

Chemical Analysis Report

TLH-ROC-2022-06-29-03

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

Event Description: **Run 15**
Request ID: **RQ-2022-06-06-67**
Customer: **TLH-ROC**
Project ID: **SMP**

Send Reports to:
FL Dept. of Environmental Protection
2600 Blair Stone Rd
Tallahassee, FL 32399
Attn: Michael Eckles

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Certified by: Liang Lin, Environmental Administrator

Date Certified: 20-JUL-2022 11:05

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

Case Narrative

Unless otherwise noted, all samples included in this report were received in accordance with protocols referenced in Chapter 62-160, Florida Administrative Code (F.A.C.). Results published in this report pertain only to the samples as submitted to, and received by the laboratory. All times in this report are adjusted to the applicable Eastern Time Zone (EST or EDT).

Results for the following analytical groups are included in this report: 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: Hurricane Creek upstream Lake Tallavana

Collection Date/Time: 06/29/2022 09:10

Field ID: G1TLHR0160

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2338268	DEP SOP: NU-094-1	Color (true)	22	A	PCU	P415987	
	EPA 180.1 Rev. 2.0	Turbidity	4.2		NTU	P415990	
	EPA 300.0 Rev. 2.1	Chloride	30		mg Cl/L	P416557	
		Sulfate	130		mg SO4/L	P416562	
	SM 2320 B-2011	Total Alkalinity	86		mg CaCO3/L	P416322	
	SM 2540 C-2011	TDS	398		mg/L	P416198	
	SM 2540 D-2011	TSS	2	I	mg/L	P416167	
	SM 4500-F- C-2011	Fluoride	0.37		mg F/L	P416326	
2338271	EPA 350.1 Rev. 2.0	Ammonia-N	0.097		mg N/L	P416266	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.76		mg N/L	P416182	
	EPA 353.2 Rev. 2.0	NO2NO3-N	1.9		mg N/L	P416430	
	EPA 365.1 Rev. 2.0	Total-P	0.78		mg P/L	P416140	
	SM 5310 B-2011	Organic Carbon	5.5		mg C/L	P416124	
2338286	EPA 8321B	2,4-D	0.0022	I	ug/L	P416117	
		Acesulfame K	0.10	U	ug/L	P415969	
		2,4,5-T	0.0040	U	ug/L	P416117	
		AMPA	3.5		ug/L	P415969	MS
		Acetaminophen	0.0080	U	ug/L	P416117	
		Acetamiprid	0.019		ug/L	P416117	
		Endothall	0.25	U	ug/L	P415969	
		Glufosinate	0.10	U	ug/L	P415969	MS
		Glyphosate	1.8		ug/L	P415969	MS
		Afidopyropen	0.0020	U	ug/L	P416117	
		Bentazon	0.22		ug/L	P416117	
		Sucralose	0.028	I	ug/L	P415969	
		Benzovindiflupyr	0.11		ug/L	P416117	
		Carbamazepine	8.0E-04	U	ug/L	P416117	
		Clothianidin	0.021		ug/L	P416117	
		Dinotefuran	0.23		ug/L	P416117	
		Diuron	0.0020	U	ug/L	P416117	
		Fenuron	0.032	U	ug/L	P416117	
		Fluridone	8.0E-04	U	ug/L	P416117	
		Imazapyr	0.0040	U	ug/L	P416117	
		Hydrocodone	0.0020	U	ug/L	P416117	
		Ibuprofen	0.080	U	ug/L	P416117	
		Imidacloprid	0.062	J	ug/L	P416117	LCS, MS
		Linuron	0.050		ug/L	P416117	
		Mandestrobin	0.0020	U	ug/L	P416117	
		MCPP	0.0040	U	ug/L	P416117	
		Naproxen	0.0080	U	ug/L	P416117	
		Primidone	0.0040	U	ug/L	P416117	
		Pyraclostrobin	0.033		ug/L	P416117	
		Silvex	0.0040	U	ug/L	P416117	
		Thiamethoxam	0.12		ug/L	P416117	

Field ID: G1TLHR0160

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2338286	EPA 8321B	Tolfenpyrad	0.0020	U	ug/L	P416117	
		Triclopyr	0.0040	U	ug/L	P416117	
2338289	EPA 200.7 Rev. 4.4	Calcium	53.2		mg/L	P416003	
		Iron	170		ug/L	P416003	
		Magnesium	23.4		mg/L	P416003	
		Potassium	7.6		mg/L	P416003	
		Sodium	24.0		mg/L	P416003	
		Strontium	618		ug/L	P416003	
		Tin	6.0	U	ug/L	P416003	
		Titanium	2.1	I	ug/L	P416003	
		Vanadium	3.1	I	ug/L	P416003	
		Zinc	5.3	I	ug/L	P416003	
	EPA 200.8 Rev. 5.4	Aluminum	64		ug/L	P416003	
		Antimony	0.056	I	ug/L	P416003	
		Arsenic	1.97		ug/L	P416003	
		Barium	21.5		ug/L	P416003	
		Beryllium	0.010	U	ug/L	P416003	
		Boron	38.5		ug/L	P416003	
		Cadmium	0.020	U	ug/L	P416003	
		Chromium	0.40	U	ug/L	P416003	
		Cobalt	0.081		ug/L	P416003	
		Copper	0.91		ug/L	P416003	
		Lead	0.20	U	ug/L	P416003	
		Manganese	34.8		ug/L	P416003	
		Molybdenum	1.88		ug/L	P416003	
		Nickel	0.50	U	ug/L	P416003	
		Selenium	0.20	U	ug/L	P416003	
		Silver	0.010	U	ug/L	P416003	
		Thallium	0.10	U	ug/L	P416003	
	SM 2340 B-2011	Hardness	229		mg/L	P416003	

Ref. Method and Comment:

