

Chemical Analysis Report

NW-DIST-2020-10-21-01

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

Event Description: **Crestview Run**
Request ID: **RQ-2020-10-12-47**
Customer: **NW-DIST**
Project ID: **SMP**

Send Reports to:
FL Dept. of Environmental Protection
160 Government Center
Suite 208
Pensacola, FL 32502-5794
Attn: Cheryl Bunch

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Certified by: Kerry Tate, Ph.D., Environmental Administrator

Date Certified: 10-NOV-2020 12:03

A handwritten signature in black ink that reads "Kerry Tate". The signature is written in a cursive, flowing style with a horizontal line above the first name.

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: Panther Creek Upstream John Riley Barnhill Road

Collection Date/Time: 10/20/2020 12:25

Field ID: G4NW0296

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2204025	EPA 8321B	2,4-D	0.0020	U	ug/L	P389104	
		Acesulfame K**	0.10	U	ug/L	P389065	MS
		AMPA**	0.10	U	ug/L	P389065	
		Sucralose**	0.021	I	ug/L	P389065	
		Acetaminophen**	0.0080	U	ug/L	P389104	
		Acetamiprid**	0.0020	U	ug/L	P389104	
		Endothall**	0.25	U	ug/L	P389065	
		Glufosinate**	0.10	U	ug/L	P389065	
		Glyphosate**	0.10	U	ug/L	P389065	
		Afidopyropen**	0.0020	U	ug/L	P389104	
		Bentazon	8.0E-04	U	ug/L	P389104	
		Benzovindiflupyr**	0.0020	U	ug/L	P389104	
		Carbamazepine**	8.0E-04	U	ug/L	P389104	
		Clothianidin**	0.0020	U	ug/L	P389104	
		Dinotefuran**	0.0020	U	ug/L	P389104	
		Diuron	0.0020	U	ug/L	P389104	
		Fenuron	0.016	U	ug/L	P389104	
		Fluridone**	8.0E-04	U	ug/L	P389104	
		Imazapyr**	0.0040	U	ug/L	P389104	
		Hydrocodone**	0.0020	U	ug/L	P389104	
		Ibuprofen**	0.020	U	ug/L	P389104	
		Imidacloprid	0.0020	U	ug/L	P389104	
		Linuron	0.0040	U	ug/L	P389104	
		Mandestrobin**	0.0020	U	ug/L	P389104	
		MCPP	0.0020	U	ug/L	P389104	
		Naproxen**	0.0080	U	ug/L	P389104	
		Primidone**	0.0040	U	ug/L	P389104	
		Pyraclostrobin**	0.0020	U	ug/L	P389104	
		Thiamethoxam**	0.0020	U	ug/L	P389104	
		Tolfenpyrad**	0.0020	U	ug/L	P389104	
		Triclopyr**	0.0040	U	ug/L	P389104	

Sample Location: Big Horse Creek Upstream Of Old River Road Collection Date/Time: 10/20/2020 12:55

Field ID: G4NW0298

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2204026	EPA 8321B	2,4-D	0.0020	U	ug/L	P389104	
		Acesulfame K**	0.10	U	ug/L	P389065	MS
		AMPA**	0.10	U	ug/L	P389065	
		Sucralose**	0.022	I	ug/L	P389065	
		Acetaminophen**	0.0080	U	ug/L	P389104	
		Acetamiprid**	0.0020	U	ug/L	P389104	
		Endothall**	0.25	U	ug/L	P389065	
		Glufosinate**	0.10	U	ug/L	P389065	
		Glyphosate**	0.10	U	ug/L	P389065	
		Afidopyropen**	0.0020	U	ug/L	P389104	
		Bentazon	8.0E-04	U	ug/L	P389104	
		Benzovindiflupyr**	0.0020	U	ug/L	P389104	
		Carbamazepine**	8.0E-04	U	ug/L	P389104	
		Clothianidin**	0.0020	U	ug/L	P389104	
		Dinotefuran**	0.0020	U	ug/L	P389104	
		Diuron	0.0020	U	ug/L	P389104	
		Fenuron	0.016	U	ug/L	P389104	
		Fluridone**	8.0E-04	U	ug/L	P389104	
		Imazapyr**	0.0089	I	ug/L	P389104	
		Hydrocodone**	0.0020	U	ug/L	P389104	
		Ibuprofen**	0.020	U	ug/L	P389104	
		Imidacloprid	0.0020	U	ug/L	P389104	
		Linuron	0.0040	U	ug/L	P389104	
		Mandestrobin**	0.0020	U	ug/L	P389104	
		MCPP	0.0020	U	ug/L	P389104	
		Naproxen**	0.0080	U	ug/L	P389104	
		Primidone**	0.0040	U	ug/L	P389104	
		Pyraclostrobin**	0.0020	U	ug/L	P389104	
		Thiamethoxam**	0.0020	U	ug/L	P389104	
		Tolfenpyrad**	0.0020	U	ug/L	P389104	
		Triclopyr**	0.0040	U	ug/L	P389104	

Sample Location: Baggett Creek Upstream Of Keyser Mill Road **Collection Date/Time: 10/20/2020 14:25**

