

Chemical Analysis Report

NE-DIST-2020-08-20-01

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

Event Description: **Nassau North 2 2020**
Request ID: **RQ-2020-08-17-16**
Customer: **NE-DIST**
Project ID: **SMP**

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Certified by: Liang Lin, Environmental Administrator

Date Certified: 10-SEP-2020 15:43

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

Case Narrative

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

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

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

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

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

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

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

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

Precision is reported as relative percent difference unless otherwise noted.

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

QC Codes used in this report may include:

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

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

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

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

Sample Location: Little St. Marys at White Oak Rd.

Collection Date/Time: 08/19/2020 13:40

Field ID: G4NE0289

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2191397	EPA 180.1 Rev. 2.0	Turbidity	3.2		NTU	P386345	
	EPA 300.0 Rev. 2.1	Chloride	5.6		mg Cl/L	P386378	
		Sulfate	0.90		mg SO4/L	P386381	
		Color (true)	600		PCU	P386352	
	SM 2320 B-2011	Total Alkalinity	1.2	I	mg CaCO3/L	P386454	
	SM 2540 C-2011	TDS	109		mg/L	P386743	
	SM 2540 D-2011	TSS	2	U	mg/L	P386576	
	SM 4500 F-C-2011	Fluoride	0.036	I	mg F/L	P386458	
2191398	EPA 350.1 Rev. 2.0	Ammonia-N	0.012		mg N/L	P386433	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.1		mg N/L	P386401	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P386506	
	EPA 365.1 Rev. 2.0	Total-P	0.032		mg P/L	P386397	
	SM 5310 B-2011	Organic Carbon	44		mg C/L	P386548	
2191399	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.013		mg P/L	P386366	
2191450	EPA 200.7 Rev. 4.4	Barium	19.4		ug/L	P386361	
		Calcium	4.24		mg/L	P386361	
		Iron	1.60E+03		ug/L	P386361	
		Magnesium	1.34		mg/L	P386361	
		Potassium	0.62	I	mg/L	P386361	
		Sodium	4.1		mg/L	P386361	
		Zinc	18	I	ug/L	P386361	
	EPA 200.8 Rev. 5.4	Aluminum	786		ug/L	P386361	
		Antimony	0.050	U	ug/L	P386361	
		Arsenic	0.68		ug/L	P386361	
		Boron**	17.5		ug/L	P386361	
		Cadmium	0.023	I	ug/L	P386361	
		Chromium	1.1	I	ug/L	P386361	
		Copper	5.16		ug/L	P386361	
		Lead	1.22		ug/L	P386361	
		Nickel	0.94	I	ug/L	P386361	
		Selenium	0.22	I	ug/L	P386361	
		Silver	0.010	U	ug/L	P386361	
		Thallium	0.10	U	ug/L	P386361	
	SM 2340B	Hardness	16.1		mg/L	P386361	

Ref. Method and Comment:

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

EPA 200.7 Rev. 4.4: Batch matrix spike recoveries for calcium, magnesium, potassium and sodium are unavailable because of high analyte concentration in the QC sample.

EPA 200.8 Rev. 5.4: Batch matrix spike recoveries for boron are unavailable because of high analyte concentration in the QC sample. The copper and lead result was confirmed in the undigested sample on 09/01/2020.

Sample Location: Lofton CR @ A1a

Collection Date/Time: 08/19/2020 12:50

Field ID: 19020003

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2191406	EPA 180.1 Rev. 2.0	Turbidity	2.3		NTU	P386345	
	EPA 300.0 Rev. 2.1	Chloride	15		mg Cl/L	P386378	
		Sulfate	3.6		mg SO4/L	P386381	
	SM 2120 B-2011	Color (true)	710		PCU	P386352	
	SM 2320 B-2011	Total Alkalinity	11		mg CaCO3/L	P386454	
	SM 2540 C-2011	TDS	181		mg/L	P386743	
	SM 2540 D-2011	TSS	2	U	mg/L	P386576	
	SM 4500 F-C-2011	Fluoride	0.058	I	mg F/L	P386458	
2191407	EPA 350.1 Rev. 2.0	Ammonia-N	0.018		mg N/L	P386433	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.3		mg N/L	P386770	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.015		mg N/L	P386506	
	EPA 365.1 Rev. 2.0	Total-P	0.097		mg P/L	P386397	
	SM 5310 B-2011	Organic Carbon	50		mg C/L	P386548	
2191408	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.057		mg P/L	P386363	

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: Escambia Slough at Escambia St.

