

Chemical Analysis Report

CEN-DIST-2022-04-22-01

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

Event Description: **Run 6**
Request ID: **RQ-2022-04-18-25**
Customer: **CEN-DIST**
Project ID: **SMP**

Send Reports to:
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3319 Maguire Blvd., Suite 232
Orlando, FL 32803-3767
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Certified by: Colin Wright, Program Administrator

Date Certified: 16-MAY-2022 08:54

A handwritten signature in black ink, appearing to read "Colin Wright", is displayed on a light gray 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: Jim Creek 95m US of 520

Collection Date/Time: 04/21/2022 11:30

Field ID: G3CE0047

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2321494	DEP SOP: NU-094-1	Color (true)**	200		PCU	P412785	
	EPA 180.1 Rev. 2.0	Turbidity	0.95	I	NTU	P412786	
	EPA 300.0 Rev. 2.1	Chloride	18		mg Cl/L	P413251	
		Sulfate	0.59		mg SO4/L	P413253	
	SM 2320 B-2011	Total Alkalinity	27		mg CaCO3/L	P413538	
	SM 2540 C-2011	TDS	109		mg/L	P413206	
	SM 2540 D-2011	TSS	2	I	mg/L	P413356	
	SM 4500-F- C-2011	Fluoride	0.035	I	mg F/L	P413543	
2321496	EPA 350.1 Rev. 2.0	Ammonia-N	0.011		mg N/L	P413110	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.96		mg N/L	P413268	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.028		mg N/L	P413027	
	EPA 365.1 Rev. 2.0	Total-P	0.051		mg P/L	P413050	
	SM 5310 B-2011	Organic Carbon	24		mg C/L	P413058	
2321502	EPA 8321B	Acesulfame K	0.10	U	ug/L	P412698	
		2,4-D	0.0020	U	ug/L	P412902	
		AMPA	0.10	U	ug/L	P412698	
		2,4,5-T	0.0040	U	ug/L	P412902	
		Acetaminophen	0.0080	U	ug/L	P412902	
		Endothall	0.25	U	ug/L	P412698	
		Acetamiprid	0.020	U	ug/L	P412902	MS
		Glufosinate	0.10	U	ug/L	P412698	
		Glyphosate	0.10	U	ug/L	P412698	
		Afidopyropen	0.020	U	ug/L	P412902	RPD
		Sucralose	0.010	U	ug/L	P412698	
		Bentazon	8.0E-04	U	ug/L	P412902	
		Benzovindiflupyr	0.020	U	ug/L	P412902	
		Carbamazepine	8.0E-04	U	ug/L	P412902	
		Clothianidin	0.020	U	ug/L	P412902	
		Dinotefuran	0.020	U	ug/L	P412902	
		Diuron	0.020	U	ug/L	P412902	MS
		Fenuron	0.32	U	ug/L	P412902	
		Fluridone	0.0080	U	ug/L	P412902	
		Imazapyr	0.0045	I	ug/L	P412902	
		Hydrocodone	0.0020	U	ug/L	P412902	
		Ibuprofen	0.020	U	ug/L	P412902	
		Imidacloprid	0.020	U	ug/L	P412902	
		Linuron	0.040	U	ug/L	P412902	
		Mandestrobin	0.020	U	ug/L	P412902	
		MCP	0.0040	U	ug/L	P412902	
		Naproxen	0.0080	U	ug/L	P412902	
		Primidone	0.0040	U	ug/L	P412902	
		Pyraclostrobin	0.020	U	ug/L	P412902	
		Silvex	0.0040	U	ug/L	P412902	
		Thiamethoxam	0.020	U	ug/L	P412902	

Field ID: G3CE0047

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2321502	EPA 8321B	Tolfenpyrad	0.020	U	ug/L	P412902	
		Triclopyr	0.0040	U	ug/L	P412902	
2321504	EPA 200.7 Rev. 4.4	Calcium	13.2		mg/L	P412870	
		Iron	410		ug/L	P412870	
		Magnesium	2.14		mg/L	P412870	
		Potassium	2.3		mg/L	P412870	
		Sodium	9.4		mg/L	P412870	
		Strontium	66.2		ug/L	P412870	
		Tin	3.0	U	ug/L	P412870	
		Titanium	0.77	I	ug/L	P412870	
		Vanadium	2.0	U	ug/L	P412870	
		Zinc	5.0	U	ug/L	P412870	
	EPA 200.8 Rev. 5.4	Aluminum	137		ug/L	P412870	
		Antimony	0.050	U	ug/L	P412870	
		Arsenic	0.32		ug/L	P412870	
		Barium	8.51		ug/L	P412870	
		Beryllium	0.014	I	ug/L	P412870	
		Boron**	16.6		ug/L	P412870	
		Cadmium	0.020	U	ug/L	P412870	
		Chromium	0.54	I	ug/L	P412870	
		Cobalt	0.089		ug/L	P412870	
		Copper	0.40	U	ug/L	P412870	
		Lead	0.20	U	ug/L	P412870	
		Manganese	7.98		ug/L	P412870	
		Molybdenum	0.15	U	ug/L	P412870	
		Nickel	0.50	U	ug/L	P412870	
		Selenium	0.20	U	ug/L	P412870	
		Silver	0.010	U	ug/L	P412870	
		Thallium	0.10	U	ug/L	P412870	
	SM 2340 B-2011	Hardness	41.8		mg/L	P412870	

Ref. Method and Comment:

EPA 300.0 Rev. 2.1: Sulfate: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample.

SM 2540 D-2011: 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.

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

EPA 200.8 Rev. 5.4: Batch matrix spike recoveries for manganese are unavailable for one of two spiked samples because of high analyte concentration in the QC sample.

