

Chemical Analysis Report

NE-DIST-2020-02-05-01

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

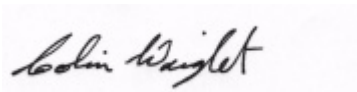
Event Description: **LSJR South West 2020**
Request ID: **RQ-2020-02-03-26**
Customer: **NE-DIST**
Project ID: **SMP**

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Certified by: Colin Wright, Program Administrator

Date Certified: 27-FEB-2020 09:47

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: Bull CR NE Crossing CR 215

Collection Date/Time: 02/04/2020 10:00

Field ID: 20030487

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2154767	EPA 180.1 Rev. 2.0	Turbidity	1.6		NTU	P378400	
	EPA 300.0 Rev. 2.1	Chloride	12		mg Cl/L	P379225	
		Sulfate	3.1		mg SO4/L	P379227	
		Color (true)	130		PCU	P378447	
	SM 2320 B-2011	Total Alkalinity	23		mg CaCO3/L	P378557	
	SM 2540 C-2011	TDS	82		mg/L	P379030	
	SM 2540 D-2011	TSS	2	U	mg/L	P378681	
	SM 4500 F-C-2011	Fluoride	0.11		mg F/L	P378561	
2154769	EPA 350.1 Rev. 2.0	Ammonia-N	0.008		mg N/L	P378889	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.32		mg N/L	P378923	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.090		mg N/L	P378952	
	EPA 365.1 Rev. 2.0	Total-P	0.15		mg P/L	P378633	
	SM 5310 B-2011	Organic Carbon	11		mg C/L	P378535	
2154771	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.12		mg P/L	P378355	
2154784	EPA 200.7 Rev. 4.4	Barium	6.3		ug/L	P378477	
		Calcium	8.09		mg/L	P378477	
		Iron	320		ug/L	P378477	
		Magnesium	2.73		mg/L	P378477	
		Potassium	0.31	I	mg/L	P378477	
		Sodium	6.5		mg/L	P378477	
		Zinc	5.0	U	ug/L	P378477	
	EPA 200.8 Rev. 5.4	Aluminum	183		ug/L	P378477	
		Antimony	0.050	U	ug/L	P378477	
		Arsenic	0.28		ug/L	P378477	
		Boron**	13.0		ug/L	P378477	
		Cadmium	0.020	U	ug/L	P378477	
		Chromium	0.40	U	ug/L	P378477	
		Copper	0.40	U	ug/L	P378477	
		Lead	0.21	I	ug/L	P378477	
		Nickel	0.50	U	ug/L	P378477	
		Selenium	0.20	U	ug/L	P378477	
		Silver	0.010	U	ug/L	P378477	
		Thallium	0.10	U	ug/L	P378477	
		Hardness	31.4		mg/L	P378477	
	SM 2340B						

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: Bull CR SW Crossing CR 215

Collection Date/Time: 02/04/2020 10:25

Field ID: 20030480

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2154783	EPA 8321B	2,4-D	0.0020	U	ug/L	P378426	
		Acesulfame K**	0.10	U	ug/L	P378369	MS
		AMPA**	0.10	U	ug/L	P378369	
		Sucralose**	0.010	U	ug/L	P378369	MS
		Acetaminophen**	0.0080	U	ug/L	P378426	
		Acetamiprid**	0.0020	U	ug/L	P378426	
		Endothall**	0.25	U	ug/L	P378369	
		Glufosinate**	0.10	U	ug/L	P378369	MS
		Glyphosate**	0.10	UJ	ug/L	P378369	LCS, MS
		Afidopyropen**	0.0020	UJ	ug/L	P378426	
		Bentazon	8.0E-04	U	ug/L	P378426	
		Benzovindiflupyr**	0.0020	UJ	ug/L	P378426	
		Carbamazepine**	0.0055		ug/L	P378426	
		Clothianidin**	0.0020	U	ug/L	P378426	
		Dinotefuran**	0.0020	U	ug/L	P378426	
		Diuron	0.0020	U	ug/L	P378426	
		Fenuron	0.016	U	ug/L	P378426	
		Fluridone**	8.0E-04	U	ug/L	P378426	
		Imazapyr**	0.0040	U	ug/L	P378426	
		Hydrocodone**	0.0020	U	ug/L	P378426	
		Ibuprofen**	0.020	U	ug/L	P378426	
		Imidacloprid	0.0081		ug/L	P378426	
		Linuron	0.0040	U	ug/L	P378426	
		Mandestrobin**	0.0020	UJ	ug/L	P378426	
		MCPP	0.0041	I	ug/L	P378426	
		Naproxen**	0.0080	U	ug/L	P378426	RPD
		Primidone**	0.0040	U	ug/L	P378426	
		Pyraclostrobin**	0.0020	U	ug/L	P378426	
		Thiamethoxam**	0.0020	U	ug/L	P378426	
		Tolfenpyrad**	0.0020	U	ug/L	P378426	
		Triclopyr**	0.0040	U	ug/L	P378426	

Ref. Method and Comment:

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

EPA 8321B: Refer to the Lab Analysis Report for an explanation of QC Codes.

Sample Location: Peters Creek @ Rosemary Hill Rd.

