

Chemical Analysis Report

NE-DIST-2020-03-12-01

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

Event Description: **LSJR Palatka 2020**
Request ID: **RQ-2020-03-09-18**
Customer: **NE-DIST**
Project ID: **SMP**

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Certified by: Dr. rer. nat. Bettina Steinbock, Environmental Administrator

Date Certified: 02-APR-2020 16:35



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: Dunn Creek 0.4miles upstream of US-17

Collection Date/Time: 03/11/2020 09:35

Field ID: G2NE1187

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2164679	EPA 180.1 Rev. 2.0	Turbidity	3.7		NTU	P380571	
	EPA 300.0 Rev. 2.1	Chloride	220		mg Cl/L	P380935	
		Sulfate	60		mg SO4/L	P380937	
		Color (true)	97		PCU	P380579	
	SM 2320 B-2011	Total Alkalinity	84		mg CaCO3/L	P381067	
	SM 2540 C-2011	TDS	558		mg/L	P381118	
	SM 2540 D-2011	TSS	6	I	mg/L	P381186	
	SM 4500 F-C-2011	Fluoride	0.098	I	mg F/L	P381263	
2164681	EPA 350.1 Rev. 2.0	Ammonia-N	0.010		mg N/L	P381038	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.84		mg N/L	P380771	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.012		mg N/L	P381198	
	EPA 365.1 Rev. 2.0	Total-P	0.054		mg P/L	P381339	
	SM 5310 B-2011	Organic Carbon	15		mg C/L	P380752	
2164683	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.012		mg P/L	P380568	

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 Br. @ Old San Mateo Rd

Collection Date/Time: 03/11/2020 10:00

Field ID: 20030577

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2164673	EPA 180.1 Rev. 2.0	Turbidity	3.6		NTU	P380571	
	EPA 300.0 Rev. 2.1	Chloride	670		mg Cl/L	P380935	
		Sulfate	280		mg SO4/L	P380937	
		Color (true)	18	A	PCU	P380578	
	SM 2320 B-2011	Total Alkalinity	103		mg CaCO3/L	P381067	
	SM 2540 C-2011	TDS	1.73E+03		mg/L	P381118	
	SM 2540 D-2011	TSS	3	I	mg/L	P381186	
	SM 4500 F-C-2011	Fluoride	0.32		mg F/L	P381263	
	EPA 350.1 Rev. 2.0	Ammonia-N	0.038		mg N/L	P381038	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.34		mg N/L	P380771	
2164674	EPA 353.2 Rev. 2.0	NO2NO3-N	0.14		mg N/L	P381325	
	EPA 365.1 Rev. 2.0	Total-P	0.095		mg P/L	P381139	
	SM 5310 B-2011	Organic Carbon	4.2		mg C/L	P380674	
	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.051		mg P/L	P380566	
	EPA 200.7 Rev. 4.4	Barium	33.6		ug/L	P380736	
2164712	EPA 200.8 Rev. 5.4	Calcium	210		mg/L	P380736	
		Iron	240		ug/L	P380736	
		Magnesium	136		mg/L	P380736	
		Potassium	9.2		mg/L	P380736	
		Sodium	293		mg/L	P380736	
		Zinc	5.0	U	ug/L	P380736	
		Aluminum	86		ug/L	P380736	
		Antimony	0.050	U	ug/L	P380736	
		Arsenic	0.29		ug/L	P380736	
		Boron**	98.6		ug/L	P380736	
		Cadmium	0.025	I	ug/L	P380736	
		Chromium	0.40	U	ug/L	P380736	
		Copper	0.68	I	ug/L	P380736	
		Lead	0.20	U	ug/L	P380736	
		Nickel	0.50	U	ug/L	P380736	
		Selenium	0.20	U	ug/L	P380736	
		Silver	0.010	U	ug/L	P380736	
		Thallium	0.10	U	ug/L	P380736	
	SM 2340B	Hardness	1.08E+03		mg/L	P380736	

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: Unnamed Ditch 250m upstream of Deep Cr.

Collection Date/Time: 03/11/2020 11:10

Field ID: G2NE1211

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2164676	EPA 180.1 Rev. 2.0	Turbidity	2.1		NTU	P380571	
	EPA 300.0 Rev. 2.1	Chloride	620		mg Cl/L	P380935	
		Sulfate	670		mg SO4/L	P380937	
		Color (true)	11	A	PCU	P380579	
	SM 2320 B-2011	Total Alkalinity	109		mg CaCO3/L	P381067	
	SM 2540 C-2011	TDS	1.85E+03		mg/L	P381118	
	SM 2540 D-2011	TSS	3	I	mg/L	P381186	
2164677	SM 4500 F-C-2011	Fluoride	0.56		mg F/L	P381263	
	EPA 350.1 Rev. 2.0	Ammonia-N	0.038		mg N/L	P381038	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.32		mg N/L	P380771	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.038		mg N/L	P381198	
	EPA 365.1 Rev. 2.0	Total-P	0.084		mg P/L	P381139	
2164678	SM 5310 B-2011	Organic Carbon	3.1		mg C/L	P380911	
	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.049		mg P/L	P380568	
2164703	EPA 8321B	2,4-D	0.0048	I	ug/L	P380689	
		Acesulfame K**	0.10	U	ug/L	P380621	
		AMPA**	0.10	U	ug/L	P380621	
		Sucralose**	0.010	U	ug/L	P380621	
		Acetaminophen**	0.0080	U	ug/L	P380689	
		Acetamiprid**	0.0020	U	ug/L	P380689	
		Endothall**	0.25	U	ug/L	P380621	
		Glufosinate**	0.10	U	ug/L	P380621	
		Glyphosate**	0.10	U	ug/L	P380621	
		Afidopyropen**	0.0020	UJ	ug/L	P380689	
		Bentazon	8.0E-04	U	ug/L	P380689	
		Benzovindiflupyr**	0.0020	UJ	ug/L	P380689	
		Carbamazepine**	8.0E-04	U	ug/L	P380689	
		Clothianidin**	0.0023	I	ug/L	P380689	
		Dinotefuran**	0.0020	U	ug/L	P380689	
		Diuron	0.0020	U	ug/L	P380689	
		Fenuron	0.016	U	ug/L	P380689	
		Fluridone**	8.0E-04	U	ug/L	P380689	
		Imazapyr**	0.0040	U	ug/L	P380689	
		Hydrocodone**	0.0020	U	ug/L	P380689	
		Ibuprofen**	0.020	U	ug/L	P380689	
		Imidacloprid	0.0067	I	ug/L	P380689	
		Linuron	0.0040	U	ug/L	P380689	
		Mandestrobin**	0.0020	UJ	ug/L	P380689	
		MCP	0.0020	U	ug/L	P380689	MS
		Naproxen**	0.0080	U	ug/L	P380689	
		Primidone**	0.0040	U	ug/L	P380689	
		Pyraclostrobin**	0.0020	U	ug/L	P380689	
		Thiamethoxam**	0.011		ug/L	P380689	