Collection Date/Time: 08/19/2020 12:19

Field ID: G4NE0287

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2191409	EPA 180.1 Rev. 2.0	Turbidity	8.1		NTU	P386345	
	EPA 300.0 Rev. 2.1	Bromide	55		mg Br/L	P386405	MS
	SM 2320 B-2011	Total Alkalinity	114		mg CaCO3/L	P386456	
	SM 2540 D-2011	TSS	12		mg/L	P386799	
	SM 4500 F-C-2011	Fluoride	1.3		mg F/L	P386460	
2191410	EPA 350.1 Rev. 2.0	Ammonia-N	0.065		mg N/L	P386432	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.46		mg N/L	P386514	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.011		mg N/L	P386388	
	EPA 365.1 Rev. 2.0	Total-P	0.062		mg P/L	P386399	
	SM 5310 B-2011	Organic Carbon	5.2		mg C/L	P386597	
2191411	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.039		mg P/L	P386366	
2191449	EPA 8321B	2,4-D	0.0020	U	ug/L	P386310	
		Acesulfame K**	0.10	UJ	ug/L	P386464	MS, SUR
		AMPA**	1.0	U	ug/L	P386464	
		Sucralose**	0.012	I	ug/L	P386464	
		Acetaminophen**	0.0080	U	ug/L	P386310	
		Acetamiprid**	0.0020	U	ug/L	P386310	
		Endothall**	0.25	UJ	ug/L	P386464	SUR
		Glufosinate**	1.0	U	ug/L	P386464	
		Glyphosate**	1.0	U	ug/L	P386464	
		Afidopyropen**	0.0020	U	ug/L	P386310	
		Bentazon	0.0022	I	ug/L	P386310	
		Benzovindiflupyr**	0.0020	U	ug/L	P386310	
		Carbamazepine**	8.0E-04	U	ug/L	P386310	
		Clothianidin**	0.0020	U	ug/L	P386310	
		Dinotefuran**	0.0020	U	ug/L	P386310	
		Diuron	0.0020	U	ug/L	P386310	
		Fenuron	0.016	U	ug/L	P386310	MS
		Fluridone**	8.0E-04	U	ug/L	P386310	
		Imazapyr**	0.012	I	ug/L	P386310	
		Hydrocodone**	0.0020	U	ug/L	P386310	
		Ibuprofen**	0.020	U	ug/L	P386310	
		Imidacloprid	0.0032	I	ug/L	P386310	
		Linuron	0.0040	U	ug/L	P386310	
		Mandestrobin**	0.0020	U	ug/L	P386310	
		MCPP	0.0020	U	ug/L	P386310	
		Naproxen**	0.0080	U	ug/L	P386310	
		Primidone**	0.0040	U	ug/L	P386310	
		Pyraclostrobin**	0.0020	U	ug/L	P386310	
		Thiamethoxam**	0.0020	U	ug/L	P386310	
		Tolfenpyrad**	0.0020	U	ug/L	P386310	
		Triclopyr**	0.0040	U	ug/L	P386310	

Field ID: G4NE0287

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
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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: MS accuracy for fluridone could not be assessed due to high concentration of parameter in the spiked sample.
EPA 8321B: Results confirmed in sample duplicate. Refer to the Lab Analysis Report for an explanation of QC Codes.

Sample Location: Egans Creek at N 14th

Collection Date/Time: 08/19/2020 12:00

Field ID: G4NE0290

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2191400	EPA 180.1 Rev. 2.0	Turbidity	25		NTU	P386345	
	EPA 300.0 Rev. 2.1	Bromide	54		mg Br/L	P386405	MS
	SM 2320 B-2011	Total Alkalinity	110		mg CaCO3/L	P386456	
	SM 2540 D-2011	TSS	43		mg/L	P386799	
	SM 4500 F-C-2011	Fluoride	1.3		mg F/L	P386460	
2191402	EPA 350.1 Rev. 2.0	Ammonia-N	0.052		mg N/L	P386432	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.63		mg N/L	P386514	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.012		mg N/L	P386388	
	EPA 365.1 Rev. 2.0	Total-P	0.10		mg P/L	P386399	
	SM 5310 B-2011	Organic Carbon	6.0		mg C/L	P386597	
2191404	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.033		mg P/L	P386366	

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: Egans Creek at Atlantic

Collection Date/Time: 08/19/2020 11:30

Field ID: G4NE0285

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2191401	EPA 180.1 Rev. 2.0	Turbidity	6.6		NTU	P386345	
	EPA 300.0 Rev. 2.1	Bromide	43		mg Br/L	P386405	MS
	SM 2320 B-2011	Total Alkalinity	124		mg CaCO3/L	P386456	
	SM 2540 D-2011	TSS	8	I	mg/L	P386799	
	SM 4500 F-C-2011	Fluoride	1.1		mg F/L	P386460	
2191403	EPA 350.1 Rev. 2.0	Ammonia-N	0.12		mg N/L	P386432	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.89		mg N/L	P386514	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.013		mg N/L	P386388	
	EPA 365.1 Rev. 2.0	Total-P	0.26		mg P/L	P386399	
	SM 5310 B-2011	Organic Carbon	11		mg C/L	P386597	
2191405	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.20		mg P/L	P386366	

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: P386345

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P386361

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: P386361

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: P386378

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P386381

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P386405

Component	Result	Code	Units
Bromide	0.013	U	mg Br/L

Quality Assurance Report Method Blank Results

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P386432

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P386433

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P386401

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P386514

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P386770

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P386388

Component	Result	Code	Units
NO ₂ NO ₃ -N	0.004	U	mg N/L

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P386506

Component	Result	Code	Units
NO ₂ NO ₃ -N	0.004	U	mg N/L

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P386397

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P386399

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

Quality Assurance Report Method Blank Results

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P386363

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P386366

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

Reference Method: EPA 8321B
Batch ID: P386310

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

Reference Method: EPA 8321B
Batch ID: P386464

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

Quality Assurance Report Method Blank Results

Reference Method: SM 2120 B-2011
Batch ID: P386352

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2320 B-2011
Batch ID: P386454

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

Reference Method: SM 2320 B-2011
Batch ID: P386456

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

Reference Method: SM 2540 C-2011
Batch ID: P386743

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-2011
Batch ID: P386576

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 2540 D-2011
Batch ID: P386799

Component	Result	Code	Units
TSS	3	U	mg/L

Reference Method: SM 4500 F-C-2011
Batch ID: P386458

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 4500 F-C-2011
Batch ID: P386460

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-2011
Batch ID: P386548

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

Quality Assurance Report

Method Blank Results

Reference Method: SM 5310 B-2011
Batch ID: P386597

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: P386361

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Barium	106		P	85 - 115
Calcium	108		P	85 - 115
Iron	108		P	85 - 115
Magnesium	105		P	85 - 115
Potassium	104		P	85 - 115
Sodium	107		P	85 - 115
Zinc	103		P	85 - 115

