

Chemical Analysis Report

TLH-ROC-2019-08-19-01

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

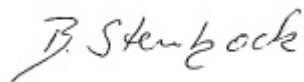
Event Description: **Run 1**
Request ID: **RQ-2019-08-12-32**
Customer: **TLH-ROC**
Project ID: **SMP**

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Certified by: Dr. rer. nat. Bettina Steinbock, Environmental Administrator

Date Certified: 10-SEP-2019 19:05



Case Narrative

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

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

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

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

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

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

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

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

Precision is reported as relative percent difference unless otherwise noted.

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

QC Codes used in this report may include:

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

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

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

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

Sample Location: LITTLE AUCILLA RIVER

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

Field ID: G1TLHR0029

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2112634	EPA 180.1 Rev. 2.0	Turbidity	0.90		NTU	P369370	
	EPA 300.0 Rev. 2.1	Chloride	3.2		mg Cl/L	P369535	
		Sulfate	0.20	U	mg SO4/L	P369538	
	SM 2120 B	Color (true)	520		PCU	P369366	
	SM 2320 B-97	Total Alkalinity	0.65	U	mg CaCO3/L	P369864	
	SM 2540 C-97	TDS	81		mg/L	P369731	
	SM 2540 D-97	TSS	2	U	mg/L	P369701	
	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P369867	
2112636	EPA 350.1 Rev. 2.0	Ammonia-N	0.024		mg N/L	P369755	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.3		mg N/L	P369501	MS
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P369420	
	EPA 365.1 Rev. 2.0	Total-P	0.023		mg P/L	P369511	
	SM 5310 B-00	Organic Carbon	41		mg C/L	P369383	
2112638	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P369409	
2112648	EPA 8321B	2,4-D	0.0020	U	ug/L	P369393	
		Acesulfame K**	0.10	U	ug/L	P369340	
		AMPA**	0.10	U	ug/L	P369340	
		Sucralose**	0.010	U	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	8.0E-04	U	ug/L	P369393	
		Benzovindiflupyr**	0.0020	UJ	ug/L	P369393	
		Carbamazepine**	8.0E-04	U	ug/L	P369393	
		Clothianidin**	0.0020	U	ug/L	P369393	
		Dinotefuran**	0.0020	U	ug/L	P369393	
		Diuron	0.0020	U	ug/L	P369393	
		Fenuron	0.016	U	ug/L	P369393	
		Fluridone**	8.0E-04	U	ug/L	P369393	
		Imazapyr**	0.0086	I	ug/L	P369393	
		Hydrocodone**	0.0020	U	ug/L	P369393	
		Ibuprofen**	0.020	U	ug/L	P369393	
		Imidacloprid	0.0020	U	ug/L	P369393	MS
		Linuron	0.0040	U	ug/L	P369393	
		Mandestrobin**	0.0020	UJ	ug/L	P369393	
		MCP	0.0020	U	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

Field ID: G1TLHR0029

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2112648	EPA 8321B	Tolfenpyrad**	0.0020	U	ug/L	P369393	
		Triclopyr**	0.0040	U	ug/L	P369393	
2112650	EPA 200.7 Rev. 4.4	Barium	14.9		ug/L	P369358	
		Calcium	1.42		mg/L	P369358	
		Iron	1.27E+03		ug/L	P369358	
		Magnesium	0.75		mg/L	P369358	
		Potassium	0.54	I	mg/L	P369358	
		Sodium	2.0		mg/L	P369358	
	EPA 200.8 Rev. 5.4	Zinc	9.1	I	ug/L	P369358	
		Aluminum	461		ug/L	P369358	
		Antimony	0.050	U	ug/L	P369358	
		Arsenic	0.40		ug/L	P369358	
		Boron**	14.2		ug/L	P369358	
		Cadmium	0.020	U	ug/L	P369358	
		Chromium	0.46	I	ug/L	P369358	
		Copper	0.40	U	ug/L	P369358	
		Lead	0.42		ug/L	P369358	
		Nickel	0.66	I	ug/L	P369358	
		Selenium	0.20	U	ug/L	P369358	
		Silver	0.010	U	ug/L	P369358	
		Thallium	0.10	U	ug/L	P369358	

Ref. Method and Comment:

