

Chemical Analysis Report

NE-DIST-2022-12-28-02

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

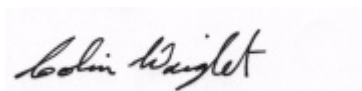
Event Description: **LSJR East makeup**
Request ID: **RQ-2022-12-26-25**
Customer: **NE-DIST**
Project ID: **SMP**

Send Reports to:
FL Dept. of Environmental Protection
8800 Baymeadows Way West
Suite 100
Jacksonville, FL 32256
Attn: Jeremy Parrish

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Certified by: Colin Wright, Program Administrator

Date Certified: 25-JAN-2023 09:08

A handwritten signature in black ink, appearing to read "Colin Wright", is displayed on a light pink rectangular 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: 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: Red Bay Branch at Lone Star Road

Collection Date/Time: 12/27/2022 11:50

Field ID: 20030674

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2377530	DEP SOP: NU-094-1	Color (true)	7.8		PCU	P423998	
	EPA 180.1 Rev. 2.0	Turbidity	1.2		NTU	P423995	
	EPA 300.0 Rev. 2.1	Chloride	46		mg Cl/L	P424207	
		Sulfate	55		mg SO4/L	P424210	
	SM 2320 B-2011	Total Alkalinity	53		mg CaCO3/L	P424167	
	SM 2540 C-2015	TDS	237		mg/L	P424308	
	SM 2540 D-2015	TSS	2	I	mg/L	P424147	
	SM 4500-F- C-2011	Fluoride	0.033	I	mg F/L	P424515	
2377531	EPA 350.1 Rev. 2.0	Ammonia-N	0.073		mg N/L	P424560	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.31		mg N/L	P424194	
	EPA 353.2 Rev. 2.0	NO2NO3-N	2.2		mg N/L	P424288	
	EPA 365.1 Rev. 2.0	Total-P	0.028		mg P/L	P424137	
	SM 5310 B-2011	Organic Carbon	2.6		mg C/L	P424183	

Ref. Method and Comment:

SM 2540 D-2015: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample.

Sample Location: FB

Collection Date/Time: 12/27/2022 12:05

Field ID: FB_12272022

Matrix: W-FIELD-BK

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2377532	DEP SOP: NU-094-1	Color (true)	2.5	U	PCU	P423992	
	EPA 180.1 Rev. 2.0	Turbidity	0.10	U	NTU	P423995	
	EPA 300.0 Rev. 2.1	Chloride	0.20	U	mg Cl/L	P424207	
		Sulfate	0.20	U	mg SO4/L	P424210	
	SM 2320 B-2011	Total Alkalinity	0.65	U	mg CaCO3/L	P424167	
	SM 2540 C-2015	TDS	15	U	mg/L	P424308	
	SM 2540 D-2015	TSS	2	U	mg/L	P424147	
2377533	SM 4500-F- C-2011	Fluoride	0.025	U	mg F/L	P424515	
	EPA 350.1 Rev. 2.0	Ammonia-N	0.002	U	mg N/L	P424615	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.080	U	mg N/L	P424194	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P424289	
	EPA 365.1 Rev. 2.0	Total-P	0.002	U	mg P/L	P424137	
2377538	SM 5310 B-2011	Organic Carbon	0.50	U	mg C/L	P424183	
	EPA 8321B	2,4-D	0.0020	U	ug/L	P423955	
		Acesulfame K	0.10	U	ug/L	P423967	
		2,4,5-T	0.0040	U	ug/L	P423955	
		AMPA	0.10	U	ug/L	P423967	
		Acetaminophen	0.0080	U	ug/L	P423955	
		Acetamiprid	0.0020	U	ug/L	P423955	
		Endothall	0.25	U	ug/L	P423967	
		Glufosinate	0.10	U	ug/L	P423967	
		Glyphosate	0.10	U	ug/L	P423967	
		Afidopyropen	0.0020	U	ug/L	P423955	
		Bentazon	8.0E-04	U	ug/L	P423955	
		Sucralose	0.010	U	ug/L	P423967	
		Benzovindiflupyr	0.0020	U	ug/L	P423955	
		Carbamazepine	8.0E-04	U	ug/L	P423955	
		Clothianidin	0.0020	U	ug/L	P423955	
		Dinotefuran	0.0020	U	ug/L	P423955	
		Diuron	0.0020	U	ug/L	P423955	
		Fenuron	0.032	U	ug/L	P423955	
		Fluridone	8.0E-04	U	ug/L	P423955	
		Imazapyr	0.0040	U	ug/L	P423955	
		Hydrocodone	0.0020	U	ug/L	P423955	
		Ibuprofen	0.20	U	ug/L	P423955	
		Imidacloprid	0.0020	U	ug/L	P423955	
		Linuron	0.0040	U	ug/L	P423955	
		Mandestrobin	0.0020	U	ug/L	P423955	
		MCP	0.0040	U	ug/L	P423955	
		Naproxen	0.0080	U	ug/L	P423955	
		Primidone	0.0040	U	ug/L	P423955	
		Pyraclostrobin	0.0020	U	ug/L	P423955	
		Silvex	0.0040	U	ug/L	P423955	
		Thiamethoxam	0.0020	U	ug/L	P423955	

Field ID: FB_12272022

Matrix: W-FIELD-BK

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2377538	EPA 8321B	Tolfenpyrad	0.0020	U	ug/L	P423955	
		Triclopyr	0.0040	U	ug/L	P423955	
2377541	EPA 200.7 Rev. 4.4	Calcium	0.075	U	mg/L	P424053	
		Iron	30	U	ug/L	P424053	
		Magnesium	0.040	U	mg/L	P424053	
		Potassium	0.30	U	mg/L	P424053	
		Sodium	0.50	U	mg/L	P424053	
		Strontium	2.0	U	ug/L	P424053	
		Tin	3.0	U	ug/L	P424053	
		Titanium	0.75	U	ug/L	P424053	
		Vanadium	2.0	U	ug/L	P424053	
		Zinc	5.0	U	ug/L	P424053	
	EPA 200.8 Rev. 5.4	Aluminum	5.0	U	ug/L	P424053	
		Antimony	0.050	U	ug/L	P424053	
		Arsenic	0.050	U	ug/L	P424053	
		Barium	0.20	U	ug/L	P424053	
		Beryllium	0.010	U	ug/L	P424053	
		Boron	2.0	U	ug/L	P424053	
		Cadmium	0.020	U	ug/L	P424053	
		Chromium	0.40	U	ug/L	P424053	
		Cobalt	0.020	U	ug/L	P424053	
		Copper	0.40	U	ug/L	P424053	
		Lead	0.20	U	ug/L	P424053	
		Manganese	0.10	U	ug/L	P424053	
		Molybdenum	0.15	U	ug/L	P424053	
		Nickel	0.50	U	ug/L	P424053	
		Selenium	0.20	U	ug/L	P424053	
		Silver	0.010	U	ug/L	P424854	
		Thallium	0.10	U	ug/L	P424053	
	SM 2340 B-2011	Hardness	0.35	U	mg/L	P424053	

Ref. Method and Comment:

SM 2540 D-2015: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample.