Field ID: G4NW0335

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2204000	EPA 180.1 Rev. 2.0	Turbidity	1.7	A	NTU	P389056	
	EPA 300.0 Rev. 2.1	Chloride	4.3		mg Cl/L	P389473	
		Sulfate	0.62		mg SO4/L	P389476	
		Color (true)	29		PCU	P389053	
	SM 2320 B-2011	Total Alkalinity	3.8		mg CaCO3/L	P389230	
	SM 2540 C-2011	TDS	26		mg/L	P389661	
	SM 2540 D-2011	TSS	2	I	mg/L	P389609	
	SM 4500 F-C-2011	Fluoride	0.035	U	mg F/L	P389236	
2204002	EPA 350.1 Rev. 2.0	Ammonia-N	0.018		mg N/L	P389210	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.18	I	mg N/L	P389284	MS
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.60		mg N/L	P389247	
	EPA 365.1 Rev. 2.0	Total-P	0.004	I	mg P/L	P389506	
	SM 5310 B-2011	Organic Carbon	2.2		mg C/L	P389222	
2204004	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P389048	
2204027	EPA 200.7 Rev. 4.4	Barium	32.5		ug/L	P389253	
		Calcium	1.23		mg/L	P389253	
		Iron	710		ug/L	P389253	
		Magnesium	1.20		mg/L	P389253	
		Potassium	0.56	I	mg/L	P389253	
		Sodium	2.1		mg/L	P389253	
		Zinc	5.0	U	ug/L	P389253	
	EPA 200.8 Rev. 5.4	Aluminum	58		ug/L	P389253	
		Antimony	0.050	U	ug/L	P389253	
		Arsenic	0.35		ug/L	P389253	
		Boron**	10.5		ug/L	P389253	
		Cadmium	0.020	U	ug/L	P389253	
		Chromium	0.40	U	ug/L	P389253	
		Copper	0.40	U	ug/L	P389253	
		Lead	0.20	U	ug/L	P389253	
		Nickel	0.50	U	ug/L	P389253	
		Selenium	0.20	U	ug/L	P389253	
		Silver	0.010	U	ug/L	P389253	
		Thallium	0.10	U	ug/L	P389253	
	SM 2340B	Hardness	8.0		mg/L	P389253	

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: Baggett Creek Upstream Of Hwy 90

Collection Date/Time: 10/20/2020 14:03

Field ID: G4NW0336

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2204001	EPA 180.1 Rev. 2.0	Turbidity	3.2		NTU	P389056	
	EPA 300.0 Rev. 2.1	Chloride	3.8		mg Cl/L	P389473	
		Sulfate	0.73		mg SO4/L	P389476	
		Color (true)	44		PCU	P389053	
	SM 2320 B-2011	Total Alkalinity	7.3		mg CaCO3/L	P389230	
	SM 2540 C-2011	TDS	29		mg/L	P389661	
	SM 2540 D-2011	TSS	4	I	mg/L	P389609	
	SM 4500 F-C-2011	Fluoride	0.035	U	mg F/L	P389236	
2204003	EPA 350.1 Rev. 2.0	Ammonia-N	0.008		mg N/L	P389210	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.21		mg N/L	P389284	MS
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.37		mg N/L	P389247	
	EPA 365.1 Rev. 2.0	Total-P	0.010		mg P/L	P389506	
	SM 5310 B-2011	Organic Carbon	3.0		mg C/L	P389222	
2204005	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P389048	
2204028	EPA 200.7 Rev. 4.4	Barium	21.6		ug/L	P389253	
		Calcium	2.32		mg/L	P389253	
		Iron	710		ug/L	P389253	
		Magnesium	1.24		mg/L	P389253	
		Potassium	0.51	I	mg/L	P389253	
		Sodium	2.1		mg/L	P389253	
		Zinc	5.0	U	ug/L	P389253	
	EPA 200.8 Rev. 5.4	Aluminum	87		ug/L	P389253	
		Antimony	0.050	U	ug/L	P389253	
		Arsenic	0.33		ug/L	P389253	
		Boron**	10.6		ug/L	P389253	
		Cadmium	0.020	U	ug/L	P389253	
		Chromium	0.40	U	ug/L	P389253	
		Copper	0.40	U	ug/L	P389253	
		Lead	0.21	I	ug/L	P389253	
		Nickel	0.50	U	ug/L	P389253	
		Selenium	0.20	U	ug/L	P389253	
		Silver	0.010	U	ug/L	P389253	
		Thallium	0.10	U	ug/L	P389253	
		Hardness	10.9		mg/L	P389253	
	SM 2340B						

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: Deadfall Creek Upstream Of Shockley Springs Rd **Collection Date/Time: 10/20/2020 10:52**

Field ID: G4NW0490

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2204006	EPA 180.1 Rev. 2.0	Turbidity	1.4		NTU	P389056	
	EPA 300.0 Rev. 2.1	Chloride	2.9		mg Cl/L	P389473	
		Sulfate	1.2		mg SO4/L	P389476	
	SM 2120 B-2011	Color (true)	32		PCU	P389053	
	SM 2320 B-2011	Total Alkalinity	0.65	U	mg CaCO3/L	P389230	
	SM 2540 C-2011	TDS	31		mg/L	P389661	
	SM 2540 D-2011	TSS	2	U	mg/L	P389609	
	SM 4500 F-C-2011	Fluoride	0.035	U	mg F/L	P389236	
2204007	EPA 350.1 Rev. 2.0	Ammonia-N	0.005		mg N/L	P389210	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.13	I	mg N/L	P389284	MS
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.11		mg N/L	P389247	
	EPA 365.1 Rev. 2.0	Total-P	0.003	I	mg P/L	P389506	
	SM 5310 B-2011	Organic Carbon	2.8		mg C/L	P389222	
2204008	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P389048	

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: Deadfall Creek Upstream Of Old River Rd

Collection Date/Time: 10/20/2020 11:15

Field ID: G4NW0491

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2204009	EPA 180.1 Rev. 2.0	Turbidity	1.5		NTU	P389056	
	EPA 300.0 Rev. 2.1	Chloride	3.2		mg Cl/L	P389473	
		Sulfate	0.87		mg SO4/L	P389476	
		Color (true)	40		PCU	P389053	
	SM 2120 B-2011	Total Alkalinity	1.4	I	mg CaCO3/L	P389230	
	SM 2540 C-2011	TDS	26		mg/L	P389661	
	SM 2540 D-2011	TSS	2	U	mg/L	P389609	
	SM 4500 F-C-2011	Fluoride	0.035	U	mg F/L	P389236	
2204010	EPA 350.1 Rev. 2.0	Ammonia-N	0.005	I	mg N/L	P389210	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.17	I	mg N/L	P389284	MS
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.22		mg N/L	P389249	
	EPA 365.1 Rev. 2.0	Total-P	0.004	I	mg P/L	P389506	
	SM 5310 B-2011	Organic Carbon	3.2		mg C/L	P389222	
2204011	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P389048	
2204029	EPA 200.7 Rev. 4.4	Barium	12.6		ug/L	P389253	
		Calcium	1.0		mg/L	P389253	
		Iron	530		ug/L	P389253	
		Magnesium	0.55		mg/L	P389253	
		Potassium	0.30	U	mg/L	P389253	
		Sodium	1.5	I	mg/L	P389253	
		Zinc	5.0	U	ug/L	P389253	
	EPA 200.8 Rev. 5.4	Aluminum	97		ug/L	P389253	
		Antimony	0.050	U	ug/L	P389253	
		Arsenic	0.23		ug/L	P389253	
		Boron**	7.9	I	ug/L	P389253	
		Cadmium	0.020	U	ug/L	P389253	
		Chromium	0.40	U	ug/L	P389253	
		Copper	0.40	U	ug/L	P389253	
	SM 2340B	Lead	0.20	U	ug/L	P389253	
		Nickel	0.52	I	ug/L	P389253	
		Selenium	0.20	U	ug/L	P389253	
		Silver	0.010	U	ug/L	P389253	
		Thallium	0.10	U	ug/L	P389253	
		Hardness	4.7		mg/L	P389253	