Collection Date/Time: 02/04/2020 11:15

Field ID: 20030571

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2154773	EPA 180.1 Rev. 2.0	Turbidity	3.1	A	NTU	P378400	
	EPA 300.0 Rev. 2.1	Chloride	7.5		mg Cl/L	P379225	
		Sulfate	3.0		mg SO4/L	P379227	
	SM 2120 B-2011	Color (true)	58		PCU	P378447	
	SM 2320 B-2011	Total Alkalinity	13		mg CaCO3/L	P378557	
	SM 2540 C-2011	TDS	36		mg/L	P379030	
	SM 2540 D-2011	TSS	2	I	mg/L	P378681	
	SM 4500 F-C-2011	Fluoride	0.042	I	mg F/L	P378561	
2154774	EPA 350.1 Rev. 2.0	Ammonia-N	0.005	I	mg N/L	P378889	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.18	I	mg N/L	P378923	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.061		mg N/L	P378952	
	EPA 365.1 Rev. 2.0	Total-P	0.018		mg P/L	P378633	
	SM 5310 B-2011	Organic Carbon	5.4		mg C/L	P378535	
2154775	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.008	I	mg P/L	P378355	

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: Mill CR @ SR 16

Collection Date/Time: 02/04/2020 12:00

Field ID: 20030474

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2154768	EPA 180.1 Rev. 2.0	Turbidity	3.1		NTU	P378400	
	EPA 300.0 Rev. 2.1	Chloride	84		mg Cl/L	P379225	
		Sulfate	73		mg SO4/L	P379227	
		Color (true)	36		PCU	P378447	
	SM 2320 B-2011	Total Alkalinity	110		mg CaCO3/L	P378557	
	SM 2540 C-2011	TDS	390		mg/L	P379030	
	SM 2540 D-2011	TSS	3	I	mg/L	P378681	
	SM 4500 F-C-2011	Fluoride	0.23		mg F/L	P378561	
2154770	EPA 350.1 Rev. 2.0	Ammonia-N	0.029		mg N/L	P378889	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.60		mg N/L	P378923	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.13		mg N/L	P378952	
	EPA 365.1 Rev. 2.0	Total-P	0.063		mg P/L	P378633	
	SM 5310 B-2011	Organic Carbon	11		mg C/L	P378535	
2154772	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.032		mg P/L	P378355	
2154785	EPA 200.7 Rev. 4.4	Barium	27.2		ug/L	P378477	
		Calcium	49.7		mg/L	P378477	
		Iron	310		ug/L	P378477	
		Magnesium	12.4		mg/L	P378477	
		Potassium	4.4		mg/L	P378477	
		Sodium	55.6		mg/L	P378477	
		Zinc	5.0	U	ug/L	P378477	
	EPA 200.8 Rev. 5.4	Aluminum	42		ug/L	P378477	
		Antimony	0.15	I	ug/L	P378477	
		Arsenic	0.57		ug/L	P378477	
		Boron**	71.1		ug/L	P378477	
		Cadmium	0.020	U	ug/L	P378477	
		Chromium	0.40	U	ug/L	P378477	
		Copper	4.01		ug/L	P378477	
		Lead	0.20	U	ug/L	P378477	
		Nickel	0.68	I	ug/L	P378477	
		Selenium	0.20	U	ug/L	P378477	
		Silver	0.010	U	ug/L	P378477	
		Thallium	0.10	U	ug/L	P378477	
		Hardness	175		mg/L	P378477	
	SM 2340B						

Ref. Method and Comment:

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

Quality Assurance Report Method Blank Results

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P378400

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P378477

Component	Result	Code	Units
Barium	1.0	U	ug/L
Calcium	0.075	U	mg/L
Iron	30	U	ug/L
Magnesium	0.040	U	mg/L
Potassium	0.30	U	mg/L
Sodium	0.50	U	mg/L
Zinc	5.0	U	ug/L

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P378477

Component	Result	Code	Units
Aluminum	5.0	U	ug/L
Antimony	0.050	U	ug/L
Arsenic	0.050	U	ug/L
Boron	2.0	U	ug/L
Cadmium	0.020	U	ug/L
Chromium	0.40	U	ug/L
Copper	0.40	U	ug/L
Lead	0.20	U	ug/L
Nickel	0.50	U	ug/L
Selenium	0.20	U	ug/L
Silver	0.010	U	ug/L
Thallium	0.10	U	ug/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P379225

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P379227

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P378889

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: P378923

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P378952

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P378633

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P378355

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

Reference Method: EPA 8321B
Batch ID: P378369

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

Reference Method: EPA 8321B
Batch ID: P378426

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

Quality Assurance Report Method Blank Results

Reference Method: EPA 8321B
Batch ID: P378426

Component	Result	Code	Units
Mandestrobin	0.0020	U	ug/L
MCP	0.0020	U	ug/L
Naproxen	0.0080	U	ug/L
Primidone	0.0040	U	ug/L
Pyraclostrobin	0.0020	U	ug/L
Thiamethoxam	0.0020	U	ug/L
Tolfenpyrad	0.0020	U	ug/L
Triclopyr	0.0040	U	ug/L

Reference Method: SM 2120 B-2011
Batch ID: P378447

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2320 B-2011
Batch ID: P378557

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

Reference Method: SM 2540 C-2011
Batch ID: P379030

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-2011
Batch ID: P378681

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500 F-C-2011
Batch ID: P378561