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

Sample Location: Greenfield CR Trib. @ Princess Kelly Dr.

Collection Date/Time: 12/27/2022 12:50

Field ID: 20030810

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2377540	EPA 200.7 Rev. 4.4	Calcium	228		mg/L	P424277	
		Iron	190	I	ug/L	P424277	
		Magnesium	731		mg/L	P424277	
		Strontium	4.40E+03		ug/L	P424277	
	EPA 200.8 Rev. 5.4	Tin	9.0	U	ug/L	P424277	
		Titanium	2.7	I	ug/L	P424277	
		Vanadium	6.0	U	ug/L	P424277	
		Zinc	15	U	ug/L	P424277	
		Aluminum	200	I	ug/L	P424277	
		Antimony	0.20	U	ug/L	P424277	
		Arsenic	1.76		ug/L	P424277	
		Beryllium	0.040	U	ug/L	P424277	
		Cadmium	0.080	U	ug/L	P424277	
		Chromium	1.6	U	ug/L	P424277	
		Cobalt	0.20	U	ug/L	P424277	
		Copper	1.6	U	ug/L	P424277	
		Lead	2.0	U	ug/L	P424277	
		Manganese	11.8		ug/L	P424277	
		Molybdenum	6.9		ug/L	P424277	
		Nickel	2.0	U	ug/L	P424277	
		Selenium	0.80	U	ug/L	P424277	
		Silver	0.040	U	ug/L	P424277	
		Thallium	0.40	U	ug/L	P424277	

Ref. Method and Comment:

EPA 200.7 Rev. 4.4: Batch matrix spike recoveries for calcium, magnesium and strontium are unavailable because of high analyte concentration in the QC sample.

Quality Assurance Report Method Blank Results

Reference Method: DEP SOP: NU-094-1
Batch ID: P423992

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: DEP SOP: NU-094-1
Batch ID: P423998

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P423995

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P424053

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 200.7 Rev. 4.4
Batch ID: P424277

Component	Result	Code	Units
Calcium	0.075	U	mg/L
Iron	30	U	ug/L
Magnesium	0.040	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: P424053

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

Quality Assurance Report Method Blank Results

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P424053

Component	Result	Code	Units
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
Thallium	0.10	U	ug/L

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P424277

Component	Result	Code	Units
Aluminum	5.0	U	ug/L
Antimony	0.050	U	ug/L
Arsenic	0.050	U	ug/L
Beryllium	0.010	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	0.23	I	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 200.8 Rev. 5.4
Batch ID: P424854

Component	Result	Code	Units
Silver	0.010	U	ug/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P424207

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P424210

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Quality Assurance Report Method Blank Results

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P424560

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P424615

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P424194

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P424288

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P424289

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P424137

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

Reference Method: EPA 8321B
Batch ID: P423955

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

Quality Assurance Report

Method Blank Results

Reference Method: EPA 8321B

Batch ID: P423955

Component	Result	Code	Units
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: EPA 8321B

Batch ID: P423967

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

Reference Method: SM 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: P424308

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-2015

Batch ID: P424147

Component	Result	Code	Units
TSS	2	U	mg/L

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: P424183

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: P423992

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Color (true)	91.0		P	90 - 110

Reference Method: DEP SOP: NU-094-1
Batch ID: P423998

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Color (true)	90.9		P	90 - 110

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P423995

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

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P424053

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Calcium	98.7		P	85 - 115
Iron	102		P	85 - 115
Magnesium	101		P	85 - 115
Potassium	100		P	85 - 115
Sodium	105		P	85 - 115
Strontium	103		P	85 - 115
Tin	95.9		P	85 - 115
Titanium	103		P	85 - 115
Vanadium	101		P	85 - 115
Zinc	89.4		P	85 - 115

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P424277

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Calcium	101		P	85 - 115
Iron	105		P	85 - 115
Magnesium	105		P	85 - 115
Strontium	107		P	85 - 115
Tin	100		P	85 - 115
Titanium	103		P	85 - 115
Vanadium	103		P	85 - 115
Zinc	96.1		P	85 - 115

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P424053

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Aluminum	98.7		P	85 - 115
Antimony	99.1		P	85 - 115
Arsenic	100		P	85 - 115
Barium	101		P	85 - 115
Beryllium	96.9		P	85 - 115
Boron	98.2		P	85 - 115

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 200.8 Rev. 5.4

Batch ID: P424053

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Cadmium	101		P	85 - 115
Chromium	96.7		P	85 - 115
Cobalt	99.8		P	85 - 115
Copper	99.6		P	85 - 115
Lead	91.6		P	85 - 115
Manganese	96.9		P	85 - 115
Molybdenum	97.3		P	85 - 115
Nickel	101		P	85 - 115
Selenium	101		P	85 - 115
Thallium	98.9		P	85 - 115

Reference Method: EPA 200.8 Rev. 5.4

Batch ID: P424277

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Aluminum	95.7		P	85 - 115
Antimony	96.2		P	85 - 115
Arsenic	96.7		P	85 - 115
Beryllium	88.6		P	85 - 115
Cadmium	97.6		P	85 - 115
Chromium	93.3		P	85 - 115
Cobalt	94.3		P	85 - 115
Copper	94.7		P	85 - 115
Lead	89.1		P	85 - 115
Manganese	94.4		P	85 - 115
Molybdenum	94.1		P	85 - 115
Nickel	96.4		P	85 - 115
Selenium	95.7		P	85 - 115
Silver	96.4		P	85 - 115
Thallium	97.4		P	85 - 115

