

Chemical Analysis Report

CEN-DIST-2020-01-30-01

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

Event Description: **Strickland x2 / Rose X2**

Request ID: **RQ-2020-01-06-37**

Customer: **CEN-DIST**

Project ID: **SMP**

Send Reports to:

FL Dept. of Environmental Protection
FL Dept. of Environmental Protection
3319 Maguire Blvd., Suite 232
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Certified by: Colin Wright, Program Administrator

Date Certified: 25-FEB-2020 09:34

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

Case Narrative

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

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

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

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

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

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

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

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

Precision is reported as relative percent difference unless otherwise noted.

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

QC Codes used in this report may include:

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

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

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

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

Sample Location: Strickland Bay @ 100M East (Downstream) of RR Crossing **Collection Date/Time: 01/29/2020 11:17**

Field ID: G5CE0081

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2152961	EPA 180.1 Rev. 2.0	Turbidity	3.2	A	NTU	P378033	
	EPA 300.0 Rev. 2.1	Bromide	35		mg Br/L	P378843	
	SM 2320 B-2011	Total Alkalinity	137		mg CaCO3/L	P378421	
	SM 2540 D-2011	TSS	4	I A	mg/L	P378329	
	SM 4500 F-C-2011	Fluoride	0.69		mg F/L	P378425	
2152964	EPA 350.1 Rev. 2.0	Ammonia-N	0.012		mg N/L	P378570	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.46		mg N/L	P378322	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.029		mg N/L	P378269	
	EPA 365.1 Rev. 2.0	Total-P	0.057		mg P/L	P378187	
	SM 5310 B-2011	Organic Carbon	11		mg C/L	P378351	
2152967	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.037		mg P/L	P377999	
2152986	EPA 200.7 Rev. 4.4	Iron	290	I	ug/L	P378219	
		Manganese	8.2	I	ug/L	P378219	
		Zinc	15	U	ug/L	P378219	
	EPA 200.8 Rev. 5.4	Aluminum	137		ug/L	P378219	
		Antimony	0.20	U	ug/L	P378219	
		Arsenic	1.58		ug/L	P378219	
		Barium	20.5		ug/L	P378219	
		Beryllium	0.040	U	ug/L	P378219	
		Boron**	2.51E+03		ug/L	P378219	
		Cadmium	0.080	U	ug/L	P378219	
		Chromium	1.6	U	ug/L	P378219	
		Cobalt	0.092	I	ug/L	P378219	
		Copper	1.6	U	ug/L	P378219	
		Lead	0.80	U	ug/L	P378219	
		Manganese	9.4		ug/L	P378219	
		Molybdenum	6.7		ug/L	P378219	
		Nickel	2.0	U	ug/L	P378219	
		Selenium	0.80	U	ug/L	P378219	
		Silver	0.040	U	ug/L	P378219	
		Thallium	0.40	U	ug/L	P378219	
	SM 2340B	Hardness	3.43E+03		mg/L	P378219	

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: Turnbull Bay @ 640m S of Divito Park

Collection Date/Time: 01/29/2020 11:02

Field ID: G5CE0100

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2152962	EPA 180.1 Rev. 2.0	Turbidity	3.4	A	NTU	P378034	
	EPA 300.0 Rev. 2.1	Bromide	47		mg Br/L	P378843	
	SM 2320 B-2011	Total Alkalinity	133	A	mg CaCO3/L	P378421	
	SM 2540 D-2011	TSS	5	I	mg/L	P378329	
	SM 4500 F-C-2011	Fluoride	0.88		mg F/L	P378425	
2152965	EPA 350.1 Rev. 2.0	Ammonia-N	0.010		mg N/L	P378570	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.45		mg N/L	P378322	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.014		mg N/L	P378269	
	EPA 365.1 Rev. 2.0	Total-P	0.046		mg P/L	P378187	
	SM 5310 B-2011	Organic Carbon	8.2		mg C/L	P378351	
2152968	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.030		mg P/L	P377999	
2152987	EPA 200.7 Rev. 4.4	Iron	210	I	ug/L	P378219	
		Manganese	6.0	I	ug/L	P378219	
		Zinc	15	U	ug/L	P378219	
	EPA 200.8 Rev. 5.4	Aluminum	160		ug/L	P378219	
		Antimony	0.20	U	ug/L	P378219	
		Arsenic	1.85		ug/L	P378219	
		Barium	16.4		ug/L	P378219	
		Beryllium	0.040	U	ug/L	P378219	
		Boron**	3.39E+03		ug/L	P378219	
		Cadmium	0.080	U	ug/L	P378219	
		Chromium	1.6	U	ug/L	P378219	
		Cobalt	0.095	I	ug/L	P378219	
		Copper	1.6	U	ug/L	P378219	
		Lead	0.80	U	ug/L	P378219	
		Manganese	7.0		ug/L	P378219	
		Molybdenum	8.9		ug/L	P378219	
		Nickel	2.0	U	ug/L	P378219	
		Selenium	0.80	U	ug/L	P378219	
		Silver	0.040	U	ug/L	P378219	
		Thallium	0.40	U	ug/L	P378219	
	SM 2340B	Hardness	4.48E+03		mg/L	P378219	

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: Strickland Bay @ 525M East (Downstream) of RR Crossing **Collection Date/Time: 01/29/2020 11:25**