Sample Location: SECOND CREEK AT S.R. 520

Collection Date/Time: 04/21/2022 11:05

Field ID: G3CE0066

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2321495	DEP SOP: NU-094-1	Color (true)**	170		PCU	P412785	
	EPA 180.1 Rev. 2.0	Turbidity	0.70	I	NTU	P412786	
	EPA 300.0 Rev. 2.1	Chloride	19		mg Cl/L	P413251	
		Sulfate	0.47	I	mg SO4/L	P413253	
	SM 2320 B-2011	Total Alkalinity	59		mg CaCO3/L	P413538	
	SM 2540 C-2011	TDS	148		mg/L	P413206	
	SM 2540 D-2011	TSS	3	I	mg/L	P413356	
2321497	SM 4500-F- C-2011	Fluoride	0.039	I	mg F/L	P413543	
	EPA 350.1 Rev. 2.0	Ammonia-N	0.012		mg N/L	P413110	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.84		mg N/L	P413579	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.022		mg N/L	P413027	
	EPA 365.1 Rev. 2.0	Total-P	0.046		mg P/L	P413050	
2321503	EPA 8321B	SM 5310 B-2011	Organic Carbon	23	mg C/L	P413058	
		Acesulfame K	0.10	U	ug/L	P412698	
		2,4-D	0.0020	U	ug/L	P412902	
		AMPA	0.10	U	ug/L	P412698	
		2,4,5-T	0.0040	U	ug/L	P412902	
		Acetaminophen	0.0080	U	ug/L	P412902	
		Endothall	0.25	U	ug/L	P412698	
		Acetamiprid	0.020	U	ug/L	P412902	MS
		Glufosinate	0.10	U	ug/L	P412698	
		Glyphosate	0.10	U	ug/L	P412698	
		Afidopyropen	0.020	U	ug/L	P412902	RPD
		Sucralose	0.010	U	ug/L	P412698	
		Bentazon	8.0E-04	U	ug/L	P412902	
		Benzovindiflupyr	0.020	U	ug/L	P412902	
		Carbamazepine	8.0E-04	U	ug/L	P412902	
		Clothianidin	0.020	U	ug/L	P412902	
		Dinotefuran	0.020	U	ug/L	P412902	
		Diuron	0.020	U	ug/L	P412902	MS
		Fenuron	0.32	U	ug/L	P412902	
		Fluridone	0.0080	U	ug/L	P412902	
		Imazapyr	0.0040	U	ug/L	P412902	
		Hydrocodone	0.0020	U	ug/L	P412902	
		Ibuprofen	0.020	U	ug/L	P412902	
		Imidacloprid	0.020	U	ug/L	P412902	
		Linuron	0.040	U	ug/L	P412902	
		Mandestrobin	0.020	U	ug/L	P412902	
		MCP	0.0040	U	ug/L	P412902	
		Naproxen	0.0080	U	ug/L	P412902	
		Primidone	0.0040	U	ug/L	P412902	
		Pyraclostrobin	0.020	U	ug/L	P412902	
		Silvex	0.0040	U	ug/L	P412902	
		Thiamethoxam	0.020	U	ug/L	P412902	

Field ID: G3CE0066

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2321503	EPA 8321B	Tolfenpyrad	0.020	U	ug/L	P412902	
		Triclopyr	0.0040	U	ug/L	P412902	
2321505	EPA 200.7 Rev. 4.4	Calcium	26.7		mg/L	P412870	
		Iron	320		ug/L	P412870	
		Magnesium	2.70		mg/L	P412870	
		Potassium	1.5		mg/L	P412870	
		Sodium	11.0		mg/L	P412870	
		Strontium	123		ug/L	P412870	
		Tin	3.0	U	ug/L	P412870	
		Titanium	0.81	I	ug/L	P412870	
		Vanadium	2.0	U	ug/L	P412870	
		Zinc	5.0	U	ug/L	P412870	
	EPA 200.8 Rev. 5.4	Aluminum	96		ug/L	P412870	
		Antimony	0.050	U	ug/L	P412870	
		Arsenic	0.28		ug/L	P412870	
		Barium	14.7		ug/L	P412870	
		Beryllium	0.016	I	ug/L	P412870	
		Boron**	16.0		ug/L	P412870	
		Cadmium	0.020	U	ug/L	P412870	
		Chromium	0.40	U	ug/L	P412870	
		Cobalt	0.097		ug/L	P412870	
		Copper	1.44		ug/L	P412870	
		Lead	0.20	U	ug/L	P412870	
		Manganese	11.8		ug/L	P412870	
		Molybdenum	0.15	U	ug/L	P412870	
		Nickel	0.50	U	ug/L	P412870	
		Selenium	0.20	U	ug/L	P412870	
		Silver	0.010	U	ug/L	P412870	
		Thallium	0.10	U	ug/L	P412870	
	SM 2340 B-2011	Hardness	77.8		mg/L	P412870	

Ref. Method and Comment:

EPA 300.0 Rev. 2.1: Sulfate: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample.

SM 2540 D-2011: 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.

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

EPA 200.8 Rev. 5.4: Batch matrix spike recoveries for manganese are unavailable for one of two spiked samples because of high analyte concentration in the QC sample.

