

Chemical Analysis Report

NE-DIST-2019-08-20-02

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

Event Description: **LSJR Downtown Boat**
Request ID: **RQ-2019-08-19-13**
Customer: **NE-DIST**
Project ID: **SMP**

Send Reports to:
FL Dept. of Environmental Protection
8800 Baymeadows Way West
Suite 100
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Certified by: Liang Lin, Environmental Administrator

Date Certified: 13-SEP-2019 13:42

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

Case Narrative

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

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

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

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

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

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

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

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

Precision is reported as relative percent difference unless otherwise noted.

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

QC Codes used in this report may include:

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

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

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

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

Sample Location: BIG POTTSBURG CR ATL BLVD

Collection Date/Time: 08/19/2019 09:30

Field ID: 20030072

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2112855	EPA 180.1 Rev. 2.0	Turbidity	10		NTU	P369372	
	EPA 300.0	Bromide	2.4		mg Br/L	P369499	
	SM 2320 B-97	Total Alkalinity	87		mg CaCO3/L	P369865	
	SM 2540 D-97	TSS	16	A	mg/L	P369704	
	SM 4500 F-C-97	Fluoride	0.16		mg F/L	P369868	
2112856	EPA 350.1 Rev. 2.0	Ammonia-N	0.006		mg N/L	P369758	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.77		mg N/L	P369514	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.038		mg N/L	P369472	
	EPA 365.1 Rev. 2.0	Total-P	0.15		mg P/L	P369515	
	SM 5310 B-00	Organic Carbon	10		mg C/L	P369459	
2112857	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.074		mg P/L	P369413	
2112883	EPA 8321B	2,4-D	0.022		ug/L	P369393	
		Acesulfame K**	0.10	U	ug/L	P369340	
		AMPA**	0.10	U	ug/L	P369340	
		Sucralose**	0.30		ug/L	P369340	
		Acetaminophen**	0.0080	U	ug/L	P369393	
		Endothall**	0.25	U	ug/L	P369340	
		Acetamiprid**	0.0020	U	ug/L	P369393	
		Glufosinate**	0.10	U	ug/L	P369340	
		Glyphosate**	0.10	U	ug/L	P369340	
		Afidopyropen**	0.0020	UJ	ug/L	P369393	
		Bentazon	0.024		ug/L	P369393	
		Benzovindiflupyr**	0.0020	UJ	ug/L	P369393	
		Carbamazepine**	0.0026	I	ug/L	P369393	
		Clothianidin**	0.0041	I	ug/L	P369393	
		Dinotefuran**	0.0020	U	ug/L	P369393	
		Diuron	0.010		ug/L	P369393	
		Fenuron	0.016	U	ug/L	P369393	
		Fluridone**	0.024		ug/L	P369393	
		Imazapyr**	0.49		ug/L	P369393	
		Hydrocodone**	0.0020	U	ug/L	P369393	
		Ibuprofen**	0.020	U	ug/L	P369393	
		Imidacloprid	0.042		ug/L	P369393	MS
		Linuron	0.0040	U	ug/L	P369393	
		Mandestrobin**	0.0020	UJ	ug/L	P369393	
		MCP	0.0049	I	ug/L	P369393	
		Naproxen**	0.0080	U	ug/L	P369393	
		Primidone**	0.0040	U	ug/L	P369393	
		Pyraclostrobin**	0.0020	U	ug/L	P369393	
		Thiamethoxam**	0.0020	U	ug/L	P369393	MS
		Tolfenpyrad**	0.0020	U	ug/L	P369393	
		Triclopyr**	0.0040	U	ug/L	P369393	
2112887	EPA 200.7 Rev. 4.4	Iron	390		ug/L	P369429	

Field ID: 20030072

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2112887	EPA 200.7 Rev. 4.4	Manganese	21.8		ug/L	P369429	
		Zinc	5.3	I	ug/L	P369429	
	EPA 200.8 Rev. 5.4	Aluminum	278		ug/L	P369429	
		Antimony	0.19	I	ug/L	P369429	
		Arsenic	2.56		ug/L	P369429	
		Cadmium	0.020	U	ug/L	P369429	
		Chromium	0.65	I	ug/L	P369429	
		Copper	1.73		ug/L	P369429	
		Lead	1.41		ug/L	P369429	
		Nickel	0.78	I	ug/L	P369429	
		Selenium	0.20	U	ug/L	P369429	
		Silver	0.010	U	ug/L	P369429	
		Thallium	0.10	U	ug/L	P369429	

Ref. Method and Comment:

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

Sample Location: LITTLE POTTSBURG CREEK AT ATLANTIC BLVD

Collection Date/Time: 08/19/2019 10:20

Field ID: 20030679

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2112846	EPA 180.1 Rev. 2.0	Turbidity	10		NTU	P369372	
	EPA 300.0	Bromide	2.4		mg Br/L	P369499	
	SM 2320 B-97	Total Alkalinity	79		mg CaCO3/L	P369865	
	SM 2540 D-97	TSS	17		mg/L	P369703	
	SM 4500 F-C-97	Fluoride	0.16		mg F/L	P369868	
2112849	EPA 350.1 Rev. 2.0	Ammonia-N	0.008		mg N/L	P369758	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.69		mg N/L	P369514	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.010		mg N/L	P369472	
	EPA 365.1 Rev. 2.0	Total-P	0.11		mg P/L	P369515	
	SM 5310 B-00	Organic Carbon	11		mg C/L	P369458	
2112852	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.047		mg P/L	P369412	
2112884	EPA 200.7 Rev. 4.4	Iron	330		ug/L	P369429	
		Manganese	22.6		ug/L	P369429	
		Zinc	5.0	U	ug/L	P369429	
	EPA 200.8 Rev. 5.4	Aluminum	280		ug/L	P369429	
		Antimony	0.090	I	ug/L	P369429	
		Arsenic	1.56		ug/L	P369429	
		Cadmium	0.020	U	ug/L	P369429	
		Chromium	0.54	I	ug/L	P369429	
		Copper	1.05		ug/L	P369429	
		Lead	0.81		ug/L	P369429	
		Nickel	0.50	U	ug/L	P369429	
		Selenium	0.23	I	ug/L	P369429	
		Silver	0.010	U	ug/L	P369429	
		Thallium	0.10	U	ug/L	P369429	

Ref. Method and Comment:

SM 2540 D-97: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample.

