

Chemical Analysis Report

WAS-SECT-2020-02-05-01

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

Event Description: **Little River**
Request ID: **RQ-2020-01-27-10**
Customer: **WAS-SECT**
Project ID: **SMP**

Send Reports to:
FL Dept. of Environmental Protection
2600 Blair Stone Rd
Tallahassee, FL 32399
Attn: Curtis Musson

For additional information please contact
Colin Wright, Ph.D.
Liang-Tsair Lin, Ph.D.
Kerry Tate, Ph.D.
Dr. rer. nat. Bettina Steinbock
Thekkekalathil Chandrasekhar, Ph.D, QA Officer
Phone (850) 245-8085

Certified by: Thekkekalathil Chandrasekhar, Chemist Administrator

Date Certified: 27-FEB-2020 09:21



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 River at Highbridge Road

Collection Date/Time: 02/05/2020 09:26

Field ID: G1WA0086

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2154922	EPA 180.1 Rev. 2.0	Turbidity	13		NTU	P378395	
	EPA 300.0 Rev. 2.1	Chloride	8.3		mg Cl/L	P379225	
		Sulfate	2.5		mg SO4/L	P379227	
	SM 2120 B-2011	Color (true)	63	A	PCU	P378447	
	SM 2320 B-2011	Total Alkalinity	17		mg CaCO3/L	P378557	
	SM 2540 C-2011	TDS	73		mg/L	P379030	
	SM 2540 D-2011	TSS	9	I	mg/L	P378681	
2154923	SM 4500 F-C-2011	Fluoride	0.084	I	mg F/L	P378561	
	EPA 350.1 Rev. 2.0	Ammonia-N	0.055		mg N/L	P378889	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.53		mg N/L	P378923	
	EPA 353.2 Rev. 2.0	NO2NO3-N	1.8		mg N/L	P378952	
	EPA 365.1 Rev. 2.0	Total-P	0.084		mg P/L	P378914	
2154924	SM 5310 B-2011	Organic Carbon	4.4		mg C/L	P378535	
	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.032		mg P/L	P378355	
2154942	EPA 8321B	2,4-D	0.0020	U	ug/L	P378426	
		Acesulfame K**	0.10	UJ	ug/L	P378544	MS
		AMPA**	0.10	U	ug/L	P378544	
		Sucralose**	0.13		ug/L	P378544	
		Acetaminophen**	0.0080	U	ug/L	P378426	
		Acetamiprid**	0.0020	U	ug/L	P378426	
		Endothall**	0.25	U	ug/L	P378544	
		Glufosinate**	0.10	U	ug/L	P378544	
		Glyphosate**	0.10	U	ug/L	P378544	
		Afidopyropen**	0.0020	UJ	ug/L	P378426	
		Bentazon	0.0080		ug/L	P378426	
		Benzovindiflupyr**	0.0020	UJ	ug/L	P378426	
		Carbamazepine**	8.0E-04	U	ug/L	P378426	
		Clothianidin**	0.0020	U	ug/L	P378426	
		Dinotefuran**	0.034		ug/L	P378426	
		Diuron	0.0039	I	ug/L	P378426	
		Fenuron	0.016	U	ug/L	P378426	
		Fluridone**	8.0E-04	U	ug/L	P378426	
		Imazapyr**	0.013	I	ug/L	P378426	
		Hydrocodone**	0.0020	U	ug/L	P378426	
		Ibuprofen**	0.020	U	ug/L	P378426	
		Imidacloprid	0.0069	I	ug/L	P378426	
		Linuron	0.0040	U	ug/L	P378426	
		Mandestrobin**	0.0020	UJ	ug/L	P378426	
		MCP	0.0020	U	ug/L	P378426	
		Naproxen**	0.0086	I	ug/L	P378426	RPD
		Primidone**	0.0040	U	ug/L	P378426	
		Pyraclostrobin**	0.0020	U	ug/L	P378426	
		Thiamethoxam**	0.0020	U	ug/L	P378426	

Field ID: G1WA0086

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2154942	EPA 8321B	Tolfenpyrad**	0.0020	U	ug/L	P378426	
		Triclopyr**	0.0040	U	ug/L	P378426	
2154943	EPA 200.7 Rev. 4.4	Barium	17.4		ug/L	P378477	
		Calcium	6.67		mg/L	P378477	
		Iron	1.31E+03		ug/L	P378477	
		Magnesium	2.70		mg/L	P378477	
		Potassium	1.2	I	mg/L	P378477	
		Sodium	6.1		mg/L	P378477	
		Zinc	5.0	U	ug/L	P378477	
	EPA 200.8 Rev. 5.4	Aluminum	267		ug/L	P378477	
		Antimony	0.050	U	ug/L	P378477	
		Arsenic	0.51		ug/L	P378477	
		Boron**	12.3		ug/L	P378477	
		Cadmium	0.020	U	ug/L	P378477	
		Chromium	0.52	I	ug/L	P378477	
		Copper	0.42	I	ug/L	P378477	
		Lead	0.32	I	ug/L	P378477	
		Nickel	0.50	U	ug/L	P378477	
		Selenium	0.20	U	ug/L	P378477	
		Silver	0.010	U	ug/L	P378477	
		Thallium	0.10	U	ug/L	P378477	