Field ID: G5CE0082

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2152963	EPA 180.1 Rev. 2.0	Turbidity	2.8		NTU	P378034	
	EPA 300.0 Rev. 2.1	Bromide	46		mg Br/L	P378843	
	SM 2320 B-2011	Total Alkalinity	133		mg CaCO3/L	P378421	
	SM 2540 D-2011	TSS	4	I	mg/L	P378329	
	SM 4500 F-C-2011	Fluoride	0.88		mg F/L	P378425	
2152966	EPA 350.1 Rev. 2.0	Ammonia-N	0.011		mg N/L	P378570	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.50		mg N/L	P378322	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.017		mg N/L	P378269	
	EPA 365.1 Rev. 2.0	Total-P	0.047		mg P/L	P378187	
	SM 5310 B-2011	Organic Carbon	8.4		mg C/L	P378351	
2152969	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.030		mg P/L	P377999	
2152988	EPA 200.7 Rev. 4.4	Iron	180	I	ug/L	P378219	
		Manganese	6.0	I	ug/L	P378219	
		Zinc	15	U	ug/L	P378219	
	EPA 200.8 Rev. 5.4	Aluminum	129		ug/L	P378219	
		Antimony	0.20	U	ug/L	P378219	
		Arsenic	1.83		ug/L	P378219	
		Barium	16.3		ug/L	P378219	
		Beryllium	0.040	U	ug/L	P378219	
		Boron**	3.31E+03		ug/L	P378219	
		Cadmium	0.080	U	ug/L	P378219	
		Chromium	1.6	U	ug/L	P378219	
		Cobalt	0.085	I	ug/L	P378219	
		Copper	1.6	U	ug/L	P378219	
		Lead	0.80	U	ug/L	P378219	
		Manganese	7.1		ug/L	P378219	
		Molybdenum	8.6		ug/L	P378219	
		Nickel	2.0	U	ug/L	P378219	
		Selenium	0.80	U	ug/L	P378219	
		Silver	0.040	U	ug/L	P378219	
		Thallium	0.40	U	ug/L	P378219	
	SM 2340B	Hardness	4.32E+03		mg/L	P378219	

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: Rose Bay @ 125m NE of Boat Ramp

Collection Date/Time: 01/29/2020 10:20

Field ID: G5CE0073

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2152982	EPA 8321B	2,4-D	0.0039	I	ug/L	P377959	
		Acesulfame K**	0.10	UJ	ug/L	P378149	MS, SUR
		AMPA**	1.0	U	ug/L	P378149	
		Sucralose**	0.18	J	ug/L	P378149	SUR
		Acetaminophen**	0.0080	U	ug/L	P377959	
		Acetamiprid**	0.0020	U	ug/L	P377959	
		Endothall**	0.25	UJ	ug/L	P378149	MS, SUR
		Glufosinate**	1.0	U	ug/L	P378149	
		Glyphosate**	1.0	U	ug/L	P378149	
		Afidopyropen**	0.0020	UJ	ug/L	P377959	
		Bentazon	0.037		ug/L	P377959	
		Benzovindiflupyr**	0.0020	UJ	ug/L	P377959	
		Carbamazepine**	0.0027	I	ug/L	P377959	
		Clothianidin**	0.0020	U	ug/L	P377959	
		Dinotefuran**	0.0020	U	ug/L	P377959	
		Diuron	0.0068	I	ug/L	P377959	
		Fenuron	0.016	U	ug/L	P377959	
		Fluridone**	0.0072		ug/L	P377959	
		Imazapyr**	0.073		ug/L	P377959	
		Hydrocodone**	0.0020	U	ug/L	P377959	
		Ibuprofen**	0.020	U	ug/L	P377959	
		Imidacloprid	0.0041	I	ug/L	P377959	
		Linuron	0.0040	U	ug/L	P377959	
		Mandestrobin**	0.0020	UJ	ug/L	P377959	
		MCPP	0.0020	U	ug/L	P377959	
		Naproxen**	0.0080	U	ug/L	P377959	
		Primidone**	0.0040	U	ug/L	P377959	
		Pyraclostrobin**	0.0020	U	ug/L	P377959	
		Thiamethoxam**	0.0020	U	ug/L	P377959	
		Tolfenpyrad**	0.0020	U	ug/L	P377959	
		Triclopyr**	0.0040	U	ug/L	P377959	

Ref. Method and Comment:

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

EPA 8321B: MDL for some parameters elevated due to matrix interference. Results confirmed in sample duplicate. Refer to the Lab Analysis Report for an explanation of QC Codes.

EPA 8321B: Results confirmed in sample duplicate. Refer to the Lab Analysis Report for an explanation of QC Codes.

Sample Location: Strickland Bay @ 525M East (Downstream) of RR Crossing **Collection Date/Time: 01/29/2020 11:25**

