022			10/06/2022 11:15	Ping Hua	2359079
	09/23/2022			10/11/2022 14:11	Judith K. Clark	2359073
	09/23/2022			10/11/2022 14:13	Judith K. Clark	2359076
	09/23/2022			10/11/2022 14:14	Judith K. Clark	2359077
EPA 351.2 Rev. 2.0	09/23/2022	09/27/2022 14:11	Samantha L Bates	09/28/2022 15:50	Samantha L Bates	2359073
	09/23/2022	09/27/2022 14:11	Samantha L Bates	09/28/2022 15:52	Samantha L Bates	2359076
	09/23/2022	09/27/2022 14:11	Samantha L Bates	09/28/2022 15:53	Samantha L Bates	2359077
	09/23/2022	09/28/2022 12:10	Alexandra J Mattheus	10/03/2022 14:35	Samantha L Bates	2359079
EPA 353.2 Rev. 2.0	09/23/2022			10/03/2022 12:43	Beverly Y. Sanders	2359073
	09/23/2022			10/04/2022 09:14	Beverly Y. Sanders	2359076
	09/23/2022			10/04/2022 09:20	Beverly Y. Sanders	2359077
	09/23/2022			10/04/2022 09:21	Beverly Y. Sanders	2359079
EPA 365.1 Rev. 2.0	09/23/2022	09/29/2022 14:45	Adam P Silver	09/30/2022 09:39	Simonne.V. Calhoun	2359073
	09/23/2022	09/29/2022 14:45	Adam P Silver	09/30/2022 09:41	Simonne.V. Calhoun	2359077
	09/23/2022	09/29/2022 14:45	Adam P Silver	09/30/2022 09:42	Simonne.V. Calhoun	2359079
	09/23/2022	09/29/2022 14:45	Adam P Silver	09/30/2022 12:02	James L Waggeberby	2359076
EPA 8321B	09/23/2022	09/27/2022 09:00	June Rhew	09/28/2022 06:55	Juyoung Kim	2359085
	09/23/2022	09/27/2022 09:00	June Rhew	09/28/2022 07:13	Juyoung Kim	2359086
	09/23/2022	09/27/2022 09:00	Umesh Chiluwal	09/27/2022 14:50	Umesh Chiluwal	2359085
	09/23/2022	09/27/2022 09:00	Umesh Chiluwal	09/27/2022 15:03	Umesh Chiluwal	2359086
	09/23/2022	09/27/2022 09:00	Umesh Chiluwal	09/28/2022 01:28	Umesh Chiluwal	2359085
	09/23/2022	09/27/2022 09:00	Umesh Chiluwal	09/28/2022 01:43	Umesh Chiluwal	2359086
SM 2320 B-2011	09/23/2022			10/01/2022 15:37	Dale L. Simmons	2359072
	09/23/2022			10/01/2022 15:48	Dale L. Simmons	2359074
	09/23/2022			10/01/2022 16:34	Dale L. Simmons	2359075
	09/23/2022			10/01/2022 16:45	Dale L. Simmons	2359078
SM 2340 B-2011	09/23/2022			10/01/2022 01:04	McKinley C Carter	2359087
SM 2540 C-2011	09/23/2022			09/27/2022 15:36	Yijie Li	2359072, 2359074, 2359075, 2359078

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
SM 2540 D-2011	09/23/2022			09/27/2022 15:36	Yijie Li	2359072, 2359074, 2359075, 2359078
SM 4500-F- C-2011	09/23/2022			10/01/2022 15:37	Dale L. Simmons	2359072
	09/23/2022			10/01/2022 15:48	Dale L. Simmons	2359074
	09/23/2022			10/01/2022 16:34	Dale L. Simmons	2359075
	09/23/2022			10/01/2022 16:45	Dale L. Simmons	2359078
	09/23/2022			09/29/2022 23:06	Touraj Touran	2359073
SM 5310 B-2011	09/23/2022			09/30/2022 00:50	Touraj Touran	2359076
	09/23/2022			09/30/2022 01:06	Touraj Touran	2359077
	09/23/2022			09/30/2022 01:19	Touraj Touran	2359079