Ref. Method and Comment:

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

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

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

EPA 200.7 Rev. 4.4: The iron result was confirmed in the undigested sample on 02/10/2020.

Sample Location: Lewis Creek Upstream of 157

Collection Date/Time: 02/05/2020 11:51

Field ID: G1WA0075

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2154925	EPA 180.1 Rev. 2.0	Turbidity	4.3		NTU	P378395	
	EPA 300.0 Rev. 2.1	Chloride	9.4		mg Cl/L	P379225	
		Sulfate	1.6		mg SO4/L	P379227	
	SM 2120 B-2011	Color (true)	58		PCU	P378447	
	SM 2320 B-2011	Total Alkalinity	10		mg CaCO3/L	P378557	
	SM 2540 C-2011	TDS	50		mg/L	P379030	
	SM 2540 D-2011	TSS	3	I	mg/L	P378681	
	SM 4500 F-C-2011	Fluoride	0.061	I	mg F/L	P378561	
	EPA 350.1 Rev. 2.0	Ammonia-N	0.043		mg N/L	P378889	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.47		mg N/L	P378923	
2154928	EPA 353.2 Rev. 2.0	NO2NO3-N	0.022		mg N/L	P378952	
	EPA 365.1 Rev. 2.0	Total-P	0.048		mg P/L	P378814	
	SM 5310 B-2011	Organic Carbon	6.5		mg C/L	P378535	
	EPA 365.1 Rev. 2.0	O-Phosphate-P	0.011		mg P/L	P378355	
	dissolved						
2154931	EPA 365.1 Rev. 2.0	O-Phosphate-P	0.011		mg P/L	P378355	

Ref. Method and Comment:

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

Sample Location: Richlander Creek at CR 65B

Collection Date/Time: 02/05/2020 10:14

Field ID: G1WA0093

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2154926	EPA 180.1 Rev. 2.0	Turbidity	7.9		NTU	P378395	
	EPA 300.0 Rev. 2.1	Chloride	6.9		mg Cl/L	P379225	
		Sulfate	0.62		mg SO4/L	P379227	
		Color (true)	48		PCU	P378447	
	SM 2320 B-2011	Total Alkalinity	14		mg CaCO3/L	P378557	
	SM 2540 C-2011	TDS	52		mg/L	P379030	
	SM 2540 D-2011	TSS	5	I	mg/L	P378681	
	SM 4500 F-C-2011	Fluoride	0.070	I	mg F/L	P378561	
2154929	EPA 350.1 Rev. 2.0	Ammonia-N	0.027		mg N/L	P378889	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.29		mg N/L	P378923	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.40		mg N/L	P378953	
	EPA 365.1 Rev. 2.0	Total-P	0.059		mg P/L	P378814	
	SM 5310 B-2011	Organic Carbon	3.0		mg C/L	P378535	
2154932	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.025		mg P/L	P378355	

Ref. Method and Comment:

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

Sample Location: Double Branch at CR159

Collection Date/Time: 02/05/2020 11:14

Field ID: G1WA0091

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2154927	EPA 180.1 Rev. 2.0	Turbidity	7.9		NTU	P378395	
	EPA 300.0 Rev. 2.1	Chloride	6.0		mg Cl/L	P379225	
		Sulfate	0.71		mg SO4/L	P379227	
		Color (true)	52		PCU	P378447	
	SM 2320 B-2011	Total Alkalinity	13		mg CaCO3/L	P378557	
	SM 2540 C-2011	TDS	28		mg/L	P379030	
	SM 2540 D-2011	TSS	5	I	mg/L	P378681	
	SM 4500 F-C-2011	Fluoride	0.069	I	mg F/L	P378561	
2154930	EPA 350.1 Rev. 2.0	Ammonia-N	0.030		mg N/L	P378889	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.25		mg N/L	P378750	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.17		mg N/L	P378953	
	EPA 365.1 Rev. 2.0	Total-P	0.074		mg P/L	P378814	
	SM 5310 B-2011	Organic Carbon	3.6		mg C/L	P378535	
2154933	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.036		mg P/L	P378355	