Quality Assurance Report Method Blank Results

Reference Method: DEP SOP: NU-094-1
Batch ID: P412785

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P412786

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P412870

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: P412870

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: P413251

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: P413253

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P413110

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P413268

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P413579

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P413027

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P413050

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

Reference Method: EPA 8321B
Batch ID: P412698

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: EPA 8321B
Batch ID: P412902

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

Quality Assurance Report

Method Blank Results

Reference Method: EPA 8321B

Batch ID: P412902

Component	Result	Code	Units
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	0.0040	U	ug/L
Naproxen	0.0080	U	ug/L
Primidone	0.0040	U	ug/L
Pyraclostrobin	0.0020	U	ug/L
Silvex	0.0040	U	ug/L
Thiamethoxam	0.0020	U	ug/L
Tolfenpyrad	0.0020	U	ug/L
Triclopyr	0.0040	U	ug/L

Reference Method: SM 2320 B-2011

Batch ID: P413538

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

Reference Method: SM 2540 C-2011

Batch ID: P413206

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-2011

Batch ID: P413356

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500-F- C-2011

Batch ID: P413543

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-2011

Batch ID: P413058

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: P412785

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Color (true)	98.2		P	85 - 115

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P412786

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Turbidity	95.8		P	90 - 110

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P412870

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Calcium	107		P	85 - 115
Iron	106		P	85 - 115
Magnesium	108		P	85 - 115
Potassium	102		P	85 - 115
Sodium	100		P	85 - 115
Strontium	95.3		P	85 - 115
Tin	102		P	85 - 115
Titanium	102		P	85 - 115
Vanadium	96.2		P	85 - 115
Zinc	100		P	85 - 115

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P412870

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Aluminum	100		P	85 - 115
Antimony	102		P	85 - 115
Arsenic	98.9		P	85 - 115
Barium	104		P	85 - 115
Beryllium	92.7		P	85 - 115
Boron	102		P	85 - 115
Cadmium	100		P	85 - 115
Chromium	98.0		P	85 - 115
Cobalt	98.2		P	85 - 115
Copper	97.0		P	85 - 115
Lead	98.3		P	85 - 115
Manganese	98.7		P	85 - 115
Molybdenum	99.1		P	85 - 115
Nickel	99.4		P	85 - 115
Selenium	97.6		P	85 - 115
Silver	97.1		P	85 - 115
Thallium	101		P	85 - 115

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P413251

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

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P413253

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P413110

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P413268

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P413579

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P413027

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P413050

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

Reference Method: EPA 8321B
Batch ID: P412698

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Acesulfame K	98.6		P	40 - 150
AMPA	109		P	40 - 150
Endothall	104		P	40 - 150
Glufosinate	110		P	40 - 150
Glyphosate	98.3		P	40 - 150
Sucralose	94.1		P	40 - 150

Reference Method: EPA 8321B
Batch ID: P412902

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2,4-D	68.2		P	40 - 150
2,4,5-T	71.8		P	40 - 150
Acetaminophen	83.8		P	30 - 150
Acetamiprid	59.2		P	40 - 150
Afidopyropen	40.9		P	40 - 150

Quality Assurance Report

Laboratory Control Sample Accuracy

Reference Method: EPA 8321B

Batch ID: P412902

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Bentazon	65.7		P	30 - 150
Benzovindiflupyr	71.0		P	40 - 150
Carbamazepine	58.7		P	40 - 150
Clothianidin	79.2		P	40 - 150
Dinotefuran	98.2		P	40 - 150
Diuron	70.9		P	40 - 150
Fenuron	81.3		P	40 - 150
Fluridone	68.5		P	40 - 150
Hydrocodone	91.3		P	40 - 150
Ibuprofen	60.6		P	40 - 150
Imazapyr	81.2		P	40 - 150
Imidacloprid	67.6		P	40 - 150
Linuron	56.7		P	40 - 150
Mandestrobin	60.2		P	40 - 150
MCPP	82.6		P	40 - 150
Naproxen	40.2		P	40 - 150
Primidone	83.1		P	40 - 150
Pyraclostrobin	65.1		P	40 - 150
Silvex	82.1		P	40 - 150
Thiamethoxam	78.4		P	40 - 150
Tolfenpyrad	40.5		P	30 - 150
Triclopyr	77.9		P	40 - 150

Reference Method: SM 2320 B-2011

Batch ID: P413538

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	98.3		P	94 - 106

Reference Method: SM 4500-F- C-2011

Batch ID: P413543

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	99.8		P	93 - 104

Reference Method: SM 5310 B-2011

Batch ID: P413058

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	95.6		P	85 - 115

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 200.7 Rev. 4.4

Batch ID: P412870

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2320881	Calcium	108	109	P/P	80 - 120
2320881	Iron	111	108	P/P	80 - 120
2320881	Magnesium	112	109	P/P	80 - 120
2320881	Potassium	109	105	P/P	80 - 120
2320881	Sodium	104	104	P/P	80 - 120
2320881	Strontium	102	102	P/P	80 - 120
2320881	Tin	102	103	P/P	80 - 120
2320881	Titanium	104	104	P/P	80 - 120
2320881	Vanadium	97.8	98.1	P/P	80 - 120
2320881	Zinc	102	102	P/P	80 - 120
2321569	Calcium	110		P	80 - 120
2321569	Iron	110		P	80 - 120
2321569	Magnesium	112		P	80 - 120
2321569	Potassium	101		P	80 - 120
2321569	Sodium	104		P	80 - 120
2321569	Strontium	100		P	80 - 120
2321569	Tin	103		P	80 - 120
2321569	Titanium	103		P	80 - 120
2321569	Vanadium	98.6		P	80 - 120
2321569	Zinc	105		P	80 - 120