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P386361

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Aluminum	99.5		P	85 - 115
Antimony	99.9		P	85 - 115
Arsenic	98.9		P	85 - 115
Boron	103		P	85 - 115
Cadmium	99.4		P	85 - 115
Chromium	101		P	85 - 115
Copper	98.0		P	85 - 115
Lead	105		P	85 - 115
Nickel	97.9		P	85 - 115
Selenium	98.9		P	85 - 115
Silver	101		P	85 - 115
Thallium	111		P	85 - 115

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P386378

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P386381

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P386405

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Bromide	95.0		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P386432

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Ammonia-N	98.2		P	90 - 110

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P386433

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Ammonia-N	99.4		P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P386401

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Kjeldahl Nitrogen	93.0		P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P386514

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P386770

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P386388

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P386506

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: P386397

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P386399

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P386363

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

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 365.1 Rev. 2.0 dissolved
 Batch ID: P386366

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

Reference Method: EPA 8321B
 Batch ID: P386310

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2,4-D	113		P	30 - 160
Acetaminophen	86.9		P	30 - 160
Acetamiprid	73.9		P	30 - 160
Afidopyropen	49.7		P	30 - 160
Bentazon	59.9		P	30 - 160
Benzovindiflupyr	75.2		P	30 - 160
Carbamazepine	64.7		P	30 - 160
Clothianidin	87.1		P	30 - 160
Dinotefuran	92.0		P	30 - 160
Diuron	54.7		P	30 - 160
Fenuron	87.7		P	30 - 160
Fluridone	92.4		P	30 - 160
Hydrocodone	84.2		P	30 - 160
Ibuprofen	82.4		P	30 - 160
Imazapyr	83.4		P	30 - 160
Imidacloprid	92.0		P	30 - 160
Linuron	65.2		P	30 - 160
Mandestrobin	81.1		P	30 - 160
MCPP	116		P	30 - 160
Naproxen	62.3		P	30 - 160
Primidone	83.2		P	30 - 160
Pyraclostrobin	67.9		P	30 - 160
Thiamethoxam	76.8		P	30 - 160
Tolfenpyrad	45.0		P	30 - 160
Triclopyr	89.2		P	30 - 160

Reference Method: EPA 8321B
 Batch ID: P386464

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Acesulfame K	95.6		P	40 - 150
AMPA	83.4		P	40 - 150
Endothall	83.4		P	40 - 150
Glufosinate	89.3		P	40 - 150
Glyphosate	77.4		P	40 - 140
Sucralose	99.9		P	40 - 150

Reference Method: SM 2120 B-2011
 Batch ID: P386352

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Color (true)	97.8		P	85 - 115

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: SM 2320 B-2011
Batch ID: P386454

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	101		P	93 - 104

Reference Method: SM 2320 B-2011
Batch ID: P386456

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	102		P	93 - 104

Reference Method: SM 4500 F-C-2011
Batch ID: P386458

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	99.0		P	90 - 106

Reference Method: SM 4500 F-C-2011
Batch ID: P386460

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	102		P	90 - 106

Reference Method: SM 5310 B-2011
Batch ID: P386548

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

Reference Method: SM 5310 B-2011
Batch ID: P386597

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	105		P	85 - 115

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P386361

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2190719	Barium	104	103	P/P	70 - 130
2190719	Iron	107	106	P/P	70 - 130
2190719	Zinc	103	101	P/P	70 - 130

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P386361

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2190719	Aluminum	105	104	P/P	70 - 130
2190719	Antimony	99.9	100	P/P	70 - 130
2190719	Arsenic	105	104	P/P	70 - 130
2190719	Cadmium	92.2	94.1	P/P	70 - 130
2190719	Chromium	82.0	83.0	P/P	70 - 130
2190719	Copper	107	106	P/P	70 - 130
2190719	Lead	109	107	P/P	70 - 130
2190719	Nickel	102	101	P/P	70 - 130
2190719	Selenium	100	99.7	P/P	70 - 130
2190719	Silver	92.1	92.0	P/P	70 - 130
2190719	Thallium	113	113	P/P	70 - 130

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P386378

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2191306	Chloride	99.2		P	90 - 110
2191366	Chloride	101		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P386381

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2191306	Sulfate	98.6		P	90 - 110
2191366	Sulfate	101		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P386405

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2191594	Bromide	89.7	89.3	F/F	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P386432

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2191540	Ammonia-N	105	108	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P386433

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2191297	Ammonia-N	98.0	97.6	P/P	90 - 110

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P386401

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2191368	Kjeldahl Nitrogen	101	98.1	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P386514

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2191540	Kjeldahl Nitrogen	105	101	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P386770

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2192445	Kjeldahl Nitrogen	101	99.4	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P386388

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2191402	NO2NO3-N	101	101	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P386506

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2191372	NO2NO3-N	96.5	96.5	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P386397

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2191372	Total-P	106	108	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P386399

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2191402	Total-P	96.3	95.9	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P386363

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2191299	O-Phosphate-P	98.5	99.5	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P386366

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2191404	O-Phosphate-P	100	99.8	P/P	90 - 110