Sample Location: ARLINGTON RIVER AT CARLTON OAKS

Collection Date/Time: 08/19/2019 10:00

Field ID: G2NE1152

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2112847	EPA 180.1 Rev. 2.0	Turbidity	13		NTU	P369372	
	EPA 300.0	Bromide	1.4		mg Br/L	P369499	
	SM 2320 B-97	Total Alkalinity	79		mg CaCO3/L	P369865	
	SM 2540 D-97	TSS	18		mg/L	P369703	
	SM 4500 F-C-97	Fluoride	0.14		mg F/L	P369868	
2112850	EPA 350.1 Rev. 2.0	Ammonia-N	0.007		mg N/L	P369758	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.77		mg N/L	P369514	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P369471	
	EPA 365.1 Rev. 2.0	Total-P	0.12		mg P/L	P369515	
	SM 5310 B-00	Organic Carbon	10		mg C/L	P369459	
2112853	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.048		mg P/L	P369412	
2112885	EPA 200.7 Rev. 4.4	Iron	480		ug/L	P369429	
		Manganese	27.8		ug/L	P369429	
		Zinc	5.0	U	ug/L	P369429	
	EPA 200.8 Rev. 5.4	Aluminum	368		ug/L	P369429	
		Antimony	0.095	I	ug/L	P369429	
		Arsenic	1.94		ug/L	P369429	
		Cadmium	0.020	U	ug/L	P369429	
		Chromium	0.85	I	ug/L	P369429	
		Copper	1.42		ug/L	P369429	
		Lead	1.09		ug/L	P369429	
		Nickel	0.51	I	ug/L	P369429	
		Selenium	0.20	U	ug/L	P369429	
		Silver	0.010	U	ug/L	P369429	
		Thallium	0.10	U	ug/L	P369429	

Ref. Method and Comment:

SM 2540 D-97: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample.

Sample Location: LITTLE POTTSBURG CREEK AT ATLANTIC BLVD

Collection Date/Time: 08/19/2019 10:35

Field ID: FB 08202019

Matrix: W-FIELD-BK

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2112858	EPA 180.1 Rev. 2.0	Turbidity	0.10	U	NTU	P369372	
	EPA 300.0	Bromide	0.013	U	mg Br/L	P369499	
	SM 2320 B-97	Total Alkalinity	0.65	U	mg CaCO3/L	P369866	
	SM 2540 D-97	TSS	2	U	mg/L	P369704	
	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P369869	
2112859	EPA 350.1 Rev. 2.0	Ammonia-N	0.002	U	mg N/L	P369758	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.080	U	mg N/L	P369514	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P369472	
	EPA 365.1 Rev. 2.0	Total-P	0.002	U	mg P/L	P369515	
	SM 5310 B-00	Organic Carbon	0.50	U	mg C/L	P369459	
2112860	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P369413	
2112888	EPA 200.7 Rev. 4.4	Iron	30	U	ug/L	P369429	
		Manganese	1.0	U	ug/L	P369429	
		Zinc	5.0	U	ug/L	P369429	
	EPA 200.8 Rev. 5.4	Aluminum	5.0	U	ug/L	P369429	
		Antimony	0.050	U	ug/L	P369429	
		Arsenic	0.050	U	ug/L	P369429	
		Cadmium	0.020	U	ug/L	P369429	
		Chromium	0.40	U	ug/L	P369429	
		Copper	0.40	U	ug/L	P369429	
		Lead	0.20	U	ug/L	P369429	
		Nickel	0.50	U	ug/L	P369429	
		Selenium	0.20	U	ug/L	P369429	
		Silver	0.010	U	ug/L	P369429	
		Thallium	0.10	U	ug/L	P369429	

Sample Location: LITTLE POTTSBURG CREEK AT ATLANTIC BLVD

Collection Date/Time: 08/19/2019 10:25

Field ID: 20030679 DUP

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2112848	EPA 180.1 Rev. 2.0	Turbidity	9.8		NTU	P369372	
	EPA 300.0	Bromide	2.4		mg Br/L	P369499	
	SM 2320 B-97	Total Alkalinity	79		mg CaCO3/L	P369865	
	SM 2540 D-97	TSS	16		mg/L	P369704	
	SM 4500 F-C-97	Fluoride	0.16		mg F/L	P369868	
2112851	EPA 350.1 Rev. 2.0	Ammonia-N	0.007		mg N/L	P369758	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.78		mg N/L	P369514	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.010		mg N/L	P369472	
	EPA 365.1 Rev. 2.0	Total-P	0.098		mg P/L	P369515	
	SM 5310 B-00	Organic Carbon	11		mg C/L	P369458	
2112854	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.048		mg P/L	P369413	
2112886	EPA 200.7 Rev. 4.4	Iron	370		ug/L	P369429	
		Manganese	22.9		ug/L	P369429	
		Zinc	5.0	U	ug/L	P369429	
	EPA 200.8 Rev. 5.4	Aluminum	305		ug/L	P369429	
		Antimony	0.095	I	ug/L	P369429	
		Arsenic	1.58		ug/L	P369429	
		Cadmium	0.020	U	ug/L	P369429	
		Chromium	0.62	I	ug/L	P369429	
		Copper	1.24		ug/L	P369429	
		Lead	0.89		ug/L	P369429	
		Nickel	0.50	U	ug/L	P369429	
		Selenium	0.20	U	ug/L	P369429	
		Silver	0.010	U	ug/L	P369429	
		Thallium	0.10	U	ug/L	P369429	