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

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

Sample Location: Camp Branch @ US90

Collection Date/Time: 06/29/2022 11:05

Field ID: G3TLHR0005

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2338269	DEP SOP: NU-094-1	Color (true)	85		PCU	P415987	
	EPA 180.1 Rev. 2.0	Turbidity	7.7		NTU	P415990	
	EPA 300.0 Rev. 2.1	Chloride	9.5		mg Cl/L	P416557	
		Sulfate	0.83		mg SO4/L	P416562	
	SM 2320 B-2011	Total Alkalinity	63		mg CaCO3/L	P416322	
	SM 2540 C-2011	TDS	110	A	mg/L	P416198	
	SM 2540 D-2011	TSS	2	UA	mg/L	P416167	
	SM 4500-F- C-2011	Fluoride	0.048	I	mg F/L	P416326	
2338272	EPA 350.1 Rev. 2.0	Ammonia-N	0.039		mg N/L	P416091	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.47		mg N/L	P416067	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.14		mg N/L	P416430	
	EPA 365.1 Rev. 2.0	Total-P	0.16		mg P/L	P416140	
	SM 5310 B-2011	Organic Carbon	7.6		mg C/L	P416124	

Ref. Method and Comment:

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

Sample Location: TANYARD BRANCH @ US90

Collection Date/Time: 06/29/2022 09:40

Field ID: G1TLHR0190

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2338270	DEP SOP: NU-094-1	Color (true)	79		PCU	P415987	
	EPA 180.1 Rev. 2.0	Turbidity	13		NTU	P415990	
	EPA 300.0 Rev. 2.1	Chloride	8.2		mg Cl/L	P416557	
		Sulfate	0.67		mg SO4/L	P416562	
	SM 2320 B-2011	Total Alkalinity	35		mg CaCO3/L	P416322	
	SM 2540 C-2011	TDS	68		mg/L	P416198	
	SM 2540 D-2011	TSS	5	I	mg/L	P416167	
2338273	SM 4500-F- C-2011	Fluoride	0.085	I	mg F/L	P416326	
	EPA 350.1 Rev. 2.0	Ammonia-N	0.53		mg N/L	P416265	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.1		mg N/L	P416067	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.038		mg N/L	P416430	
	EPA 365.1 Rev. 2.0	Total-P	0.16		mg P/L	P416140	
2338288	SM 5310 B-2011	Organic Carbon	6.0		mg C/L	P416124	
	EPA 8321B	2,4-D	0.0095		ug/L	P416117	
		Acesulfame K	0.44		ug/L	P415969	
		2,4,5-T	0.0040	U	ug/L	P416117	
		AMPA	0.10	U	ug/L	P415969	MS
		Acetaminophen	5.2		ug/L	P416117	
		Acetamiprid	0.0020	U	ug/L	P416117	
		Endothall	0.25	U	ug/L	P415969	
		Glufosinate	0.10	U	ug/L	P415969	MS
		Glyphosate	0.10	U	ug/L	P415969	MS
		Afidopyropen	0.0020	U	ug/L	P416117	
		Bentazon	8.0E-04	U	ug/L	P416117	
		Sucralose	0.72		ug/L	P415969	
		Benzovindiflupyr	0.0020	U	ug/L	P416117	
		Carbamazepine	0.0031	I	ug/L	P416117	
		Clothianidin	0.0020	U	ug/L	P416117	
		Dinotefuran	0.0020	U	ug/L	P416117	
		Diuron	0.0020	U	ug/L	P416117	
		Fenuron	0.032	U	ug/L	P416117	
		Fluridone	8.0E-04	U	ug/L	P416117	
		Imazapyr	0.0054	I	ug/L	P416117	
		Hydrocodone	0.0020	U	ug/L	P416117	
		Ibuprofen	0.17	I	ug/L	P416117	
		Imidacloprid	0.0030	I J	ug/L	P416117	LCS, MS
		Linuron	0.0040	U	ug/L	P416117	
		Mandestrobin	0.0020	U	ug/L	P416117	
		MCPP	0.0040	U	ug/L	P416117	
		Naproxen	0.11		ug/L	P416117	
		Primidone	0.0059	I	ug/L	P416117	
		Pyraclostrobin	0.0020	U	ug/L	P416117	
		Silvex	0.0040	U	ug/L	P416117	
		Thiamethoxam	0.0020	U	ug/L	P416117	

Field ID: G1TLHR0190

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2338288	EPA 8321B	Tolfenpyrad	0.0020	U	ug/L	P416117	
		Triclopyr	0.0040	U	ug/L	P416117	
2338291	EPA 200.7 Rev. 4.4	Calcium	9.39		mg/L	P416003	
		Iron	2.71E+03		ug/L	P416003	
		Magnesium	2.29		mg/L	P416003	
		Potassium	0.46	I	mg/L	P416003	
		Sodium	6.2		mg/L	P416003	
		Strontium	27.5		ug/L	P416003	
		Tin	3.0	U	ug/L	P416003	
		Titanium	3.3		ug/L	P416003	
		Vanadium	2.0	U	ug/L	P416003	
		Zinc	5.0	U	ug/L	P416003	
	EPA 200.8 Rev. 5.4	Aluminum	158		ug/L	P416003	
		Antimony	0.053	I	ug/L	P416003	
		Arsenic	1.39		ug/L	P416003	
		Barium	18.9		ug/L	P416003	
		Beryllium	0.010	U	ug/L	P416003	
		Boron	15.7		ug/L	P416003	
		Cadmium	0.020	U	ug/L	P416003	
		Chromium	0.40	U	ug/L	P416003	
		Cobalt	0.127		ug/L	P416003	
		Copper	0.54	I	ug/L	P416003	
		Lead	0.35	I	ug/L	P416003	
		Manganese	76.1		ug/L	P416003	
		Molybdenum	0.21	I	ug/L	P416003	
		Nickel	0.50	U	ug/L	P416003	
		Selenium	0.20	U	ug/L	P416003	
		Silver	0.010	U	ug/L	P416003	
		Thallium	0.10	U	ug/L	P416003	
	SM 2340 B-2011	Hardness	32.9		mg/L	P416003	

Ref. Method and Comment:

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

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

Quality Assurance Report Method Blank Results

Reference Method: DEP SOP: NU-094-1
Batch ID: P415987

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P415990

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P416003

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: P416003

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: P416557

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: P416562

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P416091

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P416265

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P416266

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P416067

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P416182

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P416430

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P416140

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

Reference Method: EPA 8321B
Batch ID: P415969

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

Quality Assurance Report

Method Blank Results

Reference Method: EPA 8321B

Batch ID: P415969

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

Reference Method: EPA 8321B

Batch ID: P416117

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	0.080	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: P416322