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-2011
Batch ID: P378535

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: P378477

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Barium	94.8		P	85 - 115
Calcium	99.5		P	85 - 115
Iron	103		P	85 - 115
Magnesium	102		P	85 - 115
Potassium	98.7		P	85 - 115
Sodium	99.4		P	85 - 115
Zinc	92.4		P	85 - 115

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P378477

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Aluminum	104		P	85 - 115
Antimony	104		P	85 - 115
Arsenic	103		P	85 - 115
Boron	98.1		P	80 - 120
Cadmium	103		P	85 - 115
Chromium	101		P	85 - 115
Copper	102		P	85 - 115
Lead	99.4		P	85 - 115
Nickel	106		P	80 - 120
Selenium	101		P	85 - 115
Silver	104		P	85 - 115
Thallium	97.9		P	85 - 115

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P379225

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P379227

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P378889

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Ammonia-N	99.7		P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P378923

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

Quality Assurance Report

Laboratory Control Sample Accuracy

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P378952

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P378633

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P378355

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

Reference Method: EPA 8321B
Batch ID: P378369

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Acesulfame K	122		P	40 - 150
AMPA	105		P	40 - 150
Endothall	102		P	40 - 150
Glufosinate	137		P	40 - 150
Glyphosate	149		F	40 - 140
Sucralose	104		P	40 - 150

Reference Method: EPA 8321B
Batch ID: P378426

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2,4-D	122		P	30 - 160
Acetaminophen	76.7		P	30 - 160
Acetamiprid	88.1		P	30 - 160
Afidopyropen	82.6		P	30 - 160
Bentazon	65.9		P	30 - 160
Benzovindiflupyr	77.4		P	30 - 160
Carbamazepine	77.8		P	30 - 160
Clothianidin	81.8		P	30 - 160
Dinotefuran	87.3		P	30 - 160
Diuron	88.5		P	30 - 160
Fenuron	98.0		P	30 - 160
Fluridone	83.9		P	30 - 160
Hydrocodone	92.2		P	30 - 160
Ibuprofen	76.6		P	30 - 160
Imazapyr	96.6		P	30 - 160
Imidacloprid	95.0		P	30 - 160
Linuron	69.6		P	30 - 160
Mandestrobin	92.4		P	30 - 160
MCPP	126		P	30 - 160
Naproxen	90.4		P	30 - 160
Primidone	90.0		P	30 - 160
Pyraclostrobin	96.1		P	30 - 160
Thiamethoxam	95.6		P	30 - 160

Quality Assurance Report

Laboratory Control Sample Accuracy

Reference Method: EPA 8321B
Batch ID: P378426

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Tolfenpyrad	50.1		P	30 - 160
Triclopyr	104		P	30 - 160

Reference Method: SM 2120 B-2011
Batch ID: P378447

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

Reference Method: SM 2320 B-2011
Batch ID: P378557

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

Reference Method: SM 4500 F-C-2011
Batch ID: P378561

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	102		P	92 - 103

Reference Method: SM 5310 B-2011
Batch ID: P378535

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	99.6		P	85 - 115

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P378477

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2154958	Barium	95.2	93.2	P/P	80 - 120
2154958	Calcium	99.2		P	80 - 120
2154958	Iron	102	99.1	P/P	80 - 120
2154958	Magnesium	99.8	96.3	P/P	80 - 120
2154958	Potassium	98.4	96.3	P/P	80 - 120
2154958	Sodium	101	98.2	P/P	80 - 120
2154958	Zinc	92.5	89.9	P/P	80 - 120
2155034	Barium	94.1		P	80 - 120
2155034	Calcium	96.5		P	80 - 120
2155034	Iron	101		P	80 - 120
2155034	Magnesium	95.1		P	80 - 120
2155034	Potassium	97.2		P	80 - 120
2155034	Sodium	95.7		P	80 - 120
2155034	Zinc	90.0		P	80 - 120

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P378477

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2154958	Aluminum	101	99.7	P/P	80 - 120
2154958	Antimony	104	103	P/P	80 - 120
2154958	Arsenic	102	101	P/P	80 - 120
2154958	Boron	98.6	97.0	P/P	80 - 120
2154958	Cadmium	104	102	P/P	80 - 120
2154958	Chromium	100	103	P/P	80 - 120
2154958	Copper	99.8	98.8	P/P	80 - 120
2154958	Lead	98.9	96.9	P/P	80 - 120
2154958	Nickel	103	99.7	P/P	80 - 120
2154958	Selenium	97.6	95.7	P/P	80 - 120
2154958	Silver	103	104	P/P	80 - 120
2154958	Thallium	97.4	96.4	P/P	80 - 120
2155034	Aluminum	101		P	80 - 120
2155034	Antimony	107		P	80 - 120
2155034	Arsenic	103		P	80 - 120
2155034	Boron	99.2		P	80 - 120
2155034	Cadmium	104		P	80 - 120
2155034	Chromium	102		P	80 - 120
2155034	Copper	103		P	80 - 120
2155034	Lead	99.3		P	80 - 120
2155034	Nickel	99.9		P	80 - 120
2155034	Selenium	99.2		P	80 - 120
2155034	Silver	103		P	80 - 120
2155034	Thallium	98.0		P	80 - 120

