

Chemical Analysis Report

CEN-DIST-2020-03-11-01

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

Event Description: **Ann / Florida / Adelaide / Seacry / Ellen + D&B**
Request ID: **RQ-2020-01-13-26**
Customer: **CEN-DIST**
Project ID: **SMP**

Send Reports to:
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Certified by: Kerry Tate, Ph.D., Environmental Administrator

Date Certified: 31-MAR-2020 09:38

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 Searcy @ Center

Collection Date/Time: 03/10/2020 11:25

Field ID: G2CE0137

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2164306	EPA 180.1 Rev. 2.0	Turbidity	19		NTU	P380534	
	EPA 300.0 Rev. 2.1	Chloride	23	A	mg Cl/L	P380837	
		Sulfate	2.9	A	mg SO4/L	P380838	
	SM 2120 B-2011	Color (true)	47		PCU	P380483	
	SM 2320 B-2011	Total Alkalinity	31		mg CaCO3/L	P380928	
	SM 2540 C-2011	TDS	103		mg/L	P381116	
	SM 2540 D-2011	TSS	11	I	mg/L	P381184	
	SM 4500 F-C-2011	Fluoride	0.063	I	mg F/L	P381262	
2164308	EPA 350.1 Rev. 2.0	Ammonia-N	0.008		mg N/L	P380972	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	2.1		mg N/L	P380773	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P381098	
	EPA 365.1 Rev. 2.0	Total-P	0.11		mg P/L	P380897	
	SM 5310 B-2011	Organic Carbon	12		mg C/L	P380673	
2164310	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P380506	

Ref. Method and Comment:

SM 2540 D-2011: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample. The PQL was elevated because of sample matrix interference.

Sample Location: Lake Ellen @ Center

Collection Date/Time: 03/10/2020 12:02

Field ID: G2CE0060

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2164312	EPA 180.1 Rev. 2.0	Turbidity	1.8		NTU	P380534	
	EPA 300.0 Rev. 2.1	Chloride	14		mg Cl/L	P380837	
		Sulfate	12		mg SO4/L	P380838	
		Color (true)	25	A	PCU	P380482	
	SM 2320 B-2011	Total Alkalinity	8.1		mg CaCO3/L	P381066	
	SM 2540 C-2011	TDS	57		mg/L	P381116	
	SM 2540 D-2011	TSS	2	U	mg/L	P381184	
	SM 4500 F-C-2011	Fluoride	0.046	I	mg F/L	P381262	
2164313	EPA 350.1 Rev. 2.0	Ammonia-N	0.002	I	mg N/L	P380972	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.88		mg N/L	P380773	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P381099	
	EPA 365.1 Rev. 2.0	Total-P	0.018		mg P/L	P380897	
	SM 5310 B-2011	Organic Carbon	6.0		mg C/L	P380673	
2164314	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P380506	
2164320	EPA 200.7 Rev. 4.4	Barium	10.7		ug/L	P380556	
		Calcium	4.86		mg/L	P380556	
		Iron	30	U	ug/L	P380556	
		Magnesium	2.36		mg/L	P380556	
		Potassium	2.4		mg/L	P380556	
		Sodium	9.2		mg/L	P380556	
		Zinc	5.0	U	ug/L	P380556	
	EPA 200.8 Rev. 5.4	Aluminum	14	I	ug/L	P380556	
		Antimony	0.059	I	ug/L	P380556	
		Arsenic	1.16		ug/L	P380556	
		Boron**	41.8		ug/L	P380556	
		Cadmium	0.020	U	ug/L	P380556	
		Chromium	0.40	U	ug/L	P380556	
		Copper	0.42	I	ug/L	P380875	
		Lead	0.20	U	ug/L	P380556	
		Nickel	0.50	U	ug/L	P380556	
		Selenium	0.20	U	ug/L	P380556	
		Silver	0.010	U	ug/L	P380556	
		Thallium	0.10	U	ug/L	P380556	

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: Lake Florida @ Center of Lake

Collection Date/Time: 03/10/2020 12:37

Field ID: G2CE0150

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2164307	EPA 180.1 Rev. 2.0	Turbidity	3.5		NTU	P380534	
	EPA 300.0 Rev. 2.1	Chloride	18		mg Cl/L	P380837	
		Sulfate	4.0		mg SO4/L	P380838	
	SM 2120 B-2011	Color (true)	68		PCU	P380481	
	SM 2320 B-2011	Total Alkalinity	47		mg CaCO3/L	P381066	
	SM 2540 C-2011	TDS	113	A	mg/L	P381116	
	SM 2540 D-2011	TSS	4	IA	mg/L	P381184	
	SM 4500 F-C-2011	Fluoride	0.081	I	mg F/L	P381262	
2164309	EPA 350.1 Rev. 2.0	Ammonia-N	0.005	I	mg N/L	P380972	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.48		mg N/L	P380773	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P381098	
	EPA 365.1 Rev. 2.0	Total-P	0.13		mg P/L	P380897	
	SM 5310 B-2011	Organic Carbon	11		mg C/L	P380673	
2164311	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.051		mg P/L	P380506	

