

Chemical Analysis Report

SO-DIST-2020-01-29-03

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

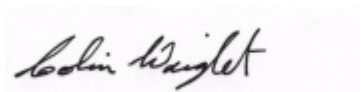
Event Description: **2020 SMP : Peace River**
Request ID: **RQ-2020-01-27-48**
Customer: **SO-DIST**
Project ID: **SMP**

Send Reports to:
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Certified by: Colin Wright, Program Administrator

Date Certified: 24-FEB-2020 10:05

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

Case Narrative

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

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

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

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

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

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

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

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

Precision is reported as relative percent difference unless otherwise noted.

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

QC Codes used in this report may include:

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

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

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

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

Sample Location: Peace River Estuary

Collection Date/Time: 01/28/2020 10:00

Field ID: G3SD0148

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2152624	EPA 180.1 Rev. 2.0	Turbidity	7.1		NTU	P377907	
	EPA 300.0 Rev. 2.1	Bromide	17		mg Br/L	P378843	
	SM 2320 B-2011	Total Alkalinity	87		mg CaCO3/L	P378548	
	SM 2540 D-2011	TSS	10	A	mg/L	P378286	
	SM 4500 F-C-2011	Fluoride	0.66		mg F/L	P378551	
2152625	EPA 350.1 Rev. 2.0	Ammonia-N	0.029		mg N/L	P378401	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.79		mg N/L	P378319	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.11		mg N/L	P378268	
	EPA 365.1 Rev. 2.0	Total-P	0.42		mg P/L	P378183	
	SM 5310 B-2011	Organic Carbon	14		mg C/L	P378351	
2152626	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.30		mg P/L	P377904	

Sample Location: BobcatCreekPreserveEast

Collection Date/Time: 01/28/2020 10:45

Field ID: G3SD0131

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2152627	EPA 180.1 Rev. 2.0	Turbidity	8.5		NTU	P377907	
	EPA 300.0 Rev. 2.1	Chloride	31		mg Cl/L	P378367	
		Sulfate	9.3		mg SO4/L	P378365	
	SM 2120 B-2011	Color (true)	56	A	PCU	P377946	
	SM 2320 B-2011	Total Alkalinity	99	A	mg CaCO3/L	P378280	
	SM 2540 C-2011	TDS	196	A	mg/L	P378430	
	SM 2540 D-2011	TSS	3	IA	mg/L	P378235	
2152628	SM 4500 F-C-2011	Fluoride	0.55		mg F/L	P378550	
	EPA 350.1 Rev. 2.0	Ammonia-N	0.032		mg N/L	P378413	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.45		mg N/L	P378318	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.025		mg N/L	P378211	
	EPA 365.1 Rev. 2.0	Total-P	1.1		mg P/L	P378160	
2152629	SM 5310 B-2011	Organic Carbon	12		mg C/L	P378352	
	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.78		mg P/L	P377903	
2152643	EPA 8321B	2,4-D	0.0020	U	ug/L	P377875	
		Acesulfame K**	0.17	I	ug/L	P377926	
		AMPA**	0.10	U	ug/L	P377926	MS
		Sucralose**	0.44		ug/L	P377926	
		Acetaminophen**	0.0080	U	ug/L	P377875	
		Acetamiprid**	0.0020	U	ug/L	P377875	
		Endothall**	0.25	U	ug/L	P377926	
		Glufosinate**	0.10	U	ug/L	P377926	
		Glyphosate**	0.48		ug/L	P377926	
		Afidopyropen**	0.0020	UJ	ug/L	P377875	
		Bentazon	8.0E-04	U	ug/L	P377875	
		Benzovindiflupyr**	0.0020	UJ	ug/L	P377875	
		Carbamazepine**	0.0013	I	ug/L	P377875	
		Clothianidin**	0.0020	U	ug/L	P377875	
		Dinotefuran**	0.0020	U	ug/L	P377875	
		Diuron	0.0020	U	ug/L	P377875	
		Fenuron	0.016	U	ug/L	P377875	RPD
		Fluridone**	8.0E-04	U	ug/L	P377875	
		Imazapyr**	0.0057	I	ug/L	P377875	
		Hydrocodone**	0.0020	U	ug/L	P377875	
		Ibuprofen**	0.020	U	ug/L	P377875	
		Imidacloprid	0.0020	U	ug/L	P377875	
		Linuron	0.0040	U	ug/L	P377875	
		Mandestrobin**	0.0020	UJ	ug/L	P377875	
		MCP	0.0020	U	ug/L	P377875	
		Naproxen**	0.0080	U	ug/L	P377875	
		Primidone**	0.0053	I	ug/L	P377875	
		Pyraclostrobin**	0.0020	U	ug/L	P377875	
		Thiamethoxam**	0.0020	U	ug/L	P377875	

Field ID: G3SD0131

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2152643	EPA 8321B	Tolfenpyrad**	0.0020	U	ug/L	P377875	
		Triclopyr**	0.0040	U	ug/L	P377875	
2152644	EPA 200.7 Rev. 4.4	Barium	2.2	I	ug/L	P378159	
		Calcium	33.9		mg/L	P378159	
		Iron	1.39E+03		ug/L	P378159	
		Magnesium	7.49		mg/L	P378159	
		Potassium	1.1	I	mg/L	P378159	
		Sodium	19.2		mg/L	P378159	
		Zinc	5.0	U	ug/L	P378159	
	EPA 200.8 Rev. 5.4	Aluminum	40		ug/L	P378159	
		Antimony	0.059	I	ug/L	P378159	
		Arsenic	1.03		ug/L	P378159	
		Boron**	42.1		ug/L	P378159	
		Cadmium	0.020	U	ug/L	P378159	
		Chromium	3.5		ug/L	P378159	
		Copper	0.40	U	ug/L	P378159	
		Lead	0.20	U	ug/L	P378159	
		Nickel	0.50	U	ug/L	P378159	
		Selenium	0.20	U	ug/L	P378159	
		Silver	0.010	U	ug/L	P378159	
		Thallium	0.10	U	ug/L	P378159	
	SM 2340B	Hardness	116		mg/L	P378159	