Reference Method: EPA 200.8 Rev. 5.4

Batch ID: P412870

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2320881	Aluminum	108	106	P/P	80 - 120
2320881	Antimony	97.9	101	P/P	80 - 120
2320881	Arsenic	95.8	98.1	P/P	80 - 120
2320881	Barium	102	105	P/P	80 - 120
2320881	Beryllium	94.6	95.3	P/P	80 - 120
2320881	Boron	102	104	P/P	80 - 120
2320881	Cadmium	96.7	99.5	P/P	80 - 120
2320881	Chromium	98.0	98.8	P/P	80 - 120
2320881	Cobalt	96.9	98.9	P/P	80 - 120
2320881	Copper	95.9	97.1	P/P	80 - 120
2320881	Lead	98.1	100	P/P	80 - 120
2320881	Manganese	97.9	100	P/P	80 - 120
2320881	Molybdenum	97.3	100	P/P	80 - 120
2320881	Nickel	97.3	98.8	P/P	80 - 120
2320881	Selenium	95.6	97.6	P/P	80 - 120
2320881	Silver	93.8	96.2	P/P	80 - 120
2320881	Thallium	101	103	P/P	80 - 120
2321569	Aluminum	102		P	80 - 120
2321569	Antimony	98.1		P	80 - 120
2321569	Arsenic	95.3		P	80 - 120
2321569	Barium	99.8		P	80 - 120
2321569	Beryllium	92.7		P	80 - 120
2321569	Boron	103		P	80 - 120
2321569	Cadmium	96.2		P	80 - 120
2321569	Chromium	96.9		P	80 - 120
2321569	Cobalt	94.2		P	80 - 120
2321569	Copper	94.4		P	80 - 120

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 200.8 Rev. 5.4

Batch ID: P412870

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2321569	Lead	96.8		P	80 - 120
2321569	Molybdenum	97.2		P	80 - 120
2321569	Nickel	96.3		P	80 - 120
2321569	Selenium	92.2		P	80 - 120
2321569	Silver	93.7		P	80 - 120
2321569	Thallium	99.2		P	80 - 120

Reference Method: EPA 300.0 Rev. 2.1

Batch ID: P413251

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2321410	Chloride	98.0		P	90 - 110
2321550	Chloride	97.6		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1

Batch ID: P413253

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2321410	Sulfate	97.2		P	90 - 110
2321550	Sulfate	97.4		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0

Batch ID: P413110

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2321367	Ammonia-N	99.6	97.6	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0

Batch ID: P413268

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2321459	Kjeldahl Nitrogen	106	106	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0

Batch ID: P413579

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2321227	Kjeldahl Nitrogen	108	102	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0

Batch ID: P413027

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2321458	NO2NO3-N	98.0	97.6	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Batch ID: P413050

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2321490	Total-P	104	103	P/P	90 - 110

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 8321B
Batch ID: P412698

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2321191	Acesulfame K	99.4	97.0	P/P	40 - 150
2321191	Endothall	99.1	99.4	P/P	40 - 150
2321191	Glufosinate	106	97.2	P/P	40 - 150
2321191	Sucralose	109	114	P/P	40 - 150

Reference Method: EPA 8321B
Batch ID: P412902

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2321475	2,4-D	56.7	54.2	P/P	40 - 150
2321475	2,4,5-T	73.4	72.9	P/P	40 - 150
2321475	Acetaminophen	116	109	P/P	30 - 150
2321475	Acetamiprid	30.5	23.6	F/F	40 - 150
2321475	Afidopyropen	60.3	43.2	P/P	40 - 150
2321475	Benzovindiflupyr	46.4	46.2	P/P	40 - 150
2321475	Carbamazepine	46.7	45.9	P/P	40 - 150
2321475	Clothianidin	57.7	57.2	P/P	40 - 150
2321475	Dinotefuran	93.5	92.2	P/P	40 - 150
2321475	Diuron	37.5	36.7	F/F	40 - 150
2321475	Fenuron	45.9	46.3	P/P	40 - 150
2321475	Fluridone	45.6	45.2	P/P	40 - 150
2321475	Hydrocodone	42.9	43.1	P/P	40 - 150
2321475	Ibuprofen	54.4	47.8	P/P	40 - 150
2321475	Imidacloprid	43.2	44.2	P/P	40 - 150
2321475	Linuron	44.7	43.8	P/P	40 - 150
2321475	Mandestrobin	49.5	50.6	P/P	40 - 150
2321475	MCPP	91.3	86.3	P/P	40 - 150
2321475	Naproxen	42.1	43.9	P/P	40 - 150
2321475	Primidone	54.6	53.5	P/P	40 - 150
2321475	Pyraclostrobin	62.9	62.7	P/P	40 - 150
2321475	Silvex	83.3	80.6	P/P	40 - 150
2321475	Thiamethoxam	40.9	42.0	P/P	40 - 150
2321475	Tolfenpyrad	36.0	33.7	P/P	30 - 150
2321475	Triclopyr	75.6	71.1	P/P	40 - 150

Reference Method: SM 4500-F- C-2011
Batch ID: P413543

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2321899	Fluoride	98.7	98.0	P/P	92 - 107

Reference Method: SM 5310 B-2011
Batch ID: P413058

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2321328	Organic Carbon	99.1	101	P/P	85 - 115

Quality Assurance Report Precision

Reference Method: DEP SOP: NU-094-1
Batch ID: P412785

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2321456	Color (true)	0.774	Sample	P	0 - 20

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P412786

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2321433	Turbidity	1.81	Sample	P	0 - 20

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P412870

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2320881	Calcium	1.15	Spike	P	0 - 20
2320881	Iron	2.48	Spike	P	0 - 20
2320881	Magnesium	2.20	Spike	P	0 - 20
2320881	Potassium	3.39	Spike	P	0 - 20
2320881	Sodium	0.0828	Spike	P	0 - 20
2320881	Strontium	0.417	Spike	P	0 - 20
2320881	Tin	0.891	Spike	P	0 - 20
2320881	Titanium	0.0766	Spike	P	0 - 20
2320881	Vanadium	0.269	Spike	P	0 - 20
2320881	Zinc	0.772	Spike	P	0 - 20

