

Chemical Analysis Report

TLH-ROC-2021-06-22-01

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

Event Description: **Run 1**
Request ID: **RQ-2021-06-14-45**
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: 16-JUL-2021 13:10

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: Waccasassa River @ Otter Creek

Collection Date/Time: 06/21/2021 16:00

Field ID: G1TLHR0101

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2256156	EPA 200.7 Rev. 4.4	Calcium	136		mg/L	P400105	
		Iron	290	I	ug/L	P400105	
		Magnesium	398		mg/L	P400105	
		Manganese	51		ug/L	P400105	
		Zinc	50	U	ug/L	P400105	
	EPA 200.8 Rev. 5.4	Aluminum	226		ug/L	P400105	
		Antimony	0.20	U	ug/L	P400105	
		Arsenic	2.00		ug/L	P400105	
		Beryllium	0.040	U	ug/L	P400105	
		Cadmium	0.080	U	ug/L	P400105	
		Chromium	1.6	U	ug/L	P400105	
		Copper	1.6	U	ug/L	P400105	
		Lead	0.80	U	ug/L	P400105	
		Nickel	2.0	U	ug/L	P400105	
		Selenium	0.80	U	ug/L	P400105	
		Silver	0.040	U	ug/L	P400105	
		Thallium	0.40	U	ug/L	P400105	

Ref. Method and Comment:

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

Sample Location: Waccasassa River @ Boat Ramp

Collection Date/Time: 06/21/2021 12:40

Field ID: G1TLHR0032

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2256135	EPA 180.1 Rev. 2.0	Turbidity	3.7	A	NTU	P400060	
	SM 2320 B-2011	Total Alkalinity	129		mg CaCO3/L	P400372	
	SM 2540 D-2011	TSS	5	IA	mg/L	P400246	
	SM 4500 F-C-2011	Fluoride	0.20		mg F/L	P400375	
2256136	EPA 350.1 Rev. 2.0	Ammonia-N	0.037		mg N/L	P400458	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.52		mg N/L	P400321	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.49		mg N/L	P400102	
	EPA 365.1 Rev. 2.0	Total-P	0.056		mg P/L	P400297	
	SM 5310 B-2011	Organic Carbon	6.3		mg C/L	P400361	
2256137	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.030		mg P/L	P400064	
2256153	EPA 8321B	2,4-D	0.0028	I	ug/L	P399973	
		Acesulfame K	0.10	U	ug/L	P400090	RPD
		2,4,5-T	0.0040	U	ug/L	P399973	
		AMPA	0.10	U	ug/L	P400090	
		Acetaminophen	0.16		ug/L	P399973	
		Acetamiprid	0.0020	U	ug/L	P399973	
		Endothall	0.25	U	ug/L	P400090	
		Glufosinate	0.10	U	ug/L	P400090	
		Glyphosate	0.10	U	ug/L	P400090	
		Afidopyropen	0.0020	U	ug/L	P399973	MS, RPD
		Bentazon	8.0E-04	U	ug/L	P399973	
		Sucralose	0.011	I	ug/L	P400090	
		Benzovindiflupyr	0.0020	U	ug/L	P399973	
		Carbamazepine	8.0E-04	U	ug/L	P399973	
		Clothianidin	0.0020	U	ug/L	P399973	
		Dinotefuran	0.0020	U	ug/L	P399973	
		Diuron	0.0020	U	ug/L	P399973	
		Fenuron	0.016	U	ug/L	P399973	
		Fluridone	8.0E-04	U	ug/L	P399973	
		Imazapyr	0.0078	I	ug/L	P399973	
		Hydrocodone	0.0020	U	ug/L	P399973	
		Ibuprofen	0.020	U	ug/L	P399973	
		Imidacloprid	0.0020	U	ug/L	P399973	
		Linuron	0.0040	U	ug/L	P399973	
		Mandestrobin	0.0020	U	ug/L	P399973	
		MCP	0.0020	U	ug/L	P399973	
		Naproxen	0.0080	U	ug/L	P399973	
		Primidone	0.0040	U	ug/L	P399973	
		Pyraclostrobin	0.0020	U	ug/L	P399973	
		Thiamethoxam	0.0020	U	ug/L	P399973	
		Tolfenpyrad	0.0020	U	ug/L	P399973	
		Triclopyr	0.0040	U	ug/L	P399973	
2256155	EPA 200.7 Rev. 4.4	Calcium	73.1		mg/L	P400100	

Field ID: G1TLHR0032

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2256155	EPA 200.7 Rev. 4.4	Iron	270		ug/L	P400100	
		Magnesium	71.9		mg/L	P400100	
		Manganese	26.3		ug/L	P400100	
		Zinc	5.0	I	ug/L	P400100	
	EPA 200.8 Rev. 5.4	Aluminum	103		ug/L	P400100	
		Antimony	0.051	I	ug/L	P400100	
		Arsenic	0.77		ug/L	P400100	
		Beryllium	0.010	U	ug/L	P400100	
		Cadmium	0.020	U	ug/L	P400100	
		Chromium	0.71	I	ug/L	P400100	
		Copper	0.40	U	ug/L	P400100	
		Lead	0.20	U	ug/L	P400100	
		Nickel	0.50	U	ug/L	P400100	
		Selenium	0.20	U	ug/L	P400100	
		Silver	0.010	U	ug/L	P400100	
		Thallium	0.10	U	ug/L	P400100	

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: MS accuracy for 2,4-D could not be assessed due to high concentration of parameter in the spiked sample.

