

Chemical Analysis Report

NW-DIST-2020-06-24-01

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-2020-06-22-52**
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: Colin Wright, Program Administrator

Date Certified: 13-JUL-2020 11:39

A handwritten signature in black ink, appearing to read "Colin Wright", is positioned on a light-colored rectangular background.

Case Narrative

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

Results for the following analytical groups are included in this report: Metals, Nutrients and Pesticides.

Scientific notation may be used in reporting very large or small values. Values reported using scientific notation will take the form of the following example: 1.3E+03, which is equivalent to 1.3×10^3 or 1300.

Unless otherwise noted, analytical values for soil and sediment samples are reported on a dry weight basis, and analytical values for waste and tissue samples are reported on a wet weight basis.

Results for TNI accredited tests met requirements established by The NELAC Institute. A double asterisk (**) is used to indicate an analyte/matrix/method for which the laboratory is not TNI accredited by the Florida Department of Health Environmental Laboratory Certification Program or where accreditation for that field of testing is not applicable.

Any significant anomalies or deviations from established protocols are documented in Non-Conformance Reports, which, where appropriate, are included within this analytical report. Additional comments related to specific analytical tests may be included as remarks following the analytical results for each sample. Such comments and remarks are for informational purposes only and are not intended to convey judgement about the usability of the reported data.

A quality control report on the performance of the test method for the submitted samples is included. Uncertainty associated with the analytical results contained in this report can be estimated from the reported quality assurance results and from published quality control acceptance limits for each analytical test. Matrix quality control results (matrix spike recoveries and matrix sample precision) pertain only to the matrix sample tested and do not necessarily reflect test method performance for other samples.

Typical matrix quality control (QC) measurements may include matrix spike recovery, matrix spike duplicate recovery, matrix spike precision and matrix sample precision. Not all matrix QC results may be available or reportable; where they are not an explanation is provided. Typical reasons for unavailable QC results include, but are not limited to, a) insufficient matrix sample to perform some or all QC measurements; b) analyte concentration in the sample replicated was too low for a meaningful measurement of precision and c) analyte concentration in the matrix sample spiked was too high (relative to the amount of analyte spiked) for a meaningful measurement of recovery. Where matrix QC results are unavailable, other method performance metrics (e.g., LCS recovery, LCS precision, surrogate recovery) may be used to assess performance of the method. Comments explaining any missing QC measurements are not intended to convey any adverse conclusions about the quality of the reported data.

Precision is reported as relative percent difference unless otherwise noted.

Quality Control codes as defined below may be used in this report to indicate results that are associated with one or more quality control elements which did not fall within established test method criteria. Such results may be qualified as estimates using a J qualifier as required by 62-160 F.A.C. Explanations are included in the report for any results that were reported as estimates for other reasons.

QC Codes used in this report may include:

- LCS – Recovery for the batch Laboratory Control Sample (LCS) was outside existing control limits;
- MS – Recovery for the batch matrix spike (MS) was outside existing control limits;
- CCV – Recovery for a continuing calibration verification (CCV) standard was outside existing control limits;
- SUR – Recovery of a surrogate (SUR) for associated analytes was outside existing control limits;
- RPD – The precision, measured as relative percent difference (RPD), of batch replicate measurements was outside existing control limits;
- RSD – The precision, measured as relative standard deviation (RSD), of batch replicate measurements was outside existing control limits;
- SMP – Sample - used precision derived from replicate analyses of a sample;

The following data qualifiers are used, where applicable, in this report as specified in 62-160 F.A.C.

- A - Value reported is the mean of two or more determinations.
- B - Results based on colony counts outside the acceptable range.
- I - The reported value is between the laboratory method detection limit and the laboratory practical quantitation limit.
- J - Estimated value and/or the analysis did not meet established quality control criteria.
- K - Actual value is known to be less than value given.
- L - Actual value is known to be greater than value given.
- N - Presumptive evidence of presence of material.
- O - Sampled, but analysis lost or not performed.
- Q - Sample held beyond normal holding time.
- T - Value reported is less than the criterion of detection.
- U - Material was analyzed for but not detected. The reported value is the method detection limit for the sample analyzed.
- V - Analyte was detected in both sample and method blank.
- X - Too few individuals to calculate SCI value.
- Y - The laboratory analysis was from an unpreserved or improperly preserved sample. The data may not be accurate.
- Z - Colonies were too numerous to count (TNTC).

Quality control information from overflow laboratories may not be included in this report. Please refer to the associated report from the overflow laboratory for additional information.