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P379225

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2154767	Chloride	99.8		P	90 - 110
2154949	Chloride	101		P	90 - 110

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P379227

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2154767	Sulfate	99.1		P	90 - 110
2154949	Sulfate	99.9		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P378889

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2154774	Ammonia-N	99.9	102	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P378923

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2154923	Kjeldahl Nitrogen	94.3	108	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P378952

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2154774	NO2NO3-N	98.5	99.0	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P378633

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2154728	Total-P	106	105	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P378355

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2154806	O-Phosphate-P	97.4	100	P/P	90 - 110

Reference Method: EPA 8321B
Batch ID: P378369

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2154578	Acesulfame K	37.2	38.2	F/F	40 - 150
2154578	AMPA	102	102	P/P	40 - 150
2154578	Endothall	114	124	P/P	40 - 150
2154578	Glufosinate	173	192	F/F	40 - 150
2154578	Glyphosate	156	172	F/F	40 - 140
2154578	Sucralose	29.4	32.3	F/F	40 - 150

Reference Method: EPA 8321B
Batch ID: P378426

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2154702	2,4-D	108	116	P/P	30 - 160
2154702	Acetaminophen	88.6	92.7	P/P	30 - 160
2154702	Acetamiprid	91.4	84.7	P/P	30 - 160
2154702	Afidopyropen	92.6	96.1	P/P	30 - 160

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 8321B
Batch ID: P378426

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2154702	Benzovindiflupyr	77.4	78.8	P/P	30 - 160
2154702	Carbamazepine	75.4	80.6	P/P	30 - 160
2154702	Clothianidin	87.3	93.8	P/P	30 - 160
2154702	Dinotefuran	113	122	P/P	30 - 160
2154702	Diuron	75.0	64.9	P/P	30 - 160
2154702	Fenuron	79.4	74.8	P/P	30 - 160
2154702	Fluridone	89.6	84.5	P/P	30 - 160
2154702	Hydrocodone	101	90.1	P/P	30 - 160
2154702	Ibuprofen	71.4	67.7	P/P	30 - 160
2154702	Imazapyr	75.0	88.9	P/P	30 - 160
2154702	Imidacloprid	151	149	P/P	30 - 160
2154702	Linuron	65.1	63.0	P/P	30 - 160
2154702	Mandestrobin	90.4	92.1	P/P	30 - 160
2154702	MCPP	112	117	P/P	30 - 160
2154702	Naproxen	118	71.2	P/P	30 - 160
2154702	Primidone	90.3	88.0	P/P	30 - 160
2154702	Pyraclostrobin	89.3	91.9	P/P	30 - 160
2154702	Thiamethoxam	118	129	P/P	30 - 160
2154702	Tolfenpyrad	49.7	45.2	P/P	30 - 160
2154702	Triclopyr	104	102	P/P	30 - 160

Reference Method: SM 4500 F-C-2011
Batch ID: P378561

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2155025	Fluoride	104	105	P/P	89 - 106

Reference Method: SM 5310 B-2011
Batch ID: P378535

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2154805	Organic Carbon	101	103	P/P	85 - 115

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P378400

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2154773	Turbidity	1.30	Sample	P	0 - 20

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P378477

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2154958	Barium	2.10	Spike	P	0 - 20
2154958	Calcium	2.01	Spike	P	0 - 20
2154958	Iron	2.42	Spike	P	0 - 20
2154958	Magnesium	1.97	Spike	P	0 - 20
2154958	Potassium	1.99	Spike	P	0 - 20
2154958	Sodium	1.68	Spike	P	0 - 20
2154958	Zinc	2.48	Spike	P	0 - 20

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P378477

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2154958	Aluminum	1.38	Spike	P	0 - 20
2154958	Antimony	0.874	Spike	P	0 - 20
2154958	Arsenic	1.27	Spike	P	0 - 20
2154958	Boron	1.48	Spike	P	0 - 20
2154958	Cadmium	2.50	Spike	P	0 - 20
2154958	Chromium	2.14	Spike	P	0 - 20
2154958	Copper	0.941	Spike	P	0 - 20
2154958	Lead	2.06	Spike	P	0 - 20
2154958	Nickel	3.02	Spike	P	0 - 20
2154958	Selenium	1.91	Spike	P	0 - 20
2154958	Silver	0.447	Spike	P	0 - 20
2154958	Thallium	1.04	Spike	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P379225

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2154949	Chloride	0.398	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P379227

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2154949	Sulfate	0.161	Sample	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 350.1 Rev. 2.0
 Batch ID: P378889

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2154774	Ammonia-N	1.83	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
 Batch ID: P378923

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2154923	Kjeldahl Nitrogen	9.21	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
 Batch ID: P378952

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2154774	NO2NO3-N	0.387	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
 Batch ID: P378633

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2154728	Total-P	0.646	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
 Batch ID: P378355

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2154806	O-Phosphate-P	2.25	Spike	P	0 - 20

Reference Method: EPA 8321B
 Batch ID: P378369

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2154578	Acesulfame K	2.61	Spike	P	0 - 30
2154578	AMPA	0.111	Spike	P	0 - 30
2154578	Endothall	7.63	Spike	P	0 - 30
2154578	Glufosinate	10.1	Spike	P	0 - 30
2154578	Glyphosate	7.05	Spike	P	0 - 30
2154578	Sucralose	9.25	Spike	P	0 - 30