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P412870

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2320881	Aluminum	1.96	Spike	P	0 - 20
2320881	Antimony	2.80	Spike	P	0 - 20
2320881	Arsenic	2.40	Spike	P	0 - 20
2320881	Barium	2.49	Spike	P	0 - 20
2320881	Beryllium	0.692	Spike	P	0 - 20
2320881	Boron	1.58	Spike	P	0 - 20
2320881	Cadmium	2.89	Spike	P	0 - 20
2320881	Chromium	0.819	Spike	P	0 - 20
2320881	Cobalt	2.02	Spike	P	0 - 20
2320881	Copper	1.22	Spike	P	0 - 20
2320881	Lead	2.33	Spike	P	0 - 20
2320881	Manganese	1.86	Spike	P	0 - 20
2320881	Molybdenum	3.13	Spike	P	0 - 20
2320881	Nickel	1.46	Spike	P	0 - 20
2320881	Selenium	2.09	Spike	P	0 - 20
2320881	Silver	2.58	Spike	P	0 - 20
2320881	Thallium	2.61	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P413251

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2321410	Chloride	0.248	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P413110

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2321367	Ammonia-N	1.70	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P413268

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2321459	Kjeldahl Nitrogen	0.178	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P413579

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2321227	Kjeldahl Nitrogen	5.23	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P413027

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2321458	NO2NO3-N	0.428	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P413050

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2321490	Total-P	0.683	Spike	P	0 - 20

Reference Method: EPA 8321B
Batch ID: P412698

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2321191	Acesulfame K	2.49	Spike	P	0 - 30
2321191	AMPA	7.24	Spike	P	0 - 30
2321191	Endothall	0.311	Spike	P	0 - 30
2321191	Glufosinate	8.85	Spike	P	0 - 30
2321191	Glyphosate	1.11	Spike	P	0 - 30
2321191	Sucralose	3.42	Spike	P	0 - 30

Quality Assurance Report Precision

Reference Method: EPA 8321B

Batch ID: P412902

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2321475	2,4-D	3.97	Spike	P	0 - 30
2321475	2,4,5-T	0.644	Spike	P	0 - 30
2321475	Acetaminophen	5.98	Spike	P	0 - 30
2321475	Acetamiprid	25.7	Spike	P	0 - 30
2321475	Afidopyropen	32.9	Spike	F	0 - 30
2321475	Bentazon	0.652	Spike	P	0 - 30
2321475	Benzovindiflupyr	0.547	Spike	P	0 - 30
2321475	Carbamazepine	1.68	Spike	P	0 - 30
2321475	Clothianidin	0.790	Spike	P	0 - 30
2321475	Dinotefuran	1.43	Spike	P	0 - 30
2321475	Diuron	2.23	Spike	P	0 - 30
2321475	Fenuron	0.728	Spike	P	0 - 30
2321475	Fluridone	0.640	Spike	P	0 - 30
2321475	Hydrocodone	0.664	Spike	P	0 - 30
2321475	Ibuprofen	12.9	Spike	P	0 - 30
2321475	Imazapyr	0.285	Spike	P	0 - 30
2321475	Imidacloprid	2.41	Spike	P	0 - 30
2321475	Linuron	1.93	Spike	P	0 - 30
2321475	Mandestrobin	2.21	Spike	P	0 - 30
2321475	MCP	5.70	Spike	P	0 - 30
2321475	Naproxen	4.02	Spike	P	0 - 30
2321475	Primidone	2.04	Spike	P	0 - 30
2321475	Pyraclostrobin	0.253	Spike	P	0 - 30
2321475	Silvex	3.38	Spike	P	0 - 30
2321475	Thiamethoxam	2.76	Spike	P	0 - 30
2321475	Tolfenpyrad	6.67	Spike	P	0 - 30
2321475	Triclopyr	6.10	Spike	P	0 - 30

Reference Method: SM 2320 B-2011

Batch ID: P413538

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2321899	Total Alkalinity	3.13	Sample	P	0 - 5.2

Reference Method: SM 2540 C-2011

Batch ID: P413206

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2321337	TDS	1.08	Sample	P	0 - 10

Reference Method: SM 4500-F- C-2011

Batch ID: P413543

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2321899	Fluoride	0.492	Spike	P	0 - 2.1

Quality Assurance Report Precision

Reference Method: SM 5310 B-2011
Batch ID: P413058

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2321328	Organic Carbon	1.50	Spike	P	0 - 20

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

Quality Assurance Report Surrogates

Lab Sample ID: 2321502

Field Sample ID: G3CE0047

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	2,4-D-d3	58.7	P	30 - 160
EPA 8321B	Acetaminophen-d4	116	P	30 - 160
EPA 8321B	Carbamazepine-d10	35.2	P	30 - 160
EPA 8321B	Diuron-d6	61.1	P	30 - 160
EPA 8321B	Endothall-d6	95.3	P	30 - 160
EPA 8321B	Glyphosate 13C 15N	76.3	P	30 - 160
EPA 8321B	Ibuprofen-d3	57.7	P	30 - 160
EPA 8321B	Primidone-d5	50.5	P	30 - 160
EPA 8321B	Sucralose-d6	93.5	P	30 - 160

Lab Sample ID: 2321503

Field Sample ID: G3CE0066

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	2,4-D-d3	55.1	P	30 - 160
EPA 8321B	Acetaminophen-d4	120	P	30 - 160
EPA 8321B	Carbamazepine-d10	35.2	P	30 - 160
EPA 8321B	Diuron-d6	58.5	P	30 - 160
EPA 8321B	Endothall-d6	92.2	P	30 - 160
EPA 8321B	Glyphosate 13C 15N	77.2	P	30 - 160
EPA 8321B	Ibuprofen-d3	57.3	P	30 - 160
EPA 8321B	Primidone-d5	53.9	P	30 - 160
EPA 8321B	Sucralose-d6	91.9	P	30 - 160