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: Lake Ann at Center

Collection Date/Time: 03/10/2020 13:30

Field ID: G2CE0097

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2164303	EPA 180.1 Rev. 2.0	Turbidity	5.2	A	NTU	P380534	
	EPA 300.0 Rev. 2.1	Chloride	19		mg Cl/L	P380670	
		Sulfate	13		mg SO4/L	P380671	
	SM 2120 B-2011	Color (true)	25		PCU	P380481	
	SM 2320 B-2011	Total Alkalinity	27		mg CaCO3/L	P380928	
	SM 2540 C-2011	TDS	94		mg/L	P381115	
	SM 2540 D-2011	TSS	7	I	mg/L	P381183	
	SM 4500 F-C-2011	Fluoride	0.035	U	mg F/L	P381262	
2164304	EPA 350.1 Rev. 2.0	Ammonia-N	0.002	U	mg N/L	P380972	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.88		mg N/L	P380773	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P381098	
	EPA 365.1 Rev. 2.0	Total-P	0.025		mg P/L	P380897	
	SM 5310 B-2011	Organic Carbon	9.3		mg C/L	P380673	
2164305	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P380504	
2164319	EPA 8321B	2,4-D	0.0059	I	ug/L	P380459	
		Acesulfame K**	0.10	U	ug/L	P380603	MS
		AMPA**	0.10	U	ug/L	P380603	
		Sucralose**	1.3		ug/L	P380603	
		Acetaminophen**	0.0080	U	ug/L	P380459	
		Acetamiprid**	0.0020	U	ug/L	P380459	
		Endothall**	0.25	U	ug/L	P380603	
		Glufosinate**	0.10	U	ug/L	P380603	
		Glyphosate**	0.10	U	ug/L	P380603	
		Afidopyropen**	0.0020	UJ	ug/L	P380459	
		Bentazon	0.035		ug/L	P380459	
		Benzovindiflupyr**	0.0020	UJ	ug/L	P380459	
		Carbamazepine**	9.3E-04	I	ug/L	P380459	
		Clothianidin**	0.0020	U	ug/L	P380459	
		Dinotefuran**	0.0020	U	ug/L	P380459	
		Diuron	0.0020	U	ug/L	P380459	
		Fenuron	0.016	U	ug/L	P380459	
		Fluridone**	0.0018	I	ug/L	P380459	
		Imazapyr**	0.026		ug/L	P380459	
		Hydrocodone**	0.0020	U	ug/L	P380459	
		Ibuprofen**	0.020	U	ug/L	P380459	
		Imidacloprid	0.017		ug/L	P380459	MS
		Linuron	0.0040	U	ug/L	P380459	
		Mandestrobin**	0.0020	UJ	ug/L	P380459	
		MCP	0.0020	U	ug/L	P380459	MS
		Naproxen**	0.0080	U	ug/L	P380459	
		Primidone**	0.0040	U	ug/L	P380459	
		Pyraclostrobin**	0.0020	U	ug/L	P380459	
		Thiamethoxam**	0.0020	U	ug/L	P380459	MS

Field ID: G2CE0097

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2164319	EPA 8321B	Tolfenpyrad**	0.0020	U	ug/L	P380459	
		Triclopyr**	0.0040	U	ug/L	P380459	

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.

Quality Assurance Report Method Blank Results

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P380534

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P380556

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: P380556

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
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 200.8 Rev. 5.4
Batch ID: P380875

Component	Result	Code	Units
Copper	0.40	U	ug/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P380670

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P380671

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P380837

Component	Result	Code	Units
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Quality Assurance Report

Method Blank Results

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P380837

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P380838

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P380972

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P380773

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P381098

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P381099

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P380897

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P380504

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P380506

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

Quality Assurance Report

Method Blank Results

Reference Method: EPA 8321B

Batch ID: P380459

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

Reference Method: EPA 8321B

Batch ID: P380603

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: P380481

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2120 B-2011

Batch ID: P380482

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Quality Assurance Report Method Blank Results

Reference Method: SM 2120 B-2011
Batch ID: P380483

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2320 B-2011
Batch ID: P380928

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

Reference Method: SM 2320 B-2011
Batch ID: P381066

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

Reference Method: SM 2540 C-2011
Batch ID: P381115

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 C-2011
Batch ID: P381116

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-2011
Batch ID: P381183

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 2540 D-2011
Batch ID: P381184

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500 F-C-2011
Batch ID: P381262

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-2011
Batch ID: P380673

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: P380556

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Barium	99.9		P	85 - 115
Calcium	101		P	85 - 115
Iron	105		P	85 - 115
Magnesium	105		P	85 - 115
Potassium	101		P	85 - 115
Sodium	99.0		P	85 - 115
Zinc	100		P	85 - 115

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P380556

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Aluminum	95.4		P	85 - 115
Antimony	90.6		P	85 - 115
Arsenic	97.4		P	85 - 115
Boron	98.1		P	85 - 115
Cadmium	102		P	80 - 120
Chromium	97.4		P	85 - 115
Lead	96.5		P	85 - 115
Nickel	96.6		P	85 - 115
Selenium	96.3		P	85 - 115
Silver	95.1		P	85 - 115
Thallium	99.9		P	85 - 115

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P380875

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Copper	107		P	85 - 115

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P380670

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Chloride	97.7		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P380671

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Sulfate	97.5		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P380837

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P380838

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P380838

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P380972

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P380773

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P381098

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: P381099

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: P380897

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P380504

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
O-Phosphate-P	98.3		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P380506

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

Reference Method: EPA 8321B
Batch ID: P380459

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2,4-D	146		P	30 - 160
Acetaminophen	87.7		P	30 - 160
Acetamiprid	109		P	30 - 160
Afidopyropen	130		P	30 - 160