Quality Assurance Report Method Blank Results

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P369372

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P369429

Component	Result	Code	Units
Iron	30	U	ug/L
Manganese	1.0	U	ug/L
Zinc	5.0	U	ug/L

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P369429

Component	Result	Code	Units
Aluminum	5.0	U	ug/L
Antimony	0.050	U	ug/L
Arsenic	0.050	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
Batch ID: P369499

Component	Result	Code	Units
Bromide	0.013	U	mg Br/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P369758

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P369514

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P369471

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

Quality Assurance Report Method Blank Results

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P369472

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P369515

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P369412

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P369413

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

Reference Method: EPA 8321B
Batch ID: P369340

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: EPA 8321B
Batch ID: P369393

Component	Result	Code	Units
2,4-D	0.0020	U	ug/L
Acetaminophen	0.0080	U	ug/L
Acetamiprid	0.0020	U	ug/L
Afidopyrophen	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

Quality Assurance Report Method Blank Results

Reference Method: EPA 8321B
Batch ID: P369393

Component	Result	Code	Units
Mandestrobin	0.0020	U	ug/L
MCP	0.0020	U	ug/L
Naproxen	0.0080	U	ug/L
Primidone	0.0040	U	ug/L
Pyraclostrobin	0.0020	U	ug/L
Thiamethoxam	0.0020	U	ug/L
Tolfenpyrad	0.0020	U	ug/L
Triclopyr	0.0040	U	ug/L

Reference Method: SM 2320 B-97
Batch ID: P369865

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

Reference Method: SM 2320 B-97
Batch ID: P369866

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

Reference Method: SM 2540 D-97
Batch ID: P369703

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P369704

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500 F-C-97
Batch ID: P369868

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 4500 F-C-97
Batch ID: P369869

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-00
Batch ID: P369458

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

Quality Assurance Report Method Blank Results

Reference Method: SM 5310 B-00
Batch ID: P369459

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: P369429

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Iron	107		P	85 - 115
Manganese	102		P	85 - 115
Zinc	99.0		P	85 - 115

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P369429

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Aluminum	102		P	85 - 115
Antimony	97.8		P	85 - 115
Arsenic	101		P	85 - 115
Cadmium	101		P	85 - 115
Chromium	99.6		P	85 - 115
Copper	99.6		P	85 - 115
Lead	101		P	85 - 115
Nickel	101		P	85 - 115
Selenium	104		P	85 - 115
Silver	106		P	85 - 115
Thallium	99.0		P	85 - 115

Reference Method: EPA 300.0
Batch ID: P369499

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Bromide	96.9		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P369758

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Ammonia-N	96.7		P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P369514

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P369471

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P369472

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

Quality Assurance Report

Laboratory Control Sample Accuracy

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P369515

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P369412

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P369413

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

Reference Method: EPA 8321B
Batch ID: P369340

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Acesulfame K	148		P	40 - 150
AMPA	136		P	40 - 150
Endothall	98.5		P	40 - 150
Glufosinate	115		P	40 - 150
Glyphosate	114		P	40 - 140
Sucralose	84.1		P	40 - 150

Reference Method: EPA 8321B
Batch ID: P369393

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2,4-D	94.0		P	40 - 160
Acetaminophen	80.1		P	30 - 160
Acetamiprid	84.7		P	40 - 160
Afidopyropen	90.3		P	40 - 160
Bentazon	94.0		P	30 - 160
Benzovindiflupyr	95.4		P	40 - 160
Carbamazepine	92.7		P	40 - 160
Clothianidin	83.2		P	40 - 160
Dinotefuran	92.0		P	40 - 160
Diuron	108		P	40 - 160
Fenuron	104		P	40 - 160
Fluridone	97.4		P	40 - 160
Hydrocodone	97.5		P	40 - 160
Ibuprofen	89.5		P	30 - 160
Imazapyr	109		P	40 - 160
Imidacloprid	108		P	40 - 160
Linuron	91.5		P	40 - 160
Mandestrobin	93.5		P	40 - 160
MCPP	103		P	40 - 160
Naproxen	89.3		P	40 - 160
Primidone	93.5		P	40 - 160
Pyraclostrobin	93.4		P	30 - 160
Thiamethoxam	103		P	40 - 160

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 8321B
Batch ID: P369393

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Tolfenpyrad	59.6		P	40 - 160
Triclopyr	65.4		P	30 - 160

Reference Method: SM 2320 B-97
Batch ID: P369865

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

Reference Method: SM 2320 B-97
Batch ID: P369866

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

Reference Method: SM 4500 F-C-97
Batch ID: P369868

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	98.5		P	92 - 103

Reference Method: SM 4500 F-C-97
Batch ID: P369869

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	98.9		P	92 - 103

Reference Method: SM 5310 B-00
Batch ID: P369458

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	97.4		P	85 - 115

Reference Method: SM 5310 B-00
Batch ID: P369459

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

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P369429

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2112740	Iron	107	107	P/P	80 - 120
2112740	Manganese	99.9	101	P/P	80 - 120
2112740	Zinc	98.5	99.8	P/P	80 - 120
2112836	Iron	104		P	80 - 120
2112836	Manganese	99.0		P	80 - 120
2112836	Zinc	99.9		P	80 - 120