Ref. Method and Comment:

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

Quality Assurance Report

Method Blank Results

Reference Method: EPA 180.1 Rev. 2.0

Batch ID: P378395

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 200.7 Rev. 4.4

Batch ID: P378477

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

Reference Method: EPA 200.8 Rev. 5.4

Batch ID: P378477

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

Reference Method: EPA 300.0 Rev. 2.1

Batch ID: P379225

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1

Batch ID: P379227

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 350.1 Rev. 2.0

Batch ID: P378889

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

Quality Assurance Report Method Blank Results

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P378750

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

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

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

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

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P378953

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P378814

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P378914

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

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

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

Reference Method: EPA 8321B
Batch ID: P378426

Component	Result	Code	Units
2,4-D	0.0020	U	ug/L
Acetaminophen	0.0080	U	ug/L
Acetamiprid	0.0020	U	ug/L
Afidopyropen	0.0020	U	ug/L
Bentazon	8.0E-04	U	ug/L
Benzovindiflupyr	0.0020	U	ug/L
Carbamazepine	8.0E-04	U	ug/L
Clothianidin	0.0020	U	ug/L
Dinotefuran	0.0020	U	ug/L
Diuron	0.0020	U	ug/L

Quality Assurance Report

Method Blank Results

Reference Method: EPA 8321B
Batch ID: P378426

Component	Result	Code	Units
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: P378544

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: P378447

Component	Result	Code	Units
Color (true)	2.5	U	PCU

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

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

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

Component	Result	Code	Units
TDS	15	U	mg/L

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

Component	Result	Code	Units
TSS	2	U	mg/L

Quality Assurance Report

Method Blank Results

Reference Method: SM 4500 F-C-2011

Batch ID: P378561

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-2011

Batch ID: P378535

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

Quality Assurance Report

Laboratory Control Sample Accuracy

Reference Method: EPA 200.7 Rev. 4.4

Batch ID: P378477

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

Reference Method: EPA 200.8 Rev. 5.4

Batch ID: P378477

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

Reference Method: EPA 300.0 Rev. 2.1

Batch ID: P379225

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

Reference Method: EPA 300.0 Rev. 2.1

Batch ID: P379227

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

Reference Method: EPA 350.1 Rev. 2.0

Batch ID: P378889

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

Reference Method: EPA 351.2 Rev. 2.0

Batch ID: P378750

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Kjeldahl Nitrogen	97.6		P	90 - 110

Quality Assurance Report

Laboratory Control Sample Accuracy

Reference Method: EPA 351.2 Rev. 2.0

Batch ID: P378923

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

Reference Method: EPA 353.2 Rev. 2.0

Batch ID: P378952

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

Reference Method: EPA 353.2 Rev. 2.0

Batch ID: P378953

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

Reference Method: EPA 365.1 Rev. 2.0

Batch ID: P378814

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

Reference Method: EPA 365.1 Rev. 2.0

Batch ID: P378914

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved

Batch ID: P378355

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

Reference Method: EPA 8321B

Batch ID: P378426

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2,4-D	122		P	30 - 160
Acetaminophen	76.7		P	30 - 160
Acetamiprid	88.1		P	30 - 160
Afidopyropen	82.6		P	30 - 160
Bentazon	65.9		P	30 - 160
Benzovindiflupyr	77.4		P	30 - 160
Carbamazepine	77.8		P	30 - 160
Clothianidin	81.8		P	30 - 160
Dinotefuran	87.3		P	30 - 160
Diuron	88.5		P	30 - 160
Fenuron	98.0		P	30 - 160
Fluridone	83.9		P	30 - 160
Hydrocodone	92.2		P	30 - 160
Ibuprofen	76.6		P	30 - 160
Imazapyr	96.6		P	30 - 160
Imidacloprid	95.0		P	30 - 160

Quality Assurance Report

Laboratory Control Sample Accuracy

Reference Method: EPA 8321B

Batch ID: P378426

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Linuron	69.6		P	30 - 160
Mandestrobin	92.4		P	30 - 160
MCP	126		P	30 - 160
Naproxen	90.4		P	30 - 160
Primidone	90.0		P	30 - 160
Pyraclostrobin	96.1		P	30 - 160
Thiamethoxam	95.6		P	30 - 160
Tolfenpyrad	50.1		P	30 - 160
Triclopyr	104		P	30 - 160

Reference Method: EPA 8321B

Batch ID: P378544

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Acesulfame K	87.8		P	40 - 150
AMPA	88.7		P	40 - 150
Endothall	96.9		P	40 - 150
Glufosinate	137		P	40 - 150
Glyphosate	115		P	40 - 140
Sucralose	99.1		P	40 - 150