Quality Assurance Report

Laboratory Control Sample Accuracy

Reference Method: EPA 8321B

Batch ID: P380459

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Bentazon	75.7		P	30 - 160
Benzovindiflupyr	85.5		P	30 - 160
Carbamazepine	106		P	30 - 160
Clothianidin	91.1		P	30 - 160
Dinotefuran	99.7		P	30 - 160
Diuron	97.1		P	30 - 160
Fenuron	108		P	30 - 160
Fluridone	86.4		P	30 - 160
Hydrocodone	94.3		P	30 - 160
Ibuprofen	81.7		P	30 - 160
Imazapyr	81.7		P	30 - 160
Imidacloprid	101		P	30 - 160
Linuron	83.6		P	30 - 160
Mandestrobin	85.0		P	30 - 160
MCPP	158		P	30 - 160
Naproxen	78.9		P	30 - 160
Primidone	103		P	30 - 160
Pyraclostrobin	74.0		P	30 - 160
Thiamethoxam	111		P	30 - 160
Tolfenpyrad	53.5		P	30 - 160
Triclopyr	117		P	30 - 160

Reference Method: EPA 8321B

Batch ID: P380603

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Acesulfame K	77.2		P	40 - 150
AMPA	92.5		P	40 - 150
Endothall	128		P	40 - 150
Glufosinate	121		P	40 - 150
Glyphosate	93.7		P	40 - 140
Sucralose	104		P	40 - 150

Reference Method: SM 2120 B-2011

Batch ID: P380481

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Color (true)	103		P	85 - 115

Reference Method: SM 2120 B-2011

Batch ID: P380482

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Color (true)	102		P	85 - 115

Reference Method: SM 2120 B-2011

Batch ID: P380483

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Color (true)	102		P	85 - 115

Quality Assurance Report

Laboratory Control Sample Accuracy

Reference Method: SM 2320 B-2011
Batch ID: P380928

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	104		P	98 - 106

Reference Method: SM 2320 B-2011
Batch ID: P381066

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	104		P	98 - 106

Reference Method: SM 4500 F-C-2011
Batch ID: P381262

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

Reference Method: SM 5310 B-2011
Batch ID: P380673

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	94.6		P	85 - 115

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P380556

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2163644	Barium	101	103	P/P	80 - 120
2163644	Calcium	103		P	80 - 120
2163644	Iron	104	104	P/P	80 - 120
2163644	Magnesium	102	102	P/P	80 - 120
2163644	Potassium	101	101	P/P	80 - 120
2163644	Sodium	100		P	80 - 120
2163644	Zinc	102	104	P/P	80 - 120
2164291	Barium	99.2		P	80 - 120
2164291	Calcium	102		P	80 - 120
2164291	Iron	105		P	80 - 120
2164291	Magnesium	103		P	80 - 120
2164291	Potassium	97.4		P	80 - 120
2164291	Sodium	99.7		P	80 - 120
2164291	Zinc	102		P	80 - 120

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P380556

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2163644	Aluminum	93.9	95.6	P/P	80 - 120
2163644	Antimony	97.8	100	P/P	80 - 120
2163644	Arsenic	97.4	99.4	P/P	80 - 120
2163644	Boron	98.2	100	P/P	80 - 120
2163644	Cadmium	96.5	101	P/P	80 - 120
2163644	Chromium	97.9	99.8	P/P	80 - 120
2163644	Lead	98.9	99.0	P/P	80 - 120
2163644	Nickel	95.5	97.4	P/P	80 - 120
2163644	Selenium	87.7	90.8	P/P	80 - 120
2163644	Silver	98.2	99.4	P/P	80 - 120
2163644	Thallium	102	103	P/P	80 - 120
2164291	Aluminum	95.8		P	80 - 120
2164291	Antimony	96.5		P	80 - 120
2164291	Arsenic	100		P	80 - 120
2164291	Boron	99.9		P	80 - 120
2164291	Cadmium	96.5		P	80 - 120
2164291	Chromium	101		P	80 - 120
2164291	Lead	99.8		P	80 - 120
2164291	Nickel	94.1		P	80 - 120
2164291	Selenium	91.5		P	80 - 120
2164291	Silver	98.5		P	80 - 120
2164291	Thallium	105		P	80 - 120

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P380875

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2163421	Copper	105	109	P/P	80 - 120
2163799	Copper	116		P	80 - 120

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P380670

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2163860	Chloride	96.2		P	90 - 110
2164261	Chloride	97.5		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P380671

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2163860	Sulfate	97.3		P	90 - 110
2164261	Sulfate	98.6		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P380837

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2164306	Chloride	97.8		P	90 - 110
2164390	Chloride	98.4		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P380838

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2164306	Sulfate	98.6		P	90 - 110
2164390	Sulfate	99.1		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P380972

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2164304	Ammonia-N	104	104	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P380773

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2164269	Kjeldahl Nitrogen	92.9	93.8	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P381098

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2164265	NO2NO3-N	98.4	98.4	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P381099

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2164313	NO2NO3-N	99.5	100	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P380897

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

Reference Method: EPA 365.1 Rev. 2.0
 Batch ID: P380897

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2164265	Total-P	106	105	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
 Batch ID: P380504

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2163872	O-Phosphate-P	97.4	98.7	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
 Batch ID: P380506

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2164310	O-Phosphate-P	98.0	99.2	P/P	90 - 110