Reference Method: EPA 200.8 Rev. 5.4

Batch ID: P424854

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Silver	99.6		P	85 - 115

Reference Method: EPA 300.0 Rev. 2.1

Batch ID: P424207

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Chloride	97.3		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1

Batch ID: P424210

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Sulfate	98.2		P	90 - 110

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P424560

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P424615

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P424194

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P424288

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P424289

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: P424137

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

Reference Method: EPA 8321B
Batch ID: P423955

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2,4-D	73.9		P	40 - 150
2,4,5-T	60.3		P	40 - 150
Acetaminophen	84.4		P	30 - 150
Acetamiprid	65.8		P	40 - 150
Afidopyropen	70.0		P	30 - 150
Bentazon	87.7		P	30 - 150
Benzovindiflupyr	80.6		P	40 - 150
Carbamazepine	92.0		P	40 - 150
Clothianidin	82.3		P	40 - 150
Dinotefuran	81.0		P	40 - 150
Diuron	92.0		P	40 - 150
Fenuron	90.8		P	40 - 150
Fluridone	83.3		P	40 - 150
Hydrocodone	81.0		P	40 - 150
Ibuprofen	91.6		P	40 - 150
Imazapyr	90.9		P	40 - 150

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 8321B

Batch ID: P423955

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Imidacloprid	88.7		P	40 - 150
Linuron	79.0		P	40 - 150
Mandestrobin	90.3		P	40 - 150
MCPP	82.9		P	40 - 150
Naproxen	64.1		P	40 - 150
Primidone	88.0		P	40 - 150
Pyraclostrobin	73.5		P	40 - 150
Silvex	63.5		P	40 - 150
Thiamethoxam	84.1		P	40 - 150
Tolfenpyrad	38.6		P	30 - 150
Triclopyr	63.4		P	40 - 150

Reference Method: EPA 8321B

Batch ID: P423967

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Acesulfame K	89.3		P	40 - 150
AMPA	100		P	40 - 150
Endothall	147		P	40 - 150
Glufosinate	95.3		P	40 - 150
Glyphosate	105		P	40 - 150
Sucralose	127		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: P424308

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

Reference Method: SM 2540 D-2015

Batch ID: P424147

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
TSS	96.9		P	85 - 106

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: P424183

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	97.6		P	85 - 115

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 200.7 Rev. 4.4

Batch ID: P424053

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2377419	Calcium	98.7	97.7	P/P	80 - 120
2377419	Iron	101	100	P/P	80 - 120
2377419	Magnesium	103	102	P/P	80 - 120
2377419	Potassium	100	98.3	P/P	80 - 120
2377419	Sodium	102	100	P/P	80 - 120
2377419	Strontium	103	102	P/P	80 - 120
2377419	Tin	96.4	97.3	P/P	80 - 120
2377419	Titanium	90.0	89.2	P/P	80 - 120
2377419	Vanadium	105	104	P/P	80 - 120
2377419	Zinc	93.3	96.5	P/P	80 - 120
2377433	Calcium	95.5		P	80 - 120
2377433	Iron	96.8		P	80 - 120
2377433	Magnesium	95.5		P	80 - 120
2377433	Potassium	96.5		P	80 - 120
2377433	Sodium	97.4		P	80 - 120
2377433	Strontium	98.7		P	80 - 120
2377433	Tin	96.1		P	80 - 120
2377433	Titanium	92.8		P	80 - 120
2377433	Vanadium	100		P	80 - 120
2377433	Zinc	91.6		P	80 - 120

Reference Method: EPA 200.7 Rev. 4.4

Batch ID: P424277

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2378536	Iron	104	106	P/P	70 - 130
2378536	Tin	98.0	107	P/P	70 - 130
2378536	Titanium	103	118	P/P	70 - 130
2378536	Vanadium	103	109	P/P	70 - 130
2378536	Zinc	94.6	99.3	P/P	70 - 130

Reference Method: EPA 200.8 Rev. 5.4

Batch ID: P424053

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2377419	Aluminum	89.8	95.5	P/P	80 - 120
2377419	Antimony	96.9	96.9	P/P	80 - 120
2377419	Arsenic	101	102	P/P	80 - 120
2377419	Barium	101	102	P/P	80 - 120
2377419	Beryllium	93.9	93.9	P/P	80 - 120
2377419	Boron	97.1	96.9	P/P	80 - 120
2377419	Cadmium	99.0	99.8	P/P	80 - 120
2377419	Chromium	95.8	96.8	P/P	80 - 120
2377419	Cobalt	99.2	101	P/P	80 - 120
2377419	Copper	100	102	P/P	80 - 120
2377419	Lead	92.0	93.3	P/P	80 - 120
2377419	Manganese	96.4	99.2	P/P	80 - 120
2377419	Molybdenum	96.9	97.4	P/P	80 - 120
2377419	Nickel	102	103	P/P	80 - 120
2377419	Selenium	101	102	P/P	80 - 120
2377419	Thallium	100	101	P/P	80 - 120
2377433	Aluminum	100		P	80 - 120

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 200.8 Rev. 5.4

Batch ID: P424053

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2377433	Antimony	101		P	80 - 120
2377433	Arsenic	101		P	80 - 120
2377433	Barium	100		P	80 - 120
2377433	Beryllium	96.4		P	80 - 120
2377433	Boron	99.2		P	80 - 120
2377433	Cadmium	103		P	80 - 120
2377433	Chromium	98.2		P	80 - 120
2377433	Cobalt	98.6		P	80 - 120
2377433	Copper	99.1		P	80 - 120
2377433	Lead	93.0		P	80 - 120
2377433	Manganese	98.6		P	80 - 120
2377433	Molybdenum	99.5		P	80 - 120
2377433	Nickel	99.5		P	80 - 120
2377433	Selenium	103		P	80 - 120
2377433	Thallium	102		P	80 - 120