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P369429

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2112740	Aluminum	102	102	P/P	80 - 120
2112740	Antimony	99.0	98.5	P/P	80 - 120
2112740	Arsenic	101	102	P/P	80 - 120
2112740	Cadmium	101	102	P/P	80 - 120
2112740	Chromium	100	101	P/P	80 - 120
2112740	Copper	99.4	100	P/P	80 - 120
2112740	Lead	102	101	P/P	80 - 120
2112740	Nickel	101	102	P/P	80 - 120
2112740	Selenium	101	102	P/P	80 - 120
2112740	Silver	108	106	P/P	80 - 120
2112740	Thallium	101	102	P/P	80 - 120
2112836	Aluminum	102		P	80 - 120
2112836	Antimony	98.2		P	80 - 120
2112836	Arsenic	104		P	80 - 120
2112836	Cadmium	104		P	80 - 120
2112836	Chromium	101		P	80 - 120
2112836	Copper	100		P	80 - 120
2112836	Lead	105		P	80 - 120
2112836	Nickel	104		P	80 - 120
2112836	Selenium	106		P	80 - 120
2112836	Silver	106		P	80 - 120
2112836	Thallium	111		P	80 - 120

Reference Method: EPA 300.0
Batch ID: P369499

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2112216	Bromide	94.7	93.3	P/P	90 - 110
2112811	Bromide	94.8		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P369758

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2112849	Ammonia-N	96.3	99.6	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P369514

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2112851	Kjeldahl Nitrogen	93.7	110	P/P	90 - 110

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P369471

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2112755	NO2NO3-N	102		P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P369472

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2112856	NO2NO3-N	101	98.2	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P369515

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2112849	Total-P	108	102	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P369412

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2112771	O-Phosphate-P	99.5	99.2	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P369413

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2112805	O-Phosphate-P	97.4	98.5	P/P	90 - 110

Reference Method: EPA 8321B
Batch ID: P369340

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2112181	Acesulfame K	148	145	P/P	40 - 150
2112181	AMPA	106	115	P/P	40 - 150
2112181	Endothall	75.3	76.4	P/P	40 - 150
2112181	Glufosinate	84.7	92.1	P/P	40 - 150
2112181	Glyphosate	82.9	89.3	P/P	40 - 140
2112181	Sucralose	74.5	74.2	P/P	40 - 150

Reference Method: EPA 8321B
Batch ID: P369393

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2112942	2,4-D	134	130	P/P	40 - 160
2112942	Acetaminophen	85.9	77.4	P/P	30 - 160
2112942	Acetamiprid	86.2	89.1	P/P	40 - 160
2112942	Afidopyropen	81.8	86.3	P/P	40 - 160
2112942	Benzovindiflupyr	94.3	93.4	P/P	40 - 160
2112942	Carbamazepine	97.0	94.1	P/P	40 - 160
2112942	Clothianidin	114	109	P/P	40 - 160
2112942	Diuron	105	107	P/P	40 - 160
2112942	Fenuron	91.1	83.6	P/P	40 - 160
2112942	Fluridone	101	92.1	P/P	40 - 160
2112942	Hydrocodone	99.9	88.0	P/P	40 - 160

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 8321B
Batch ID: P369393

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2112942	Ibuprofen	90.9	90.1	P/P	30 - 160
2112942	Imidacloprid	206	198	F/F	40 - 160
2112942	Linuron	94.2	92.7	P/P	40 - 160
2112942	Mandestrobin	90.4	92.8	P/P	40 - 160
2112942	MCPP	153	141	P/P	40 - 160
2112942	Naproxen	98.7	109	P/P	40 - 160
2112942	Primidone	116	101	P/P	40 - 160
2112942	Pyraclostrobin	84.2	87.6	P/P	30 - 160
2112942	Thiamethoxam	166	153	F/P	40 - 160
2112942	Tolfenpyrad	50.4	50.6	P/P	40 - 160
2112942	Triclopyr	102	93.9	P/P	30 - 160

Reference Method: SM 4500 F-C-97
Batch ID: P369868

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2112811	Fluoride	96.9	96.9	P/P	89 - 106

Reference Method: SM 4500 F-C-97
Batch ID: P369869

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2113198	Fluoride	99.5	98.8	P/P	89 - 106

Reference Method: SM 5310 B-00
Batch ID: P369458

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2112763	Organic Carbon	96.9	96.5	P/P	85 - 115

Reference Method: SM 5310 B-00
Batch ID: P369459

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2112856	Organic Carbon	96.2	96.3	P/P	85 - 115

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P369372

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2112817	Turbidity	1.83	Sample	P	0 - 20

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P369429

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2112740	Iron	0.567	Spike	P	0 - 20
2112740	Manganese	0.822	Spike	P	0 - 20
2112740	Zinc	1.24	Spike	P	0 - 20

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P369429

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2112740	Aluminum	0.498	Spike	P	0 - 20
2112740	Antimony	0.493	Spike	P	0 - 20
2112740	Arsenic	0.443	Spike	P	0 - 20
2112740	Cadmium	0.483	Spike	P	0 - 20
2112740	Chromium	0.672	Spike	P	0 - 20
2112740	Copper	0.757	Spike	P	0 - 20
2112740	Lead	0.558	Spike	P	0 - 20
2112740	Nickel	0.781	Spike	P	0 - 20
2112740	Selenium	0.890	Spike	P	0 - 20
2112740	Silver	1.34	Spike	P	0 - 20
2112740	Thallium	1.18	Spike	P	0 - 20

Reference Method: EPA 300.0
Batch ID: P369499

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2112216	Bromide	1.36	Spike	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P369758

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2112849	Ammonia-N	2.91	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P369514

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2112851	Kjeldahl Nitrogen	9.58	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P369471

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2112755	NO2NO3-N	0.913	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P369472

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2112856	NO2NO3-N	2.11	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P369515

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2112849	Total-P	4.74	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P369412

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2112771	O-Phosphate-P	0.302	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P369413

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2112805	O-Phosphate-P	1.12	Spike	P	0 - 20

Reference Method: EPA 8321B
Batch ID: P369340

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2112181	Acesulfame K	2.61	Spike	P	0 - 30
2112181	AMPA	8.66	Spike	P	0 - 30
2112181	Endothall	1.42	Spike	P	0 - 30
2112181	Glufosinate	8.36	Spike	P	0 - 30
2112181	Glyphosate	7.41	Spike	P	0 - 30
2112181	Sucralose	0.324	Spike	P	0 - 30