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

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

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

Sample Location: LITTLE AUCILLA RVR @ US221

Collection Date/Time: 08/19/2019 10:45

Field ID: G1TLHR0099

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2112635	EPA 180.1 Rev. 2.0	Turbidity	0.60		NTU	P369370	
	EPA 300.0 Rev. 2.1	Chloride	2.8		mg Cl/L	P369535	
		Sulfate	0.20	U	mg SO4/L	P369538	
	SM 2120 B	Color (true)	380		PCU	P369366	
	SM 2320 B-97	Total Alkalinity	0.65	U	mg CaCO3/L	P369864	
	SM 2540 C-97	TDS	69		mg/L	P369731	
	SM 2540 D-97	TSS	2	U	mg/L	P369701	
	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P369867	
2112637	EPA 350.1 Rev. 2.0	Ammonia-N	0.019		mg N/L	P369755	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.1		mg N/L	P369501	MS
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P369420	
	EPA 365.1 Rev. 2.0	Total-P	0.021		mg P/L	P369511	
	SM 5310 B-00	Organic Carbon	33		mg C/L	P369383	
2112639	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.006	I	mg P/L	P369409	
2112649	EPA 8321B	2,4-D	0.0020	U	ug/L	P369393	
		Acesulfame K**	0.10	U	ug/L	P369340	
		AMPA**	0.10	U	ug/L	P369340	
		Sucralose**	0.010	U	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	
		Afidopyrophen**	0.0020	UJ	ug/L	P369393	
		Bentazon	8.0E-04	U	ug/L	P369393	
		Benzovindiflupyr**	0.0020	UJ	ug/L	P369393	
		Carbamazepine**	8.0E-04	U	ug/L	P369393	
		Clothianidin**	0.0020	U	ug/L	P369393	
		Dinotefuran**	0.0020	U	ug/L	P369393	
		Diuron	0.0020	U	ug/L	P369393	
		Fenuron	0.016	U	ug/L	P369393	
		Fluridone**	8.0E-04	U	ug/L	P369393	
		Imazapyr**	0.0051	I	ug/L	P369393	
		Hydrocodone**	0.0020	U	ug/L	P369393	
		Ibuprofen**	0.020	U	ug/L	P369393	
		Imidacloprid	0.0020	U	ug/L	P369393	MS
		Linuron	0.0040	U	ug/L	P369393	
		Mandestrobin**	0.0020	UJ	ug/L	P369393	
		MCP	0.0020	U	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

Field ID: G1TLHR0099

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2112649	EPA 8321B	Tolfenpyrad**	0.0020	U	ug/L	P369393	
		Triclopyr**	0.0040	U	ug/L	P369393	
2112651	EPA 200.7 Rev. 4.4	Barium	15.1		ug/L	P369358	
		Calcium	1.38		mg/L	P369358	
		Iron	1.17E+03		ug/L	P369358	
		Magnesium	0.75		mg/L	P369358	
		Potassium	0.74	I	mg/L	P369358	
		Sodium	1.7	I	mg/L	P369358	
		Zinc	5.0	U	ug/L	P369358	
	EPA 200.8 Rev. 5.4	Aluminum	392		ug/L	P369358	
		Antimony	0.050	U	ug/L	P369358	
		Arsenic	0.37		ug/L	P369358	
		Boron**	13.5		ug/L	P369358	
		Cadmium	0.020	U	ug/L	P369358	
		Chromium	0.43	I	ug/L	P369358	
		Copper	0.40	U	ug/L	P369358	
		Lead	0.25	I	ug/L	P369358	
		Nickel	0.56	I	ug/L	P369358	
		Selenium	0.20	U	ug/L	P369358	
		Silver	0.010	U	ug/L	P369358	
		Thallium	0.10	U	ug/L	P369358	

Ref. Method and Comment:

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

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

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

Sample Location: Grassy Hole Spring on Ichetucknee River

Collection Date/Time: 08/19/2019 13:20

Field ID: G1TLHR0100

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2112640	EPA 180.1 Rev. 2.0	Turbidity	0.20		NTU	P369370	
	EPA 300.0 Rev. 2.1	Chloride	7.5		mg Cl/L	P369535	
		Sulfate	19		mg SO4/L	P369538	
	SM 2120 B	Color (true)	2.5	U	PCU	P369366	
	SM 2320 B-97	Total Alkalinity	161		mg CaCO3/L	P369864	
	SM 2540 C-97	TDS	196		mg/L	P369731	
	SM 2540 D-97	TSS	2	U	mg/L	P369701	
	SM 4500 F-C-97	Fluoride	0.18		mg F/L	P369867	
2112641	EPA 350.1 Rev. 2.0	Ammonia-N	0.002	U	mg N/L	P369756	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.080	U	mg N/L	P369501	MS
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.67		mg N/L	P369420	
	EPA 365.1 Rev. 2.0	Total-P	0.054		mg P/L	P369511	
	SM 5310 B-00	Organic Carbon	0.72	I	mg C/L	P369383	
2112642	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.054		mg P/L	P369409	