Reference Method: EPA 8321B
 Batch ID: P380459

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2163998	2,4-D	146	141	P/P	30 - 160
2163998	Acetaminophen	82.1	85.2	P/P	30 - 160
2163998	Acetamiprid	96.3	85.0	P/P	30 - 160
2163998	Afidopyropen	118	105	P/P	30 - 160
2163998	Bentazon	44.6	38.0	P/P	30 - 160
2163998	Benzovindiflupyr	62.5	63.1	P/P	30 - 160
2163998	Carbamazepine	85.3	89.5	P/P	30 - 160
2163998	Clothianidin	106	98.3	P/P	30 - 160
2163998	Dinotefuran	117	100	P/P	30 - 160
2163998	Diuron	68.6	74.3	P/P	30 - 160
2163998	Fenuron	88.8	65.7	P/P	30 - 160
2163998	Fluridone	79.5	75.6	P/P	30 - 160
2163998	Hydrocodone	94.0	97.5	P/P	30 - 160
2163998	Ibuprofen	71.2	69.3	P/P	30 - 160
2163998	Imazapyr	104	105	P/P	30 - 160
2163998	Imidacloprid	190	185	F/F	30 - 160
2163998	Linuron	62.2	58.5	P/P	30 - 160
2163998	Mandestrobin	70.9	70.3	P/P	30 - 160
2163998	MCP	165	157	F/P	30 - 160
2163998	Naproxen	82.0	70.6	P/P	30 - 160
2163998	Primidone	91.6	91.5	P/P	30 - 160
2163998	Pyraclostrobin	68.0	65.3	P/P	30 - 160
2163998	Thiamethoxam	170	153	F/P	30 - 160
2163998	Tolfenpyrad	46.0	49.4	P/P	30 - 160
2163998	Triclopyr	124	123	P/P	30 - 160

Reference Method: EPA 8321B
 Batch ID: P380603

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2163766	Acesulfame K	19.2	20.2	F/F	40 - 150
2163766	AMPA	96.6	90.1	P/P	40 - 150
2163766	Endothall	111	115	P/P	40 - 150
2163766	Glufosinate	104	113	P/P	40 - 150

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 8321B
Batch ID: P380603

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2163766	Glyphosate	124	119	P/P	40 - 140
2163766	Sucralose	85.0	109	P/P	40 - 150

Reference Method: SM 4500 F-C-2011
Batch ID: P381262

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2164631	Fluoride	96.7	97.9	P/P	89 - 106

Reference Method: SM 5310 B-2011
Batch ID: P380673

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2164304	Organic Carbon	95.3	96.9	P/P	85 - 115

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P380534

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2164303	Turbidity	3.27	Sample	P	0 - 20

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P380556

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2163644	Barium	2.16	Spike	P	0 - 20
2163644	Calcium	0.515	Spike	P	0 - 20
2163644	Iron	0.231	Spike	P	0 - 20
2163644	Magnesium	0.246	Spike	P	0 - 20
2163644	Potassium	0.291	Spike	P	0 - 20
2163644	Sodium	0.544	Spike	P	0 - 20
2163644	Zinc	2.47	Spike	P	0 - 20

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P380556

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2163644	Aluminum	1.74	Spike	P	0 - 20
2163644	Antimony	2.36	Spike	P	0 - 20
2163644	Arsenic	1.87	Spike	P	0 - 20
2163644	Boron	1.63	Spike	P	0 - 20
2163644	Cadmium	4.72	Spike	P	0 - 20
2163644	Chromium	1.91	Spike	P	0 - 20
2163644	Lead	0.110	Spike	P	0 - 20
2163644	Nickel	2.01	Spike	P	0 - 20
2163644	Selenium	3.46	Spike	P	0 - 20
2163644	Silver	1.27	Spike	P	0 - 20
2163644	Thallium	1.52	Spike	P	0 - 20

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P380875

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2163421	Copper	3.15	Spike	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P380670

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2163860	Chloride	0.289	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P380671

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
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Quality Assurance Report Precision

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P380671

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2163860	Sulfate	0.000688	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P380837

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2164306	Chloride	0.210	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P380838

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2164306	Sulfate	0.619	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P380972

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2164304	Ammonia-N	0.0997	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P380773

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2164269	Kjeldahl Nitrogen	0.679	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P381098

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2164265	NO2NO3-N	0.0	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P381099

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2164313	NO2NO3-N	0.501	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P380897

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2164265	Total-P	1.17	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P380504

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2163872	O-Phosphate-P	1.33	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P380506

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2164310	O-Phosphate-P	1.22	Spike	P	0 - 20

Reference Method: EPA 8321B
Batch ID: P380459

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2163998	2,4-D	3.19	Spike	P	0 - 30
2163998	Acetaminophen	3.69	Spike	P	0 - 30
2163998	Acetamiprid	12.5	Spike	P	0 - 30
2163998	Afidopyropen	11.5	Spike	P	0 - 30
2163998	Bentazon	16.0	Spike	P	0 - 30
2163998	Benzovindiflupyr	0.986	Spike	P	0 - 30
2163998	Carbamazepine	4.89	Spike	P	0 - 30
2163998	Clothianidin	7.84	Spike	P	0 - 30
2163998	Dinotefuran	15.2	Spike	P	0 - 30
2163998	Diuron	8.03	Spike	P	0 - 30
2163998	Fenuron	20.8	Spike	P	0 - 30
2163998	Fluridone	4.99	Spike	P	0 - 30
2163998	Hydrocodone	3.73	Spike	P	0 - 30
2163998	Ibuprofen	2.65	Spike	P	0 - 30
2163998	Imazapyr	1.11	Spike	P	0 - 30
2163998	Imidacloprid	2.84	Spike	P	0 - 30
2163998	Linuron	6.13	Spike	P	0 - 30
2163998	Mandestrobin	0.793	Spike	P	0 - 30
2163998	MCP	4.79	Spike	P	0 - 30
2163998	Naproxen	14.9	Spike	P	0 - 30
2163998	Primidone	0.139	Spike	P	0 - 30
2163998	Pyraclostrobin	4.03	Spike	P	0 - 30
2163998	Thiamethoxam	10.5	Spike	P	0 - 30
2163998	Tolfenpyrad	6.99	Spike	P	0 - 30
2163998	Triclopyr	0.786	Spike	P	0 - 30