Field ID: G2NE1211

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2164703	EPA 8321B	Tolfenpyrad**	0.0020	U	ug/L	P380689	
		Triclopyr**	0.0040	U	ug/L	P380689	

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.

Sample Location: Moccassin Branch at Winford Masters Rd

Collection Date/Time: 03/11/2020 12:00

Field ID: 20030557

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2164680	EPA 180.1 Rev. 2.0	Turbidity	1.7		NTU	P380571	
	EPA 300.0 Rev. 2.1	Chloride	240		mg Cl/L	P380935	
		Sulfate	560		mg SO4/L	P380937	
	SM 2120 B-2011	Color (true)	15		PCU	P380579	
	SM 2320 B-2011	Total Alkalinity	108		mg CaCO3/L	P381067	
	SM 2540 C-2011	TDS	1.25E+03		mg/L	P381118	
	SM 2540 D-2011	TSS	2	I	mg/L	P381186	
	SM 4500 F-C-2011	Fluoride	0.55		mg F/L	P381263	
2164682	EPA 350.1 Rev. 2.0	Ammonia-N	0.012		mg N/L	P381038	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.31		mg N/L	P380771	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.12		mg N/L	P381198	
	EPA 365.1 Rev. 2.0	Total-P	0.11		mg P/L	P381142	
	SM 5310 B-2011	Organic Carbon	4.2		mg C/L	P380752	
2164684	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.072		mg P/L	P380568	

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: P380571

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P380736

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: P380736

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: P380935

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P380937

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P381038

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: P380771

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P381198

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P381325

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P381139

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P381142

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P381339

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P380566

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P380568

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

Reference Method: EPA 8321B
Batch ID: P380621

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: P380621

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

Reference Method: EPA 8321B
Batch ID: P380689

Component	Result	Code	Units
2,4-D	0.0020	U	ug/L
Acetaminophen	0.0080	U	ug/L
Acetamiprid	0.0020	U	ug/L
Afidopyropen	0.0020	U	ug/L
Bentazon	8.0E-04	U	ug/L
Benzovindiflupyr	0.0020	U	ug/L
Carbamazepine	8.0E-04	U	ug/L
Clothianidin	0.0020	U	ug/L
Dinotefuran	0.0020	U	ug/L
Diuron	0.0020	U	ug/L
Fenuron	0.016	U	ug/L
Fluridone	8.0E-04	U	ug/L
Hydrocodone	0.0020	U	ug/L
Ibuprofen	0.020	U	ug/L
Imazapyr	0.0040	U	ug/L
Imidacloprid	0.0020	U	ug/L
Linuron	0.0040	U	ug/L
Mandestrobin	0.0020	U	ug/L
MCPP	0.0020	U	ug/L
Naproxen	0.0080	U	ug/L
Primidone	0.0040	U	ug/L
Pyraclostrobin	0.0020	U	ug/L
Thiamethoxam	0.0020	U	ug/L
Tolfenpyrad	0.0020	U	ug/L
Triclopyr	0.0040	U	ug/L

Reference Method: SM 2120 B-2011
Batch ID: P380578

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2120 B-2011
Batch ID: P380579

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2320 B-2011
Batch ID: P381067

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

Quality Assurance Report Method Blank Results

Reference Method: SM 2540 C-2011
Batch ID: P381118

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-2011
Batch ID: P381186

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500 F-C-2011
Batch ID: P381263

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-2011
Batch ID: P380674

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

Reference Method: SM 5310 B-2011
Batch ID: P380752

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

Reference Method: SM 5310 B-2011
Batch ID: P380911

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: P380736

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Barium	102		P	85 - 115
Calcium	103		P	85 - 115
Iron	106		P	85 - 115
Magnesium	106		P	85 - 115
Potassium	101		P	85 - 115
Sodium	101		P	85 - 115
Zinc	103		P	85 - 115

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P380736

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Aluminum	94.5		P	85 - 115
Antimony	98.4		P	85 - 115
Arsenic	97.5		P	85 - 115
Boron	95.6		P	85 - 115
Cadmium	96.5		P	85 - 115
Chromium	100		P	85 - 115
Copper	96.5		P	85 - 115
Lead	92.7		P	85 - 115
Nickel	95.5		P	85 - 115
Selenium	96.7		P	85 - 115
Silver	98.1		P	85 - 115
Thallium	104		P	85 - 115