Quality Assurance Report Calibration Verification

Reference Method: DEP SOP: NU-094-1

Run ID: A111643

Included Lab Sample IDs: 2321494, 2321495

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	98.1	100	P/P	85 - 115

Reference Method: EPA 180.1 Rev. 2.0

Run ID: A111646

Included Lab Sample IDs: 2321494, 2321495

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Turbidity	100	99.5	P/P	95 - 105

Reference Method: EPA 8321B

Run ID: A111654

Included Lab Sample IDs: 2321502, 2321503

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Acesulfame K	97.6	96.0	P/P	60 - 160
Sucralose	96.5	94.9	P/P	60 - 160

Reference Method: EPA 8321B

Run ID: A111655

Included Lab Sample IDs: 2321502, 2321503

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
AMPA	99.1	101	P/P	60 - 160
Endothall	92.1	92.0	P/P	60 - 160
Glufosinate	94.9	104	P/P	60 - 160
Glyphosate	95.6	101	P/P	60 - 160

Reference Method: EPA 300.0 Rev. 2.1

Run ID: A111715

Included Lab Sample IDs: 2321494, 2321495

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	98.0	99.8	P/P	90 - 110
Sulfate	99.8	101	P/P	90 - 110

Reference Method: EPA 200.8 Rev. 5.4

Run ID: A111744

Included Lab Sample IDs: 2321504, 2321505

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Aluminum	97.9	99.1	P/P	90 - 110
Antimony	99.9	100	P/P	90 - 110
Arsenic	97.3	97.4	P/P	90 - 110
Barium	98.9	98.5	P/P	90 - 110
Beryllium	94.3	93.8	P/P	90 - 110
Boron	98.4	97.8	P/P	90 - 110
Cadmium	98.3	98.7	P/P	90 - 110
Chromium	96.1	96.6	P/P	90 - 110
Copper	96.6	97.5	P/P	90 - 110
Lead	96.0	95.4	P/P	90 - 110
Manganese	97.1	97.5	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: EPA 200.8 Rev. 5.4

Run ID: A111744

Included Lab Sample IDs: 2321504, 2321505

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Molybdenum	96.8	97.4	P/P	90 - 110
Nickel	96.9	97.6	P/P	90 - 110
Selenium	97.3	96.1	P/P	90 - 110
Silver	97.7	97.5	P/P	90 - 110
Thallium	96.0	95.3	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A111756

Included Lab Sample IDs: 2321496, 2321497

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO2NO3-N	98.0	97.0	P/P	90 - 110

Reference Method: SM 5310 B-2011

Run ID: A111772

Included Lab Sample IDs: 2321496, 2321497

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	99.0	102	P/P	90 - 110

Reference Method: EPA 200.8 Rev. 5.4

Run ID: A111785

Included Lab Sample IDs: 2321504, 2321505

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Cobalt	99.0	95.8	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A111801

Included Lab Sample IDs: 2321496, 2321497

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	98.3	98.9	P/P	90 - 110

Reference Method: EPA 200.7 Rev. 4.4

Run ID: A111853

Included Lab Sample IDs: 2321504, 2321505

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Calcium	100	100	P/P	90 - 110
Iron	100	100	P/P	90 - 110
Magnesium	101	101	P/P	90 - 110
Potassium	99.0	98.4	P/P	90 - 110
Sodium	99.4	98.3	P/P	90 - 110
Strontium	100	96.4	P/P	90 - 110
Tin	102	100	P/P	90 - 110
Titanium	102	101	P/P	90 - 110
Vanadium	102	101	P/P	90 - 110
Zinc	102	101	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: EPA 8321B

Run ID: A111876

Included Lab Sample IDs: 2321502, 2321503

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
2,4-D	104	88.1	P/P	50 - 150
2,4,5-T	84.9	99.4	P/P	50 - 150
Acetaminophen	106	110	P/P	60 - 160
Acetamiprid	106	105	P/P	50 - 150
Afidopyropen	79.8	88.0	P/P	50 - 150
Bentazon	97.9	97.3	P/P	50 - 160
Benzovindiflupyr	101	101	P/P	50 - 150
Carbamazepine	103	109	P/P	60 - 150
Clothianidin	83.0	89.0	P/P	60 - 150
Dinotefuran	103	103	P/P	50 - 150
Diuron	105	101	P/P	60 - 160
Fenuron	103	102	P/P	60 - 150
Fluridone	103	105	P/P	60 - 160
Hydrocodone	107	109	P/P	60 - 150
Ibuprofen	114	95.7	P/P	50 - 160
Imazapyr	111	102	P/P	50 - 150
Imidacloprid	94.0	94.6	P/P	60 - 150
Linuron	96.4	102	P/P	60 - 150
Mandestrobin	98.1	103	P/P	50 - 150
MCPP	93.5	93.2	P/P	50 - 150
Naproxen	79.8	86.8	P/P	50 - 160
Primidone	100	99.9	P/P	60 - 150
Pyraclostrobin	91.8	103	P/P	60 - 150
Silvex	99.9	102	P/P	50 - 150
Thiamethoxam	89.9	98.6	P/P	50 - 150
Tolfenpyrad	70.7	75.2	P/P	60 - 150
Triclopyr	100	99.5	P/P	50 - 150

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A111924

Included Lab Sample IDs: 2321496, 2321497

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	100	101	P/P	90 - 110

Reference Method: SM 2320 B-2011

Run ID: A111984

Included Lab Sample IDs: 2321494, 2321495

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	94.9	95.0	P/P	90 - 110

Reference Method: SM 4500-F- C-2011

Run ID: A111984

Included Lab Sample IDs: 2321494, 2321495

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

Quality Assurance Report Calibration Verification

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A112016

Included Lab Sample IDs: 2321496

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	96.6	98.9	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A112057