Reference Method: SM 2120 B-2011

Batch ID: P378447

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

Reference Method: SM 2320 B-2011

Batch ID: P378557

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

Reference Method: SM 4500 F-C-2011

Batch ID: P378561

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

Reference Method: SM 5310 B-2011

Batch ID: P378535

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

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 200.7 Rev. 4.4

Batch ID: P378477

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

Reference Method: EPA 200.8 Rev. 5.4

Batch ID: P378477

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

Reference Method: EPA 300.0 Rev. 2.1

Batch ID: P379225

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

Quality Assurance Report Matrix Spike Accuracy

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

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

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

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

Reference Method: EPA 351.2 Rev. 2.0
 Batch ID: P378750

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2154951	Kjeldahl Nitrogen	102	98.2	P/P	90 - 110

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

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

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

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

Reference Method: EPA 353.2 Rev. 2.0
 Batch ID: P378953

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2154929	NO2NO3-N	95.8		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
 Batch ID: P378814

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2154928	Total-P	106	110	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
 Batch ID: P378914

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2155299	Total-P	107	106	P/P	90 - 110

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

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

Quality Assurance Report

Matrix Spike Accuracy

Reference Method: EPA 8321B

Batch ID: P378426

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2154702	2,4-D	108	116	P/P	30 - 160
2154702	Acetaminophen	88.6	92.7	P/P	30 - 160
2154702	Acetamiprid	91.4	84.7	P/P	30 - 160
2154702	Afidopyropen	92.6	96.1	P/P	30 - 160
2154702	Benzovindiflupyr	77.4	78.8	P/P	30 - 160
2154702	Carbamazepine	75.4	80.6	P/P	30 - 160
2154702	Clothianidin	87.3	93.8	P/P	30 - 160
2154702	Dinotefuran	113	122	P/P	30 - 160
2154702	Diuron	75.0	64.9	P/P	30 - 160
2154702	Fenuron	79.4	74.8	P/P	30 - 160
2154702	Fluridone	89.6	84.5	P/P	30 - 160
2154702	Hydrocodone	101	90.1	P/P	30 - 160
2154702	Ibuprofen	71.4	67.7	P/P	30 - 160
2154702	Imazapyr	75.0	88.9	P/P	30 - 160
2154702	Imidacloprid	151	149	P/P	30 - 160
2154702	Linuron	65.1	63.0	P/P	30 - 160
2154702	Mandestrobin	90.4	92.1	P/P	30 - 160
2154702	MCCP	112	117	P/P	30 - 160
2154702	Naproxen	118	71.2	P/P	30 - 160
2154702	Primidone	90.3	88.0	P/P	30 - 160
2154702	Pyraclostrobin	89.3	91.9	P/P	30 - 160
2154702	Thiamethoxam	118	129	P/P	30 - 160
2154702	Tolfenpyrad	49.7	45.2	P/P	30 - 160
2154702	Triclopyr	104	102	P/P	30 - 160

Reference Method: EPA 8321B

Batch ID: P378544

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2154942	Acesulfame K	36.5	40.2	F/P	40 - 150
2154942	AMPA	102	91.2	P/P	40 - 150
2154942	Endothall	92.8	95.5	P/P	40 - 150
2154942	Glufosinate	121	125	P/P	40 - 150
2154942	Glyphosate	112	118	P/P	40 - 140
2154942	Sucralose	57.2	60.4	P/P	40 - 150

Reference Method: SM 4500 F-C-2011

Batch ID: P378561

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

Reference Method: SM 5310 B-2011

Batch ID: P378535

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

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P378395

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2154804	Turbidity	2.28	Sample	P	0 - 20

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

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

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

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

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

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

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

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

Quality Assurance Report Precision

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

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P378750

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2154951	Kjeldahl Nitrogen	2.30	Spike	P	0 - 20

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

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

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

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P378953

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2154929	NO2NO3-N	0.338	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P378814

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2154928	Total-P	3.42	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P378914

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2155299	Total-P	0.600	Spike	P	0 - 20