Ref. Method and Comment:

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

Quality Assurance Report Method Blank Results

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P389056

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P389253

Component	Result	Code	Units
Barium	1.0	U	ug/L
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
Zinc	5.0	U	ug/L

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P389253

Component	Result	Code	Units
Aluminum	5.0	U	ug/L
Antimony	0.050	U	ug/L
Arsenic	0.050	U	ug/L
Boron	2.0	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 300.0 Rev. 2.1
Batch ID: P389473

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P389476

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P389210

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

Quality Assurance Report Method Blank Results

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P389284

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P389247

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P389249

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P389506

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P389048

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

Reference Method: EPA 8321B
Batch ID: P389065

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

Reference Method: EPA 8321B
Batch ID: P389104

Component	Result	Code	Units
2,4-D	0.0020	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

Quality Assurance Report

Method Blank Results

Reference Method: EPA 8321B
Batch ID: P389104

Component	Result	Code	Units
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: SM 2120 B-2011
Batch ID: P389053

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2320 B-2011
Batch ID: P389230

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

Reference Method: SM 2540 C-2011
Batch ID: P389661

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-2011
Batch ID: P389609

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500 F-C-2011
Batch ID: P389236

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-2011
Batch ID: P389222

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: P389253

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Barium	101		P	85 - 115
Calcium	105		P	85 - 115
Iron	104		P	85 - 115
Magnesium	103		P	85 - 115
Potassium	102		P	85 - 115
Sodium	99.4		P	85 - 115
Zinc	96.8		P	85 - 115

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P389253

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Aluminum	97.5		P	85 - 115
Antimony	100		P	85 - 115
Arsenic	96.8		P	85 - 115
Boron	99.3		P	85 - 115
Cadmium	100		P	85 - 115
Chromium	98.4		P	85 - 115
Copper	98.8		P	85 - 115
Lead	95.6		P	85 - 115
Nickel	98.1		P	85 - 115
Selenium	93.8		P	85 - 115
Silver	102		P	85 - 115
Thallium	102		P	85 - 115

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P389473

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P389476

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P389210

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P389284

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

Quality Assurance Report

Laboratory Control Sample Accuracy

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P389247

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P389249

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P389506

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total-P	107		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P389048

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

Reference Method: EPA 8321B
Batch ID: P389065

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Acesulfame K	81.7		P	40 - 150
AMPA	101		P	40 - 150
Endothall	83.7		P	40 - 150
Glufosinate	100		P	40 - 150
Glyphosate	95.2		P	40 - 140
Sucralose	116		P	40 - 150

Reference Method: EPA 8321B
Batch ID: P389104

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2,4-D	71.8		P	30 - 160
Acetaminophen	51.6		P	30 - 160
Acetamiprid	55.2		P	30 - 160
Afidopyropen	43.0		P	30 - 160
Bentazon	53.7		P	30 - 160
Benzovindiflupyr	66.9		P	30 - 160
Carbamazepine	49.2		P	30 - 160
Clothianidin	83.6		P	30 - 160
Dinotefuran	71.2		P	30 - 160
Diuron	55.1		P	30 - 160
Fenuron	102		P	30 - 160
Fluridone	73.8		P	30 - 160
Hydrocodone	99.9		P	30 - 160
Ibuprofen	86.3		P	30 - 160
Imazapyr	100		P	30 - 160
Imidacloprid	82.2		P	30 - 160
Linuron	61.8		P	30 - 160

Quality Assurance Report

Laboratory Control Sample Accuracy

Reference Method: EPA 8321B

Batch ID: P389104

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Mandestrobin	75.2		P	30 - 160
MCP	74.1		P	30 - 160
Naproxen	81.1		P	30 - 160
Primidone	93.1		P	30 - 160
Pyraclostrobin	55.5		P	30 - 160
Thiamethoxam	95.5		P	30 - 160
Tolfenpyrad	53.4		P	30 - 160
Triclopyr	61.0		P	30 - 160

Reference Method: SM 2120 B-2011

Batch ID: P389053

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Color (true)	102		P	85 - 115

Reference Method: SM 2320 B-2011

Batch ID: P389230

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	102		P	93 - 104

Reference Method: SM 4500 F-C-2011

Batch ID: P389236

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	97.6		P	90 - 106

Reference Method: SM 5310 B-2011

Batch ID: P389222

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	102		P	85 - 115

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P389253

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2203925	Barium	100		P	80 - 120
2203925	Calcium	98.0		P	80 - 120
2203925	Iron	106		P	80 - 120
2203925	Magnesium	97.1		P	80 - 120
2203925	Potassium	94.4		P	80 - 120
2203925	Sodium	95.9		P	80 - 120
2203925	Zinc	97.8		P	80 - 120
2204072	Barium	98.7	99.3	P/P	80 - 120
2204072	Calcium	105	106	P/P	80 - 120
2204072	Iron	105	103	P/P	80 - 120
2204072	Magnesium	106	104	P/P	80 - 120
2204072	Potassium	103	103	P/P	80 - 120
2204072	Sodium	96.9		P	80 - 120
2204072	Zinc	97.9	97.2	P/P	80 - 120