Field ID: G5CE0082

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2152983	EPA 8321B	2,4-D	0.0047	I	ug/L	P377959	
		Acesulfame K**	0.10	UJ	ug/L	P378149	MS, SUR
		AMPA**	1.0	U	ug/L	P378149	
		Sucralose**	0.18	J	ug/L	P378149	SUR
		Acetaminophen**	0.0080	U	ug/L	P377959	
		Acetamiprid**	0.0020	U	ug/L	P377959	
		Endothall**	0.25	UJ	ug/L	P378149	MS, SUR
		Glufosinate**	1.0	U	ug/L	P378149	
		Glyphosate**	1.0	U	ug/L	P378149	
		Afidopyropen**	0.0020	UJ	ug/L	P377959	
		Bentazon	0.061		ug/L	P377959	
		Benzovindiflupyr**	0.0020	UJ	ug/L	P377959	
		Carbamazepine**	0.0020	I	ug/L	P377959	
		Clothianidin**	0.0020	I	ug/L	P377959	
		Dinotefuran**	0.0020	U	ug/L	P377959	
		Diuron	0.0029	I	ug/L	P377959	
		Fenuron	0.016	U	ug/L	P377959	
		Fluridone**	0.0080		ug/L	P377959	
		Imazapyr**	0.064		ug/L	P377959	
		Hydrocodone**	0.0020	U	ug/L	P377959	
		Ibuprofen**	0.020	U	ug/L	P377959	
		Imidacloprid	0.0046	I	ug/L	P377959	
		Linuron	0.0040	U	ug/L	P377959	
		Mandestrobin**	0.0020	UJ	ug/L	P377959	
		MCPP	0.0020	U	ug/L	P377959	
		Naproxen**	0.0080	U	ug/L	P377959	
		Primidone**	0.0055	I	ug/L	P377959	
		Pyraclostrobin**	0.0020	U	ug/L	P377959	
		Thiamethoxam**	0.0020	U	ug/L	P377959	
		Tolfenpyrad**	0.0020	U	ug/L	P377959	
		Triclopyr**	0.0040	U	ug/L	P377959	

Ref. Method and Comment:

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

EPA 8321B: MDL for some parameters elevated due to matrix interference. Results confirmed in sample duplicate. Refer to the Lab Analysis Report for an explanation of QC Codes.

EPA 8321B: Results confirmed in sample duplicate. Refer to the Lab Analysis Report for an explanation of QC Codes.

Quality Assurance Report

Method Blank Results

Reference Method: EPA 180.1 Rev. 2.0
 Batch ID: P378033

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 180.1 Rev. 2.0
 Batch ID: P378034

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 200.7 Rev. 4.4
 Batch ID: P378219

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: P378219

Component	Result	Code	Units
Aluminum	5.0	U	ug/L
Antimony	0.050	U	ug/L
Arsenic	0.050	U	ug/L
Barium	0.20	U	ug/L
Beryllium	0.010	U	ug/L
Boron	2.0	U	ug/L
Cadmium	0.020	U	ug/L
Chromium	0.40	U	ug/L
Cobalt	0.020	U	ug/L
Copper	0.40	U	ug/L
Lead	0.20	U	ug/L
Manganese	0.10	U	ug/L
Molybdenum	0.16	I	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: P378843

Component	Result	Code	Units
Bromide	0.013	U	mg Br/L

Reference Method: EPA 350.1 Rev. 2.0
 Batch ID: P378570

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

Quality Assurance Report

Method Blank Results

Reference Method: EPA 351.2 Rev. 2.0
 Batch ID: P378322

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

Reference Method: EPA 353.2 Rev. 2.0
 Batch ID: P378269

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

Reference Method: EPA 365.1 Rev. 2.0
 Batch ID: P378187

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
 Batch ID: P377999

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

Reference Method: EPA 8321B
 Batch ID: P377959

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

Quality Assurance Report

Method Blank Results

Reference Method: EPA 8321B
Batch ID: P378149

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

Reference Method: SM 2320 B-2011
Batch ID: P378421

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

Reference Method: SM 2540 D-2011
Batch ID: P378329

Component	Result	Code	Units
TSS	3	U	mg/L

Reference Method: SM 4500 F-C-2011
Batch ID: P378425

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

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

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: P378219

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Iron	101		P	85 - 115
Manganese	95.4		P	85 - 115
Zinc	94.8		P	85 - 115

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P378219

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Aluminum	103		P	85 - 115
Antimony	108		P	85 - 115
Arsenic	107		P	85 - 115
Barium	104		P	85 - 115
Beryllium	110		P	85 - 115
Boron	95.5		P	85 - 115
Cadmium	104		P	85 - 115
Chromium	105		P	85 - 115
Cobalt	101		P	85 - 115
Copper	102		P	85 - 115
Lead	101		P	85 - 115
Manganese	105		P	85 - 115
Molybdenum	103		P	85 - 115
Nickel	101		P	85 - 115
Selenium	105		P	85 - 115
Silver	106		P	85 - 115
Thallium	98.7		P	85 - 115

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: P378570

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P378322

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: P378269

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

Quality Assurance Report

Laboratory Control Sample Accuracy

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P378187

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P377999

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

Reference Method: EPA 8321B
Batch ID: P377959

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2,4-D	134		P	30 - 160
Acetaminophen	92.3		P	30 - 160
Acetamiprid	93.5		P	30 - 160
Afidopyropen	96.7		P	30 - 160
Bentazon	73.7		P	30 - 160
Benzovindiflupyr	77.4		P	30 - 160
Carbamazepine	89.5		P	30 - 160
Clothianidin	93.8		P	30 - 160
Dinotefuran	110		P	30 - 160
Diuron	74.4		P	30 - 160
Fenuron	111		P	30 - 160
Fluridone	92.7		P	30 - 160
Hydrocodone	108		P	30 - 160
Ibuprofen	81.0		P	30 - 160
Imazapyr	114		P	30 - 160
Imidacloprid	96.0		P	30 - 160
Linuron	73.2		P	30 - 160
Mandestrobin	94.7		P	30 - 160
MCP	127		P	30 - 160
Naproxen	73.1		P	30 - 160
Primidone	88.1		P	30 - 160
Pyraclostrobin	86.1		P	30 - 160
Thiamethoxam	103		P	30 - 160
Tolfenpyrad	59.1		P	30 - 160
Triclopyr	101		P	30 - 160