Sample Location: Escambia River

Collection Date/Time: 06/23/2020 11:11

Field ID: G4NW0405

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2178423	EPA 180.1 Rev. 2.0	Turbidity	11		NTU	P383626	
	EPA 300.0 Rev. 2.1	Chloride	7.0		mg Cl/L	P383968	
		Sulfate	11		mg SO4/L	P383972	
	SM 2120 B-2011	Color (true)	44	A	PCU	P383630	
	SM 2320 B-2011	Total Alkalinity	39		mg CaCO3/L	P383727	
	SM 2540 C-2011	TDS	90		mg/L	P384127	
	SM 2540 D-2011	TSS	12		mg/L	P384123	
	SM 4500 F-C-2011	Fluoride	0.042	I	mg F/L	P383733	
2178424	EPA 350.1 Rev. 2.0	Ammonia-N	0.062		mg N/L	P383766	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.30		mg N/L	P383716	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.34		mg N/L	P383797	
	EPA 365.1 Rev. 2.0	Total-P	0.046		mg P/L	P383809	
	SM 5310 B-2011	Organic Carbon	4.0		mg C/L	P383792	
2178425	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.016		mg P/L	P383636	
2178441	EPA 8321B	2,4-D	0.0020	U	ug/L	P383612	
		Acesulfame K**	0.10	U	ug/L	P383480	
		AMPA**	0.10	U	ug/L	P383480	MS
		Sucralose**	0.085		ug/L	P383480	
		Acetaminophen**	0.0080	U	ug/L	P383612	
		Acetamiprid**	0.0020	U	ug/L	P383612	
		Endothall**	0.25	U	ug/L	P383480	
		Glufosinate**	0.10	U	ug/L	P383480	
		Glyphosate**	0.10	U	ug/L	P383480	
		Afidopyropen**	0.0020	U	ug/L	P383612	
		Bentazon	8.0E-04	U	ug/L	P383612	
		Benzovindiflupyr**	0.0020	U	ug/L	P383612	
		Carbamazepine**	8.0E-04	U	ug/L	P383612	
		Clothianidin**	0.0020	U	ug/L	P383612	
		Dinotefuran**	0.0020	U	ug/L	P383612	
		Diuron	0.0020	U	ug/L	P383612	
		Fenuron	0.016	U	ug/L	P383612	
		Fluridone**	8.0E-04	U	ug/L	P383612	
		Imazapyr**	0.025		ug/L	P383612	
		Hydrocodone**	0.0020	U	ug/L	P383612	
		Ibuprofen**	0.020	U	ug/L	P383612	
		Imidacloprid	0.0020	U	ug/L	P383612	
		Linuron	0.0040	U	ug/L	P383612	
		Mandestrobin**	0.0020	U	ug/L	P383612	
		MCPD	0.0020	U	ug/L	P383612	
		Naproxen**	0.0080	U	ug/L	P383612	
		Primidone**	0.0040	U	ug/L	P383612	
		Pyraclostrobin**	0.0020	U	ug/L	P383612	
		Thiamethoxam**	0.0020	U	ug/L	P383612	

Field ID: G4NW0405

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2178441	EPA 8321B	Tolfenpyrad**	0.0020	U	ug/L	P383612	
		Triclopyr**	0.0040	U	ug/L	P383612	
2178442	EPA 200.7 Rev. 4.4	Barium	34.8		ug/L	P383802	
		Calcium	14.2		mg/L	P383802	
		Iron	1.53E+03		ug/L	P383802	
		Magnesium	1.55		mg/L	P383802	
		Potassium	1.2	I	mg/L	P383802	
		Sodium	10.0		mg/L	P383802	
		Zinc	5.0	U	ug/L	P383802	
		Aluminum	5.0	U	ug/L	P383802	
	EPA 200.8 Rev. 5.4	Antimony	0.050	U	ug/L	P383802	
		Arsenic	0.050	U	ug/L	P383802	
		Boron**	12.0		ug/L	P383802	
		Cadmium	0.020	U	ug/L	P383802	
		Chromium	0.40	U	ug/L	P383802	
		Copper	0.40	U	ug/L	P383802	
		Lead	0.20	U	ug/L	P383802	
		Nickel	0.50	U	ug/L	P383802	
		Selenium	0.20	U	ug/L	P383802	
		Silver	0.010	U	ug/L	P383802	
		Thallium	0.10	U	ug/L	P383802	
		Hardness	41.8		mg/L	P383802	

Ref. Method and Comment:

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

EPA 8321B: MS accuracy for bentazon 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: 06/23/2020 11:55

Field ID: G4NW0504

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2178426	EPA 180.1 Rev. 2.0	Turbidity	11		NTU	P383626	
	EPA 300.0 Rev. 2.1	Chloride	6.9		mg Cl/L	P383968	
		Sulfate	11		mg SO4/L	P383972	
		Color (true)	45	A	PCU	P383631	
	SM 2320 B-2011	Total Alkalinity	39		mg CaCO3/L	P383728	
	SM 2540 C-2011	TDS	89		mg/L	P384127	
	SM 2540 D-2011	TSS	14		mg/L	P384123	
	SM 4500 F-C-2011	Fluoride	0.042	I	mg F/L	P383734	
2178428	EPA 350.1 Rev. 2.0	Ammonia-N	0.058		mg N/L	P383767	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.32		mg N/L	P383716	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.34		mg N/L	P383797	
	EPA 365.1 Rev. 2.0	Total-P	0.050		mg P/L	P383809	
	SM 5310 B-2011	Organic Carbon	4.0		mg C/L	P383792	
2178430	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.016		mg P/L	P383636	
2178443	EPA 200.7 Rev. 4.4	Barium	35.6		ug/L	P383802	
		Calcium	14.1		mg/L	P383802	
		Iron	1.59E+03		ug/L	P383802	
		Magnesium	1.53		mg/L	P383802	
		Potassium	1.2	I	mg/L	P383802	
		Sodium	9.9		mg/L	P383802	
		Zinc	5.0	U	ug/L	P383802	
	EPA 200.8 Rev. 5.4	Aluminum	405		ug/L	P383802	
		Antimony	0.050	U	ug/L	P383802	
		Arsenic	0.87		ug/L	P383802	
		Boron**	12.1		ug/L	P383802	
		Cadmium	0.020	U	ug/L	P383802	
		Chromium	1.1	I	ug/L	P383802	
		Copper	0.52	I	ug/L	P383802	
		Lead	0.43		ug/L	P383802	
		Nickel	0.88	I	ug/L	P383802	
		Selenium	0.20	U	ug/L	P383802	
		Silver	0.010	U	ug/L	P383802	
		Thallium	0.10	U	ug/L	P383802	
	SM 2340B	Hardness	41.5		mg/L	P383802	

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: Escambia River upstream of Mitchell Creek

