

Chemical Analysis Report

SO-DIST-2020-12-10-01

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

Event Description: **Highlands Creek and Lakes**
Request ID: **RQ-2020-12-07-73**
Customer: **SO-DIST**
Project ID: **SMP**

Send Reports to:
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FLDEP South District Office
2295 Victoria Ave. Suite 364
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Certified by: Kerry Tate, Ph.D., Environmental Administrator

Date Certified: 04-JAN-2021 14:19

A handwritten signature in black ink that reads "Kerry Tate". The signature is written in a cursive, flowing style with a horizontal line above the first name.

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: Lake Apthorpe

Collection Date/Time: 12/09/2020 13:54

Field ID: G4SD0185

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2212362	EPA 180.1 Rev. 2.0	Turbidity	1.9		NTU	P390990	
	EPA 300.0 Rev. 2.1	Chloride	18		mg Cl/L	P391258	
		Sulfate	25		mg SO4/L	P391259	
	SM 2120 B-2011	Color (true)	47		PCU	P390994	
	SM 2320 B-2011	Total Alkalinity	12		mg CaCO3/L	P391578	
	SM 2540 C-2011	TDS	92		mg/L	P391520	
	SM 2540 D-2011	TSS	2	I	mg/L	P391525	
	SM 4500 F-C-2011	Fluoride	0.048	I	mg F/L	P391090	
2212364	EPA 350.1 Rev. 2.0	Ammonia-N	0.017		mg N/L	P391480	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.60		mg N/L	P391435	
	EPA 353.2 Rev. 2.0	NO2NO3-N	1.0		mg N/L	P391025	
	EPA 365.1 Rev. 2.0	Total-P	0.012		mg P/L	P391109	
	SM 5310 B-2011	Organic Carbon	9.5		mg C/L	P391173	
2212366	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P390999	
2212380	EPA 8321B	2,4-D	0.016		ug/L	P391039	
		Acesulfame K**	0.10	U	ug/L	P391110	MS
		AMPA**	0.10	U	ug/L	P391110	
		Sucralose**	0.56		ug/L	P391110	MS
		Acetaminophen**	0.0080	U	ug/L	P391039	
		Acetamiprid**	0.0020	U	ug/L	P391039	
		Endothall**	0.25	U	ug/L	P391110	MS
		Glufosinate**	0.10	U	ug/L	P391110	
		Glyphosate**	0.10	U	ug/L	P391110	
		Afidopyropen**	0.0020	U	ug/L	P391039	
		Bentazon	0.011		ug/L	P391039	
		Benzovindiflupyr**	0.0020	U	ug/L	P391039	
		Carbamazepine**	8.0E-04	U	ug/L	P391039	
		Clothianidin**	0.018		ug/L	P391039	
		Dinotefuran**	0.0020	U	ug/L	P391039	
		Diuron	0.0026	I	ug/L	P391039	
		Fenuron	0.016	U	ug/L	P391039	
		Fluridone**	0.0033		ug/L	P391039	
		Imazapyr**	0.0071	I	ug/L	P391039	
		Hydrocodone**	0.0020	U	ug/L	P391039	
		Ibuprofen**	0.020	U	ug/L	P391039	
		Imidacloprid	0.23		ug/L	P391039	
		Linuron	0.0040	U	ug/L	P391039	
		Mandestrobin**	0.0020	U	ug/L	P391039	
		MCP	0.0020	U	ug/L	P391039	
		Naproxen**	0.0080	U	ug/L	P391039	
		Primidone**	0.0040	U	ug/L	P391039	
		Pyraclostrobin**	0.0020	U	ug/L	P391039	
		Thiamethoxam**	0.035		ug/L	P391039	

Field ID: G4SD0185

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2212380	EPA 8321B	Tolfenpyrad**	0.0020	U	ug/L	P391039	
		Triclopyr**	0.0040	U	ug/L	P391039	

Ref. Method and Comment:
EPA 300.0 Rev. 2.1: Sulfate: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample.
SM 2540 D-2011: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample.
EPA 8321B: MS accuracy for bentazon could not be assessed due to high concentration of parameter in the spiked sample.
EPA 8321B: MS accuracy for glyphosate could not be assessed due to high concentration of parameter in the spiked sample.

Sample Location: FB_120920

Collection Date/Time: 12/09/2020 14:15

Field ID: FB_120920

Matrix: W-FIELD-BK

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2212374	EPA 8321B	2,4-D	0.0020	U	ug/L	P391039	
		Acesulfame K**	0.10	U	ug/L	P391110	MS
		AMPA**	0.10	U	ug/L	P391110	
		Sucralose**	0.010	U	ug/L	P391110	MS
		Acetaminophen**	0.0080	U	ug/L	P391039	
		Acetamiprid**	0.0020	U	ug/L	P391039	
		Endothall**	0.25	U	ug/L	P391110	MS
		Glufosinate**	0.10	U	ug/L	P391110	
		Glyphosate**	0.10	U	ug/L	P391110	
		Afidopyropen**	0.0020	U	ug/L	P391039	
		Bentazon	8.0E-04	U	ug/L	P391039	
		Benzovindiflupyr**	0.0020	U	ug/L	P391039	
		Carbamazepine**	8.0E-04	U	ug/L	P391039	
		Clothianidin**	0.0020	U	ug/L	P391039	
		Dinotefuran**	0.0020	U	ug/L	P391039	
		Diuron	0.0020	U	ug/L	P391039	
		Fenuron	0.016	U	ug/L	P391039	
		Fluridone**	8.0E-04	U	ug/L	P391039	
		Imazapyr**	0.0040	U	ug/L	P391039	
		Hydrocodone**	0.0020	U	ug/L	P391039	
		Ibuprofen**	0.020	U	ug/L	P391039	
		Imidacloprid	0.0020	U	ug/L	P391039	
		Linuron	0.0040	U	ug/L	P391039	
		Mandestrobin**	0.0020	U	ug/L	P391039	
		MCPP	0.0020	U	ug/L	P391039	
		Naproxen**	0.0080	U	ug/L	P391039	
		Primidone**	0.0040	U	ug/L	P391039	
		Pyraclostrobin**	0.0020	U	ug/L	P391039	
		Thiamethoxam**	0.0020	U	ug/L	P391039	
		Tolfenpyrad**	0.0020	U	ug/L	P391039	
		Triclopyr**	0.0040	U	ug/L	P391039	