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

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

Quality Assurance Report

Precision

Reference Method: EPA 8321B

Batch ID: P378426

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2154702	2,4-D	5.99	Spike	P	0 - 30
2154702	Acetaminophen	4.54	Spike	P	0 - 30
2154702	Acetamiprid	7.66	Spike	P	0 - 30
2154702	Afidopyropen	3.69	Spike	P	0 - 30
2154702	Bentazon	6.02	Spike	P	0 - 30
2154702	Benzovindiflupyr	1.82	Spike	P	0 - 30
2154702	Carbamazepine	6.61	Spike	P	0 - 30
2154702	Clothianidin	6.55	Spike	P	0 - 30
2154702	Dinotefuran	6.60	Spike	P	0 - 30
2154702	Diuron	14.4	Spike	P	0 - 30
2154702	Fenuron	5.99	Spike	P	0 - 30
2154702	Fluridone	4.71	Spike	P	0 - 30
2154702	Hydrocodone	11.9	Spike	P	0 - 30
2154702	Ibuprofen	5.36	Spike	P	0 - 30
2154702	Imazapyr	10.2	Spike	P	0 - 30
2154702	Imidacloprid	1.34	Spike	P	0 - 30
2154702	Linuron	3.30	Spike	P	0 - 30
2154702	Mandestrobin	1.90	Spike	P	0 - 30
2154702	MCPP	3.93	Spike	P	0 - 30
2154702	Naproxen	49.1	Spike	F	0 - 30
2154702	Primidone	2.64	Spike	P	0 - 30
2154702	Pyraclostrobin	2.95	Spike	P	0 - 30
2154702	Thiamethoxam	7.32	Spike	P	0 - 30
2154702	Tolfenpyrad	9.60	Spike	P	0 - 30
2154702	Triclopyr	1.94	Spike	P	0 - 30

Reference Method: EPA 8321B

Batch ID: P378544

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2154942	Acesulfame K	9.74	Spike	P	0 - 30
2154942	AMPA	11.2	Spike	P	0 - 30
2154942	Endothall	2.94	Spike	P	0 - 30
2154942	Glufosinate	3.12	Spike	P	0 - 30
2154942	Glyphosate	5.30	Spike	P	0 - 30
2154942	Sucralose	4.99	Spike	P	0 - 30

Reference Method: SM 2120 B-2011

Batch ID: P378447

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

Reference Method: SM 2320 B-2011

Batch ID: P378557

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

Quality Assurance Report Precision

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

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

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

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

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

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

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

Quality Assurance Report Surrogates

Lab Sample ID: 2154942

Field Sample ID: G1WA0086

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	2,4-D-d3	122	P	30 - 160
EPA 8321B	Acetaminophen-d4	93.7	P	30 - 160
EPA 8321B	Carbamazepine-d10	77.9	P	30 - 160
EPA 8321B	Diuron-d6	85.8	P	30 - 160
EPA 8321B	Endothall-d6	103	P	30 - 160
EPA 8321B	Endothall-d6	103	P	30 - 160
EPA 8321B	Glyphosate 13C 15N	80.9	P	30 - 160
EPA 8321B	Glyphosate 13C 15N	80.9	P	30 - 160
EPA 8321B	Ibuprofen-d3	78.1	P	30 - 160
EPA 8321B	Primidone-d5	97.3	P	30 - 160
EPA 8321B	Sucralose-d6	64.6	P	30 - 160
EPA 8321B	Sucralose-d6	64.6	P	30 - 160

Quality Assurance Report Calibration Verification

Reference Method: EPA 365.1 Rev. 2.0 dissolved

Run ID: A97339

Included Lab Sample IDs: 2154924, 2154931, 2154932, 2154933

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	96.0	95.3	P/P	90 - 110
O-Phosphate-P	96.9	96.0	P/P	90 - 110

Reference Method: EPA 180.1 Rev. 2.0

Run ID: A97350

Included Lab Sample IDs: 2154922, 2154925, 2154926, 2154927

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

Reference Method: SM 2120 B-2011

Run ID: A97363

Included Lab Sample IDs: 2154922, 2154925, 2154926, 2154927

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

Reference Method: SM 5310 B-2011

Run ID: A97399

Included Lab Sample IDs: 2154923, 2154928, 2154929, 2154930

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

Reference Method: EPA 200.7 Rev. 4.4

Run ID: A97400

Included Lab Sample IDs: 2154943

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

Reference Method: SM 2320 B-2011

Run ID: A97407

Included Lab Sample IDs: 2154922, 2154925, 2154926, 2154927

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

Reference Method: SM 4500 F-C-2011

Run ID: A97407

Included Lab Sample IDs: 2154922, 2154925, 2154926, 2154927

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

Quality Assurance Report Calibration Verification

Reference Method: SM 4500 F-C-2011

Run ID: A97407

Included Lab Sample IDs: 2154922, 2154925, 2154926, 2154927

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

Reference Method: EPA 8321B

Run ID: A97412

Included Lab Sample IDs: 2154942

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

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A97523

Included Lab Sample IDs: 2154930

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	98.2	94.9	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A97525

Included Lab Sample IDs: 2154923, 2154928, 2154929, 2154930

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

Quality Assurance Report Calibration Verification

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A97543

Included Lab Sample IDs: 2154923

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

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A97549

Included Lab Sample IDs: 2154923, 2154928, 2154929, 2154930

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO2NO3-N	100	101	P/P	90 - 110
NO2NO3-N	99.5	99.5	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A97580