Collection Date/Time: 06/23/2020 12:08

Field ID: G4NW0404

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2178427	EPA 180.1 Rev. 2.0	Turbidity	12	A	NTU	P383627	
	EPA 300.0 Rev. 2.1	Chloride	7.0		mg Cl/L	P383968	
		Sulfate	11		mg SO4/L	P383972	
		Color (true)	44		PCU	P383631	
	SM 2320 B-2011	Total Alkalinity	38		mg CaCO3/L	P383728	
	SM 2540 C-2011	TDS	85		mg/L	P384127	
	SM 2540 D-2011	TSS	14		mg/L	P384123	
	SM 4500 F-C-2011	Fluoride	0.042	I	mg F/L	P383734	
2178429	EPA 350.1 Rev. 2.0	Ammonia-N	0.052		mg N/L	P383767	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.30		mg N/L	P383716	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.35		mg N/L	P383797	
	EPA 365.1 Rev. 2.0	Total-P	0.045		mg P/L	P383809	
	SM 5310 B-2011	Organic Carbon	3.9		mg C/L	P383792	
2178431	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.015		mg P/L	P383637	
2178444	EPA 200.7 Rev. 4.4	Barium	35.2		ug/L	P383802	
		Calcium	13.8		mg/L	P383802	
		Iron	1.66E+03		ug/L	P383802	
		Magnesium	1.54		mg/L	P383802	
		Potassium	1.2	I	mg/L	P383802	
		Sodium	9.9		mg/L	P383802	
		Zinc	5.0	U	ug/L	P383802	
	EPA 200.8 Rev. 5.4	Aluminum	456		ug/L	P383802	
		Antimony	0.050	U	ug/L	P383802	
		Arsenic	0.88		ug/L	P383802	
		Boron**	11.8		ug/L	P383802	
		Cadmium	0.020	U	ug/L	P383802	
		Chromium	1.1	I	ug/L	P383802	
		Copper	0.48	I	ug/L	P383802	
		Lead	0.46		ug/L	P383802	
		Nickel	0.88	I	ug/L	P383802	
		Selenium	0.20	U	ug/L	P383802	
		Silver	0.010	U	ug/L	P383802	
		Thallium	0.10	U	ug/L	P383802	
	SM 2340B	Hardness	40.9		mg/L	P383802	

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: P383626

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P383627

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P383802

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: P383802

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: P383968

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P383972

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Quality Assurance Report

Method Blank Results

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P383766

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P383767

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P383716

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P383797

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P383809

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P383636

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P383637

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

Reference Method: EPA 8321B
Batch ID: P383480

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

Quality Assurance Report Method Blank Results

Reference Method: EPA 8321B
Batch ID: P383612

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
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: P383630

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2120 B-2011
Batch ID: P383631

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2320 B-2011
Batch ID: P383727

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

Reference Method: SM 2320 B-2011
Batch ID: P383728

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

Quality Assurance Report

Method Blank Results

Reference Method: SM 2540 C-2011
Batch ID: P384127

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-2011
Batch ID: P384123

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500 F-C-2011
Batch ID: P383733

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 4500 F-C-2011
Batch ID: P383734

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-2011
Batch ID: P383792

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: P383802

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Barium	104		P	85 - 115
Calcium	100		P	85 - 115
Iron	104		P	85 - 115
Magnesium	105		P	85 - 115
Potassium	98.3		P	85 - 115
Sodium	97.2		P	85 - 115
Zinc	105		P	85 - 115

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P383802

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Aluminum	101		P	85 - 115
Antimony	99.5		P	85 - 115
Arsenic	103		P	85 - 115
Boron	102		P	85 - 115
Cadmium	102		P	85 - 115
Chromium	102		P	85 - 115
Copper	104		P	85 - 115
Lead	102		P	85 - 115
Nickel	101		P	85 - 115
Selenium	100		P	85 - 115
Silver	102		P	85 - 115
Thallium	104		P	85 - 115

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P383968

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P383972

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P383766

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P383767

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Ammonia-N	99.2		P	90 - 110

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P383716

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P383797

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P383809

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P383636

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P383637

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

Reference Method: EPA 8321B
Batch ID: P383480

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Acesulfame K	97.0		P	40 - 150
AMPA	90.1		P	40 - 150
Endothall	73.7		P	40 - 150
Glufosinate	102		P	40 - 150
Glyphosate	79.9		P	40 - 140
Sucralose	81.0		P	40 - 150

Reference Method: EPA 8321B
Batch ID: P383612

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2,4-D	104		P	30 - 160
Acetaminophen	76.7		P	30 - 160
Acetamiprid	77.4		P	30 - 160
Afidopyropen	58.1		P	30 - 160
Bentazon	56.3		P	30 - 160
Benzovindiflupyr	58.9		P	30 - 160
Carbamazepine	62.1		P	30 - 160
Clothianidin	86.7		P	30 - 160
Dinotefuran	87.2		P	30 - 160
Diuron	56.4		P	30 - 160
Fenuron	103		P	30 - 160

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 8321B
Batch ID: P383612

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluridone	73.6		P	30 - 160
Hydrocodone	89.8		P	30 - 160
Ibuprofen	55.9		P	30 - 160
Imazapyr	78.8		P	30 - 160
Imidacloprid	92.9		P	30 - 160
Linuron	54.6		P	30 - 160
Mandestrobin	66.7		P	30 - 160
MCPP	110		P	30 - 160
Naproxen	58.2		P	30 - 160
Primidone	82.1		P	30 - 160
Pyraclostrobin	59.0		P	30 - 160
Thiamethoxam	78.9		P	30 - 160
Tolfenpyrad	44.7		P	30 - 160
Triclopyr	75.2		P	30 - 160

Reference Method: SM 2120 B-2011
Batch ID: P383630

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Color (true)	99.9		P	85 - 115

Reference Method: SM 2120 B-2011
Batch ID: P383631

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Color (true)	101		P	85 - 115

Reference Method: SM 2320 B-2011
Batch ID: P383727

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

Reference Method: SM 2320 B-2011
Batch ID: P383728

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

Reference Method: SM 4500 F-C-2011
Batch ID: P383733

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	99.4		P	90 - 106

Reference Method: SM 4500 F-C-2011
Batch ID: P383734

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	98.9		P	90 - 106

Quality Assurance Report

Laboratory Control Sample Accuracy

Reference Method: SM 5310 B-2011
Batch ID: P383792

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	99.7		P	85 - 115

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P383802

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2178510	Barium	104	104	P/P	80 - 120
2178510	Calcium	104		P	80 - 120
2178510	Iron	103	103	P/P	80 - 120
2178510	Magnesium	103	104	P/P	80 - 120
2178510	Potassium	97.0	97.0	P/P	80 - 120
2178510	Sodium	99.5		P	80 - 120
2178510	Zinc	108	108	P/P	80 - 120
2178946	Barium	104		P	80 - 120
2178946	Calcium	106		P	80 - 120
2178946	Iron	104		P	80 - 120
2178946	Magnesium	103		P	80 - 120
2178946	Potassium	96.1		P	80 - 120
2178946	Sodium	102		P	80 - 120
2178946	Zinc	108		P	80 - 120

