

Chemical Analysis Report

SE-DIST-2020-03-11-02

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

Event Description: **SMP- G2SE0017 Makeup**
Request ID: **RQ-2020-03-02-72**
Customer: **SE-DIST**
Project ID: **SMP**

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Date Certified: 31-MAR-2020 09:38



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: Bessey Creek @ Murphy

Collection Date/Time: 03/10/2020 14:45

Field ID: G2SE0017

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2163927	EPA 180.1 Rev. 2.0	Turbidity	4.2	A	NTU	P380536	
	EPA 300.0 Rev. 2.1	Bromide	7.5		mg Br/L	P380677	
	SM 2320 B-2011	Total Alkalinity	212		mg CaCO3/L	P381064	
	SM 2540 D-2011	TSS	3	I	mg/L	P380984	
	SM 4500 F-C-2011	Fluoride	0.24		mg F/L	P381260	
2163928	EPA 350.1 Rev. 2.0	Ammonia-N	0.028		mg N/L	P381040	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.52		mg N/L	P380632	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.11		mg N/L	P381126	
	EPA 365.1 Rev. 2.0	Total-P	0.096		mg P/L	P380798	
	SM 5310 B-2011	Organic Carbon	10		mg C/L	P380836	
2163929	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.034		mg P/L	P380503	
2163936	EPA 8321B	2,4-D	0.012		ug/L	P380458	
		Acesulfame K**	0.10	U	ug/L	P380603	MS
		AMPA**	1.0	U	ug/L	P380603	
		Sucralose**	0.99		ug/L	P380603	
		Acetaminophen**	0.0080	U	ug/L	P380458	
		Acetamiprid**	0.0020	U	ug/L	P380458	
		Endothall**	0.25	U	ug/L	P380603	
		Glufosinate**	1.0	U	ug/L	P380603	
		Glyphosate**	1.0	U	ug/L	P380603	
		Afidopyropen**	0.0025	I,J	ug/L	P380458	
		Bentazon	0.15		ug/L	P380458	MS
		Benzovindiflupyr**	0.0020	UJ	ug/L	P380458	
		Carbamazepine**	0.0023	I	ug/L	P380458	
		Clothianidin**	0.0020	U	ug/L	P380458	
		Dinotefuran**	0.0020	U	ug/L	P380458	
		Diuron	0.0030	I	ug/L	P380458	
		Fenuron	0.016	U	ug/L	P380458	
		Fluridone**	0.0022	I	ug/L	P380458	
		Imazapyr**	0.11		ug/L	P380458	
		Hydrocodone**	0.0020	U	ug/L	P380458	
		Ibuprofen**	0.020	U	ug/L	P380458	
		Imidacloprid	0.0066	I	ug/L	P380458	
		Linuron	0.0040	U	ug/L	P380458	
		Mandestrobin**	0.0020	UJ	ug/L	P380458	
		MCPD	0.0020	U	ug/L	P380458	
		Naproxen**	0.0080	U	ug/L	P380458	
		Primidone**	0.011	I	ug/L	P380458	
		Pyraclostrobin**	0.0020	U	ug/L	P380458	
		Thiamethoxam**	0.0020	U	ug/L	P380458	
		Tolfenpyrad**	0.0020	U	ug/L	P380458	
		Triclopyr**	0.0040	U	ug/L	P380458	
2163938	EPA 200.7 Rev. 4.4	Iron	620		ug/L	P380460	

Field ID: G2SE0017

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2163938	EPA 200.7 Rev. 4.4	Manganese	21		ug/L	P380460	
		Zinc	15	U	ug/L	P380460	
	EPA 200.8 Rev. 5.4	Aluminum	20	U	ug/L	P380460	
		Antimony	0.20	U	ug/L	P380460	
		Arsenic	1.52		ug/L	P380460	
		Cadmium	0.080	U	ug/L	P380460	
		Chromium	1.6	U	ug/L	P380460	
		Copper	1.6	U	ug/L	P380460	
		Lead	0.80	U	ug/L	P380460	
		Nickel	2.0	U	ug/L	P380460	
		Selenium	0.80	U	ug/L	P380460	
		Silver	0.040	U	ug/L	P380460	
		Thallium	0.40	U	ug/L	P380460	

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

EPA 8321B: MDL elevated for some parameters due to matrix interference.