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P380935

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P380937

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P381038

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P380771

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

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P381198

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P381325

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P381139

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P381142

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: P381339

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P380566

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P380568

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
O-Phosphate-P	95.3		P	90 - 110

Reference Method: EPA 8321B
Batch ID: P380621

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Acesulfame K	79.0		P	40 - 150
AMPA	92.0		P	40 - 150
Endothall	126		P	40 - 150
Glufosinate	124		P	40 - 150
Glyphosate	92.8		P	40 - 140
Sucralose	103		P	40 - 150

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 8321B
Batch ID: P380689

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2,4-D	147		P	30 - 160
Acetaminophen	101		P	30 - 160
Acetamiprid	91.4		P	30 - 160
Afidopyropen	98.9		P	30 - 160
Bentazon	98.6		P	30 - 160
Benzovindiflupyr	88.9		P	30 - 160
Carbamazepine	124		P	30 - 160
Clothianidin	95.1		P	30 - 160
Dinotefuran	95.3		P	30 - 160
Diuron	96.5		P	30 - 160
Fenuron	96.2		P	30 - 160
Fluridone	101		P	30 - 160
Hydrocodone	106		P	30 - 160
Ibuprofen	93.3		P	30 - 160
Imazapyr	120		P	30 - 160
Imidacloprid	107		P	30 - 160
Linuron	87.3		P	30 - 160
Mandestrobin	95.3		P	30 - 160
MCPP	157		P	30 - 160
Naproxen	107		P	30 - 160
Primidone	93.2		P	30 - 160
Pyraclostrobin	94.2		P	30 - 160
Thiamethoxam	108		P	30 - 160
Tolfenpyrad	65.7		P	30 - 160
Triclopyr	111		P	30 - 160

Reference Method: SM 2120 B-2011
Batch ID: P380578

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Color (true)	99.2		P	85 - 115

Reference Method: SM 2120 B-2011
Batch ID: P380579

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Color (true)	99.6		P	85 - 115

Reference Method: SM 2320 B-2011
Batch ID: P381067

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	105		P	98 - 106

Reference Method: SM 4500 F-C-2011
Batch ID: P381263

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	94.7		P	92 - 103

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: SM 5310 B-2011
Batch ID: P380674

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

Reference Method: SM 5310 B-2011
Batch ID: P380752

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

Reference Method: SM 5310 B-2011
Batch ID: P380911

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

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P380736

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2164511	Barium	99.1	100	P/P	80 - 120
2164511	Calcium	101		P	80 - 120
2164511	Iron	104	103	P/P	80 - 120
2164511	Magnesium	102	101	P/P	80 - 120
2164511	Potassium	101	101	P/P	80 - 120
2164511	Sodium	100	105	P/P	80 - 120
2164511	Zinc	100	101	P/P	80 - 120
2164731	Barium	102		P	80 - 120
2164731	Calcium	102		P	80 - 120
2164731	Iron	104		P	80 - 120
2164731	Magnesium	99.2		P	80 - 120
2164731	Potassium	101		P	80 - 120
2164731	Sodium	99.4		P	80 - 120
2164731	Zinc	103		P	80 - 120

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P380736

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2164511	Aluminum	96.3	95.5	P/P	80 - 120
2164511	Antimony	100	101	P/P	80 - 120
2164511	Arsenic	97.2	98.7	P/P	80 - 120
2164511	Boron	95.5	96.4	P/P	80 - 120
2164511	Cadmium	102	101	P/P	80 - 120
2164511	Chromium	98.4	99.0	P/P	80 - 120
2164511	Copper	95.4	97.0	P/P	80 - 120
2164511	Lead	92.5	93.2	P/P	80 - 120
2164511	Nickel	95.6	96.1	P/P	80 - 120
2164511	Selenium	92.1	95.6	P/P	80 - 120
2164511	Silver	99.1	99.2	P/P	80 - 120
2164511	Thallium	106	108	P/P	80 - 120
2164731	Aluminum	95.9		P	80 - 120
2164731	Antimony	103		P	80 - 120
2164731	Arsenic	105		P	80 - 120
2164731	Boron	101		P	80 - 120
2164731	Cadmium	99.4		P	80 - 120
2164731	Chromium	104		P	80 - 120
2164731	Copper	98.6		P	80 - 120
2164731	Lead	96.3		P	80 - 120
2164731	Nickel	97.1		P	80 - 120
2164731	Selenium	100		P	80 - 120
2164731	Silver	96.9		P	80 - 120
2164731	Thallium	109		P	80 - 120

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P380935

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2164634	Chloride	97.3		P	90 - 110
2164788	Chloride	98.9		P	90 - 110

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P380937

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2164634	Sulfate	96.8		P	90 - 110
2164788	Sulfate	100		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P381038

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2164674	Ammonia-N	101	100	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P380771

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2164682	Kjeldahl Nitrogen	96.7	96.8	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P381198

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2164677	NO2NO3-N	100	99.6	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P381325

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2164340	NO2NO3-N	97.0	96.0	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P381139

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2164640	Total-P	109	108	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P381142

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2164681	Total-P	108	108	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P381339

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2166997	Total-P	107	104	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P380566

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2164502	O-Phosphate-P	97.6	99.8	P/P	90 - 110

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P380568

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2164678	O-Phosphate-P	94.6	98.7	P/P	90 - 110