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 8321B
 Batch ID: P386310

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2191176	2,4-D	103	103	P/P	30 - 160
2191176	Acetaminophen	90.9	88.1	P/P	30 - 160
2191176	Acetamiprid	69.8	64.9	P/P	30 - 160
2191176	Afidopyropen	55.1	53.7	P/P	30 - 160
2191176	Bentazon	63.2	62.1	P/P	30 - 160
2191176	Benzovindiflupyr	73.0	69.7	P/P	30 - 160
2191176	Carbamazepine	57.7	57.0	P/P	30 - 160
2191176	Clothianidin	82.9	79.5	P/P	30 - 160
2191176	Dinotefuran	94.0	97.8	P/P	30 - 160
2191176	Diuron	49.1	48.9	P/P	30 - 160
2191176	Fenuron	6.98	6.19	F/F	30 - 160
2191176	Hydrocodone	71.8	72.6	P/P	30 - 160
2191176	Ibuprofen	80.1	66.4	P/P	30 - 160
2191176	Imazapyr	64.9	91.5	P/P	30 - 160
2191176	Imidacloprid	144	127	P/P	30 - 160
2191176	Linuron	58.7	61.4	P/P	30 - 160
2191176	Mandestrobin	77.6	77.7	P/P	30 - 160
2191176	MCCP	107	107	P/P	30 - 160
2191176	Naproxen	57.0	67.7	P/P	30 - 160
2191176	Primidone	91.0	86.9	P/P	30 - 160
2191176	Pyraclostrobin	75.2	68.9	P/P	30 - 160
2191176	Thiamethoxam	90.7	87.6	P/P	30 - 160
2191176	Tolfenpyrad	46.0	41.6	P/P	30 - 160
2191176	Triclopyr	102	95.8	P/P	30 - 160

Reference Method: EPA 8321B
 Batch ID: P386464

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2191762	Acesulfame K	36.9	37.9	F/F	40 - 150
2191762	AMPA	109	79.8	P/P	40 - 150
2191762	Endothall	83.5	81.7	P/P	40 - 150
2191762	Glufosinate	76.7	89.3	P/P	40 - 150
2191762	Glyphosate	73.9	82.5	P/P	40 - 140
2191762	Sucralose	61.8	53.2	P/P	40 - 150

Reference Method: SM 4500 F-C-2011
 Batch ID: P386458

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2191305	Fluoride	101	101	P/P	94 - 107

Reference Method: SM 4500 F-C-2011
 Batch ID: P386460

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2191539	Fluoride	101	105	P/P	94 - 107

Reference Method: SM 5310 B-2011
 Batch ID: P386548

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

Reference Method: SM 5310 B-2011
Batch ID: P386548

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2191730	Organic Carbon	99.8	99.7	P/P	85 - 115

Reference Method: SM 5310 B-2011
Batch ID: P386597

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2190452	Organic Carbon	102	103	P/P	85 - 115

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P386345

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2191371	Turbidity	4.28	Sample	P	0 - 20

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P386361

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2190719	Barium	0.854	Spike	P	0 - 20
2190719	Calcium	0.560	Spike	P	0 - 20
2190719	Iron	1.15	Spike	P	0 - 20
2190719	Magnesium	1.61	Spike	P	0 - 20
2190719	Potassium	1.78	Spike	P	0 - 20
2190719	Sodium	1.13	Spike	P	0 - 20
2190719	Zinc	1.51	Spike	P	0 - 20

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P386361

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2190719	Aluminum	0.866	Spike	P	0 - 20
2190719	Antimony	0.474	Spike	P	0 - 20
2190719	Arsenic	1.02	Spike	P	0 - 20
2190719	Boron	2.21	Spike	P	0 - 20
2190719	Cadmium	1.99	Spike	P	0 - 20
2190719	Chromium	1.23	Spike	P	0 - 20
2190719	Copper	1.36	Spike	P	0 - 20
2190719	Lead	1.15	Spike	P	0 - 20
2190719	Nickel	1.38	Spike	P	0 - 20
2190719	Selenium	0.334	Spike	P	0 - 20
2190719	Silver	0.0998	Spike	P	0 - 20
2190719	Thallium	0.491	Spike	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P386378

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2191306	Chloride	0.329	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P386381

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2191306	Sulfate	0.0518	Sample	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P386405

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2191594	Bromide	0.474	Spike	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P386432

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2191540	Ammonia-N	1.91	Spike	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P386433

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2191297	Ammonia-N	0.390	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P386401

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2191368	Kjeldahl Nitrogen	2.59	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P386514

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2191540	Kjeldahl Nitrogen	2.85	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P386770

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2192445	Kjeldahl Nitrogen	0.923	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P386388

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2191402	NO2NO3-N	0.0	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P386506

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2191372	NO2NO3-N	0.0	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P386397

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2191372	Total-P	1.13	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P386399

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2191402	Total-P	0.322	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P386363

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2191299	O-Phosphate-P	1.01	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P386366

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2191404	O-Phosphate-P	0.150	Spike	P	0 - 20

Reference Method: EPA 8321B
Batch ID: P386310

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2191176	2,4-D	0.0328	Spike	P	0 - 30
2191176	Acetaminophen	3.07	Spike	P	0 - 30
2191176	Acetamiprid	7.17	Spike	P	0 - 30
2191176	Afidopyropen	2.63	Spike	P	0 - 30
2191176	Bentazon	0.743	Spike	P	0 - 30
2191176	Benzovindiflupyr	4.64	Spike	P	0 - 30
2191176	Carbamazepine	1.24	Spike	P	0 - 30
2191176	Clothianidin	4.10	Spike	P	0 - 30
2191176	Dinotefuran	4.02	Spike	P	0 - 30
2191176	Diuron	0.575	Spike	P	0 - 30
2191176	Fenuron	1.09	Spike	P	0 - 30
2191176	Fluridone	4.59	Spike	P	0 - 30
2191176	Hydrocodone	1.15	Spike	P	0 - 30
2191176	Ibuprofen	18.7	Spike	P	0 - 30
2191176	Imazapyr	22.7	Spike	P	0 - 30
2191176	Imidacloprid	12.5	Spike	P	0 - 30
2191176	Linuron	4.41	Spike	P	0 - 30
2191176	Mandestrobin	0.0768	Spike	P	0 - 30
2191176	MCPP	0.267	Spike	P	0 - 30
2191176	Naproxen	17.3	Spike	P	0 - 30
2191176	Primidone	4.28	Spike	P	0 - 30
2191176	Pyraclostrobin	8.72	Spike	P	0 - 30
2191176	Thiamethoxam	3.48	Spike	P	0 - 30