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P383802

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2178510	Aluminum	100	101	P/P	80 - 120
2178510	Antimony	100	100	P/P	80 - 120
2178510	Arsenic	103	103	P/P	80 - 120
2178510	Boron	94.7	101	P/P	80 - 120
2178510	Cadmium	99.5	98.6	P/P	80 - 120
2178510	Chromium	101	104	P/P	80 - 120
2178510	Copper	102	103	P/P	80 - 120
2178510	Lead	101	103	P/P	80 - 120
2178510	Nickel	98.3	98.8	P/P	80 - 120
2178510	Selenium	100	101	P/P	80 - 120
2178510	Silver	101	103	P/P	80 - 120
2178510	Thallium	107	108	P/P	80 - 120
2178946	Aluminum	99.7		P	80 - 120
2178946	Antimony	101		P	80 - 120
2178946	Arsenic	104		P	80 - 120
2178946	Boron	98.5		P	80 - 120
2178946	Cadmium	102		P	80 - 120
2178946	Chromium	104		P	80 - 120
2178946	Copper	101		P	80 - 120
2178946	Lead	102		P	80 - 120
2178946	Nickel	100		P	80 - 120
2178946	Selenium	99.0		P	80 - 120
2178946	Silver	102		P	80 - 120
2178946	Thallium	107		P	80 - 120

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P383968

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2178287	Chloride	101		P	90 - 110
2178366	Chloride	106		P	90 - 110

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P383972

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2178287	Sulfate	103		P	90 - 110
2178366	Sulfate	108		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P383766

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2178367	Ammonia-N	102	102	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P383767

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2178519	Ammonia-N	99.9	99.8	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P383716

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2178460	Kjeldahl Nitrogen	102	109	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P383797

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2178392	NO2NO3-N	99.5	99.5	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P383809

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2178403	Total-P	96.5	97.6	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P383636

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2178425	O-Phosphate-P	95.4	96.4	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P383637

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2178461	O-Phosphate-P	95.5	96.9	P/P	90 - 110

Reference Method: EPA 8321B
Batch ID: P383480

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2177768	Acesulfame K	44.0	47.0	P/P	40 - 150
2177768	AMPA	29.2	32.5	F/F	40 - 150
2177768	Endothall	58.2	64.4	P/P	40 - 150

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 8321B
Batch ID: P383480

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2177768	Glufosinate	50.3	58.6	P/P	40 - 150
2177768	Glyphosate	54.7	62.4	P/P	40 - 140
2177768	Sucralose	87.9	90.1	P/P	40 - 150

Reference Method: EPA 8321B
Batch ID: P383612

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2177972	2,4-D	117	106	P/P	30 - 160
2177972	Acetaminophen	107	97.5	P/P	30 - 160
2177972	Acetamiprid	85.6	75.7	P/P	30 - 160
2177972	Afidopyropen	69.1	62.5	P/P	30 - 160
2177972	Benzovindiflupyr	74.2	73.6	P/P	30 - 160
2177972	Carbamazepine	72.7	68.4	P/P	30 - 160
2177972	Clothianidin	111	99.8	P/P	30 - 160
2177972	Dinotefuran	111	104	P/P	30 - 160
2177972	Diuron	63.6	59.3	P/P	30 - 160
2177972	Fenuron	103	94.5	P/P	30 - 160
2177972	Fluridone	84.8	84.8	P/P	30 - 160
2177972	Hydrocodone	102	88.1	P/P	30 - 160
2177972	Ibuprofen	73.2	69.5	P/P	30 - 160
2177972	Imazapyr	103	95.6	P/P	30 - 160
2177972	Imidacloprid	150	143	P/P	30 - 160
2177972	Linuron	63.7	60.3	P/P	30 - 160
2177972	Mandestrobin	68.7	74.2	P/P	30 - 160
2177972	MCP	132	126	P/P	30 - 160
2177972	Naproxen	103	116	P/P	30 - 160
2177972	Primidone	94.8	83.8	P/P	30 - 160
2177972	Pyraclostrobin	75.1	67.7	P/P	30 - 160
2177972	Thiamethoxam	106	98.4	P/P	30 - 160
2177972	Tolfenpyrad	41.7	35.9	P/P	30 - 160
2177972	Triclopyr	106	103	P/P	30 - 160

Reference Method: SM 4500 F-C-2011
Batch ID: P383733

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2178195	Fluoride	99.4	97.1	P/P	94 - 107

Reference Method: SM 4500 F-C-2011
Batch ID: P383734

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2178450	Fluoride	100	97.4	P/P	94 - 107

Reference Method: SM 5310 B-2011
Batch ID: P383792

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2178460	Organic Carbon	100	100	P/P	85 - 115

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P383626

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2178397	Turbidity	2.40	Sample	P	0 - 20

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P383627

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2178427	Turbidity	0.866	Sample	P	0 - 20

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P383802

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2178510	Barium	0.631	Spike	P	0 - 20
2178510	Calcium	1.41	Spike	P	0 - 20
2178510	Iron	0.0302	Spike	P	0 - 20
2178510	Magnesium	0.422	Spike	P	0 - 20
2178510	Potassium	0.0619	Spike	P	0 - 20
2178510	Sodium	1.25	Spike	P	0 - 20
2178510	Zinc	0.185	Spike	P	0 - 20