Reference Method: EPA 8321B
Batch ID: P380621

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2164419	Acesulfame K	86.4	86.2	P/P	40 - 150
2164419	AMPA	109	111	P/P	40 - 150
2164419	Endothall	142	144	P/P	40 - 150
2164419	Glufosinate	108	117	P/P	40 - 150
2164419	Glyphosate	73.4	78.7	P/P	40 - 140
2164419	Sucralose	114	106	P/P	40 - 150

Reference Method: EPA 8321B
Batch ID: P380689

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2164417	2,4-D	132	151	P/P	30 - 160
2164417	Acetaminophen	92.0	94.0	P/P	30 - 160
2164417	Acetamiprid	95.0	93.7	P/P	30 - 160
2164417	Afidopyropen	92.8	94.5	P/P	30 - 160
2164417	Bentazon	76.3	87.3	P/P	30 - 160
2164417	Benzovindiflupyr	73.1	79.9	P/P	30 - 160
2164417	Carbamazepine	101	101	P/P	30 - 160
2164417	Clothianidin	95.8	105	P/P	30 - 160
2164417	Dinotefuran	114	117	P/P	30 - 160
2164417	Diuron	80.0	84.4	P/P	30 - 160
2164417	Fenuron	85.3	85.1	P/P	30 - 160
2164417	Fluridone	86.2	88.2	P/P	30 - 160
2164417	Hydrocodone	105	107	P/P	30 - 160
2164417	Ibuprofen	81.6	71.3	P/P	30 - 160
2164417	Imazapyr	126	91.1	P/P	30 - 160
2164417	Imidacloprid	158	147	P/P	30 - 160
2164417	Linuron	74.3	74.6	P/P	30 - 160
2164417	Mandestrobin	79.4	82.0	P/P	30 - 160
2164417	MCP	153	160	P/F	30 - 160
2164417	Naproxen	91.7	96.2	P/P	30 - 160
2164417	Primidone	92.4	96.9	P/P	30 - 160
2164417	Pyraclostrobin	78.3	83.5	P/P	30 - 160
2164417	Thiamethoxam	134	129	P/P	30 - 160
2164417	Tolfenpyrad	55.6	55.9	P/P	30 - 160
2164417	Triclopyr	132	105	P/P	30 - 160

Reference Method: SM 4500 F-C-2011
Batch ID: P381263

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2164633	Fluoride	101	101	P/P	89 - 106

Quality Assurance Report Matrix Spike Accuracy

Reference Method: SM 5310 B-2011
Batch ID: P380674

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2164382	Organic Carbon	94.0	94.4	P/P	85 - 115

Reference Method: SM 5310 B-2011
Batch ID: P380752

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2164807	Organic Carbon	98.7	99.7	P/P	85 - 115

Reference Method: SM 5310 B-2011
Batch ID: P380911

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2165487	Organic Carbon	97.2	102	P/P	85 - 115

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P380571

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2164635	Turbidity	5.91	Sample	P	0 - 20

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P380736

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2164511	Barium	1.12	Spike	P	0 - 20
2164511	Calcium	4.08	Spike	P	0 - 20
2164511	Iron	0.779	Spike	P	0 - 20
2164511	Magnesium	0.909	Spike	P	0 - 20
2164511	Potassium	0.400	Spike	P	0 - 20
2164511	Sodium	3.23	Spike	P	0 - 20
2164511	Zinc	0.775	Spike	P	0 - 20

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P380736

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2164511	Aluminum	0.848	Spike	P	0 - 20
2164511	Antimony	0.764	Spike	P	0 - 20
2164511	Arsenic	1.46	Spike	P	0 - 20
2164511	Boron	0.905	Spike	P	0 - 20
2164511	Cadmium	1.63	Spike	P	0 - 20
2164511	Chromium	0.552	Spike	P	0 - 20
2164511	Copper	1.68	Spike	P	0 - 20
2164511	Lead	0.724	Spike	P	0 - 20
2164511	Nickel	0.474	Spike	P	0 - 20
2164511	Selenium	3.62	Spike	P	0 - 20
2164511	Silver	0.0635	Spike	P	0 - 20
2164511	Thallium	1.39	Spike	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P380935

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2164634	Chloride	0.0148	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P380937

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2164634	Sulfate	0.241	Sample	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P381038

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2164674	Ammonia-N	0.0876	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P380771

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2164682	Kjeldahl Nitrogen	0.109	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P381198

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2164677	NO2NO3-N	0.421	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P381325

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2164340	NO2NO3-N	0.587	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P381139

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2164640	Total-P	1.45	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P381142

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2164681	Total-P	0.387	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P381339

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2166997	Total-P	1.60	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P380566

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2164502	O-Phosphate-P	1.89	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P380568

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2164678	O-Phosphate-P	2.82	Spike	P	0 - 20

Reference Method: EPA 8321B
Batch ID: P380621

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2164419	Acesulfame K	0.270	Spike	P	0 - 30
2164419	AMPA	1.33	Spike	P	0 - 30
2164419	Endothall	1.80	Spike	P	0 - 30
2164419	Glufosinate	7.37	Spike	P	0 - 30
2164419	Glyphosate	6.98	Spike	P	0 - 30
2164419	Sucralose	4.63	Spike	P	0 - 30