Sample Location: FB_06212021

Collection Date/Time: 06/21/2021 13:00

Field ID: FB_06212021

Matrix: W-FIELD-BK

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2256138	EPA 180.1 Rev. 2.0	Turbidity	0.10	U	NTU	P400060	
	SM 2320 B-2011	Total Alkalinity	0.65	U	mg CaCO3/L	P400372	
	SM 2540 D-2011	TSS	2	U	mg/L	P400246	
	SM 4500 F-C-2011	Fluoride	0.035	U	mg F/L	P400375	
2256139	EPA 350.1 Rev. 2.0	Ammonia-N	0.002	U	mg N/L	P400409	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.080	U	mg N/L	P400389	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P400095	
	EPA 365.1 Rev. 2.0	Total-P	0.002	U	mg P/L	P400299	
	SM 5310 B-2011	Organic Carbon	0.50	U	mg C/L	P400361	
2256140	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P400063	
2256154	EPA 8321B	2,4-D	0.0020	U	ug/L	P399973	
		Acesulfame K	0.10	U	ug/L	P400090	RPD
		2,4,5-T	0.0040	U	ug/L	P399973	
		AMPA	0.10	U	ug/L	P400090	
		Acetaminophen	0.0080	U	ug/L	P399973	
		Acetamiprid	0.0020	U	ug/L	P399973	
		Endothall	0.25	U	ug/L	P400090	
		Glufosinate	0.10	U	ug/L	P400090	
		Glyphosate	0.10	U	ug/L	P400090	
		Afidopyropen	0.0020	U	ug/L	P399973	MS, RPD
		Bentazon	8.0E-04	U	ug/L	P399973	
		Sucralose	0.010	U	ug/L	P400090	
		Benzovindiflupyr	0.0020	U	ug/L	P399973	
		Carbamazepine	8.0E-04	U	ug/L	P399973	
		Clothianidin	0.0020	U	ug/L	P399973	
		Dinotefuran	0.0020	U	ug/L	P399973	
		Diuron	0.0020	U	ug/L	P399973	
		Fenuron	0.016	U	ug/L	P399973	
		Fluridone	8.0E-04	U	ug/L	P399973	
		Imazapyr	0.0040	U	ug/L	P399973	
		Hydrocodone	0.0020	U	ug/L	P399973	
		Ibuprofen	0.020	U	ug/L	P399973	
		Imidacloprid	0.0020	U	ug/L	P399973	
		Linuron	0.0040	U	ug/L	P399973	
		Mandestrobin	0.0020	U	ug/L	P399973	
		MCP	0.0020	U	ug/L	P399973	
		Naproxen	0.0080	U	ug/L	P399973	
		Primidone	0.0040	U	ug/L	P399973	
		Pyraclostrobin	0.0020	U	ug/L	P399973	
		Thiamethoxam	0.0020	U	ug/L	P399973	
		Tolfenpyrad	0.0020	U	ug/L	P399973	
		Triclopyr	0.0040	U	ug/L	P399973	
2256157	EPA 200.7 Rev. 4.4	Calcium	0.075	U	mg/L	P400100	

Field ID: FB_06212021

Matrix: W-FIELD-BK

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2256157	EPA 200.7 Rev. 4.4	Iron	30	U	ug/L	P400100	
		Magnesium	0.040	U	mg/L	P400100	
		Manganese	1.0	U	ug/L	P400100	
		Zinc	5.0	U	ug/L	P400100	
	EPA 200.8 Rev. 5.4	Aluminum	5.0	U	ug/L	P400100	
		Antimony	0.050	U	ug/L	P400100	
		Arsenic	0.050	U	ug/L	P400100	
		Beryllium	0.010	U	ug/L	P400100	
		Cadmium	0.020	U	ug/L	P400100	
		Chromium	0.40	U	ug/L	P400100	
		Copper	0.40	U	ug/L	P400100	
		Lead	0.20	U	ug/L	P400100	
		Nickel	0.50	U	ug/L	P400100	
		Selenium	0.20	U	ug/L	P400100	
		Silver	0.010	U	ug/L	P400100	
		Thallium	0.10	U	ug/L	P400100	

Ref. Method and Comment:

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

EPA 365.1 Rev. 2.0 dissolved: O-Phosphate-P: Batch matrix spike recoveries are unavailable because of high analyte concentration in the QC sample.

EPA 8321B: MS accuracy for 2,4-D could not be assessed due to high concentration of parameter in the spiked sample.

Quality Assurance Report Method Blank Results

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P400060

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P400100

Component	Result	Code	Units
Calcium	0.075	U	mg/L
Iron	30	U	ug/L
Magnesium	0.040	U	mg/L
Manganese	1.0	U	ug/L
Zinc	5.0	U	ug/L

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P400105

Component	Result	Code	Units
Calcium	0.075	U	mg/L
Iron	30	U	ug/L
Magnesium	0.040	U	mg/L
Manganese	1.0	U	ug/L
Zinc	5.0	U	ug/L

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P400100

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

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P400105

Component	Result	Code	Units
Aluminum	5.0	U	ug/L
Antimony	0.050	U	ug/L
Arsenic	0.050	U	ug/L
Beryllium	0.010	U	ug/L
Cadmium	0.020	U	ug/L
Chromium	0.40	U	ug/L
Copper	0.40	U	ug/L
Lead	0.20	U	ug/L
Nickel	0.50	U	ug/L

Quality Assurance Report Method Blank Results

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P400105

Component	Result	Code	Units
Selenium	0.20	U	ug/L
Silver	0.010	U	ug/L
Thallium	0.10	U	ug/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P400409