Ref. Method and Comment:

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

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

Quality Assurance Report

Method Blank Results

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P369370

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P369358

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: P369358

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P369535

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P369538

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P369755

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

Quality Assurance Report Method Blank Results

Reference Method: EPA 350.1 Rev. 2.0
 Batch ID: P369756

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

Reference Method: EPA 351.2 Rev. 2.0
 Batch ID: P369501

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

Reference Method: EPA 353.2 Rev. 2.0
 Batch ID: P369420

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

Reference Method: EPA 365.1 Rev. 2.0
 Batch ID: P369511

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
 Batch ID: P369409

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
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

Quality Assurance Report Method Blank Results

Reference Method: EPA 8321B
Batch ID: P369393

Component	Result	Code	Units
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: SM 2120 B
Batch ID: P369366

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2320 B-97
Batch ID: P369864

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

Reference Method: SM 2540 C-97
Batch ID: P369731

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P369701

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500 F-C-97
Batch ID: P369867

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-00
Batch ID: P369383

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: P369358

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Barium	102		P	85 - 115
Calcium	110		P	85 - 115
Iron	106		P	85 - 115
Magnesium	112		P	85 - 115
Potassium	108		P	85 - 115
Sodium	113		P	85 - 115
Zinc	98.4		P	85 - 115

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P369358

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Aluminum	103		P	85 - 115
Antimony	97.3		P	85 - 115
Arsenic	102		P	85 - 115
Boron	103		P	85 - 115
Cadmium	99.3		P	85 - 115
Chromium	96.5		P	85 - 115
Copper	98.5		P	85 - 115
Lead	96.6		P	85 - 115
Nickel	97.9		P	85 - 115
Selenium	103		P	85 - 115
Silver	98.6		P	85 - 115
Thallium	99.1		P	85 - 115

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P369535

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P369538

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P369755

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P369756

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

Quality Assurance Report

Laboratory Control Sample Accuracy

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P369501

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P369420

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P369511

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: P369409

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
O-Phosphate-P	97.7		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

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 8321B
Batch ID: P369393

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Mandestrobin	93.5		P	40 - 160
MCP	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
Tolfenpyrad	59.6		P	40 - 160
Triclopyr	65.4		P	30 - 160

Reference Method: SM 2120 B
Batch ID: P369366

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

Reference Method: SM 2320 B-97
Batch ID: P369864

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

Reference Method: SM 4500 F-C-97
Batch ID: P369867

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	96.1		P	92 - 103

Reference Method: SM 5310 B-00
Batch ID: P369383

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	89.0		P	85 - 115

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P369358

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2111951	Barium	101		P	80 - 120
2111951	Calcium	109		P	80 - 120
2111951	Iron	106		P	80 - 120
2111951	Magnesium	111		P	80 - 120
2111951	Potassium	108		P	80 - 120
2111951	Sodium	103		P	80 - 120
2111951	Zinc	97.4		P	80 - 120
2112383	Barium	101	102	P/P	80 - 120
2112383	Calcium	109	109	P/P	80 - 120
2112383	Iron	105	105	P/P	80 - 120
2112383	Magnesium	110	110	P/P	80 - 120
2112383	Potassium	112	111	P/P	80 - 120
2112383	Sodium	102	102	P/P	80 - 120
2112383	Zinc	99.5	98.0	P/P	80 - 120

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P369358

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2111951	Aluminum	103		P	80 - 120
2111951	Antimony	98.1		P	80 - 120
2111951	Arsenic	102		P	80 - 120
2111951	Boron	102		P	80 - 120
2111951	Cadmium	99.0		P	80 - 120
2111951	Chromium	99.0		P	80 - 120
2111951	Copper	99.4		P	80 - 120
2111951	Lead	99.1		P	80 - 120
2111951	Nickel	96.5		P	80 - 120
2111951	Selenium	100		P	80 - 120
2111951	Silver	99.2		P	80 - 120
2111951	Thallium	101		P	80 - 120
2112383	Aluminum	101	102	P/P	80 - 120
2112383	Antimony	96.4	97.6	P/P	80 - 120
2112383	Arsenic	101	101	P/P	80 - 120
2112383	Boron	102	104	P/P	80 - 120
2112383	Cadmium	98.0	99.1	P/P	80 - 120
2112383	Chromium	98.4	99.9	P/P	80 - 120
2112383	Copper	98.8	98.9	P/P	80 - 120
2112383	Lead	97.9	98.7	P/P	80 - 120
2112383	Nickel	98.4	99.3	P/P	80 - 120
2112383	Selenium	99.0	100	P/P	80 - 120
2112383	Silver	97.6	99.2	P/P	80 - 120
2112383	Thallium	99.4	102	P/P	80 - 120