Reference Method: EPA 8321B
Batch ID: P380689

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2164417	2,4-D	12.4	Spike	P	0 - 30
2164417	Acetaminophen	2.17	Spike	P	0 - 30
2164417	Acetamiprid	1.31	Spike	P	0 - 30
2164417	Afidopyrophen	1.81	Spike	P	0 - 30
2164417	Bentazon	13.5	Spike	P	0 - 30
2164417	Benzovindiflupyr	8.91	Spike	P	0 - 30
2164417	Carbamazepine	0.397	Spike	P	0 - 30
2164417	Clothianidin	8.99	Spike	P	0 - 30
2164417	Dinotefuran	3.27	Spike	P	0 - 30
2164417	Diuron	4.85	Spike	P	0 - 30
2164417	Fenuron	0.243	Spike	P	0 - 30
2164417	Fluridone	1.93	Spike	P	0 - 30
2164417	Hydrocodone	1.75	Spike	P	0 - 30
2164417	Ibuprofen	13.5	Spike	P	0 - 30
2164417	Imazapyr	21.6	Spike	P	0 - 30
2164417	Imidacloprid	6.63	Spike	P	0 - 30
2164417	Linuron	0.384	Spike	P	0 - 30
2164417	Mandestrobin	3.32	Spike	P	0 - 30
2164417	MCPP	4.84	Spike	P	0 - 30
2164417	Naproxen	4.77	Spike	P	0 - 30
2164417	Primidone	4.75	Spike	P	0 - 30
2164417	Pyraclostrobin	6.34	Spike	P	0 - 30
2164417	Thiamethoxam	3.85	Spike	P	0 - 30
2164417	Tolfenpyrad	0.428	Spike	P	0 - 30
2164417	Triclopyr	23.2	Spike	P	0 - 30

Reference Method: SM 2120 B-2011
Batch ID: P380578

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2164673	Color (true)	2.53	Sample	P	0 - 20

Quality Assurance Report Precision

Reference Method: SM 2120 B-2011
Batch ID: P380579

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2164676	Color (true)	5.20	Sample	P	0 - 20

Reference Method: SM 2320 B-2011
Batch ID: P381067

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2164633	Total Alkalinity	0.408	Sample	P	0 - 2.8

Reference Method: SM 2540 C-2011
Batch ID: P381118

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2164636	TDS	0.573	Sample	P	0 - 10

Reference Method: SM 4500 F-C-2011
Batch ID: P381263

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2164633	Fluoride	0.0	Spike	P	0 - 2.5

Reference Method: SM 5310 B-2011
Batch ID: P380674

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2164382	Organic Carbon	0.414	Spike	P	0 - 20

Reference Method: SM 5310 B-2011
Batch ID: P380752

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2164807	Organic Carbon	0.989	Spike	P	0 - 20

Reference Method: SM 5310 B-2011
Batch ID: P380911

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2165487	Organic Carbon	4.40	Spike	P	0 - 20

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

Quality Assurance Report Surrogates

Lab Sample ID: 2164703

Field Sample ID: G2NE1211

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	2,4-D-d3	152	P	30 - 160
EPA 8321B	Acetaminophen-d4	111	P	30 - 160
EPA 8321B	Carbamazepine-d10	118	P	30 - 160
EPA 8321B	Diuron-d6	107	P	30 - 160
EPA 8321B	Endothall-d6	123	P	30 - 160
EPA 8321B	Endothall-d6	123	P	30 - 160
EPA 8321B	Glyphosate 13C 15N	34.0	P	30 - 160
EPA 8321B	Glyphosate 13C 15N	34.0	P	30 - 160
EPA 8321B	Ibuprofen-d3	73.0	P	30 - 160
EPA 8321B	Primidone-d5	104	P	30 - 160
EPA 8321B	Sucralose-d6	88.2	P	30 - 160
EPA 8321B	Sucralose-d6	88.2	P	30 - 160

Quality Assurance Report Calibration Verification

Reference Method: EPA 365.1 Rev. 2.0 dissolved

Run ID: A98165

Included Lab Sample IDs: 2164675, 2164678, 2164683, 2164684

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	93.6	95.3	P/P	90 - 110
O-Phosphate-P	97.4	91.6	P/P	90 - 110

Reference Method: EPA 180.1 Rev. 2.0

Run ID: A98166

Included Lab Sample IDs: 2164673, 2164676, 2164679, 2164680

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

Reference Method: SM 2120 B-2011

Run ID: A98169

Included Lab Sample IDs: 2164673, 2164676, 2164679, 2164680

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	99.7	101	P/P	90 - 115
Color (true)	100	99.7	P/P	90 - 115

Reference Method: SM 5310 B-2011

Run ID: A98201

Included Lab Sample IDs: 2164674

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	97.1	97.0	P/P	90 - 110

Reference Method: EPA 8321B

Run ID: A98208

Included Lab Sample IDs: 2164703

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
AMPA	86.2	92.2	P/P	40 - 200
Glufosinate	106	116	P/P	40 - 200
Glyphosate	102	88.0	P/P	40 - 200

Reference Method: EPA 8321B

Run ID: A98210

Included Lab Sample IDs: 2164703

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Acesulfame K	87.0	85.3	P/P	60 - 160
Endothall	123	125	P/P	60 - 160

Reference Method: EPA 8321B

Run ID: A98229

Included Lab Sample IDs: 2164703

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Sucralose	112	113	P/P	60 - 160

Quality Assurance Report Calibration Verification

Reference Method: SM 5310 B-2011

Run ID: A98233

Included Lab Sample IDs: 2164681, 2164682

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	99.5	98.9	P/P	90 - 110

Reference Method: EPA 200.7 Rev. 4.4

Run ID: A98252

Included Lab Sample IDs: 2164712

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Barium	103	105	P/P	90 - 110
Calcium	104	104	P/P	90 - 110
Iron	106	107	P/P	90 - 110
Magnesium	104	105	P/P	90 - 110
Potassium	101	98.1	P/P	90 - 110
Sodium	102	102	P/P	90 - 110
Zinc	101	102	P/P	90 - 110