Reference Method: EPA 200.8 Rev. 5.4

Batch ID: P424277

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2378536	Aluminum	94.4	95.0	P/P	70 - 130
2378536	Antimony	98.0	97.5	P/P	70 - 130
2378536	Arsenic	105	106	P/P	70 - 130
2378536	Beryllium	108	109	P/P	70 - 130
2378536	Cadmium	96.1	93.0	P/P	70 - 130
2378536	Chromium	90.1	89.8	P/P	70 - 130
2378536	Cobalt	107	109	P/P	70 - 130
2378536	Copper	104	110	P/P	70 - 130
2378536	Lead	93.6	93.2	P/P	70 - 130
2378536	Manganese	90.1	90.9	P/P	70 - 130
2378536	Molybdenum	106	106	P/P	70 - 130
2378536	Nickel	112	113	P/P	70 - 130
2378536	Selenium	99.1	102	P/P	70 - 130
2378536	Silver	89.2	85.4	P/P	70 - 130
2378536	Thallium	105	104	P/P	70 - 130

Reference Method: EPA 200.8 Rev. 5.4

Batch ID: P424854

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2381218	Silver	99.9	100	P/P	80 - 120
2381349	Silver	100		P	80 - 120

Reference Method: EPA 300.0 Rev. 2.1

Batch ID: P424207

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2377368	Chloride	96.2		P	90 - 110
2377545	Chloride	97.8		P	90 - 110

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P424210

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2377368	Sulfate	100		P	90 - 110
2377545	Sulfate	99.1		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P424560

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2377546	Ammonia-N	98.0	98.0	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P424615

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2378144	Ammonia-N	101	97.4	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P424194

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2377715	Kjeldahl Nitrogen	104	103	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P424288

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2377429	NO2NO3-N	104	104	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P424289

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2377716	NO2NO3-N	98.6	99.0	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P424137

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2377531	Total-P	108	105	P/P	90 - 110

Reference Method: EPA 8321B
Batch ID: P423955

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2377289	2,4-D	75.5	80.6	P/P	40 - 150
2377289	2,4,5-T	72.5	82.1	P/P	40 - 150
2377289	Acetaminophen	86.8	86.7	P/P	30 - 150
2377289	Acetamiprid	57.3	61.9	P/P	40 - 150
2377289	Afidopyropen	63.5	69.3	P/P	30 - 150
2377289	Benzovindiflupyr	74.6	76.6	P/P	40 - 150
2377289	Carbamazepine	66.9	64.4	P/P	40 - 150
2377289	Clothianidin	84.9	80.9	P/P	40 - 150
2377289	Dinotefuran	90.4	89.5	P/P	40 - 150

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 8321B

Batch ID: P423955

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2377289	Diuron	54.5	53.8	P/P	40 - 150
2377289	Fenuron	85.3	86.3	P/P	40 - 150
2377289	Hydrocodone	71.4	77.5	P/P	40 - 150
2377289	Ibuprofen	65.5	64.1	P/P	40 - 150
2377289	Imidacloprid	114	120	P/P	40 - 150
2377289	Linuron	66.3	58.8	P/P	40 - 150
2377289	Mandestrobin	76.6	76.6	P/P	40 - 150
2377289	MCCP	86.4	88.8	P/P	40 - 150
2377289	Naproxen	74.9	65.0	P/P	40 - 150
2377289	Primidone	90.4	92.6	P/P	40 - 150
2377289	Pyraclostrobin	70.2	73.1	P/P	40 - 150
2377289	Silvex	84.1	85.4	P/P	40 - 150
2377289	Thiamethoxam	95.2	97.2	P/P	40 - 150
2377289	Tolfenpyrad	50.5	52.9	P/P	30 - 150
2377289	Triclopyr	73.4	75.7	P/P	40 - 150

Reference Method: EPA 8321B

Batch ID: P423967

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2377441	Acesulfame K	59.1	62.2	P/P	40 - 150
2377441	AMPA	103	97.1	P/P	40 - 150
2377441	Endothall	140	136	P/P	40 - 150
2377441	Glufosinate	116	99.3	P/P	40 - 150
2377441	Glyphosate	99.3	101	P/P	40 - 150
2377441	Sucralose	124	123	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: P424183

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2377719	Organic Carbon	94.8	94.8	P/P	85 - 115

Quality Assurance Report Precision

Reference Method: DEP SOP: NU-094-1
Batch ID: P423992

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2377545	Color (true)	1.48	Sample	P	0 - 20

Reference Method: DEP SOP: NU-094-1
Batch ID: P423998

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2377426	Color (true)	0.765	Sample	P	0 - 20

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P423995

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2377426	Turbidity	12.9	Sample	P	0 - 20

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P424053

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2377419	Calcium	0.858	Spike	P	0 - 20
2377419	Iron	0.969	Spike	P	0 - 20
2377419	Magnesium	0.724	Spike	P	0 - 20
2377419	Potassium	1.72	Spike	P	0 - 20
2377419	Sodium	1.49	Spike	P	0 - 20
2377419	Strontium	1.26	Spike	P	0 - 20
2377419	Tin	0.952	Spike	P	0 - 20
2377419	Titanium	0.801	Spike	P	0 - 20
2377419	Vanadium	0.406	Spike	P	0 - 20
2377419	Zinc	3.36	Spike	P	0 - 20

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P424277

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2378536	Calcium	1.16	Spike	P	0 - 20
2378536	Iron	2.04	Spike	P	0 - 20
2378536	Magnesium	1.03	Spike	P	0 - 20
2378536	Strontium	1.82	Spike	P	0 - 20
2378536	Tin	8.82	Spike	P	0 - 20
2378536	Titanium	12.5	Spike	P	0 - 20
2378536	Vanadium	4.92	Spike	P	0 - 20
2378536	Zinc	4.92	Spike	P	0 - 20

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P424053

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

Reference Method: EPA 200.8 Rev. 5.4

Batch ID: P424053

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2377419	Aluminum	4.08	Spike	P	0 - 20
2377419	Antimony	0.0589	Spike	P	0 - 20
2377419	Arsenic	0.929	Spike	P	0 - 20
2377419	Barium	0.979	Spike	P	0 - 20
2377419	Beryllium	0.0229	Spike	P	0 - 20
2377419	Boron	0.210	Spike	P	0 - 20
2377419	Cadmium	0.776	Spike	P	0 - 20
2377419	Chromium	1.02	Spike	P	0 - 20
2377419	Cobalt	1.61	Spike	P	0 - 20
2377419	Copper	1.22	Spike	P	0 - 20
2377419	Lead	1.30	Spike	P	0 - 20
2377419	Manganese	1.85	Spike	P	0 - 20
2377419	Molybdenum	0.514	Spike	P	0 - 20
2377419	Nickel	0.553	Spike	P	0 - 20
2377419	Selenium	1.48	Spike	P	0 - 20
2377419	Thallium	1.40	Spike	P	0 - 20

