

Chemical Analysis Report

NW-DIST-2020-03-31-01

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

Event Description: **Escambia River Run**
Request ID: **RQ-2020-03-30-09**
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: 20-APR-2020 11:48

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: Escambia River

Collection Date/Time: 03/30/2020 10:20

Field ID: G4NW0405

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2168898	EPA 300.0 Rev. 2.1	Chloride	4.5		mg Cl/L	P381991	
		Sulfate	5.6		mg SO4/L	P381997	
	SM 2320 B-2011	Total Alkalinity	28		mg CaCO3/L	P381936	RPD
	SM 2540 C-2011	TDS	61		mg/L	P381904	
	SM 2540 D-2011	TSS	16		mg/L	P381897	
	SM 4500 F-C-2011	Fluoride	0.036	I	mg F/L	P381848	
2168899	EPA 350.1 Rev. 2.0	Ammonia-N	0.061		mg N/L	P381763	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.42		mg N/L	P381706	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.22		mg N/L	P381666	
	EPA 365.1 Rev. 2.0	Total-P	0.050		mg P/L	P381686	
	SM 5310 B-2011	Organic Carbon	5.4		mg C/L	P381746	
2168916	EPA 8321B	2,4-D	0.027		ug/L	P381751	
		Acesulfame K**	0.10	U	ug/L	P381627	MS
		AMPA**	0.10	U	ug/L	P381627	
		Sucralose**	0.047		ug/L	P381627	
		Acetaminophen**	0.0080	U	ug/L	P381751	
		Acetamiprid**	0.0020	U	ug/L	P381751	
		Endothall**	0.25	U	ug/L	P381627	
		Glufosinate**	0.10	U	ug/L	P381627	
		Glyphosate**	0.10	U	ug/L	P381627	
		Afidopyropen**	0.0020	UJ	ug/L	P381751	
		Bentazon	8.0E-04	U	ug/L	P381751	
		Benzovindiflupyr**	0.0020	UJ	ug/L	P381751	
		Carbamazepine**	8.0E-04	U	ug/L	P381751	
		Clothianidin**	0.0020	U	ug/L	P381751	
		Dinotefuran**	0.0020	U	ug/L	P381751	
		Diuron	0.0020	U	ug/L	P381751	
		Fenuron	0.016	U	ug/L	P381751	
		Fluridone**	8.0E-04	U	ug/L	P381751	
		Imazapyr**	0.020		ug/L	P381751	
		Hydrocodone**	0.0020	U	ug/L	P381751	
		Ibuprofen**	0.020	U	ug/L	P381751	
		Imidacloprid	0.0020	U	ug/L	P381751	
		Linuron	0.0040	U	ug/L	P381751	
		Mandestrobin**	0.0020	UJ	ug/L	P381751	
		MCPD	0.0020	U	ug/L	P381751	
		Naproxen**	0.0080	U	ug/L	P381751	
		Primidone**	0.0040	U	ug/L	P381751	
		Pyraclostrobin**	0.0020	U	ug/L	P381751	
		Thiamethoxam**	0.0020	U	ug/L	P381751	
		Tolfenpyrad**	0.0020	U	ug/L	P381751	
		Triclopyr**	0.0040	U	ug/L	P381751	
2168922	EPA 200.7 Rev. 4.4	Barium	28.8		ug/L	P381795	
		Calcium	11.1		mg/L	P381795	

Field ID: G4NW0405

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2168922	EPA 200.7 Rev. 4.4	Iron	2.08E+03		ug/L	P381795	
		Magnesium	1.37		mg/L	P381795	
		Potassium	1.3		mg/L	P381795	
		Sodium	5.9		mg/L	P381795	
	EPA 200.8 Rev. 5.4	Zinc	5.0	U	ug/L	P381795	
		Aluminum	599		ug/L	P381795	
		Antimony	0.050	U	ug/L	P381795	
		Arsenic	0.96		ug/L	P381795	
		Boron**	10.1		ug/L	P381795	
		Cadmium	0.020	U	ug/L	P381795	
		Chromium	1.7		ug/L	P381795	
		Copper	0.73	I	ug/L	P381795	
		Lead	0.64		ug/L	P381795	
		Nickel	1.0	I	ug/L	P381795	
		Selenium	0.20	U	ug/L	P381795	
		Silver	0.010	U	ug/L	P381795	
		Thallium	0.10	U	ug/L	P381795	
	SM 2340B	Hardness	33.3		mg/L	P381795	

Ref. Method and Comment:

EPA 8321B: J - second source check standards for some analytes were not available for analysis. MS accuracy for some analytes could not be assessed due to high concentration of parameter in the spiked sample.