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P369535

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2112376	Chloride	98.2		P	90 - 110
2112635	Chloride	98.8		P	90 - 110

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P369538

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2112376	Sulfate	101		P	90 - 110
2112635	Sulfate	103		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P369755

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2112601	Ammonia-N	101	98.4	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P369756

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2112641	Ammonia-N	94.9	95.3	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P369501

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2112600	Kjeldahl Nitrogen	110	110	P/F	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P369420

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2112658	NO2NO3-N	98.5	99.5	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P369511

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2112425	Total-P	103	104	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P369409

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2112639	O-Phosphate-P	94.6	97.1	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

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	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
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	MCCP	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: P369867

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2113022	Fluoride	103	102	P/P	89 - 106

Reference Method: SM 5310 B-00
 Batch ID: P369383

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2112364	Organic Carbon	97.0		P	85 - 115

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P369370

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2112754	Turbidity	10.9	Sample	P	0 - 20

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P369358

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2112383	Barium	0.0122	Spike	P	0 - 20
2112383	Calcium	0.0511	Spike	P	0 - 20
2112383	Iron	0.172	Spike	P	0 - 20
2112383	Magnesium	0.0475	Spike	P	0 - 20
2112383	Potassium	0.298	Spike	P	0 - 20
2112383	Sodium	0.0534	Spike	P	0 - 20
2112383	Zinc	1.54	Spike	P	0 - 20

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P369358

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2112383	Aluminum	0.921	Spike	P	0 - 20
2112383	Antimony	1.25	Spike	P	0 - 20
2112383	Arsenic	0.231	Spike	P	0 - 20
2112383	Boron	1.94	Spike	P	0 - 20
2112383	Cadmium	1.07	Spike	P	0 - 20
2112383	Chromium	1.51	Spike	P	0 - 20
2112383	Copper	0.0758	Spike	P	0 - 20
2112383	Lead	0.773	Spike	P	0 - 20
2112383	Nickel	0.921	Spike	P	0 - 20
2112383	Selenium	1.01	Spike	P	0 - 20
2112383	Silver	1.66	Spike	P	0 - 20
2112383	Thallium	2.81	Spike	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P369535

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2112376	Chloride	0.185	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P369755

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2112601	Ammonia-N	2.40	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 350.1 Rev. 2.0
 Batch ID: P369756

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2112641	Ammonia-N	0.429	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
 Batch ID: P369501

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2112600	Kjeldahl Nitrogen	0.303	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
 Batch ID: P369420

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2112658	NO2NO3-N	0.800	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
 Batch ID: P369511

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2112425	Total-P	0.758	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
 Batch ID: P369409

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2112639	O-Phosphate-P	2.46	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 2120 B
Batch ID: P369366

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2112757	Color (true)	1.52	Sample	P	0 - 20

Reference Method: SM 2320 B-97
Batch ID: P369864

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2113022	Total Alkalinity	0.00825	Sample	P	0 - 2.8

Reference Method: SM 2540 C-97
Batch ID: P369731

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2112599	TDS	4.35	Sample	P	0 - 10

Reference Method: SM 4500 F-C-97
Batch ID: P369867

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2113022	Fluoride	0.519	Spike	P	0 - 2.5

Quality Assurance Report Precision

Reference Method: SM 5310 B-00
Batch ID: P369383

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2112364	Organic Carbon	0.0258	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: 2112648
Field Sample ID: G1TLHR0029

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	2,4-D-d3	157	P	30 - 160
EPA 8321B	Acetaminophen-d4	79.8	P	30 - 160
EPA 8321B	Carbamazepine-d10	68.6	P	30 - 160
EPA 8321B	Diuron-d6	77.4	P	30 - 160
EPA 8321B	Endothall-d6	80.3	P	30 - 160
EPA 8321B	Endothall-d6	80.3	P	30 - 160
EPA 8321B	Glyphosate 13C 15N	60.6	P	30 - 160
EPA 8321B	Glyphosate 13C 15N	60.6	P	30 - 160
EPA 8321B	Ibuprofen-d3	111	P	30 - 160
EPA 8321B	Primidone-d5	82.3	P	30 - 160
EPA 8321B	Sucralose-d6	81.1	P	30 - 160
EPA 8321B	Sucralose-d6	81.1	P	30 - 160