Reference Method: EPA 8321B
Batch ID: P378149

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Acesulfame K	92.9		P	40 - 150
AMPA	127		P	40 - 150
Endothall	121		P	40 - 150
Glufosinate	118		P	40 - 150
Glyphosate	117		P	40 - 140
Sucralose	95.5		P	40 - 150

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: SM 2320 B-2011
Batch ID: P378421

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

Reference Method: SM 4500 F-C-2011
Batch ID: P378425

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	97.0		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

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P378219

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2152854	Iron	104	100	P/P	70 - 130
2152854	Manganese	99.8	94.2	P/P	70 - 130
2152854	Zinc	102	98.3	P/P	70 - 130

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P378219

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2152854	Aluminum	104	102	P/P	70 - 130
2152854	Antimony	110	106	P/P	70 - 130
2152854	Arsenic	115	112	P/P	70 - 130
2152854	Barium	103	101	P/P	70 - 130
2152854	Beryllium	115	112	P/P	70 - 130
2152854	Boron	96.2	73.6	P/P	70 - 130
2152854	Cadmium	105	103	P/P	70 - 130
2152854	Chromium	104	102	P/P	70 - 130
2152854	Cobalt	101	99.2	P/P	70 - 130
2152854	Copper	101	99.3	P/P	70 - 130
2152854	Lead	103	100	P/P	70 - 130
2152854	Manganese	106	102	P/P	70 - 130
2152854	Molybdenum	109	107	P/P	70 - 130
2152854	Nickel	99.9	97.6	P/P	70 - 130
2152854	Selenium	107	109	P/P	70 - 130
2152854	Silver	98.3	98.5	P/P	70 - 130
2152854	Thallium	98.8	97.1	P/P	70 - 130

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: P378570

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2153110	Ammonia-N	107	107	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P378322

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2152781	Kjeldahl Nitrogen	99.6	104	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P378269

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2152964	NO2NO3-N	98.0	97.4	P/P	90 - 110

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P378187

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2152780	Total-P	103	103	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P377999

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2152792	O-Phosphate-P	95.9	94.0	P/P	90 - 110

Reference Method: EPA 8321B
Batch ID: P377959

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2152702	2,4-D	132	120	P/P	30 - 160
2152702	Acetaminophen	91.7	89.6	P/P	30 - 160
2152702	Acetamiprid	101	97.3	P/P	30 - 160
2152702	Afidopyropen	79.7	77.4	P/P	30 - 160
2152702	Bentazon	49.0	54.3	P/P	30 - 160
2152702	Benzovindiflupyr	83.9	81.4	P/P	30 - 160
2152702	Carbamazepine	94.5	83.4	P/P	30 - 160
2152702	Clothianidin	102	95.7	P/P	30 - 160
2152702	Diuron	70.9	73.5	P/P	30 - 160
2152702	Fenuron	66.4	64.4	P/P	30 - 160
2152702	Fluridone	112	102	P/P	30 - 160
2152702	Hydrocodone	104	87.2	P/P	30 - 160
2152702	Ibuprofen	81.9	80.8	P/P	30 - 160
2152702	Imazapyr	105	99.6	P/P	30 - 160
2152702	Imidacloprid	146	140	P/P	30 - 160
2152702	Linuron	70.1	69.2	P/P	30 - 160
2152702	Mandestrobin	93.6	92.4	P/P	30 - 160
2152702	MCP	123	119	P/P	30 - 160
2152702	Naproxen	93.7	77.4	P/P	30 - 160
2152702	Primidone	100	99.0	P/P	30 - 160
2152702	Pyraclostrobin	92.5	90.3	P/P	30 - 160
2152702	Thiamethoxam	144	139	P/P	30 - 160
2152702	Tolfenpyrad	65.7	63.7	P/P	30 - 160
2152702	Triclopyr	94.7	84.3	P/P	30 - 160

Reference Method: EPA 8321B
Batch ID: P378149

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2152739	Acesulfame K	24.6	25.0	F/F	40 - 150
2152739	AMPA	127	127	P/P	40 - 150
2152739	Endothall	153	149	F/P	40 - 150
2152739	Glufosinate	117	108	P/P	40 - 150
2152739	Glyphosate	91.0	79.1	P/P	40 - 140
2152739	Sucralose	99.6	95.7	P/P	40 - 150

Reference Method: SM 4500 F-C-2011
Batch ID: P378425

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

Reference Method: SM 4500 F-C-2011
Batch ID: P378425

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2152962	Fluoride	96.1	98.1	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

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P378033

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2152961	Turbidity	1.86	Sample	P	0 - 20

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P378034

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2152962	Turbidity	3.51	Sample	P	0 - 20

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P378219

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2152854	Iron	3.57	Spike	P	0 - 20
2152854	Manganese	5.39	Spike	P	0 - 20
2152854	Zinc	3.85	Spike	P	0 - 20

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P378219

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2152854	Aluminum	1.99	Spike	P	0 - 20
2152854	Antimony	2.87	Spike	P	0 - 20
2152854	Arsenic	2.48	Spike	P	0 - 20
2152854	Barium	1.30	Spike	P	0 - 20
2152854	Beryllium	2.30	Spike	P	0 - 20
2152854	Boron	4.17	Spike	P	0 - 20
2152854	Cadmium	1.01	Spike	P	0 - 20
2152854	Chromium	2.17	Spike	P	0 - 20
2152854	Cobalt	1.75	Spike	P	0 - 20
2152854	Copper	1.76	Spike	P	0 - 20
2152854	Lead	2.52	Spike	P	0 - 20
2152854	Manganese	2.88	Spike	P	0 - 20
2152854	Molybdenum	1.39	Spike	P	0 - 20
2152854	Nickel	2.31	Spike	P	0 - 20
2152854	Selenium	1.29	Spike	P	0 - 20
2152854	Silver	0.194	Spike	P	0 - 20
2152854	Thallium	1.74	Spike	P	0 - 20