Reference Method: EPA 8321B
 Batch ID: P378426

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2154702	2,4-D	5.99	Spike	P	0 - 30
2154702	Acetaminophen	4.54	Spike	P	0 - 30
2154702	Acetamiprid	7.66	Spike	P	0 - 30
2154702	Afidopyropen	3.69	Spike	P	0 - 30

Quality Assurance Report Precision

Reference Method: EPA 8321B
Batch ID: P378426

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2154702	Bentazon	6.02	Spike	P	0 - 30
2154702	Benzovindiflupyr	1.82	Spike	P	0 - 30
2154702	Carbamazepine	6.61	Spike	P	0 - 30
2154702	Clothianidin	6.55	Spike	P	0 - 30
2154702	Dinotefuran	6.60	Spike	P	0 - 30
2154702	Diuron	14.4	Spike	P	0 - 30
2154702	Fenuron	5.99	Spike	P	0 - 30
2154702	Fluridone	4.71	Spike	P	0 - 30
2154702	Hydrocodone	11.9	Spike	P	0 - 30
2154702	Ibuprofen	5.36	Spike	P	0 - 30
2154702	Imazapyr	10.2	Spike	P	0 - 30
2154702	Imidacloprid	1.34	Spike	P	0 - 30
2154702	Linuron	3.30	Spike	P	0 - 30
2154702	Mandestrobin	1.90	Spike	P	0 - 30
2154702	MCPP	3.93	Spike	P	0 - 30
2154702	Naproxen	49.1	Spike	F	0 - 30
2154702	Primidone	2.64	Spike	P	0 - 30
2154702	Pyraclostrobin	2.95	Spike	P	0 - 30
2154702	Thiamethoxam	7.32	Spike	P	0 - 30
2154702	Tolfenpyrad	9.60	Spike	P	0 - 30
2154702	Triclopyr	1.94	Spike	P	0 - 30

Reference Method: SM 2120 B-2011
Batch ID: P378447

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2154922	Color (true)	0.696	Sample	P	0 - 20

Reference Method: SM 2320 B-2011
Batch ID: P378557

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2155025	Total Alkalinity	0.119	Sample	P	0 - 2.8

Reference Method: SM 2540 C-2011
Batch ID: P379030

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2154964	TDS	2.24	Sample	P	0 - 10

Reference Method: SM 4500 F-C-2011
Batch ID: P378561

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2155025	Fluoride	0.464	Spike	P	0 - 2.5

Quality Assurance Report Precision

Reference Method: SM 5310 B-2011
Batch ID: P378535

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2154805	Organic Carbon	0.806	Spike	P	0 - 20

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

Quality Assurance Report Surrogates

Lab Sample ID: 2154783
Field Sample ID: 20030480

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	2,4-D-d3	109	P	30 - 160
EPA 8321B	Acetaminophen-d4	92.9	P	30 - 160
EPA 8321B	Carbamazepine-d10	86.9	P	30 - 160
EPA 8321B	Diuron-d6	76.7	P	30 - 160
EPA 8321B	Endothall-d6	105	P	30 - 160
EPA 8321B	Endothall-d6	105	P	30 - 160
EPA 8321B	Glyphosate 13C 15N	76.9	P	30 - 160
EPA 8321B	Glyphosate 13C 15N	76.9	P	30 - 160
EPA 8321B	Ibuprofen-d3	75.9	P	30 - 160
EPA 8321B	Primidone-d5	86.7	P	30 - 160
EPA 8321B	Sucralose-d6	51.3	P	30 - 160
EPA 8321B	Sucralose-d6	51.3	P	30 - 160

Quality Assurance Report Calibration Verification

Reference Method: EPA 365.1 Rev. 2.0 dissolved

Run ID: A97339

Included Lab Sample IDs: 2154771, 2154772, 2154775

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	96.9	96.0	P/P	90 - 110

Reference Method: EPA 180.1 Rev. 2.0

Run ID: A97350

Included Lab Sample IDs: 2154767, 2154768, 2154773

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

Reference Method: SM 2120 B-2011

Run ID: A97363

Included Lab Sample IDs: 2154767, 2154768, 2154773

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

Reference Method: SM 5310 B-2011

Run ID: A97399

Included Lab Sample IDs: 2154769, 2154770, 2154774

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

Reference Method: EPA 200.7 Rev. 4.4

Run ID: A97400

Included Lab Sample IDs: 2154784, 2154785

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Barium	95.2	95.8	P/P	90 - 110
Barium	96.3	95.2	P/P	90 - 110
Calcium	97.3	97.4	P/P	90 - 110
Calcium	99.9	97.3	P/P	90 - 110
Iron	102	99.6	P/P	90 - 110
Iron	99.6	99.6	P/P	90 - 110
Magnesium	96.9	96.7	P/P	90 - 110
Magnesium	99.2	96.9	P/P	90 - 110
Potassium	96.3	96.0	P/P	90 - 110
Potassium	98.6	96.3	P/P	90 - 110
Sodium	96.9	96.6	P/P	90 - 110
Sodium	99.5	96.9	P/P	90 - 110
Zinc	92.9	93.7	P/P	90 - 110
Zinc	94.7	92.9	P/P	90 - 110