Sample Location: Bessey Creek @ Murphy

Collection Date/Time: 03/10/2020 15:00

Field ID: FB_03102020

Matrix: W-FIELD-BK

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2163930	EPA 180.1 Rev. 2.0	Turbidity	0.10	U	NTU	P380536	
	EPA 300.0 Rev. 2.1	Bromide	0.013	U	mg Br/L	P380677	
	SM 2320 B-2011	Total Alkalinity	0.65	U	mg CaCO3/L	P380928	
	SM 2540 D-2011	TSS	2	U	mg/L	P380983	
	SM 4500 F-C-2011	Fluoride	0.035	U	mg F/L	P381260	
2163931	EPA 350.1 Rev. 2.0	Ammonia-N	0.002	U	mg N/L	P380973	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.080	U	mg N/L	P380686	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P381096	
	EPA 365.1 Rev. 2.0	Total-P	0.002	U	mg P/L	P380799	
	SM 5310 B-2011	Organic Carbon	0.50	U	mg C/L	P380673	
2163932	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P380504	
2163937	EPA 8321B	2,4-D	0.0020	U	ug/L	P380458	
		Acesulfame K**	0.10	U	ug/L	P380603	MS
		AMPA**	0.10	U	ug/L	P380603	
		Sucralose**	0.010	U	ug/L	P380603	
		Acetaminophen**	0.0080	U	ug/L	P380458	
		Acetamiprid**	0.0020	U	ug/L	P380458	
		Endothall**	0.25	U	ug/L	P380603	
		Glufosinate**	0.10	U	ug/L	P380603	
		Glyphosate**	0.10	U	ug/L	P380603	
		Afidopyropen**	0.0020	UJ	ug/L	P380458	
		Bentazon	8.0E-04	U	ug/L	P380458	MS
		Benzovindiflupyr**	0.0020	UJ	ug/L	P380458	
		Carbamazepine**	8.0E-04	U	ug/L	P380458	
		Clothianidin**	0.0020	U	ug/L	P380458	
		Dinotefuran**	0.0020	U	ug/L	P380458	
		Diuron	0.0020	U	ug/L	P380458	
		Fenuron	0.016	U	ug/L	P380458	
		Fluridone**	8.0E-04	U	ug/L	P380458	
		Imazapyr**	0.0040	U	ug/L	P380458	
		Hydrocodone**	0.0020	U	ug/L	P380458	
		Ibuprofen**	0.020	U	ug/L	P380458	
		Imidacloprid	0.0020	U	ug/L	P380458	
		Linuron	0.0040	U	ug/L	P380458	
		Mandestrobin**	0.0020	UJ	ug/L	P380458	
		MCPP	0.0020	U	ug/L	P380458	
		Naproxen**	0.0080	U	ug/L	P380458	
		Primidone**	0.0040	U	ug/L	P380458	
		Pyraclostrobin**	0.0020	U	ug/L	P380458	
		Thiamethoxam**	0.0020	U	ug/L	P380458	
		Tolfenpyrad**	0.0020	U	ug/L	P380458	
		Triclopyr**	0.0040	U	ug/L	P380458	
2163939	EPA 200.7 Rev. 4.4	Iron	30	U	ug/L	P380556	

Field ID: FB_03102020

Matrix: W-FIELD-BK

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2163939	EPA 200.7 Rev. 4.4	Manganese	1.0	U	ug/L	P380556	
		Zinc	5.0	U	ug/L	P380556	
	EPA 200.8 Rev. 5.4	Aluminum	5.0	U	ug/L	P380556	
		Antimony	0.050	U	ug/L	P380556	
		Arsenic	0.050	U	ug/L	P380556	
		Cadmium	0.020	U	ug/L	P380556	
		Chromium	0.40	U	ug/L	P380556	
		Copper	0.40	U	ug/L	P380875	
		Lead	0.20	U	ug/L	P380556	
		Nickel	0.50	U	ug/L	P380556	
		Selenium	0.20	U	ug/L	P380556	
		Silver	0.010	U	ug/L	P380556	
		Thallium	0.10	U	ug/L	P380556	

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

Quality Assurance Report Method Blank Results

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P380536

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P380460

Component	Result	Code	Units
Iron	30	U	ug/L
Manganese	1.0	U	ug/L
Zinc	5.0	U	ug/L

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P380556

Component	Result	Code	Units
Iron	30	U	ug/L
Manganese	1.0	U	ug/L
Zinc	5.0	U	ug/L

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P380460

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

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P380556

Component	Result	Code	Units
Aluminum	5.0	U	ug/L
Antimony	0.050	U	ug/L
Arsenic	0.050	U	ug/L
Cadmium	0.020	U	ug/L
Chromium	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

Quality Assurance Report Method Blank Results

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P380875

Component	Result	Code	Units
Copper	0.40	U	ug/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P380677

Component	Result	Code	Units
Bromide	0.013	U	mg Br/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P380973

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P381040

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P380632

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P380686

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P381096

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P381126

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P380798

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: P380799

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P380503

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P380504

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

Reference Method: EPA 8321B
Batch ID: P380458

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: P380603

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

Quality Assurance Report Method Blank Results

Reference Method: EPA 8321B
Batch ID: P380603

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

Reference Method: SM 2320 B-2011
Batch ID: P380928

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

Reference Method: SM 2320 B-2011
Batch ID: P381064

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

Reference Method: SM 2540 D-2011
Batch ID: P380983

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 2540 D-2011
Batch ID: P380984

Component	Result	Code	Units
TSS	3	U	mg/L

Reference Method: SM 4500 F-C-2011
Batch ID: P381260

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-2011
Batch ID: P380673

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

Reference Method: SM 5310 B-2011
Batch ID: P380836

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: P380460

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Iron	105		P	85 - 115
Manganese	107		P	85 - 115
Zinc	107		P	85 - 115

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P380556

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Iron	105		P	85 - 115
Manganese	103		P	85 - 115
Zinc	100		P	85 - 115

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P380460

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Aluminum	93.1		P	85 - 115
Antimony	90.4		P	85 - 115
Arsenic	94.3		P	85 - 115
Cadmium	95.1		P	85 - 115
Chromium	94.6		P	85 - 115
Copper	97.7		P	85 - 115
Lead	89.6		P	85 - 115
Nickel	94.3		P	85 - 115
Selenium	94.3		P	85 - 115
Silver	91.0		P	85 - 115
Thallium	93.8		P	85 - 115

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P380556

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Aluminum	95.4		P	85 - 115
Antimony	90.6		P	85 - 115
Arsenic	97.4		P	85 - 115
Cadmium	102		P	80 - 120
Chromium	97.4		P	85 - 115
Lead	96.5		P	85 - 115
Nickel	96.6		P	85 - 115
Selenium	96.3		P	85 - 115
Silver	95.1		P	85 - 115
Thallium	99.9		P	85 - 115

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P380875

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Copper	107		P	85 - 115

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P380677

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Bromide	97.4		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P380973

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P381040

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P380632

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Kjeldahl Nitrogen	95.6		P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P380686

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Kjeldahl Nitrogen	94.8		P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P381096

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P381126

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
NO2NO3-N	102		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P380798

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P380799

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

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P380503

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P380504

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
O-Phosphate-P	98.3		P	90 - 110