Included Lab Sample IDs: 2154923, 2154928, 2154929

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

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A97594

Included Lab Sample IDs: 2154928

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	102	99.2	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A97595

Included Lab Sample IDs: 2154929, 2154930

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	98.3	99.1	P/P	90 - 110

Reference Method: EPA 8321B

Run ID: A97597

Included Lab Sample IDs: 2154942

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
AMPA	108	108	P/P	60 - 160
Glufosinate	117	136	P/P	60 - 160
Glyphosate	113	112	P/P	60 - 160

Reference Method: EPA 8321B

Run ID: A97601

Included Lab Sample IDs: 2154942

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Acesulfame K	109	93.0	P/P	60 - 160
Endothall	95.0	93.9	P/P	60 - 160

Quality Assurance Report Calibration Verification

Reference Method: EPA 200.8 Rev. 5.4

Run ID: A97637

Included Lab Sample IDs: 2154943

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

Reference Method: EPA 300.0 Rev. 2.1

Run ID: A97638

Included Lab Sample IDs: 2154922, 2154925, 2154926, 2154927

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	97.3	98.7	P/P	90 - 110
Chloride	98.7	98.9	P/P	90 - 110
Sulfate	98.0	99.3	P/P	90 - 110
Sulfate	99.3	99.5	P/P	90 - 110

Reference Method: EPA 200.8 Rev. 5.4

Run ID: A97713

Included Lab Sample IDs: 2154943

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

Reference Method: EPA 8321B

Run ID: A97805

Included Lab Sample IDs: 2154942

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Sucralose	94.0	103	P/P	60 - 160

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

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

Where they are different, both control limits are provided.

Quality Assurance Report Summary

Ref. Method	Analyte	LCS % Recovery			MS % Recovery			LCS	Precision SMP	MS
EPA 180.1 Rev. 2.0	Turbidity								2.28	
EPA 200.7 Rev. 4.4	Barium	94.8			95.2	93.2	94.1			2.10
	Calcium	99.5			99.2	96.5				2.01
	Iron	103			102	99.1	101			2.42
	Magnesium	102			99.8	96.3	95.1			1.97
	Potassium	98.7			98.4	96.3	97.2			1.99
	Sodium	99.4			101	98.2	95.7			1.68
	Zinc	92.4			92.5	89.9	90.0			2.48
EPA 200.8 Rev. 5.4	Aluminum	104			101	99.7	101			1.38
	Antimony	104			104	103	107			0.874
	Arsenic	103			103	102	101			1.27
	Boron	98.1			98.6	97.0	99.2			1.48
	Cadmium	103			104	102	104			2.50
	Chromium	101			100	103	102			2.14
	Copper	102			99.8	98.8	103			0.941
	Lead	99.4			98.9	96.9	99.3			2.06
	Nickel	106			103	99.7	99.9			3.02
	Selenium	101			99.2	97.6	95.7			1.91
	Silver	104			103	104	103			0.447
	Thallium	97.9			97.4	96.4	98.0			1.04
EPA 300.0 Rev. 2.1	Chloride	100			101	99.8			0.398	
	Sulfate	101			99.9	99.1			0.161	
EPA 350.1 Rev. 2.0	Ammonia-N	99.7			99.9	102				1.83
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	97.6			102	98.2				2.30
	Kjeldahl Nitrogen	102			94.3	108				9.21
EPA 353.2 Rev. 2.0	NO2NO3-N	99.5			98.5	99.0				0.387
	NO2NO3-N	100			95.8					0.338
EPA 365.1 Rev. 2.0	Total-P	105			106	110				3.42
	Total-P	106			107	106				0.600
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	102			97.4	100				2.25
EPA 8321B	2,4-D	122			108	116				5.99
	Acesulfame K	87.8			36.5	40.2				9.74
	Acetaminophen	76.7			88.6	92.7				4.54
	Acetamiprid	88.1			91.4	84.7				7.66
	Afidopyropen	82.6			92.6	96.1				3.69
	AMPA	88.7			102	91.2				11.2
	Bentazon	65.9								6.02
	Benzovindiflupyr	77.4			77.4	78.8				1.82
	Carbamazepine	77.8			75.4	80.6				6.61
	Clothianidin	81.8			87.3	93.8				6.55
	Dinotefuran	87.3			113	122				6.60
	Diuron	88.5			75.0	64.9				14.4
	Endothall	96.9			92.8	95.5				2.94
	Fenuron	98.0			79.4	74.8				5.99
	Fluridone	83.9			89.6	84.5				4.71
	Glufosinate	137			121	125				3.12
	Glyphosate	115			112	118				5.30
	Hydrocodone	92.2			101	90.1				11.9
	Ibuprofen	76.6			71.4	67.7				5.36
	Imazapyr	96.6			75.0	88.9				10.2
	Imidacloprid	95.0			151	149				1.34
	Linuron	69.6			65.1	63.0				3.30
	Mandestrobin	92.4			90.4	92.1				1.90
	MCPP	126			112	117				3.93