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

Reference Method: SM 2540 C-2011

Batch ID: P416198

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-2011

Batch ID: P416167

Component	Result	Code	Units
TSS	2	U	mg/L

Quality Assurance Report

Method Blank Results

Reference Method: SM 4500-F- C-2011
Batch ID: P416326

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-2011
Batch ID: P416124

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: P415987

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Color (true)	95.6		P	85 - 115

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P415990

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Turbidity	95.3		P	90 - 110

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P416003

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Calcium	104		P	85 - 115
Iron	100		P	85 - 115
Magnesium	101		P	85 - 115
Potassium	103		P	85 - 115
Sodium	104		P	85 - 115
Strontium	106		P	85 - 115
Tin	106		P	85 - 115
Titanium	106		P	85 - 115
Vanadium	98.5		P	85 - 115
Zinc	104		P	85 - 115

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P416003

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Aluminum	103		P	85 - 115
Antimony	97.4		P	85 - 115
Arsenic	96.4		P	85 - 115
Barium	102		P	85 - 115
Beryllium	92.7		P	85 - 115
Boron	109		P	85 - 115
Cadmium	96.4		P	85 - 115
Chromium	96.2		P	85 - 115
Cobalt	99.1		P	85 - 115
Copper	96.9		P	85 - 115
Lead	97.6		P	85 - 115
Manganese	97.2		P	85 - 115
Molybdenum	97.2		P	85 - 115
Nickel	98.3		P	85 - 115
Selenium	96.1		P	85 - 115
Silver	97.5		P	85 - 115
Thallium	98.1		P	85 - 115

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P416557

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Chloride	97.7		P	90 - 110

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P416562

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P416091

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P416265

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Ammonia-N	95.4		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P416266

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Ammonia-N	95.0		P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P416067

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P416182

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P416430

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
NO2NO3-N	102		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P416140

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

Reference Method: EPA 8321B
Batch ID: P415969

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Acesulfame K	90.0		P	40 - 150
AMPA	91.3		P	40 - 150
Endothall	96.3		P	40 - 150
Glufosinate	82.5		P	40 - 150

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 8321B
Batch ID: P415969

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Glyphosate	91.0		P	40 - 150
Sucralose	90.3		P	40 - 150

Reference Method: EPA 8321B
Batch ID: P416117

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2,4-D	82.6		P	40 - 150
2,4,5-T	50.0		P	40 - 150
Acetaminophen	93.8		P	30 - 150
Acetamiprid	109		P	40 - 150
Afidopyropen	59.1		P	30 - 150
Bentazon	54.3		P	30 - 150
Benzovindiflupyr	87.6		P	40 - 150
Carbamazepine	84.8		P	40 - 150
Clothianidin	90.4		P	40 - 150
Dinotefuran	108		P	40 - 150
Diuron	63.5		P	40 - 150
Fenuron	99.0		P	40 - 150
Fluridone	82.0		P	40 - 150
Hydrocodone	94.8		P	40 - 150
Ibuprofen	66.9		P	40 - 150
Imazapyr	114		P	40 - 150
Imidacloprid	158		F	40 - 150
Linuron	63.0		P	40 - 150
Mandestrobin	82.6		P	40 - 150
MCPP	80.4		P	40 - 150
Naproxen	59.7		P	40 - 150
Primidone	99.8		P	40 - 150
Pyraclostrobin	83.5		P	40 - 150
Silvex	58.2		P	40 - 150
Thiamethoxam	106		P	40 - 150
Tolfenpyrad	39.0		P	30 - 150
Triclopyr	60.5		P	40 - 150

Reference Method: SM 2320 B-2011
Batch ID: P416322

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	101		P	94 - 106

Reference Method: SM 4500-F- C-2011
Batch ID: P416326

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	101		P	96 - 104

Reference Method: SM 5310 B-2011
Batch ID: P416124

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	99.0		P	85 - 115

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 200.7 Rev. 4.4

Batch ID: P416003

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2337973	Calcium	103	105	P/P	80 - 120
2337973	Iron	101	104	P/P	80 - 120
2337973	Magnesium	103	105	P/P	80 - 120
2337973	Potassium	106	109	P/P	80 - 120
2337973	Sodium	106	99.6	P/P	80 - 120
2337973	Strontium	105	106	P/P	80 - 120
2337973	Tin	106	107	P/P	80 - 120
2337973	Titanium	106	107	P/P	80 - 120
2337973	Vanadium	99.1	99.3	P/P	80 - 120
2337973	Zinc	104	104	P/P	80 - 120
2338026	Calcium	99.2		P	80 - 120
2338026	Iron	101		P	80 - 120
2338026	Magnesium	101		P	80 - 120
2338026	Potassium	101		P	80 - 120
2338026	Sodium	106		P	80 - 120
2338026	Strontium	106		P	80 - 120
2338026	Tin	105		P	80 - 120
2338026	Titanium	106		P	80 - 120
2338026	Vanadium	98.8		P	80 - 120
2338026	Zinc	103		P	80 - 120