Quality Assurance Report Precision

Reference Method: EPA 8321B
Batch ID: P386310

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2191176	Tolfenpyrad	9.88	Spike	P	0 - 30
2191176	Triclopyr	6.56	Spike	P	0 - 30

Reference Method: EPA 8321B
Batch ID: P386464

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2191762	Acesulfame K	2.54	Spike	P	0 - 30
2191762	AMPA	1.54	Spike	P	0 - 30
2191762	Endothall	2.19	Spike	P	0 - 30
2191762	Glufosinate	15.2	Spike	P	0 - 30
2191762	Glyphosate	1.83	Spike	P	0 - 30
2191762	Sucralose	13.2	Spike	P	0 - 30

Reference Method: SM 2120 B-2011
Batch ID: P386352

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2191423	Color (true)	3.20	Sample	P	0 - 20

Reference Method: SM 2320 B-2011
Batch ID: P386454

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2191305	Total Alkalinity	0.422	Sample	P	0 - 8.1

Reference Method: SM 2320 B-2011
Batch ID: P386456

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2191539	Total Alkalinity	1.11	Sample	P	0 - 8.1

Reference Method: SM 2540 C-2011
Batch ID: P386743

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2191453	TDS	0.398	Sample	P	0 - 10

Reference Method: SM 4500 F-C-2011
Batch ID: P386458

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2191305	Fluoride	0.0	Spike	P	0 - 2.8

Quality Assurance Report Precision

Reference Method: SM 4500 F-C-2011
Batch ID: P386460

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2191539	Fluoride	2.39	Spike	P	0 - 2.8

Reference Method: SM 5310 B-2011
Batch ID: P386548

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2191730	Organic Carbon	0.0811	Spike	P	0 - 20

Reference Method: SM 5310 B-2011
Batch ID: P386597

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2190452	Organic Carbon	0.560	Spike	P	0 - 20

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

Quality Assurance Report Surrogates

Lab Sample ID: 2191449
Field Sample ID: G4NE0287

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	2,4-D-d3	104	P	30 - 160
EPA 8321B	Acetaminophen-d4	88.7	P	30 - 160
EPA 8321B	Carbamazepine-d10	63.5	P	30 - 160
EPA 8321B	Diuron-d6	56.7	P	30 - 160
EPA 8321B	Endothall-d6	338	F	30 - 160
EPA 8321B	Endothall-d6	338	F	30 - 160
EPA 8321B	Glyphosate 13C 15N	31.9	P	30 - 160
EPA 8321B	Glyphosate 13C 15N	31.9	P	30 - 160
EPA 8321B	Ibuprofen-d3	72.3	P	30 - 160
EPA 8321B	Primidone-d5	90.4	P	30 - 160
EPA 8321B	Sucralose-d6	39.9	P	30 - 160
EPA 8321B	Sucralose-d6	39.9	P	30 - 160

Quality Assurance Report Calibration Verification

Reference Method: EPA 300.0 Rev. 2.1

Run ID: A100543

Included Lab Sample IDs: 2191397, 2191406

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

Reference Method: EPA 180.1 Rev. 2.0

Run ID: A100567

Included Lab Sample IDs: 2191397, 2191400, 2191401, 2191406, 2191409

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

Reference Method: SM 2120 B-2011

Run ID: A100568

Included Lab Sample IDs: 2191397, 2191406

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	101	99.6	P/P	90 - 115

Reference Method: EPA 365.1 Rev. 2.0 dissolved

Run ID: A100570

Included Lab Sample IDs: 2191399, 2191404, 2191405, 2191408, 2191411

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	100	100	P/P	90 - 110
O-Phosphate-P	100	99.9	P/P	90 - 110
O-Phosphate-P	99.2	100	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A100580

Included Lab Sample IDs: 2191402, 2191403, 2191410

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

Reference Method: EPA 300.0 Rev. 2.1

Run ID: A100589

Included Lab Sample IDs: 2191400, 2191401, 2191409

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Bromide	98.0	94.6	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A100597

Included Lab Sample IDs: 2191398, 2191402, 2191403, 2191407, 2191410

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	97.7	98.4	P/P	90 - 110
Ammonia-N	98.4	99.5	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: EPA 200.7 Rev. 4.4

Run ID: A100602

Included Lab Sample IDs: 2191450

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Barium	105	105	P/P	90 - 110
Calcium	101	101	P/P	90 - 110
Iron	104	103	P/P	90 - 110
Magnesium	98.7	98.8	P/P	90 - 110
Potassium	98.4	98.1	P/P	90 - 110
Sodium	100	101	P/P	90 - 110
Zinc	101	101	P/P	90 - 110

Reference Method: SM 2320 B-2011

Run ID: A100606

Included Lab Sample IDs: 2191397, 2191400, 2191401, 2191406, 2191409

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	99.6	100	P/P	90 - 110
Total Alkalinity	99.9	98.7	P/P	90 - 110

Reference Method: SM 4500 F-C-2011

Run ID: A100606

Included Lab Sample IDs: 2191397, 2191400, 2191401, 2191406, 2191409

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	102	102	P/P	90 - 110
Fluoride	103	105	P/P	90 - 110