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P389253

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2203925	Aluminum	96.9		P	80 - 120
2203925	Antimony	101		P	80 - 120
2203925	Arsenic	99.5		P	80 - 120
2203925	Boron	96.6		P	80 - 120
2203925	Cadmium	99.1		P	80 - 120
2203925	Chromium	99.5		P	80 - 120
2203925	Copper	100		P	80 - 120
2203925	Lead	95.4		P	80 - 120
2203925	Nickel	99.0		P	80 - 120
2203925	Selenium	95.0		P	80 - 120
2203925	Silver	102		P	80 - 120
2203925	Thallium	104		P	80 - 120
2204072	Aluminum	93.8	96.8	P/P	80 - 120
2204072	Antimony	97.4	99.6	P/P	80 - 120
2204072	Arsenic	95.2	97.6	P/P	80 - 120
2204072	Boron	92.9	96.6	P/P	80 - 120
2204072	Cadmium	95.2	98.6	P/P	80 - 120
2204072	Chromium	97.2	98.4	P/P	80 - 120
2204072	Copper	98.4	102	P/P	80 - 120
2204072	Lead	92.5	95.5	P/P	80 - 120
2204072	Nickel	95.5	97.7	P/P	80 - 120
2204072	Selenium	94.6	96.4	P/P	80 - 120
2204072	Silver	101	102	P/P	80 - 120
2204072	Thallium	101	104	P/P	80 - 120

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P389473

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2204000	Chloride	101		P	90 - 110
2204104	Chloride	100		P	90 - 110

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P389476

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2204000	Sulfate	102		P	90 - 110
2204104	Sulfate	101		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P389210

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2203947	Ammonia-N	102	102	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P389284

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2203987	Kjeldahl Nitrogen	114	109	F/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P389247

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2203918	NO2NO3-N	99.3	98.8	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P389249

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2204010	NO2NO3-N	97.8		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P389506

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2204002	Total-P	108	108	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P389048

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2203919	O-Phosphate-P	96.1	96.6	P/P	90 - 110

Reference Method: EPA 8321B
Batch ID: P389065

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2203277	Acesulfame K	27.0	27.2	F/F	40 - 150
2203277	AMPA	98.9	96.6	P/P	40 - 150
2203277	Endothall	79.5	82.6	P/P	40 - 150
2203277	Glufosinate	91.9	89.7	P/P	40 - 150
2203277	Glyphosate	82.4	75.2	P/P	40 - 140
2203277	Sucralose	113	100	P/P	40 - 150

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 8321B
 Batch ID: P389104

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2203654	2,4-D	78.3	68.1	P/P	30 - 160
2203654	Acetaminophen	64.4	64.2	P/P	30 - 160
2203654	Acetamiprid	67.5	61.5	P/P	30 - 160
2203654	Afidopyropen	49.5	42.6	P/P	30 - 160
2203654	Bentazon	50.8	45.7	P/P	30 - 160
2203654	Benzovindiflupyr	66.5	68.4	P/P	30 - 160
2203654	Carbamazepine	59.8	55.9	P/P	30 - 160
2203654	Clothianidin	92.2	83.9	P/P	30 - 160
2203654	Dinotefuran	80.8	76.1	P/P	30 - 160
2203654	Diuron	54.4	53.1	P/P	30 - 160
2203654	Fenuron	38.5	40.5	P/P	30 - 160
2203654	Fluridone	70.5	80.0	P/P	30 - 160
2203654	Hydrocodone	112	113	P/P	30 - 160
2203654	Ibuprofen	75.3	74.9	P/P	30 - 160
2203654	Imazapyr	108	101	P/P	30 - 160
2203654	Imidacloprid	99.0	103	P/P	30 - 160
2203654	Linuron	62.0	70.6	P/P	30 - 160
2203654	Mandestrobin	72.4	78.8	P/P	30 - 160
2203654	MCP	91.1	92.8	P/P	30 - 160
2203654	Naproxen	66.7	56.6	P/P	30 - 160
2203654	Primidone	86.9	87.3	P/P	30 - 160
2203654	Pyraclostrobin	59.8	63.4	P/P	30 - 160
2203654	Thiamethoxam	93.0	117	P/P	30 - 160
2203654	Tolfenpyrad	53.7	54.2	P/P	30 - 160
2203654	Triclopyr	69.6	66.8	P/P	30 - 160

Reference Method: SM 4500 F-C-2011
 Batch ID: P389236

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2204041	Fluoride	99.7	98.0	P/P	94 - 107

Reference Method: SM 5310 B-2011
 Batch ID: P389222

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2203987	Organic Carbon	101	101	P/P	85 - 115

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P389056

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2204000	Turbidity	1.18	Sample	P	0 - 20

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P389253

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2204072	Barium	0.618	Spike	P	0 - 20
2204072	Calcium	0.505	Spike	P	0 - 20
2204072	Iron	2.24	Spike	P	0 - 20
2204072	Magnesium	1.59	Spike	P	0 - 20
2204072	Potassium	0.500	Spike	P	0 - 20
2204072	Sodium	0.316	Spike	P	0 - 20
2204072	Zinc	0.720	Spike	P	0 - 20

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P389253

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2204072	Aluminum	3.01	Spike	P	0 - 20
2204072	Antimony	2.27	Spike	P	0 - 20
2204072	Arsenic	2.39	Spike	P	0 - 20
2204072	Boron	3.08	Spike	P	0 - 20
2204072	Cadmium	3.54	Spike	P	0 - 20
2204072	Chromium	1.20	Spike	P	0 - 20
2204072	Copper	3.68	Spike	P	0 - 20
2204072	Lead	3.11	Spike	P	0 - 20
2204072	Nickel	2.29	Spike	P	0 - 20
2204072	Selenium	1.93	Spike	P	0 - 20
2204072	Silver	1.39	Spike	P	0 - 20
2204072	Thallium	3.31	Spike	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P389473

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2204104	Chloride	0.0268	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P389476

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2204104	Sulfate	0.388	Sample	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P389210

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2203947	Ammonia-N	0.132	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P389284

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2203987	Kjeldahl Nitrogen	2.96	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P389247

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2203918	NO2NO3-N	0.484	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P389249

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2204010	NO2NO3-N	0.0	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P389506

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2204002	Total-P	0.0232	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P389048

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2203919	O-Phosphate-P	0.519	Spike	P	0 - 20