Reference Method: EPA 200.8 Rev. 5.4

Batch ID: P416003

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2337973	Aluminum	102	98.5	P/P	80 - 120
2337973	Antimony	98.0	96.1	P/P	80 - 120
2337973	Arsenic	97.2	94.8	P/P	80 - 120
2337973	Barium	101	98.8	P/P	80 - 120
2337973	Beryllium	97.4	94.4	P/P	80 - 120
2337973	Boron	108	103	P/P	80 - 120
2337973	Cadmium	97.0	93.9	P/P	80 - 120
2337973	Chromium	96.2	92.8	P/P	80 - 120
2337973	Cobalt	97.8	95.2	P/P	80 - 120
2337973	Copper	97.2	94.6	P/P	80 - 120
2337973	Lead	96.8	94.3	P/P	80 - 120
2337973	Manganese	96.8	93.5	P/P	80 - 120
2337973	Molybdenum	96.9	95.0	P/P	80 - 120
2337973	Nickel	98.5	96.1	P/P	80 - 120
2337973	Selenium	95.8	93.9	P/P	80 - 120
2337973	Silver	95.9	95.4	P/P	80 - 120
2337973	Thallium	97.3	96.1	P/P	80 - 120
2338026	Aluminum	98.0		P	80 - 120
2338026	Antimony	97.2		P	80 - 120
2338026	Arsenic	97.3		P	80 - 120
2338026	Barium	100		P	80 - 120
2338026	Beryllium	95.0		P	80 - 120
2338026	Boron	104		P	80 - 120
2338026	Cadmium	96.2		P	80 - 120
2338026	Chromium	95.8		P	80 - 120
2338026	Cobalt	98.1		P	80 - 120
2338026	Copper	99.2		P	80 - 120

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P416003

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2338026	Lead	96.3		P	80 - 120
2338026	Manganese	96.7		P	80 - 120
2338026	Molybdenum	96.8		P	80 - 120
2338026	Nickel	98.4		P	80 - 120
2338026	Selenium	94.7		P	80 - 120
2338026	Silver	95.0		P	80 - 120
2338026	Thallium	97.4		P	80 - 120

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P416557

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2337999	Chloride	97.4		P	90 - 110
2338269	Chloride	94.8		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P416562

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2337999	Sulfate	94.6		P	90 - 110
2338269	Sulfate	96.0		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P416091

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2337011	Ammonia-N	102	106	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P416265

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2337909	Ammonia-N	98.4	96.8	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P416266

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2338418	Ammonia-N	100	98.6	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P416067

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2338272	Kjeldahl Nitrogen	101	105	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P416182

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2338271	Kjeldahl Nitrogen	108	93.3	P/P	90 - 110

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P416430

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2338015	NO2NO3-N	102	102	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P416140

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2337976	Total-P	105	105	P/P	90 - 110

Reference Method: EPA 8321B
Batch ID: P415969

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2337995	Acesulfame K	70.7	74.9	P/P	40 - 150
2337995	AMPA	37.3	43.6	F/P	40 - 150
2337995	Endothall	117	121	P/P	40 - 150
2337995	Glufosinate	25.5	20.7	F/F	40 - 150
2337995	Glyphosate	39.8	45.5	F/P	40 - 150
2337995	Sucralose	81.6	90.6	P/P	40 - 150

Reference Method: EPA 8321B
Batch ID: P416117

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2338388	2,4-D	79.1	96.3	P/P	40 - 150
2338388	2,4,5-T	56.8	58.6	P/P	40 - 150
2338388	Acetaminophen	92.5	92.6	P/P	30 - 150
2338388	Acetamiprid	92.7	100	P/P	40 - 150
2338388	Afidopyropen	65.7	68.2	P/P	30 - 150
2338388	Bentazon	51.8	55.5	P/P	30 - 150
2338388	Benzovindiflupyr	89.5	102	P/P	40 - 150
2338388	Carbamazepine	82.7	88.4	P/P	40 - 150
2338388	Clothianidin	99.9	111	P/P	40 - 150
2338388	Dinotefuran	128	132	P/P	40 - 150
2338388	Diuron	66.7	65.1	P/P	40 - 150
2338388	Fenuron	97.3	105	P/P	40 - 150
2338388	Fluridone	81.8	90.2	P/P	40 - 150
2338388	Hydrocodone	101	107	P/P	40 - 150
2338388	Ibuprofen	71.8	87.8	P/P	40 - 150
2338388	Imazapyr	95.0	112	P/P	40 - 150
2338388	Imidacloprid	164	175	F/F	40 - 150
2338388	Linuron	76.4	76.2	P/P	40 - 150
2338388	Mandestrobin	87.0	95.0	P/P	40 - 150
2338388	MCPP	86.1	91.6	P/P	40 - 150
2338388	Naproxen	74.4	67.9	P/P	40 - 150
2338388	Primidone	121	111	P/P	40 - 150
2338388	Pyraclostrobin	91.0	95.4	P/P	40 - 150
2338388	Silvex	51.0	63.0	P/P	40 - 150
2338388	Thiamethoxam	116	126	P/P	40 - 150
2338388	Tolfenpyrad	50.8	55.3	P/P	30 - 150
2338388	Triclopyr	65.0	68.0	P/P	40 - 150

Quality Assurance Report

Matrix Spike Accuracy

Reference Method: SM 4500-F- C-2011
Batch ID: P416326

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2338595	Fluoride	102	102	P/P	94 - 104

Reference Method: SM 5310 B-2011
Batch ID: P416124

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2338420	Organic Carbon	98.5	99.4	P/P	85 - 115

Quality Assurance Report Precision

Reference Method: DEP SOP: NU-094-1
Batch ID: P415987

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2338268	Color (true)	1.76	Sample	P	0 - 20

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P415990

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2337926	Turbidity	4.00	Sample	P	0 - 20

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P416003

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2337973	Calcium	1.54	Spike	P	0 - 20
2337973	Iron	2.27	Spike	P	0 - 20
2337973	Magnesium	1.79	Spike	P	0 - 20
2337973	Potassium	2.95	Spike	P	0 - 20
2337973	Sodium	4.36	Spike	P	0 - 20
2337973	Strontium	0.295	Spike	P	0 - 20
2337973	Tin	0.949	Spike	P	0 - 20
2337973	Titanium	0.467	Spike	P	0 - 20
2337973	Vanadium	0.214	Spike	P	0 - 20
2337973	Zinc	0.275	Spike	P	0 - 20