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

Sample Location: BobcatCreekPreserveEast

Collection Date/Time: 01/28/2020 11:05

Field ID: FB_01282020

Matrix: W-FIELD-BK

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2152633	EPA 180.1 Rev. 2.0	Turbidity	0.10	U	NTU	P377907	
	EPA 300.0 Rev. 2.1	Chloride	0.20	U	mg Cl/L	P378367	
		Sulfate	0.20	U	mg SO4/L	P378365	
	SM 2120 B-2011	Color (true)	2.5	U	PCU	P377946	
	SM 2320 B-2011	Total Alkalinity	0.65	U	mg CaCO3/L	P378280	
	SM 2540 C-2011	TDS	15	U	mg/L	P378430	
	SM 2540 D-2011	TSS	2	U	mg/L	P378235	
	SM 4500 F-C-2011	Fluoride	0.035	U	mg F/L	P378550	
2152634	EPA 350.1 Rev. 2.0	Ammonia-N	0.002	U	mg N/L	P378414	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.080	U	mg N/L	P378318	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P378212	
	EPA 365.1 Rev. 2.0	Total-P	0.002	U	mg P/L	P378160	
	SM 5310 B-2011	Organic Carbon	0.50	U	mg C/L	P378352	
2152635	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P377903	

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: PeaceRiver HorseCreek2

Collection Date/Time: 01/28/2020 12:05

Field ID: G3SD0154

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2152630	EPA 180.1 Rev. 2.0	Turbidity	5.8		NTU	P377907	
	EPA 300.0 Rev. 2.1	Chloride	30		mg Cl/L	P378367	
		Sulfate	51		mg SO4/L	P378365	
	SM 2120 B-2011	Color (true)	88		PCU	P377946	
	SM 2320 B-2011	Total Alkalinity	84		mg CaCO3/L	P378280	
	SM 2540 C-2011	TDS	268		mg/L	P378430	
	SM 2540 D-2011	TSS	10		mg/L	P378235	
	SM 4500 F-C-2011	Fluoride	0.53		mg F/L	P378550	
2152631	EPA 350.1 Rev. 2.0	Ammonia-N	0.008		mg N/L	P378414	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.90		mg N/L	P378318	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.74		mg N/L	P378211	
	EPA 365.1 Rev. 2.0	Total-P	0.66		mg P/L	P378160	
	SM 5310 B-2011	Organic Carbon	15		mg C/L	P378352	
2152632	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.53		mg P/L	P377903	

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: P377907

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P378159

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: P378159

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: P378365

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P378367

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P378843

Component	Result	Code	Units
Bromide	0.013	U	mg Br/L

Quality Assurance Report Method Blank Results

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P378401

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P378413

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P378414

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P378318

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P378319

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P378211

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P378212

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P378268

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P378160

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

Quality Assurance Report Method Blank Results

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P378183

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P377903

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P377904

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

Reference Method: EPA 8321B
Batch ID: P377875

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: EPA 8321B
Batch ID: P377926

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

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Method Blank Results

Reference Method: EPA 8321B
Batch ID: P377926

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

Reference Method: SM 2120 B-2011
Batch ID: P377946

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2320 B-2011
Batch ID: P378280

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

Reference Method: SM 2320 B-2011
Batch ID: P378548

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

Reference Method: SM 2540 C-2011
Batch ID: P378430

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-2011
Batch ID: P378235

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 2540 D-2011
Batch ID: P378286

Component	Result	Code	Units
TSS	3	U	mg/L

Reference Method: SM 4500 F-C-2011
Batch ID: P378550

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 4500 F-C-2011
Batch ID: P378551

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Quality Assurance Report

Method Blank Results

Reference Method: SM 5310 B-2011
Batch ID: P378351

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

Reference Method: SM 5310 B-2011
Batch ID: P378352

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: P378159

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Barium	97.5		P	85 - 115
Calcium	102		P	85 - 115
Iron	101		P	85 - 115
Magnesium	103		P	85 - 115
Potassium	97.0		P	85 - 115
Sodium	100		P	85 - 115
Zinc	97.3		P	85 - 115

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P378159

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Aluminum	99.6		P	85 - 115
Antimony	107		P	85 - 115
Arsenic	105		P	85 - 115
Boron	104		P	85 - 115
Cadmium	107		P	85 - 115
Chromium	105		P	85 - 115
Copper	100		P	85 - 115
Lead	104		P	85 - 115
Nickel	100		P	85 - 115
Selenium	100		P	85 - 115
Silver	108		P	85 - 115
Thallium	104		P	85 - 115

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P378365

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P378367

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P378843

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P378401

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

Quality Assurance Report

Laboratory Control Sample Accuracy

Reference Method: EPA 350.1 Rev. 2.0
 Batch ID: P378413

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Ammonia-N	99.3		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
 Batch ID: P378414

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

Reference Method: EPA 351.2 Rev. 2.0
 Batch ID: P378318

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

Reference Method: EPA 351.2 Rev. 2.0
 Batch ID: P378319

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: P378211

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

Reference Method: EPA 353.2 Rev. 2.0
 Batch ID: P378212

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

Reference Method: EPA 353.2 Rev. 2.0
 Batch ID: P378268

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

Reference Method: EPA 365.1 Rev. 2.0
 Batch ID: P378160

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: P378183

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

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 365.1 Rev. 2.0 dissolved
 Batch ID: P377903