Reference Method: EPA 200.8 Rev. 5.4

Batch ID: P424277

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2378536	Aluminum	0.520	Spike	P	0 - 20
2378536	Antimony	0.545	Spike	P	0 - 20
2378536	Arsenic	0.444	Spike	P	0 - 20
2378536	Beryllium	0.679	Spike	P	0 - 20
2378536	Cadmium	3.23	Spike	P	0 - 20
2378536	Chromium	0.390	Spike	P	0 - 20
2378536	Cobalt	1.27	Spike	P	0 - 20
2378536	Copper	5.10	Spike	P	0 - 20
2378536	Lead	0.390	Spike	P	0 - 20
2378536	Manganese	0.727	Spike	P	0 - 20
2378536	Molybdenum	0.175	Spike	P	0 - 20
2378536	Nickel	0.746	Spike	P	0 - 20
2378536	Selenium	3.03	Spike	P	0 - 20
2378536	Silver	4.24	Spike	P	0 - 20
2378536	Thallium	0.961	Spike	P	0 - 20

Reference Method: EPA 200.8 Rev. 5.4

Batch ID: P424854

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2381218	Silver	0.253	Spike	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1

Batch ID: P424207

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2377368	Chloride	0.0634	Sample	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P424210

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2377368	Sulfate	0.487	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P424560

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2377546	Ammonia-N	0.0	Spike	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P424615

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2378144	Ammonia-N	3.14	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P424194

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2377715	Kjeldahl Nitrogen	0.921	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P424288

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2377429	NO2NO3-N	0.482	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P424289

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2377716	NO2NO3-N	0.425	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P424137

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2377531	Total-P	2.29	Spike	P	0 - 20

Reference Method: EPA 8321B
Batch ID: P423955

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2377289	2,4-D	4.84	Spike	P	0 - 30
2377289	2,4,5-T	12.4	Spike	P	0 - 30

Quality Assurance Report Precision

Reference Method: EPA 8321B
Batch ID: P423955

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2377289	Acetaminophen	0.0882	Spike	P	0 - 30
2377289	Acetamiprid	7.71	Spike	P	0 - 30
2377289	Afidopyropen	8.82	Spike	P	0 - 30
2377289	Bentazon	5.85	Spike	P	0 - 30
2377289	Benzovindiflupyr	2.55	Spike	P	0 - 30
2377289	Carbamazepine	3.81	Spike	P	0 - 30
2377289	Clothianidin	4.85	Spike	P	0 - 30
2377289	Dinotefuran	1.03	Spike	P	0 - 30
2377289	Diuron	1.00	Spike	P	0 - 30
2377289	Fenuron	1.09	Spike	P	0 - 30
2377289	Fluridone	1.17	Spike	P	0 - 30
2377289	Hydrocodone	8.19	Spike	P	0 - 30
2377289	Ibuprofen	2.18	Spike	P	0 - 30
2377289	Imazapyr	0.510	Spike	P	0 - 30
2377289	Imidacloprid	3.79	Spike	P	0 - 30
2377289	Linuron	12.0	Spike	P	0 - 30
2377289	Mandestrobin	0.0198	Spike	P	0 - 30
2377289	MCPP	2.74	Spike	P	0 - 30
2377289	Naproxen	14.1	Spike	P	0 - 30
2377289	Primidone	2.46	Spike	P	0 - 30
2377289	Pyraclostrobin	4.11	Spike	P	0 - 30
2377289	Silvex	1.45	Spike	P	0 - 30
2377289	Thiamethoxam	1.97	Spike	P	0 - 30
2377289	Tolfenpyrad	4.65	Spike	P	0 - 30
2377289	Triclopyr	3.15	Spike	P	0 - 30

Reference Method: EPA 8321B
Batch ID: P423967

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2377441	Acesulfame K	5.22	Spike	P	0 - 30
2377441	AMPA	5.65	Spike	P	0 - 30
2377441	Endothall	2.70	Spike	P	0 - 30
2377441	Glufosinate	15.5	Spike	P	0 - 30
2377441	Glyphosate	2.08	Spike	P	0 - 30
2377441	Sucralose	0.161	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

Reference Method: SM 2540 C-2015
Batch ID: P424308

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2377457	TDS	7.06	Sample	P	0 - 10

Quality Assurance Report Precision

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: P424183

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2377719	Organic Carbon	0.0633	Spike	P	0 - 20

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

Quality Assurance Report Surrogates

Lab Sample ID: 2377538

Field Sample ID: FB_12272022

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	2,4-D-d3	90.0	P	30 - 160
EPA 8321B	Acetaminophen-d4	88.8	P	30 - 160
EPA 8321B	Carbamazepine-d10	94.7	P	30 - 160
EPA 8321B	Diuron-d6	95.5	P	30 - 160
EPA 8321B	Endothall-d6	118	P	30 - 160
EPA 8321B	Glyphosate 13C 15N	103	P	30 - 160
EPA 8321B	Ibuprofen-d3	88.9	P	30 - 160
EPA 8321B	Primidone-d5	78.6	P	30 - 160
EPA 8321B	Sucralose-d6	57.0	P	30 - 160

Quality Assurance Report Calibration Verification

Reference Method: DEP SOP: NU-094-1

Run ID: A116669

Included Lab Sample IDs: 2377532

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	91.9	92.3	P/P	90 - 110

Reference Method: EPA 180.1 Rev. 2.0

Run ID: A116670

Included Lab Sample IDs: 2377530, 2377532

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

Reference Method: DEP SOP: NU-094-1

Run ID: A116672

Included Lab Sample IDs: 2377530

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	92.8	90.8	P/P	90 - 110

Reference Method: EPA 8321B

Run ID: A116705

Included Lab Sample IDs: 2377538

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Acesulfame K	67.8	64.2	P/P	60 - 160
Sucralose	123	119	P/P	60 - 160

Reference Method: EPA 8321B

Run ID: A116707

Included Lab Sample IDs: 2377538

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
AMPA	87.9	98.8	P/P	60 - 160
Endothall	125	118	P/P	60 - 160
Glufosinate	101	90.8	P/P	60 - 160
Glyphosate	108	100	P/P	60 - 160