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

Sample Location: Escambia River downstream of McCostill Mill Creek

Collection Date/Time: 03/30/2020 10:34

Field ID: G4NW0504

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2168900	EPA 300.0 Rev. 2.1	Chloride	4.5		mg Cl/L	P381991	
		Sulfate	5.7		mg SO4/L	P381997	
	SM 2320 B-2011	Total Alkalinity	28		mg CaCO3/L	P381936	RPD
	SM 2540 C-2011	TDS	55		mg/L	P381904	
	SM 2540 D-2011	TSS	17		mg/L	P381897	
	SM 4500 F-C-2011	Fluoride	0.036	I	mg F/L	P381848	
2168903	EPA 350.1 Rev. 2.0	Ammonia-N	0.062		mg N/L	P381762	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.45		mg N/L	P381706	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.22		mg N/L	P381666	
	EPA 365.1 Rev. 2.0	Total-P	0.039		mg P/L	P381687	
	SM 5310 B-2011	Organic Carbon	5.4		mg C/L	P381746	
2168923	EPA 200.7 Rev. 4.4	Barium	28.2		ug/L	P381795	
		Calcium	11.0		mg/L	P381795	
		Iron	1.82E+03		ug/L	P381795	
		Magnesium	1.34		mg/L	P381795	
		Potassium	1.3		mg/L	P381795	
		Sodium	5.8		mg/L	P381795	
	EPA 200.8 Rev. 5.4	Zinc	5.0	U	ug/L	P381795	
		Aluminum	441		ug/L	P381795	
		Antimony	0.050	U	ug/L	P381795	
		Arsenic	0.86		ug/L	P381795	
		Boron**	9.4		ug/L	P381795	
		Cadmium	0.020	U	ug/L	P381795	
		Chromium	1.3	I	ug/L	P381795	
		Copper	0.65	I	ug/L	P381795	
		Lead	0.58		ug/L	P381795	
		Nickel	0.85	I	ug/L	P381795	
		Selenium	0.20	U	ug/L	P381795	
		Silver	0.010	U	ug/L	P381795	
		Thallium	0.10	U	ug/L	P381795	
		Hardness	33.0		mg/L	P381795	

Ref. Method and Comment:

EPA 350.1 Rev. 2.0: Batch matrix spike recoveries are unavailable because of high analyte concentration in the QC sample.

Sample Location: Escambia River upstream of Mitchell Creek

Collection Date/Time: 03/30/2020 10:52

Field ID: G4NW0404

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2168901	EPA 300.0 Rev. 2.1	Chloride	4.5		mg Cl/L	P381991	
		Sulfate	5.7		mg SO4/L	P381997	
	SM 2320 B-2011	Total Alkalinity	28		mg CaCO3/L	P381936	RPD
	SM 2540 C-2011	TDS	55		mg/L	P381904	
	SM 2540 D-2011	TSS	14		mg/L	P381897	
	SM 4500 F-C-2011	Fluoride	0.035	I	mg F/L	P381848	
2168904	EPA 350.1 Rev. 2.0	Ammonia-N	0.059		mg N/L	P381762	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.42		mg N/L	P381706	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.22		mg N/L	P381667	
	EPA 365.1 Rev. 2.0	Total-P	0.038		mg P/L	P381687	
	SM 5310 B-2011	Organic Carbon	5.3		mg C/L	P381746	
2168924	EPA 200.7 Rev. 4.4	Barium	29.0		ug/L	P381795	
		Calcium	10.9		mg/L	P381795	
		Iron	2.13E+03		ug/L	P381795	
		Magnesium	1.33		mg/L	P381795	
		Potassium	1.3		mg/L	P381795	
		Sodium	5.9		mg/L	P381795	
		Zinc	5.0	U	ug/L	P381795	
	EPA 200.8 Rev. 5.4	Aluminum	674		ug/L	P381795	
		Antimony	0.050	U	ug/L	P381795	
		Arsenic	0.99		ug/L	P381795	
		Boron**	10.3		ug/L	P381795	
		Cadmium	0.020	U	ug/L	P381795	
		Chromium	1.8		ug/L	P381795	
		Copper	0.71	I	ug/L	P381795	
		Lead	0.67		ug/L	P381795	
		Nickel	1.0	I	ug/L	P381795	
		Selenium	0.20	U	ug/L	P381795	
		Silver	0.010	U	ug/L	P381795	
		Thallium	0.10	U	ug/L	P381795	
	SM 2340B	Hardness	32.8		mg/L	P381795	

Ref. Method and Comment:

EPA 350.1 Rev. 2.0: Batch matrix spike recoveries are unavailable because of high analyte concentration in the QC sample.

Sample Location: Escambia River upstream Gulf Power Discharge

Collection Date/Time: 03/30/2020 12:12

Field ID: G4NW0264

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2168902	EPA 300.0 Rev. 2.1	Chloride	9.1	A	mg Cl/L	P381991	
		Sulfate	6.0	A	mg SO4/L	P381997	
	SM 2320 B-2011	Total Alkalinity	29		mg CaCO3/L	P381936	RPD
	SM 2540 C-2011	TDS	75		mg/L	P381905	
	SM 2540 D-2011	TSS	4	I	mg/L	P381898	
	SM 4500 F-C-2011	Fluoride	0.037	I	mg F/L	P381848	
2168905	EPA 350.1 Rev. 2.0	Ammonia-N	0.028		mg N/L	P381762	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.34		mg N/L	P381722	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.24		mg N/L	P381667	
	EPA 365.1 Rev. 2.0	Total-P	0.032		mg P/L	P381687	
	SM 5310 B-2011	Organic Carbon	5.0		mg C/L	P381746	
2168925	EPA 200.7 Rev. 4.4	Barium	27.8		ug/L	P381795	
		Calcium	10.8		mg/L	P381795	
		Iron	1.57E+03		ug/L	P381795	
		Magnesium	1.71		mg/L	P381795	
		Potassium	1.3		mg/L	P381795	
		Sodium	8.5		mg/L	P381795	
	EPA 200.8 Rev. 5.4	Zinc	5.0	U	ug/L	P381795	
		Aluminum	263		ug/L	P381795	
		Antimony	0.050	U	ug/L	P381795	
		Arsenic	0.84		ug/L	P381795	
		Boron**	13.5		ug/L	P381795	
		Cadmium	0.020	U	ug/L	P381795	
		Chromium	0.82	I	ug/L	P381795	
		Copper	0.59	I	ug/L	P381795	
		Lead	0.41		ug/L	P381795	
		Nickel	0.83	I	ug/L	P381795	
		Selenium	0.20	U	ug/L	P381795	
		Silver	0.010	U	ug/L	P381795	
		Thallium	0.10	U	ug/L	P381795	
		Hardness	34.0		mg/L	P381795	

Ref. Method and Comment:

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

EPA 350.1 Rev. 2.0: Batch matrix spike recoveries are unavailable because of high analyte concentration in the QC sample.