Reference Method: EPA 200.8 Rev. 5.4

Run ID: A98256

Included Lab Sample IDs: 2164712

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Aluminum	94.1	99.9	P/P	90 - 110
Antimony	94.4	92.3	P/P	90 - 110
Arsenic	95.1	93.7	P/P	90 - 110
Boron	93.5	98.9	P/P	90 - 110
Cadmium	95.8	94.2	P/P	90 - 110
Chromium	95.7	95.2	P/P	90 - 110
Copper	93.4	94.8	P/P	90 - 110
Lead	90.9	91.2	P/P	90 - 110
Nickel	93.3	95.3	P/P	90 - 110
Selenium	96.0	93.6	P/P	90 - 110
Silver	96.7	95.9	P/P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1

Run ID: A98259

Included Lab Sample IDs: 2164673, 2164676, 2164679, 2164680

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	99.6	100	P/P	90 - 110
Chloride	99.8	99.6	P/P	90 - 110
Sulfate	100	100	P/P	90 - 110
Sulfate	100	100	P/P	90 - 110

Reference Method: EPA 200.8 Rev. 5.4

Run ID: A98280

Included Lab Sample IDs: 2164712

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Thallium	98.2	97.8	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: SM 5310 B-2011

Run ID: A98285

Included Lab Sample IDs: 2164677

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	100	102	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A98337

Included Lab Sample IDs: 2164674, 2164677, 2164681, 2164682

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 351.2 Rev. 2.0

Run ID: A98341

Included Lab Sample IDs: 2164674, 2164677, 2164681, 2164682

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	105	99.5	P/P	90 - 110
Kjeldahl Nitrogen	99.5	99.5	P/P	90 - 110

Reference Method: SM 2320 B-2011

Run ID: A98350

Included Lab Sample IDs: 2164673, 2164676, 2164679, 2164680

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	102	105	P/P	90 - 110

Reference Method: EPA 8321B

Run ID: A98394

Included Lab Sample IDs: 2164703

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
2,4-D	97.6	121	P/P	50 - 150
Acetaminophen	107	110	P/P	60 - 160
Acetamiprid	93.5	111	P/P	50 - 150
Afidopyropen	95.0	102	P/P	50 - 150
Bentazon	109	144	P/P	50 - 160
Benzovindiflupyr	104	101	P/P	50 - 150
Carbamazepine	114	120	P/P	60 - 150
Clothianidin	108	98.2	P/P	60 - 150
Dinotefuran	108	102	P/P	50 - 150
Diuron	113	118	P/P	60 - 150
Fenuron	103	104	P/P	60 - 150
Fluridone	98.3	99.2	P/P	60 - 160
Hydrocodone	112	101	P/P	60 - 150
Ibuprofen	92.5	115	P/P	50 - 160
Imazapyr	89.9	100	P/P	50 - 150
Imidacloprid	81.9	98.2	P/P	60 - 150
Linuron	107	115	P/P	60 - 150
Mandestrobin	104	108	P/P	50 - 150
MCPP	118	116	P/P	50 - 150
Naproxen	109	129	P/P	50 - 160
Primidone	98.3	82.9	P/P	60 - 150

Quality Assurance Report Calibration Verification

Reference Method: EPA 8321B
 Run ID: A98394
 Included Lab Sample IDs: 2164703

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Pyraclostrobin	104	109	P/P	60 - 150
Thiamethoxam	112	108	P/P	50 - 150
Tolfenpyrad	105	105	P/P	60 - 150
Triclopyr	113	113	P/P	50 - 150

Reference Method: EPA 365.1 Rev. 2.0
 Run ID: A98396
 Included Lab Sample IDs: 2164674, 2164677

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	99.4	98.6	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
 Run ID: A98398
 Included Lab Sample IDs: 2164682

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	101	98.4	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
 Run ID: A98402
 Included Lab Sample IDs: 2164677, 2164681, 2164682

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO2NO3-N	99.5	99.0	P/P	90 - 110

Reference Method: SM 4500 F-C-2011
 Run ID: A98428
 Included Lab Sample IDs: 2164673, 2164676, 2164679, 2164680

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	97.0	98.1	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
 Run ID: A98453
 Included Lab Sample IDs: 2164674

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

Reference Method: EPA 365.1 Rev. 2.0
 Run ID: A98525
 Included Lab Sample IDs: 2164681

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

* Pass/Fail determinations are made for each bracketing calibration verification check.
 Control limits for initial calibration checks may be different from those for continuing checks, depending on method requirements.
 Where they are different, both control limits are provided.