Included Lab Sample IDs: 2321497

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	105	95.7	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					0.774	
EPA 180.1 Rev. 2.0	Turbidity	95.8					1.81	
EPA 200.7 Rev. 4.4	Calcium	107	108	109	110			1.15
	Iron	106	111	108	110			2.48
	Magnesium	108	112	109	112			2.20
	Potassium	102	109	105	101			3.39
	Sodium	100	104	104	104			0.0828
	Strontium	95.3	102	102	100			0.417
	Tin	102	102	103	103			0.891
	Titanium	102	104	104	103			0.0766
	Vanadium	96.2	97.8	98.1	98.6			0.269
	Zinc	100	102	102	105			0.772
EPA 200.8 Rev. 5.4	Aluminum	100	108	106	102			1.96
	Antimony	102	98.1	97.9	101			2.80
	Arsenic	98.9	95.8	98.1	95.3			2.40
	Barium	104	102	105	99.8			2.49
	Beryllium	92.7	94.6	95.3	92.7			0.692
	Boron	102	102	104	103			1.58
	Cadmium	100	96.7	99.5	96.2			2.89
	Chromium	98.0	98.0	98.8	96.9			0.819
	Cobalt	98.2	96.9	98.9	94.2			2.02
	Copper	97.0	95.9	97.1	94.4			1.22
	Lead	98.3	98.1	100	96.8			2.33
	Manganese	98.7	97.9	100				1.86
	Molybdenum	99.1	97.3	100	97.2			3.13
	Nickel	99.4	97.3	98.8	96.3			1.46
	Selenium	97.6	95.6	97.6	92.2			2.09
	Silver	97.1	93.8	96.2	93.7			2.58
	Thallium	101	101	103	99.2			2.61
EPA 300.0 Rev. 2.1	Chloride	99.1	98.0	97.6			0.248	
	Sulfate	98.0	97.2	97.4				
EPA 350.1 Rev. 2.0	Ammonia-N	96.6	99.6	97.6				1.70
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	105	106	106				0.178
	Kjeldahl Nitrogen	98.6	108	102				5.23
EPA 353.2 Rev. 2.0	NO2NO3-N	98.5	98.0	97.6				0.428
EPA 365.1 Rev. 2.0	Total-P	101	104	103				0.683
EPA 8321B	2,4-D	68.2	56.7	54.2				3.97
	2,4,5-T	71.8	73.4	72.9				0.644
	Acesulfame K	98.6	99.4	97.0				2.49
	Acetaminophen	83.8	116	109				5.98
	Acetamiprid	59.2	30.5	23.6				25.7
	Afidopyropen	40.9	60.3	43.2				32.9
	AMPA	109						7.24
	Bentazon	65.7						0.652
	Benzovindiflupyr	71.0	46.4	46.2				0.547
	Carbamazepine	58.7	46.7	45.9				1.68
	Clothianidin	79.2	57.7	57.2				0.790
	Dinotefuran	98.2	93.5	92.2				1.43
	Diuron	70.9	37.5	36.7				2.23
	Endothall	104	99.1	99.4				0.311
	Fenuron	81.3	45.9	46.3				0.728
	Fluridone	68.5	45.6	45.2				0.640
	Glufosinate	110	106	97.2				8.85
	Glyphosate	98.3						1.11

Quality Assurance Report Summary

Ref. Method	Analyte	LCS % Recovery	MS % Recovery		Precision LCS	SMP	MS
EPA 8321B	Hydrocodone	91.3	42.9	43.1			0.664
	Ibuprofen	60.6	54.4	47.8			12.9
	Imazapyr	81.2					0.285
	Imidacloprid	67.6	43.2	44.2			2.41
	Linuron	56.7	44.7	43.8			1.93
	Mandestrobin	60.2	49.5	50.6			2.21
	MCPP	82.6	91.3	86.3			5.70
	Naproxen	40.2	42.1	43.9			4.02
	Primidone	83.1	54.6	53.5			2.04
	Pyraclostrobin	65.1	62.9	62.7			0.253
	Silvex	82.1	83.3	80.6			3.38
	Sucralose	94.1	109	114			3.42
	Thiamethoxam	78.4	40.9	42.0			2.76
	Tolfenpyrad	40.5	36.0	33.7			6.67
	Triclopyr	77.9	75.6	71.1			6.10
SM 2320 B-2011	Total Alkalinity	98.3				3.13	
SM 2540 C-2011	TDS					1.08	
SM 4500-F- C-2011	Fluoride	99.8	98.7	98.0			0.492
SM 5310 B-2011	Organic Carbon	95.6	99.1	101			1.50