Reference Method: SM 2320 B-2011

Run ID: A97407

Included Lab Sample IDs: 2154767, 2154768, 2154773

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

Quality Assurance Report Calibration Verification

Reference Method: SM 4500 F-C-2011

Run ID: A97407

Included Lab Sample IDs: 2154767, 2154768, 2154773

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	105	106	P/P	90 - 110

Reference Method: EPA 8321B

Run ID: A97412

Included Lab Sample IDs: 2154783

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
2,4-D	99.8	77.7	P/P	50 - 150
Acetaminophen	95.6	101	P/P	60 - 160
Acetamiprid	105	94.5	P/P	50 - 150
Afidopyropen	93.1	105	P/P	50 - 150
Bentazon	84.4	91.7	P/P	50 - 160
Benzovindiflupyr	98.8	101	P/P	50 - 150
Carbamazepine	101	91.5	P/P	60 - 150
Clothianidin	103	94.6	P/P	60 - 150
Dinotefuran	96.7	96.1	P/P	50 - 150
Diuron	114	106	P/P	60 - 150
Fenuron	103	101	P/P	60 - 150
Fluridone	108	107	P/P	60 - 160
Hydrocodone	93.8	89.9	P/P	60 - 150
Ibuprofen	84.0	86.8	P/P	50 - 160
Imazapyr	112	83.3	P/P	50 - 150
Imidacloprid	97.7	96.3	P/P	60 - 150
Linuron	103	98.0	P/P	60 - 150
Mandestrobin	109	108	P/P	50 - 150
MCPP	98.1	89.6	P/P	50 - 150
Naproxen	87.6	127	P/P	50 - 160
Primidone	99.9	93.9	P/P	60 - 150
Pyraclostrobin	108	101	P/P	60 - 150
Thiamethoxam	101	95.3	P/P	50 - 150
Tolfenpyrad	94.8	96.4	P/P	60 - 150
Triclopyr	107	90.9	P/P	50 - 150

Reference Method: EPA 8321B

Run ID: A97473

Included Lab Sample IDs: 2154783

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Acesulfame K	62.3	64.1	P/P	60 - 160
Endothall	99.2	96.1	P/P	60 - 160

Reference Method: EPA 8321B

Run ID: A97477

Included Lab Sample IDs: 2154783

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
AMPA	77.5	110	P/P	60 - 160
Glufosinate	107	134	P/P	60 - 160
Glyphosate	97.4	140	P/P	60 - 160

Quality Assurance Report Calibration Verification

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A97482

Included Lab Sample IDs: 2154769, 2154770

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

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A97525

Included Lab Sample IDs: 2154769, 2154770, 2154774

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

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A97549

Included Lab Sample IDs: 2154769, 2154770, 2154774

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

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A97580

Included Lab Sample IDs: 2154769, 2154770, 2154774

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	93.8	96.4	P/P	90 - 110
Kjeldahl Nitrogen	96.4	104	P/P	90 - 110

Reference Method: EPA 200.8 Rev. 5.4

Run ID: A97637

Included Lab Sample IDs: 2154784, 2154785

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Aluminum	101	100	P/P	90 - 110
Antimony	99.7	101	P/P	90 - 110
Arsenic	99.9	98.8	P/P	90 - 110
Cadmium	97.0	97.3	P/P	90 - 110
Chromium	93.9	93.2	P/P	90 - 110
Copper	97.2	96.4	P/P	90 - 110
Lead	96.2	94.9	P/P	90 - 110
Selenium	99.1	97.6	P/P	90 - 110
Silver	99.1	99.9	P/P	90 - 110
Thallium	97.6	95.6	P/P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1

Run ID: A97638

Included Lab Sample IDs: 2154767, 2154768, 2154773

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	97.3	98.7	P/P	90 - 110
Sulfate	98.0	99.3	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A97643

Included Lab Sample IDs: 2154774

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

Reference Method: EPA 200.8 Rev. 5.4

Run ID: A97713

Included Lab Sample IDs: 2154784, 2154785

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Boron	103	102	P/P	90 - 110
Boron	105	103	P/P	90 - 110
Nickel	101	98.1	P/P	90 - 110
Nickel	101	101	P/P	90 - 110

Reference Method: EPA 8321B

Run ID: A97796

Included Lab Sample IDs: 2154783

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Sucralose	96.3	94.0	P/P	60 - 160

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

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

Where they are different, both control limits are provided.