Reference Method: EPA 8321B

Run ID: A116714

Included Lab Sample IDs: 2377538

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
2,4-D	101	91.3	P/P	50 - 150
2,4,5-T	109	110	P/P	50 - 150
Acetaminophen	103	102	P/P	60 - 160
Acetamiprid	98.3	97.3	P/P	50 - 150
Afidopyropen	106	109	P/P	50 - 150
Bentazon	112	120	P/P	50 - 160
Benzovindiflupyr	98.0	102	P/P	50 - 150
Carbamazepine	104	108	P/P	60 - 150
Clothianidin	89.4	90.9	P/P	60 - 150
Dinotefuran	91.8	92.2	P/P	50 - 150
Diuron	125	109	P/P	60 - 160
Fenuron	96.0	99.2	P/P	60 - 150

Quality Assurance Report Calibration Verification

Reference Method: EPA 8321B
Run ID: A116714
Included Lab Sample IDs: 2377538

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluridone	116	108	P/P	60 - 160
Hydrocodone	93.8	97.9	P/P	60 - 150
Ibuprofen	101	110	P/P	50 - 160
Imazapyr	93.7	94.3	P/P	50 - 150
Imidacloprid	103	102	P/P	60 - 150
Linuron	103	106	P/P	60 - 150
Mandestrobin	112	108	P/P	50 - 150
MCP	103	101	P/P	50 - 150
Naproxen	90.0	100	P/P	50 - 160
Primidone	98.2	102	P/P	60 - 150
Pyraclostrobin	104	112	P/P	60 - 150
Silvex	104	96.0	P/P	50 - 150
Thiamethoxam	96.3	96.8	P/P	50 - 150
Tolfenpyrad	98.8	96.5	P/P	60 - 150
Triclopyr	100	101	P/P	50 - 150

Reference Method: EPA 300.0 Rev. 2.1
Run ID: A116716
Included Lab Sample IDs: 2377530, 2377532

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	99.4	99.6	P/P	90 - 110
Sulfate	100	100	P/P	90 - 110

Reference Method: SM 2320 B-2011
Run ID: A116751
Included Lab Sample IDs: 2377530, 2377532

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

Reference Method: SM 5310 B-2011
Run ID: A116757
Included Lab Sample IDs: 2377531, 2377533

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	99.6	98.4	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Run ID: A116779
Included Lab Sample IDs: 2377531, 2377533

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

Reference Method: EPA 353.2 Rev. 2.0
Run ID: A116803
Included Lab Sample IDs: 2377531, 2377533

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO ₂ NO ₃ -N	104	104	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A116803

Included Lab Sample IDs: 2377531, 2377533

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

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A116804

Included Lab Sample IDs: 2377531, 2377533

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	92.0	97.6	P/P	90 - 110

Reference Method: SM 4500-F- C-2011

Run ID: A116886

Included Lab Sample IDs: 2377530, 2377532

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

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A116902

Included Lab Sample IDs: 2377531

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	99.2	99.0	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A116922

Included Lab Sample IDs: 2377533

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	100	99.8	P/P	90 - 110

Reference Method: EPA 200.8 Rev. 5.4

Run ID: A116968

Included Lab Sample IDs: 2377541

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Aluminum	98.9	99.4	P/P	90 - 110
Antimony	98.0	99.8	P/P	90 - 110
Arsenic	101	102	P/P	90 - 110
Barium	98.7	101	P/P	90 - 110
Beryllium	98.2	99.8	P/P	90 - 110
Boron	94.9	94.0	P/P	90 - 110
Cadmium	98.5	100	P/P	90 - 110
Chromium	95.1	98.0	P/P	90 - 110
Cobalt	97.7	100	P/P	90 - 110
Copper	98.9	101	P/P	90 - 110
Lead	91.0	93.0	P/P	90 - 110
Manganese	96.0	99.1	P/P	90 - 110
Molybdenum	96.6	98.1	P/P	90 - 110
Nickel	99.8	102	P/P	90 - 110
Selenium	101	103	P/P	90 - 110
Thallium	97.9	100	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: EPA 200.7 Rev. 4.4

Run ID: A116978

Included Lab Sample IDs: 2377541

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Calcium	101	92.4	P/P	95 - 105
Iron	102	95.7	P/P	95 - 105
Magnesium	101	94.3	P/P	95 - 105
Potassium	101	98.7	P/P	95 - 105
Sodium	100	100	P/P	95 - 105
Strontium	102	101	P/P	95 - 105
Tin	100	93.9	P/P	95 - 105
Titanium	100	102	P/P	95 - 105
Vanadium	100	101	P/P	95 - 105

Reference Method: EPA 200.7 Rev. 4.4

Run ID: A116990

Included Lab Sample IDs: 2377540, 2377541

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Calcium	101	101	P/P	90 - 110
Iron	105	104	P/P	90 - 110
Magnesium	104	104	P/P	90 - 110
Strontium	104	104	P/P	90 - 110
Tin	97.1	97.8	P/P	90 - 110
Titanium	98.9	98.5	P/P	90 - 110
Vanadium	98.1	97.5	P/P	90 - 110
Zinc	91.3	91.9	P/P	90 - 110
Zinc	95.0	94.9	P/P	90 - 110

Reference Method: EPA 200.8 Rev. 5.4

Run ID: A117025

Included Lab Sample IDs: 2377540

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Aluminum	99.8	98.9	P/P	90 - 110
Antimony	98.5	96.6	P/P	90 - 110
Arsenic	102	98.7	P/P	90 - 110
Cadmium	97.7	97.2	P/P	90 - 110
Chromium	96.0	93.9	P/P	90 - 110
Cobalt	99.6	98.7	P/P	90 - 110
Copper	101	97.8	P/P	90 - 110
Lead	91.3	90.5	P/P	90 - 110
Manganese	97.6	95.6	P/P	90 - 110
Molybdenum	96.0	95.3	P/P	90 - 110
Nickel	101	99.5	P/P	90 - 110
Selenium	102	98.5	P/P	90 - 110
Silver	98.4	97.6	P/P	90 - 110
Thallium	98.3	95.9	P/P	90 - 110

Reference Method: EPA 200.8 Rev. 5.4

Run ID: A117052

Included Lab Sample IDs: 2377540

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Beryllium	99.6	98.3	P/P	90 - 110

Quality Assurance Report

Calibration Verification

Reference Method: EPA 200.8 Rev. 5.4

Run ID: A117055

Included Lab Sample IDs: 2377541

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Silver	99.7	101	P/P	90 - 110

* Pass/Fail determinations are made for each bracketing calibration verification check.