Quality Assurance Report Summary

Ref. Method	Analyte	LCS % Recovery	MS % Recovery		Precision	
					LCS	MS
EPA 8321B	Naproxen	90.4	118	71.2		49.1
	Primidone	90.0	90.3	88.0		2.64
	Pyraclostrobin	96.1	89.3	91.9		2.95
	Sucralose	99.1	57.2	60.4		4.99
	Thiamethoxam	95.6	118	129		7.32
	Tolfenpyrad	50.1	49.7	45.2		9.60
	Triclopyr	104	104	102		1.94
SM 2120 B-2011	Color (true)	101			0.696	
SM 2320 B-2011	Total Alkalinity	102			0.119	
SM 2540 C-2011	TDS				2.24	
SM 4500 F-C-2011	Fluoride	102	104	105		0.464
SM 5310 B-2011	Organic Carbon	99.6	101	103		0.806

Reference Method Descriptions

Method	Description	Associated Samples
EPA 180.1 Rev. 2.0	Turbidity in aqueous matrices	2154922, 2154925, 2154926, 2154927
EPA 200.7 Rev. 4.4	Total Recoverable Metals analysis using ICP emission spectroscopy for aqueous samples supporting Clean Water Act Projects	2154943
EPA 200.8 Rev. 5.4	Total Recoverable Metals analysis using ICP-MS for aqueous samples supporting Clean Water Act Projects	2154943
EPA 300.0 Rev. 2.1	Chloride in aqueous matrices	2154922, 2154925, 2154926, 2154927
EPA 300.0 Rev. 2.1	Sulfate in aqueous matrices	2154922, 2154925, 2154926, 2154927
EPA 350.1 Rev. 2.0	Ammonia in aqueous matrices as mg N/L	2154923, 2154928, 2154929, 2154930
EPA 351.2 Rev. 2.0	Total Kjeldahl Nitrogen in aqueous matrices	2154923, 2154928, 2154929, 2154930
EPA 353.2 Rev. 2.0	Nitrite/Nitrate in aqueous matrices as mg N/L	2154923, 2154928, 2154929, 2154930
EPA 365.1 Rev. 2.0	Total Phosphorus in aqueous matrices as mg P/L	2154923, 2154928, 2154929, 2154930
EPA 365.1 Rev. 2.0 dissolved	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	2154924, 2154931, 2154932, 2154933
EPA 8321B	Pesticides, herbicides, and other chemicals in water matrices by HPLC/MS/MS	2154942
EPA 8321B	Water soluble organic compounds by HPLC/MS/MS	2154942
SM 2120 B-2011	True Color measured at 450 nm (not valid for NPDES monitoring)	2154922, 2154925, 2154926, 2154927
SM 2320 B-2011	Alkalinity in aqueous matrices as mg CaCO3/L	2154922, 2154925, 2154926, 2154927
SM 2540 C-2011	Total Dissolved Solids in aqueous matrices	2154922, 2154925, 2154926, 2154927
SM 2540 D-2011	Total Suspended Solids in aqueous matrices using a maximum of 250 mL of sample	2154922, 2154925, 2154926, 2154927
SM 4500 F-C-2011	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	2154922, 2154925, 2154926, 2154927
SM 5310 B-2011	Nonpurgeable Organic Carbon in aqueous matrices	2154923, 2154928, 2154929, 2154930