Quality Assurance Report Method Blank Results

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P381795

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: P381795

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: P381991

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P381997

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P381762

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P381763

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: P381706

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P381722

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P381666

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P381667

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P381686

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P381687

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

Reference Method: EPA 8321B
Batch ID: P381627

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: P381751

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

Quality Assurance Report Method Blank Results

Reference Method: EPA 8321B
Batch ID: P381751

Component	Result	Code	Units
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: SM 2320 B-2011
Batch ID: P381936

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

Reference Method: SM 2540 C-2011
Batch ID: P381904

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 C-2011
Batch ID: P381905

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-2011
Batch ID: P381897

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 2540 D-2011
Batch ID: P381898

Component	Result	Code	Units
TSS	2	U	mg/L

Quality Assurance Report

Method Blank Results

Reference Method: SM 4500 F-C-2011
Batch ID: P381848

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-2011
Batch ID: P381746

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: P381795

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Barium	100		P	85 - 115
Calcium	106		P	85 - 115
Iron	100		P	85 - 115
Magnesium	106		P	85 - 115
Potassium	103		P	85 - 115
Sodium	103		P	85 - 115
Zinc	102		P	85 - 115

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P381795

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Aluminum	96.5		P	85 - 115
Antimony	102		P	85 - 115
Arsenic	101		P	85 - 115
Boron	98.6		P	85 - 115
Cadmium	99.9		P	85 - 115
Chromium	106		P	85 - 115
Copper	99.4		P	85 - 115
Lead	96.6		P	85 - 115
Nickel	98.4		P	85 - 115
Selenium	101		P	85 - 115
Silver	101		P	85 - 115
Thallium	96.2		P	85 - 115

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P381991

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Chloride	98.4		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P381997

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Sulfate	98.9		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P381762

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P381763

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

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P381706

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P381722

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P381666

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P381667

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
NO2NO3-N	97.5		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P381686

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P381687

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

Reference Method: EPA 8321B
Batch ID: P381627

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Acesulfame K	97.7		P	40 - 150
AMPA	107		P	40 - 150
Endothall	86.8		P	40 - 150
Glufosinate	126		P	40 - 150
Glyphosate	135		P	40 - 140
Sucralose	105		P	40 - 150

Reference Method: EPA 8321B
Batch ID: P381751

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2,4-D	121		P	30 - 160
Acetaminophen	78.3		P	30 - 160
Acetamiprid	104		P	30 - 160
Afidopyropen	96.5		P	30 - 160
Bentazon	68.9		P	30 - 160

Quality Assurance Report

Laboratory Control Sample Accuracy

Reference Method: EPA 8321B
Batch ID: P381751

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Benzovindiflupyr	85.7		P	30 - 160
Carbamazepine	121		P	30 - 160
Clothianidin	94.0		P	30 - 160
Dinotefuran	78.5		P	30 - 160
Diuron	102		P	30 - 160
Fenuron	107		P	30 - 160
Fluridone	87.2		P	30 - 160
Hydrocodone	80.3		P	30 - 160
Ibuprofen	88.2		P	30 - 160
Imazapyr	97.3		P	30 - 160
Imidacloprid	112		P	30 - 160
Linuron	74.3		P	30 - 160
Mandestrobin	89.5		P	30 - 160
MCPP	122		P	30 - 160
Naproxen	73.8		P	30 - 160
Primidone	95.2		P	30 - 160
Pyraclostrobin	86.4		P	30 - 160
Thiamethoxam	98.0		P	30 - 160
Tolfenpyrad	50.4		P	30 - 160
Triclopyr	97.8		P	30 - 160

Reference Method: SM 2320 B-2011
Batch ID: P381936

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	98.9		P	98 - 107

Reference Method: SM 4500 F-C-2011
Batch ID: P381848

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	98.2		P	92 - 104

Reference Method: SM 5310 B-2011
Batch ID: P381746

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	96.6		P	85 - 115

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P381795

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2168957	Barium	101	100	P/P	80 - 120
2168957	Calcium	105		P	80 - 120
2168957	Iron	104	104	P/P	80 - 120
2168957	Magnesium	103		P	80 - 120
2168957	Potassium	107	106	P/P	80 - 120
2168957	Sodium	102	104	P/P	80 - 120
2168957	Zinc	104	103	P/P	80 - 120
2169016	Barium	99.5		P	80 - 120
2169016	Calcium	103		P	80 - 120
2169016	Iron	103		P	80 - 120
2169016	Magnesium	100		P	80 - 120
2169016	Potassium	103		P	80 - 120
2169016	Sodium	101		P	80 - 120
2169016	Zinc	101		P	80 - 120