Reference Method: EPA 8321B
Batch ID: P389065

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2203277	Acesulfame K	0.737	Spike	P	0 - 30
2203277	AMPA	2.38	Spike	P	0 - 30
2203277	Endothall	3.88	Spike	P	0 - 30
2203277	Glufosinate	2.45	Spike	P	0 - 30
2203277	Glyphosate	9.13	Spike	P	0 - 30
2203277	Sucralose	12.1	Spike	P	0 - 30

Quality Assurance Report Precision

Reference Method: EPA 8321B
Batch ID: P389104

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2203654	2,4-D	14.0	Spike	P	0 - 30
2203654	Acetaminophen	0.237	Spike	P	0 - 30
2203654	Acetamiprid	9.32	Spike	P	0 - 30
2203654	Afidopyropen	15.0	Spike	P	0 - 30
2203654	Bentazon	10.6	Spike	P	0 - 30
2203654	Benzovindiflupyr	2.72	Spike	P	0 - 30
2203654	Carbamazepine	6.84	Spike	P	0 - 30
2203654	Clothianidin	9.37	Spike	P	0 - 30
2203654	Dinotefuran	5.95	Spike	P	0 - 30
2203654	Diuron	2.38	Spike	P	0 - 30
2203654	Fenuron	2.16	Spike	P	0 - 30
2203654	Fluridone	12.6	Spike	P	0 - 30
2203654	Hydrocodone	1.05	Spike	P	0 - 30
2203654	Ibuprofen	0.506	Spike	P	0 - 30
2203654	Imazapyr	6.11	Spike	P	0 - 30
2203654	Imidacloprid	3.59	Spike	P	0 - 30
2203654	Linuron	12.9	Spike	P	0 - 30
2203654	Mandestrobin	8.48	Spike	P	0 - 30
2203654	MCPP	1.89	Spike	P	0 - 30
2203654	Naproxen	16.5	Spike	P	0 - 30
2203654	Primidone	0.499	Spike	P	0 - 30
2203654	Pyraclostrobin	5.85	Spike	P	0 - 30
2203654	Thiamethoxam	22.8	Spike	P	0 - 30
2203654	Tolfenpyrad	0.880	Spike	P	0 - 30
2203654	Triclopyr	4.15	Spike	P	0 - 30

Reference Method: SM 2120 B-2011
Batch ID: P389053

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2203985	Color (true)	0.206	Sample	P	0 - 20

Reference Method: SM 2320 B-2011
Batch ID: P389230

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2204041	Total Alkalinity	5.18	Sample	P	0 - 8.1

Reference Method: SM 2540 C-2011
Batch ID: P389661

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2203944	TDS	3.92	Sample	P	0 - 10

Quality Assurance Report Precision

Reference Method: SM 4500 F-C-2011
Batch ID: P389236

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2204041	Fluoride	1.50	Spike	P	0 - 2.8

Reference Method: SM 5310 B-2011
Batch ID: P389222

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2203987	Organic Carbon	0.222	Spike	P	0 - 20

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

Quality Assurance Report Surrogates

Lab Sample ID: 2204025
Field Sample ID: G4NW0296

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	2,4-D-d3	92.6	P	30 - 160
EPA 8321B	Acetaminophen-d4	103	P	30 - 160
EPA 8321B	Carbamazepine-d10	56.8	P	30 - 160
EPA 8321B	Diuron-d6	70.7	P	30 - 160
EPA 8321B	Endothall-d6	113	P	30 - 160
EPA 8321B	Endothall-d6	113	P	30 - 160
EPA 8321B	Glyphosate 13C 15N	106	P	30 - 160
EPA 8321B	Glyphosate 13C 15N	106	P	30 - 160
EPA 8321B	Ibuprofen-d3	93.9	P	30 - 160
EPA 8321B	Primidone-d5	99.0	P	30 - 160
EPA 8321B	Sucralose-d6	103	P	30 - 160
EPA 8321B	Sucralose-d6	103	P	30 - 160

Lab Sample ID: 2204026
Field Sample ID: G4NW0298

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	2,4-D-d3	80.5	P	30 - 160
EPA 8321B	Acetaminophen-d4	63.3	P	30 - 160
EPA 8321B	Carbamazepine-d10	41.9	P	30 - 160
EPA 8321B	Diuron-d6	50.4	P	30 - 160
EPA 8321B	Endothall-d6	110	P	30 - 160
EPA 8321B	Endothall-d6	110	P	30 - 160
EPA 8321B	Glyphosate 13C 15N	106	P	30 - 160
EPA 8321B	Glyphosate 13C 15N	106	P	30 - 160
EPA 8321B	Ibuprofen-d3	77.4	P	30 - 160
EPA 8321B	Primidone-d5	81.5	P	30 - 160
EPA 8321B	Sucralose-d6	120	P	30 - 160
EPA 8321B	Sucralose-d6	120	P	30 - 160

Quality Assurance Report Calibration Verification

Reference Method: EPA 365.1 Rev. 2.0 dissolved

Run ID: A101664

Included Lab Sample IDs: 2204004, 2204005, 2204008, 2204011

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

Reference Method: SM 2120 B-2011

Run ID: A101665

Included Lab Sample IDs: 2204000, 2204001, 2204006, 2204009

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	102	102	P/P	90 - 115

Reference Method: EPA 180.1 Rev. 2.0

Run ID: A101666

Included Lab Sample IDs: 2204000, 2204001, 2204006, 2204009

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Turbidity	99.5	99.0	P/P	95 - 105

Reference Method: EPA 8321B

Run ID: A101706

Included Lab Sample IDs: 2204025, 2204026

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Acesulfame K	81.0	80.3	P/P	50 - 160
Endothall	113	109	P/P	60 - 160

Reference Method: EPA 8321B

Run ID: A101728

Included Lab Sample IDs: 2204025, 2204026

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
AMPA	100	94.1	P/P	50 - 160
Glufosinate	100	96.7	P/P	50 - 160
Glyphosate	96.0	105	P/P	50 - 160

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A101740

Included Lab Sample IDs: 2204002, 2204003, 2204007, 2204010

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	101	102	P/P	90 - 110

Reference Method: SM 5310 B-2011

Run ID: A101747

Included Lab Sample IDs: 2204002, 2204003, 2204007, 2204010

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	101	99.6	P/P	90 - 110
Organic Carbon	102	101	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: SM 2320 B-2011