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P383802

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2178510	Aluminum	0.820	Spike	P	0 - 20
2178510	Antimony	0.193	Spike	P	0 - 20
2178510	Arsenic	0.543	Spike	P	0 - 20
2178510	Boron	5.25	Spike	P	0 - 20
2178510	Cadmium	0.901	Spike	P	0 - 20
2178510	Chromium	2.62	Spike	P	0 - 20
2178510	Copper	1.33	Spike	P	0 - 20
2178510	Lead	1.99	Spike	P	0 - 20
2178510	Nickel	0.549	Spike	P	0 - 20
2178510	Selenium	0.256	Spike	P	0 - 20
2178510	Silver	1.38	Spike	P	0 - 20
2178510	Thallium	1.32	Spike	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P383968

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2178366	Chloride	1.90	Sample	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P383972

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2178366	Sulfate	2.09	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P383766

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2178367	Ammonia-N	0.430	Spike	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P383767

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2178519	Ammonia-N	0.0581	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P383716

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2178460	Kjeldahl Nitrogen	4.84	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P383797

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2178392	NO2NO3-N	0.0	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P383809

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2178403	Total-P	0.898	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P383636

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2178425	O-Phosphate-P	0.890	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P383637

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2178461	O-Phosphate-P	1.05	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 8321B
Batch ID: P383480

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2177768	Acesulfame K	6.58	Spike	P	0 - 30
2177768	AMPA	2.70	Spike	P	0 - 30
2177768	Endothall	10.1	Spike	P	0 - 30
2177768	Glufosinate	15.3	Spike	P	0 - 30
2177768	Glyphosate	1.42	Spike	P	0 - 30
2177768	Sucralose	2.51	Spike	P	0 - 30

Reference Method: EPA 8321B
Batch ID: P383612

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2177972	2,4-D	9.73	Spike	P	0 - 30
2177972	Acetaminophen	9.50	Spike	P	0 - 30
2177972	Acetamiprid	12.2	Spike	P	0 - 30
2177972	Afidopyropen	10.0	Spike	P	0 - 30
2177972	Bentazon	5.51	Spike	P	0 - 30
2177972	Benzovindiflupyr	0.733	Spike	P	0 - 30
2177972	Carbamazepine	6.17	Spike	P	0 - 30
2177972	Clothianidin	4.74	Spike	P	0 - 30
2177972	Dinotefuran	6.53	Spike	P	0 - 30
2177972	Diuron	6.97	Spike	P	0 - 30
2177972	Fenuron	8.96	Spike	P	0 - 30
2177972	Fluridone	0.0141	Spike	P	0 - 30
2177972	Hydrocodone	15.0	Spike	P	0 - 30
2177972	Ibuprofen	5.24	Spike	P	0 - 30
2177972	Imazapyr	6.62	Spike	P	0 - 30
2177972	Imidacloprid	3.59	Spike	P	0 - 30
2177972	Linuron	5.60	Spike	P	0 - 30
2177972	Mandestrobin	7.81	Spike	P	0 - 30
2177972	MCP	4.74	Spike	P	0 - 30
2177972	Naproxen	12.1	Spike	P	0 - 30
2177972	Primidone	11.3	Spike	P	0 - 30
2177972	Pyraclostrobin	10.3	Spike	P	0 - 30
2177972	Thiamethoxam	7.08	Spike	P	0 - 30
2177972	Tolfenpyrad	14.9	Spike	P	0 - 30
2177972	Triclopyr	2.37	Spike	P	0 - 30

Reference Method: SM 2120 B-2011
Batch ID: P383630

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2178423	Color (true)	0.752	Sample	P	0 - 20

Reference Method: SM 2120 B-2011
Batch ID: P383631

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2178426	Color (true)	1.12	Sample	P	0 - 20

Quality Assurance Report Precision

Reference Method: SM 2320 B-2011
 Batch ID: P383727

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2178195	Total Alkalinity	2.38	Sample	P	0 - 8.1

Reference Method: SM 2320 B-2011
 Batch ID: P383728

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2178450	Total Alkalinity	1.39	Sample	P	0 - 8.1

Reference Method: SM 2540 C-2011
 Batch ID: P384127

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2178398	TDS	8.20	Sample	P	0 - 10

Reference Method: SM 4500 F-C-2011
 Batch ID: P383733

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2178195	Fluoride	1.45	Spike	P	0 - 2.8

Reference Method: SM 4500 F-C-2011
 Batch ID: P383734

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2178450	Fluoride	1.92	Spike	P	0 - 2.8

Reference Method: SM 5310 B-2011
 Batch ID: P383792

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2178460	Organic Carbon	0.0798	Spike	P	0 - 20

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

Quality Assurance Report Surrogates

Lab Sample ID: 2178441
Field Sample ID: G4NW0405

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	2,4-D-d3	90.3	P	30 - 160
EPA 8321B	Acetaminophen-d4	93.8	P	30 - 160
EPA 8321B	Carbamazepine-d10	59.7	P	30 - 160
EPA 8321B	Diuron-d6	66.8	P	30 - 160
EPA 8321B	Endothall-d6	80.1	P	50 - 160
EPA 8321B	Endothall-d6	80.1	P	50 - 160
EPA 8321B	Glyphosate 13C 15N	99.3	P	30 - 160
EPA 8321B	Glyphosate 13C 15N	99.3	P	30 - 160
EPA 8321B	Ibuprofen-d3	69.5	P	30 - 160
EPA 8321B	Primidone-d5	86.4	P	30 - 160
EPA 8321B	Sucralose-d6	91.4	P	30 - 160
EPA 8321B	Sucralose-d6	91.4	P	30 - 160

Quality Assurance Report Calibration Verification

Reference Method: EPA 180.1 Rev. 2.0

Run ID: A99497

Included Lab Sample IDs: 2178423, 2178426, 2178427

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Turbidity	102	102	P/P	95 - 105
Turbidity	102	102	P/P	95 - 105

Reference Method: SM 2120 B-2011

Run ID: A99499

Included Lab Sample IDs: 2178423, 2178426, 2178427

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	102	103	P/P	90 - 115
Color (true)	100	102	P/P	90 - 115

Reference Method: EPA 365.1 Rev. 2.0 dissolved

Run ID: A99500

Included Lab Sample IDs: 2178425, 2178430, 2178431

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	97.8	97.9	P/P	90 - 110
O-Phosphate-P	97.9	96.8	P/P	90 - 110