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
 Batch ID: P377904

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

Reference Method: EPA 8321B
 Batch ID: P377875

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2,4-D	132		P	30 - 160
Acetaminophen	83.2		P	30 - 160
Acetamiprid	94.8		P	30 - 160
Afidopyropen	101		P	30 - 160
Bentazon	73.6		P	30 - 160
Benzovindiflupyr	81.1		P	30 - 160
Carbamazepine	98.2		P	30 - 160
Clothianidin	88.7		P	30 - 160
Dinotefuran	93.2		P	30 - 160
Diuron	73.2		P	30 - 160
Fenuron	105		P	30 - 160
Fluridone	100		P	30 - 160
Hydrocodone	99.7		P	30 - 160
Ibuprofen	82.5		P	30 - 160
Imazapyr	90.5		P	30 - 160
Imidacloprid	103		P	30 - 160
Linuron	71.9		P	30 - 160
Mandestrobin	94.9		P	30 - 160
MCPP	142		P	30 - 160
Naproxen	70.8		P	30 - 160
Primidone	91.7		P	30 - 160
Pyraclostrobin	86.0		P	30 - 160
Thiamethoxam	101		P	30 - 160
Tolfenpyrad	56.4		P	30 - 160
Triclopyr	107		P	30 - 160

Reference Method: EPA 8321B
 Batch ID: P377926

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Acesulfame K	119		P	40 - 150
AMPA	133		P	40 - 150
Endothall	112		P	40 - 150
Glufosinate	124		P	40 - 150
Glyphosate	133		P	40 - 140
Sucralose	83.9		P	40 - 150

Quality Assurance Report

Laboratory Control Sample Accuracy

Reference Method: SM 2120 B-2011
Batch ID: P377946

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

Reference Method: SM 2320 B-2011
Batch ID: P378280

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	100		P	98 - 106

Reference Method: SM 2320 B-2011
Batch ID: P378548

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	102		P	98 - 106

Reference Method: SM 4500 F-C-2011
Batch ID: P378550

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	97.6		P	92 - 103

Reference Method: SM 4500 F-C-2011
Batch ID: P378551

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	99.0		P	92 - 103

Reference Method: SM 5310 B-2011
Batch ID: P378351

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	103		P	85 - 115

Reference Method: SM 5310 B-2011
Batch ID: P378352

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	97.7		P	85 - 115

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P378159

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2152723	Barium	97.3		P	80 - 120
2152723	Calcium	102		P	80 - 120
2152723	Iron	100		P	80 - 120
2152723	Magnesium	102		P	80 - 120
2152723	Potassium	94.7		P	80 - 120
2152723	Sodium	102		P	80 - 120
2152723	Zinc	96.4		P	80 - 120
2153526	Barium	99.9	96.4	P/P	80 - 120
2153526	Calcium	100		P	80 - 120
2153526	Iron	102	102	P/P	80 - 120
2153526	Magnesium	100	102	P/P	80 - 120
2153526	Potassium	97.0	95.8	P/P	80 - 120
2153526	Sodium	101		P	80 - 120
2153526	Zinc	98.7	95.6	P/P	80 - 120

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P378159

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2152723	Aluminum	97.4		P	80 - 120
2152723	Antimony	108		P	80 - 120
2152723	Arsenic	109		P	80 - 120
2152723	Boron	102		P	80 - 120
2152723	Cadmium	107		P	80 - 120
2152723	Chromium	108		P	80 - 120
2152723	Copper	103		P	80 - 120
2152723	Lead	108		P	80 - 120
2152723	Nickel	101		P	80 - 120
2152723	Selenium	99.6		P	80 - 120
2152723	Silver	107		P	80 - 120
2152723	Thallium	111		P	80 - 120
2153526	Aluminum	97.2	97.5	P/P	80 - 120
2153526	Antimony	107	107	P/P	80 - 120
2153526	Arsenic	106	107	P/P	80 - 120
2153526	Boron	104	104	P/P	80 - 120
2153526	Cadmium	107	106	P/P	80 - 120
2153526	Chromium	107	107	P/P	80 - 120
2153526	Copper	99.9	101	P/P	80 - 120
2153526	Lead	104	104	P/P	80 - 120
2153526	Nickel	100	101	P/P	80 - 120
2153526	Selenium	99.0	97.5	P/P	80 - 120
2153526	Silver	105	104	P/P	80 - 120
2153526	Thallium	106	107	P/P	80 - 120

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P378365

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2152536	Sulfate	99.1		P	90 - 110
2152663	Sulfate	98.6		P	90 - 110

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P378367

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2152536	Chloride	99.0		P	90 - 110
2152663	Chloride	99.4		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P378843

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2151911	Bromide	98.7	98.1	P/P	90 - 110
2152919	Bromide	97.4		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P378401

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2152165	Ammonia-N	104	106	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P378413

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2152248	Ammonia-N	97.6	98.5	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P378414

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2152683	Ammonia-N	101	101	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P378318

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2152538	Kjeldahl Nitrogen	98.2	104	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P378319

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2152602	Kjeldahl Nitrogen	96.5	105	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P378211

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2152539	NO2NO3-N	98.5	98.0	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P378212

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2152665	NO2NO3-N	98.0	98.5	P/P	90 - 110

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 353.2 Rev. 2.0
 Batch ID: P378268

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2152597	NO2NO3-N	95.3	94.8	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
 Batch ID: P378160

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2152544	Total-P	101	103	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
 Batch ID: P378183

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2152597	Total-P	102	103	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
 Batch ID: P377903

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2152545	O-Phosphate-P	99.1	100	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
 Batch ID: P377904

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2152599	O-Phosphate-P	97.6	98.9	P/P	90 - 110