Ref. Method and Comment:

EPA 8321B: MS accuracy for bentazon could not be assessed due to high concentration of parameter in the spiked sample.

EPA 8321B: MS accuracy for glyphosate could not be assessed due to high concentration of parameter in the spiked sample.

Sample Location: Jackson Creek

Collection Date/Time: 12/09/2020 13:10

Field ID: G4SD0182

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2212368	EPA 180.1 Rev. 2.0	Turbidity	3.3		NTU	P390990	
	EPA 300.0 Rev. 2.1	Chloride	12		mg Cl/L	P391258	
		Sulfate	14		mg SO4/L	P391259	
		Color (true)	160		PCU	P390994	
	SM 2320 B-2011	Total Alkalinity	4.0		mg CaCO3/L	P391578	
	SM 2540 C-2011	TDS	73		mg/L	P391520	
	SM 2540 D-2011	TSS	2	IA	mg/L	P391525	
	SM 4500 F-C-2011	Fluoride	0.046	I	mg F/L	P391090	
2212369	EPA 350.1 Rev. 2.0	Ammonia-N	0.062		mg N/L	P391083	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.79		mg N/L	P391435	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.67		mg N/L	P391025	
	EPA 365.1 Rev. 2.0	Total-P	0.060		mg P/L	P391109	
	SM 5310 B-2011	Organic Carbon	17		mg C/L	P391173	
2212370	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.040		mg P/L	P390999	
2212375	EPA 200.7 Rev. 4.4	Barium	10.4		ug/L	P391181	
		Calcium	6.95		mg/L	P391181	
		Iron	160		ug/L	P391181	
		Magnesium	2.73		mg/L	P391181	
		Potassium	2.5		mg/L	P391181	
		Sodium	6.6		mg/L	P391181	
		Zinc	5.0	U	ug/L	P391181	
	EPA 200.8 Rev. 5.4	Aluminum	346		ug/L	P391181	
		Antimony	0.071	I	ug/L	P391181	
		Arsenic	1.66		ug/L	P391181	
		Beryllium	0.031	I	ug/L	P391181	
		Boron**	30.6		ug/L	P391181	
		Cadmium	0.020	U	ug/L	P391181	
		Chromium	0.48	I	ug/L	P391181	
		Copper	0.46	I	ug/L	P391181	
		Lead	0.20	U	ug/L	P391181	
		Nickel	0.50	U	ug/L	P391181	
		Selenium	0.21	I	ug/L	P391181	
		Silver	0.010	U	ug/L	P391181	
		Thallium	0.10	U	ug/L	P391181	
	SM 2340B	Hardness	28.6		mg/L	P391181	

Ref. Method and Comment:

EPA 300.0 Rev. 2.1: Sulfate: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample.

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 potassium are unavailable for one of two spiked samples because of high analyte concentration in the QC sample.

EPA 200.8 Rev. 5.4: Batch matrix spike recoveries for aluminum are unavailable for one of two spiked samples because of high analyte concentration in the QC sample.

Sample Location: Bonnet Lake @ Middle

Collection Date/Time: 12/09/2020 12:16

Field ID: G4SD0170

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2212363	EPA 180.1 Rev. 2.0	Turbidity	12		NTU	P390990	
	EPA 300.0 Rev. 2.1	Chloride	19		mg Cl/L	P391258	
		Sulfate	28		mg SO4/L	P391259	
	SM 2120 B-2011	Color (true)	36		PCU	P390994	
	SM 2320 B-2011	Total Alkalinity	20		mg CaCO3/L	P391578	
	SM 2540 C-2011	TDS	97	A	mg/L	P391520	
	SM 2540 D-2011	TSS	6	I	mg/L	P391525	
	SM 4500 F-C-2011	Fluoride	0.072	I	mg F/L	P391090	
	EPA 350.1 Rev. 2.0	Ammonia-N	0.005		mg N/L	P391480	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.2		mg N/L	P391435	
2212365	EPA 353.2 Rev. 2.0	NO2NO3-N	0.46		mg N/L	P391025	
	EPA 365.1 Rev. 2.0	Total-P	0.034		mg P/L	P391109	
	SM 5310 B-2011	Organic Carbon	9.0		mg C/L	P391173	
	EPA 365.1 Rev. 2.0	O-Phosphate-P	0.004	U	mg P/L	P390999	
	dissolved						

Ref. Method and Comment:

EPA 300.0 Rev. 2.1: Sulfate: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample.