Control limits for initial calibration checks may be different from those for continuing checks, depending on method requirements.

Where they are different, both control limits are provided.

Quality Assurance Report Summary

Ref. Method	Analyte	LCS % Recovery	MS % Recovery			Precision SMP	MS
			LCS				
DEP SOP: NU-094-1	Color (true)	91.0				1.48	
	Color (true)	90.9				0.765	
EPA 180.1 Rev. 2.0	Turbidity	102				12.9	
EPA 200.7 Rev. 4.4	Calcium	98.7	98.7	97.7	95.5		0.858
	Calcium	101					1.16
	Iron	102	101	100	96.8		0.969
	Iron	105	104	106			2.04
	Magnesium	101	103	102	95.5		0.724
	Magnesium	105					1.03
	Potassium	100	100	98.3	96.5		1.72
	Sodium	105	102	100	97.4		1.49
	Strontium	103	103	102	98.7		1.26
	Strontium	107					1.82
	Tin	95.9	96.4	97.3	96.1		0.952
	Tin	100	98.0	107			8.82
	Titanium	103	90.0	89.2	92.8		0.801
	Titanium	103	103	118			12.5
	Vanadium	101	105	104	100		0.406
	Vanadium	103	103	109			4.92
	Zinc	89.4	93.3	96.5	91.6		3.36
	Zinc	96.1	94.6	99.3			4.92
EPA 200.8 Rev. 5.4	Aluminum	98.7	89.8	95.5	100		4.08
	Aluminum	95.7	94.4	95.0			0.520
	Antimony	99.1	96.9	96.9	101		0.0589
	Antimony	96.2	98.0	97.5			0.545
	Arsenic	100	101	102	101		0.929
	Arsenic	96.7	105	106			0.444
	Barium	101	101	102	100		0.979
	Beryllium	96.9	93.9	93.9	96.4		0.0229
	Beryllium	88.6	108	109			0.679
	Boron	98.2	97.1	96.9	99.2		0.210
	Cadmium	101	99.0	99.8	103		0.776
	Cadmium	97.6	96.1	93.0			3.23
	Chromium	96.7	95.8	96.8	98.2		1.02
	Chromium	93.3	90.1	89.8			0.390
	Cobalt	99.8	99.2	101	98.6		1.61
	Cobalt	94.3	107	109			1.27
	Copper	99.6	100	102	99.1		1.22
	Copper	94.7	104	110			5.10
	Lead	91.6	92.0	93.3	93.0		1.30
	Lead	89.1	93.6	93.2			0.390
	Manganese	96.9	96.4	99.2	98.6		1.85
	Manganese	94.4	90.1	90.9			0.727
	Molybdenum	97.3	96.9	97.4	99.5		0.514
	Molybdenum	94.1	106	106			0.175
	Nickel	101	102	103	99.5		0.553
	Nickel	96.4	112	113			0.746
	Selenium	101	101	102	103		1.48
	Selenium	95.7	99.1	102			3.03
	Silver	96.4	89.2	85.4			4.24
	Silver	99.6	99.9	100	100		0.253
	Thallium	98.9	100	101	102		1.40
	Thallium	97.4	105	104			0.961
EPA 300.0 Rev. 2.1	Chloride	97.3	96.2	97.8		0.0634	

Quality Assurance Report Summary

Ref. Method	Analyte	LCS % Recovery	MS % Recovery		LCS	Precision	MS
						SMP	
EPA 300.0 Rev. 2.1	Sulfate	98.2	100	99.1		0.487	
EPA 350.1 Rev. 2.0	Ammonia-N	101	98.0	98.0			0.0
	Ammonia-N	99.8	101	97.4			3.14
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	97.6	104	103			0.921
EPA 353.2 Rev. 2.0	NO2NO3-N	103	104	104			0.482
	NO2NO3-N	104	98.6	99.0			0.425
EPA 365.1 Rev. 2.0	Total-P	106	108	105			2.29
EPA 8321B	2,4-D	73.9	75.5	80.6			4.84
	2,4,5-T	60.3	72.5	82.1			12.4
	Acesulfame K	89.3	59.1	62.2			5.22
	Acetaminophen	84.4	86.8	86.7			0.0882
	Acetamiprid	65.8	57.3	61.9			7.71
	Afidopyropen	70.0	63.5	69.3			8.82
	AMPA	100	103	97.1			5.65
	Bentazon	87.7					5.85
	Benzovindiflupyr	80.6	74.6	76.6			2.55
	Carbamazepine	92.0	66.9	64.4			3.81
	Clothianidin	82.3	84.9	80.9			4.85
	Dinotefuran	81.0	90.4	89.5			1.03
	Diuron	92.0	54.5	53.8			1.00
	Endothall	147	140	136			2.70
	Fenuron	90.8	85.3	86.3			1.09
	Fluridone	83.3					1.17
	Glufosinate	95.3	116	99.3			15.5
	Glyphosate	105	99.3	101			2.08
	Hydrocodone	81.0	71.4	77.5			8.19
	Ibuprofen	91.6	65.5	64.1			2.18
	Imazapyr	90.9					0.510
	Imidacloprid	88.7	114	120			3.79
	Linuron	79.0	66.3	58.8			12.0
	Mandestrobin	90.3	76.6	76.6			0.0198
	MCPP	82.9	86.4	88.8			2.74
	Naproxen	64.1	74.9	65.0			14.1
	Primidone	88.0	90.4	92.6			2.46
	Pyraclostrobin	73.5	70.2	73.1			4.11
	Silvex	63.5	84.1	85.4			1.45
	Sucralose	127	124	123			0.161
	Thiamethoxam	84.1	95.2	97.2			1.97
	Tolfenpyrad	38.6	50.5	52.9			4.65
	Triclopyr	63.4	73.4	75.7			3.15
SM 2320 B-2011	Total Alkalinity	95.0				0.646	
SM 2540 C-2015	TDS	101				7.06	
SM 2540 D-2015	TSS	96.9					
SM 4500-F- C-2011	Fluoride	98.9	95.1	97.3			1.42
SM 5310 B-2011	Organic Carbon	97.6	94.8	94.8			0.0633