Reference Method: EPA 8321B
 Batch ID: P377875

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2152108	2,4-D	115	111	P/P	30 - 160
2152108	Acetaminophen	95.2	85.2	P/P	30 - 160
2152108	Acetamiprid	99.0	94.4	P/P	30 - 160
2152108	Afidopyropen	110	100	P/P	30 - 160
2152108	Benzovindiflupyr	85.2	76.8	P/P	30 - 160
2152108	Carbamazepine	70.2	81.6	P/P	30 - 160
2152108	Clothianidin	89.0	88.1	P/P	30 - 160
2152108	Dinotefuran	121	123	P/P	30 - 160
2152108	Diuron	65.2	67.2	P/P	30 - 160
2152108	Fenuron	137	77.7	P/P	30 - 160
2152108	Fluridone	106	97.1	P/P	30 - 160
2152108	Hydrocodone	103	97.0	P/P	30 - 160
2152108	Ibuprofen	86.5	76.8	P/P	30 - 160
2152108	Imidacloprid	151	153	P/P	30 - 160
2152108	Linuron	64.5	63.2	P/P	30 - 160
2152108	Mandestrobin	93.4	85.1	P/P	30 - 160
2152108	MCP	119	109	P/P	30 - 160
2152108	Naproxen	80.4	76.0	P/P	30 - 160
2152108	Primidone	94.4	89.4	P/P	30 - 160
2152108	Pyraclostrobin	88.9	84.0	P/P	30 - 160
2152108	Thiamethoxam	134	126	P/P	30 - 160
2152108	Tolfenpyrad	53.6	49.9	P/P	30 - 160

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 8321B
Batch ID: P377875

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2152108	Triclopyr	98.6	82.9	P/P	30 - 160

Reference Method: EPA 8321B
Batch ID: P377926

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2152482	Acesulfame K	53.6	50.4	P/P	40 - 150
2152482	AMPA	177	176	F/F	40 - 150
2152482	Endothall	109	101	P/P	40 - 150
2152482	Glufosinate	114	116	P/P	40 - 150
2152482	Glyphosate	104	92.7	P/P	40 - 140
2152482	Sucralose	81.0	83.3	P/P	40 - 150

Reference Method: SM 4500 F-C-2011
Batch ID: P378550

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2152630	Fluoride	94.8	95.9	P/P	89 - 106

Reference Method: SM 4500 F-C-2011
Batch ID: P378551

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2151636	Fluoride	96.4	97.8	P/P	89 - 106

Reference Method: SM 5310 B-2011
Batch ID: P378351

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2152625	Organic Carbon	102	102	P/P	85 - 115

Reference Method: SM 5310 B-2011
Batch ID: P378352

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2152544	Organic Carbon	99.1	100	P/P	85 - 115

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P377907

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2152336	Turbidity	3.35	Sample	P	0 - 20

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P378159

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2153526	Barium	3.30	Spike	P	0 - 20
2153526	Calcium	0.326	Spike	P	0 - 20
2153526	Iron	0.411	Spike	P	0 - 20
2153526	Magnesium	1.06	Spike	P	0 - 20
2153526	Potassium	0.873	Spike	P	0 - 20
2153526	Sodium	1.23	Spike	P	0 - 20
2153526	Zinc	3.08	Spike	P	0 - 20

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P378159

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2153526	Aluminum	0.201	Spike	P	0 - 20
2153526	Antimony	0.337	Spike	P	0 - 20
2153526	Arsenic	0.670	Spike	P	0 - 20
2153526	Boron	0.435	Spike	P	0 - 20
2153526	Cadmium	0.577	Spike	P	0 - 20
2153526	Chromium	0.140	Spike	P	0 - 20
2153526	Copper	0.658	Spike	P	0 - 20
2153526	Lead	0.155	Spike	P	0 - 20
2153526	Nickel	0.726	Spike	P	0 - 20
2153526	Selenium	1.45	Spike	P	0 - 20
2153526	Silver	1.17	Spike	P	0 - 20
2153526	Thallium	0.659	Spike	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P378365

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2152663	Sulfate	0.770	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P378367

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2152663	Chloride	0.953	Sample	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P378843

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2151911	Bromide	0.320	Spike	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P378401

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2152165	Ammonia-N	1.00	Spike	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P378413

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2152248	Ammonia-N	0.619	Spike	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P378414

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2152683	Ammonia-N	0.239	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P378318

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2152538	Kjeldahl Nitrogen	4.90	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P378319

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2152602	Kjeldahl Nitrogen	6.26	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P378211

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2152539	NO2NO3-N	0.509	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P378212

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2152665	NO2NO3-N	0.329	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P378268

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2152597	NO2NO3-N	0.526	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P378160

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2152544	Total-P	2.10	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P378183

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2152597	Total-P	0.661	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P377903

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2152545	O-Phosphate-P	0.904	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P377904

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2152599	O-Phosphate-P	0.846	Spike	P	0 - 20

Reference Method: EPA 8321B
Batch ID: P377875

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2152108	2,4-D	2.81	Spike	P	0 - 30
2152108	Acetaminophen	11.2	Spike	P	0 - 30
2152108	Acetamiprid	4.76	Spike	P	0 - 30
2152108	Afidopyropen	9.02	Spike	P	0 - 30
2152108	Bentazon	1.94	Spike	P	0 - 30
2152108	Benzovindiflupyr	10.4	Spike	P	0 - 30
2152108	Carbamazepine	14.2	Spike	P	0 - 30
2152108	Clothianidin	1.04	Spike	P	0 - 30
2152108	Dinotefuran	1.51	Spike	P	0 - 30
2152108	Diuron	3.09	Spike	P	0 - 30
2152108	Fenuron	55.4	Spike	F	0 - 30
2152108	Fluridone	6.62	Spike	P	0 - 30
2152108	Hydrocodone	5.55	Spike	P	0 - 30
2152108	Ibuprofen	12.0	Spike	P	0 - 30
2152108	Imazapyr	12.3	Spike	P	0 - 30
2152108	Imidacloprid	1.08	Spike	P	0 - 30