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: P390990

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P391181

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: P391181

Component	Result	Code	Units
Aluminum	5.0	U	ug/L
Antimony	0.050	U	ug/L
Arsenic	0.050	U	ug/L
Beryllium	0.010	U	ug/L
Boron	2.0	U	ug/L
Cadmium	0.020	U	ug/L
Chromium	0.40	U	ug/L
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: P391258

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P391259

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P391083

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

Quality Assurance Report

Method Blank Results

Reference Method: EPA 350.1 Rev. 2.0
 Batch ID: P391480

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

Reference Method: EPA 351.2 Rev. 2.0
 Batch ID: P391435

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

Reference Method: EPA 353.2 Rev. 2.0
 Batch ID: P391025

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

Reference Method: EPA 365.1 Rev. 2.0
 Batch ID: P391109

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
 Batch ID: P390999

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

Reference Method: EPA 8321B
 Batch ID: P391039

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
MCP	0.0020	U	ug/L
Naproxen	0.0080	U	ug/L
Primidone	0.0040	U	ug/L
Pyraclostrobin	0.0020	U	ug/L

Quality Assurance Report Method Blank Results

Reference Method: EPA 8321B
Batch ID: P391039

Component	Result	Code	Units
Thiamethoxam	0.0020	U	ug/L
Tolfenpyrad	0.0020	U	ug/L
Triclopyr	0.0040	U	ug/L

Reference Method: EPA 8321B
Batch ID: P391110

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

Reference Method: SM 2120 B-2011
Batch ID: P390994

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2320 B-2011
Batch ID: P391578

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

Reference Method: SM 2540 C-2011
Batch ID: P391520

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-2011
Batch ID: P391525

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500 F-C-2011
Batch ID: P391090

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-2011
Batch ID: P391173

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: P391181

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Barium	97.5		P	85 - 115
Calcium	98.3		P	85 - 115
Iron	97.9		P	85 - 115
Magnesium	97.1		P	85 - 115
Potassium	95.1		P	85 - 115
Sodium	97.3		P	85 - 115
Zinc	92.5		P	85 - 115

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P391181

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Aluminum	100		P	85 - 115
Antimony	102		P	85 - 115
Arsenic	96.2		P	85 - 115
Beryllium	99.1		P	85 - 115
Boron	101		P	85 - 115
Cadmium	94.2		P	85 - 115
Chromium	102		P	85 - 115
Copper	93.2		P	85 - 115
Lead	101		P	85 - 115
Nickel	92.6		P	85 - 115
Selenium	95.9		P	85 - 115
Silver	108		P	85 - 115
Thallium	99.2		P	85 - 115

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P391258

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P391259

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P391083

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Ammonia-N	96.4		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P391480

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Ammonia-N	98.6		P	90 - 110

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 351.2 Rev. 2.0
 Batch ID: P391435

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

Reference Method: EPA 353.2 Rev. 2.0
 Batch ID: P391025

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

Reference Method: EPA 365.1 Rev. 2.0
 Batch ID: P391109

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: P390999

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

Reference Method: EPA 8321B
 Batch ID: P391039

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2,4-D	81.8		P	30 - 160
Acetaminophen	64.8		P	30 - 150
Acetamiprid	89.5		P	30 - 160
Afidopyropen	61.0		P	30 - 160
Bentazon	43.3		P	30 - 150
Benzovindiflupyr	79.1		P	30 - 160
Carbamazepine	69.7		P	30 - 160
Clothianidin	81.5		P	30 - 160
Dinotefuran	77.5		P	30 - 160
Diuron	54.1		P	30 - 160
Fenuron	91.8		P	30 - 160
Fluridone	70.6		P	30 - 160
Hydrocodone	84.0		P	30 - 160
Ibuprofen	43.9		P	30 - 160
Imazapyr	65.0		P	30 - 160
Imidacloprid	91.7		P	30 - 160
Linuron	52.7		P	30 - 160
Mandestrobin	72.6		P	30 - 160
MCPP	74.4		P	30 - 160
Naproxen	43.6		P	30 - 160
Primidone	71.5		P	30 - 160
Pyraclostrobin	70.2		P	30 - 160
Thiamethoxam	84.0		P	30 - 160
Tolfenpyrad	43.7		P	30 - 160
Triclopyr	61.0		P	30 - 160

Quality Assurance Report

Laboratory Control Sample Accuracy

Reference Method: EPA 8321B
Batch ID: P391110

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Acesulfame K	81.6		P	40 - 150
AMPA	101		P	40 - 150
Endothall	92.3		P	40 - 150
Glufosinate	104		P	40 - 150
Glyphosate	91.2		P	40 - 140
Sucralose	104		P	40 - 150

Reference Method: SM 2120 B-2011
Batch ID: P390994

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

Reference Method: SM 2320 B-2011
Batch ID: P391578

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	97.1		P	93 - 104

Reference Method: SM 4500 F-C-2011
Batch ID: P391090

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	97.4		P	90 - 106

Reference Method: SM 5310 B-2011
Batch ID: P391173

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	104		P	85 - 115

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P391181

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2212388	Barium	104	104	P/P	80 - 120
2212388	Calcium	99.7		P	80 - 120
2212388	Iron	105	105	P/P	80 - 120
2212388	Magnesium	104	104	P/P	80 - 120
2212388	Potassium	102	101	P/P	80 - 120
2212388	Sodium	101		P	80 - 120
2212388	Zinc	100	99.5	P/P	80 - 120
2212526	Barium	90.0		P	80 - 120
2212526	Calcium	82.7		P	80 - 120
2212526	Iron	93.1		P	80 - 120
2212526	Magnesium	80.4		P	80 - 120
2212526	Sodium	85.8		P	80 - 120
2212526	Zinc	83.8		P	80 - 120