Reference Method: EPA 8321B
Batch ID: P369393

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2112942	2,4-D	3.32	Spike	P	0 - 30
2112942	Acetaminophen	10.4	Spike	P	0 - 30
2112942	Acetamiprid	3.25	Spike	P	0 - 30
2112942	Afidopyropen	5.40	Spike	P	0 - 30

Quality Assurance Report Precision

Reference Method: EPA 8321B
Batch ID: P369393

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2112942	Bentazon	7.75	Spike	P	0 - 30
2112942	Benzovindiflupyr	0.911	Spike	P	0 - 30
2112942	Carbamazepine	2.99	Spike	P	0 - 30
2112942	Clothianidin	4.95	Spike	P	0 - 30
2112942	Dinotefuran	4.22	Spike	P	0 - 30
2112942	Diuron	1.48	Spike	P	0 - 30
2112942	Fenuron	8.58	Spike	P	0 - 30
2112942	Fluridone	9.10	Spike	P	0 - 30
2112942	Hydrocodone	12.7	Spike	P	0 - 30
2112942	Ibuprofen	0.876	Spike	P	0 - 30
2112942	Imazapyr	4.49	Spike	P	0 - 30
2112942	Imidacloprid	4.01	Spike	P	0 - 30
2112942	Linuron	1.53	Spike	P	0 - 30
2112942	Mandestrobin	2.63	Spike	P	0 - 30
2112942	MCPP	8.27	Spike	P	0 - 30
2112942	Naproxen	10.3	Spike	P	0 - 30
2112942	Primidone	13.6	Spike	P	0 - 30
2112942	Pyraclostrobin	3.96	Spike	P	0 - 30
2112942	Thiamethoxam	8.35	Spike	P	0 - 30
2112942	Tolfenpyrad	0.331	Spike	P	0 - 30
2112942	Triclopyr	7.89	Spike	P	0 - 30

Reference Method: SM 2320 B-97
Batch ID: P369865

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2112811	Total Alkalinity	0.141	Sample	P	0 - 2.8

Reference Method: SM 2320 B-97
Batch ID: P369866

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2113198	Total Alkalinity	0.463	Sample	P	0 - 2.8

Reference Method: SM 2540 D-97
Batch ID: P369704

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2112855	TSS	5.00	Sample	P	0 - 10

Reference Method: SM 4500 F-C-97
Batch ID: P369868

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2112811	Fluoride	0.0	Spike	P	0 - 2.5

Quality Assurance Report Precision

Reference Method: SM 4500 F-C-97
Batch ID: P369869

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2113198	Fluoride	0.476	Spike	P	0 - 2.5

Reference Method: SM 5310 B-00
Batch ID: P369458

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2112763	Organic Carbon	0.316	Spike	P	0 - 20

Reference Method: SM 5310 B-00
Batch ID: P369459

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2112856	Organic Carbon	0.0672	Spike	P	0 - 20

* Sample, spike and/or laboratory control sample precision (LCS) is reported.
Replicate spike precision may be reported when sample results are below quantifiable levels.

Quality Assurance Report Surrogates

Lab Sample ID: 2112883
Field Sample ID: 20030072

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	2,4-D-d3	150	P	30 - 160
EPA 8321B	Acetaminophen-d4	95.9	P	30 - 160
EPA 8321B	Carbamazepine-d10	90.0	P	30 - 160
EPA 8321B	Diuron-d6	92.7	P	30 - 160
EPA 8321B	Endothall-d6	145	P	30 - 160
EPA 8321B	Endothall-d6	145	P	30 - 160
EPA 8321B	Glyphosate 13C 15N	31.5	P	30 - 160
EPA 8321B	Glyphosate 13C 15N	31.5	P	30 - 160
EPA 8321B	Ibuprofen-d3	127	P	30 - 160
EPA 8321B	Primidone-d5	97.2	P	30 - 160
EPA 8321B	Sucralose-d6	71.9	P	30 - 160
EPA 8321B	Sucralose-d6	71.9	P	30 - 160

Quality Assurance Report Calibration Verification

Reference Method: EPA 180.1 Rev. 2.0

Run ID: A93657

Included Lab Sample IDs: 2112846, 2112847, 2112848, 2112855, 2112858

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Turbidity	102	102	P/P	95 - 105

Reference Method: EPA 365.1 Rev. 2.0 dissolved

Run ID: A93683

Included Lab Sample IDs: 2112852, 2112853, 2112854, 2112857, 2112860

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	100	99.4	P/P	90 - 110
O-Phosphate-P	100	101	P/P	90 - 110
O-Phosphate-P	101	100	P/P	90 - 110

Reference Method: SM 5310 B-00

Run ID: A93704

Included Lab Sample IDs: 2112849, 2112850, 2112851, 2112856, 2112859

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	98.0	95.9	P/P	90 - 110
Organic Carbon	98.3	98.0	P/P	90 - 110

Reference Method: EPA 8321B

Run ID: A93708

Included Lab Sample IDs: 2112883

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Acesulfame K	152	144	P/P	60 - 160
Endothall	91.3	91.7	P/P	60 - 160

Reference Method: EPA 8321B

Run ID: A93710

Included Lab Sample IDs: 2112883

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
AMPA	124	108	P/P	60 - 160
Glufosinate	92.6	89.0	P/P	60 - 160
Glyphosate	101	91.9	P/P	60 - 160

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A93712

Included Lab Sample IDs: 2112849, 2112850, 2112851, 2112856, 2112859

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

Reference Method: EPA 300.0

Run ID: A93718

Included Lab Sample IDs: 2112846, 2112847, 2112848, 2112855, 2112858

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

Quality Assurance Report Calibration Verification

Reference Method: EPA 200.7 Rev. 4.4

Run ID: A93732

Included Lab Sample IDs: 2112884, 2112885, 2112886, 2112887, 2112888

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Iron	101	101	P/P	90 - 110
Iron	101	102	P/P	95 - 105
Manganese	100	99.2	P/P	90 - 110
Manganese	102	100	P/P	95 - 105
Zinc	97.7	96.7	P/P	90 - 110
Zinc	99.2	96.2	P/P	95 - 105