Reference Method Descriptions

Method	Description	Associated Samples
DEP SOP: NU-094-1	True Color measured at 450 nm (not valid for NPDES monitoring)	2321494, 2321495
EPA 180.1 Rev. 2.0	Turbidity in aqueous matrices	2321494, 2321495
EPA 200.7 Rev. 4.4	Total Recoverable Metals analysis using ICP emission spectroscopy for aqueous samples supporting Clean Water Act Projects	2321504, 2321505
EPA 200.8 Rev. 5.4	Total Recoverable Metals analysis using ICP-MS for aqueous samples supporting Clean Water Act Projects	2321504, 2321505
EPA 300.0 Rev. 2.1	Chloride in aqueous matrices	2321494, 2321495
EPA 300.0 Rev. 2.1	Sulfate in aqueous matrices	2321494, 2321495
EPA 350.1 Rev. 2.0	Ammonia in aqueous matrices as mg N/L	2321496, 2321497
EPA 351.2 Rev. 2.0	Total Kjeldahl Nitrogen in aqueous matrices	2321496, 2321497
EPA 353.2 Rev. 2.0	Nitrite/Nitrate in aqueous matrices as mg N/L	2321496, 2321497
EPA 365.1 Rev. 2.0	Total Phosphorus in aqueous matrices as mg P/L	2321496, 2321497
EPA 8321B	Pesticides, herbicides, and other chemicals in water matrices by HPLC/MS/MS	2321502, 2321503
SM 2320 B-2011	Alkalinity in aqueous matrices as mg CaCO ₃ /L	2321494, 2321495
SM 2340 B-2011	Hardness by calculation, in aqueous matrices, reported as mg/L CaCO ₃	2321504, 2321505
SM 2540 C-2011	Total Dissolved Solids in aqueous matrices	2321494, 2321495
SM 2540 D-2011	Total Suspended Solids in aqueous matrices using a maximum of 250 mL of sample	2321494, 2321495
SM 4500-F- C-2011	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	2321494, 2321495
SM 5310 B-2011	Nonpurgeable Organic Carbon in aqueous matrices	2321496, 2321497

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	04/22/2022			04/22/2022 14:34	Samantha L Bates	2321494
	04/22/2022			04/22/2022 14:36	Samantha L Bates	2321495
EPA 180.1 Rev. 2.0	04/22/2022			04/22/2022 13:46	Anna M. Plaviak	2321494
	04/22/2022			04/22/2022 13:49	Anna M. Plaviak	2321495
EPA 200.7 Rev. 4.4	04/22/2022	04/26/2022 10:35	Megan Whitefoot	05/02/2022 19:54	McKinley C Carter	2321504
	04/22/2022	04/26/2022 10:35	Megan Whitefoot	05/02/2022 20:01	McKinley C Carter	2321505
EPA 200.8 Rev. 5.4	04/22/2022	04/26/2022 10:35	Megan Whitefoot	04/27/2022 22:18	Alexander Thompson	2321504
	04/22/2022	04/26/2022 10:35	Megan Whitefoot	04/27/2022 22:27	Alexander Thompson	2321505
	04/22/2022	04/26/2022 10:35	Megan Whitefoot	04/28/2022 15:40	Alexander Thompson	2321504
	04/22/2022	04/26/2022 10:35	Megan Whitefoot	04/28/2022 15:46	Alexander Thompson	2321505
EPA 300.0 Rev. 2.1	04/22/2022			04/29/2022 18:42	James L Waggeberby	2321494
	04/22/2022			04/29/2022 18:54	James L Waggeberby	2321495
EPA 350.1 Rev. 2.0	04/22/2022			04/29/2022 09:29	Judith K. Clark	2321496
	04/22/2022			04/29/2022 09:30	Judith K. Clark	2321497
EPA 351.2 Rev. 2.0	04/22/2022	05/04/2022 16:20	Alexandra J Mattheus	05/09/2022 13:34	Samantha L Bates	2321496
	04/22/2022	05/10/2022 14:32	Samantha L Bates	05/11/2022 09:59	Samantha L Bates	2321497
EPA 353.2 Rev. 2.0	04/22/2022			04/28/2022 10:10	Beverly Y. Sanders	2321496
	04/22/2022			04/28/2022 10:12	Beverly Y. Sanders	2321497
EPA 365.1 Rev. 2.0	04/22/2022	04/29/2022 13:00	Simonne.V. Calhoun	05/03/2022 14:36	James L Waggeberby	2321496
	04/22/2022	04/29/2022 13:00	Simonne.V. Calhoun	05/03/2022 14:37	James L Waggeberby	2321497
EPA 8321B	04/22/2022	04/22/2022 12:00	Manjita Shrestha	04/23/2022 07:19	Manjita Shrestha	2321502
	04/22/2022	04/22/2022 12:00	Manjita Shrestha	04/23/2022 07:32	Manjita Shrestha	2321503
	04/22/2022	04/22/2022 12:00	Manjita Shrestha	04/24/2022 07:16	Manjita Shrestha	2321502
	04/22/2022	04/22/2022 12:00	Manjita Shrestha	04/24/2022 07:31	Manjita Shrestha	2321503
	04/22/2022	04/27/2022 09:00	Hoor Shaik	04/28/2022 12:29	Juyoung Kim	2321502
	04/22/2022	04/27/2022 09:00	Hoor Shaik	04/28/2022 12:47	Juyoung Kim	2321503
	04/22/2022	04/27/2022 09:00	Hoor Shaik	05/02/2022 17:45	Juyoung Kim	2321502
	04/22/2022	04/27/2022 09:00	Hoor Shaik	05/02/2022 18:02	Juyoung Kim	2321503
	04/22/2022			05/03/2022 02:07	Dale L. Simmons	2321494
	04/22/2022			05/03/2022 02:19	Dale L. Simmons	2321495
SM 2320 B-2011				05/02/2022 19:54	McKinley C Carter	2321504
				05/02/2022 20:01	McKinley C Carter	2321505
SM 2340 B-2011	04/22/2022			04/26/2022 15:06	Yijie Li	2321494, 2321495
SM 2540 C-2011	04/22/2022			04/26/2022 15:06	Yijie Li	2321494, 2321495
SM 2540 D-2011	04/22/2022			05/03/2022 02:07	Dale L. Simmons	2321494
	04/22/2022			05/03/2022 02:19	Dale L. Simmons	2321495
SM 4500-F- C-2011	04/22/2022			04/28/2022 04:32	Khloe J Berg	2321496
	04/22/2022			04/28/2022 04:46	Khloe J Berg	2321497