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P400458

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P400321

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P400389

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P400095

Component	Result	Code	Units
NO ₂ NO ₃ -N	0.004	U	mg N/L

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P400102

Component	Result	Code	Units
NO ₂ NO ₃ -N	0.004	U	mg N/L

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P400297

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P400299

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

Quality Assurance Report Method Blank Results

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P400063

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P400064

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

Reference Method: EPA 8321B
Batch ID: P399973

Component	Result	Code	Units
2,4-D	0.0020	U	ug/L
2,4,5-T	0.0040	U	ug/L
Acetaminophen	0.0080	U	ug/L
Acetamiprid	0.0020	U	ug/L
Afidopyropen	0.0020	U	ug/L
Bentazon	8.0E-04	U	ug/L
Benzovindiflupyr	0.0020	U	ug/L
Carbamazepine	8.0E-04	U	ug/L
Clothianidin	0.0020	U	ug/L
Dinotefuran	0.0020	U	ug/L
Diuron	0.0020	U	ug/L
Fenuron	0.016	U	ug/L
Fluridone	8.0E-04	U	ug/L
Hydrocodone	0.0020	U	ug/L
Ibuprofen	0.020	U	ug/L
Imazapyr	0.0040	U	ug/L
Imidacloprid	0.0020	U	ug/L
Linuron	0.0040	U	ug/L
Mandestrobin	0.0020	U	ug/L
MCPP	0.0020	U	ug/L
Naproxen	0.0080	U	ug/L
Primidone	0.0040	U	ug/L
Pyraclostrobin	0.0020	U	ug/L
Thiamethoxam	0.0020	U	ug/L
Tolfenpyrad	0.0020	U	ug/L
Triclopyr	0.0040	U	ug/L

Reference Method: EPA 8321B
Batch ID: P400090

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

Quality Assurance Report

Method Blank Results

Reference Method: SM 2320 B-2011
Batch ID: P400372

Component	Result	Code	Units
Total Alkalinity	0.65	U	mg CaCO ₃ /L

Reference Method: SM 2540 D-2011
Batch ID: P400246

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500 F-C-2011
Batch ID: P400375

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-2011
Batch ID: P400361

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

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 200.7 Rev. 4.4
 Batch ID: P400100

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Calcium	99.3		P	80 - 120
Iron	106		P	80 - 120
Magnesium	98.3		P	80 - 120
Manganese	102		P	80 - 120
Zinc	94.0		P	80 - 120

Reference Method: EPA 200.7 Rev. 4.4
 Batch ID: P400105

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Calcium	100		P	85 - 115
Iron	102		P	85 - 115
Magnesium	99.6		P	85 - 115
Manganese	100		P	85 - 115
Zinc	92.1		P	85 - 115

Reference Method: EPA 200.8 Rev. 5.4
 Batch ID: P400100

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Aluminum	110		P	85 - 115
Antimony	110		P	85 - 115
Arsenic	104		P	85 - 115
Beryllium	101		P	85 - 115
Cadmium	105		P	85 - 115
Chromium	101		P	85 - 115
Copper	104		P	85 - 115
Lead	101		P	85 - 115
Nickel	105		P	85 - 115
Selenium	106		P	85 - 115
Silver	101		P	85 - 115
Thallium	104		P	85 - 115

Reference Method: EPA 200.8 Rev. 5.4
 Batch ID: P400105

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Aluminum	105		P	85 - 115
Antimony	104		P	85 - 115
Arsenic	102		P	85 - 115
Beryllium	97.9		P	85 - 115
Cadmium	101		P	85 - 115
Chromium	99.8		P	85 - 115
Copper	98.8		P	85 - 115
Lead	115		P	85 - 115
Nickel	101		P	85 - 115
Selenium	103		P	85 - 115
Silver	101		P	85 - 115
Thallium	105		P	85 - 115

Quality Assurance Report

Laboratory Control Sample Accuracy

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P400409

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P400458

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P400321

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P400389

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P400095

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P400102

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P400297

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P400299

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P400063

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

Quality Assurance Report

Laboratory Control Sample Accuracy

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P400064

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
O-Phosphate-P	98.1		P	90 - 110

Reference Method: EPA 8321B
Batch ID: P399973

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2,4-D	104		P	30 - 160
2,4,5-T	98.0		P	30 - 160
Acetaminophen	78.3		P	30 - 160
Acetamiprid	75.5		P	30 - 160
Afidopyropen	71.5		P	30 - 160
Bentazon	76.8		P	30 - 160
Benzovindiflupyr	84.2		P	30 - 160
Carbamazepine	88.8		P	30 - 160
Clothianidin	81.4		P	30 - 160
Dinotefuran	88.5		P	30 - 160
Diuron	79.9		P	30 - 160
Fenuron	89.1		P	30 - 160
Fluridone	90.7		P	30 - 160
Hydrocodone	78.0		P	30 - 160
Ibuprofen	77.0		P	30 - 160
Imazapyr	110		P	30 - 160
Imidacloprid	81.6		P	30 - 160
Linuron	72.2		P	30 - 160
Mandestrobin	101		P	30 - 160
MCPP	101		P	30 - 160
Naproxen	101		P	30 - 160
Primidone	90.5		P	30 - 160
Pyraclostrobin	78.0		P	30 - 160
Thiamethoxam	90.2		P	30 - 160
Tolfenpyrad	52.3		P	30 - 160
Triclopyr	93.3		P	30 - 160

Reference Method: EPA 8321B
Batch ID: P400090

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Acesulfame K	83.9		P	40 - 150
AMPA	97.9		P	40 - 150
Endothall	72.9		P	40 - 150
Glufosinate	96.7		P	40 - 150
Glyphosate	102		P	40 - 140
Sucralose	92.1		P	40 - 150

Reference Method: SM 2320 B-2011
Batch ID: P400372

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	102		P	94 - 106

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: SM 4500 F-C-2011
Batch ID: P400375

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	101		P	93 - 104

Reference Method: SM 5310 B-2011
Batch ID: P400361

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	96.0		P	85 - 115

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 200.7 Rev. 4.4

Batch ID: P400100

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2256296	Calcium	96.6		P	80 - 120
2256296	Iron	106	106	P/P	80 - 120
2256296	Magnesium	95.9		P	80 - 120
2256296	Manganese	101	103	P/P	80 - 120
2256296	Zinc	89.8	91.6	P/P	80 - 120

Reference Method: EPA 200.7 Rev. 4.4

Batch ID: P400105

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2256563	Iron	102	102	P/P	70 - 130
2256563	Manganese	98.0	97.6	P/P	70 - 130
2256563	Zinc	86.9	87.3	P/P	70 - 130