Reference Method: EPA 8321B
Batch ID: P380458

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2,4-D	105		P	30 - 160
Acetaminophen	70.3		P	30 - 160
Acetamiprid	81.0		P	30 - 160
Afidopyropen	84.1		P	30 - 160
Bentazon	72.5		P	30 - 160
Benzovindiflupyr	72.1		P	30 - 160
Carbamazepine	89.3		P	30 - 160
Clothianidin	74.9		P	30 - 160
Dinotefuran	73.4		P	30 - 160
Diuron	75.1		P	30 - 160
Fenuron	78.3		P	30 - 160
Fluridone	69.7		P	30 - 160
Hydrocodone	64.8		P	30 - 160
Ibuprofen	75.5		P	30 - 160
Imazapyr	83.4		P	30 - 160
Imidacloprid	86.3		P	30 - 160
Linuron	72.0		P	30 - 160
Mandestrobin	73.3		P	30 - 160
MCPP	95.7		P	30 - 160
Naproxen	74.5		P	30 - 160
Primidone	79.0		P	30 - 160
Pyraclostrobin	71.6		P	30 - 160
Thiamethoxam	85.0		P	30 - 160
Tolfenpyrad	51.1		P	30 - 160
Triclopyr	111		P	30 - 160

Reference Method: EPA 8321B
Batch ID: P380603

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Acesulfame K	77.2		P	40 - 150
AMPA	92.5		P	40 - 150
Endothall	128		P	40 - 150
Glufosinate	121		P	40 - 150
Glyphosate	93.7		P	40 - 140
Sucralose	104		P	40 - 150

Quality Assurance Report

Laboratory Control Sample Accuracy

Reference Method: SM 2320 B-2011
Batch ID: P380928

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	104		P	98 - 106

Reference Method: SM 2320 B-2011
Batch ID: P381064

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

Reference Method: SM 4500 F-C-2011
Batch ID: P381260

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	95.3		P	92 - 103

Reference Method: SM 5310 B-2011
Batch ID: P380673

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	94.6		P	85 - 115

Reference Method: SM 5310 B-2011
Batch ID: P380836

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	98.3		P	85 - 115

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P380460

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2163449	Iron	106	107	P/P	70 - 130
2163449	Manganese	106	103	P/P	70 - 130
2163449	Zinc	109	109	P/P	70 - 130

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P380556

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2163644	Iron	104	104	P/P	80 - 120
2163644	Manganese	102	105	P/P	80 - 120
2163644	Zinc	102	104	P/P	80 - 120
2164291	Iron	105		P	80 - 120
2164291	Manganese	99.9		P	80 - 120
2164291	Zinc	102		P	80 - 120

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P380460

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2163449	Aluminum	92.3	94.0	P/P	70 - 130
2163449	Antimony	92.8	95.5	P/P	70 - 130
2163449	Arsenic	101	102	P/P	70 - 130
2163449	Cadmium	94.3	98.6	P/P	70 - 130
2163449	Chromium	95.5	98.0	P/P	70 - 130
2163449	Copper	97.5	99.4	P/P	70 - 130
2163449	Lead	91.4	92.8	P/P	70 - 130
2163449	Nickel	100	102	P/P	70 - 130
2163449	Selenium	96.5	101	P/P	70 - 130
2163449	Silver	87.0	88.0	P/P	70 - 130
2163449	Thallium	89.9	93.0	P/P	70 - 130

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P380556

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2163644	Aluminum	93.9	95.6	P/P	80 - 120
2163644	Antimony	97.8	100	P/P	80 - 120
2163644	Arsenic	97.4	99.4	P/P	80 - 120
2163644	Cadmium	96.5	101	P/P	80 - 120
2163644	Chromium	97.9	99.8	P/P	80 - 120
2163644	Lead	98.9	99.0	P/P	80 - 120
2163644	Nickel	95.5	97.4	P/P	80 - 120
2163644	Selenium	87.7	90.8	P/P	80 - 120
2163644	Silver	98.2	99.4	P/P	80 - 120
2163644	Thallium	102	103	P/P	80 - 120
2164291	Aluminum	95.8		P	80 - 120
2164291	Antimony	96.5		P	80 - 120
2164291	Arsenic	100		P	80 - 120
2164291	Cadmium	96.5		P	80 - 120
2164291	Chromium	101		P	80 - 120
2164291	Lead	99.8		P	80 - 120
2164291	Nickel	94.1		P	80 - 120

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P380556

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2164291	Selenium	91.5		P	80 - 120
2164291	Silver	98.5		P	80 - 120
2164291	Thallium	105		P	80 - 120

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P380875

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2163421	Copper	105	109	P/P	80 - 120
2163799	Copper	116		P	80 - 120

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P380677

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2163647	Bromide	94.3	93.9	P/P	90 - 110
2163663	Bromide	94.3		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P380973

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2164228	Ammonia-N	97.1	98.0	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P381040

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2163928	Ammonia-N	98.7	100	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P380632

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2163741	Kjeldahl Nitrogen	98.8	100	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P380686

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2162647	Kjeldahl Nitrogen	104	103	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P381096

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2163866	NO2NO3-N	99.5	98.5	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P381126

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P381126

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2163734	NO2NO3-N	102	100	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P380798

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2163564	Total-P	99.8	97.6	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P380799

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2163866	Total-P	108	107	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P380503

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2163735	O-Phosphate-P	97.7	98.5	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P380504

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2163872	O-Phosphate-P	97.4	98.7	P/P	90 - 110