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P391181

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2212388	Aluminum	98.8	99.1	P/P	80 - 120
2212388	Antimony	102	102	P/P	80 - 120
2212388	Arsenic	95.5	95.7	P/P	80 - 120
2212388	Beryllium	99.6	99.9	P/P	80 - 120
2212388	Boron	98.7	98.9	P/P	80 - 120
2212388	Cadmium	93.4	95.1	P/P	80 - 120
2212388	Chromium	100	99.7	P/P	80 - 120
2212388	Copper	93.4	95.4	P/P	80 - 120
2212388	Lead	101	102	P/P	80 - 120
2212388	Nickel	91.3	92.4	P/P	80 - 120
2212388	Selenium	93.5	94.8	P/P	80 - 120
2212388	Silver	106	107	P/P	80 - 120
2212388	Thallium	101	103	P/P	80 - 120
2212526	Antimony	102		P	80 - 120
2212526	Arsenic	94.4		P	80 - 120
2212526	Beryllium	95.4		P	80 - 120
2212526	Boron	98.6		P	80 - 120
2212526	Cadmium	93.5		P	80 - 120
2212526	Chromium	96.1		P	80 - 120
2212526	Copper	92.7		P	80 - 120
2212526	Lead	99.4		P	80 - 120
2212526	Nickel	91.7		P	80 - 120
2212526	Selenium	92.4		P	80 - 120
2212526	Silver	105		P	80 - 120
2212526	Thallium	98.9		P	80 - 120

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P391258

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2212333	Chloride	100		P	90 - 110
2212500	Chloride	99.7		P	90 - 110

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P391259

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2212333	Sulfate	101		P	90 - 110
2212500	Sulfate	101		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P391083

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2212245	Ammonia-N	92.6	93.4	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P391480

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2212353	Ammonia-N	97.6	98.8	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P391435

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2212349	Kjeldahl Nitrogen	101	106	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P391025

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2212348	NO2NO3-N	97.5		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P391109

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2212346	Total-P	104	102	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P390999

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2212366	O-Phosphate-P	102	102	P/P	90 - 110

Reference Method: EPA 8321B
Batch ID: P391039

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2211885	2,4-D	60.7	59.2	P/P	30 - 160
2211885	Acetaminophen	53.2	57.9	P/P	30 - 150
2211885	Acetamiprid	97.3	92.1	P/P	30 - 160
2211885	Afidopyropen	61.8	62.2	P/P	30 - 160
2211885	Benzovindiflupyr	74.4	69.7	P/P	30 - 160
2211885	Carbamazepine	63.4	62.2	P/P	30 - 160
2211885	Clothianidin	68.2	67.4	P/P	30 - 160
2211885	Dinotefuran	92.5	84.3	P/P	30 - 160
2211885	Diuron	40.8	40.4	P/P	30 - 160

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 8321B
Batch ID: P391039

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2211885	Fenuron	79.0	79.1	P/P	30 - 160
2211885	Fluridone	69.9	70.9	P/P	30 - 160
2211885	Hydrocodone	102	99.1	P/P	30 - 160
2211885	Ibuprofen	34.4	40.6	P/P	30 - 160
2211885	Imazapyr	55.9	49.7	P/P	30 - 160
2211885	Imidacloprid	105	112	P/P	30 - 160
2211885	Linuron	55.3	58.8	P/P	30 - 160
2211885	Mandestrobin	66.6	69.7	P/P	30 - 160
2211885	MCP	71.5	64.6	P/P	30 - 160
2211885	Naproxen	35.1	33.0	P/P	30 - 160
2211885	Primidone	73.0	69.3	P/P	30 - 160
2211885	Pyraclostrobin	68.0	69.4	P/P	30 - 160
2211885	Thiamethoxam	107	105	P/P	30 - 160
2211885	Tolfenpyrad	47.7	43.3	P/P	30 - 160
2211885	Triclopyr	64.7	66.3	P/P	30 - 160

Reference Method: EPA 8321B
Batch ID: P391110

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2212306	Acesulfame K	9.67	9.17	F/F	40 - 150
2212306	AMPA	72.0	76.9	P/P	40 - 150
2212306	Endothall	270	290	F/F	40 - 150
2212306	Glufosinate	89.8	78.1	P/P	40 - 150
2212306	Sucralose	33.6	32.3	F/F	40 - 150

Reference Method: SM 4500 F-C-2011
Batch ID: P391090

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2212172	Fluoride	96.8	95.7	P/P	94 - 107

Reference Method: SM 5310 B-2011
Batch ID: P391173

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2212351	Organic Carbon	110	110	P/P	85 - 115

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P390990

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2212333	Turbidity	2.00	Sample	P	0 - 20

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P391181

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2212388	Barium	0.619	Spike	P	0 - 20
2212388	Calcium	0.872	Spike	P	0 - 20
2212388	Iron	0.0366	Spike	P	0 - 20
2212388	Magnesium	0.376	Spike	P	0 - 20
2212388	Potassium	0.529	Spike	P	0 - 20
2212388	Sodium	1.73	Spike	P	0 - 20
2212388	Zinc	0.769	Spike	P	0 - 20

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P391181

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2212388	Aluminum	0.241	Spike	P	0 - 20
2212388	Antimony	0.674	Spike	P	0 - 20
2212388	Arsenic	0.193	Spike	P	0 - 20
2212388	Beryllium	0.239	Spike	P	0 - 20
2212388	Boron	0.115	Spike	P	0 - 20
2212388	Cadmium	1.78	Spike	P	0 - 20
2212388	Chromium	0.626	Spike	P	0 - 20
2212388	Copper	2.10	Spike	P	0 - 20
2212388	Lead	1.05	Spike	P	0 - 20
2212388	Nickel	1.11	Spike	P	0 - 20
2212388	Selenium	1.44	Spike	P	0 - 20
2212388	Silver	1.36	Spike	P	0 - 20
2212388	Thallium	2.55	Spike	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P391258