Quality Assurance Report Precision

Reference Method: EPA 8321B
 Batch ID: P377875

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2152108	Linuron	2.04	Spike	P	0 - 30
2152108	Mandestrobin	9.26	Spike	P	0 - 30
2152108	MCP	8.87	Spike	P	0 - 30
2152108	Naproxen	5.70	Spike	P	0 - 30
2152108	Primidone	5.47	Spike	P	0 - 30
2152108	Pyraclostrobin	5.64	Spike	P	0 - 30
2152108	Thiamethoxam	5.98	Spike	P	0 - 30
2152108	Tolfenpyrad	7.08	Spike	P	0 - 30
2152108	Triclopyr	17.3	Spike	P	0 - 30

Reference Method: EPA 8321B
 Batch ID: P377926

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2152482	Acesulfame K	6.18	Spike	P	0 - 30
2152482	AMPA	0.749	Spike	P	0 - 30
2152482	Endothall	7.47	Spike	P	0 - 30
2152482	Glufosinate	2.55	Spike	P	0 - 30
2152482	Glyphosate	11.3	Spike	P	0 - 30
2152482	Sucralose	2.73	Spike	P	0 - 30

Reference Method: SM 2120 B-2011
 Batch ID: P377946

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2152627	Color (true)	11.9	Sample	P	0 - 20

Reference Method: SM 2320 B-2011
 Batch ID: P378280

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2152627	Total Alkalinity	0.398	Sample	P	0 - 2.8

Reference Method: SM 2320 B-2011
 Batch ID: P378548

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2152601	Total Alkalinity	0.00688	Sample	P	0 - 2.8

Reference Method: SM 2540 C-2011
 Batch ID: P378430

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2152627	TDS	6.62	Sample	P	0 - 10

Quality Assurance Report Precision

Reference Method: SM 2540 D-2011
Batch ID: P378286

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2152624	TSS	7.69	Sample	P	0 - 10

Reference Method: SM 4500 F-C-2011
Batch ID: P378550

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2152630	Fluoride	0.470	Spike	P	0 - 2.5

Reference Method: SM 4500 F-C-2011
Batch ID: P378551

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2151636	Fluoride	0.940	Spike	P	0 - 2.5

Reference Method: SM 5310 B-2011
Batch ID: P378351

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2152625	Organic Carbon	0.254	Spike	P	0 - 20

Reference Method: SM 5310 B-2011
Batch ID: P378352

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2152544	Organic Carbon	0.934	Spike	P	0 - 20

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

Quality Assurance Report Surrogates

Lab Sample ID: 2152643
Field Sample ID: G3SD0131

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	2,4-D-d3	94.3	P	30 - 160
EPA 8321B	Acetaminophen-d4	94.4	P	30 - 160
EPA 8321B	Carbamazepine-d10	74.0	P	30 - 160
EPA 8321B	Diuron-d6	65.2	P	30 - 160
EPA 8321B	Endothall-d6	144	P	30 - 160
EPA 8321B	Endothall-d6	144	P	30 - 160
EPA 8321B	Glyphosate 13C 15N	106	P	30 - 160
EPA 8321B	Glyphosate 13C 15N	106	P	30 - 160
EPA 8321B	Ibuprofen-d3	81.6	P	30 - 160
EPA 8321B	Primidone-d5	92.5	P	30 - 160
EPA 8321B	Sucralose-d6	81.4	P	30 - 160
EPA 8321B	Sucralose-d6	81.4	P	30 - 160

Quality Assurance Report Calibration Verification

Reference Method: EPA 365.1 Rev. 2.0 dissolved

Run ID: A97174

Included Lab Sample IDs: 2152626, 2152629, 2152632, 2152635

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	98.0	98.2	P/P	90 - 110
O-Phosphate-P	99.4	99.6	P/P	90 - 110

Reference Method: EPA 180.1 Rev. 2.0

Run ID: A97175

Included Lab Sample IDs: 2152624, 2152627, 2152630, 2152633

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Turbidity	100	101	P/P	95 - 105

Reference Method: SM 2120 B-2011

Run ID: A97193

Included Lab Sample IDs: 2152627, 2152630, 2152633

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	101	102	P/P	90 - 115

Reference Method: EPA 8321B

Run ID: A97267

Included Lab Sample IDs: 2152643

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
2,4-D	111	103	P/P	50 - 150
Acetaminophen	98.8	103	P/P	60 - 160
Acetamiprid	109	103	P/P	50 - 150
Afidopyropen	115	114	P/P	50 - 150
Bentazon	105	103	P/P	50 - 160
Benzovindiflupyr	108	108	P/P	50 - 150
Carbamazepine	102	83.5	P/P	60 - 150
Clothianidin	101	103	P/P	60 - 150
Dinotefuran	105	96.6	P/P	50 - 150
Diuron	94.0	93.8	P/P	60 - 150
Fenuron	106	104	P/P	60 - 150
Fluridone	110	105	P/P	60 - 160
Hydrocodone	101	96.6	P/P	60 - 150
Ibuprofen	97.8	101	P/P	50 - 160
Imazapyr	99.9	116	P/P	50 - 150
Imidacloprid	104	97.7	P/P	60 - 150
Linuron	101	92.6	P/P	60 - 150
Mandestrobin	105	109	P/P	50 - 150
MCP	94.4	91.0	P/P	50 - 150
Naproxen	71.9	116	P/P	50 - 160
Primidone	100	109	P/P	60 - 150
Pyraclostrobin	112	108	P/P	60 - 150
Thiamethoxam	109	111	P/P	50 - 150
Tolfenpyrad	111	108	P/P	60 - 150
Triclopyr	114	93.9	P/P	50 - 150