Reference Method: EPA 200.8 Rev. 5.4

Batch ID: P400100

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2256296	Aluminum	111	109	P/P	80 - 120
2256296	Antimony	112	112	P/P	80 - 120
2256296	Arsenic	107	106	P/P	80 - 120
2256296	Beryllium	103	103	P/P	80 - 120
2256296	Cadmium	104	102	P/P	80 - 120
2256296	Chromium	104	101	P/P	80 - 120
2256296	Copper	105	105	P/P	80 - 120
2256296	Lead	103	103	P/P	80 - 120
2256296	Nickel	107	105	P/P	80 - 120
2256296	Selenium	106	105	P/P	80 - 120
2256296	Silver	99.6	100	P/P	80 - 120
2256296	Thallium	109	109	P/P	80 - 120

Reference Method: EPA 200.8 Rev. 5.4

Batch ID: P400105

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2256563	Aluminum	106	107	P/P	70 - 130
2256563	Antimony	110	107	P/P	70 - 130
2256563	Arsenic	121	117	P/P	70 - 130
2256563	Beryllium	113	109	P/P	70 - 130
2256563	Cadmium	102	99.3	P/P	70 - 130
2256563	Chromium	111	106	P/P	70 - 130
2256563	Copper	121	116	P/P	70 - 130
2256563	Lead	101	99.8	P/P	70 - 130
2256563	Nickel	124	120	P/P	70 - 130
2256563	Selenium	109	107	P/P	70 - 130
2256563	Silver	98.6	98.1	P/P	70 - 130
2256563	Thallium	112	112	P/P	70 - 130

Reference Method: EPA 350.1 Rev. 2.0

Batch ID: P400409

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
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Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P400409

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2256173	Ammonia-N	99.6	98.8	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P400458

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2256136	Ammonia-N	97.0	96.6	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P400321

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2255577	Kjeldahl Nitrogen	105	100	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P400389

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2256115	Kjeldahl Nitrogen	103	105	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P400095

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2256115	NO2NO3-N	95.0		P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P400102

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2255970	NO2NO3-N	98.1	98.6	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P400297

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2256136	Total-P	103	105	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P400299

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2256173	Total-P	103	103	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P400064

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2256137	O-Phosphate-P	95.5	96.5	P/P	90 - 110

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 8321B

Batch ID: P399973

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2255827	2,4,5-T	104	87.5	P/P	30 - 160
2255827	Acetaminophen	97.1	89.2	P/P	30 - 160
2255827	Acetamiprid	77.8	58.4	P/P	30 - 160
2255827	Afidopyropen	67.5	6.62	P/F	30 - 160
2255827	Bentazon	64.4	59.5	P/P	30 - 160
2255827	Benzovindiflupyr	89.4	78.1	P/P	30 - 160
2255827	Carbamazepine	97.2	89.8	P/P	30 - 160
2255827	Clothianidin	95.7	99.6	P/P	30 - 160
2255827	Dinotefuran	114	93.7	P/P	30 - 160
2255827	Diuron	77.8	71.8	P/P	30 - 160
2255827	Fenuron	88.0	84.8	P/P	30 - 160
2255827	Fluridone	91.5	81.3	P/P	30 - 160
2255827	Hydrocodone	111	86.8	P/P	30 - 160
2255827	Ibuprofen	91.3	82.4	P/P	30 - 160
2255827	Imazapyr	158	140	P/P	30 - 160
2255827	Imidacloprid	127	116	P/P	30 - 160
2255827	Linuron	72.1	61.6	P/P	30 - 160
2255827	Mandestrobin	107	88.5	P/P	30 - 160
2255827	MCCP	104	93.8	P/P	30 - 160
2255827	Naproxen	80.3	97.0	P/P	30 - 160
2255827	Primidone	103	98.0	P/P	30 - 160
2255827	Pyraclostrobin	80.6	75.0	P/P	30 - 160
2255827	Thiamethoxam	128	117	P/P	30 - 160
2255827	Tolfenpyrad	54.2	48.1	P/P	30 - 160
2255827	Triclopyr	105	93.6	P/P	30 - 160

Reference Method: EPA 8321B

Batch ID: P400090

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2256374	Acesulfame K	105	77.0	P/P	40 - 150
2256374	AMPA	79.8	84.1	P/P	40 - 150
2256374	Endothall	102	99.8	P/P	40 - 150
2256374	Glufosinate	94.5	100	P/P	40 - 150
2256374	Glyphosate	100	100	P/P	40 - 140
2256374	Sucralose	94.2	101	P/P	40 - 150

Reference Method: SM 4500 F-C-2011

Batch ID: P400375

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2256032	Fluoride	99.6	99.6	P/P	92 - 107

Reference Method: SM 5310 B-2011

Batch ID: P400361

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2255871	Organic Carbon	96.4	97.0	P/P	85 - 115

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0

Batch ID: P400060

Replicated

Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2256135	Turbidity	1.88	Sample	P	0 - 20

Reference Method: EPA 200.7 Rev. 4.4

Batch ID: P400100

Replicated

Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2256296	Calcium	2.07	Spike	P	0 - 20
2256296	Iron	0.366	Spike	P	0 - 20
2256296	Magnesium	1.39	Spike	P	0 - 20
2256296	Manganese	1.75	Spike	P	0 - 20
2256296	Zinc	1.94	Spike	P	0 - 20

Reference Method: EPA 200.7 Rev. 4.4

Batch ID: P400105

Replicated

Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2256563	Calcium	0.528	Spike	P	0 - 20
2256563	Iron	0.201	Spike	P	0 - 20
2256563	Magnesium	1.04	Spike	P	0 - 20
2256563	Manganese	0.353	Spike	P	0 - 20
2256563	Zinc	0.485	Spike	P	0 - 20