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2212333	Chloride	0.930	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P391083

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2212245	Ammonia-N	0.649	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P391480

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2212353	Ammonia-N	0.951	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P391435

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2212349	Kjeldahl Nitrogen	3.71	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P391025

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2212348	NO2NO3-N	0.0	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P391109

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2212346	Total-P	1.61	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P390999

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2212366	O-Phosphate-P	0.0979	Spike	P	0 - 20

Reference Method: EPA 8321B
Batch ID: P391039

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2211885	2,4-D	2.48	Spike	P	0 - 30
2211885	Acetaminophen	8.39	Spike	P	0 - 30
2211885	Acetamiprid	5.45	Spike	P	0 - 30
2211885	Afidopyropen	0.697	Spike	P	0 - 30
2211885	Bentazon	5.03	Spike	P	0 - 30
2211885	Benzovindiflupyr	6.46	Spike	P	0 - 30
2211885	Carbamazepine	1.90	Spike	P	0 - 30
2211885	Clothianidin	1.24	Spike	P	0 - 30
2211885	Dinotefuran	9.27	Spike	P	0 - 30
2211885	Diuron	0.957	Spike	P	0 - 30
2211885	Fenuron	0.169	Spike	P	0 - 30
2211885	Fluridone	1.35	Spike	P	0 - 30
2211885	Hydrocodone	2.42	Spike	P	0 - 30
2211885	Ibuprofen	16.5	Spike	P	0 - 30
2211885	Imazapyr	10.5	Spike	P	0 - 30
2211885	Imidacloprid	6.57	Spike	P	0 - 30

Quality Assurance Report Precision

Reference Method: EPA 8321B
Batch ID: P391039

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2211885	Linuron	6.07	Spike	P	0 - 30
2211885	Mandestrobin	4.65	Spike	P	0 - 30
2211885	MCP	10.2	Spike	P	0 - 30
2211885	Naproxen	6.07	Spike	P	0 - 30
2211885	Primidone	5.31	Spike	P	0 - 30
2211885	Pyraclostrobin	2.08	Spike	P	0 - 30
2211885	Thiamethoxam	1.59	Spike	P	0 - 30
2211885	Tolfenpyrad	9.60	Spike	P	0 - 30
2211885	Triclopyr	2.48	Spike	P	0 - 30

Reference Method: EPA 8321B
Batch ID: P391110

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2212306	Acesulfame K	5.30	Spike	P	0 - 30
2212306	AMPA	6.67	Spike	P	0 - 30
2212306	Endothall	7.37	Spike	P	0 - 30
2212306	Glufosinate	13.9	Spike	P	0 - 30
2212306	Glyphosate	12.0	Spike	P	0 - 30
2212306	Sucralose	3.13	Spike	P	0 - 30

Reference Method: SM 2120 B-2011
Batch ID: P390994

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2212323	Color (true)	6.66	Sample	P	0 - 20

Reference Method: SM 2320 B-2011
Batch ID: P391578

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2212204	Total Alkalinity	2.04	Sample	P	0 - 8.1

Reference Method: SM 2540 C-2011
Batch ID: P391520

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2212363	TDS	7.18	Sample	P	0 - 10

Reference Method: SM 4500 F-C-2011
Batch ID: P391090

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2212172	Fluoride	0.924	Spike	P	0 - 2.8

Quality Assurance Report Precision

Reference Method: SM 5310 B-2011
Batch ID: P391173

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2212351	Organic Carbon	0.0271	Spike	P	0 - 20

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

Quality Assurance Report Surrogates

Lab Sample ID: 2212374
Field Sample ID: FB_120920

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	2,4-D-d3	45.2	P	30 - 160
EPA 8321B	Acetaminophen-d4	70.0	P	30 - 160
EPA 8321B	Carbamazepine-d10	55.4	P	30 - 160
EPA 8321B	Diuron-d6	63.2	P	30 - 160
EPA 8321B	Endothall-d6	102	P	40 - 160
EPA 8321B	Endothall-d6	102	P	40 - 160
EPA 8321B	Glyphosate 13C 15N	105	P	40 - 160
EPA 8321B	Glyphosate 13C 15N	105	P	40 - 160
EPA 8321B	Ibuprofen-d3	47.1	P	30 - 160
EPA 8321B	Primidone-d5	76.5	P	30 - 160
EPA 8321B	Sucralose-d6	100	P	30 - 160
EPA 8321B	Sucralose-d6	100	P	30 - 160

Lab Sample ID: 2212380
Field Sample ID: G4SD0185

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	2,4-D-d3	51.7	P	30 - 160
EPA 8321B	Acetaminophen-d4	54.3	P	30 - 160
EPA 8321B	Carbamazepine-d10	46.6	P	30 - 160
EPA 8321B	Diuron-d6	47.4	P	30 - 160
EPA 8321B	Endothall-d6	118	P	40 - 160
EPA 8321B	Endothall-d6	118	P	40 - 160
EPA 8321B	Glyphosate 13C 15N	103	P	40 - 160
EPA 8321B	Glyphosate 13C 15N	103	P	40 - 160
EPA 8321B	Ibuprofen-d3	35.4	P	30 - 160
EPA 8321B	Primidone-d5	70.4	P	30 - 160
EPA 8321B	Sucralose-d6	97.9	P	30 - 160
EPA 8321B	Sucralose-d6	97.9	P	30 - 160

Quality Assurance Report Calibration Verification

Reference Method: EPA 180.1 Rev. 2.0

Run ID: A102523

Included Lab Sample IDs: 2212362, 2212363, 2212368

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Turbidity	104	104	P/P	95 - 105