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P416003

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2337973	Aluminum	3.33	Spike	P	0 - 20
2337973	Antimony	1.96	Spike	P	0 - 20
2337973	Arsenic	2.45	Spike	P	0 - 20
2337973	Barium	2.34	Spike	P	0 - 20
2337973	Beryllium	3.16	Spike	P	0 - 20
2337973	Boron	3.97	Spike	P	0 - 20
2337973	Cadmium	3.25	Spike	P	0 - 20
2337973	Chromium	3.59	Spike	P	0 - 20
2337973	Cobalt	2.62	Spike	P	0 - 20
2337973	Copper	2.75	Spike	P	0 - 20
2337973	Lead	2.61	Spike	P	0 - 20
2337973	Manganese	3.15	Spike	P	0 - 20
2337973	Molybdenum	1.91	Spike	P	0 - 20
2337973	Nickel	2.50	Spike	P	0 - 20
2337973	Selenium	1.91	Spike	P	0 - 20
2337973	Silver	0.577	Spike	P	0 - 20
2337973	Thallium	1.31	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P416557

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2337999	Chloride	0.240	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P416562

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2337999	Sulfate	0.319	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P416091

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2337011	Ammonia-N	2.25	Spike	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P416265

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2337909	Ammonia-N	1.22	Spike	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P416266

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2338418	Ammonia-N	1.35	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P416067

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2338272	Kjeldahl Nitrogen	3.00	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P416182

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2338271	Kjeldahl Nitrogen	8.81	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P416430

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2338015	NO2NO3-N	0.0	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 365.1 Rev. 2.0

Batch ID: P416140

Replicated

Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2337976	Total-P	0.599	Spike	P	0 - 20

Reference Method: EPA 8321B

Batch ID: P415969

Replicated

Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2337995	Acesulfame K	5.65	Spike	P	0 - 30
2337995	AMPA	6.52	Spike	P	0 - 30
2337995	Endothall	3.24	Spike	P	0 - 30
2337995	Glufosinate	20.7	Spike	P	0 - 30
2337995	Glyphosate	4.33	Spike	P	0 - 30
2337995	Sucralose	9.99	Spike	P	0 - 30

Reference Method: EPA 8321B

Batch ID: P416117

Replicated

Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2338388	2,4-D	19.6	Spike	P	0 - 30
2338388	2,4,5-T	3.02	Spike	P	0 - 30
2338388	Acetaminophen	0.113	Spike	P	0 - 30
2338388	Acetamiprid	7.82	Spike	P	0 - 30
2338388	Afidopyropen	3.78	Spike	P	0 - 30
2338388	Bentazon	6.96	Spike	P	0 - 30
2338388	Benzovindiflupyr	13.1	Spike	P	0 - 30
2338388	Carbamazepine	6.64	Spike	P	0 - 30
2338388	Clothianidin	10.1	Spike	P	0 - 30
2338388	Dinotefuran	3.21	Spike	P	0 - 30
2338388	Diuron	2.48	Spike	P	0 - 30
2338388	Fenuron	7.92	Spike	P	0 - 30
2338388	Fluridone	9.84	Spike	P	0 - 30
2338388	Hydrocodone	5.86	Spike	P	0 - 30
2338388	Ibuprofen	20.0	Spike	P	0 - 30
2338388	Imazapyr	16.9	Spike	P	0 - 30
2338388	Imidacloprid	6.43	Spike	P	0 - 30
2338388	Linuron	0.160	Spike	P	0 - 30
2338388	Mandestrobin	8.76	Spike	P	0 - 30
2338388	MCP	6.21	Spike	P	0 - 30
2338388	Naproxen	9.06	Spike	P	0 - 30
2338388	Primidone	8.28	Spike	P	0 - 30
2338388	Pyraclostrobin	4.72	Spike	P	0 - 30
2338388	Silvex	21.1	Spike	P	0 - 30
2338388	Thiamethoxam	7.56	Spike	P	0 - 30
2338388	Tolfenpyrad	8.52	Spike	P	0 - 30
2338388	Triclopyr	4.57	Spike	P	0 - 30

Quality Assurance Report Precision

Reference Method: SM 2320 B-2011
Batch ID: P416322

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2338595	Total Alkalinity	1.22	Sample	P	0 - 3.8

Reference Method: SM 2540 C-2011
Batch ID: P416198

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2338269	TDS	0.913	Sample	P	0 - 10

Reference Method: SM 4500-F- C-2011
Batch ID: P416326

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2338595	Fluoride	0.500	Spike	P	0 - 1.6

Reference Method: SM 5310 B-2011
Batch ID: P416124

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2338420	Organic Carbon	0.568	Spike	P	0 - 20

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

Quality Assurance Report Surrogates

Lab Sample ID: 2338286

Field Sample ID: G1TLHR0160

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	2,4-D-d3	82.6	P	30 - 160
EPA 8321B	Acetaminophen-d4	111	P	30 - 160
EPA 8321B	Carbamazepine-d10	80.6	P	30 - 160
EPA 8321B	Diuron-d6	48.9	P	30 - 160
EPA 8321B	Endothall-d6	99.7	P	30 - 160
EPA 8321B	Glyphosate 13C 15N	82.2	P	30 - 160
EPA 8321B	Ibuprofen-d3	86.4	P	30 - 160
EPA 8321B	Primidone-d5	127	P	30 - 160
EPA 8321B	Sucralose-d6	95.2	P	30 - 160

Lab Sample ID: 2338288

Field Sample ID: G1TLHR0190

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	2,4-D-d3	71.1	P	30 - 160
EPA 8321B	Acetaminophen-d4	92.5	P	30 - 160
EPA 8321B	Carbamazepine-d10	82.6	P	30 - 160
EPA 8321B	Diuron-d6	68.2	P	30 - 160
EPA 8321B	Endothall-d6	94.7	P	30 - 160
EPA 8321B	Glyphosate 13C 15N	71.4	P	30 - 160
EPA 8321B	Ibuprofen-d3	73.8	P	30 - 160
EPA 8321B	Primidone-d5	121	P	30 - 160
EPA 8321B	Sucralose-d6	97.7	P	30 - 160