Reference Method: EPA 8321B
Batch ID: P380603

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2163766	Acesulfame K	3.67	Spike	P	0 - 30
2163766	AMPA	5.88	Spike	P	0 - 30
2163766	Endothall	2.89	Spike	P	0 - 30
2163766	Glufosinate	8.46	Spike	P	0 - 30
2163766	Glyphosate	3.31	Spike	P	0 - 30
2163766	Sucralose	15.7	Spike	P	0 - 30

Quality Assurance Report Precision

Reference Method: SM 2120 B-2011
Batch ID: P380481

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2164227	Color (true)	0.359	Sample	P	0 - 20

Reference Method: SM 2120 B-2011
Batch ID: P380482

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2164312	Color (true)	3.74	Sample	P	0 - 20

Reference Method: SM 2120 B-2011
Batch ID: P380483

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2163856	Color (true)	3.00	Sample	P	0 - 20

Reference Method: SM 2320 B-2011
Batch ID: P380928

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2163858	Total Alkalinity	0.270	Sample	P	0 - 2.8

Reference Method: SM 2320 B-2011
Batch ID: P381066

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2164631	Total Alkalinity	0.157	Sample	P	0 - 2.8

Reference Method: SM 2540 C-2011
Batch ID: P381115

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2164227	TDS	6.00	Sample	P	0 - 10

Reference Method: SM 2540 C-2011
Batch ID: P381116

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2164307	TDS	0.0	Sample	P	0 - 10

Reference Method: SM 4500 F-C-2011
Batch ID: P381262

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2164631	Fluoride	1.03	Spike	P	0 - 2.5

Quality Assurance Report Precision

Reference Method: SM 5310 B-2011
Batch ID: P380673

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2164304	Organic Carbon	1.12	Spike	P	0 - 20

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

Quality Assurance Report Surrogates

Lab Sample ID: 2164319
Field Sample ID: G2CE0097

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	2,4-D-d3	94.8	P	30 - 160
EPA 8321B	Acetaminophen-d4	77.6	P	30 - 160
EPA 8321B	Carbamazepine-d10	87.4	P	30 - 160
EPA 8321B	Diuron-d6	95.2	P	30 - 160
EPA 8321B	Endothall-d6	110	P	30 - 160
EPA 8321B	Endothall-d6	110	P	30 - 160
EPA 8321B	Glyphosate 13C 15N	82.7	P	30 - 160
EPA 8321B	Glyphosate 13C 15N	82.7	P	30 - 160
EPA 8321B	Ibuprofen-d3	77.3	P	30 - 160
EPA 8321B	Primidone-d5	106	P	30 - 160
EPA 8321B	Sucralose-d6	108	P	30 - 160
EPA 8321B	Sucralose-d6	108	P	30 - 160

Quality Assurance Report Calibration Verification

Reference Method: EPA 300.0 Rev. 2.1

Run ID: A98096

Included Lab Sample IDs: 2164303

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	98.9	98.9	P/P	90 - 110
Sulfate	99.3	99.2	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved

Run ID: A98133

Included Lab Sample IDs: 2164305, 2164310, 2164311, 2164314

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	96.6	96.7	P/P	90 - 110
O-Phosphate-P	96.7	96.2	P/P	90 - 110
O-Phosphate-P	96.8	97.1	P/P	90 - 110

Reference Method: SM 2120 B-2011

Run ID: A98135

Included Lab Sample IDs: 2164303, 2164306, 2164307, 2164312

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

Reference Method: EPA 180.1 Rev. 2.0

Run ID: A98149

Included Lab Sample IDs: 2164303, 2164306, 2164307, 2164312

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

Reference Method: EPA 200.8 Rev. 5.4

Run ID: A98192

Included Lab Sample IDs: 2164320

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Aluminum	100	101	P/P	90 - 110
Antimony	96.1	98.4	P/P	90 - 110
Arsenic	102	103	P/P	90 - 110
Boron	103	106	P/P	90 - 110
Chromium	101	102	P/P	90 - 110
Lead	100	101	P/P	90 - 110
Nickel	102	103	P/P	90 - 110
Selenium	99.2	100	P/P	90 - 110
Silver	94.6	95.8	P/P	90 - 110
Thallium	98.4	98.8	P/P	90 - 110

Reference Method: SM 5310 B-2011

Run ID: A98201

Included Lab Sample IDs: 2164304, 2164308, 2164309, 2164313

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	96.5	97.4	P/P	90 - 110
Organic Carbon	97.6	95.9	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: EPA 8321B
 Run ID: A98208
 Included Lab Sample IDs: 2164319

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
AMPA	89.9	86.3	P/P	40 - 200
Glufosinate	118	119	P/P	40 - 200
Glyphosate	101	89.1	P/P	40 - 200