Reference Method Descriptions

Method	Description	Associated Samples
DEP SOP: NU-094-1	True Color measured at 450 nm (not valid for NPDES monitoring)	2377530, 2377532
EPA 180.1 Rev. 2.0	Turbidity in aqueous matrices	2377530, 2377532
EPA 200.7 Rev. 4.4	Total Recoverable Metals analysis using ICP emission spectroscopy for aqueous samples supporting Clean Water Act Projects	2377540, 2377541

Reference Method Descriptions

Method	Description	<u>Associated Samples</u>
EPA 200.8 Rev. 5.4	Total Recoverable Metals analysis using ICP-MS for aqueous samples supporting Clean Water Act Projects	2377540, 2377541
EPA 300.0 Rev. 2.1	Chloride in aqueous matrices	2377530, 2377532
EPA 300.0 Rev. 2.1	Sulfate in aqueous matrices	2377530, 2377532
EPA 350.1 Rev. 2.0	Ammonia in aqueous matrices as mg N/L	2377531, 2377533
EPA 351.2 Rev. 2.0	Total Kjeldahl Nitrogen in aqueous matrices	2377531, 2377533
EPA 353.2 Rev. 2.0	Nitrite/Nitrate in aqueous matrices as mg N/L	2377531, 2377533
EPA 365.1 Rev. 2.0	Total Phosphorus in aqueous matrices as mg P/L	2377531, 2377533
EPA 8321B	Pesticides, herbicides, and other chemicals in water matrices by HPLC/MS/MS	2377538
SM 2320 B-2011	Alkalinity in aqueous matrices as mg CaCO ₃ /L	2377530, 2377532
SM 2340 B-2011	Hardness by calculation, in aqueous matrices, reported as mg/L CaCO ₃	2377541
SM 2540 C-2015	Total Dissolved Solids in aqueous matrices	2377530, 2377532
SM 2540 D-2015	Total Suspended Solids in aqueous matrices using a maximum of 250 mL of sample	2377530, 2377532
SM 4500-F- C-2011	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	2377530, 2377532
SM 5310 B-2011	Nonpurgeable Organic Carbon in aqueous matrices	2377531, 2377533

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	12/28/2022			12/28/2022 14:43	Alexis Price	2377532
	12/28/2022			12/28/2022 15:47	Alexis Price	2377530
EPA 180.1 Rev. 2.0	12/28/2022			12/28/2022 14:08	Anna M. Plaviak	2377530
	12/28/2022			12/28/2022 14:11	Anna M. Plaviak	2377532
EPA 200.7 Rev. 4.4	12/28/2022	01/03/2023 11:50	George D Taylor	01/18/2023 18:02	McKinley C Carter	2377541
	12/28/2022	01/03/2023 11:50	George D Taylor	01/19/2023 19:54	McKinley C Carter	2377541
EPA 200.8 Rev. 5.4	12/28/2022	01/09/2023 11:15	George D Taylor	01/20/2023 03:47	McKinley C Carter	2377540
	12/28/2022	01/09/2023 11:15	George D Taylor	01/20/2023 03:55	McKinley C Carter	2377540
	12/28/2022	01/03/2023 11:50	George D Taylor	01/19/2023 00:08	Emily M Philpot	2377541
	12/28/2022	01/09/2023 11:15	George D Taylor	01/20/2023 19:32	Emily M Philpot	2377540
	12/28/2022	01/09/2023 11:15	George D Taylor	01/20/2023 20:49	Emily M Philpot	2377540
	12/28/2022	01/09/2023 11:15	George D Taylor	01/23/2023 14:30	Emily M Philpot	2377540
EPA 300.0 Rev. 2.1	12/28/2022	01/23/2023 11:20	Vijayalakshmi Reddy	01/23/2023 22:44	Emily M Philpot	2377541
	12/28/2022			01/06/2023 08:26	Anna M. Plaviak	2377530
EPA 350.1 Rev. 2.0	12/28/2022			01/06/2023 08:41	Anna M. Plaviak	2377532
	12/28/2022			01/13/2023 11:25	Ping Hua	2377531
EPA 351.2 Rev. 2.0	12/28/2022			01/17/2023 11:47	Ping Hua	2377533
	12/28/2022	01/06/2023 12:30	Simonne.V. Calhoun	01/09/2023 09:57	Samantha L Bates	2377531
EPA 353.2 Rev. 2.0	12/28/2022	01/06/2023 12:30	Simonne.V. Calhoun	01/09/2023 09:59	Samantha L Bates	2377533
	12/28/2022			01/09/2023 11:38	Beverly Y. Sanders	2377533
EPA 365.1 Rev. 2.0	12/28/2022			01/09/2023 12:16	Beverly Y. Sanders	2377531
	12/28/2022	01/05/2023 13:37	Adam P Silver	01/06/2023 15:13	James L Waggeberby	2377533
EPA 8321B	12/28/2022	01/05/2023 13:37	Adam P Silver	01/06/2023 15:14	James L Waggeberby	2377531
	12/28/2022	12/28/2022 11:00	June Rhew	12/28/2022 13:55	Manjita Shrestha	2377538
	12/28/2022	12/28/2022 11:00	June Rhew	12/28/2022 20:00	Manjita Shrestha	2377538
SM 2320 B-2011	12/28/2022	12/28/2022 12:30	June Rhew	01/04/2023 05:29	Juyoung Kim	2377538
	12/28/2022			01/05/2023 10:04	Dale L. Simmons	2377530
SM 2340 B-2011	12/28/2022			01/05/2023 10:13	Dale L. Simmons	2377532
	12/28/2022			01/18/2023 18:02	McKinley C Carter	2377541
SM 2540 C-2015	12/28/2022			12/29/2022 13:42	Yijie Li	2377530, 2377532
SM 2540 D-2015	12/28/2022			12/29/2022 13:42	Yijie Li	2377530, 2377532
SM 4500-F- C-2011	12/28/2022			01/12/2023 18:44	Dale L. Simmons	2377530
	12/28/2022			01/12/2023 18:50	Dale L. Simmons	2377532
SM 5310 B-2011	12/28/2022			01/06/2023 01:51	Khloe J Berg	2377531
	12/28/2022			01/06/2023 02:04	Khloe J Berg	2377533