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

Quality Assurance Report Precision

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P378570

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2153110	Ammonia-N	0.299	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P378322

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2152781	Kjeldahl Nitrogen	2.70	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P378269

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2152964	NO2NO3-N	0.447	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P378187

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2152780	Total-P	0.0438	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P377999

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2152792	O-Phosphate-P	1.18	Spike	P	0 - 20

Reference Method: EPA 8321B
Batch ID: P377959

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2152702	2,4-D	9.54	Spike	P	0 - 30
2152702	Acetaminophen	2.36	Spike	P	0 - 30
2152702	Acetamiprid	3.84	Spike	P	0 - 30
2152702	Afidopyropen	2.90	Spike	P	0 - 30
2152702	Bentazon	4.19	Spike	P	0 - 30
2152702	Benzovindiflupyr	2.76	Spike	P	0 - 30
2152702	Carbamazepine	11.8	Spike	P	0 - 30
2152702	Clothianidin	6.01	Spike	P	0 - 30
2152702	Dinotefuran	7.13	Spike	P	0 - 30
2152702	Diuron	3.66	Spike	P	0 - 30
2152702	Fenuron	2.07	Spike	P	0 - 30
2152702	Fluridone	9.26	Spike	P	0 - 30
2152702	Hydrocodone	17.7	Spike	P	0 - 30
2152702	Ibuprofen	1.36	Spike	P	0 - 30
2152702	Imazapyr	3.84	Spike	P	0 - 30
2152702	Imidacloprid	3.69	Spike	P	0 - 30

Quality Assurance Report Precision

Reference Method: EPA 8321B
Batch ID: P377959

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2152702	Linuron	1.43	Spike	P	0 - 30
2152702	Mandestrobin	1.33	Spike	P	0 - 30
2152702	MCP	3.66	Spike	P	0 - 30
2152702	Naproxen	19.1	Spike	P	0 - 30
2152702	Primidone	1.44	Spike	P	0 - 30
2152702	Pyraclostrobin	2.37	Spike	P	0 - 30
2152702	Thiamethoxam	3.21	Spike	P	0 - 30
2152702	Tolfenpyrad	3.03	Spike	P	0 - 30
2152702	Triclopyr	11.5	Spike	P	0 - 30

Reference Method: EPA 8321B
Batch ID: P378149

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2152739	Acesulfame K	1.38	Spike	P	0 - 30
2152739	AMPA	0.275	Spike	P	0 - 30
2152739	Endothall	2.70	Spike	P	0 - 30
2152739	Glufosinate	8.06	Spike	P	0 - 30
2152739	Glyphosate	4.84	Spike	P	0 - 30
2152739	Sucralose	3.23	Spike	P	0 - 30

Reference Method: SM 2320 B-2011
Batch ID: P378421

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2152962	Total Alkalinity	0.282	Sample	P	0 - 2.8

Reference Method: SM 4500 F-C-2011
Batch ID: P378425

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2152962	Fluoride	1.45	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

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

Quality Assurance Report Surrogates

Lab Sample ID: 2152982
 Field Sample ID: G5CE0073

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	2,4-D-d3	116	P	30 - 160
EPA 8321B	Acetaminophen-d4	91.0	P	30 - 160
EPA 8321B	Carbamazepine-d10	84.9	P	30 - 160
EPA 8321B	Diuron-d6	80.8	P	30 - 160
EPA 8321B	Endothall-d6	263	F	30 - 160
EPA 8321B	Endothall-d6	263	F	30 - 160
EPA 8321B	Glyphosate 13C 15N	53.7	P	30 - 160
EPA 8321B	Glyphosate 13C 15N	53.7	P	30 - 160
EPA 8321B	Ibuprofen-d3	45.5	P	30 - 160
EPA 8321B	Primidone-d5	85.7	P	30 - 160
EPA 8321B	Sucralose-d6	18.9	F	30 - 160
EPA 8321B	Sucralose-d6	18.9	F	30 - 160

Lab Sample ID: 2152983
 Field Sample ID: G5CE0082

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	2,4-D-d3	130	P	30 - 160
EPA 8321B	Acetaminophen-d4	104	P	30 - 160
EPA 8321B	Carbamazepine-d10	91.1	P	30 - 160
EPA 8321B	Diuron-d6	82.8	P	30 - 160
EPA 8321B	Endothall-d6	165	F	30 - 160
EPA 8321B	Endothall-d6	165	F	30 - 160
EPA 8321B	Glyphosate 13C 15N	60.8	P	30 - 160
EPA 8321B	Glyphosate 13C 15N	60.8	P	30 - 160
EPA 8321B	Ibuprofen-d3	92.0	P	30 - 160
EPA 8321B	Primidone-d5	101	P	30 - 160
EPA 8321B	Sucralose-d6	21.9	F	30 - 160
EPA 8321B	Sucralose-d6	21.9	F	30 - 160