Reference Method: EPA 8321B

Run ID: A99501

Included Lab Sample IDs: 2178441

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Acesulfame K	70.8	70.8	P/P	60 - 160
Endothall	79.4	75.8	P/P	60 - 160

Reference Method: EPA 8321B

Run ID: A99502

Included Lab Sample IDs: 2178441

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
AMPA	101	100	P/P	60 - 160
Glufosinate	102	105	P/P	60 - 160
Glyphosate	86.9	87.3	P/P	60 - 160

Reference Method: EPA 8321B

Run ID: A99529

Included Lab Sample IDs: 2178441

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Sucralose	84.4	83.3	P/P	60 - 160

Reference Method: SM 2320 B-2011

Run ID: A99540

Included Lab Sample IDs: 2178423, 2178426, 2178427

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	103	99.9	P/P	90 - 110
Total Alkalinity	99.9	101	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: SM 4500 F-C-2011

Run ID: A99540

Included Lab Sample IDs: 2178423, 2178426, 2178427

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

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A99556

Included Lab Sample IDs: 2178424, 2178428, 2178429

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	101	94.9	P/P	90 - 110
Ammonia-N	102	101	P/P	90 - 110

Reference Method: SM 5310 B-2011

Run ID: A99564

Included Lab Sample IDs: 2178424, 2178428, 2178429

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	100	99.6	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A99570

Included Lab Sample IDs: 2178424, 2178428, 2178429

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO2NO3-N	100	101	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A99571

Included Lab Sample IDs: 2178424, 2178428, 2178429

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	100	96.3	P/P	90 - 110

Reference Method: EPA 8321B

Run ID: A99572

Included Lab Sample IDs: 2178441

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
2,4-D	95.8	90.0	P/P	50 - 150
Acetaminophen	111	115	P/P	60 - 160
Acetamiprid	116	119	P/P	50 - 150
Afidopyropen	80.1	66.6	P/P	50 - 150
Bentazon	81.3	78.7	P/P	50 - 160
Benzovindiflupyr	111	92.8	P/P	50 - 150
Carbamazepine	105	102	P/P	60 - 150
Clothianidin	105	113	P/P	60 - 150
Dinotefuran	103	109	P/P	50 - 150
Diuron	96.0	90.1	P/P	60 - 160
Fenuron	68.7	75.0	P/P	60 - 150
Fluridone	113	95.6	P/P	60 - 160
Hydrocodone	119	121	P/P	60 - 150
Ibuprofen	70.0	98.3	P/P	50 - 160

Quality Assurance Report Calibration Verification

Reference Method: EPA 8321B
Run ID: A99572
Included Lab Sample IDs: 2178441

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Imazapyr	97.8	115	P/P	50 - 150
Imidacloprid	104	105	P/P	60 - 150
Linuron	83.8	89.9	P/P	60 - 150
Mandestrobin	92.6	89.5	P/P	50 - 150
MCPP	93.3	107	P/P	50 - 150
Naproxen	83.0	87.6	P/P	50 - 160
Primidone	98.4	111	P/P	60 - 150
Pyraclostrobin	88.3	83.3	P/P	60 - 150
Thiamethoxam	107	108	P/P	50 - 150
Tolfenpyrad	77.4	70.9	P/P	60 - 150
Triclopyr	103	90.5	P/P	50 - 150

Reference Method: EPA 365.1 Rev. 2.0
Run ID: A99590
Included Lab Sample IDs: 2178428

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

Reference Method: EPA 200.7 Rev. 4.4
Run ID: A99614
Included Lab Sample IDs: 2178442, 2178443, 2178444

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Barium	102	103	P/P	90 - 110
Calcium	100	101	P/P	90 - 110
Iron	101	101	P/P	90 - 110
Magnesium	100	102	P/P	90 - 110
Potassium	97.9	97.2	P/P	90 - 110
Sodium	98.5	98.7	P/P	90 - 110
Zinc	104	106	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Run ID: A99617
Included Lab Sample IDs: 2178424, 2178429

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	94.8	94.5	P/P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Run ID: A99640
Included Lab Sample IDs: 2178423, 2178426, 2178427

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	99.6	99.8	P/P	90 - 110
Sulfate	101	101	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: EPA 200.8 Rev. 5.4

Run ID: A99728

Included Lab Sample IDs: 2178442, 2178443, 2178444

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Aluminum	103	104	P/P	90 - 110
Aluminum	104	105	P/P	90 - 110
Antimony	100	101	P/P	90 - 110
Antimony	101	100	P/P	90 - 110
Arsenic	104	104	P/P	90 - 110
Arsenic	105	104	P/P	90 - 110
Cadmium	102	103	P/P	90 - 110
Cadmium	103	104	P/P	90 - 110
Chromium	101	101	P/P	90 - 110
Chromium	101	101	P/P	90 - 110
Copper	102	101	P/P	90 - 110
Lead	103	104	P/P	90 - 110
Lead	103	103	P/P	90 - 110
Nickel	101	100	P/P	90 - 110
Nickel	103	101	P/P	90 - 110
Selenium	102	104	P/P	90 - 110
Selenium	104	102	P/P	90 - 110
Silver	102	103	P/P	90 - 110
Silver	103	103	P/P	90 - 110
Thallium	101	102	P/P	90 - 110
Thallium	102	101	P/P	90 - 110

Reference Method: EPA 200.8 Rev. 5.4

Run ID: A99751

Included Lab Sample IDs: 2178442, 2178443, 2178444

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Boron	101	104	P/P	90 - 110
Boron	104	105	P/P	90 - 110
Copper	100	98.4	P/P	90 - 110

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

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

Where they are different, both control limits are provided.