Quality Assurance Report Calibration Verification

Reference Method: EPA 8321B
Run ID: A97290
Included Lab Sample IDs: 2152643

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Sucralose	83.2	78.1	P/P	60 - 160

Reference Method: EPA 353.2 Rev. 2.0
Run ID: A97291
Included Lab Sample IDs: 2152628, 2152631, 2152634

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

Reference Method: EPA 8321B
Run ID: A97293
Included Lab Sample IDs: 2152643

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Acesulfame K	108	82.4	P/P	60 - 160
Endothall	132	152	P/P	60 - 160

Reference Method: EPA 8321B
Run ID: A97294
Included Lab Sample IDs: 2152643

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
AMPA	124	119	P/P	60 - 160
Glufosinate	101	109	P/P	60 - 160
Glyphosate	119	139	P/P	60 - 160

Reference Method: EPA 353.2 Rev. 2.0
Run ID: A97314
Included Lab Sample IDs: 2152625

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO2NO3-N	100	99.5	P/P	90 - 110

Reference Method: EPA 200.7 Rev. 4.4
Run ID: A97316
Included Lab Sample IDs: 2152644

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Barium	98.1	99.0	P/P	90 - 110
Calcium	97.6	97.8	P/P	90 - 110
Iron	97.5	98.0	P/P	90 - 110
Magnesium	97.6	97.7	P/P	90 - 110
Potassium	95.9	95.6	P/P	90 - 110
Sodium	97.2	97.1	P/P	90 - 110
Zinc	99.9	99.5	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: SM 2320 B-2011

Run ID: A97320

Included Lab Sample IDs: 2152627, 2152630, 2152633

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	101	99.0	P/P	90 - 110
Total Alkalinity	99.0	105	P/P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1

Run ID: A97327

Included Lab Sample IDs: 2152627, 2152630, 2152633

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	99.9	99.6	P/P	90 - 110
Sulfate	99.9	99.8	P/P	90 - 110

Reference Method: SM 5310 B-2011

Run ID: A97337

Included Lab Sample IDs: 2152625

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	105	103	P/P	90 - 110

Reference Method: SM 5310 B-2011

Run ID: A97338

Included Lab Sample IDs: 2152628, 2152631, 2152634

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

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A97349

Included Lab Sample IDs: 2152625

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

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A97355

Included Lab Sample IDs: 2152628, 2152631, 2152634

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

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A97365

Included Lab Sample IDs: 2152625, 2152628, 2152631, 2152634

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	100	97.2	P/P	90 - 110
Kjeldahl Nitrogen	97.2	101	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A97374

Included Lab Sample IDs: 2152625, 2152628, 2152631

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	101	98.8	P/P	90 - 110
Total-P	98.8	99.8	P/P	90 - 110
Total-P	99.1	98.8	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A97378

Included Lab Sample IDs: 2152634

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	97.2	97.0	P/P	90 - 110

Reference Method: EPA 200.8 Rev. 5.4

Run ID: A97402

Included Lab Sample IDs: 2152644

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Aluminum	98.3	96.8	P/P	90 - 110
Arsenic	101	100	P/P	90 - 110
Cadmium	103	103	P/P	90 - 110
Chromium	99.6	101	P/P	90 - 110
Copper	95.5	95.8	P/P	90 - 110
Lead	99.3	99.2	P/P	90 - 110
Selenium	100	101	P/P	90 - 110
Thallium	98.9	99.1	P/P	90 - 110

Reference Method: SM 2320 B-2011

Run ID: A97403

Included Lab Sample IDs: 2152624

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	99.9	102	P/P	90 - 110

Reference Method: SM 4500 F-C-2011

Run ID: A97403

Included Lab Sample IDs: 2152624, 2152627, 2152630, 2152633

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	100	99.1	P/P	90 - 110
Fluoride	99.5	99.1	P/P	90 - 110

Reference Method: EPA 200.8 Rev. 5.4

Run ID: A97451

Included Lab Sample IDs: 2152644

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Antimony	106	108	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: EPA 300.0 Rev. 2.1

Run ID: A97501

Included Lab Sample IDs: 2152624

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Bromide	101	99.5	P/P	90 - 110

Reference Method: EPA 200.8 Rev. 5.4

Run ID: A97560

Included Lab Sample IDs: 2152644

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Boron	102	96.8	P/P	90 - 110
Nickel	98.4	98.9	P/P	90 - 110
Silver	102	104	P/P	90 - 110

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

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

Where they are different, both control limits are provided.