Reference Method: SM 2120 B-2011

Run ID: A102525

Included Lab Sample IDs: 2212362, 2212363, 2212368

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	101	102	P/P	90 - 115
Color (true)	102	103	P/P	90 - 115

Reference Method: EPA 365.1 Rev. 2.0 dissolved

Run ID: A102527

Included Lab Sample IDs: 2212366, 2212367, 2212370

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	98.9	99.2	P/P	90 - 110
O-Phosphate-P	99.5	98.9	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A102539

Included Lab Sample IDs: 2212364, 2212365, 2212369

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

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A102553

Included Lab Sample IDs: 2212369

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	94.7	98.1	P/P	90 - 110

Reference Method: SM 4500 F-C-2011

Run ID: A102561

Included Lab Sample IDs: 2212362, 2212363, 2212368

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	101	103	P/P	90 - 110
Fluoride	99.1	101	P/P	90 - 110

Reference Method: EPA 8321B

Run ID: A102568

Included Lab Sample IDs: 2212374, 2212380

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Acesulfame K	84.2	92.1	P/P	60 - 160
AMPA	79.1	107	P/P	60 - 160
Endothall	95.6	96.3	P/P	60 - 160
Glufosinate	76.8	81.4	P/P	60 - 160
Glyphosate	74.0	103	P/P	60 - 160

Quality Assurance Report Calibration Verification

Reference Method: SM 5310 B-2011

Run ID: A102590

Included Lab Sample IDs: 2212364, 2212365, 2212369

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	107	105	P/P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1

Run ID: A102617

Included Lab Sample IDs: 2212362, 2212363, 2212368

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	100	99.3	P/P	90 - 110
Sulfate	100	99.3	P/P	90 - 110

Reference Method: EPA 8321B

Run ID: A102622

Included Lab Sample IDs: 2212374, 2212380

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Sucralose	101	103	P/P	60 - 160

Reference Method: EPA 200.8 Rev. 5.4

Run ID: A102629

Included Lab Sample IDs: 2212375

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Antimony	100	98.9	P/P	90 - 110
Arsenic	96.8	95.0	P/P	90 - 110
Beryllium	104	102	P/P	90 - 110
Boron	102	103	P/P	90 - 110
Cadmium	96.5	95.1	P/P	90 - 110
Chromium	101	100	P/P	90 - 110
Copper	92.5	93.1	P/P	90 - 110
Lead	98.2	98.2	P/P	90 - 110
Nickel	91.8	91.9	P/P	90 - 110
Selenium	98.1	96.5	P/P	90 - 110
Silver	103	102	P/P	90 - 110
Thallium	101	102	P/P	90 - 110

Reference Method: EPA 200.7 Rev. 4.4

Run ID: A102635

Included Lab Sample IDs: 2212375

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Barium	101	100	P/P	90 - 110
Calcium	97.6	98.2	P/P	90 - 110
Iron	98.6	98.2	P/P	90 - 110
Magnesium	97.2	97.1	P/P	90 - 110
Potassium	98.7	98.7	P/P	90 - 110
Sodium	99.0	100	P/P	90 - 110
Zinc	96.6	98.5	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A102645

Included Lab Sample IDs: 2212369

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	101	102	P/P	85 - 115

Reference Method: EPA 200.8 Rev. 5.4

Run ID: A102654

Included Lab Sample IDs: 2212375

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

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A102672

Included Lab Sample IDs: 2212364, 2212365

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

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A102685

Included Lab Sample IDs: 2212364, 2212365

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

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A102694

Included Lab Sample IDs: 2212364, 2212365, 2212369

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	104	105	P/P	90 - 110

Reference Method: SM 2320 B-2011

Run ID: A102709

Included Lab Sample IDs: 2212362, 2212363, 2212368

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	92.9	97.4	P/P	90 - 110

Reference Method: EPA 8321B

Run ID: A102718

Included Lab Sample IDs: 2212374, 2212380

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
2,4-D	105	76.1	P/P	50 - 150
Acetaminophen	106	108	P/P	60 - 160
Acetamiprid	124	108	P/P	50 - 150
Afidopyropen	110	89.1	P/P	50 - 150
Bentazon	105	107	P/P	50 - 160
Benzovindiflupyr	119	110	P/P	50 - 150
Carbamazepine	115	112	P/P	60 - 150
Clothianidin	105	126	P/P	60 - 150
Dinotefuran	99.8	104	P/P	50 - 150

Quality Assurance Report Calibration Verification

Reference Method: EPA 8321B

Run ID: A102718

Included Lab Sample IDs: 2212374, 2212380

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Diuron	114	103	P/P	60 - 160
Fenuron	105	109	P/P	60 - 150
Fluridone	123	106	P/P	60 - 160
Hydrocodone	97.4	104	P/P	60 - 150
Ibuprofen	82.0	110	P/P	50 - 160
Imazapyr	83.2	84.0	P/P	50 - 150
Imidacloprid	93.8	100	P/P	60 - 150
Linuron	114	94.8	P/P	60 - 150
Mandestrobin	106	111	P/P	50 - 150
MCPP	89.6	84.1	P/P	50 - 150
Naproxen	68.8	93.2	P/P	50 - 160
Primidone	105	104	P/P	60 - 150
Pyraclostrobin	112	109	P/P	60 - 150
Thiamethoxam	99.3	110	P/P	50 - 150
Tolfenpyrad	99.3	114	P/P	60 - 150
Triclopyr	98.1	99.3	P/P	50 - 150

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

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

Where they are different, both control limits are provided.