Run ID: A101749

Included Lab Sample IDs: 2204000, 2204001, 2204006, 2204009

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	99.3	102	P/P	90 - 110

Reference Method: SM 4500 F-C-2011

Run ID: A101749

Included Lab Sample IDs: 2204000, 2204001, 2204006, 2204009

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: A101763

Included Lab Sample IDs: 2204002, 2204003, 2204007, 2204010

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO2NO3-N	99.0	99.5	P/P	90 - 110
NO2NO3-N	99.5	99.5	P/P	90 - 110

Reference Method: EPA 8321B

Run ID: A101788

Included Lab Sample IDs: 2204025, 2204026

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Sucralose	117	121	P/P	50 - 160

Reference Method: EPA 8321B

Run ID: A101797

Included Lab Sample IDs: 2204025, 2204026

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
2,4-D	105	91.4	P/P	50 - 150
Acetaminophen	112	115	P/P	60 - 160
Acetamiprid	113	111	P/P	50 - 150
Afidopyropen	86.0	82.3	P/P	50 - 150
Bentazon	82.8	98.9	P/P	50 - 160
Benzovindiflupyr	107	89.0	P/P	50 - 150
Carbamazepine	79.5	71.5	P/P	60 - 150
Clothianidin	93.7	99.8	P/P	60 - 150
Dinotefuran	84.6	84.1	P/P	50 - 150
Diuron	77.1	71.0	P/P	60 - 160
Fenuron	112	103	P/P	60 - 150
Fluridone	108	93.4	P/P	60 - 160
Hydrocodone	134	120	P/P	60 - 150
Ibuprofen	96.3	123	P/P	50 - 160
Imazapyr	108	120	P/P	50 - 160
Imidacloprid	101	93.3	P/P	60 - 150
Linuron	63.8	68.6	P/P	60 - 150
Mandestrobin	98.7	94.9	P/P	50 - 150
MCPP	90.9	87.4	P/P	50 - 150
Naproxen	97.7	64.4	P/P	50 - 160
Primidone	88.4	102	P/P	60 - 150
Pyraclostrobin	98.0	93.6	P/P	60 - 150

Quality Assurance Report Calibration Verification

Reference Method: EPA 8321B

Run ID: A101797

Included Lab Sample IDs: 2204025, 2204026

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Thiamethoxam	108	109	P/P	50 - 150
Tolfenpyrad	119	110	P/P	60 - 150
Triclopyr	89.0	92.5	P/P	50 - 150

Reference Method: EPA 300.0 Rev. 2.1

Run ID: A101798

Included Lab Sample IDs: 2204000, 2204001, 2204006, 2204009

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

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A101801

Included Lab Sample IDs: 2204002, 2204003, 2204007, 2204010

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	97.4	99.0	P/P	90 - 110

Reference Method: EPA 200.7 Rev. 4.4

Run ID: A101807

Included Lab Sample IDs: 2204027, 2204028, 2204029

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Barium	97.2	97.2	P/P	90 - 110
Calcium	99.0	97.6	P/P	90 - 110
Iron	100	98.5	P/P	90 - 110
Magnesium	98.8	97.4	P/P	90 - 110
Potassium	97.4	95.4	P/P	90 - 110
Sodium	97.4	94.7	P/P	90 - 110
Zinc	97.5	98.4	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A101926

Included Lab Sample IDs: 2204002, 2204003, 2204007, 2204010

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	97.0	96.0	P/P	90 - 110

Reference Method: EPA 200.8 Rev. 5.4

Run ID: A102002

Included Lab Sample IDs: 2204027, 2204028, 2204029

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Aluminum	94.3	96.0	P/P	90 - 110
Antimony	97.3	98.9	P/P	90 - 110
Arsenic	97.0	96.1	P/P	90 - 110
Boron	99.5	99.5	P/P	90 - 110
Cadmium	96.8	97.0	P/P	90 - 110
Chromium	95.2	95.1	P/P	90 - 110
Nickel	95.5	97.2	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: EPA 200.8 Rev. 5.4

Run ID: A102002

Included Lab Sample IDs: 2204027, 2204028, 2204029

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Selenium	96.4	95.8	P/P	90 - 110
Silver	104	106	P/P	90 - 110

Reference Method: EPA 200.8 Rev. 5.4

Run ID: A102029

Included Lab Sample IDs: 2204027, 2204028, 2204029

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Copper	97.3	95.8	P/P	90 - 110

Reference Method: EPA 200.8 Rev. 5.4

Run ID: A102030

Included Lab Sample IDs: 2204027, 2204028, 2204029

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Lead	94.9	95.2	P/P	90 - 110
Thallium	96.7	95.7	P/P	90 - 110

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

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

Where they are different, both control limits are provided.