Reference Method: EPA 200.8 Rev. 5.4

Batch ID: P400100

Replicated

Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2256296	Aluminum	1.50	Spike	P	0 - 20
2256296	Antimony	0.209	Spike	P	0 - 20
2256296	Arsenic	1.53	Spike	P	0 - 20
2256296	Beryllium	0.717	Spike	P	0 - 20
2256296	Cadmium	1.91	Spike	P	0 - 20
2256296	Chromium	2.53	Spike	P	0 - 20
2256296	Copper	0.0126	Spike	P	0 - 20
2256296	Lead	0.554	Spike	P	0 - 20
2256296	Nickel	1.60	Spike	P	0 - 20
2256296	Selenium	1.51	Spike	P	0 - 20
2256296	Silver	0.378	Spike	P	0 - 20
2256296	Thallium	0.233	Spike	P	0 - 20

Reference Method: EPA 200.8 Rev. 5.4

Batch ID: P400105

Replicated

Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2256563	Aluminum	0.584	Spike	P	0 - 20
2256563	Antimony	2.64	Spike	P	0 - 20
2256563	Arsenic	2.84	Spike	P	0 - 20
2256563	Beryllium	4.32	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P400105

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2256563	Cadmium	2.56	Spike	P	0 - 20
2256563	Chromium	4.52	Spike	P	0 - 20
2256563	Copper	3.81	Spike	P	0 - 20
2256563	Lead	1.32	Spike	P	0 - 20
2256563	Nickel	3.51	Spike	P	0 - 20
2256563	Selenium	1.16	Spike	P	0 - 20
2256563	Silver	0.553	Spike	P	0 - 20
2256563	Thallium	0.309	Spike	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P400409

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2256173	Ammonia-N	0.442	Spike	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P400458

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2256136	Ammonia-N	0.233	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P400321

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2255577	Kjeldahl Nitrogen	3.65	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P400389

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2256115	Kjeldahl Nitrogen	1.40	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P400095

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2256115	NO2NO3-N	0.0	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P400102

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2255970	NO2NO3-N	0.436	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 365.1 Rev. 2.0

Batch ID: P400297

Replicated

Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2256136	Total-P	1.71	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0

Batch ID: P400299

Replicated

Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2256173	Total-P	0.0447	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved

Batch ID: P400063

Replicated

Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2256193	O-Phosphate-P	0.307	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved

Batch ID: P400064

Replicated

Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2256137	O-Phosphate-P	0.791	Spike	P	0 - 20

Reference Method: EPA 8321B

Batch ID: P399973

Replicated

Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2255827	2,4-D	7.19	Spike	P	0 - 30
2255827	2,4,5-T	17.4	Spike	P	0 - 30
2255827	Acetaminophen	8.47	Spike	P	0 - 30
2255827	Acetamiprid	28.4	Spike	P	0 - 30
2255827	Afidopyropen	164	Spike	F	0 - 30
2255827	Bentazon	8.00	Spike	P	0 - 30
2255827	Benzovindiflupyr	13.5	Spike	P	0 - 30
2255827	Carbamazepine	7.89	Spike	P	0 - 30
2255827	Clothianidin	3.92	Spike	P	0 - 30
2255827	Dinotefuran	19.4	Spike	P	0 - 30
2255827	Diuron	8.07	Spike	P	0 - 30
2255827	Fenuron	3.65	Spike	P	0 - 30
2255827	Fluridone	11.8	Spike	P	0 - 30
2255827	Hydrocodone	24.1	Spike	P	0 - 30
2255827	Ibuprofen	10.3	Spike	P	0 - 30
2255827	Imazapyr	11.2	Spike	P	0 - 30
2255827	Imidacloprid	8.80	Spike	P	0 - 30
2255827	Linuron	15.8	Spike	P	0 - 30
2255827	Mandestrobin	19.3	Spike	P	0 - 30
2255827	MCP	10.4	Spike	P	0 - 30
2255827	Naproxen	18.8	Spike	P	0 - 30
2255827	Primidone	4.52	Spike	P	0 - 30
2255827	Pyraclostrobin	7.11	Spike	P	0 - 30

Quality Assurance Report Precision

Reference Method: EPA 8321B
 Batch ID: P399973

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2255827	Thiamethoxam	8.77	Spike	P	0 - 30
2255827	Tolfenpyrad	11.9	Spike	P	0 - 30
2255827	Triclopyr	11.8	Spike	P	0 - 30

Reference Method: EPA 8321B
 Batch ID: P400090

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2256374	Acesulfame K	31.2	Spike	F	0 - 30
2256374	AMPA	5.21	Spike	P	0 - 30
2256374	Endothall	1.71	Spike	P	0 - 30
2256374	Glufosinate	5.98	Spike	P	0 - 30
2256374	Glyphosate	0.0759	Spike	P	0 - 30
2256374	Sucralose	6.69	Spike	P	0 - 30

Reference Method: SM 2320 B-2011
 Batch ID: P400372

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2256032	Total Alkalinity	0.267	Sample	P	0 - 5.2

Reference Method: SM 4500 F-C-2011
 Batch ID: P400375

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2256032	Fluoride	0.0	Spike	P	0 - 2.1

Reference Method: SM 5310 B-2011
 Batch ID: P400361

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2255871	Organic Carbon	0.441	Spike	P	0 - 20

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

Quality Assurance Report Surrogates

Lab Sample ID: 2256153

Field Sample ID: G1TLHR0032

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	2,4-D-d3	107	P	30 - 160
EPA 8321B	Acetaminophen-d4	93.6	P	30 - 160
EPA 8321B	Carbamazepine-d10	97.1	P	30 - 160
EPA 8321B	Diuron-d6	75.9	P	30 - 160
EPA 8321B	Endothall-d6	82.8	P	30 - 160
EPA 8321B	Glyphosate 13C 15N	44.4	P	40 - 160
EPA 8321B	Ibuprofen-d3	69.2	P	30 - 160
EPA 8321B	Primidone-d5	93.4	P	30 - 160
EPA 8321B	Sucralose-d6	87.0	P	30 - 160