Quality Assurance Report Calibration Verification

Reference Method: EPA 365.1 Rev. 2.0 dissolved

Run ID: A97207

Included Lab Sample IDs: 2152967, 2152968, 2152969

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	96.1	98.9	P/P	90 - 110

Reference Method: EPA 180.1 Rev. 2.0

Run ID: A97226

Included Lab Sample IDs: 2152961, 2152962, 2152963

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Turbidity	101	101	P/P	95 - 105
Turbidity	102	101	P/P	95 - 105

Reference Method: EPA 8321B

Run ID: A97267

Included Lab Sample IDs: 2152982, 2152983

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
2,4-D	103	107	P/P	50 - 150
Acetaminophen	88.9	93.3	P/P	60 - 160
Acetamiprid	111	111	P/P	50 - 150
Afidopyropen	110	99.6	P/P	50 - 150
Bentazon	106	102	P/P	50 - 160
Benzovindiflupyr	110	106	P/P	50 - 150
Carbamazepine	112	108	P/P	60 - 150
Clothianidin	113	110	P/P	60 - 150
Dinotefuran	93.9	96.2	P/P	50 - 150
Diuron	92.3	101	P/P	60 - 150
Fenuron	102	104	P/P	60 - 150
Fluridone	109	112	P/P	60 - 160
Hydrocodone	107	104	P/P	60 - 150
Ibuprofen	102	88.9	P/P	50 - 160
Imazapyr	112	117	P/P	50 - 150
Imidacloprid	96.5	93.5	P/P	60 - 150
Linuron	102	103	P/P	60 - 150
Mandestrobin	108	110	P/P	50 - 150
MCPP	95.8	91.2	P/P	50 - 150
Naproxen	89.4	124	P/P	50 - 160
Primidone	95.6	98.3	P/P	60 - 150
Pyraclostrobin	111	109	P/P	60 - 150
Thiamethoxam	104	113	P/P	50 - 150
Tolfenpyrad	111	111	P/P	60 - 150
Triclopyr	99.1	109	P/P	50 - 150

Reference Method: EPA 8321B

Run ID: A97294

Included Lab Sample IDs: 2152982, 2152983

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
AMPA	125	116	P/P	60 - 160
Glufosinate	114	111	P/P	60 - 160
Glyphosate	125	115	P/P	60 - 160

Quality Assurance Report Calibration Verification

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A97314

Included Lab Sample IDs: 2152964, 2152965, 2152966

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

Reference Method: SM 5310 B-2011

Run ID: A97337

Included Lab Sample IDs: 2152964, 2152965, 2152966

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	103	104	P/P	90 - 110
Organic Carbon	104	106	P/P	90 - 110

Reference Method: EPA 200.7 Rev. 4.4

Run ID: A97340

Included Lab Sample IDs: 2152986, 2152987, 2152988

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Iron	103	100	P/P	90 - 110
Manganese	101	99.5	P/P	90 - 110
Zinc	101	99.9	P/P	90 - 110

Reference Method: SM 2320 B-2011

Run ID: A97356

Included Lab Sample IDs: 2152961, 2152962, 2152963

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

Reference Method: SM 4500 F-C-2011

Run ID: A97356

Included Lab Sample IDs: 2152961, 2152962, 2152963

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

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A97365

Included Lab Sample IDs: 2152964, 2152965, 2152966

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	104	101	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A97378

Included Lab Sample IDs: 2152964, 2152965, 2152966

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	96.5	97.2	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A97409

Included Lab Sample IDs: 2152964, 2152965, 2152966

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

Reference Method: EPA 8321B

Run ID: A97475

Included Lab Sample IDs: 2152982, 2152983

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Acesulfame K	103	72.3	P/P	60 - 160
Acesulfame K	72.3	76.4	P/P	60 - 160
Endothall	123	156	P/P	60 - 160
Endothall	144	123	P/P	60 - 160

Reference Method: EPA 300.0 Rev. 2.1

Run ID: A97501

Included Lab Sample IDs: 2152961, 2152962, 2152963

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Bromide	101	99.5	P/P	90 - 110
Bromide	99.5	99.3	P/P	90 - 110

Reference Method: EPA 200.8 Rev. 5.4

Run ID: A97560

Included Lab Sample IDs: 2152986, 2152987, 2152988

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Aluminum	103	103	P/P	90 - 110
Antimony	104	105	P/P	90 - 110
Arsenic	103	104	P/P	90 - 110
Barium	100	102	P/P	90 - 110
Beryllium	103	104	P/P	90 - 110
Boron	106	103	P/P	90 - 110
Cadmium	98.6	100	P/P	90 - 110
Chromium	103	104	P/P	90 - 110
Cobalt	97.9	98.2	P/P	90 - 110
Copper	98.4	98.0	P/P	90 - 110
Lead	98.3	97.9	P/P	90 - 110
Manganese	105	105	P/P	90 - 110
Molybdenum	97.3	97.9	P/P	90 - 110
Nickel	99.6	98.4	P/P	90 - 110
Selenium	102	104	P/P	90 - 110
Silver	102	103	P/P	90 - 110
Thallium	96.0	95.4	P/P	90 - 110

Reference Method: EPA 8321B

Run ID: A97720

Included Lab Sample IDs: 2152982, 2152983

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Sucralose	96.9	96.0	P/P	60 - 160
Sucralose	98.9	96.9	P/P	60 - 160