Reference Method: EPA 8321B

Run ID: A100611

Included Lab Sample IDs: 2191449

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
2,4-D	104	89.8	P/P	50 - 150
Acetaminophen	109	113	P/P	60 - 160
Acetamiprid	116	120	P/P	50 - 150
Afidopyropen	103	104	P/P	50 - 150
Bentazon	109	108	P/P	50 - 160
Benzovindiflupyr	111	110	P/P	50 - 150
Carbamazepine	106	108	P/P	60 - 150
Clothianidin	126	109	P/P	60 - 150
Dinotefuran	106	106	P/P	50 - 150
Diuron	110	113	P/P	60 - 160
Fenuron	117	115	P/P	60 - 150
Fluridone	98.1	106	P/P	60 - 160
Hydrocodone	116	98.9	P/P	60 - 150
Ibuprofen	110	99.8	P/P	50 - 160
Imazapyr	85.4	96.7	P/P	50 - 150
Imidacloprid	106	91.1	P/P	60 - 150
Linuron	105	117	P/P	60 - 150
Mandestrobin	116	126	P/P	50 - 150
MCPP	95.3	95.1	P/P	50 - 150
Naproxen	118	95.4	P/P	50 - 160
Primidone	116	108	P/P	60 - 150
Pyraclostrobin	107	109	P/P	60 - 150

Quality Assurance Report Calibration Verification

Reference Method: EPA 8321B
Run ID: A100611
Included Lab Sample IDs: 2191449

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Thiamethoxam	105	98.6	P/P	50 - 150
Tolfenpyrad	97.9	99.8	P/P	60 - 150
Triclopyr	88.3	103	P/P	50 - 150

Reference Method: EPA 351.2 Rev. 2.0
Run ID: A100612
Included Lab Sample IDs: 2191398

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	97.9	98.7	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Run ID: A100616
Included Lab Sample IDs: 2191402, 2191403, 2191407

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	100	101	P/P	90 - 110
Total-P	99.9	99.9	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Run ID: A100631
Included Lab Sample IDs: 2191398, 2191407

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

Reference Method: EPA 8321B
Run ID: A100632
Included Lab Sample IDs: 2191449

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Acesulfame K	116	79.5	P/P	60 - 160
Endothall	88.9	89.4	P/P	60 - 160

Reference Method: EPA 365.1 Rev. 2.0
Run ID: A100634
Included Lab Sample IDs: 2191398, 2191410

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	95.5	95.2	P/P	90 - 110

Reference Method: EPA 8321B
Run ID: A100638
Included Lab Sample IDs: 2191449

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
AMPA	85.2	89.1	P/P	60 - 160
Glufosinate	101	96.9	P/P	60 - 160
Glyphosate	81.9	80.3	P/P	60 - 160

Quality Assurance Report Calibration Verification

Reference Method: SM 5310 B-2011

Run ID: A100654

Included Lab Sample IDs: 2191398, 2191407

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	95.4	96.8	P/P	90 - 110
Organic Carbon	96.4	95.4	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A100656

Included Lab Sample IDs: 2191402, 2191403, 2191410

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	98.8	101	P/P	90 - 110

Reference Method: SM 5310 B-2011

Run ID: A100665

Included Lab Sample IDs: 2191402, 2191403, 2191410

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	99.0	99.6	P/P	90 - 110

Reference Method: EPA 8321B

Run ID: A100703

Included Lab Sample IDs: 2191449

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Sucralose	98.2	82.2	P/P	60 - 160

Reference Method: EPA 200.8 Rev. 5.4

Run ID: A100762

Included Lab Sample IDs: 2191450

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Aluminum	99.6	100	P/P	90 - 110
Antimony	102	103	P/P	90 - 110
Arsenic	103	102	P/P	90 - 110
Boron	97.3	101	P/P	90 - 110
Cadmium	99.9	101	P/P	90 - 110
Chromium	97.9	100	P/P	90 - 110
Copper	98.8	98.9	P/P	90 - 110
Lead	104	104	P/P	90 - 110
Nickel	98.5	99.7	P/P	90 - 110
Selenium	101	101	P/P	90 - 110
Silver	103	104	P/P	90 - 110
Thallium	99.7	100	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A100780

Included Lab Sample IDs: 2191407

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

Quality Assurance Report

Calibration Verification

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

Quality Assurance Report Summary

Ref. Method	Analyte	LCS % Recovery	MS % Recovery		LCS	Precision SMP	MS
EPA 180.1 Rev. 2.0	Turbidity					4.28	
EPA 200.7 Rev. 4.4	Barium	106	104	103			0.854
	Calcium	108					0.560
	Iron	108	107	106			1.15
	Magnesium	105					1.61
	Potassium	104					1.78
	Sodium	107					1.13
	Zinc	103	103	101			1.51
EPA 200.8 Rev. 5.4	Aluminum	99.5	105	104			0.866
	Antimony	99.9	99.9	100			0.474
	Arsenic	98.9	105	104			1.02
	Boron	103					2.21
	Cadmium	99.4	92.2	94.1			1.99
	Chromium	101	82.0	83.0			1.23
	Copper	98.0	107	106			1.36
	Lead	105	109	107			1.15
	Nickel	97.9	102	101			1.38
	Selenium	98.9	100	99.7			0.334
	Silver	101	92.1	92.0			0.0998
	Thallium	111	113	113			0.491
EPA 300.0 Rev. 2.1	Bromide	95.0	89.7	89.3			0.474
	Chloride	100	99.2	101		0.329	
	Sulfate	100	98.6	101		0.0518	
EPA 350.1 Rev. 2.0	Ammonia-N	98.2	105	108			1.91
	Ammonia-N	99.4	98.0	97.6			0.390
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	93.0	101	98.1			2.59
	Kjeldahl Nitrogen	105	105	101			2.85
	Kjeldahl Nitrogen	95.3	101	99.4			0.923
EPA 353.2 Rev. 2.0	NO2NO3-N	102	101	101			0.0
	NO2NO3-N	99.5	96.5	96.5			0.0
EPA 365.1 Rev. 2.0	Total-P	102	106	108			1.13
	Total-P	103	96.3	95.9			0.322
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	99.6	98.5	99.5			1.01
	O-Phosphate-P	100	100	99.8			0.150
EPA 8321B	2,4-D	113	103	103			0.0328
	Acesulfame K	95.6	36.9	37.9			2.54
	Acetaminophen	86.9	90.9	88.1			3.07
	Acetamiprid	73.9	69.8	64.9			7.17
	Afidopyropen	49.7	55.1	53.7			2.63
	AMPA	83.4	109	79.8			1.54
	Bentazon	59.9	63.2	62.1			0.743
	Benzovindiflupyr	75.2	73.0	69.7			4.64
	Carbamazepine	64.7	57.7	57.0			1.24
	Clothianidin	87.1	82.9	79.5			4.10
	Dinotefuran	92.0	94.0	97.8			4.02
	Diuron	54.7	49.1	48.9			0.575
	Endothall	83.4	83.5	81.7			2.19
	Fenuron	87.7	6.98	6.19			1.09
	Fluridone	92.4					4.59
	Glufosinate	89.3	76.7	89.3			15.2
	Glyphosate	77.4	73.9	82.5			1.83
	Hydrocodone	84.2	71.8	72.6			1.15
	Ibuprofen	82.4	80.1	66.4			18.7
	Imazapyr	83.4	64.9	91.5			22.7