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A93762

Included Lab Sample IDs: 2112849, 2112850, 2112851, 2112856, 2112859

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	100	105	P/P	90 - 110
Kjeldahl Nitrogen	101	100	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A93776

Included Lab Sample IDs: 2112859

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

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A93783

Included Lab Sample IDs: 2112849, 2112850, 2112851, 2112856

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	97.8	97.4	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A93816

Included Lab Sample IDs: 2112849, 2112850, 2112851, 2112856, 2112859

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	103	105	P/P	90 - 110
Ammonia-N	104	105	P/P	90 - 110
Ammonia-N	104	104	P/P	90 - 110
Ammonia-N	104	104	P/P	90 - 110
Ammonia-N	105	104	P/P	90 - 110

Reference Method: EPA 8321B

Run ID: A93838

Included Lab Sample IDs: 2112883

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
2,4-D	98.1	109	P/P	50 - 150
Acetaminophen	107	113	P/P	60 - 160
Acetamiprid	111	112	P/P	50 - 150
Afidopyropen	119	115	P/P	50 - 150
Bentazon	102	101	P/P	50 - 160
Benzovindiflupyr	109	112	P/P	50 - 150

Quality Assurance Report Calibration Verification

Reference Method: EPA 8321B
Run ID: A93838
Included Lab Sample IDs: 2112883

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Carbamazepine	114	113	P/P	60 - 150
Clothianidin	101	114	P/P	60 - 150
Dinotefuran	102	106	P/P	50 - 150
Diuron	121	119	P/P	60 - 150
Fenuron	111	110	P/P	60 - 150
Fluridone	106	106	P/P	60 - 160
Hydrocodone	109	111	P/P	60 - 150
Ibuprofen	80.3	82.2	P/P	50 - 160
Imazapyr	105	109	P/P	50 - 150
Imidacloprid	105	107	P/P	60 - 150
Linuron	111	113	P/P	60 - 150
Mandestrobin	115	116	P/P	50 - 150
MCP	99.8	99.5	P/P	50 - 150
Naproxen	106	113	P/P	50 - 160
Primidone	95.9	102	P/P	60 - 150
Pyraclostrobin	114	118	P/P	60 - 150
Thiamethoxam	106	106	P/P	50 - 150
Tolfenpyrad	107	108	P/P	60 - 150
Triclopyr	104	104	P/P	50 - 150

Reference Method: SM 2320 B-97
Run ID: A93845
Included Lab Sample IDs: 2112846, 2112847, 2112848, 2112855, 2112858

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

Reference Method: SM 4500 F-C-97
Run ID: A93845
Included Lab Sample IDs: 2112846, 2112847, 2112848, 2112855, 2112858

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

Reference Method: EPA 8321B
Run ID: A93859
Included Lab Sample IDs: 2112883

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Sucralose	79.5	73.1	P/P	60 - 160

Reference Method: EPA 200.8 Rev. 5.4
Run ID: A94112
Included Lab Sample IDs: 2112884, 2112885, 2112886, 2112887, 2112888

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Aluminum	105	106	P/P	90 - 110
Aluminum	105	104	P/P	90 - 110
Antimony	96.8	98.2	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: EPA 200.8 Rev. 5.4

Run ID: A94112

Included Lab Sample IDs: 2112884, 2112885, 2112886, 2112887, 2112888

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Antimony	96.9	97.3	P/P	90 - 110
Arsenic	102	103	P/P	90 - 110
Arsenic	104	104	P/P	90 - 110
Cadmium	102	103	P/P	90 - 110
Cadmium	103	104	P/P	90 - 110
Chromium	104	99.7	P/P	90 - 110
Chromium	96.2	104	P/P	90 - 110
Copper	103	104	P/P	90 - 110
Copper	105	103	P/P	90 - 110
Lead	104	104	P/P	90 - 110
Lead	105	105	P/P	90 - 110
Nickel	101	104	P/P	90 - 110
Nickel	105	104	P/P	90 - 110
Silver	105	106	P/P	90 - 110
Silver	106	106	P/P	90 - 110
Thallium	97.4	96.3	P/P	90 - 110
Thallium	98.0	97.9	P/P	90 - 110

Reference Method: EPA 200.8 Rev. 5.4

Run ID: A94138

Included Lab Sample IDs: 2112884, 2112885, 2112886, 2112887, 2112888

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Selenium	103	103	P/P	90 - 110
Selenium	105	104	P/P	90 - 110

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

Control limits for initial calibration checks may be different from those for continuing checks, depending on method requirements.
Where they are different, both control limits are provided.