Quality Assurance Report Summary

Ref. Method	Analyte	LCS % Recovery			MS % Recovery			LCS	Precision SMP	MS
EPA 180.1 Rev. 2.0	Turbidity								1.30	
EPA 200.7 Rev. 4.4	Barium	94.8			95.2	93.2	94.1			2.10
	Calcium	99.5			99.2	96.5				2.01
	Iron	103			102	99.1	101			2.42
	Magnesium	102			99.8	96.3	95.1			1.97
	Potassium	98.7			98.4	96.3	97.2			1.99
	Sodium	99.4			101	98.2	95.7			1.68
	Zinc	92.4			92.5	89.9	90.0			2.48
EPA 200.8 Rev. 5.4	Aluminum	104			101	99.7	101			1.38
	Antimony	104			104	103	107			0.874
	Arsenic	103			103	102	101			1.27
	Boron	98.1			98.6	97.0	99.2			1.48
	Cadmium	103			104	102	104			2.50
	Chromium	101			100	103	102			2.14
	Copper	102			99.8	98.8	103			0.941
	Lead	99.4			98.9	96.9	99.3			2.06
	Nickel	106			103	99.7	99.9			3.02
	Selenium	101			99.2	97.6	95.7			1.91
	Silver	104			103	104	103			0.447
	Thallium	97.9			97.4	96.4	98.0			1.04
EPA 300.0 Rev. 2.1	Chloride	100			101	99.8			0.398	
	Sulfate	101			99.9	99.1			0.161	
EPA 350.1 Rev. 2.0	Ammonia-N	99.7			99.9	102				1.83
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	102			94.3	108				9.21
EPA 353.2 Rev. 2.0	NO2NO3-N	99.5			98.5	99.0				0.387
EPA 365.1 Rev. 2.0	Total-P	105			106	105				0.646
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	102			97.4	100				2.25
EPA 8321B	2,4-D	122			108	116				5.99
	Acesulfame K	122			37.2	38.2				2.61
	Acetaminophen	76.7			88.6	92.7				4.54
	Acetamiprid	88.1			91.4	84.7				7.66
	Afidopyropen	82.6			92.6	96.1				3.69
	AMPA	105			102	102				0.111
	Bentazon	65.9								6.02
	Benzovindiflupyr	77.4			77.4	78.8				1.82
	Carbamazepine	77.8			75.4	80.6				6.61
	Clothianidin	81.8			87.3	93.8				6.55
	Dinotefuran	87.3			113	122				6.60
	Diuron	88.5			75.0	64.9				14.4
	Endothall	102			114	124				7.63
	Fenuron	98.0			79.4	74.8				5.99
	Fluridone	83.9			89.6	84.5				4.71
	Glufosinate	137			192	173				10.1
	Glyphosate	149			156	172				7.05
	Hydrocodone	92.2			101	90.1				11.9
	Ibuprofen	76.6			71.4	67.7				5.36
	Imazapyr	96.6			75.0	88.9				10.2
	Imidacloprid	95.0			151	149				1.34
	Linuron	69.6			65.1	63.0				3.30
	Mandestrobin	92.4			90.4	92.1				1.90
	MCPP	126			112	117				3.93
	Naproxen	90.4			118	71.2				49.1
	Primidone	90.0			90.3	88.0				2.64
	Pyraclostrobin	96.1			89.3	91.9				2.95

Quality Assurance Report Summary

Ref. Method	Analyte	LCS % Recovery	MS % Recovery		Precision	
					LCS	MS
EPA 8321B	Sucralose	104	29.4	32.3		9.25
	Thiamethoxam	95.6	118	129		7.32
	Tolfenpyrad	50.1	49.7	45.2		9.60
	Triclopyr	104	104	102		1.94
SM 2120 B-2011	Color (true)	101			0.696	
SM 2320 B-2011	Total Alkalinity	102			0.119	
SM 2540 C-2011	TDS				2.24	
SM 4500 F-C-2011	Fluoride	102	104	105		0.464
SM 5310 B-2011	Organic Carbon	99.6	101	103		0.806

Reference Method Descriptions

Method	Description	Associated Samples
EPA 180.1 Rev. 2.0	Turbidity in aqueous matrices	2154767, 2154768, 2154773
EPA 200.7 Rev. 4.4	Total Recoverable Metals analysis using ICP emission spectroscopy for aqueous samples supporting Clean Water Act Projects	2154784, 2154785
EPA 200.8 Rev. 5.4	Total Recoverable Metals analysis using ICP-MS for aqueous samples supporting Clean Water Act Projects	2154784, 2154785
EPA 300.0 Rev. 2.1	Chloride in aqueous matrices	2154767, 2154768, 2154773
EPA 300.0 Rev. 2.1	Sulfate in aqueous matrices	2154767, 2154768, 2154773
EPA 350.1 Rev. 2.0	Ammonia in aqueous matrices as mg N/L	2154769, 2154770, 2154774
EPA 351.2 Rev. 2.0	Total Kjeldahl Nitrogen in aqueous matrices	2154769, 2154770, 2154774
EPA 353.2 Rev. 2.0	Nitrite/Nitrate in aqueous matrices as mg N/L	2154769, 2154770, 2154774
EPA 365.1 Rev. 2.0	Total Phosphorus in aqueous matrices as mg P/L	2154769, 2154770, 2154774
EPA 365.1 Rev. 2.0 dissolved	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	2154771, 2154772, 2154775
EPA 8321B	Pesticides, herbicides, and other chemicals in water matrices by HPLC/MS/MS	2154783
EPA 8321B	Water soluble organic compounds by HPLC/MS/MS	2154783
SM 2120 B-2011	True Color measured at 450 nm (not valid for NPDES monitoring)	2154767, 2154768, 2154773
SM 2320 B-2011	Alkalinity in aqueous matrices as mg CaCO3/L	2154767, 2154768, 2154773
SM 2340B	Hardness by calculation, in aqueous matrices, reported as mg/L CaCO3	2154784, 2154785
SM 2540 C-2011	Total Dissolved Solids in aqueous matrices	2154767, 2154768, 2154773
SM 2540 D-2011	Total Suspended Solids in aqueous matrices using a maximum of 250 mL of sample	2154767, 2154768, 2154773
SM 4500 F-C-2011	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	2154767, 2154768, 2154773
SM 5310 B-2011	Nonpurgeable Organic Carbon in aqueous matrices	2154769, 2154770, 2154774