Quality Assurance Report Summary

Ref. Method	Analyte	LCS % Recovery	MS % Recovery		Precision	
					LCS	MS
EPA 8321B	Imidacloprid	92.0	144	127		12.5
	Linuron	65.2	58.7	61.4		4.41
	Mandestrobin	81.1	77.6	77.7		0.0768
	MCP	116	107	107		0.267
	Naproxen	62.3	57.0	67.7		17.3
	Primidone	83.2	91.0	86.9		4.28
	Pyraclostrobin	67.9	75.2	68.9		8.72
	Sucralose	99.9	61.8	53.2		13.2
	Thiamethoxam	76.8	90.7	87.6		3.48
	Tolfenpyrad	45.0	46.0	41.6		9.88
	Triclopyr	89.2	102	95.8		6.56
SM 2120 B-2011	Color (true)	97.8			3.20	
SM 2320 B-2011	Total Alkalinity	101			0.422	
	Total Alkalinity	102			1.11	
SM 2540 C-2011	TDS				0.398	
SM 4500 F-C-2011	Fluoride	99.0	101	101		0.0
	Fluoride	102	101	105		2.39
SM 5310 B-2011	Organic Carbon	100	99.8	99.7		0.0811
	Organic Carbon	105	102	103		0.560

Reference Method Descriptions

Method	Description	Associated Samples
EPA 180.1 Rev. 2.0	Turbidity in aqueous matrices	2191397, 2191400, 2191401, 2191406, 2191409
EPA 200.7 Rev. 4.4	Total Recoverable Metals analysis using ICP emission spectroscopy for aqueous samples supporting Clean Water Act Projects	2191450
EPA 200.8 Rev. 5.4	Total Recoverable Metals analysis using ICP-MS for aqueous samples supporting Clean Water Act Projects	2191450
EPA 300.0 Rev. 2.1	Bromide in aqueous matrices	2191400, 2191401, 2191409
EPA 300.0 Rev. 2.1	Chloride in aqueous matrices	2191397, 2191406
EPA 300.0 Rev. 2.1	Sulfate in aqueous matrices	2191397, 2191406
EPA 350.1 Rev. 2.0	Ammonia in aqueous matrices as mg N/L	2191398, 2191402, 2191403, 2191407, 2191410
EPA 351.2 Rev. 2.0	Total Kjeldahl Nitrogen in aqueous matrices	2191398, 2191402, 2191403, 2191407, 2191410
EPA 353.2 Rev. 2.0	Nitrite/Nitrate in aqueous matrices as mg N/L	2191398, 2191402, 2191403, 2191407, 2191410
EPA 365.1 Rev. 2.0	Total Phosphorus in aqueous matrices as mg P/L	2191398, 2191402, 2191403, 2191407, 2191410
EPA 365.1 Rev. 2.0 dissolved	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	2191399, 2191404, 2191405, 2191408, 2191411
EPA 8321B	Pesticides, herbicides, and other chemicals in water matrices by HPLC/MS/MS	2191449
EPA 8321B	Water soluble organic compounds by HPLC/MS/MS	2191449
SM 2120 B-2011	True Color measured at 450 nm (not valid for NPDES monitoring)	2191397, 2191406
SM 2320 B-2011	Alkalinity in aqueous matrices as mg CaCO ₃ /L	2191397, 2191400, 2191401, 2191406, 2191409
SM 2340B	Hardness by calculation, in aqueous matrices, reported as mg/L CaCO ₃	2191450
SM 2540 C-2011	Total Dissolved Solids in aqueous matrices	2191397, 2191406
SM 2540 D-2011	Total Suspended Solids in aqueous matrices using a maximum of 250 mL of sample	2191397, 2191400, 2191401, 2191406, 2191409
SM 4500 F-C-2011	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	2191397, 2191400, 2191401, 2191406, 2191409
SM 5310 B-2011	Nonpurgeable Organic Carbon in aqueous matrices	2191398, 2191402, 2191403, 2191407, 2191410