Lab Sample ID: 2256154

Field Sample ID: FB_06212021

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	2,4-D-d3	82.7	P	30 - 160
EPA 8321B	Acetaminophen-d4	74.6	P	30 - 160
EPA 8321B	Carbamazepine-d10	86.1	P	30 - 160
EPA 8321B	Diuron-d6	86.1	P	30 - 160
EPA 8321B	Endothall-d6	73.4	P	30 - 160
EPA 8321B	Glyphosate 13C 15N	102	P	40 - 160
EPA 8321B	Ibuprofen-d3	66.6	P	30 - 160
EPA 8321B	Primidone-d5	76.4	P	30 - 160
EPA 8321B	Sucralose-d6	92.4	P	30 - 160

Quality Assurance Report Calibration Verification

Reference Method: EPA 180.1 Rev. 2.0

Run ID: A106220

Included Lab Sample IDs: 2256135, 2256138

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Turbidity	98.5	99.0	P/P	95 - 105

Reference Method: EPA 365.1 Rev. 2.0 dissolved

Run ID: A106221

Included Lab Sample IDs: 2256137, 2256140

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	97.7	97.2	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A106232

Included Lab Sample IDs: 2256139

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO2NO3-N	100	100	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A106233

Included Lab Sample IDs: 2256136

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO2NO3-N	100	100	P/P	90 - 110

Reference Method: EPA 200.8 Rev. 5.4

Run ID: A106270

Included Lab Sample IDs: 2256156

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Aluminum	102	103	P/P	90 - 110
Antimony	98.9	98.5	P/P	90 - 110
Arsenic	102	101	P/P	90 - 110
Beryllium	94.6	94.5	P/P	90 - 110
Cadmium	97.6	97.6	P/P	90 - 110
Chromium	102	99.7	P/P	90 - 110
Copper	103	104	P/P	90 - 110
Nickel	106	106	P/P	90 - 110
Selenium	99.2	98.9	P/P	90 - 110
Silver	99.5	99.9	P/P	90 - 110
Thallium	95.1	95.4	P/P	90 - 110

Reference Method: EPA 200.7 Rev. 4.4

Run ID: A106279

Included Lab Sample IDs: 2256155, 2256156, 2256157

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Calcium	97.9	97.7	P/P	90 - 110
Calcium	98.4	97.2	P/P	90 - 110
Calcium	99.0	97.9	P/P	90 - 110
Iron	98.6	98.4	P/P	90 - 110
Iron	99.3	97.2	P/P	90 - 110
Iron	99.7	98.6	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: EPA 200.7 Rev. 4.4

Run ID: A106279

Included Lab Sample IDs: 2256155, 2256156, 2256157

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Magnesium	97.6	97.4	P/P	90 - 110
Magnesium	98.1	96.4	P/P	90 - 110
Magnesium	98.6	97.6	P/P	90 - 110
Manganese	101	99.2	P/P	90 - 110
Manganese	97.8	99.6	P/P	90 - 110
Manganese	99.6	100	P/P	90 - 110
Zinc	91.6	93.8	P/P	90 - 110
Zinc	92.1	90.3	P/P	90 - 110
Zinc	93.8	93.2	P/P	90 - 110

Reference Method: EPA 8321B

Run ID: A106300

Included Lab Sample IDs: 2256153, 2256154

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
AMPA	102	99.7	P/P	60 - 160
Glufosinate	103	101	P/P	60 - 160
Glyphosate	102	101	P/P	60 - 160

Reference Method: EPA 8321B

Run ID: A106301

Included Lab Sample IDs: 2256153, 2256154

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Acesulfame K	107	90.0	P/P	60 - 160
Endothall	75.3	86.2	P/P	60 - 160
Sucralose	92.0	94.1	P/P	60 - 160

Reference Method: EPA 200.8 Rev. 5.4

Run ID: A106310

Included Lab Sample IDs: 2256156

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Lead	106	104	P/P	90 - 110

Reference Method: EPA 8321B

Run ID: A106322

Included Lab Sample IDs: 2256153, 2256154

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
2,4-D	94.3	95.4	P/P	50 - 150
2,4,5-T	121	97.3	P/P	50 - 150
Acetaminophen	102	98.4	P/P	60 - 160
Acetamiprid	98.7	105	P/P	50 - 150
Afidopyropen	113	108	P/P	50 - 150
Bentazon	87.8	88.1	P/P	50 - 160
Benzovindiflupyr	100	93.7	P/P	50 - 160
Carbamazepine	101	99.6	P/P	60 - 150
Clothianidin	100	112	P/P	60 - 150
Dinotefuran	118	103	P/P	50 - 150
Diuron	111	100	P/P	60 - 160

Quality Assurance Report Calibration Verification

Reference Method: EPA 8321B

Run ID: A106322

Included Lab Sample IDs: 2256153, 2256154

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fenuron	98.4	96.0	P/P	60 - 150
Fluridone	103	107	P/P	60 - 160
Hydrocodone	103	89.7	P/P	60 - 150
Ibuprofen	97.8	86.0	P/P	50 - 160
Imazapyr	119	129	P/P	50 - 160
Imidacloprid	93.8	93.7	P/P	60 - 150
Linuron	93.1	68.5	P/P	60 - 150
Mandestrobin	117	122	P/P	50 - 150
MCPP	109	99.8	P/P	50 - 150
Naproxen	110	134	P/P	50 - 160
Primidone	94.8	98.9	P/P	60 - 150
Pyraclostrobin	97.8	96.2	P/P	60 - 150
Thiamethoxam	102	93.3	P/P	50 - 150
Tolfenpyrad	94.5	99.5	P/P	60 - 150
Triclopyr	113	97.6	P/P	50 - 150

Reference Method: SM 5310 B-2011

Run ID: A106360

Included Lab Sample IDs: 2256136, 2256139

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	97.1	97.2	P/P	90 - 110

Reference Method: SM 2320 B-2011

Run ID: A106363

Included Lab Sample IDs: 2256135, 2256138

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	99.2	104	P/P	90 - 110

Reference Method: SM 4500 F-C-2011

Run ID: A106363

Included Lab Sample IDs: 2256135, 2256138

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	101	103	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A106366