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P381795

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2168957	Aluminum	97.6	98.7	P/P	80 - 120
2168957	Antimony	103	103	P/P	80 - 120
2168957	Arsenic	100	101	P/P	80 - 120
2168957	Boron	96.0	99.9	P/P	80 - 120
2168957	Cadmium	102	101	P/P	80 - 120
2168957	Chromium	106	106	P/P	80 - 120
2168957	Copper	95.3	97.3	P/P	80 - 120
2168957	Lead	96.2	96.8	P/P	80 - 120
2168957	Nickel	95.4	97.0	P/P	80 - 120
2168957	Selenium	99.0	99.0	P/P	80 - 120
2168957	Silver	101	100	P/P	80 - 120
2168957	Thallium	105	96.6	P/P	80 - 120
2169016	Aluminum	96.2		P	80 - 120
2169016	Antimony	103		P	80 - 120
2169016	Arsenic	101		P	80 - 120
2169016	Boron	97.2		P	80 - 120
2169016	Cadmium	100		P	80 - 120
2169016	Chromium	106		P	80 - 120
2169016	Copper	98.6		P	80 - 120
2169016	Lead	96.2		P	80 - 120
2169016	Nickel	96.6		P	80 - 120
2169016	Selenium	97.7		P	80 - 120
2169016	Silver	100		P	80 - 120
2169016	Thallium	105		P	80 - 120

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P381991

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2168861	Chloride	98.3		P	90 - 110
2168902	Chloride	98.3		P	90 - 110

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P381997

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2168861	Sulfate	98.7		P	90 - 110
2168902	Sulfate	97.6		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P381763

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2168864	Ammonia-N	97.8	98.0	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P381706

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2168863	Kjeldahl Nitrogen	99.0	96.0	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P381722

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2168932	Kjeldahl Nitrogen	107	103	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P381666

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2168864	NO2NO3-N	97.0	100	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P381667

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2168904	NO2NO3-N	96.0		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P381686

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2168863	Total-P	103	105	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P381687

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2168903	Total-P	108	105	P/P	90 - 110

Reference Method: EPA 8321B
Batch ID: P381627

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2168793	Acesulfame K	20.5	21.4	F/F	40 - 150
2168793	Endothall	101	103	P/P	40 - 150
2168793	Glufosinate	120	103	P/P	40 - 150

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 8321B
Batch ID: P381627

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2168793	Sucralose	103	84.2	P/P	40 - 150

Reference Method: EPA 8321B
Batch ID: P381751

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2168793	2,4-D	103	113	P/P	30 - 160
2168793	Acetaminophen	90.5	95.3	P/P	30 - 160
2168793	Acetamiprid	70.9	85.0	P/P	30 - 160
2168793	Afidopyropen	83.3	98.1	P/P	30 - 160
2168793	Benzovindiflupyr	70.2	75.6	P/P	30 - 160
2168793	Carbamazepine	73.5	84.2	P/P	30 - 160
2168793	Clothianidin	76.4	89.6	P/P	30 - 160
2168793	Dinotefuran	95.6	105	P/P	30 - 160
2168793	Diuron	77.1	88.7	P/P	30 - 160
2168793	Fenuron	66.9	72.5	P/P	30 - 160
2168793	Hydrocodone	75.4	85.5	P/P	30 - 160
2168793	Ibuprofen	66.2	74.6	P/P	30 - 160
2168793	Imidacloprid	114	132	P/P	30 - 160
2168793	Linuron	51.5	58.2	P/P	30 - 160
2168793	Mandestrobin	75.7	83.2	P/P	30 - 160
2168793	MCP	106	105	P/P	30 - 160
2168793	Naproxen	83.2	82.1	P/P	30 - 160
2168793	Primidone	72.5	82.5	P/P	30 - 160
2168793	Pyraclostrobin	77.6	84.6	P/P	30 - 160
2168793	Thiamethoxam	107	113	P/P	30 - 160
2168793	Tolfenpyrad	50.2	52.0	P/P	30 - 160
2168793	Triclopyr	93.8	96.3	P/P	30 - 160

Reference Method: SM 4500 F-C-2011
Batch ID: P381848

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2168898	Fluoride	97.8	96.2	P/P	91 - 105

Reference Method: SM 5310 B-2011
Batch ID: P381746

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2168825	Organic Carbon	97.4	97.0	P/P	85 - 115

Quality Assurance Report Precision

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P381795

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2168957	Barium	0.507	Spike	P	0 - 20
2168957	Calcium	0.376	Spike	P	0 - 20
2168957	Iron	0.589	Spike	P	0 - 20
2168957	Magnesium	0.233	Spike	P	0 - 20
2168957	Potassium	0.688	Spike	P	0 - 20
2168957	Sodium	0.721	Spike	P	0 - 20
2168957	Zinc	1.17	Spike	P	0 - 20

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P381795

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2168957	Aluminum	0.921	Spike	P	0 - 20
2168957	Antimony	0.259	Spike	P	0 - 20
2168957	Arsenic	0.975	Spike	P	0 - 20
2168957	Boron	3.62	Spike	P	0 - 20
2168957	Cadmium	0.779	Spike	P	0 - 20
2168957	Chromium	0.393	Spike	P	0 - 20
2168957	Copper	2.08	Spike	P	0 - 20
2168957	Lead	0.591	Spike	P	0 - 20
2168957	Nickel	1.68	Spike	P	0 - 20
2168957	Selenium	0.0765	Spike	P	0 - 20
2168957	Silver	1.09	Spike	P	0 - 20
2168957	Thallium	8.37	Spike	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P381991

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2168902	Chloride	0.100	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P381997

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2168902	Sulfate	0.0432	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P381762

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2168903	Ammonia-N	0.0441	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P381763