Quality Assurance Report Summary

Ref. Method	Analyte	LCS % Recovery			MS % Recovery			LCS	Precision SMP	MS
EPA 180.1 Rev. 2.0	Turbidity								1.18	
EPA 200.7 Rev. 4.4	Barium	101			100	98.7	99.3			0.618
	Calcium	105			98.0	105	106			0.505
	Iron	104			106	105	103			2.24
	Magnesium	103			97.1	106	104			1.59
	Potassium	102			94.4	103	103			0.500
	Sodium	99.4			95.9	96.9				0.316
	Zinc	96.8			97.8	97.9	97.2			0.720
EPA 200.8 Rev. 5.4	Aluminum	97.5			93.8	96.8	96.9			3.01
	Antimony	100			97.4	99.6	101			2.27
	Arsenic	96.8			95.2	97.6	99.5			2.39
	Boron	99.3			92.9	96.6	96.6			3.08
	Cadmium	100			95.2	98.6	99.1			3.54
	Chromium	98.4			97.2	98.4	99.5			1.20
	Copper	98.8			98.4	102	100			3.68
	Lead	95.6			92.5	95.5	95.4			3.11
	Nickel	98.1			95.5	97.7	99.0			2.29
	Selenium	93.8			94.6	96.4	95.0			1.93
	Silver	102			101	102	102			1.39
	Thallium	102			101	104	104			3.31
EPA 300.0 Rev. 2.1	Chloride	101			100	101			0.0268	
	Sulfate	101			101	102			0.388	
EPA 350.1 Rev. 2.0	Ammonia-N	102			102	102				0.132
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	105			114	109				2.96
EPA 353.2 Rev. 2.0	NO2NO3-N	100			99.3	98.8				0.484
	NO2NO3-N	99.5			97.8					0.0
EPA 365.1 Rev. 2.0	Total-P	107			108	108				0.0232
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	99.8			96.1	96.6				0.519
EPA 8321B	2,4-D	71.8			78.3	68.1				14.0
	Acesulfame K	81.7			27.0	27.2				0.737
	Acetaminophen	51.6			64.4	64.2				0.237
	Acetamiprid	55.2			67.5	61.5				9.32
	Afidopyropen	43.0			49.5	42.6				15.0
	AMPA	101			98.9	96.6				2.38
	Bentazon	53.7			50.8	45.7				10.6
	Benzovindiflupyr	66.9			66.5	68.4				2.72
	Carbamazepine	49.2			59.8	55.9				6.84
	Clothianidin	83.6			92.2	83.9				9.37
	Dinotefuran	71.2			80.8	76.1				5.95
	Diuron	55.1			54.4	53.1				2.38
	Endothall	83.7			79.5	82.6				3.88
	Fenuron	102			38.5	40.5				2.16
	Fluridone	73.8			70.5	80.0				12.6
	Glufosinate	100			91.9	89.7				2.45
	Glyphosate	95.2			82.4	75.2				9.13
	Hydrocodone	99.9			112	113				1.05
	Ibuprofen	86.3			75.3	74.9				0.506
	Imazapyr	100			108	101				6.11
	Imidacloprid	82.2			99.0	103				3.59
	Linuron	61.8			62.0	70.6				12.9
	Mandestrobin	75.2			72.4	78.8				8.48
	MCPP	74.1			91.1	92.8				1.89
	Naproxen	81.1			66.7	56.6				16.5
	Primidone	93.1			86.9	87.3				0.499

Quality Assurance Report Summary

Ref. Method	Analyte	LCS % Recovery	MS % Recovery		Precision	
					LCS	MS
EPA 8321B	Pyraclostrobin	55.5	59.8	63.4		5.85
	Sucralose	116	113	100		12.1
	Thiamethoxam	95.5	93.0	117		22.8
	Tolfenpyrad	53.4	53.7	54.2		0.880
	Triclopyr	61.0	69.6	66.8		4.15
SM 2120 B-2011	Color (true)	102			0.206	
SM 2320 B-2011	Total Alkalinity	102			5.18	
SM 2540 C-2011	TDS				3.92	
SM 4500 F-C-2011	Fluoride	97.6	99.7	98.0		1.50
SM 5310 B-2011	Organic Carbon	102	101	101		0.222

Reference Method Descriptions

Method	Description	Associated Samples
EPA 180.1 Rev. 2.0	Turbidity in aqueous matrices	2204000, 2204001, 2204006, 2204009
EPA 200.7 Rev. 4.4	Total Recoverable Metals analysis using ICP emission spectroscopy for aqueous samples supporting Clean Water Act Projects	2204027, 2204028, 2204029
EPA 200.8 Rev. 5.4	Total Recoverable Metals analysis using ICP-MS for aqueous samples supporting Clean Water Act Projects	2204027, 2204028, 2204029
EPA 300.0 Rev. 2.1	Chloride in aqueous matrices	2204000, 2204001, 2204006, 2204009
EPA 300.0 Rev. 2.1	Sulfate in aqueous matrices	2204000, 2204001, 2204006, 2204009
EPA 350.1 Rev. 2.0	Ammonia in aqueous matrices as mg N/L	2204002, 2204003, 2204007, 2204010
EPA 351.2 Rev. 2.0	Total Kjeldahl Nitrogen in aqueous matrices	2204002, 2204003, 2204007, 2204010
EPA 353.2 Rev. 2.0	Nitrite/Nitrate in aqueous matrices as mg N/L	2204002, 2204003, 2204007, 2204010
EPA 365.1 Rev. 2.0	Total Phosphorus in aqueous matrices as mg P/L	2204002, 2204003, 2204007, 2204010
EPA 365.1 Rev. 2.0 dissolved	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	2204004, 2204005, 2204008, 2204011
EPA 8321B	Pesticides, herbicides, and other chemicals in water matrices by HPLC/MS/MS	2204025, 2204026
EPA 8321B	Water soluble organic compounds by HPLC/MS/MS	2204025, 2204026
SM 2120 B-2011	True Color measured at 450 nm (not valid for NPDES monitoring)	2204000, 2204001, 2204006, 2204009
SM 2320 B-2011	Alkalinity in aqueous matrices as mg CaCO ₃ /L	2204000, 2204001, 2204006, 2204009
SM 2340B	Hardness by calculation, in aqueous matrices, reported as mg/L CaCO ₃	2204027, 2204028, 2204029
SM 2540 C-2011	Total Dissolved Solids in aqueous matrices	2204000, 2204001, 2204006, 2204009
SM 2540 D-2011	Total Suspended Solids in aqueous matrices using a maximum of 250 mL of sample	2204000, 2204001, 2204006, 2204009
SM 4500 F-C-2011	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	2204000, 2204001, 2204006, 2204009
SM 5310 B-2011	Nonpurgeable Organic Carbon in aqueous matrices	2204002, 2204003, 2204007, 2204010