Quality Assurance Report Summary

Ref. Method	Analyte	LCS % Recovery	MS % Recovery			LCS	Precision SMP	MS
EPA 180.1 Rev. 2.0	Turbidity						5.91	
EPA 200.7 Rev. 4.4	Barium	102	99.1	100	102			1.12
	Calcium	103	101	102				4.08
	Iron	106	104	104	103			0.779
	Magnesium	106	102	101	99.2			0.909
	Potassium	101	101	101	101			0.400
	Sodium	101	100	105	99.4			3.23
	Zinc	103	100	101	103			0.775
EPA 200.8 Rev. 5.4	Aluminum	94.5	96.3	95.5	95.9			0.848
	Antimony	98.4	103	100	101			0.764
	Arsenic	97.5	97.2	98.7	105			1.46
	Boron	95.6	95.5	96.4	101			0.905
	Cadmium	96.5	102	101	99.4			1.63
	Chromium	100	98.4	99.0	104			0.552
	Copper	96.5	95.4	97.0	98.6			1.68
	Lead	92.7	92.5	93.2	96.3			0.724
	Nickel	95.5	95.6	96.1	97.1			0.474
	Selenium	96.7	92.1	95.6	100			3.62
	Silver	98.1	99.1	99.2	96.9			0.0635
	Thallium	104	106	108	109			1.39
EPA 300.0 Rev. 2.1	Chloride	100	97.3	98.9			0.0148	
	Sulfate	100	96.8	100			0.241	
EPA 350.1 Rev. 2.0	Ammonia-N	98.9	101	100				0.0876
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	99.7	96.7	96.8				0.109
EPA 353.2 Rev. 2.0	NO2NO3-N	99.0	100	99.6				0.421
	NO2NO3-N	98.0	97.0	96.0				0.587
EPA 365.1 Rev. 2.0	Total-P	104	109	108				1.45
	Total-P	105	108	108				0.387
	Total-P	104	107	104				1.60
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	101	97.6	99.8				1.89
	O-Phosphate-P	95.3	94.6	98.7				2.82
EPA 8321B	2,4-D	147	132	151				12.4
	Acesulfame K	79.0	86.4	86.2				0.270
	Acetaminophen	101	92.0	94.0				2.17
	Acetamiprid	91.4	95.0	93.7				1.31
	Afidopyropen	98.9	92.8	94.5				1.81
	AMPA	92.0	109	111				1.33
	Bentazon	98.6	76.3	87.3				13.5
	Benzovindiflupyr	88.9	73.1	79.9				8.91
	Carbamazepine	124	101	101				0.397
	Clothianidin	95.1	95.8	105				8.99
	Dinotefuran	95.3	114	117				3.27
	Diuron	96.5	80.0	84.4				4.85
	Endothall	126	142	144				1.80
	Fenuron	96.2	85.3	85.1				0.243
	Fluridone	101	86.2	88.2				1.93
	Glufosinate	124	108	117				7.37
	Glyphosate	92.8	73.4	78.7				6.98
	Hydrocodone	106	105	107				1.75
	Ibuprofen	93.3	81.6	71.3				13.5
	Imazapyr	120	126	91.1				21.6
	Imidacloprid	107	158	147				6.63
	Linuron	87.3	74.3	74.6				0.384
	Mandestrobin	95.3	79.4	82.0				3.32

Quality Assurance Report Summary

Ref. Method	Analyte	LCS % Recovery	MS % Recovery		Precision	
					LCS	MS
EPA 8321B	MCP	157	153	160		4.84
	Naproxen	107	91.7	96.2		4.77
	Primidone	93.2	92.4	96.9		4.75
	Pyraclostrobin	94.2	78.3	83.5		6.34
	Sucralose	103	114	106		4.63
	Thiamethoxam	108	134	129		3.85
	Tolfenpyrad	65.7	55.6	55.9		0.428
	Triclopyr	111	132	105		23.2
SM 2120 B-2011	Color (true)	99.2			2.53	
	Color (true)	99.6			5.20	
SM 2320 B-2011	Total Alkalinity	105			0.408	
SM 2540 C-2011	TDS				0.573	
SM 4500 F-C-2011	Fluoride	94.7	101	101		0.0
SM 5310 B-2011	Organic Carbon	95.3	94.0	94.4		0.414
	Organic Carbon	101	98.7	99.7		0.989
	Organic Carbon	102	97.2	102		4.40

Reference Method Descriptions

Method	Description	Associated Samples
EPA 180.1 Rev. 2.0	Turbidity in aqueous matrices	2164673, 2164676, 2164679, 2164680
EPA 200.7 Rev. 4.4	Total Recoverable Metals analysis using ICP emission spectroscopy for aqueous samples supporting Clean Water Act Projects	2164712
EPA 200.8 Rev. 5.4	Total Recoverable Metals analysis using ICP-MS for aqueous samples supporting Clean Water Act Projects	2164712
EPA 300.0 Rev. 2.1	Chloride in aqueous matrices	2164673, 2164676, 2164679, 2164680
EPA 300.0 Rev. 2.1	Sulfate in aqueous matrices	2164673, 2164676, 2164679, 2164680
EPA 350.1 Rev. 2.0	Ammonia in aqueous matrices as mg N/L	2164674, 2164677, 2164681, 2164682
EPA 351.2 Rev. 2.0	Total Kjeldahl Nitrogen in aqueous matrices	2164674, 2164677, 2164681, 2164682
EPA 353.2 Rev. 2.0	Nitrite/Nitrate in aqueous matrices as mg N/L	2164674, 2164677, 2164681, 2164682
EPA 365.1 Rev. 2.0	Total Phosphorus in aqueous matrices as mg P/L	2164674, 2164677, 2164681, 2164682
EPA 365.1 Rev. 2.0 dissolved	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	2164675, 2164678, 2164683, 2164684
EPA 8321B	Pesticides, herbicides, and other chemicals in water matrices by HPLC/MS/MS	2164703
EPA 8321B	Water soluble organic compounds by HPLC/MS/MS	2164703
SM 2120 B-2011	True Color measured at 450 nm (not valid for NPDES monitoring)	2164673, 2164676, 2164679, 2164680
SM 2320 B-2011	Alkalinity in aqueous matrices as mg CaCO ₃ /L	2164673, 2164676, 2164679, 2164680
SM 2340B	Hardness by calculation, in aqueous matrices, reported as mg/L CaCO ₃	2164712
SM 2540 C-2011	Total Dissolved Solids in aqueous matrices	2164673, 2164676, 2164679, 2164680
SM 2540 D-2011	Total Suspended Solids in aqueous matrices using a maximum of 250 mL of sample	2164673, 2164676, 2164679, 2164680
SM 4500 F-C-2011	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	2164673, 2164676, 2164679, 2164680
SM 5310 B-2011	Nonpurgeable Organic Carbon in aqueous matrices	2164674, 2164677, 2164681, 2164682