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2168864	Ammonia-N	0.195	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P381706

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2168863	Kjeldahl Nitrogen	2.61	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P381722

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2168932	Kjeldahl Nitrogen	3.24	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P381666

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2168864	NO2NO3-N	3.54	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P381667

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2168904	NO2NO3-N	0.733	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P381686

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2168863	Total-P	1.91	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P381687

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2168903	Total-P	2.35	Spike	P	0 - 20

Reference Method: EPA 8321B
Batch ID: P381627

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2168793	Acesulfame K	4.59	Spike	P	0 - 30
2168793	AMPA	5.23	Spike	P	0 - 30

Quality Assurance Report Precision

Reference Method: EPA 8321B
Batch ID: P381627

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2168793	Endothall	1.59	Spike	P	0 - 30
2168793	Glufosinate	15.6	Spike	P	0 - 30
2168793	Glyphosate	10.4	Spike	P	0 - 30
2168793	Sucralose	12.6	Spike	P	0 - 30

Reference Method: EPA 8321B
Batch ID: P381751

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2168793	2,4-D	9.00	Spike	P	0 - 30
2168793	Acetaminophen	5.18	Spike	P	0 - 30
2168793	Acetamiprid	18.0	Spike	P	0 - 30
2168793	Afidopyropen	16.3	Spike	P	0 - 30
2168793	Bentazon	5.26	Spike	P	0 - 30
2168793	Benzovindiflupyr	7.45	Spike	P	0 - 30
2168793	Carbamazepine	10.8	Spike	P	0 - 30
2168793	Clothianidin	16.0	Spike	P	0 - 30
2168793	Dinotefuran	9.62	Spike	P	0 - 30
2168793	Diuron	13.0	Spike	P	0 - 30
2168793	Fenuron	7.94	Spike	P	0 - 30
2168793	Fluridone	11.7	Spike	P	0 - 30
2168793	Hydrocodone	12.6	Spike	P	0 - 30
2168793	Ibuprofen	11.9	Spike	P	0 - 30
2168793	Imazapyr	4.16	Spike	P	0 - 30
2168793	Imidacloprid	13.7	Spike	P	0 - 30
2168793	Linuron	12.3	Spike	P	0 - 30
2168793	Mandestrobin	9.43	Spike	P	0 - 30
2168793	MCPP	0.708	Spike	P	0 - 30
2168793	Naproxen	1.30	Spike	P	0 - 30
2168793	Primidone	11.3	Spike	P	0 - 30
2168793	Pyraclostrobin	8.64	Spike	P	0 - 30
2168793	Thiamethoxam	5.40	Spike	P	0 - 30
2168793	Tolfenpyrad	3.47	Spike	P	0 - 30
2168793	Triclopyr	2.63	Spike	P	0 - 30

Reference Method: SM 2320 B-2011
Batch ID: P381936

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2168861	Total Alkalinity	8.72	Sample	F	0 - 3.3

Reference Method: SM 2540 C-2011
Batch ID: P381904

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2168817	TDS	2.18	Sample	P	0 - 10

Quality Assurance Report Precision

Reference Method: SM 2540 C-2011
Batch ID: P381905

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2168319	TDS	7.47	Sample	P	0 - 10

Reference Method: SM 2540 D-2011
Batch ID: P381897

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2168817	TSS	8.00	Sample	P	0 - 10

Reference Method: SM 4500 F-C-2011
Batch ID: P381848

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2168898	Fluoride	1.53	Spike	P	0 - 2.0

Reference Method: SM 5310 B-2011
Batch ID: P381746

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2168825	Organic Carbon	0.281	Spike	P	0 - 20

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

Quality Assurance Report Surrogates

Lab Sample ID: 2168916

Field Sample ID: G4NW0405

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	2,4-D-d3	122	P	30 - 160
EPA 8321B	Acetaminophen-d4	98.5	P	30 - 160
EPA 8321B	Carbamazepine-d10	115	P	30 - 160
EPA 8321B	Diuron-d6	126	P	30 - 160
EPA 8321B	Endothall-d6	95.1	P	30 - 160
EPA 8321B	Endothall-d6	95.1	P	30 - 160
EPA 8321B	Glyphosate 13C 15N	116	P	30 - 160
EPA 8321B	Glyphosate 13C 15N	116	P	30 - 160
EPA 8321B	Ibuprofen-d3	87.7	P	30 - 160
EPA 8321B	Primidone-d5	111	P	30 - 160
EPA 8321B	Sucralose-d6	99.9	P	30 - 160
EPA 8321B	Sucralose-d6	99.9	P	30 - 160

Quality Assurance Report Calibration Verification

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A98582

Included Lab Sample IDs: 2168899, 2168903, 2168904, 2168905

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO2NO3-N	98.5	97.5	P/P	90 - 110
NO2NO3-N	99.0	98.5	P/P	90 - 110

Reference Method: EPA 8321B

Run ID: A98599

Included Lab Sample IDs: 2168916

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
AMPA	143	137	P/P	40 - 200
Glufosinate	120	118	P/P	40 - 200
Glyphosate	136	131	P/P	40 - 200

Reference Method: SM 5310 B-2011

Run ID: A98614

Included Lab Sample IDs: 2168899, 2168903, 2168904, 2168905

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	97.6	99.6	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A98616

Included Lab Sample IDs: 2168899

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	104	105	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A98623

Included Lab Sample IDs: 2168899, 2168903, 2168904, 2168905

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

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A98637

Included Lab Sample IDs: 2168899, 2168903, 2168904

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	101	99.4	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A98638