Reference Method: EPA 8321B
Batch ID: P380458

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2163321	Acetaminophen	82.8	72.8	P/P	30 - 160
2163321	Acetamiprid	84.6	69.5	P/P	30 - 160
2163321	Afidopyropen	120	115	P/P	30 - 160
2163321	Bentazon	27.3	29.7	F/F	30 - 160
2163321	Benzovindiflupyr	82.4	83.3	P/P	30 - 160
2163321	Carbamazepine	75.6	70.0	P/P	30 - 160
2163321	Clothianidin	68.6	89.2	P/P	30 - 160
2163321	Dinotefuran	97.6	104	P/P	30 - 160
2163321	Diuron	67.1	72.0	P/P	30 - 160
2163321	Fenuron	54.2	70.2	P/P	30 - 160
2163321	Fluridone	75.6	75.2	P/P	30 - 160
2163321	Hydrocodone	70.6	80.5	P/P	30 - 160
2163321	Ibuprofen	68.0	71.3	P/P	30 - 160
2163321	Imazapyr	63.7	67.3	P/P	30 - 160
2163321	Imidacloprid	142	152	P/P	30 - 160
2163321	Linuron	61.0	65.0	P/P	30 - 160
2163321	Mandestrobin	75.1	77.1	P/P	30 - 160
2163321	MCCP	96.0	102	P/P	30 - 160
2163321	Naproxen	78.9	78.0	P/P	30 - 160
2163321	Primidone	72.3	88.2	P/P	30 - 160
2163321	Pyraclostrobin	82.2	84.4	P/P	30 - 160
2163321	Thiamethoxam	109	125	P/P	30 - 160

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 8321B
Batch ID: P380458

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2163321	Tolfenpyrad	75.9	75.0	P/P	30 - 160
2163321	Triclopyr	132	124	P/P	30 - 160

Reference Method: EPA 8321B
Batch ID: P380603

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2163766	Acesulfame K	19.2	20.2	F/F	40 - 150
2163766	AMPA	96.6	90.1	P/P	40 - 150
2163766	Endothall	111	115	P/P	40 - 150
2163766	Glufosinate	104	113	P/P	40 - 150
2163766	Glyphosate	124	119	P/P	40 - 140
2163766	Sucralose	85.0	109	P/P	40 - 150

Reference Method: SM 4500 F-C-2011
Batch ID: P381260

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2164225	Fluoride	100	99.3	P/P	89 - 106

Reference Method: SM 5310 B-2011
Batch ID: P380673

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2164304	Organic Carbon	95.3	96.9	P/P	85 - 115

Reference Method: SM 5310 B-2011
Batch ID: P380836

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2163928	Organic Carbon	95.1	96.2	P/P	85 - 115

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P380536

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2163927	Turbidity	2.84	Sample	P	0 - 20

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P380460

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2163449	Iron	0.278	Spike	P	0 - 20
2163449	Manganese	2.72	Spike	P	0 - 20
2163449	Zinc	0.0455	Spike	P	0 - 20

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P380556

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2163644	Iron	0.231	Spike	P	0 - 20
2163644	Manganese	2.11	Spike	P	0 - 20
2163644	Zinc	2.47	Spike	P	0 - 20

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P380460

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2163449	Aluminum	1.80	Spike	P	0 - 20
2163449	Antimony	2.92	Spike	P	0 - 20
2163449	Arsenic	1.38	Spike	P	0 - 20
2163449	Cadmium	4.44	Spike	P	0 - 20
2163449	Chromium	2.59	Spike	P	0 - 20
2163449	Copper	1.92	Spike	P	0 - 20
2163449	Lead	1.51	Spike	P	0 - 20
2163449	Nickel	1.82	Spike	P	0 - 20
2163449	Selenium	4.79	Spike	P	0 - 20
2163449	Silver	1.15	Spike	P	0 - 20
2163449	Thallium	3.43	Spike	P	0 - 20

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P380556

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2163644	Aluminum	1.74	Spike	P	0 - 20
2163644	Antimony	2.36	Spike	P	0 - 20
2163644	Arsenic	1.87	Spike	P	0 - 20
2163644	Cadmium	4.72	Spike	P	0 - 20
2163644	Chromium	1.91	Spike	P	0 - 20
2163644	Lead	0.110	Spike	P	0 - 20
2163644	Nickel	2.01	Spike	P	0 - 20
2163644	Selenium	3.46	Spike	P	0 - 20
2163644	Silver	1.27	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P380556

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2163644	Thallium	1.52	Spike	P	0 - 20

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P380875

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2163421	Copper	3.15	Spike	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P380677

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2163647	Bromide	0.407	Spike	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P380973

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2164228	Ammonia-N	0.838	Spike	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P381040

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2163928	Ammonia-N	0.980	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P380632

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2163741	Kjeldahl Nitrogen	1.08	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P380686

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2162647	Kjeldahl Nitrogen	0.710	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P381096

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2163866	NO2NO3-N	1.01	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P381126

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2163734	NO2NO3-N	0.990	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P380798

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2163564	Total-P	1.11	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P380799

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2163866	Total-P	0.628	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P380503

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2163735	O-Phosphate-P	0.413	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P380504

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2163872	O-Phosphate-P	1.33	Spike	P	0 - 20

Reference Method: EPA 8321B
Batch ID: P380458

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2163321	2,4-D	2.12	Spike	P	0 - 30
2163321	Acetaminophen	8.34	Spike	P	0 - 30
2163321	Acetamiprid	19.6	Spike	P	0 - 30
2163321	Afidopyropen	4.94	Spike	P	0 - 30
2163321	Bentazon	2.92	Spike	P	0 - 30
2163321	Benzovindiflupyr	1.08	Spike	P	0 - 30
2163321	Carbamazepine	7.73	Spike	P	0 - 30
2163321	Clothianidin	24.9	Spike	P	0 - 30
2163321	Dinotefuran	6.53	Spike	P	0 - 30
2163321	Diuron	7.03	Spike	P	0 - 30
2163321	Fenuron	25.7	Spike	P	0 - 30
2163321	Fluridone	0.527	Spike	P	0 - 30
2163321	Hydrocodone	13.1	Spike	P	0 - 30
2163321	Ibuprofen	4.75	Spike	P	0 - 30
2163321	Imazapyr	2.10	Spike	P	0 - 30
2163321	Imidacloprid	6.51	Spike	P	0 - 30