Quality Assurance Report Calibration Verification

Reference Method: DEP SOP: NU-094-1

Run ID: A113169

Included Lab Sample IDs: 2338268, 2338269, 2338270

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	98.0	97.2	P/P	85 - 115

Reference Method: EPA 180.1 Rev. 2.0

Run ID: A113170

Included Lab Sample IDs: 2338268, 2338269, 2338270

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

Reference Method: EPA 200.8 Rev. 5.4

Run ID: A113218

Included Lab Sample IDs: 2338289, 2338291

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Aluminum	103	102	P/P	90 - 110
Antimony	99.0	97.0	P/P	90 - 110
Arsenic	100	98.1	P/P	90 - 110
Barium	99.7	98.8	P/P	90 - 110
Beryllium	98.2	96.2	P/P	90 - 110
Boron	103	103	P/P	90 - 110
Cadmium	98.2	97.2	P/P	90 - 110
Chromium	98.3	98.2	P/P	90 - 110
Cobalt	99.5	100	P/P	90 - 110
Copper	101	100	P/P	90 - 110
Lead	96.7	95.7	P/P	90 - 110
Manganese	98.6	98.7	P/P	90 - 110
Molybdenum	98.7	96.8	P/P	90 - 110
Nickel	101	101	P/P	90 - 110
Selenium	99.4	97.1	P/P	90 - 110
Silver	100	99.2	P/P	90 - 110
Thallium	97.0	95.3	P/P	90 - 110

Reference Method: EPA 200.8 Rev. 5.4

Run ID: A113236

Included Lab Sample IDs: 2338289

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Beryllium	99.0	97.1	P/P	90 - 110

Reference Method: SM 5310 B-2011

Run ID: A113260

Included Lab Sample IDs: 2338271, 2338272, 2338273

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

Reference Method: EPA 8321B

Run ID: A113263

Included Lab Sample IDs: 2338286, 2338288

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
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Quality Assurance Report Calibration Verification

Reference Method: EPA 8321B

Run ID: A113263

Included Lab Sample IDs: 2338286, 2338288

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Acesulfame K	103	102	P/P	60 - 160
Sucralose	98.3	96.4	P/P	60 - 160

Reference Method: EPA 8321B

Run ID: A113269

Included Lab Sample IDs: 2338286, 2338288

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
AMPA	97.4	94.6	P/P	60 - 160
Endothall	85.7	85.8	P/P	60 - 160
Glufosinate	67.9	63.8	P/P	60 - 160
Glyphosate	83.8	88.0	P/P	60 - 160

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A113275

Included Lab Sample IDs: 2338272

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	99.5	98.1	P/P	90 - 110

Reference Method: EPA 8321B

Run ID: A113301

Included Lab Sample IDs: 2338286, 2338288

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
2,4-D	95.7	106	P/P	50 - 150
2,4,5-T	105	110	P/P	50 - 150
Acetaminophen	104	106	P/P	60 - 160
Acetaminophen	107	106	P/P	60 - 160
Acetamiprid	116	109	P/P	50 - 150
Afidopyropen	99.5	107	P/P	50 - 150
Bentazon	105	109	P/P	50 - 160
Bentazon	99.8	101	P/P	50 - 160
Benzovindiflupyr	111	106	P/P	50 - 150
Carbamazepine	108	108	P/P	60 - 150
Clothianidin	103	111	P/P	60 - 150
Dinotefuran	105	105	P/P	50 - 150
Diuron	108	112	P/P	60 - 160
Fenuron	105	105	P/P	60 - 150
Fluridone	108	110	P/P	60 - 160
Hydrocodone	103	103	P/P	60 - 150
Ibuprofen	74.9	96.5	P/P	50 - 160
Imazapyr	111	110	P/P	50 - 150
Imidacloprid	99.3	99.1	P/P	60 - 150
Linuron	117	109	P/P	60 - 150
Mandestrobin	105	108	P/P	50 - 150
MCPP	105	112	P/P	50 - 150
Naproxen	137	124	P/P	50 - 160
Primidone	110	106	P/P	60 - 150
Pyraclostrobin	108	108	P/P	60 - 150
Silvex	109	87.2	P/P	50 - 150

Quality Assurance Report Calibration Verification

Reference Method: EPA 8321B

Run ID: A113301

Included Lab Sample IDs: 2338286, 2338288

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Thiamethoxam	103	104	P/P	50 - 150
Tolfenpyrad	97.6	91.5	P/P	60 - 150
Triclopyr	107	99.6	P/P	50 - 150

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A113312

Included Lab Sample IDs: 2338272, 2338273

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	96.0	98.0	P/P	90 - 110

Reference Method: EPA 200.7 Rev. 4.4

Run ID: A113317

Included Lab Sample IDs: 2338289, 2338291

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Calcium	98.3	97.7	P/P	90 - 110
Iron	97.7	99.2	P/P	90 - 110
Magnesium	97.6	98.0	P/P	90 - 110
Potassium	99.1	98.2	P/P	90 - 110
Sodium	98.7	100	P/P	90 - 110
Strontium	103	102	P/P	90 - 110
Tin	102	100	P/P	90 - 110
Titanium	101	98.5	P/P	90 - 110
Vanadium	101	101	P/P	90 - 110
Zinc	102	99.0	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A113332

Included Lab Sample IDs: 2338271, 2338273

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	97.4	97.8	P/P	90 - 110
Ammonia-N	97.8	98.7	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A113340

Included Lab Sample IDs: 2338271, 2338272, 2338273

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	93.0	94.5	P/P	90 - 110

Reference Method: EPA 200.7 Rev. 4.4

Run ID: A113349

Included Lab Sample IDs: 2338289

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Tin	97.6	97.1	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: SM 2320 B-2011

Run ID: A113365

Included Lab Sample IDs: 2338268, 2338269, 2338270

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	101	98.7	P/P	90 - 110

Reference Method: SM 4500-F- C-2011

Run ID: A113365

Included Lab Sample IDs: 2338268, 2338269, 2338270

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

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A113420

Included Lab Sample IDs: 2338271, 2338272, 2338273

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO2NO3-N	102	104	P/P	90 - 110
NO2NO3-N	103	103	P/P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1

Run ID: A113462

Included Lab Sample IDs: 2338268, 2338269, 2338270

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	98.6	97.5	P/P	90 - 110
Sulfate	98.4	96.9	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A113474