Included Lab Sample IDs: 2168903, 2168904, 2168905

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	99.2	99.8	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A98645

Included Lab Sample IDs: 2168905

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

Reference Method: SM 4500 F-C-2011

Run ID: A98665

Included Lab Sample IDs: 2168898, 2168900, 2168901, 2168902

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	101	99.0	P/P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1

Run ID: A98686

Included Lab Sample IDs: 2168898, 2168900, 2168901, 2168902

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	97.5	99.2	P/P	90 - 110
Chloride	98.8	97.5	P/P	90 - 110
Sulfate	98.5	100	P/P	90 - 110
Sulfate	99.8	98.5	P/P	90 - 110

Reference Method: EPA 8321B

Run ID: A98689

Included Lab Sample IDs: 2168916

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
2,4-D	107	94.1	P/P	50 - 150
Acetaminophen	90.4	88.0	P/P	60 - 160
Acetamiprid	97.1	91.6	P/P	50 - 150
Afidopyropen	92.7	93.2	P/P	50 - 150
Bentazon	86.5	91.6	P/P	50 - 160
Benzovindiflupyr	108	107	P/P	50 - 150
Carbamazepine	97.9	97.7	P/P	60 - 150
Clothianidin	103	89.6	P/P	60 - 150
Dinotefuran	86.2	86.9	P/P	50 - 150
Diuron	109	95.3	P/P	60 - 160
Fenuron	88.7	85.9	P/P	60 - 150
Fluridone	103	105	P/P	60 - 160
Hydrocodone	110	92.9	P/P	60 - 150
Ibuprofen	107	108	P/P	50 - 160
Imazapyr	94.6	102	P/P	50 - 150
Imidacloprid	99.1	95.7	P/P	60 - 150
Linuron	101	87.9	P/P	60 - 150
Mandestrobin	109	105	P/P	50 - 150
MCPP	98.4	100	P/P	50 - 150
Naproxen	115	109	P/P	50 - 160
Primidone	106	88.0	P/P	60 - 150
Pyraclostrobin	110	109	P/P	60 - 150
Thiamethoxam	94.4	92.7	P/P	50 - 150
Tolfenpyrad	111	114	P/P	60 - 150
Triclopyr	102	93.6	P/P	50 - 150

Quality Assurance Report Calibration Verification

Reference Method: EPA 200.8 Rev. 5.4

Run ID: A98700

Included Lab Sample IDs: 2168922, 2168923, 2168924, 2168925

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Aluminum	100	99.0	P/P	90 - 110
Antimony	101	99.9	P/P	90 - 110
Arsenic	102	102	P/P	90 - 110
Boron	101	99.6	P/P	90 - 110
Cadmium	100	100	P/P	90 - 110
Chromium	105	105	P/P	90 - 110
Copper	100	101	P/P	90 - 110
Lead	97.8	97.5	P/P	90 - 110
Nickel	101	102	P/P	90 - 110
Selenium	101	103	P/P	90 - 110
Silver	101	101	P/P	90 - 110
Thallium	92.8	91.5	P/P	90 - 110

Reference Method: EPA 8321B

Run ID: A98701

Included Lab Sample IDs: 2168916

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Acesulfame K	106	104	P/P	60 - 160
Endothall	94.0	89.5	P/P	60 - 160

Reference Method: SM 2320 B-2011

Run ID: A98708

Included Lab Sample IDs: 2168898, 2168900, 2168901, 2168902

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	104	96.8	P/P	90 - 110

Reference Method: EPA 200.7 Rev. 4.4

Run ID: A98713

Included Lab Sample IDs: 2168922, 2168923, 2168924, 2168925

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Barium	103	104	P/P	90 - 110
Barium	104	102	P/P	90 - 110
Calcium	102	104	P/P	90 - 110
Calcium	104	103	P/P	90 - 110
Iron	101	102	P/P	90 - 110
Iron	102	103	P/P	90 - 110
Magnesium	102	102	P/P	90 - 110
Magnesium	102	103	P/P	90 - 110
Potassium	100	102	P/P	90 - 110
Potassium	102	101	P/P	90 - 110
Sodium	101	101	P/P	90 - 110
Sodium	101	102	P/P	90 - 110
Zinc	101	103	P/P	90 - 110
Zinc	103	101	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: EPA 8321B

Run ID: A98790

Included Lab Sample IDs: 2168916

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Sucralose	109	104	P/P	60 - 160

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

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

Where they are different, both control limits are provided.