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	10/21/2020			10/21/2020 17:12	Samantha Davila	2204000, 2204001, 2204006, 2204009
EPA 200.7 Rev. 4.4	10/21/2020	10/26/2020 13:40	Elliott D. Healy	10/27/2020 16:05	Betina Topolski	2204027
	10/21/2020	10/26/2020 13:40	Elliott D. Healy	10/27/2020 16:11	Betina Topolski	2204028
	10/21/2020	10/26/2020 13:40	Elliott D. Healy	10/27/2020 16:17	Betina Topolski	2204029
EPA 200.8 Rev. 5.4	10/21/2020	10/26/2020 13:40	Elliott D. Healy	11/05/2020 22:02	Alexander Thompson	2204027
	10/21/2020	10/26/2020 13:40	Elliott D. Healy	11/05/2020 22:09	Alexander Thompson	2204028
	10/21/2020	10/26/2020 13:40	Elliott D. Healy	11/05/2020 22:17	Alexander Thompson	2204029
	10/21/2020	10/26/2020 13:40	Elliott D. Healy	11/06/2020 14:23	Alexander Thompson	2204027
	10/21/2020	10/26/2020 13:40	Elliott D. Healy	11/06/2020 14:28	Alexander Thompson	2204028
	10/21/2020	10/26/2020 13:40	Elliott D. Healy	11/06/2020 14:33	Alexander Thompson	2204029
	10/21/2020	10/26/2020 13:40	Elliott D. Healy	11/06/2020 22:24	Alexander Thompson	2204027
	10/21/2020	10/26/2020 13:40	Elliott D. Healy	11/06/2020 22:28	Alexander Thompson	2204028
	10/21/2020	10/26/2020 13:40	Elliott D. Healy	11/06/2020 22:32	Alexander Thompson	2204029
EPA 300.0 Rev. 2.1	10/21/2020			10/28/2020 15:41	Lipi Saha	2204000
	10/21/2020			10/28/2020 16:34	Lipi Saha	2204001
	10/21/2020			10/28/2020 16:47	Lipi Saha	2204006
	10/21/2020			10/28/2020 17:00	Lipi Saha	2204009
EPA 350.1 Rev. 2.0	10/21/2020			10/25/2020 11:40	Ping Hua	2204002
	10/21/2020			10/25/2020 11:42	Ping Hua	2204003
	10/21/2020			10/25/2020 11:43	Ping Hua	2204007
	10/21/2020			10/25/2020 11:45	Ping Hua	2204010
EPA 351.2 Rev. 2.0	10/21/2020	10/26/2020 11:45	David Boose	10/27/2020 14:27	Elliott Rodriguez	2204002
	10/21/2020	10/26/2020 11:45	David Boose	10/27/2020 14:28	Elliott Rodriguez	2204003
	10/21/2020	10/26/2020 11:45	David Boose	10/27/2020 14:30	Elliott Rodriguez	2204007
	10/21/2020	10/26/2020 11:45	David Boose	10/27/2020 14:32	Elliott Rodriguez	2204010
EPA 353.2 Rev. 2.0	10/21/2020			10/26/2020 10:52	Beverly Y. Sanders	2204002
	10/21/2020			10/26/2020 10:53	Beverly Y. Sanders	2204003
	10/21/2020			10/26/2020 10:54	Beverly Y. Sanders	2204007
	10/21/2020			10/26/2020 11:01	Beverly Y. Sanders	2204010
EPA 365.1 Rev. 2.0	10/21/2020	10/29/2020 15:54	Yen Ta	11/03/2020 13:01	Shengyu Wang	2204002
	10/21/2020	10/29/2020 15:54	Yen Ta	11/03/2020 13:02	Shengyu Wang	2204003
	10/21/2020	10/29/2020 15:54	Yen Ta	11/03/2020 13:03	Shengyu Wang	2204007
	10/21/2020	10/29/2020 15:54	Yen Ta	11/03/2020 13:04	Shengyu Wang	2204010
EPA 365.1 Rev. 2.0 dissolved	10/21/2020			10/21/2020 16:31	Blanca Fach	2204004
	10/21/2020			10/21/2020 16:32	Blanca Fach	2204005
	10/21/2020			10/21/2020 16:33	Blanca Fach	2204008, 2204011
EPA 8321B	10/21/2020	10/22/2020 10:00	Rebecca Ware	10/22/2020 17:46	Rebecca Ware	2204025
	10/21/2020	10/22/2020 10:00	Rebecca Ware	10/22/2020 18:00	Rebecca Ware	2204026
	10/21/2020	10/22/2020 10:00	Rebecca Ware	10/23/2020 13:45	Rebecca Ware	2204025
	10/21/2020	10/22/2020 10:00	Rebecca Ware	10/23/2020 13:56	Rebecca Ware	2204026

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
EPA 8321B	10/21/2020	10/22/2020 10:00	Rebecca Ware	10/26/2020 16:38	Rebecca Ware	2204025
	10/21/2020	10/22/2020 10:00	Rebecca Ware	10/26/2020 16:50	Rebecca Ware	2204026
	10/21/2020	10/23/2020 12:00	Hoor Shaik	10/24/2020 09:38	Juyoung Kim	2204025
	10/21/2020	10/23/2020 12:00	Hoor Shaik	10/24/2020 10:13	Juyoung Kim	2204026
SM 2120 B-2011	10/21/2020			10/21/2020 17:27	Benjamin T. Nordmann	2204000, 2204001
	10/21/2020			10/21/2020 17:28	Benjamin T. Nordmann	2204006
	10/21/2020			10/21/2020 17:29	Benjamin T. Nordmann	2204009
SM 2320 B-2011	10/21/2020			10/24/2020 04:26	Samantha Davila	2204000
	10/21/2020			10/24/2020 04:38	Samantha Davila	2204001
	10/21/2020			10/24/2020 04:47	Samantha Davila	2204006
	10/21/2020			10/24/2020 04:56	Samantha Davila	2204009
SM 2340B	10/21/2020			10/27/2020 16:05	Betina Topolski	2204027
	10/21/2020			10/27/2020 16:11	Betina Topolski	2204028
	10/21/2020			10/27/2020 16:17	Betina Topolski	2204029
SM 2540 C-2011	10/21/2020			10/26/2020 15:36	Yijie Li	2204000, 2204001, 2204006, 2204009
SM 2540 D-2011	10/21/2020			10/26/2020 15:36	Yijie Li	2204000, 2204001, 2204006, 2204009
SM 4500 F-C-2011	10/21/2020			10/24/2020 04:26	Samantha Davila	2204000
	10/21/2020			10/24/2020 04:38	Samantha Davila	2204001
	10/21/2020			10/24/2020 04:47	Samantha Davila	2204006
	10/21/2020			10/24/2020 04:56	Samantha Davila	2204009
SM 5310 B-2011	10/21/2020			10/24/2020 01:17	Lauren Lees	2204002
	10/21/2020			10/24/2020 01:54	Lauren Lees	2204003
	10/21/2020			10/24/2020 02:06	Lauren Lees	2204007
	10/21/2020			10/24/2020 02:18	Lauren Lees	2204010