Included Lab Sample IDs: 2256136, 2256139

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	99.0	99.2	P/P	90 - 110
Total-P	99.2	100	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A106372

Included Lab Sample IDs: 2256139

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	100	98.9	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A106396

Included Lab Sample IDs: 2256136

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	96.5	96.6	P/P	90 - 110

Reference Method: EPA 200.8 Rev. 5.4

Run ID: A106408

Included Lab Sample IDs: 2256155, 2256157

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Aluminum	103	105	P/P	90 - 110
Aluminum	104	103	P/P	90 - 110
Antimony	106	106	P/P	90 - 110
Antimony	106	106	P/P	90 - 110
Arsenic	101	101	P/P	90 - 110
Arsenic	99.8	101	P/P	90 - 110
Beryllium	95.8	96.1	P/P	90 - 110
Beryllium	96.1	96.6	P/P	90 - 110
Cadmium	100	101	P/P	90 - 110
Cadmium	101	100	P/P	90 - 110
Chromium	97.9	99.9	P/P	90 - 110
Chromium	99.9	99.6	P/P	90 - 110
Copper	99.3	102	P/P	90 - 110
Copper	99.5	99.3	P/P	90 - 110
Lead	97.6	97.4	P/P	90 - 110
Lead	98.1	97.6	P/P	90 - 110
Nickel	101	102	P/P	90 - 110
Nickel	99.7	101	P/P	90 - 110
Selenium	100	102	P/P	90 - 110
Selenium	102	101	P/P	90 - 110
Silver	97.4	98.2	P/P	90 - 110
Silver	98.2	97.7	P/P	90 - 110
Thallium	98.6	96.9	P/P	90 - 110
Thallium	98.6	98.6	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A106442

Included Lab Sample IDs: 2256139

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	96.3	99.2	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A106443

Included Lab Sample IDs: 2256136

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	97.0	96.7	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
EPA 180.1 Rev. 2.0	Turbidity					1.88	
EPA 200.7 Rev. 4.4	Calcium	99.3		96.6			2.07
	Calcium	100					0.528
	Iron	106	106	106			0.366
	Iron	102	102	102			0.201
	Magnesium	98.3		95.9			1.39
	Magnesium	99.6					1.04
	Manganese	102	101	103			1.75
	Manganese	100	98.0	97.6			0.353
	Zinc	94.0	89.8	91.6			1.94
	Zinc	92.1	86.9	87.3			0.485
EPA 200.8 Rev. 5.4	Aluminum	110	111	109			1.50
	Aluminum	105	106	107			0.584
	Antimony	110	112	112			0.209
	Antimony	104	110	107			2.64
	Arsenic	104	107	106			1.53
	Arsenic	102	121	117			2.84
	Beryllium	101	103	103			0.717
	Beryllium	97.9	113	109			4.32
	Cadmium	105	104	102			1.91
	Cadmium	101	102	99.3			2.56
	Chromium	101	104	101			2.53
	Chromium	99.8	111	106			4.52
	Copper	104	105	105			0.0126
	Copper	98.8	121	116			3.81
	Lead	101	103	103			0.554
	Lead	115	101	99.8			1.32
	Nickel	105	107	105			1.60
	Nickel	101	124	120			3.51
	Selenium	106	106	105			1.51
	Selenium	103	109	107			1.16
	Silver	101	99.6	100			0.378
	Silver	101	98.6	98.1			0.553
	Thallium	104	109	109			0.233
	Thallium	105	112	112			0.309
EPA 350.1 Rev. 2.0	Ammonia-N	101	99.6	98.8			0.442
	Ammonia-N	99.0	97.0	96.6			0.233
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	102	105	100			3.65
	Kjeldahl Nitrogen	96.6	103	105			1.40
EPA 353.2 Rev. 2.0	NO2NO3-N	99.5	95.0				0.0
	NO2NO3-N	98.0	98.1	98.6			0.436
EPA 365.1 Rev. 2.0	Total-P	106	103	105			1.71
	Total-P	102	103	103			0.0447
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	101					0.307
	O-Phosphate-P	98.1	95.5	96.5			0.791
EPA 8321B	2,4-D	104					7.19
	2,4,5-T	98.0	104	87.5			17.4
	Acesulfame K	83.9	105	77.0			31.2
	Acetaminophen	78.3	97.1	89.2			8.47
	Acetamiprid	75.5	77.8	58.4			28.4
	Afidopyrophen	71.5	67.5	6.62			164
	AMPA	97.9	79.8	84.1			5.21
	Bentazon	76.8	64.4	59.5			8.00
	Benzovindiflupyr	84.2	89.4	78.1			13.5

Quality Assurance Report Summary

Ref. Method	Analyte	LCS % Recovery	MS % Recovery		LCS	Precision	MS
						SMP	
EPA 8321B	Carbamazepine	88.8	97.2	89.8			7.89
	Clothianidin	81.4	95.7	99.6			3.92
	Dinotefuran	88.5	114	93.7			19.4
	Diuron	79.9	77.8	71.8			8.07
	Endothall	72.9	102	99.8			1.71
	Fenuron	89.1	88.0	84.8			3.65
	Fluridone	90.7	91.5	81.3			11.8
	Glufosinate	96.7	94.5	100			5.98
	Glyphosate	102	100	100			0.0759
	Hydrocodone	78.0	111	86.8			24.1
	Ibuprofen	77.0	91.3	82.4			10.3
	Imazapyr	110	158	140			11.2
	Imidacloprid	81.6	127	116			8.80
	Linuron	72.2	72.1	61.6			15.8
	Mandestrobin	101	107	88.5			19.3
	MCPP	101	104	93.8			10.4
	Naproxen	101	80.3	97.0			18.8
	Primidone	90.5	103	98.0			4.52
	Pyraclostrobin	78.0	80.6	75.0			7.11
	Sucralose	92.1	94.2	101			6.69
	Thiamethoxam	90.2	128	117			8.77
	Tolfenpyrad	52.3	54.2	48.1			11.9
	Triclopyr	93.3	105	93.6			11.8
SM 2320 B-2011	Total Alkalinity	102				0.267	
SM 4500 F-C-2011	Fluoride	101	99.6	99.6			0.0
SM 5310 B-2011	Organic Carbon	96.0	96.4	97.0			0.441