Reference Method: EPA 8321B
 Run ID: A98210
 Included Lab Sample IDs: 2164319

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Acesulfame K	84.9	87.0	P/P	60 - 160
Endothall	115	123	P/P	60 - 160

Reference Method: EPA 8321B
 Run ID: A98214
 Included Lab Sample IDs: 2164319

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
2,4-D	96.1	103	P/P	50 - 150
Acetaminophen	105	107	P/P	60 - 160
Acetamiprid	114	112	P/P	50 - 150
Afidopyropen	90.4	133	P/P	50 - 150
Bentazon	99.6	99.3	P/P	50 - 160
Benzovindiflupyr	105	108	P/P	50 - 150
Carbamazepine	110	113	P/P	60 - 150
Clothianidin	108	94.7	P/P	60 - 150
Dinotefuran	97.0	99.0	P/P	50 - 150
Diuron	105	112	P/P	60 - 150
Fenuron	107	105	P/P	60 - 150
Fluridone	94.7	103	P/P	60 - 160
Hydrocodone	107	108	P/P	60 - 150
Ibuprofen	92.8	106	P/P	50 - 160
Imazapyr	85.8	68.8	P/P	50 - 150
Imidacloprid	116	109	P/P	60 - 150
Linuron	99.5	114	P/P	60 - 150
Mandestrobin	96.7	98.7	P/P	50 - 150
MCPP	101	113	P/P	50 - 150
Naproxen	81.5	85.1	P/P	50 - 160
Primidone	108	107	P/P	60 - 150
Pyraclostrobin	106	104	P/P	60 - 150
Thiamethoxam	112	103	P/P	50 - 150
Tolfenpyrad	116	113	P/P	60 - 150
Triclopyr	103	112	P/P	50 - 150

Reference Method: EPA 8321B
 Run ID: A98229
 Included Lab Sample IDs: 2164319

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Sucralose	109	112	P/P	60 - 160

Quality Assurance Report Calibration Verification

Reference Method: EPA 200.8 Rev. 5.4

Run ID: A98232

Included Lab Sample IDs: 2164320

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Cadmium	106	107	P/P	90 - 110

Reference Method: EPA 200.7 Rev. 4.4

Run ID: A98252

Included Lab Sample IDs: 2164320

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Barium	101	103	P/P	90 - 110
Calcium	103	102	P/P	90 - 110
Iron	104	104	P/P	90 - 110
Magnesium	102	103	P/P	90 - 110
Potassium	100	99.4	P/P	90 - 110
Sodium	101	101	P/P	90 - 110
Zinc	99.7	103	P/P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1

Run ID: A98259

Included Lab Sample IDs: 2164306, 2164307, 2164312

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

Reference Method: SM 2320 B-2011

Run ID: A98293

Included Lab Sample IDs: 2164303, 2164306

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	104	102	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A98300

Included Lab Sample IDs: 2164304, 2164308, 2164309, 2164313

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	101	98.7	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A98309

Included Lab Sample IDs: 2164304, 2164308, 2164309, 2164313

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	98.8	99.1	P/P	90 - 110
Ammonia-N	99.1	98.4	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A98325

Included Lab Sample IDs: 2164308, 2164309

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

Quality Assurance Report Calibration Verification

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A98327

Included Lab Sample IDs: 2164304, 2164313

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

Reference Method: SM 2320 B-2011

Run ID: A98350

Included Lab Sample IDs: 2164307, 2164312

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	101	104	P/P	90 - 110
Total Alkalinity	104	102	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A98374

Included Lab Sample IDs: 2164304, 2164308, 2164309, 2164313

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

Reference Method: SM 4500 F-C-2011

Run ID: A98428

Included Lab Sample IDs: 2164303, 2164306, 2164307, 2164312

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	95.6	97.1	P/P	90 - 110

Reference Method: EPA 200.8 Rev. 5.4

Run ID: A98446

Included Lab Sample IDs: 2164320

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Copper	102	99.8	P/P	90 - 110

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

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

Where they are different, both control limits are provided.