Quality Assurance Report Summary

Ref. Method	Analyte	LCS % Recovery	MS % Recovery			Precision SMP	MS
			LCS				
EPA 200.7 Rev. 4.4	Barium	100	101	100	99.5		0.507
	Calcium	106	105	103			0.376
	Iron	100	104	104	103		0.589
	Magnesium	106	103	100			0.233
	Potassium	103	107	106	103		0.688
	Sodium	103	102	104	101		0.721
	Zinc	102	104	103	101		1.17
EPA 200.8 Rev. 5.4	Aluminum	96.5	97.6	98.7	96.2		0.921
	Antimony	102	103	103	103		0.259
	Arsenic	101	100	101	101		0.975
	Boron	98.6	96.0	99.9	97.2		3.62
	Cadmium	99.9	102	101	100		0.779
	Chromium	106	106	106	106		0.393
	Copper	99.4	95.3	97.3	98.6		2.08
	Lead	96.6	96.2	96.8	96.2		0.591
	Nickel	98.4	95.4	97.0	96.6		1.68
	Selenium	101	99.0	99.0	97.7		0.0765
	Silver	101	101	100	100		1.09
	Thallium	96.2	105	96.6	105		8.37
	Chloride	98.4	98.3	98.3		0.100	
EPA 300.0 Rev. 2.1	Sulfate	98.9	97.6	98.7		0.0432	
EPA 350.1 Rev. 2.0	Ammonia-N	105					0.0441
	Ammonia-N	105	98.0	97.8			0.195
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	105	99.0	96.0			2.61
	Kjeldahl Nitrogen	100	107	103			3.24
EPA 353.2 Rev. 2.0	NO2NO3-N	98.0	97.0	100			3.54
	NO2NO3-N	97.5	96.0				0.733
EPA 365.1 Rev. 2.0	Total-P	102	103	105			1.91
	Total-P	104	108	105			2.35
EPA 8321B	2,4-D	121	103	113			9.00
	Acesulfame K	97.7	20.5	21.4			4.59
	Acetaminophen	78.3	90.5	95.3			5.18
	Acetamiprid	104	70.9	85.0			18.0
	Afidopyropen	96.5	83.3	98.1			16.3
	AMPA	107					5.23
	Bentazon	68.9					5.26
	Benzovindiflupyr	85.7	70.2	75.6			7.45
	Carbamazepine	121	73.5	84.2			10.8
	Clothianidin	94.0	76.4	89.6			16.0
	Dinotefuran	78.5	95.6	105			9.62
	Diuron	102	77.1	88.7			13.0
	Endothall	86.8	101	103			1.59
	Fenuron	107	66.9	72.5			7.94
	Fluridone	87.2					11.7
	Glufosinate	126	120	103			15.6
	Glyphosate	135					10.4
	Hydrocodone	80.3	75.4	85.5			12.6
	Ibuprofen	88.2	66.2	74.6			11.9
	Imazapyr	97.3					4.16
	Imidacloprid	112	114	132			13.7
	Linuron	74.3	51.5	58.2			12.3
	Mandestrobin	89.5	75.7	83.2			9.43
	MCP	122	106	105			0.708
	Naproxen	73.8	83.2	82.1			1.30

Quality Assurance Report Summary

Ref. Method	Analyte	LCS % Recovery	MS % Recovery		Precision	
					LCS	MS
EPA 8321B	Primidone	95.2	72.5	82.5		11.3
	Pyraclostrobin	86.4	77.6	84.6		8.64
	Sucralose	105	103	84.2		12.6
	Thiamethoxam	98.0	107	113		5.40
	Tolfenpyrad	50.4	50.2	52.0		3.47
	Triclopyr	97.8	93.8	96.3		2.63
SM 2320 B-2011	Total Alkalinity	98.9			8.72	
SM 2540 C-2011	TDS				2.18	
	TDS				7.47	
SM 2540 D-2011	TSS				8.00	
SM 4500 F-C-2011	Fluoride	98.2	97.8	96.2		1.53
SM 5310 B-2011	Organic Carbon	96.6	97.4	97.0		0.281

Reference Method Descriptions

Method	Description	Associated Samples
EPA 200.7 Rev. 4.4	Total Recoverable Metals analysis using ICP emission spectroscopy for aqueous samples supporting Clean Water Act Projects	2168922, 2168923, 2168924, 2168925
EPA 200.8 Rev. 5.4	Total Recoverable Metals analysis using ICP-MS for aqueous samples supporting Clean Water Act Projects	2168922, 2168923, 2168924, 2168925
EPA 300.0 Rev. 2.1	Chloride in aqueous matrices	2168898, 2168900, 2168901, 2168902
EPA 300.0 Rev. 2.1	Sulfate in aqueous matrices	2168898, 2168900, 2168901, 2168902
EPA 350.1 Rev. 2.0	Ammonia in aqueous matrices as mg N/L	2168899, 2168903, 2168904, 2168905
EPA 351.2 Rev. 2.0	Total Kjeldahl Nitrogen in aqueous matrices	2168899, 2168903, 2168904, 2168905
EPA 353.2 Rev. 2.0	Nitrite/Nitrate in aqueous matrices as mg N/L	2168899, 2168903, 2168904, 2168905
EPA 365.1 Rev. 2.0	Total Phosphorus in aqueous matrices as mg P/L	2168899, 2168903, 2168904, 2168905
EPA 8321B	Pesticides, herbicides, and other chemicals in water matrices by HPLC/MS/MS	2168916
EPA 8321B	Water soluble organic compounds by HPLC/MS/MS	2168916
SM 2320 B-2011	Alkalinity in aqueous matrices as mg CaCO ₃ /L	2168898, 2168900, 2168901, 2168902
SM 2340B	Hardness by calculation, in aqueous matrices, reported as mg/L CaCO ₃	2168922, 2168923, 2168924, 2168925
SM 2540 C-2011	Total Dissolved Solids in aqueous matrices	2168898, 2168900, 2168901, 2168902
SM 2540 D-2011	Total Suspended Solids in aqueous matrices using a maximum of 250 mL of sample	2168898, 2168900, 2168901, 2168902
SM 4500 F-C-2011	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	2168898, 2168900, 2168901, 2168902
SM 5310 B-2011	Nonpurgeable Organic Carbon in aqueous matrices	2168899, 2168903, 2168904, 2168905