Quality Assurance Report Summary

Ref. Method	Analyte	LCS % Recovery	MS % Recovery			LCS	Precision SMP	MS
EPA 180.1 Rev. 2.0	Turbidity						1.83	
EPA 200.7 Rev. 4.4	Iron	107	107	107	104			0.567
	Manganese	102	99.9	101	99.0			0.822
	Zinc	99.0	98.5	99.8	99.9			1.24
EPA 200.8 Rev. 5.4	Aluminum	102	102	102	102			0.498
	Antimony	97.8	99.0	98.5	98.2			0.493
	Arsenic	101	101	102	104			0.443
	Cadmium	101	101	102	104			0.483
	Chromium	99.6	100	101	101			0.672
	Copper	99.6	99.4	100	100			0.757
	Lead	101	102	101	105			0.558
	Nickel	101	101	102	104			0.781
	Selenium	104	101	102	106			0.890
	Silver	106	108	106	106			1.34
	Thallium	99.0	101	102	111			1.18
EPA 300.0	Bromide	96.9	94.7	93.3	94.8			1.36
EPA 350.1 Rev. 2.0	Ammonia-N	96.7	96.3	99.6				2.91
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	103	93.7	110				9.58
EPA 353.2 Rev. 2.0	NO2NO3-N	102	102					0.913
	NO2NO3-N	102	101	98.2				2.11
EPA 365.1 Rev. 2.0	Total-P	105	108	102				4.74
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	102	99.5	99.2				0.302
	O-Phosphate-P	99.7	97.4	98.5				1.12
EPA 8321B	2,4-D	94.0	134	130				3.32
	Acesulfame K	148	148	145				2.61
	Acetaminophen	80.1	85.9	77.4				10.4
	Acetamiprid	84.7	86.2	89.1				3.25
	Afidopyropen	90.3	81.8	86.3				5.40
	AMPA	136	106	115				8.66
	Bentazon	94.0						7.75
	Benzovindiflupyr	95.4	94.3	93.4				0.911
	Carbamazepine	92.7	97.0	94.1				2.99
	Clothianidin	83.2	114	109				4.95
	Dinotefuran	92.0						4.22
	Diuron	108	105	107				1.48
	Endothall	98.5	75.3	76.4				1.42
	Fenuron	104	91.1	83.6				8.58
	Fluridone	97.4	101	92.1				9.10
	Glufosinate	115	84.7	92.1				8.36
	Glyphosate	114	82.9	89.3				7.41
	Hydrocodone	97.5	99.9	88.0				12.7
	Ibuprofen	89.5	90.9	90.1				0.876
	Imazapyr	109						4.49
	Imidacloprid	108	206	198				4.01
	Linuron	91.5	94.2	92.7				1.53
	Mandestrobin	93.5	90.4	92.8				2.63
	MCPP	103	153	141				8.27
	Naproxen	89.3	98.7	109				10.3
	Primidone	93.5	116	101				13.6
	Pyraclostrobin	93.4	84.2	87.6				3.96
	Sucralose	84.1	74.5	74.2				0.324
	Thiamethoxam	103	166	153				8.35
	Tolfenpyrad	59.6	50.4	50.6				0.331
	Triclopyr	65.4	102	93.9				7.89

Quality Assurance Report Summary

Ref. Method	Analyte	LCS % Recovery	MS % Recovery	Precision		
				LCS	SMP	MS
SM 2320 B-97	Total Alkalinity	105			0.141	
	Total Alkalinity	105			0.463	
SM 2540 D-97	TSS				5.00	
SM 4500 F-C-97	Fluoride	98.5	96.9 96.9			0.0
	Fluoride	98.9	99.5 98.8			0.476
SM 5310 B-00	Organic Carbon	97.4	96.9 96.5			0.316
	Organic Carbon	97.2	96.2 96.3			0.0672

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	2112846, 2112847, 2112848, 2112855, 2112858
EPA 200.7 Rev. 4.4 / E31780	Total Recoverable Metals analysis using ICP emission spectroscopy for aqueous samples supporting Clean Water Act Projects	2112884, 2112885, 2112886, 2112887, 2112888
EPA 200.8 Rev. 5.4 / E31780	Total Recoverable Metals analysis using ICP-MS for aqueous samples supporting Clean Water Act Projects	2112884, 2112885, 2112886, 2112887, 2112888
EPA 300.0 / E31780	Bromide in aqueous matrices	2112846, 2112847, 2112848, 2112855, 2112858
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	2112849, 2112850, 2112851, 2112856, 2112859
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	2112849, 2112850, 2112851, 2112856, 2112859
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	2112849, 2112850, 2112851, 2112856, 2112859
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	2112849, 2112850, 2112851, 2112856, 2112859
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	2112852, 2112853, 2112854, 2112857, 2112860
EPA 8321B / E31780	Pesticides, herbicides, and other chemicals in water matrices by HPLC/MS/MS	2112883
EPA 8321B / E31780	Water soluble organic compounds by HPLC/MS/MS	2112883
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO3/L	2112846, 2112847, 2112848, 2112855, 2112858
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices using a maximum of 250 mL of sample	2112846, 2112847, 2112848, 2112855, 2112858
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	2112846, 2112847, 2112848, 2112855, 2112858
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	2112849, 2112850, 2112851, 2112856, 2112859