Quality Assurance Report Summary

Ref. Method	Analyte	LCS % Recovery	MS % Recovery			LCS	Precision SMP	MS
EPA 180.1 Rev. 2.0	Turbidity						3.35	
EPA 200.7 Rev. 4.4	Barium	97.5	97.3	99.9	96.4			3.30
	Calcium	102	100	102				0.326
	Iron	101	100	102	102			0.411
	Magnesium	103	100	102	102			1.06
	Potassium	97.0	94.7	97.0	95.8			0.873
	Sodium	100	102	101				1.23
	Zinc	97.3	96.4	95.6	98.7			3.08
EPA 200.8 Rev. 5.4	Aluminum	99.6	97.2	97.5	97.4			0.201
	Antimony	107	107	107	108			0.337
	Arsenic	105	106	107	109			0.670
	Boron	104	102	104	104			0.435
	Cadmium	107	107	106	107			0.577
	Chromium	105	107	107	108			0.140
	Copper	100	99.9	101	103			0.658
	Lead	104	104	104	108			0.155
	Nickel	100	101	100	101			0.726
	Selenium	100	99.0	97.5	99.6			1.45
	Silver	108	107	105	104			1.17
	Thallium	104	106	107	111			0.659
EPA 300.0 Rev. 2.1	Bromide	102	98.7	98.1	97.4			0.320
	Chloride	102	99.4	99.0			0.953	
	Sulfate	102	98.6	99.1			0.770	
EPA 350.1 Rev. 2.0	Ammonia-N	103	104	106				1.00
	Ammonia-N	99.3	97.6	98.5				0.619
	Ammonia-N	100	101	101				0.239
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	101	98.2	104				4.90
	Kjeldahl Nitrogen	100	96.5	105				6.26
EPA 353.2 Rev. 2.0	NO ₂ NO ₃ -N	99.5	98.5	98.0				0.509
	NO ₂ NO ₃ -N	100	98.0	98.5				0.329
	NO ₂ NO ₃ -N	101	95.3	94.8				0.526
EPA 365.1 Rev. 2.0	Total-P	102	101	103				2.10
	Total-P	103	102	103				0.661
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	102	99.1	100				0.904
	O-Phosphate-P	99.6	97.6	98.9				0.846
EPA 8321B	2,4-D	132	115	111				2.81
	Acesulfame K	119	53.6	50.4				6.18
	Acetaminophen	83.2	95.2	85.2				11.2
	Acetamiprid	94.8	99.0	94.4				4.76
	Afidopyropen	101	110	100				9.02
	AMPA	133	177	176				0.749
	Bentazon	73.6						1.94
	Benzovindiflupyr	81.1	85.2	76.8				10.4
	Carbamazepine	98.2	70.2	81.6				14.2
	Clothianidin	88.7	89.0	88.1				1.04
	Dinotefuran	93.2	121	123				1.51
	Diuron	73.2	65.2	67.2				3.09
	Endothall	112	109	101				7.47
	Fenuron	105	137	77.7				55.4
	Fluridone	100	106	97.1				6.62
	Glufosinate	124	114	116				2.55
	Glyphosate	133	104	92.7				11.3
	Hydrocodone	99.7	103	97.0				5.55
	Ibuprofen	82.5	86.5	76.8				12.0

Quality Assurance Report Summary

Ref. Method	Analyte	LCS % Recovery	MS % Recovery		Precision	
					LCS	MS
EPA 8321B	Imazapyr	90.5				12.3
	Imidacloprid	103	151	153		1.08
	Linuron	71.9	64.5	63.2		2.04
	Mandestrobin	94.9	93.4	85.1		9.26
	MCPP	142	119	109		8.87
	Naproxen	70.8	80.4	76.0		5.70
	Primidone	91.7	94.4	89.4		5.47
	Pyraclostrobin	86.0	88.9	84.0		5.64
	Sucralose	83.9	83.3	81.0		2.73
	Thiamethoxam	101	134	126		5.98
	Tolfenpyrad	56.4	53.6	49.9		7.08
	Triclopyr	107	98.6	82.9		17.3
SM 2120 B-2011	Color (true)	101			11.9	
SM 2320 B-2011	Total Alkalinity	100			0.398	
	Total Alkalinity	102			0.0068	
SM 2540 C-2011	TDS				6.62	
SM 2540 D-2011	TSS				7.69	
SM 4500 F-C-2011	Fluoride	97.6	94.8	95.9		0.470
	Fluoride	99.0	96.4	97.8		0.940
SM 5310 B-2011	Organic Carbon	103	102	102		0.254
	Organic Carbon	97.7	99.1	100		0.934

Reference Method Descriptions

Method	Description	Associated Samples
EPA 180.1 Rev. 2.0	Turbidity in aqueous matrices	2152624, 2152627, 2152630, 2152633
EPA 200.7 Rev. 4.4	Total Recoverable Metals analysis using ICP emission spectroscopy for aqueous samples supporting Clean Water Act Projects	2152644
EPA 200.8 Rev. 5.4	Total Recoverable Metals analysis using ICP-MS for aqueous samples supporting Clean Water Act Projects	2152644
EPA 300.0 Rev. 2.1	Bromide in aqueous matrices	2152624
EPA 300.0 Rev. 2.1	Chloride in aqueous matrices	2152627, 2152630, 2152633
EPA 300.0 Rev. 2.1	Sulfate in aqueous matrices	2152627, 2152630, 2152633
EPA 350.1 Rev. 2.0	Ammonia in aqueous matrices as mg N/L	2152625, 2152628, 2152631, 2152634
EPA 351.2 Rev. 2.0	Total Kjeldahl Nitrogen in aqueous matrices	2152625, 2152628, 2152631, 2152634
EPA 353.2 Rev. 2.0	Nitrite/Nitrate in aqueous matrices as mg N/L	2152625, 2152628, 2152631, 2152634
EPA 365.1 Rev. 2.0	Total Phosphorus in aqueous matrices as mg P/L	2152625, 2152628, 2152631, 2152634
EPA 365.1 Rev. 2.0 dissolved	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	2152626, 2152629, 2152632, 2152635
EPA 8321B	Pesticides, herbicides, and other chemicals in water matrices by HPLC/MS/MS	2152643
EPA 8321B	Water soluble organic compounds by HPLC/MS/MS	2152643
SM 2120 B-2011	True Color measured at 450 nm (not valid for NPDES monitoring)	2152627, 2152630, 2152633
SM 2320 B-2011	Alkalinity in aqueous matrices as mg CaCO ₃ /L	2152624, 2152627, 2152630, 2152633
SM 2340B	Hardness by calculation, in aqueous matrices, reported as mg/L CaCO ₃	2152644
SM 2540 C-2011	Total Dissolved Solids in aqueous matrices	2152627, 2152630, 2152633
SM 2540 D-2011	Total Suspended Solids in aqueous matrices using a maximum of 250 mL of sample	2152624, 2152627, 2152630, 2152633
SM 4500 F-C-2011	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	2152624, 2152627, 2152630, 2152633
SM 5310 B-2011	Nonpurgeable Organic Carbon in aqueous matrices	2152625, 2152628, 2152631, 2152634