Quality Assurance Report Summary

Ref. Method	Analyte	LCS % Recovery	MS % Recovery			LCS	Precision SMP	MS
EPA 180.1 Rev. 2.0	Turbidity						2.00	
EPA 200.7 Rev. 4.4	Barium	97.5	104	104	90.0			0.619
	Calcium	98.3	99.7	82.7				0.872
	Iron	97.9	105	105	93.1			0.0366
	Magnesium	97.1	104	104	80.4			0.376
	Potassium	95.1	102	101				0.529
	Sodium	97.3	101	85.8				1.73
	Zinc	92.5	100	99.5	83.8			0.769
EPA 200.8 Rev. 5.4	Aluminum	100	98.8	99.1				0.241
	Antimony	102	102	102				0.674
	Arsenic	96.2	95.5	95.7	94.4			0.193
	Beryllium	99.1	99.6	99.9	95.4			0.239
	Boron	101	98.7	98.9	98.6			0.115
	Cadmium	94.2	93.4	95.1	93.5			1.78
	Chromium	102	100	99.7	96.1			0.626
	Copper	93.2	93.4	95.4	92.7			2.10
	Lead	101	101	102	99.4			1.05
	Nickel	92.6	91.3	92.4	91.7			1.11
	Selenium	95.9	93.5	94.8	92.4			1.44
	Silver	108	106	107	105			1.36
	Thallium	99.2	101	103	98.9			2.55
EPA 300.0 Rev. 2.1	Chloride	102	100	99.7			0.930	
	Sulfate	102	101	101				
EPA 350.1 Rev. 2.0	Ammonia-N	96.4	92.6	93.4				0.649
	Ammonia-N	98.6	97.6	98.8				0.951
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	103	101	106				3.71
EPA 353.2 Rev. 2.0	NO ₂ NO ₃ -N	101	97.5					0.0
EPA 365.1 Rev. 2.0	Total-P	103	104	102				1.61
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	102	102	102				0.0979
EPA 8321B	2,4-D	81.8	60.7	59.2				2.48
	Acesulfame K	81.6	9.67	9.17				5.30
	Acetaminophen	64.8	53.2	57.9				8.39
	Acetamiprid	89.5	97.3	92.1				5.45
	Afidopyrophen	61.0	61.8	62.2				0.697
	AMPA	101	72.0	76.9				6.67
	Bentazon	43.3						5.03
	Benzovindiflupyr	79.1	74.4	69.7				6.46
	Carbamazepine	69.7	63.4	62.2				1.90
	Clothianidin	81.5	68.2	67.4				1.24
	Dinotefuran	77.5	92.5	84.3				9.27
	Diuron	54.1	40.8	40.4				0.957
	Endothall	92.3	270	290				7.37
	Fenuron	91.8	79.0	79.1				0.169
	Fluridone	70.6	69.9	70.9				1.35
	Glufosinate	104	89.8	78.1				13.9
	Glyphosate	91.2						12.0
	Hydrocodone	84.0	102	99.1				2.42
	Ibuprofen	43.9	34.4	40.6				16.5
	Imazapyr	65.0	55.9	49.7				10.5
	Imidacloprid	91.7	105	112				6.57
	Linuron	52.7	55.3	58.8				6.07
	Mandestrobin	72.6	66.6	69.7				4.65
	MCPP	74.4	71.5	64.6				10.2
	Naproxen	43.6	35.1	33.0				6.07

Quality Assurance Report Summary

Ref. Method	Analyte	LCS % Recovery	MS % Recovery		Precision	
					LCS	MS
EPA 8321B	Primidone	71.5	73.0	69.3		5.31
	Pyraclostrobin	70.2	68.0	69.4		2.08
	Sucralose	104	33.6	32.3		3.13
	Thiamethoxam	84.0	107	105		1.59
	Tolfenpyrad	43.7	47.7	43.3		9.60
	Triclopyr	61.0	64.7	66.3		2.48
SM 2120 B-2011	Color (true)	101			6.66	
SM 2320 B-2011	Total Alkalinity	97.1			2.04	
SM 2540 C-2011	TDS				7.18	
SM 4500 F-C-2011	Fluoride	97.4	96.8	95.7		0.924
SM 5310 B-2011	Organic Carbon	104	110	110		0.0271

Reference Method Descriptions

Method	Description	Associated Samples
EPA 180.1 Rev. 2.0	Turbidity in aqueous matrices	2212362, 2212363, 2212368
EPA 200.7 Rev. 4.4	Total Recoverable Metals analysis using ICP emission spectroscopy for aqueous samples supporting Clean Water Act Projects	2212375
EPA 200.8 Rev. 5.4	Total Recoverable Metals analysis using ICP-MS for aqueous samples supporting Clean Water Act Projects	2212375
EPA 300.0 Rev. 2.1	Chloride in aqueous matrices	2212362, 2212363, 2212368
EPA 300.0 Rev. 2.1	Sulfate in aqueous matrices	2212362, 2212363, 2212368
EPA 350.1 Rev. 2.0	Ammonia in aqueous matrices as mg N/L	2212364, 2212365, 2212369
EPA 351.2 Rev. 2.0	Total Kjeldahl Nitrogen in aqueous matrices	2212364, 2212365, 2212369
EPA 353.2 Rev. 2.0	Nitrite/Nitrate in aqueous matrices as mg N/L	2212364, 2212365, 2212369
EPA 365.1 Rev. 2.0	Total Phosphorus in aqueous matrices as mg P/L	2212364, 2212365, 2212369
EPA 365.1 Rev. 2.0 dissolved	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	2212366, 2212367, 2212370
EPA 8321B	Pesticides, herbicides, and other chemicals in water matrices by HPLC/MS/MS	2212374, 2212380
EPA 8321B	Water soluble organic compounds by HPLC/MS/MS	2212374, 2212380
SM 2120 B-2011	True Color measured at 450 nm (not valid for NPDES monitoring)	2212362, 2212363, 2212368
SM 2320 B-2011	Alkalinity in aqueous matrices as mg CaCO ₃ /L	2212362, 2212363, 2212368
SM 2340B	Hardness by calculation, in aqueous matrices, reported as mg/L CaCO ₃	2212375
SM 2540 C-2011	Total Dissolved Solids in aqueous matrices	2212362, 2212363, 2212368
SM 2540 D-2011	Total Suspended Solids in aqueous matrices using a maximum of 250 mL of sample	2212362, 2212363, 2212368
SM 4500 F-C-2011	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	2212362, 2212363, 2212368
SM 5310 B-2011	Nonpurgeable Organic Carbon in aqueous matrices	2212364, 2212365, 2212369