Quality Assurance Report Precision

Reference Method: EPA 8321B
Batch ID: P380458

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2163321	Linuron	6.27	Spike	P	0 - 30
2163321	Mandestrobin	2.63	Spike	P	0 - 30
2163321	MCPP	6.38	Spike	P	0 - 30
2163321	Naproxen	1.18	Spike	P	0 - 30
2163321	Primidone	19.8	Spike	P	0 - 30
2163321	Pyraclostrobin	2.59	Spike	P	0 - 30
2163321	Thiamethoxam	13.4	Spike	P	0 - 30
2163321	Tolfenpyrad	1.18	Spike	P	0 - 30
2163321	Triclopyr	6.69	Spike	P	0 - 30

Reference Method: EPA 8321B
Batch ID: P380603

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2163766	Acesulfame K	3.67	Spike	P	0 - 30
2163766	AMPA	5.88	Spike	P	0 - 30
2163766	Endothall	2.89	Spike	P	0 - 30
2163766	Glufosinate	8.46	Spike	P	0 - 30
2163766	Glyphosate	3.31	Spike	P	0 - 30
2163766	Sucralose	15.7	Spike	P	0 - 30

Reference Method: SM 2320 B-2011
Batch ID: P380928

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2163858	Total Alkalinity	0.270	Sample	P	0 - 2.8

Reference Method: SM 2320 B-2011
Batch ID: P381064

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2166025	Total Alkalinity	0.535	Sample	P	0 - 2.8

Reference Method: SM 4500 F-C-2011
Batch ID: P381260

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2164225	Fluoride	0.473	Spike	P	0 - 2.5

Reference Method: SM 5310 B-2011
Batch ID: P380673

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2164304	Organic Carbon	1.12	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: SM 5310 B-2011
Batch ID: P380836

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2163928	Organic Carbon	0.947	Spike	P	0 - 20

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

Quality Assurance Report Surrogates

Lab Sample ID: 2163936
Field Sample ID: G2SE0017

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	2,4-D-d3	92.2	P	30 - 160
EPA 8321B	Acetaminophen-d4	80.4	P	30 - 160
EPA 8321B	Carbamazepine-d10	82.5	P	30 - 160
EPA 8321B	Diuron-d6	86.6	P	30 - 160
EPA 8321B	Endothall-d6	147	P	30 - 160
EPA 8321B	Endothall-d6	147	P	30 - 160
EPA 8321B	Glyphosate 13C 15N	69.1	P	30 - 160
EPA 8321B	Glyphosate 13C 15N	69.1	P	30 - 160
EPA 8321B	Ibuprofen-d3	77.5	P	30 - 160
EPA 8321B	Primidone-d5	88.4	P	30 - 160
EPA 8321B	Sucralose-d6	94.4	P	30 - 160
EPA 8321B	Sucralose-d6	94.4	P	30 - 160

Lab Sample ID: 2163937
Field Sample ID: FB_03102020

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	2,4-D-d3	120	P	30 - 160
EPA 8321B	Acetaminophen-d4	83.9	P	30 - 160
EPA 8321B	Carbamazepine-d10	108	P	30 - 160
EPA 8321B	Diuron-d6	93.2	P	30 - 160
EPA 8321B	Endothall-d6	117	P	30 - 160
EPA 8321B	Endothall-d6	117	P	30 - 160
EPA 8321B	Glyphosate 13C 15N	99.6	P	30 - 160
EPA 8321B	Glyphosate 13C 15N	99.6	P	30 - 160
EPA 8321B	Ibuprofen-d3	86.3	P	30 - 160
EPA 8321B	Primidone-d5	96.8	P	30 - 160
EPA 8321B	Sucralose-d6	113	P	30 - 160
EPA 8321B	Sucralose-d6	113	P	30 - 160

Quality Assurance Report Calibration Verification

Reference Method: EPA 300.0 Rev. 2.1

Run ID: A98086

Included Lab Sample IDs: 2163927, 2163930

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved

Run ID: A98133

Included Lab Sample IDs: 2163929, 2163932

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	96.3	96.8	P/P	90 - 110
O-Phosphate-P	96.8	96.8	P/P	90 - 110

Reference Method: EPA 180.1 Rev. 2.0

Run ID: A98149

Included Lab Sample IDs: 2163927, 2163930

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Turbidity	99.5	100	P/P	95 - 105

Reference Method: EPA 200.8 Rev. 5.4

Run ID: A98192

Included Lab Sample IDs: 2163939

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Aluminum	97.3	99.8	P/P	90 - 110
Antimony	92.4	91.6	P/P	90 - 110
Arsenic	101	101	P/P	90 - 110
Chromium	98.7	99.1	P/P	90 - 110
Lead	99.2	99.0	P/P	90 - 110
Nickel	100	99.8	P/P	90 - 110
Selenium	97.1	97.7	P/P	90 - 110
Silver	93.3	93.3	P/P	90 - 110
Thallium	96.5	97.1	P/P	90 - 110

Reference Method: EPA 200.7 Rev. 4.4

Run ID: A98195

Included Lab Sample IDs: 2163938

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Iron	102	102	P/P	90 - 110
Manganese	105	106	P/P	90 - 110
Zinc	102	102	P/P	90 - 110

Reference Method: EPA 200.8 Rev. 5.4

Run ID: A98197

Included Lab Sample IDs: 2163938

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Aluminum	97.5	95.7	P/P	90 - 110
Antimony	90.8	91.7	P/P	90 - 110
Arsenic	95.1	96.4	P/P	90 - 110
Cadmium	94.8	94.7	P/P	90 - 110
Chromium	94.0	95.2	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: EPA 200.8 Rev. 5.4