Quality Assurance Report Summary

Ref. Method	Analyte	LCS % Recovery	MS % Recovery			Precision SMP	MS
			LCS				
EPA 180.1 Rev. 2.0	Turbidity					2.40	
	Turbidity					0.866	
EPA 200.7 Rev. 4.4	Barium	104	104	104	104		0.631
	Calcium	100	104	106			1.41
	Iron	104	103	103	104		0.0302
	Magnesium	105	103	104	103		0.422
	Potassium	98.3	97.0	97.0	96.1		0.0619
	Sodium	97.2	99.5	102			1.25
	Zinc	105	108	108	108		0.185
EPA 200.8 Rev. 5.4	Aluminum	101	100	101	99.7		0.820
	Antimony	99.5	100	100	101		0.193
	Arsenic	103	103	103	104		0.543
	Boron	102	94.7	101	98.5		5.25
	Cadmium	102	99.5	98.6	102		0.901
	Chromium	102	101	104	104		2.62
	Copper	104	102	103	101		1.33
	Lead	102	101	103	102		1.99
	Nickel	101	98.3	98.8	100		0.549
	Selenium	100	100	101	99.0		0.256
	Silver	102	101	103	102		1.38
	Thallium	104	107	108	107		1.32
EPA 300.0 Rev. 2.1	Chloride	101	106	101		1.90	
	Sulfate	104	108	103		2.09	
EPA 350.1 Rev. 2.0	Ammonia-N	99.8	102	102			0.430
	Ammonia-N	99.2	99.9	99.8			0.0581
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	105	102	109			4.84
EPA 353.2 Rev. 2.0	NO ₂ NO ₃ -N	100	99.5	99.5			0.0
EPA 365.1 Rev. 2.0	Total-P	99.6	96.5	97.6			0.898
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	96.5	95.4	96.4			0.890
	O-Phosphate-P	97.5	95.5	96.9			1.05
EPA 8321B	2,4-D	104	117	106			9.73
	Acesulfame K	97.0	44.0	47.0			6.58
	Acetaminophen	76.7	107	97.5			9.50
	Acetamiprid	77.4	85.6	75.7			12.2
	Afidopyropen	58.1	69.1	62.5			10.0
	AMPA	90.1	29.2	32.5			2.70
	Bentazon	56.3					5.51
	Benzovindiflupyr	58.9	74.2	73.6			0.733
	Carbamazepine	62.1	72.7	68.4			6.17
	Clothianidin	86.7	111	99.8			4.74
	Dinotefuran	87.2	111	104			6.53
	Diuron	56.4	63.6	59.3			6.97
	Endothall	73.7	58.2	64.4			10.1
	Fenuron	103	103	94.5			8.96
	Fluridone	73.6	84.8	84.8			0.0141
	Glufosinate	102	50.3	58.6			15.3
	Glyphosate	79.9	54.7	62.4			1.42
	Hydrocodone	89.8	102	88.1			15.0
	Ibuprofen	55.9	73.2	69.5			5.24
	Imazapyr	78.8	103	95.6			6.62
	Imidacloprid	92.9	150	143			3.59
	Linuron	54.6	63.7	60.3			5.60
	Mandestrobin	66.7	68.7	74.2			7.81
	MCPP	110	132	126			4.74

Quality Assurance Report Summary

Ref. Method	Analyte	LCS % Recovery	MS % Recovery		Precision	
					LCS	MS
EPA 8321B	Naproxen	58.2	103	116		12.1
	Primidone	82.1	94.8	83.8		11.3
	Pyraclostrobin	59.0	75.1	67.7		10.3
	Sucralose	81.0	87.9	90.1		2.51
	Thiamethoxam	78.9	106	98.4		7.08
	Tolfenpyrad	44.7	41.7	35.9		14.9
	Triclopyr	75.2	106	103		2.37
SM 2120 B-2011	Color (true)	99.9			0.752	
	Color (true)	101			1.12	
SM 2320 B-2011	Total Alkalinity	101			2.38	
	Total Alkalinity	101			1.39	
SM 2540 C-2011	TDS				8.20	
SM 4500 F-C-2011	Fluoride	99.4	99.4	97.1		1.45
	Fluoride	98.9	100	97.4		1.92
SM 5310 B-2011	Organic Carbon	99.7	100	100		0.0798

Reference Method Descriptions

Method	Description	Associated Samples
EPA 180.1 Rev. 2.0	Turbidity in aqueous matrices	2178423, 2178426, 2178427
EPA 200.7 Rev. 4.4	Total Recoverable Metals analysis using ICP emission spectroscopy for aqueous samples supporting Clean Water Act Projects	2178442, 2178443, 2178444
EPA 200.8 Rev. 5.4	Total Recoverable Metals analysis using ICP-MS for aqueous samples supporting Clean Water Act Projects	2178442, 2178443, 2178444
EPA 300.0 Rev. 2.1	Chloride in aqueous matrices	2178423, 2178426, 2178427
EPA 300.0 Rev. 2.1	Sulfate in aqueous matrices	2178423, 2178426, 2178427
EPA 350.1 Rev. 2.0	Ammonia in aqueous matrices as mg N/L	2178424, 2178428, 2178429
EPA 351.2 Rev. 2.0	Total Kjeldahl Nitrogen in aqueous matrices	2178424, 2178428, 2178429
EPA 353.2 Rev. 2.0	Nitrite/Nitrate in aqueous matrices as mg N/L	2178424, 2178428, 2178429
EPA 365.1 Rev. 2.0	Total Phosphorus in aqueous matrices as mg P/L	2178424, 2178428, 2178429
EPA 365.1 Rev. 2.0 dissolved	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	2178425, 2178430, 2178431
EPA 8321B	Pesticides, herbicides, and other chemicals in water matrices by HPLC/MS/MS	2178441
EPA 8321B	Water soluble organic compounds by HPLC/MS/MS	2178441
SM 2120 B-2011	True Color measured at 450 nm (not valid for NPDES monitoring)	2178423, 2178426, 2178427
SM 2320 B-2011	Alkalinity in aqueous matrices as mg CaCO3/L	2178423, 2178426, 2178427
SM 2340B	Hardness by calculation, in aqueous matrices, reported as mg/L CaCO3	2178442, 2178443, 2178444
SM 2540 C-2011	Total Dissolved Solids in aqueous matrices	2178423, 2178426, 2178427
SM 2540 D-2011	Total Suspended Solids in aqueous matrices using a maximum of 250 mL of sample	2178423, 2178426, 2178427
SM 4500 F-C-2011	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	2178423, 2178426, 2178427
SM 5310 B-2011	Nonpurgeable Organic Carbon in aqueous matrices	2178424, 2178428, 2178429