Included Lab Sample IDs: 2338271

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	97.4	104	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)	95.6				1.76	
EPA 180.1 Rev. 2.0	Turbidity	95.3				4.00	
EPA 200.7 Rev. 4.4	Calcium	104	103	105	99.2		1.54
	Iron	100	101	104	101		2.27
	Magnesium	101	103	105	101		1.79
	Potassium	103	106	109	101		2.95
	Sodium	104	106	99.6	106		4.36
	Strontium	106	105	106	106		0.295
	Tin	106	106	107	105		0.949
	Titanium	106	106	107	106		0.467
	Vanadium	98.5	99.1	99.3	98.8		0.214
	Zinc	104	104	104	103		0.275
EPA 200.8 Rev. 5.4	Aluminum	103	102	98.5	98.0		3.33
	Antimony	97.4	98.0	96.1	97.2		1.96
	Arsenic	96.4	97.2	94.8	97.3		2.45
	Barium	102	101	98.8	100		2.34
	Beryllium	92.7	97.4	94.4	95.0		3.16
	Boron	109	108	103	104		3.97
	Cadmium	96.4	97.0	93.9	96.2		3.25
	Chromium	96.2	96.2	92.8	95.8		3.59
	Cobalt	99.1	97.8	95.2	98.1		2.62
	Copper	96.9	97.2	94.6	99.2		2.75
	Lead	97.6	96.8	94.3	96.3		2.61
	Manganese	97.2	96.8	93.5	96.7		3.15
	Molybdenum	97.2	96.8	96.9	95.0		1.91
	Nickel	98.3	98.5	96.1	98.4		2.50
	Selenium	96.1	95.8	93.9	94.7		1.91
	Silver	97.5	95.9	95.4	95.0		0.577
	Thallium	98.1	97.3	96.1	97.4		1.31
EPA 300.0 Rev. 2.1	Chloride	97.7	97.4	94.8		0.240	
	Sulfate	96.6	94.6	96.0		0.319	
EPA 350.1 Rev. 2.0	Ammonia-N	99.0	102	106			2.25
	Ammonia-N	95.4	98.4	96.8			1.22
	Ammonia-N	95.0	100	98.6			1.35
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	99.6	101	105			3.00
	Kjeldahl Nitrogen	104	108	93.3			8.81
EPA 353.2 Rev. 2.0	NO2NO3-N	102	102	102			0.0
EPA 365.1 Rev. 2.0	Total-P	104	105	105			0.599
EPA 8321B	2,4-D	82.6	79.1	96.3			19.6
	2,4,5-T	50.0	56.8	58.6			3.02
	Acesulfame K	90.0	70.7	74.9			5.65
	Acetaminophen	93.8	92.5	92.6			0.113
	Acetamiprid	109	92.7	100			7.82
	Afidopyropen	59.1	65.7	68.2			3.78
	AMPA	91.3	37.3	43.6			6.52
	Bentazon	54.3	51.8	55.5			6.96
	Benzovindiflupyr	87.6	89.5	102			13.1
	Carbamazepine	84.8	82.7	88.4			6.64
	Clothianidin	90.4	99.9	111			10.1
	Dinotefuran	108	128	132			3.21
	Diuron	63.5	66.7	65.1			2.48
	Endothall	96.3	117	121			3.24
	Fenuron	99.0	97.3	105			7.92
	Fluridone	82.0	81.8	90.2			9.84

Quality Assurance Report Summary

Ref. Method	Analyte	LCS % Recovery	MS % Recovery		Precision	
					LCS	MS
EPA 8321B	Glufosinate	82.5	25.5	20.7		20.7
	Glyphosate	91.0	39.8	45.5		4.33
	Hydrocodone	94.8	101	107		5.86
	Ibuprofen	66.9	71.8	87.8		20.0
	Imazapyr	114	95.0	112		16.9
	Imidacloprid	158	164	175		6.43
	Linuron	63.0	76.4	76.2		0.160
	Mandestrobin	82.6	87.0	95.0		8.76
	MCPP	80.4	86.1	91.6		6.21
	Naproxen	59.7	74.4	67.9		9.06
	Primidone	99.8	121	111		8.28
	Pyraclostrobin	83.5	91.0	95.4		4.72
	Silvex	58.2	51.0	63.0		21.1
	Sucralose	90.3	81.6	90.6		9.99
	Thiamethoxam	106	116	126		7.56
	Tolfenpyrad	39.0	50.8	55.3		8.52
	Triclopyr	60.5	65.0	68.0		4.57
SM 2320 B-2011	Total Alkalinity	101			1.22	
SM 2540 C-2011	TDS				0.913	
SM 4500-F- C-2011	Fluoride	101	102	102		0.500
SM 5310 B-2011	Organic Carbon	99.0	98.5	99.4		0.568

Reference Method Descriptions

Method	Description	Associated Samples
DEP SOP: NU-094-1	True Color measured at 450 nm (not valid for NPDES monitoring)	2338268, 2338269, 2338270
EPA 180.1 Rev. 2.0	Turbidity in aqueous matrices	2338268, 2338269, 2338270
EPA 200.7 Rev. 4.4	Total Recoverable Metals analysis using ICP emission spectroscopy for aqueous samples supporting Clean Water Act Projects	2338289, 2338291
EPA 200.8 Rev. 5.4	Total Recoverable Metals analysis using ICP-MS for aqueous samples supporting Clean Water Act Projects	2338289, 2338291
EPA 300.0 Rev. 2.1	Chloride in aqueous matrices	2338268, 2338269, 2338270
EPA 300.0 Rev. 2.1	Sulfate in aqueous matrices	2338268, 2338269, 2338270
EPA 350.1 Rev. 2.0	Ammonia in aqueous matrices as mg N/L	2338271, 2338272, 2338273
EPA 351.2 Rev. 2.0	Total Kjeldahl Nitrogen in aqueous matrices	2338271, 2338272, 2338273
EPA 353.2 Rev. 2.0	Nitrite/Nitrate in aqueous matrices as mg N/L	2338271, 2338272, 2338273
EPA 365.1 Rev. 2.0	Total Phosphorus in aqueous matrices as mg P/L	2338271, 2338272, 2338273
EPA 8321B	Pesticides, herbicides, and other chemicals in water matrices by HPLC/MS/MS	2338286, 2338288
SM 2320 B-2011	Alkalinity in aqueous matrices as mg CaCO ₃ /L	2338268, 2338269, 2338270
SM 2340 B-2011	Hardness by calculation, in aqueous matrices, reported as mg/L CaCO ₃	2338289, 2338291
SM 2540 C-2011	Total Dissolved Solids in aqueous matrices	2338268, 2338269, 2338270
SM 2540 D-2011	Total Suspended Solids in aqueous matrices using a maximum of 250 mL of sample	2338268, 2338269, 2338270
SM 4500-F- C-2011	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	2338268, 2338269, 2338270
SM 5310 B-2011	Nonpurgeable Organic Carbon in aqueous matrices	2338271, 2338272, 2338273