Run ID: A98197

Included Lab Sample IDs: 2163938

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Copper	96.9	98.2	P/P	90 - 110
Lead	92.7	92.5	P/P	90 - 110
Nickel	97.4	100	P/P	90 - 110
Selenium	96.2	94.9	P/P	90 - 110
Silver	92.6	92.2	P/P	90 - 110
Thallium	90.2	91.5	P/P	90 - 110

Reference Method: SM 5310 B-2011

Run ID: A98201

Included Lab Sample IDs: 2163931

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	97.6	95.9	P/P	90 - 110

Reference Method: EPA 8321B

Run ID: A98208

Included Lab Sample IDs: 2163936, 2163937

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
AMPA	86.3	86.2	P/P	40 - 200
AMPA	97.4	89.9	P/P	40 - 200
Glufosinate	119	106	P/P	40 - 200
Glufosinate	125	118	P/P	40 - 200
Glyphosate	102	101	P/P	40 - 200
Glyphosate	89.1	102	P/P	40 - 200

Reference Method: EPA 8321B

Run ID: A98210

Included Lab Sample IDs: 2163936, 2163937

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Acesulfame K	83.6	84.9	P/P	60 - 160
Endothall	117	115	P/P	60 - 160

Reference Method: EPA 8321B

Run ID: A98214

Included Lab Sample IDs: 2163936, 2163937

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
2,4-D	75.3	86.4	P/P	50 - 150
2,4-D	88.6	75.3	P/P	50 - 150
Acetaminophen	89.6	103	P/P	60 - 160
Acetaminophen	92.3	89.6	P/P	60 - 160
Acetamiprid	108	94.0	P/P	50 - 150
Acetamiprid	94.0	115	P/P	50 - 150
Afidopyropen	114	107	P/P	50 - 150
Afidopyropen	129	114	P/P	50 - 150
Bentazon	124	114	P/P	50 - 160
Bentazon	129	109	P/P	50 - 160
Benzovindiflupyr	102	108	P/P	50 - 150
Benzovindiflupyr	108	102	P/P	50 - 150

Quality Assurance Report Calibration Verification

Reference Method: EPA 8321B

Run ID: A98214

Included Lab Sample IDs: 2163936, 2163937

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Carbamazepine	101	102	P/P	60 - 150
Carbamazepine	112	101	P/P	60 - 150
Clothianidin	79.4	103	P/P	60 - 150
Clothianidin	98.9	79.4	P/P	60 - 150
Dinotefuran	86.2	90.0	P/P	50 - 150
Dinotefuran	92.1	86.2	P/P	50 - 150
Diuron	107	114	P/P	60 - 150
Diuron	123	107	P/P	60 - 150
Fenuron	93.2	97.1	P/P	60 - 150
Fenuron	95.3	93.2	P/P	60 - 150
Fluridone	97.1	94.5	P/P	60 - 160
Fluridone	98.2	97.1	P/P	60 - 160
Hydrocodone	101	91.7	P/P	60 - 150
Hydrocodone	91.7	93.5	P/P	60 - 150
Ibuprofen	86.7	90.0	P/P	50 - 160
Ibuprofen	90.0	97.5	P/P	50 - 160
Imazapyr	100	82.8	P/P	50 - 150
Imazapyr	82.8	92.6	P/P	50 - 150
Imidacloprid	94.9	109	P/P	60 - 150
Imidacloprid	98.8	94.9	P/P	60 - 150
Linuron	107	109	P/P	60 - 150
Linuron	109	75.1	P/P	60 - 150
Mandestrobin	101	96.1	P/P	50 - 150
Mandestrobin	96.1	95.0	P/P	50 - 150
MCPP	68.0	63.6	P/P	50 - 150
MCPP	70.5	68.0	P/P	50 - 150
Naproxen	135	90.4	P/P	50 - 160
Naproxen	95.7	135	P/P	50 - 160
Primidone	86.6	82.6	P/P	60 - 150
Primidone	94.3	86.6	P/P	60 - 150
Pyraclostrobin	102	99.5	P/P	60 - 150
Pyraclostrobin	99.5	103	P/P	60 - 150
Thiamethoxam	107	93.8	P/P	50 - 150
Thiamethoxam	93.8	98.3	P/P	50 - 150
Tolfenpyrad	113	116	P/P	60 - 150
Tolfenpyrad	116	118	P/P	60 - 150
Triclopyr	109	95.4	P/P	50 - 150
Triclopyr	95.4	95.1	P/P	50 - 150

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A98222

Included Lab Sample IDs: 2163928

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

Reference Method: EPA 8321B

Run ID: A98229

Included Lab Sample IDs: 2163936, 2163937

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
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Quality Assurance Report Calibration Verification

Reference Method: EPA 8321B

Run ID: A98229

Included Lab Sample IDs: 2163936, 2163937

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Sucralose	106	109	P/P	60 - 160

Reference Method: EPA 200.8 Rev. 5.4

Run ID: A98232

Included Lab Sample IDs: 2163939

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Cadmium	107	106	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A98250

Included Lab Sample IDs: 2163931

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

Reference Method: EPA 200.7 Rev. 4.4

Run ID: A98252

Included Lab Sample IDs: 2163939

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Iron	103	103	P/P	90 - 110
Manganese	102	103	P/P	90 - 110
Zinc	97.6	98.1	P/P	90 - 110

Reference Method: SM 5310 B-2011

Run ID: A98258

Included Lab Sample IDs: 2163928

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	99.2	95.8	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A98271

Included Lab Sample IDs: 2163928

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO2NO3-N	102	102	P/P	90 - 110

Reference Method: SM 2320 B-2011

Run ID: A98293

Included Lab Sample IDs: 2163930

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	102	104	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A98309