Quality Assurance Report

Calibration Verification

* 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	MS
						SMP	
EPA 180.1 Rev. 2.0	Turbidity					1.86	
	Turbidity					3.51	
EPA 200.7 Rev. 4.4	Iron	101	104	100			3.57
	Manganese	95.4	99.8	94.2			5.39
	Zinc	94.8	102	98.3			3.85
EPA 200.8 Rev. 5.4	Aluminum	103	104	102			1.99
	Antimony	108	110	106			2.87
	Arsenic	107	115	112			2.48
	Barium	104	103	101			1.30
	Beryllium	110	115	112			2.30
	Boron	95.5	96.2	73.6			4.17
	Cadmium	104	105	103			1.01
	Chromium	105	104	102			2.17
	Cobalt	101	101	99.2			1.75
	Copper	102	101	99.3			1.76
	Lead	101	103	100			2.52
	Manganese	105	106	102			2.88
	Molybdenum	103	109	107			1.39
	Nickel	101	99.9	97.6			2.31
	Selenium	105	107	109			1.29
	Silver	106	98.3	98.5			0.194
	Thallium	98.7	98.8	97.1			1.74
EPA 300.0 Rev. 2.1	Bromide	102	98.7	98.1	97.4		0.320
EPA 350.1 Rev. 2.0	Ammonia-N	98.3	107	107			0.299
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	100	99.6	104			2.70
EPA 353.2 Rev. 2.0	NO2NO3-N	100	98.0	97.4			0.447
EPA 365.1 Rev. 2.0	Total-P	102	103	103			0.0438
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	99.1	95.9	94.0			1.18
EPA 8321B	2,4-D	134	132	120			9.54
	Acesulfame K	92.9	24.6	25.0			1.38
	Acetaminophen	92.3	91.7	89.6			2.36
	Acetamiprid	93.5	101	97.3			3.84
	Afidopyropen	96.7	79.7	77.4			2.90
	AMPA	127	127	127			0.275
	Bentazon	73.7	49.0	54.3			4.19
	Benzovindiflupyr	77.4	83.9	81.4			2.76
	Carbamazepine	89.5	94.5	83.4			11.8
	Clothianidin	93.8	102	95.7			6.01
	Dinotefuran	110					7.13
	Diuron	74.4	70.9	73.5			3.66
	Endothall	121	153	149			2.70
	Fenuron	111	66.4	64.4			2.07
	Fluridone	92.7	112	102			9.26
	Glufosinate	118	117	108			8.06
	Glyphosate	117	91.0	79.1			4.84
	Hydrocodone	108	104	87.2			17.7
	Ibuprofen	81.0	81.9	80.8			1.36
	Imazapyr	114	99.6	105			3.84
	Imidacloprid	96.0	146	140			3.69
	Linuron	73.2	70.1	69.2			1.43
	Mandestrobin	94.7	93.6	92.4			1.33
	MCPP	127	123	119			3.66
	Naproxen	73.1	93.7	77.4			19.1
	Primidone	88.1	100	99.0			1.44

Quality Assurance Report Summary

Ref. Method	Analyte	LCS % Recovery	MS % Recovery		Precision	
					LCS	SMP
EPA 8321B	Pyraclostrobin	86.1	92.5	90.3		2.37
	Sucralose	95.5	99.6	95.7		3.23
	Thiamethoxam	103	144	139		3.21
	Tolfenpyrad	59.1	65.7	63.7		3.03
	Triclopyr	101	94.7	84.3		11.5
SM 2320 B-2011	Total Alkalinity	102			0.282	
SM 4500 F-C-2011	Fluoride	97.0	96.1	98.1		1.45
SM 5310 B-2011	Organic Carbon	103	102	102		0.254

Reference Method Descriptions

Method	Description	Associated Samples
EPA 180.1 Rev. 2.0	Turbidity in aqueous matrices	2152961, 2152962, 2152963
EPA 200.7 Rev. 4.4	Total Recoverable Metals analysis using ICP emission spectroscopy for aqueous samples supporting Clean Water Act Projects	2152986, 2152987, 2152988
EPA 200.8 Rev. 5.4	Total Recoverable Metals analysis using ICP-MS for aqueous samples supporting Clean Water Act Projects	2152986, 2152987, 2152988
EPA 300.0 Rev. 2.1	Bromide in aqueous matrices	2152961, 2152962, 2152963
EPA 350.1 Rev. 2.0	Ammonia in aqueous matrices as mg N/L	2152964, 2152965, 2152966
EPA 351.2 Rev. 2.0	Total Kjeldahl Nitrogen in aqueous matrices	2152964, 2152965, 2152966
EPA 353.2 Rev. 2.0	Nitrite/Nitrate in aqueous matrices as mg N/L	2152964, 2152965, 2152966
EPA 365.1 Rev. 2.0	Total Phosphorus in aqueous matrices as mg P/L	2152964, 2152965, 2152966
EPA 365.1 Rev. 2.0 dissolved	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	2152967, 2152968, 2152969
EPA 8321B	Pesticides, herbicides, and other chemicals in water matrices by HPLC/MS/MS	2152982, 2152983
EPA 8321B	Water soluble organic compounds by HPLC/MS/MS	2152982, 2152983
SM 2320 B-2011	Alkalinity in aqueous matrices as mg CaCO ₃ /L	2152961, 2152962, 2152963
SM 2340B	Hardness by calculation, in aqueous matrices, reported as mg/L CaCO ₃	2152986, 2152987, 2152988
SM 2540 D-2011	Total Suspended Solids in aqueous matrices using a maximum of 250 mL of sample	2152961, 2152962, 2152963
SM 4500 F-C-2011	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	2152961, 2152962, 2152963
SM 5310 B-2011	Nonpurgeable Organic Carbon in aqueous matrices	2152964, 2152965, 2152966