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	06/29/2022			06/29/2022 15:53	Anna M. Plaviak	2338268
	06/29/2022			06/29/2022 15:54	Anna M. Plaviak	2338269
	06/29/2022			06/29/2022 15:55	Anna M. Plaviak	2338270
EPA 180.1 Rev. 2.0	06/29/2022			06/29/2022 14:45	Khloe J Berg	2338268
	06/29/2022			06/29/2022 14:46	Khloe J Berg	2338269
	06/29/2022			06/29/2022 14:47	Khloe J Berg	2338270
EPA 200.7 Rev. 4.4	06/29/2022	06/30/2022 08:57	Mackenzie Hunt	07/06/2022 22:25	McKinley C Carter	2338289
	06/29/2022	06/30/2022 08:57	Mackenzie Hunt	07/06/2022 22:33	McKinley C Carter	2338291
	06/29/2022	06/30/2022 08:57	Mackenzie Hunt	07/07/2022 21:09	McKinley C Carter	2338289
EPA 200.8 Rev. 5.4	06/29/2022	06/30/2022 08:57	Mackenzie Hunt	06/30/2022 16:01	Alexander Thompson	2338289
	06/29/2022	06/30/2022 08:57	Mackenzie Hunt	06/30/2022 16:10	Alexander Thompson	2338291
	06/29/2022	06/30/2022 08:57	Mackenzie Hunt	07/01/2022 12:28	Alexander Thompson	2338289
EPA 300.0 Rev. 2.1	06/29/2022			07/11/2022 21:08	Anna M. Plaviak	2338269
	06/29/2022			07/11/2022 22:33	Anna M. Plaviak	2338268
	06/29/2022			07/11/2022 22:45	Anna M. Plaviak	2338270
EPA 350.1 Rev. 2.0	06/29/2022			07/01/2022 11:04	Judith K. Clark	2338272
	06/29/2022			07/07/2022 12:01	Ping Hua	2338273
	06/29/2022			07/07/2022 12:24	Ping Hua	2338271
EPA 351.2 Rev. 2.0	06/29/2022	07/05/2022 13:58	Samantha L Bates	07/06/2022 12:26	Alexandra J Mattheus	2338272
	06/29/2022	07/05/2022 13:58	Samantha L Bates	07/06/2022 12:31	Alexandra J Mattheus	2338273
	06/29/2022	07/12/2022 12:13	Simonne.V. Calhoun	07/13/2022 12:14	Alexandra J Mattheus	2338271
EPA 353.2 Rev. 2.0	06/29/2022			07/11/2022 13:37	Judith K. Clark	2338273
	06/29/2022			07/11/2022 14:01	Judith K. Clark	2338271
	06/29/2022			07/11/2022 14:03	Judith K. Clark	2338272
EPA 365.1 Rev. 2.0	06/29/2022	07/06/2022 16:30	Adam P Silver	07/07/2022 15:38	James L Waggeberby	2338271
	06/29/2022	07/06/2022 16:30	Adam P Silver	07/07/2022 15:39	James L Waggeberby	2338272
	06/29/2022	07/06/2022 16:30	Adam P Silver	07/07/2022 15:41	James L Waggeberby	2338273
EPA 8321B	06/29/2022	07/01/2022 09:00	Umesh Chiluwal	07/01/2022 13:14	Umesh Chiluwal	2338286
	06/29/2022	07/01/2022 09:00	Umesh Chiluwal	07/01/2022 13:29	Umesh Chiluwal	2338288
	06/29/2022	07/01/2022 09:00	Umesh Chiluwal	07/01/2022 21:53	Umesh Chiluwal	2338286
	06/29/2022	07/01/2022 09:00	Umesh Chiluwal	07/01/2022 22:06	Umesh Chiluwal	2338288
	06/29/2022	07/05/2022 09:00	June Rhew	07/05/2022 19:34	Juyoung Kim	2338286
	06/29/2022	07/05/2022 09:00	June Rhew	07/05/2022 19:55	Juyoung Kim	2338288
	06/29/2022	07/05/2022 09:00	June Rhew	07/06/2022 10:14	Juyoung Kim	2338286
SM 2320 B-2011	06/29/2022	07/05/2022 09:00	June Rhew	07/06/2022 10:35	Juyoung Kim	2338288
	06/29/2022			07/07/2022 01:25	Dale L. Simmons	2338268
	06/29/2022			07/07/2022 01:40	Dale L. Simmons	2338269
SM 2340 B-2011	06/29/2022			07/07/2022 01:53	Dale L. Simmons	2338270
	06/29/2022			07/06/2022 22:25	McKinley C Carter	2338289
	06/29/2022			07/06/2022 22:33	McKinley C Carter	2338291

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
SM 2540 C-2011	06/29/2022			07/01/2022 14:10	Ping Hua	2338268, 2338269, 2338270
SM 2540 D-2011	06/29/2022			07/01/2022 14:10	Ping Hua	2338268, 2338269, 2338270
SM 4500-F- C-2011	06/29/2022			07/07/2022 01:25	Dale L. Simmons	2338268
	06/29/2022			07/07/2022 01:40	Dale L. Simmons	2338269
	06/29/2022			07/07/2022 01:53	Dale L. Simmons	2338270
SM 5310 B-2011	06/29/2022			07/01/2022 19:37	Khloe J Berg	2338271
	06/29/2022			07/01/2022 19:51	Khloe J Berg	2338272
	06/29/2022			07/01/2022 20:04	Khloe J Berg	2338273