Included Lab Sample IDs: 2163931

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
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Quality Assurance Report Calibration Verification

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A98309

Included Lab Sample IDs: 2163931

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	98.4	98.9	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A98319

Included Lab Sample IDs: 2163928, 2163931

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

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A98337

Included Lab Sample IDs: 2163928

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

Reference Method: SM 2320 B-2011

Run ID: A98350

Included Lab Sample IDs: 2163927

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	100	103	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A98374

Included Lab Sample IDs: 2163931

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

Reference Method: SM 4500 F-C-2011

Run ID: A98428

Included Lab Sample IDs: 2163927, 2163930

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	97.6	95.6	P/P	90 - 110

Reference Method: EPA 200.8 Rev. 5.4

Run ID: A98446

Included Lab Sample IDs: 2163939

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Copper	106	98.5	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						2.84	
EPA 200.7 Rev. 4.4	Iron	105	106	107				0.278
	Iron	105	104	104	105			0.231
	Manganese	107	106	103				2.72
	Manganese	103	102	105	99.9			2.11
	Zinc	107	109	109				0.0455
	Zinc	100	102	104	102			2.47
EPA 200.8 Rev. 5.4	Aluminum	93.1	92.3	94.0				1.80
	Aluminum	95.4	93.9	95.6	95.8			1.74
	Antimony	90.4	92.8	95.5				2.92
	Antimony	90.6	97.8	100	96.5			2.36
	Arsenic	94.3	101	102				1.38
	Arsenic	97.4	97.4	99.4	100			1.87
	Cadmium	95.1	94.3	98.6				4.44
	Cadmium	102	96.5	101	96.5			4.72
	Chromium	94.6	95.5	98.0				2.59
	Chromium	97.4	97.9	99.8	101			1.91
	Copper	97.7	97.5	99.4				1.92
	Copper	107	105	109	116			3.15
	Lead	89.6	91.4	92.8				1.51
	Lead	96.5	98.9	99.0	99.8			0.110
	Nickel	94.3	100	102				1.82
	Nickel	96.6	95.5	97.4	94.1			2.01
	Selenium	94.3	96.5	101				4.79
	Selenium	96.3	87.7	90.8	91.5			3.46
	Silver	91.0	87.0	88.0				1.15
	Silver	95.1	98.2	99.4	98.5			1.27
	Thallium	93.8	89.9	93.0				3.43
	Thallium	99.9	102	103	105			1.52
EPA 300.0 Rev. 2.1	Bromide	97.4	94.3	93.9	94.3			0.407
EPA 350.1 Rev. 2.0	Ammonia-N	99.6	97.1	98.0				0.838
	Ammonia-N	99.9	98.7	100				0.980
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	95.6	98.8	100				1.08
	Kjeldahl Nitrogen	94.8	104	103				0.710
EPA 353.2 Rev. 2.0	NO2NO3-N	98.5	99.5	98.5				1.01
	NO2NO3-N	102	102	100				0.990
EPA 365.1 Rev. 2.0	Total-P	105	99.8	97.6				1.11
	Total-P	104	108	107				0.628
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	96.6	97.7	98.5				0.413
	O-Phosphate-P	98.3	97.4	98.7				1.33
EPA 8321B	2,4-D	105						2.12
	Acesulfame K	77.2	19.2	20.2				3.67
	Acetaminophen	70.3	82.8	72.8				8.34
	Acetamiprid	81.0	84.6	69.5				19.6
	Afidopyropen	84.1	120	115				4.94
	AMPA	92.5	96.6	90.1				5.88
	Bentazon	72.5	27.3	29.7				2.92
	Benzovindiflupyr	72.1	82.4	83.3				1.08
	Carbamazepine	89.3	75.6	70.0				7.73
	Clothianidin	74.9	68.6	89.2				24.9
	Dinotefuran	73.4	97.6	104				6.53
	Diuron	75.1	67.1	72.0				7.03
	Endothall	128	111	115				2.89
	Fenuron	78.3	54.2	70.2				25.7

Quality Assurance Report Summary

Ref. Method	Analyte	LCS % Recovery	MS % Recovery		Precision	
					LCS	MS
EPA 8321B	Fluridone	69.7	75.6	75.2		0.527
	Glufosinate	121	104	113		8.46
	Glyphosate	93.7	124	119		3.31
	Hydrocodone	64.8	70.6	80.5		13.1
	Ibuprofen	75.5	68.0	71.3		4.75
	Imazapyr	83.4	63.7	67.3		2.10
	Imidacloprid	86.3	142	152		6.51
	Linuron	72.0	61.0	65.0		6.27
	Mandestrobin	73.3	75.1	77.1		2.63
	MCPP	95.7	96.0	102		6.38
	Naproxen	74.5	78.9	78.0		1.18
	Primidone	79.0	72.3	88.2		19.8
	Pyraclostrobin	71.6	82.2	84.4		2.59
	Sucralose	104	85.0	109		15.7
	Thiamethoxam	85.0	109	125		13.4
	Tolfenpyrad	51.1	75.9	75.0		1.18
	Triclopyr	111	132	124		6.69
SM 2320 B-2011	Total Alkalinity	104			0.270	
	Total Alkalinity	102			0.535	
SM 4500 F-C-2011	Fluoride	95.3	100	99.3		0.473
SM 5310 B-2011	Organic Carbon	94.6	95.3	96.9		1.12
	Organic Carbon	98.3	95.1	96.2		0.947