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	01/29/2020			01/29/2020 16:18	Samantha Davila	2152624, 2152627, 2152630, 2152633
EPA 200.7 Rev. 4.4	01/29/2020	02/03/2020 14:55	Elliott D. Healy	02/04/2020 18:40	Betina Topolski	2152644
EPA 200.8 Rev. 5.4	01/29/2020	02/03/2020 14:55	Elliott D. Healy	02/07/2020 20:59	Justin Cutchin	2152644
	01/29/2020	02/03/2020 14:55	Elliott D. Healy	02/11/2020 16:04	Justin Cutchin	2152644
	01/29/2020	02/03/2020 14:55	Elliott D. Healy	02/14/2020 16:36	Justin Cutchin	2152644
EPA 300.0 Rev. 2.1	01/29/2020			02/04/2020 23:06	Elliott Rodriguez	2152627
	01/29/2020			02/04/2020 23:18	Elliott Rodriguez	2152630
	01/29/2020			02/04/2020 23:30	Elliott Rodriguez	2152633
	01/29/2020			02/12/2020 02:09	Elliott Rodriguez	2152624
EPA 350.1 Rev. 2.0	01/29/2020			02/04/2020 15:01	Ping Hua	2152625
	01/29/2020			02/05/2020 12:44	Ping Hua	2152628
	01/29/2020			02/05/2020 12:59	Ping Hua	2152631
	01/29/2020			02/05/2020 13:17	Ping Hua	2152634
EPA 351.2 Rev. 2.0	01/29/2020	02/05/2020 14:50	Jhamieka S. Greenwood	02/06/2020 12:05	Jhamieka S. Greenwood	2152628
	01/29/2020	02/05/2020 14:50	Jhamieka S. Greenwood	02/06/2020 12:06	Jhamieka S. Greenwood	2152631
	01/29/2020	02/05/2020 14:50	Jhamieka S. Greenwood	02/06/2020 12:08	Jhamieka S. Greenwood	2152634
	01/29/2020	02/05/2020 14:50	Jhamieka S. Greenwood	02/06/2020 12:22	Jhamieka S. Greenwood	2152625
EPA 353.2 Rev. 2.0	01/29/2020			02/04/2020 10:19	Beverly Y. Sanders	2152628
	01/29/2020			02/04/2020 10:20	Beverly Y. Sanders	2152631
	01/29/2020			02/04/2020 10:32	Beverly Y. Sanders	2152634
	01/29/2020			02/05/2020 08:25	Beverly Y. Sanders	2152625
EPA 365.1 Rev. 2.0	01/29/2020	02/03/2020 15:03	Lipi Saha	02/05/2020 12:15	Benjamin T. Nordmann	2152631
	01/29/2020	02/03/2020 15:03	Lipi Saha	02/05/2020 12:27	Benjamin T. Nordmann	2152625
	01/29/2020	02/03/2020 15:03	Lipi Saha	02/05/2020 14:05	Benjamin T. Nordmann	2152628
	01/29/2020	02/03/2020 15:03	Lipi Saha	02/06/2020 13:45	Benjamin T. Nordmann	2152634
EPA 365.1 Rev. 2.0 dissolved	01/29/2020			01/29/2020 15:03	Julia Storbeck	2152635
	01/29/2020			01/29/2020 15:44	Julia Storbeck	2152629
	01/29/2020			01/29/2020 15:46	Julia Storbeck	2152632
	01/29/2020			01/29/2020 15:48	Julia Storbeck	2152626
EPA 8321B	01/29/2020	01/30/2020 10:00	Hoor Shaik	02/01/2020 22:51	Juyoung Kim	2152643
	01/29/2020	01/30/2020 12:00	Rebecca Ware	01/31/2020 01:47	Rebecca Ware	2152643
	01/29/2020	01/30/2020 12:00	Rebecca Ware	02/03/2020 17:22	Rebecca Ware	2152643
	01/29/2020	01/30/2020 12:00	Rebecca Ware	02/03/2020 22:49	Rebecca Ware	2152643
SM 2120 B-2011	01/29/2020			01/29/2020 18:50	Madeline Funaro	2152627
	01/29/2020			01/29/2020 18:51	Madeline Funaro	2152630
	01/29/2020			01/29/2020 18:52	Madeline Funaro	2152633
SM 2320 B-2011	01/29/2020			02/04/2020 04:05	Dale L. Simmons	2152627
	01/29/2020			02/04/2020 04:55	Dale L. Simmons	2152630
	01/29/2020			02/04/2020 05:09	Dale L. Simmons	2152633
	01/29/2020			02/07/2020 05:57	Dale L. Simmons	2152624

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
SM 2340B	01/29/2020			02/04/2020 18:40	Betina Topolski	2152644
SM 2540 C-2011	01/29/2020			02/03/2020 17:30	Blanca Fach	2152627, 2152630, 2152633
SM 2540 D-2011	01/29/2020			01/29/2020 17:00	Blanca Fach	2152624
	01/29/2020			02/03/2020 17:30	Blanca Fach	2152627, 2152630, 2152633
SM 4500 F-C-2011	01/29/2020			02/06/2020 21:59	Dale L. Simmons	2152630
	01/29/2020			02/06/2020 22:11	Dale L. Simmons	2152627
	01/29/2020			02/06/2020 22:19	Dale L. Simmons	2152633
	01/29/2020			02/07/2020 03:38	Dale L. Simmons	2152624
SM 5310 B-2011	01/29/2020			02/03/2020 09:18	Madeline Funaro	2152628
	01/29/2020			02/03/2020 09:35	Madeline Funaro	2152631
	01/29/2020			02/03/2020 09:53	Madeline Funaro	2152634
	01/29/2020			02/04/2020 07:50	Madeline Funaro	2152625