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
EPA 180.1 Rev. 2.0	06/24/2020			06/24/2020 15:01	Yen Ta	2178423, 2178426, 2178427
EPA 200.7 Rev. 4.4	06/24/2020	06/29/2020 14:30	Elliott D. Healy	06/30/2020 16:28	Betina Topolski	2178442
	06/24/2020	06/29/2020 14:30	Elliott D. Healy	06/30/2020 16:36	Betina Topolski	2178443
	06/24/2020	06/29/2020 14:30	Elliott D. Healy	06/30/2020 16:44	Betina Topolski	2178444
EPA 200.8 Rev. 5.4	06/24/2020	06/29/2020 14:30	Elliott D. Healy	07/07/2020 14:07	Alexander Thompson	2178442
	06/24/2020	06/29/2020 14:30	Elliott D. Healy	07/07/2020 15:00	Alexander Thompson	2178443
	06/24/2020	06/29/2020 14:30	Elliott D. Healy	07/07/2020 15:08	Alexander Thompson	2178444
	06/24/2020	06/29/2020 14:30	Elliott D. Healy	07/08/2020 14:15	Alexander Thompson	2178442
	06/24/2020	06/29/2020 14:30	Elliott D. Healy	07/08/2020 14:52	Alexander Thompson	2178443
	06/24/2020	06/29/2020 14:30	Elliott D. Healy	07/08/2020 14:57	Alexander Thompson	2178444
EPA 300.0 Rev. 2.1	06/24/2020			06/30/2020 05:57	Julia Storbeck	2178423
	06/24/2020			06/30/2020 06:09	Julia Storbeck	2178426
	06/24/2020			06/30/2020 06:21	Julia Storbeck	2178427
EPA 350.1 Rev. 2.0	06/24/2020			06/27/2020 16:01	Ping Hua	2178424
	06/24/2020			06/27/2020 16:06	Ping Hua	2178428
	06/24/2020			06/27/2020 16:16	Ping Hua	2178429
EPA 351.2 Rev. 2.0	06/24/2020	06/26/2020 11:30	Elliott Rodriguez	06/29/2020 10:05	Jhamieka S. Greenwood	2178424
	06/24/2020	06/26/2020 11:30	Elliott Rodriguez	06/29/2020 10:07	Jhamieka S. Greenwood	2178428
	06/24/2020	06/26/2020 11:30	Elliott Rodriguez	06/29/2020 10:09	Jhamieka S. Greenwood	2178429
EPA 353.2 Rev. 2.0	06/24/2020			06/29/2020 08:50	Beverly Y. Sanders	2178424
	06/24/2020			06/29/2020 08:51	Beverly Y. Sanders	2178428
	06/24/2020			06/29/2020 08:53	Beverly Y. Sanders	2178429
EPA 365.1 Rev. 2.0	06/24/2020	06/29/2020 13:17	Yen Ta	06/30/2020 08:38	Benjamin T. Nordmann	2178428
	06/24/2020	06/29/2020 13:17	Yen Ta	07/01/2020 08:07	Lipi Saha	2178424
	06/24/2020	06/29/2020 13:17	Yen Ta	07/01/2020 08:08	Lipi Saha	2178429
EPA 365.1 Rev. 2.0 dissolved	06/24/2020			06/24/2020 17:10	Julia Storbeck	2178425
	06/24/2020			06/24/2020 17:16	Julia Storbeck	2178430
	06/24/2020			06/24/2020 17:29	Julia Storbeck	2178431
EPA 8321B	06/24/2020	06/24/2020 14:30	Mohammad Ghaffari	06/24/2020 16:20	Mohammad Ghaffari	2178441
	06/24/2020	06/24/2020 14:30	Mohammad Ghaffari	06/24/2020 21:27	Mohammad Ghaffari	2178441
	06/24/2020	06/24/2020 14:30	Mohammad Ghaffari	06/25/2020 15:21	Mohammad Ghaffari	2178441
	06/24/2020	06/26/2020 14:00	Hoor Shaik	06/27/2020 14:19	Juyoung Kim	2178441
SM 2120 B-2011	06/24/2020			06/24/2020 16:35	Benjamin T. Nordmann	2178423
	06/24/2020			06/24/2020 16:46	Benjamin T. Nordmann	2178426
	06/24/2020			06/24/2020 16:47	Benjamin T. Nordmann	2178427
SM 2320 B-2011	06/24/2020			06/26/2020 02:08	Dale L. Simmons	2178423
	06/24/2020			06/26/2020 03:48	Dale L. Simmons	2178426
	06/24/2020			06/26/2020 04:00	Dale L. Simmons	2178427
SM 2340B	06/24/2020			06/30/2020 16:28	Betina Topolski	2178442
	06/24/2020			06/30/2020 16:36	Betina Topolski	2178443

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
SM 2340B	06/24/2020			06/30/2020 16:44	Betina Topolski	2178444
SM 2540 C-2011	06/24/2020			06/26/2020 14:26	Yijie Li	2178423, 2178426, 2178427
SM 2540 D-2011	06/24/2020			06/26/2020 14:26	Yijie Li	2178423, 2178426, 2178427
SM 4500 F-C-2011	06/24/2020			06/26/2020 02:08	Dale L. Simmons	2178423
	06/24/2020			06/26/2020 03:48	Dale L. Simmons	2178426
	06/24/2020			06/26/2020 04:00	Dale L. Simmons	2178427
SM 5310 B-2011	06/24/2020			06/26/2020 23:14	David Boose	2178424
	06/24/2020			06/26/2020 23:26	David Boose	2178428
	06/24/2020			06/26/2020 23:39	David Boose	2178429