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	03/12/2020			03/12/2020 16:01	Yen Ta	2164673, 2164676, 2164679, 2164680
EPA 200.7 Rev. 4.4	03/12/2020	03/16/2020 17:15	Elliott D. Healy	03/18/2020 00:15	Betina Topolski	2164712
	03/12/2020	03/16/2020 17:15	Elliott D. Healy	03/18/2020 00:23	Betina Topolski	2164712
EPA 200.8 Rev. 5.4	03/12/2020	03/16/2020 17:15	Elliott D. Healy	03/17/2020 22:10	Justin Cutchin	2164712
	03/12/2020	03/16/2020 17:15	Elliott D. Healy	03/18/2020 19:05	Alexander Thompson	2164712
EPA 300.0 Rev. 2.1	03/12/2020			03/18/2020 17:07	Lipi Saha	2164673
	03/12/2020			03/18/2020 17:19	Lipi Saha	2164676
	03/12/2020			03/18/2020 17:55	Lipi Saha	2164679
	03/12/2020			03/18/2020 18:07	Lipi Saha	2164680
EPA 350.1 Rev. 2.0	03/12/2020			03/20/2020 12:18	Ping Hua	2164674
	03/12/2020			03/20/2020 12:37	Ping Hua	2164681
	03/12/2020			03/20/2020 12:39	Ping Hua	2164682
	03/12/2020			03/20/2020 12:40	Ping Hua	2164677
EPA 351.2 Rev. 2.0	03/12/2020	03/17/2020 12:40	Sima Feizi	03/19/2020 14:03	Julia Storbeck	2164682
	03/12/2020	03/17/2020 12:40	Sima Feizi	03/19/2020 14:17	Julia Storbeck	2164674
	03/12/2020	03/17/2020 12:40	Sima Feizi	03/19/2020 14:22	Julia Storbeck	2164677
	03/12/2020	03/17/2020 12:40	Sima Feizi	03/19/2020 14:24	Julia Storbeck	2164681
EPA 353.2 Rev. 2.0	03/12/2020			03/24/2020 11:25	Beverly Y. Sanders	2164677
	03/12/2020			03/24/2020 11:33	Beverly Y. Sanders	2164681
	03/12/2020			03/24/2020 11:35	Beverly Y. Sanders	2164682
	03/12/2020			03/26/2020 11:28	Beverly Y. Sanders	2164674
EPA 365.1 Rev. 2.0	03/12/2020	03/23/2020 15:45	Lipi Saha	03/24/2020 09:42	Benjamin T. Nordmann	2164674
	03/12/2020	03/23/2020 15:45	Lipi Saha	03/24/2020 09:43	Benjamin T. Nordmann	2164677
	03/12/2020	03/23/2020 15:45	Lipi Saha	03/24/2020 12:07	Benjamin T. Nordmann	2164682
	03/12/2020	03/26/2020 12:10	Lipi Saha	03/27/2020 09:43	Lipi Saha	2164681
EPA 365.1 Rev. 2.0 dissolved	03/12/2020			03/12/2020 15:47	Carlos Miranda	2164675
	03/12/2020			03/12/2020 16:10	Carlos Miranda	2164678
	03/12/2020			03/12/2020 16:13	Carlos Miranda	2164683, 2164684
EPA 8321B	03/12/2020	03/13/2020 13:00	Mohammad Ghaffari	03/13/2020 19:14	Mohammad Ghaffari	2164703
	03/12/2020	03/13/2020 13:00	Mohammad Ghaffari	03/15/2020 21:38	Mohammad Ghaffari	2164703
	03/12/2020	03/13/2020 13:00	Mohammad Ghaffari	03/16/2020 18:38	Mohammad Ghaffari	2164703
	03/12/2020	03/17/2020 14:30	Hoor Shaik	03/20/2020 04:54	Juyoung Kim	2164703
SM 2120 B-2011	03/12/2020			03/12/2020 17:15	Madeline Gruver	2164673
	03/12/2020			03/12/2020 17:22	Madeline Gruver	2164676
	03/12/2020			03/12/2020 17:23	Madeline Gruver	2164679
	03/12/2020			03/12/2020 17:24	Madeline Gruver	2164680
SM 2320 B-2011	03/12/2020			03/21/2020 03:23	Dale L. Simmons	2164673
	03/12/2020			03/21/2020 03:33	Dale L. Simmons	2164676
	03/12/2020			03/21/2020 03:43	Dale L. Simmons	2164679
	03/12/2020			03/21/2020 03:54	Dale L. Simmons	2164680

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
SM 2340B	03/12/2020			03/18/2020 00:23	Betina Topolski	2164712
SM 2540 C-2011	03/12/2020			03/16/2020 15:52	Yijie Li	2164673, 2164676, 2164679, 2164680
SM 2540 D-2011	03/12/2020			03/16/2020 15:52	Yijie Li	2164673, 2164676, 2164679, 2164680
SM 4500 F-C-2011	03/12/2020			03/24/2020 21:55	Dale L. Simmons	2164679
	03/12/2020			03/24/2020 22:05	Dale L. Simmons	2164680
	03/12/2020			03/24/2020 22:10	Dale L. Simmons	2164673
	03/12/2020			03/24/2020 22:15	Dale L. Simmons	2164676
SM 5310 B-2011	03/12/2020			03/14/2020 07:17	Lauren Lees	2164674
	03/12/2020			03/16/2020 17:23	Lauren Lees	2164681
	03/12/2020			03/16/2020 17:35	Lauren Lees	2164682
	03/12/2020			03/18/2020 16:00	Lauren Lees	2164677