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
EPA 200.7 Rev. 4.4	03/31/2020	04/03/2020 14:10	Alexander Thompson	04/08/2020 15:10	Betina Topolski	2168922
	03/31/2020	04/03/2020 14:10	Alexander Thompson	04/08/2020 15:16	Betina Topolski	2168923
	03/31/2020	04/03/2020 14:10	Alexander Thompson	04/08/2020 15:22	Betina Topolski	2168924
	03/31/2020	04/03/2020 14:10	Alexander Thompson	04/08/2020 15:51	Betina Topolski	2168925
EPA 200.8 Rev. 5.4	03/31/2020	04/03/2020 14:10	Alexander Thompson	04/07/2020 21:52	Justin Cutchin	2168922
	03/31/2020	04/03/2020 14:10	Alexander Thompson	04/07/2020 21:59	Justin Cutchin	2168923
	03/31/2020	04/03/2020 14:10	Alexander Thompson	04/07/2020 22:06	Justin Cutchin	2168924
	03/31/2020	04/03/2020 14:10	Alexander Thompson	04/07/2020 22:13	Justin Cutchin	2168925
EPA 300.0 Rev. 2.1	03/31/2020			04/08/2020 18:10	Jhamieka S. Greenwood	2168902
	03/31/2020			04/08/2020 20:47	Jhamieka S. Greenwood	2168898
	03/31/2020			04/08/2020 21:00	Jhamieka S. Greenwood	2168900
	03/31/2020			04/08/2020 21:13	Jhamieka S. Greenwood	2168901
EPA 350.1 Rev. 2.0	03/31/2020			04/02/2020 16:54	Julia Storbeck	2168903
	03/31/2020			04/02/2020 16:58	Julia Storbeck	2168904
	03/31/2020			04/02/2020 17:00	Julia Storbeck	2168905
	03/31/2020			04/02/2020 18:51	Julia Storbeck	2168899
EPA 351.2 Rev. 2.0	03/31/2020	04/02/2020 10:15	Sima Feizi	04/03/2020 11:22	Jhamieka S. Greenwood	2168899
	03/31/2020	04/02/2020 10:15	Sima Feizi	04/03/2020 11:24	Jhamieka S. Greenwood	2168903
	03/31/2020	04/02/2020 10:15	Sima Feizi	04/03/2020 11:25	Jhamieka S. Greenwood	2168904
	03/31/2020	04/02/2020 14:50	Jhamieka S. Greenwood	04/03/2020 14:35	Jhamieka S. Greenwood	2168905
EPA 353.2 Rev. 2.0	03/31/2020			04/01/2020 17:44	Lauren Lees	2168899
	03/31/2020			04/01/2020 17:46	Lauren Lees	2168903
	03/31/2020			04/01/2020 17:53	Lauren Lees	2168904
	03/31/2020			04/01/2020 17:59	Lauren Lees	2168905
EPA 365.1 Rev. 2.0	03/31/2020	04/02/2020 10:05	Lipi Saha	04/02/2020 18:31	Benjamin T. Nordmann	2168899
	03/31/2020	04/02/2020 10:05	Lipi Saha	04/03/2020 11:44	Lipi Saha	2168903
	03/31/2020	04/02/2020 10:05	Lipi Saha	04/03/2020 11:45	Lipi Saha	2168904
	03/31/2020	04/02/2020 10:05	Lipi Saha	04/03/2020 11:46	Lipi Saha	2168905
EPA 8321B	03/31/2020	04/01/2020 10:45	Rebecca Ware	04/01/2020 13:25	Rebecca Ware	2168916
	03/31/2020	04/01/2020 10:45	Rebecca Ware	04/02/2020 16:26	Rebecca Ware	2168916
	03/31/2020	04/01/2020 10:45	Rebecca Ware	04/14/2020 15:44	Rebecca Ware	2168916
	03/31/2020	04/03/2020 09:00	Hoor Shaik	04/07/2020 19:12	Juyoung Kim	2168916
SM 2320 B-2011	03/31/2020			04/08/2020 09:18	Samantha Davila	2168898
	03/31/2020			04/08/2020 09:30	Samantha Davila	2168900
	03/31/2020			04/08/2020 09:42	Samantha Davila	2168901
	03/31/2020			04/08/2020 09:54	Samantha Davila	2168902
SM 2340B	03/31/2020			04/08/2020 15:10	Betina Topolski	2168922
	03/31/2020			04/08/2020 15:16	Betina Topolski	2168923
	03/31/2020			04/08/2020 15:22	Betina Topolski	2168924
	03/31/2020			04/08/2020 15:51	Betina Topolski	2168925

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
SM 2540 C-2011	03/31/2020			04/01/2020 16:21	Yijie Li	2168898, 2168900, 2168901, 2168902
SM 2540 D-2011	03/31/2020			04/01/2020 16:21	Yijie Li	2168898, 2168900, 2168901, 2168902
SM 4500 F-C-2011	03/31/2020			04/05/2020 12:49	Samantha Davila	2168898
	03/31/2020			04/05/2020 13:20	Samantha Davila	2168900
	03/31/2020			04/05/2020 13:32	Samantha Davila	2168901
	03/31/2020			04/05/2020 13:45	Samantha Davila	2168902
SM 5310 B-2011	03/31/2020			04/02/2020 08:25	Madeline Gruver	2168899
	03/31/2020			04/02/2020 08:38	Madeline Gruver	2168903
	03/31/2020			04/02/2020 08:51	Madeline Gruver	2168904
	03/31/2020			04/02/2020 09:04	Madeline Gruver	2168905