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	01/30/2020			01/30/2020 17:11	Yen Ta	2152961, 2152962, 2152963
EPA 200.7 Rev. 4.4	01/30/2020	02/04/2020 14:30	Elliott D. Healy	02/05/2020 22:37	Betina Topolski	2152986
	01/30/2020	02/04/2020 14:30	Elliott D. Healy	02/05/2020 22:45	Betina Topolski	2152987
	01/30/2020	02/04/2020 14:30	Elliott D. Healy	02/05/2020 22:54	Betina Topolski	2152988
EPA 200.8 Rev. 5.4	01/30/2020	02/04/2020 14:30	Elliott D. Healy	02/15/2020 03:15	Justin Cutchin	2152986
	01/30/2020	02/04/2020 14:30	Elliott D. Healy	02/15/2020 03:24	Justin Cutchin	2152987
	01/30/2020	02/04/2020 14:30	Elliott D. Healy	02/15/2020 03:34	Justin Cutchin	2152988
EPA 300.0 Rev. 2.1	01/30/2020			02/12/2020 02:27	Elliott Rodriguez	2152961
	01/30/2020			02/12/2020 03:18	Elliott Rodriguez	2152962
	01/30/2020			02/12/2020 03:35	Elliott Rodriguez	2152963
EPA 350.1 Rev. 2.0	01/30/2020			02/07/2020 13:49	Ping Hua	2152964
	01/30/2020			02/07/2020 13:57	Ping Hua	2152965
	01/30/2020			02/07/2020 13:58	Ping Hua	2152966
EPA 351.2 Rev. 2.0	01/30/2020	02/05/2020 14:50	Jhamieka S. Greenwood	02/06/2020 13:48	Jhamieka S. Greenwood	2152964
	01/30/2020	02/05/2020 14:50	Jhamieka S. Greenwood	02/06/2020 13:49	Jhamieka S. Greenwood	2152965
	01/30/2020	02/05/2020 14:50	Jhamieka S. Greenwood	02/06/2020 13:51	Jhamieka S. Greenwood	2152966
EPA 353.2 Rev. 2.0	01/30/2020			02/05/2020 08:39	Beverly Y. Sanders	2152964
	01/30/2020			02/05/2020 08:45	Beverly Y. Sanders	2152965
	01/30/2020			02/05/2020 08:46	Beverly Y. Sanders	2152966
EPA 365.1 Rev. 2.0	01/30/2020	02/03/2020 15:03	Lipi Saha	02/06/2020 14:34	Benjamin T. Nordmann	2152964
	01/30/2020	02/03/2020 15:03	Lipi Saha	02/06/2020 14:35	Benjamin T. Nordmann	2152965
	01/30/2020	02/03/2020 15:03	Lipi Saha	02/06/2020 14:36	Benjamin T. Nordmann	2152966
EPA 365.1 Rev. 2.0 dissolved	01/30/2020			01/30/2020 17:09	Carlos Miranda	2152967
	01/30/2020			01/30/2020 17:10	Carlos Miranda	2152968
	01/30/2020			01/30/2020 17:11	Carlos Miranda	2152969
EPA 8321B	01/30/2020	01/31/2020 10:00	Hoor Shaik	02/02/2020 09:14	Juyoung Kim	2152982
	01/30/2020	01/31/2020 10:00	Hoor Shaik	02/02/2020 09:49	Juyoung Kim	2152983
	01/30/2020	02/03/2020 16:30	Rebecca Ware	02/04/2020 03:28	Rebecca Ware	2152982
	01/30/2020	02/03/2020 16:30	Rebecca Ware	02/04/2020 03:39	Rebecca Ware	2152983
	01/30/2020	02/03/2020 16:30	Rebecca Ware	02/04/2020 11:47	Rebecca Ware	2152982
	01/30/2020	02/03/2020 16:30	Rebecca Ware	02/04/2020 12:31	Rebecca Ware	2152983
	01/30/2020	02/03/2020 16:30	Rebecca Ware	02/18/2020 01:34	Rebecca Ware	2152982
	01/30/2020	02/03/2020 16:30	Rebecca Ware	02/18/2020 01:57	Rebecca Ware	2152983
SM 2320 B-2011	01/30/2020			02/05/2020 14:59	Dale L. Simmons	2152962
	01/30/2020			02/05/2020 15:12	Dale L. Simmons	2152961
	01/30/2020			02/05/2020 15:24	Dale L. Simmons	2152963
SM 2340B	01/30/2020			02/06/2020 10:06	Betina Topolski	2152986
	01/30/2020			02/06/2020 10:10	Betina Topolski	2152987
	01/30/2020			02/06/2020 10:15	Betina Topolski	2152988
SM 2540 D-2011	01/30/2020			02/04/2020 17:00	Blanca Fach	2152961, 2152962, 2152963

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
SM 4500 F-C-2011	01/30/2020			02/05/2020 13:17	Dale L. Simmons	2152962
	01/30/2020			02/05/2020 13:29	Dale L. Simmons	2152961
	01/30/2020			02/05/2020 13:33	Dale L. Simmons	2152963
SM 5310 B-2011	01/30/2020			02/04/2020 11:31	Madeline Funaro	2152964
	01/30/2020			02/04/2020 11:43	Madeline Funaro	2152965
	01/30/2020			02/04/2020 12:33	Madeline Funaro	2152966