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
EPA 180.1 Rev. 2.0	02/05/2020			02/05/2020 16:54	Yen Ta	2154922, 2154925, 2154926, 2154927
EPA 200.7 Rev. 4.4	02/05/2020	02/06/2020 17:45	Elliott D. Healy	02/07/2020 14:56	Betina Topolski	2154943
EPA 200.8 Rev. 5.4	02/05/2020	02/06/2020 17:45	Elliott D. Healy	02/18/2020 19:42	Justin Cutchin	2154943
	02/05/2020	02/06/2020 17:45	Elliott D. Healy	02/20/2020 16:36	Justin Cutchin	2154943
EPA 300.0 Rev. 2.1	02/05/2020			02/19/2020 22:15	Lipi Saha	2154922
	02/05/2020			02/19/2020 22:51	Lipi Saha	2154925
	02/05/2020			02/19/2020 23:03	Lipi Saha	2154926
	02/05/2020			02/19/2020 23:15	Lipi Saha	2154927
EPA 350.1 Rev. 2.0	02/05/2020			02/13/2020 12:14	Ping Hua	2154923
	02/05/2020			02/13/2020 12:15	Ping Hua	2154928
	02/05/2020			02/13/2020 12:18	Ping Hua	2154929
	02/05/2020			02/13/2020 12:20	Ping Hua	2154930
EPA 351.2 Rev. 2.0	02/05/2020	02/12/2020 12:30	Elliott Rodriguez	02/13/2020 12:47	Julia Storbeck	2154930
	02/05/2020	02/14/2020 09:30	Elliott Rodriguez	02/17/2020 10:53	Jhamieka S. Greenwood	2154923
	02/05/2020	02/14/2020 09:30	Elliott Rodriguez	02/17/2020 11:07	Jhamieka S. Greenwood	2154928
	02/05/2020	02/14/2020 09:30	Elliott Rodriguez	02/17/2020 11:08	Jhamieka S. Greenwood	2154929
EPA 353.2 Rev. 2.0	02/05/2020			02/13/2020 11:49	Beverly Y. Sanders	2154929
	02/05/2020			02/13/2020 11:55	Beverly Y. Sanders	2154930
	02/05/2020			02/13/2020 12:59	Beverly Y. Sanders	2154923
	02/05/2020			02/13/2020 13:00	Beverly Y. Sanders	2154928
EPA 365.1 Rev. 2.0	02/05/2020	02/12/2020 14:34	Yen Ta	02/14/2020 12:59	Benjamin T. Nordmann	2154929
	02/05/2020	02/12/2020 14:34	Yen Ta	02/14/2020 13:00	Benjamin T. Nordmann	2154930
	02/05/2020	02/12/2020 14:34	Yen Ta	02/17/2020 15:37	Benjamin T. Nordmann	2154928
	02/05/2020	02/13/2020 13:46	Yen Ta	02/14/2020 11:19	Benjamin T. Nordmann	2154923
EPA 365.1 Rev. 2.0 dissolved	02/05/2020			02/05/2020 18:35	Carlos Miranda	2154924
	02/05/2020			02/05/2020 18:40	Carlos Miranda	2154931
	02/05/2020			02/05/2020 18:41	Carlos Miranda	2154932
	02/05/2020			02/05/2020 18:42	Carlos Miranda	2154933
EPA 8321B	02/05/2020	02/07/2020 10:00	Hoor Shaik	02/08/2020 20:50	Juyoung Kim	2154942
	02/05/2020	02/10/2020 11:45	Rebecca Ware	02/10/2020 15:29	Rebecca Ware	2154942
	02/05/2020	02/10/2020 11:45	Rebecca Ware	02/11/2020 11:21	Rebecca Ware	2154942
	02/05/2020	02/10/2020 11:45	Rebecca Ware	02/22/2020 11:35	Rebecca Ware	2154942
SM 2120 B-2011	02/05/2020			02/05/2020 17:53	Madeline Funaro	2154922
	02/05/2020			02/05/2020 17:54	Madeline Funaro	2154925, 2154926
	02/05/2020			02/05/2020 17:55	Madeline Funaro	2154927
SM 2320 B-2011	02/05/2020			02/08/2020 10:31	Dale L. Simmons	2154922
	02/05/2020			02/08/2020 11:10	Dale L. Simmons	2154925
	02/05/2020			02/08/2020 11:22	Dale L. Simmons	2154926
	02/05/2020			02/08/2020 11:33	Dale L. Simmons	2154927
SM 2540 C-2011	02/05/2020			02/10/2020 17:30	Blanca Fach	2154922, 2154925, 2154926, 2154927

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
SM 2540 D-2011	02/05/2020			02/10/2020 17:30	Blanca Fach	2154922, 2154925, 2154926, 2154927
SM 4500 F-C-2011	02/05/2020			02/08/2020 10:31	Dale L. Simmons	2154922
	02/05/2020			02/08/2020 11:10	Dale L. Simmons	2154925
	02/05/2020			02/08/2020 11:22	Dale L. Simmons	2154926
	02/05/2020			02/08/2020 11:33	Dale L. Simmons	2154927
SM 5310 B-2011	02/05/2020			02/08/2020 04:13	Madeline Funaro	2154923
	02/05/2020			02/08/2020 04:25	Madeline Funaro	2154928
	02/05/2020			02/08/2020 04:40	Madeline Funaro	2154929
	02/05/2020			02/08/2020 04:52	Madeline Funaro	2154930