Reference Method Descriptions

Method	Description	Associated Samples
EPA 180.1 Rev. 2.0	Turbidity in aqueous matrices	2256135, 2256138
EPA 200.7 Rev. 4.4	Total Recoverable Metals analysis using ICP emission spectroscopy for aqueous samples supporting Clean Water Act Projects	2256155, 2256156, 2256157
EPA 200.8 Rev. 5.4	Total Recoverable Metals analysis using ICP-MS for aqueous samples supporting Clean Water Act Projects	2256155, 2256156, 2256157
EPA 350.1 Rev. 2.0	Ammonia in aqueous matrices as mg N/L	2256136, 2256139
EPA 351.2 Rev. 2.0	Total Kjeldahl Nitrogen in aqueous matrices	2256136, 2256139
EPA 353.2 Rev. 2.0	Nitrite/Nitrate in aqueous matrices as mg N/L	2256136, 2256139
EPA 365.1 Rev. 2.0	Total Phosphorus in aqueous matrices as mg P/L	2256136, 2256139
EPA 365.1 Rev. 2.0 dissolved	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	2256137, 2256140
EPA 8321B	Pesticides, herbicides, and other chemicals in water matrices by HPLC/MS/MS	2256153, 2256154
SM 2320 B-2011	Alkalinity in aqueous matrices as mg CaCO3/L	2256135, 2256138
SM 2540 D-2011	Total Suspended Solids in aqueous matrices using a maximum of 250 mL of sample	2256135, 2256138
SM 4500 F-C-2011	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	2256135, 2256138
SM 5310 B-2011	Nonpurgeable Organic Carbon in aqueous matrices	2256136, 2256139

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
EPA 180.1 Rev. 2.0	06/22/2021			06/22/2021 15:04	Sarah A Nixon	2256135, 2256138
EPA 200.7 Rev. 4.4	06/22/2021	06/23/2021 12:25	Elliott D. Healy	06/24/2021 16:14	Josef B Mick	2256157
	06/22/2021	06/23/2021 12:25	Elliott D. Healy	06/24/2021 17:49	Josef B Mick	2256155
	06/22/2021	06/23/2021 14:10	Elliott D. Healy	06/24/2021 21:36	Josef B Mick	2256156
	06/22/2021	06/23/2021 14:10	Elliott D. Healy	06/24/2021 21:48	Josef B Mick	2256156
EPA 200.8 Rev. 5.4	06/22/2021	06/23/2021 12:25	Elliott D. Healy	07/01/2021 18:40	Alexander Thompson	2256157
	06/22/2021	06/23/2021 12:25	Elliott D. Healy	07/01/2021 20:06	Alexander Thompson	2256155
	06/22/2021	06/23/2021 14:10	Elliott D. Healy	06/24/2021 22:18	Alexander Thompson	2256156
	06/22/2021	06/23/2021 14:10	Elliott D. Healy	06/25/2021 18:47	Alexander Thompson	2256156
EPA 350.1 Rev. 2.0	06/22/2021			06/30/2021 12:23	Roberta Tatti	2256139
	06/22/2021			07/01/2021 14:36	Roberta Tatti	2256136
EPA 351.2 Rev. 2.0	06/22/2021	06/29/2021 12:58	Benjamin T. Nordmann	07/02/2021 19:05	Letuzia M De Oliveira	2256136
	06/22/2021	06/30/2021 12:28	Benjamin T. Nordmann	07/02/2021 13:25	Letuzia M De Oliveira	2256139
EPA 353.2 Rev. 2.0	06/22/2021			06/23/2021 08:56	Beverly Y. Sanders	2256139
	06/22/2021			06/23/2021 11:45	Beverly Y. Sanders	2256136
EPA 365.1 Rev. 2.0	06/22/2021	06/28/2021 17:29	Madeline Gruver	06/30/2021 10:37	Shengyu Ding	2256136
	06/22/2021	06/28/2021 17:29	Madeline Gruver	06/30/2021 10:55	Shengyu Ding	2256139
EPA 365.1 Rev. 2.0 dissolved	06/22/2021			06/22/2021 15:52	Ping Hua	2256140
	06/22/2021			06/22/2021 15:54	Ping Hua	2256137
EPA 8321B	06/22/2021	06/23/2021 09:00	Hoor Shaik	06/25/2021 21:26	Juyoung Kim	2256153
	06/22/2021	06/23/2021 09:00	Hoor Shaik	06/25/2021 22:01	Juyoung Kim	2256154
	06/22/2021	06/25/2021 08:00	Pramila Ghimire	06/25/2021 12:08	Juyoung Kim	2256153
	06/22/2021	06/25/2021 08:00	Pramila Ghimire	06/25/2021 12:19	Juyoung Kim	2256154
	06/22/2021	06/25/2021 08:00	Pramila Ghimire	06/25/2021 19:22	Pramila Ghimire	2256154
	06/22/2021	06/25/2021 08:00	Pramila Ghimire	06/25/2021 20:44	Pramila Ghimire	2256153
SM 2320 B-2011	06/22/2021			06/29/2021 23:26	Dale L. Simmons	2256138
	06/22/2021			06/30/2021 01:50	Dale L. Simmons	2256135
SM 2540 D-2011	06/22/2021			06/24/2021 14:15	Yijie Li	2256135, 2256138
SM 4500 F-C-2011	06/22/2021			06/29/2021 23:26	Dale L. Simmons	2256138
	06/22/2021			06/30/2021 01:50	Dale L. Simmons	2256135
SM 5310 B-2011	06/22/2021			06/29/2021 08:40	Madeline Gruver	2256136
	06/22/2021			06/29/2021 08:52	Madeline Gruver	2256139