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	08/20/2020			08/20/2020 15:09	Yen Ta	2191397, 2191400, 2191401, 2191406, 2191409
EPA 200.7 Rev. 4.4	08/20/2020	08/20/2020 16:40	Elliott D. Healy	08/21/2020 17:07	Betina Topolski	2191450
EPA 200.8 Rev. 5.4	08/20/2020	08/20/2020 16:40	Elliott D. Healy	09/01/2020 14:51	Alexander Thompson	2191450
EPA 300.0 Rev. 2.1	08/20/2020			08/21/2020 05:32	Julia Storbeck	2191397
	08/20/2020			08/21/2020 05:44	Julia Storbeck	2191406
	08/20/2020			08/21/2020 11:37	Julia Storbeck	2191400
	08/20/2020			08/21/2020 11:54	Julia Storbeck	2191401
	08/20/2020			08/21/2020 12:11	Julia Storbeck	2191409
EPA 350.1 Rev. 2.0	08/20/2020			08/22/2020 15:16	Ping Hua	2191402
	08/20/2020			08/22/2020 15:17	Ping Hua	2191403
	08/20/2020			08/22/2020 15:18	Ping Hua	2191410
	08/20/2020			08/22/2020 15:44	Ping Hua	2191398
	08/20/2020			08/22/2020 15:45	Ping Hua	2191407
EPA 351.2 Rev. 2.0	08/20/2020	08/21/2020 09:05	David Boose	08/24/2020 10:53	Virginia P. Brown	2191398
	08/20/2020	08/25/2020 09:50	Sima Feizi	08/26/2020 11:46	Virginia P. Brown	2191402
	08/20/2020	08/25/2020 09:50	Sima Feizi	08/26/2020 11:48	Virginia P. Brown	2191403
	08/20/2020	08/25/2020 09:50	Sima Feizi	08/26/2020 11:50	Virginia P. Brown	2191410
	08/20/2020	09/01/2020 11:35	Sima Feizi	09/02/2020 10:24	Virginia P. Brown	2191407
EPA 353.2 Rev. 2.0	08/20/2020			08/21/2020 09:58	Beverly Y. Sanders	2191402
	08/20/2020			08/21/2020 10:08	Beverly Y. Sanders	2191403
	08/20/2020			08/21/2020 10:09	Beverly Y. Sanders	2191410
	08/20/2020			08/25/2020 08:21	Beverly Y. Sanders	2191398
	08/20/2020			08/25/2020 08:23	Beverly Y. Sanders	2191407
EPA 365.1 Rev. 2.0	08/20/2020	08/21/2020 12:26	Yen Ta	08/24/2020 09:00	Benjamin T. Nordmann	2191407
	08/20/2020	08/21/2020 12:26	Yen Ta	08/24/2020 09:28	Benjamin T. Nordmann	2191402
	08/20/2020	08/21/2020 12:26	Yen Ta	08/24/2020 09:30	Benjamin T. Nordmann	2191403
	08/20/2020	08/21/2020 12:26	Yen Ta	08/25/2020 12:57	Lipi Saha	2191398
	08/20/2020	08/21/2020 12:26	Yen Ta	08/25/2020 13:06	Lipi Saha	2191410
EPA 365.1 Rev. 2.0 dissolved	08/20/2020			08/20/2020 15:55	Blanca Fach	2191408
	08/20/2020			08/20/2020 16:31	Blanca Fach	2191404
	08/20/2020			08/20/2020 16:34	Blanca Fach	2191399
	08/20/2020			08/20/2020 16:35	Blanca Fach	2191411
	08/20/2020			08/20/2020 16:44	Blanca Fach	2191405
EPA 8321B	08/20/2020	08/21/2020 13:00	Hoor Shaik	08/21/2020 22:15	Juyoung Kim	2191449
	08/20/2020	08/24/2020 15:15	Rebecca Ware	08/24/2020 17:39	Rebecca Ware	2191449
	08/20/2020	08/24/2020 15:15	Rebecca Ware	08/25/2020 13:55	Rebecca Ware	2191449
	08/20/2020	08/24/2020 15:15	Rebecca Ware	08/27/2020 12:07	Rebecca Ware	2191449
SM 2120 B-2011	08/20/2020			08/20/2020 16:27	Benjamin T. Nordmann	2191397, 2191406
SM 2320 B-2011	08/20/2020			08/21/2020 21:04	Dale L. Simmons	2191397

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
SM 2320 B-2011	08/20/2020			08/21/2020 21:16	Dale L. Simmons	2191406
	08/20/2020			08/22/2020 06:08	Dale L. Simmons	2191400
	08/20/2020			08/22/2020 06:20	Dale L. Simmons	2191401
	08/20/2020			08/22/2020 06:32	Dale L. Simmons	2191409
SM 2340B	08/20/2020			08/21/2020 17:07	Betina Topolski	2191450
SM 2540 C-2011	08/20/2020			08/21/2020 19:30	Madeline Gruver	2191397, 2191406
SM 2540 D-2011	08/20/2020			08/21/2020 19:30	Madeline Gruver	2191397, 2191406
	08/20/2020			08/24/2020 13:35	Yijie Li	2191400, 2191401, 2191409
SM 4500 F-C-2011	08/20/2020			08/21/2020 21:04	Dale L. Simmons	2191397
	08/20/2020			08/21/2020 21:16	Dale L. Simmons	2191406
	08/20/2020			08/22/2020 04:58	Dale L. Simmons	2191400
	08/20/2020			08/22/2020 05:03	Dale L. Simmons	2191401
SM 5310 B-2011	08/20/2020			08/22/2020 05:08	Dale L. Simmons	2191409
	08/20/2020			08/25/2020 21:44	Lauren Lees	2191398
	08/20/2020			08/25/2020 22:23	Lauren Lees	2191407
	08/20/2020			08/27/2020 05:05	David Boose	2191402
	08/20/2020			08/27/2020 05:17	David Boose	2191403
	08/20/2020			08/27/2020 05:42	David Boose	2191410