Reference Method Descriptions

Method	Description	Associated Samples
EPA 180.1 Rev. 2.0	Turbidity in aqueous matrices	2163927, 2163930
EPA 200.7 Rev. 4.4	Total Recoverable Metals analysis using ICP emission spectroscopy for aqueous samples supporting Clean Water Act Projects	2163938, 2163939
EPA 200.8 Rev. 5.4	Total Recoverable Metals analysis using ICP-MS for aqueous samples supporting Clean Water Act Projects	2163938, 2163939
EPA 300.0 Rev. 2.1	Bromide in aqueous matrices	2163927, 2163930
EPA 350.1 Rev. 2.0	Ammonia in aqueous matrices as mg N/L	2163928, 2163931
EPA 351.2 Rev. 2.0	Total Kjeldahl Nitrogen in aqueous matrices	2163928, 2163931
EPA 353.2 Rev. 2.0	Nitrite/Nitrate in aqueous matrices as mg N/L	2163928, 2163931
EPA 365.1 Rev. 2.0	Total Phosphorus in aqueous matrices as mg P/L	2163928, 2163931
EPA 365.1 Rev. 2.0 dissolved	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	2163929, 2163932
EPA 8321B	Pesticides, herbicides, and other chemicals in water matrices by HPLC/MS/MS	2163936, 2163937
EPA 8321B	Water soluble organic compounds by HPLC/MS/MS	2163936, 2163937
SM 2320 B-2011	Alkalinity in aqueous matrices as mg CaCO3/L	2163927, 2163930
SM 2540 D-2011	Total Suspended Solids in aqueous matrices using a maximum of 250 mL of sample	2163927, 2163930
SM 4500 F-C-2011	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	2163927, 2163930
SM 5310 B-2011	Nonpurgeable Organic Carbon in aqueous matrices	2163928, 2163931

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	03/11/2020			03/11/2020 19:16	Yen Ta	2163927, 2163930
EPA 200.7 Rev. 4.4	03/11/2020	03/11/2020 16:50	Elliott D. Healy	03/13/2020 20:58	Vijayalakshmi Reddy	2163938
	03/11/2020	03/12/2020 15:45	Elliott D. Healy	03/17/2020 13:25	Betina Topolski	2163939
EPA 200.8 Rev. 5.4	03/11/2020	03/11/2020 16:50	Elliott D. Healy	03/13/2020 13:46	Justin Cutchin	2163938
	03/11/2020	03/12/2020 15:45	Elliott D. Healy	03/13/2020 20:08	Alexander Thompson	2163939
	03/11/2020	03/12/2020 15:45	Elliott D. Healy	03/16/2020 13:42	Justin Cutchin	2163939
	03/11/2020	03/18/2020 14:20	Elliott D. Healy	03/24/2020 15:47	Justin Cutchin	2163939
EPA 300.0 Rev. 2.1	03/11/2020			03/13/2020 22:04	Lipi Saha	2163927
	03/11/2020			03/13/2020 22:21	Lipi Saha	2163930
EPA 350.1 Rev. 2.0	03/11/2020			03/19/2020 14:38	Ping Hua	2163931
	03/11/2020			03/20/2020 13:18	Ping Hua	2163928
EPA 351.2 Rev. 2.0	03/11/2020	03/13/2020 12:30	Sima Feizi	03/16/2020 15:52	Julia Storbeck	2163928
	03/11/2020	03/16/2020 12:00	Sima Feizi	03/17/2020 13:42	Julia Storbeck	2163931
EPA 353.2 Rev. 2.0	03/11/2020			03/18/2020 09:44	Beverly Y. Sanders	2163928
	03/11/2020			03/20/2020 11:09	Beverly Y. Sanders	2163931
EPA 365.1 Rev. 2.0	03/11/2020	03/17/2020 13:34	Yen Ta	03/19/2020 16:37	Benjamin T. Nordmann	2163928
	03/11/2020	03/17/2020 13:34	Yen Ta	03/19/2020 16:52	Benjamin T. Nordmann	2163931
EPA 365.1 Rev. 2.0 dissolved	03/11/2020			03/11/2020 15:30	Carlos Miranda	2163929
	03/11/2020			03/11/2020 15:46	Carlos Miranda	2163932
EPA 8321B	03/11/2020	03/12/2020 10:00	Hoor Shaik	03/15/2020 11:12	Juyoung Kim	2163936
	03/11/2020	03/12/2020 10:00	Hoor Shaik	03/15/2020 12:21	Juyoung Kim	2163937
	03/11/2020	03/12/2020 10:00	Hoor Shaik	03/16/2020 18:25	Juyoung Kim	2163936
	03/11/2020	03/13/2020 11:00	Mohammad Ghaffari	03/13/2020 13:52	Mohammad Ghaffari	2163937
	03/11/2020	03/13/2020 11:00	Mohammad Ghaffari	03/13/2020 16:54	Mohammad Ghaffari	2163936
	03/11/2020	03/13/2020 11:00	Mohammad Ghaffari	03/15/2020 16:06	Mohammad Ghaffari	2163936
	03/11/2020	03/13/2020 11:00	Mohammad Ghaffari	03/15/2020 16:20	Mohammad Ghaffari	2163937
	03/11/2020	03/13/2020 11:00	Mohammad Ghaffari	03/16/2020 13:56	Mohammad Ghaffari	2163936
	03/11/2020	03/13/2020 11:00	Mohammad Ghaffari	03/16/2020 14:08	Mohammad Ghaffari	2163937
SM 2320 B-2011	03/11/2020			03/19/2020 04:44	Dale L. Simmons	2163930
	03/11/2020			03/20/2020 14:14	Dale L. Simmons	2163927
SM 2540 D-2011	03/11/2020			03/13/2020 15:32	Yijie Li	2163927, 2163930
SM 4500 F-C-2011	03/11/2020			03/24/2020 16:35	Dale L. Simmons	2163930
	03/11/2020			03/24/2020 17:51	Dale L. Simmons	2163927
SM 5310 B-2011	03/11/2020			03/13/2020 08:11	Lauren Lees	2163931
	03/11/2020			03/17/2020 02:43	Lauren Lees	2163928