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	02/05/2020			02/05/2020 16:54	Yen Ta	2154767, 2154768, 2154773
EPA 200.7 Rev. 4.4	02/05/2020	02/06/2020 17:45	Elliott D. Healy	02/07/2020 14:11	Betina Topolski	2154784
	02/05/2020	02/06/2020 17:45	Elliott D. Healy	02/07/2020 14:51	Betina Topolski	2154785
EPA 200.8 Rev. 5.4	02/05/2020	02/06/2020 17:45	Elliott D. Healy	02/18/2020 19:23	Justin Cutchin	2154784
	02/05/2020	02/06/2020 17:45	Elliott D. Healy	02/18/2020 19:33	Justin Cutchin	2154785
	02/05/2020	02/06/2020 17:45	Elliott D. Healy	02/20/2020 16:07	Justin Cutchin	2154784
	02/05/2020	02/06/2020 17:45	Elliott D. Healy	02/20/2020 16:29	Justin Cutchin	2154785
EPA 300.0 Rev. 2.1	02/05/2020			02/19/2020 21:02	Lipi Saha	2154767
	02/05/2020			02/19/2020 21:50	Lipi Saha	2154768
	02/05/2020			02/19/2020 22:03	Lipi Saha	2154773
EPA 350.1 Rev. 2.0	02/05/2020			02/13/2020 11:59	Ping Hua	2154774
	02/05/2020			02/13/2020 12:11	Ping Hua	2154769
	02/05/2020			02/13/2020 12:12	Ping Hua	2154770
EPA 351.2 Rev. 2.0	02/05/2020	02/14/2020 09:30	Elliott Rodriguez	02/17/2020 10:59	Jhamieka S. Greenwood	2154769
	02/05/2020	02/14/2020 09:30	Elliott Rodriguez	02/17/2020 11:00	Jhamieka S. Greenwood	2154770
	02/05/2020	02/14/2020 09:30	Elliott Rodriguez	02/17/2020 11:05	Jhamieka S. Greenwood	2154774
EPA 353.2 Rev. 2.0	02/05/2020			02/13/2020 11:38	Beverly Y. Sanders	2154769
	02/05/2020			02/13/2020 11:39	Beverly Y. Sanders	2154770
	02/05/2020			02/13/2020 11:40	Beverly Y. Sanders	2154774
EPA 365.1 Rev. 2.0	02/05/2020	02/10/2020 17:16	Yen Ta	02/11/2020 14:50	Benjamin T. Nordmann	2154769
	02/05/2020	02/10/2020 17:16	Yen Ta	02/11/2020 14:51	Benjamin T. Nordmann	2154770
	02/05/2020	02/10/2020 17:16	Yen Ta	02/18/2020 16:16	Benjamin T. Nordmann	2154774
EPA 365.1 Rev. 2.0 dissolved	02/05/2020			02/05/2020 18:32	Carlos Miranda	2154771
	02/05/2020			02/05/2020 18:33	Carlos Miranda	2154772
	02/05/2020			02/05/2020 18:34	Carlos Miranda	2154775
EPA 8321B	02/05/2020	02/06/2020 11:00	Rebecca Ware	02/07/2020 21:04	Rebecca Ware	2154783
	02/05/2020	02/06/2020 11:00	Rebecca Ware	02/08/2020 22:27	Rebecca Ware	2154783
	02/05/2020	02/06/2020 11:00	Rebecca Ware	02/22/2020 03:14	Rebecca Ware	2154783
	02/05/2020	02/07/2020 10:00	Hoor Shaik	02/08/2020 19:41	Juyoung Kim	2154783
SM 2120 B-2011	02/05/2020			02/05/2020 17:50	Madeline Funaro	2154767
	02/05/2020			02/05/2020 17:51	Madeline Funaro	2154768, 2154773
SM 2320 B-2011	02/05/2020			02/08/2020 09:55	Dale L. Simmons	2154767
	02/05/2020			02/08/2020 10:07	Dale L. Simmons	2154768
	02/05/2020			02/08/2020 10:19	Dale L. Simmons	2154773
SM 2340B	02/05/2020			02/07/2020 14:11	Betina Topolski	2154784
	02/05/2020			02/07/2020 14:51	Betina Topolski	2154785
SM 2540 C-2011	02/05/2020			02/10/2020 17:30	Blanca Fach	2154767, 2154768, 2154773
SM 2540 D-2011	02/05/2020			02/10/2020 17:30	Blanca Fach	2154767, 2154768, 2154773
SM 4500 F-C-2011	02/05/2020			02/08/2020 09:55	Dale L. Simmons	2154767
	02/05/2020			02/08/2020 10:07	Dale L. Simmons	2154768

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	02/05/2020			02/08/2020 10:19	Dale L. Simmons	2154773
SM 5310 B-2011	02/05/2020			02/08/2020 02:58	Madeline Funaro	2154769
	02/05/2020			02/08/2020 03:10	Madeline Funaro	2154770
	02/05/2020			02/08/2020 03:23	Madeline Funaro	2154774