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	12/10/2020			12/10/2020 14:23	Yen Ta	2212362, 2212363, 2212368
EPA 200.7 Rev. 4.4	12/10/2020	12/15/2020 15:45	Elliott D. Healy	12/16/2020 14:34	Betina Topolski	2212375
EPA 200.8 Rev. 5.4	12/10/2020	12/15/2020 15:45	Elliott D. Healy	12/16/2020 14:22	Alexander Thompson	2212375
	12/10/2020	12/15/2020 15:45	Elliott D. Healy	12/17/2020 16:10	Alexander Thompson	2212375
EPA 300.0 Rev. 2.1	12/10/2020			12/15/2020 23:12	Lipi Saha	2212362
	12/10/2020			12/15/2020 23:24	Lipi Saha	2212363
	12/10/2020			12/15/2020 23:36	Lipi Saha	2212368
EPA 350.1 Rev. 2.0	12/10/2020			12/13/2020 17:18	Ping Hua	2212369
	12/10/2020			12/20/2020 09:51	Ping Hua	2212364
	12/10/2020			12/20/2020 09:52	Ping Hua	2212365
EPA 351.2 Rev. 2.0	12/10/2020	12/18/2020 10:54	David Boose	12/20/2020 18:22	Julia Storbeck	2212364
	12/10/2020	12/18/2020 10:54	David Boose	12/20/2020 18:24	Julia Storbeck	2212365
	12/10/2020	12/18/2020 10:54	David Boose	12/20/2020 18:26	Julia Storbeck	2212369
EPA 353.2 Rev. 2.0	12/10/2020			12/11/2020 11:45	Beverly Y. Sanders	2212369
	12/10/2020			12/11/2020 11:53	Beverly Y. Sanders	2212364
	12/10/2020			12/11/2020 11:55	Beverly Y. Sanders	2212365
EPA 365.1 Rev. 2.0	12/10/2020	12/14/2020 17:37	Shengyu Wang	12/17/2020 14:30	Benjamin T. Nordmann	2212369
	12/10/2020	12/14/2020 17:37	Shengyu Wang	12/18/2020 12:44	Shengyu Wang	2212364
	12/10/2020	12/14/2020 17:37	Shengyu Wang	12/18/2020 12:45	Shengyu Wang	2212365
EPA 365.1 Rev. 2.0 dissolved	12/10/2020			12/10/2020 15:13	Blanca Fach	2212366
	12/10/2020			12/10/2020 15:23	Blanca Fach	2212367
	12/10/2020			12/10/2020 15:24	Blanca Fach	2212370
EPA 8321B	12/10/2020	12/11/2020 11:30	Rebecca Ware	12/12/2020 06:55	Rebecca Ware	2212374
	12/10/2020	12/11/2020 11:30	Rebecca Ware	12/12/2020 07:08	Rebecca Ware	2212380
	12/10/2020	12/11/2020 11:30	Rebecca Ware	12/15/2020 21:05	Rebecca Ware	2212374
	12/10/2020	12/11/2020 11:30	Rebecca Ware	12/15/2020 21:16	Rebecca Ware	2212380
	12/10/2020	12/15/2020 08:30	Hoor Shaik	12/21/2020 00:54	Juyoung Kim	2212374
	12/10/2020	12/15/2020 08:30	Hoor Shaik	12/21/2020 01:28	Juyoung Kim	2212380
SM 2120 B-2011	12/10/2020			12/10/2020 15:36	Benjamin T. Nordmann	2212362
	12/10/2020			12/10/2020 15:37	Benjamin T. Nordmann	2212363
	12/10/2020			12/10/2020 15:45	Benjamin T. Nordmann	2212368
SM 2320 B-2011	12/10/2020			12/22/2020 03:13	Dale L. Simmons	2212362
	12/10/2020			12/22/2020 03:23	Dale L. Simmons	2212363
	12/10/2020			12/22/2020 03:31	Dale L. Simmons	2212368
SM 2340B	12/10/2020			12/16/2020 14:34	Betina Topolski	2212375
SM 2540 C-2011	12/10/2020			12/14/2020 14:56	Yijie Li	2212362, 2212363, 2212368
SM 2540 D-2011	12/10/2020			12/14/2020 15:56	Yijie Li	2212362, 2212363, 2212368
SM 4500 F-C-2011	12/10/2020			12/11/2020 21:56	Dale L. Simmons	2212362
	12/10/2020			12/11/2020 22:08	Dale L. Simmons	2212363
	12/10/2020			12/11/2020 22:45	Dale L. Simmons	2212368

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
SM 5310 B-2011	12/10/2020			12/15/2020 02:47	Touraj Touran	2212364
	12/10/2020			12/15/2020 02:59	Touraj Touran	2212365
	12/10/2020			12/15/2020 03:11	Touraj Touran	2212369