Quality Assurance Report Summary

Ref. Method	Analyte	LCS % Recovery	MS % Recovery			LCS	Precision SMP	MS
EPA 180.1 Rev. 2.0	Turbidity						3.27	
EPA 200.7 Rev. 4.4	Barium	99.9	101	103	99.2			2.16
	Calcium	101	103	102				0.515
	Iron	105	104	104	105			0.231
	Magnesium	105	102	102	103			0.246
	Potassium	101	101	101	97.4			0.291
	Sodium	99.0	100	99.7				0.544
	Zinc	100	102	104	102			2.47
EPA 200.8 Rev. 5.4	Aluminum	95.4	93.9	95.6	95.8			1.74
	Antimony	90.6	97.8	100	96.5			2.36
	Arsenic	97.4	97.4	99.4	100			1.87
	Boron	98.1	98.2	100	99.9			1.63
	Cadmium	102	96.5	101	96.5			4.72
	Chromium	97.4	97.9	99.8	101			1.91
	Copper	107	105	109	116			3.15
	Lead	96.5	98.9	99.0	99.8			0.110
	Nickel	96.6	95.5	97.4	94.1			2.01
	Selenium	96.3	87.7	90.8	91.5			3.46
	Silver	95.1	98.2	99.4	98.5			1.27
	Thallium	99.9	102	103	105			1.52
EPA 300.0 Rev. 2.1	Chloride	97.7	96.2	97.5			0.289	
	Chloride	101	97.8	98.4			0.210	
	Sulfate	97.5	97.3	98.6			0.0006	
	Sulfate	100	98.6	99.1			0.619	
EPA 350.1 Rev. 2.0	Ammonia-N	98.8	104	104				0.0997
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	101	92.9	93.8				0.679
EPA 353.2 Rev. 2.0	NO2NO3-N	99.5	98.4	98.4				0.0
	NO2NO3-N	100	99.5	100				0.501
EPA 365.1 Rev. 2.0	Total-P	104	106	105				1.17
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	98.3	97.4	98.7				1.33
	O-Phosphate-P	99.2	98.0	99.2				1.22
EPA 8321B	2,4-D	146	146	141				3.19
	Acesulfame K	77.2	19.2	20.2				3.67
	Acetaminophen	87.7	82.1	85.2				3.69
	Acetamiprid	109	96.3	85.0				12.5
	Afidopyropen	130	118	105				11.5
	AMPA	92.5	96.6	90.1				5.88
	Bentazon	75.7	44.6	38.0				16.0
	Benzovindiflupyr	85.5	62.5	63.1				0.986
	Carbamazepine	106	85.3	89.5				4.89
	Clothianidin	91.1	106	98.3				7.84
	Dinotefuran	99.7	117	100				15.2
	Diuron	97.1	68.6	74.3				8.03
	Endothall	128	111	115				2.89
	Fenuron	108	88.8	65.7				20.8
	Fluridone	86.4	79.5	75.6				4.99
	Glufosinate	121	104	113				8.46
	Glyphosate	93.7	124	119				3.31
	Hydrocodone	94.3	94.0	97.5				3.73
	Ibuprofen	81.7	71.2	69.3				2.65
	Imazapyr	81.7	104	105				1.11
	Imidacloprid	101	190	185				2.84
	Linuron	83.6	62.2	58.5				6.13
	Mandestrobin	85.0	70.9	70.3				0.793

Quality Assurance Report Summary

Ref. Method	Analyte	LCS % Recovery	MS % Recovery		Precision	
					LCS	MS
EPA 8321B	MCCP	158	165	157		4.79
	Naproxen	78.9	82.0	70.6		14.9
	Primidone	103	91.6	91.5		0.139
	Pyraclostrobin	74.0	68.0	65.3		4.03
	Sucralose	104	85.0	109		15.7
	Thiamethoxam	111	170	153		10.5
	Tolfenpyrad	53.5	46.0	49.4		6.99
	Triclopyr	117	124	123		0.786
SM 2120 B-2011	Color (true)	103			0.359	
	Color (true)	102			3.74	
	Color (true)	102			3.00	
SM 2320 B-2011	Total Alkalinity	104			0.270	
	Total Alkalinity	104			0.157	
SM 2540 C-2011	TDS				6.00	
	TDS				0.0	
SM 4500 F-C-2011	Fluoride	94.7	96.7	97.9		1.03
SM 5310 B-2011	Organic Carbon	94.6	95.3	96.9		1.12

Reference Method Descriptions

Method	Description	Associated Samples
EPA 180.1 Rev. 2.0	Turbidity in aqueous matrices	2164303, 2164306, 2164307, 2164312
EPA 200.7 Rev. 4.4	Total Recoverable Metals analysis using ICP emission spectroscopy for aqueous samples supporting Clean Water Act Projects	2164320
EPA 200.8 Rev. 5.4	Total Recoverable Metals analysis using ICP-MS for aqueous samples supporting Clean Water Act Projects	2164320
EPA 300.0 Rev. 2.1	Chloride in aqueous matrices	2164303, 2164306, 2164307, 2164312
EPA 300.0 Rev. 2.1	Sulfate in aqueous matrices	2164303, 2164306, 2164307, 2164312
EPA 350.1 Rev. 2.0	Ammonia in aqueous matrices as mg N/L	2164304, 2164308, 2164309, 2164313
EPA 351.2 Rev. 2.0	Total Kjeldahl Nitrogen in aqueous matrices	2164304, 2164308, 2164309, 2164313
EPA 353.2 Rev. 2.0	Nitrite/Nitrate in aqueous matrices as mg N/L	2164304, 2164308, 2164309, 2164313
EPA 365.1 Rev. 2.0	Total Phosphorus in aqueous matrices as mg P/L	2164304, 2164308, 2164309, 2164313
EPA 365.1 Rev. 2.0 dissolved	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	2164305, 2164310, 2164311, 2164314
EPA 8321B	Pesticides, herbicides, and other chemicals in water matrices by HPLC/MS/MS	2164319
EPA 8321B	Water soluble organic compounds by HPLC/MS/MS	2164319
SM 2120 B-2011	True Color measured at 450 nm (not valid for NPDES monitoring)	2164303, 2164306, 2164307, 2164312
SM 2320 B-2011	Alkalinity in aqueous matrices as mg CaCO ₃ /L	2164303, 2164306, 2164307, 2164312
SM 2540 C-2011	Total Dissolved Solids in aqueous matrices	2164303, 2164306, 2164307, 2164312
SM 2540 D-2011	Total Suspended Solids in aqueous matrices using a maximum of 250 mL of sample	2164303, 2164306, 2164307, 2164312
SM 4500 F-C-2011	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	2164303, 2164306, 2164307, 2164312
SM 5310 B-2011	Nonpurgeable Organic Carbon in aqueous matrices	2164304, 2164308, 2164309, 2164313