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
EPA 180.1 Rev. 2.0	08/20/2019			08/20/2019 16:54	Rosalyn Ballman	2112846, 2112847, 2112848, 2112855, 2112858
EPA 200.7 Rev. 4.4	08/20/2019	08/21/2019 15:30	Elliott D. Healy	08/22/2019 14:30	Alexander Thompson	2112888
	08/20/2019	08/21/2019 15:30	Elliott D. Healy	08/22/2019 17:24	Alexander Thompson	2112884
	08/20/2019	08/21/2019 15:30	Elliott D. Healy	08/22/2019 17:31	Alexander Thompson	2112885
	08/20/2019	08/21/2019 15:30	Elliott D. Healy	08/22/2019 17:38	Alexander Thompson	2112886
	08/20/2019	08/21/2019 15:30	Elliott D. Healy	08/22/2019 17:46	Alexander Thompson	2112887
EPA 200.8 Rev. 5.4	08/20/2019	08/21/2019 15:30	Elliott D. Healy	09/10/2019 16:52	Robert K Palmer	2112888
	08/20/2019	08/21/2019 15:30	Elliott D. Healy	09/10/2019 20:38	Robert K Palmer	2112884
	08/20/2019	08/21/2019 15:30	Elliott D. Healy	09/10/2019 20:47	Robert K Palmer	2112885
	08/20/2019	08/21/2019 15:30	Elliott D. Healy	09/10/2019 20:57	Robert K Palmer	2112886
	08/20/2019	08/21/2019 15:30	Elliott D. Healy	09/10/2019 21:07	Robert K Palmer	2112887
	08/20/2019	08/21/2019 15:30	Elliott D. Healy	09/11/2019 17:34	Robert K Palmer	2112888
	08/20/2019	08/21/2019 15:30	Elliott D. Healy	09/11/2019 19:46	Robert K Palmer	2112884
	08/20/2019	08/21/2019 15:30	Elliott D. Healy	09/11/2019 19:52	Robert K Palmer	2112885
	08/20/2019	08/21/2019 15:30	Elliott D. Healy	09/11/2019 19:59	Robert K Palmer	2112886
	08/20/2019	08/21/2019 15:30	Elliott D. Healy	09/11/2019 20:05	Robert K Palmer	2112887
EPA 300.0	08/20/2019			08/22/2019 01:00	Julia Storbeck	2112846
	08/20/2019			08/22/2019 01:17	Julia Storbeck	2112847
	08/20/2019			08/22/2019 01:34	Julia Storbeck	2112848
	08/20/2019			08/22/2019 01:51	Julia Storbeck	2112855
	08/20/2019			08/22/2019 02:43	Julia Storbeck	2112858
EPA 350.1 Rev. 2.0	08/20/2019			08/27/2019 12:37	Ping Hua	2112849
	08/20/2019			08/27/2019 12:56	Ping Hua	2112856
	08/20/2019			08/27/2019 13:05	Ping Hua	2112859
	08/20/2019			08/27/2019 13:34	Ping Hua	2112851
	08/20/2019			08/27/2019 13:49	Ping Hua	2112850
EPA 351.2 Rev. 2.0	08/20/2019	08/22/2019 12:30	Sima Feizi	08/23/2019 14:58	Joseph Suarez	2112849
	08/20/2019	08/22/2019 12:30	Sima Feizi	08/23/2019 14:59	Joseph Suarez	2112850
	08/20/2019	08/22/2019 12:30	Sima Feizi	08/23/2019 15:01	Joseph Suarez	2112851
	08/20/2019	08/22/2019 12:30	Sima Feizi	08/23/2019 15:09	Joseph Suarez	2112856
	08/20/2019	08/22/2019 12:30	Sima Feizi	08/23/2019 15:10	Joseph Suarez	2112859
EPA 353.2 Rev. 2.0	08/20/2019			08/22/2019 09:08	Beverly Y. Sanders	2112850
	08/20/2019			08/22/2019 09:15	Beverly Y. Sanders	2112856
	08/20/2019			08/22/2019 09:21	Beverly Y. Sanders	2112849
	08/20/2019			08/22/2019 09:22	Beverly Y. Sanders	2112851
	08/20/2019			08/22/2019 09:23	Beverly Y. Sanders	2112859
EPA 365.1 Rev. 2.0	08/20/2019	08/22/2019 12:30	Lipi Saha	08/23/2019 16:50	Lipi Saha	2112849
	08/20/2019	08/22/2019 12:30	Lipi Saha	08/23/2019 16:54	Lipi Saha	2112850
	08/20/2019	08/22/2019 12:30	Lipi Saha	08/23/2019 16:55	Lipi Saha	2112851

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
EPA 365.1 Rev. 2.0	08/20/2019	08/22/2019 12:30	Lipi Saha	08/23/2019 16:56	Lipi Saha	2112856
	08/20/2019	08/22/2019 12:30	Lipi Saha	08/26/2019 12:18	Lipi Saha	2112859
EPA 365.1 Rev. 2.0 dissolved	08/20/2019			08/20/2019 16:22	Jhamieka S. Greenwood	2112852
	08/20/2019			08/20/2019 16:23	Jhamieka S. Greenwood	2112854
	08/20/2019			08/20/2019 16:32	Jhamieka S. Greenwood	2112860
	08/20/2019			08/20/2019 16:39	Jhamieka S. Greenwood	2112853
	08/20/2019			08/20/2019 16:48	Jhamieka S. Greenwood	2112857
	08/20/2019			08/21/2019 13:51	Rebecca Ware	2112883
EPA 8321B	08/20/2019	08/21/2019 10:00	Rebecca Ware	08/21/2019 20:45	Rebecca Ware	2112883
	08/20/2019	08/21/2019 10:00	Rebecca Ware	08/28/2019 14:21	Rebecca Ware	2112883
	08/20/2019	08/22/2019 09:00	Fe-Val Siddell	08/24/2019 13:01	Juyoung Kim	2112883
SM 2320 B-97	08/20/2019			08/28/2019 07:04	Dale L. Simmons	2112847
	08/20/2019			08/28/2019 07:29	Dale L. Simmons	2112846
	08/20/2019			08/28/2019 07:41	Dale L. Simmons	2112848
	08/20/2019			08/28/2019 07:53	Dale L. Simmons	2112855
	08/20/2019			08/28/2019 10:19	Dale L. Simmons	2112858
SM 2540 D-97	08/20/2019			08/21/2019 14:21	Yijie Li	2112846, 2112847, 2112848, 2112855, 2112858
SM 4500 F-C-97	08/20/2019			08/28/2019 07:04	Dale L. Simmons	2112847
	08/20/2019			08/28/2019 07:29	Dale L. Simmons	2112846
	08/20/2019			08/28/2019 07:41	Dale L. Simmons	2112848
	08/20/2019			08/28/2019 07:53	Dale L. Simmons	2112855
	08/20/2019			08/28/2019 10:19	Dale L. Simmons	2112858
SM 5310 B-00	08/20/2019			08/21/2019 19:12	Madeline Funaro	2112849
	08/20/2019			08/21/2019 19:24	Madeline Funaro	2112851
	08/20/2019			08/21/2019 20:01	Madeline Funaro	2112856
	08/20/2019			08/21/2019 21:14	Madeline Funaro	2112850
	08/20/2019			08/21/2019 21:26	Madeline Funaro	2112859