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
EPA 180.1 Rev. 2.0	03/11/2020			03/11/2020 19:16	Yen Ta	2164303, 2164306, 2164307, 2164312
EPA 200.7 Rev. 4.4	03/11/2020	03/12/2020 15:45	Elliott D. Healy	03/17/2020 16:56	Betina Topolski	2164320
EPA 200.8 Rev. 5.4	03/11/2020	03/12/2020 15:45	Elliott D. Healy	03/14/2020 00:09	Alexander Thompson	2164320
	03/11/2020	03/12/2020 15:45	Elliott D. Healy	03/16/2020 14:04	Justin Cutchin	2164320
	03/11/2020	03/18/2020 14:20	Elliott D. Healy	03/24/2020 18:11	Justin Cutchin	2164320
EPA 300.0 Rev. 2.1	03/11/2020			03/13/2020 21:33	Lipi Saha	2164303
	03/11/2020			03/16/2020 19:20	Lipi Saha	2164306
	03/11/2020			03/16/2020 20:08	Lipi Saha	2164307
	03/11/2020			03/16/2020 20:21	Lipi Saha	2164312
EPA 350.1 Rev. 2.0	03/11/2020			03/19/2020 13:59	Ping Hua	2164304
	03/11/2020			03/19/2020 14:14	Ping Hua	2164308
	03/11/2020			03/19/2020 14:16	Ping Hua	2164309
	03/11/2020			03/19/2020 14:17	Ping Hua	2164313
EPA 351.2 Rev. 2.0	03/11/2020	03/17/2020 11:50	Sima Feizi	03/18/2020 18:30	Julia Storbeck	2164304
	03/11/2020	03/17/2020 11:50	Sima Feizi	03/18/2020 18:31	Julia Storbeck	2164308
	03/11/2020	03/17/2020 11:50	Sima Feizi	03/18/2020 18:33	Julia Storbeck	2164309
	03/11/2020	03/17/2020 11:50	Sima Feizi	03/18/2020 18:35	Julia Storbeck	2164313
EPA 353.2 Rev. 2.0	03/11/2020			03/20/2020 11:53	Beverly Y. Sanders	2164304
	03/11/2020			03/20/2020 11:54	Beverly Y. Sanders	2164308
	03/11/2020			03/20/2020 11:55	Beverly Y. Sanders	2164309
	03/11/2020			03/20/2020 12:03	Beverly Y. Sanders	2164313
EPA 365.1 Rev. 2.0	03/11/2020	03/18/2020 13:30	Yen Ta	03/19/2020 12:30	Benjamin T. Nordmann	2164308
	03/11/2020	03/18/2020 13:30	Yen Ta	03/19/2020 12:31	Benjamin T. Nordmann	2164309
	03/11/2020	03/18/2020 13:30	Yen Ta	03/20/2020 10:26	Benjamin T. Nordmann	2164304
	03/11/2020	03/18/2020 13:30	Yen Ta	03/20/2020 10:27	Benjamin T. Nordmann	2164313
EPA 365.1 Rev. 2.0 dissolved	03/11/2020			03/11/2020 15:56	Carlos Miranda	2164305
	03/11/2020			03/11/2020 16:47	Carlos Miranda	2164310
	03/11/2020			03/11/2020 16:49	Carlos Miranda	2164311
	03/11/2020			03/11/2020 16:54	Carlos Miranda	2164314
EPA 8321B	03/11/2020	03/13/2020 11:00	Mohammad Ghaffari	03/13/2020 15:28	Mohammad Ghaffari	2164319
	03/11/2020	03/13/2020 11:00	Mohammad Ghaffari	03/15/2020 18:24	Mohammad Ghaffari	2164319
	03/11/2020	03/13/2020 11:00	Mohammad Ghaffari	03/16/2020 15:54	Mohammad Ghaffari	2164319
	03/11/2020	03/16/2020 08:30	Hoor Shaik	03/17/2020 09:27	Juyoung Kim	2164319
SM 2120 B-2011	03/11/2020			03/11/2020 18:39	Madeline Gruver	2164303
	03/11/2020			03/11/2020 18:41	Madeline Gruver	2164307
	03/11/2020			03/11/2020 18:45	Madeline Gruver	2164312
	03/11/2020			03/11/2020 18:57	Madeline Gruver	2164306
SM 2320 B-2011	03/11/2020			03/19/2020 06:43	Dale L. Simmons	2164303
	03/11/2020			03/19/2020 06:55	Dale L. Simmons	2164306
	03/11/2020			03/20/2020 22:23	Dale L. Simmons	2164307

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
SM 2320 B-2011	03/11/2020			03/20/2020 22:49	Dale L. Simmons	2164312
SM 2540 C-2011	03/11/2020			03/16/2020 15:52	Yijie Li	2164303, 2164306, 2164307, 2164312
SM 2540 D-2011	03/11/2020			03/16/2020 15:52	Yijie Li	2164303, 2164306, 2164307, 2164312
SM 4500 F-C-2011	03/11/2020			03/24/2020 18:44	Dale L. Simmons	2164303
	03/11/2020			03/24/2020 18:49	Dale L. Simmons	2164306
	03/11/2020			03/24/2020 18:54	Dale L. Simmons	2164307
	03/11/2020			03/24/2020 18:59	Dale L. Simmons	2164312
SM 5310 B-2011	03/11/2020			03/13/2020 06:30	Lauren Lees	2164304
	03/11/2020			03/14/2020 12:02	Lauren Lees	2164308
	03/11/2020			03/14/2020 12:15	Lauren Lees	2164309
	03/11/2020			03/14/2020 12:28	Lauren Lees	2164313