Lab Sample ID: 2112649
Field Sample ID: G1TLHR0099

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	2,4-D-d3	116	P	30 - 160
EPA 8321B	Acetaminophen-d4	78.9	P	30 - 160
EPA 8321B	Carbamazepine-d10	73.8	P	30 - 160
EPA 8321B	Diuron-d6	85.9	P	30 - 160
EPA 8321B	Endothall-d6	68.0	P	30 - 160
EPA 8321B	Endothall-d6	68.0	P	30 - 160
EPA 8321B	Glyphosate 13C 15N	56.7	P	30 - 160
EPA 8321B	Glyphosate 13C 15N	56.7	P	30 - 160
EPA 8321B	Ibuprofen-d3	122	P	30 - 160
EPA 8321B	Primidone-d5	96.3	P	30 - 160
EPA 8321B	Sucralose-d6	78.6	P	30 - 160
EPA 8321B	Sucralose-d6	78.6	P	30 - 160

Quality Assurance Report Calibration Verification

Reference Method: SM 2120 B

Run ID: A93656

Included Lab Sample IDs: 2112634, 2112635, 2112640

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

Reference Method: EPA 180.1 Rev. 2.0

Run ID: A93657

Included Lab Sample IDs: 2112634, 2112635, 2112640

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Turbidity	101	102	P/P	95 - 105

Reference Method: SM 5310 B-00

Run ID: A93659

Included Lab Sample IDs: 2112636, 2112637, 2112641

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	93.9	95.2	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved

Run ID: A93683

Included Lab Sample IDs: 2112638, 2112639, 2112642

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	100	100	P/P	90 - 110
O-Phosphate-P	100	100	P/P	90 - 110
O-Phosphate-P	99.6	101	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A93684

Included Lab Sample IDs: 2112636, 2112637, 2112641

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO2NO3-N	101	102	P/P	90 - 110

Reference Method: EPA 200.7 Rev. 4.4

Run ID: A93697

Included Lab Sample IDs: 2112650, 2112651

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Barium	101	101	P/P	90 - 110
Calcium	102	102	P/P	90 - 110
Iron	102	103	P/P	90 - 110
Magnesium	102	103	P/P	90 - 110
Potassium	101	101	P/P	90 - 110
Sodium	104	103	P/P	90 - 110
Zinc	97.9	98.3	P/P	90 - 110

Reference Method: EPA 8321B

Run ID: A93708

Included Lab Sample IDs: 2112648, 2112649

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
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Quality Assurance Report Calibration Verification

Reference Method: EPA 8321B

Run ID: A93708

Included Lab Sample IDs: 2112648, 2112649

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: 2112648, 2112649

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 300.0 Rev. 2.1

Run ID: A93717

Included Lab Sample IDs: 2112634, 2112635, 2112640

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	98.5	99.4	P/P	90 - 110
Chloride	98.7	98.5	P/P	90 - 110
Sulfate	103	104	P/P	90 - 110
Sulfate	103	103	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A93750

Included Lab Sample IDs: 2112636, 2112637, 2112641

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	109	108	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A93776

Included Lab Sample IDs: 2112636, 2112637

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	99.2	101	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A93783

Included Lab Sample IDs: 2112641

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	96.6	97.8	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A93816

Included Lab Sample IDs: 2112636, 2112637, 2112641

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	92.8	96.9	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: EPA 8321B

Run ID: A93838

Included Lab Sample IDs: 2112648, 2112649

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
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
MCPP	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: 2112634, 2112635, 2112640

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

Reference Method: SM 4500 F-C-97

Run ID: A93845

Included Lab Sample IDs: 2112634, 2112635, 2112640

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	100	99.0	P/P	90 - 110

Reference Method: EPA 8321B

Run ID: A93859

Included Lab Sample IDs: 2112648, 2112649

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Sucralose	77.7	79.5	P/P	60 - 160

Quality Assurance Report Calibration Verification

Reference Method: EPA 200.8 Rev. 5.4

Run ID: A93990

Included Lab Sample IDs: 2112650, 2112651

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Aluminum	99.7	98.4	P/P	90 - 110
Antimony	94.8	94.5	P/P	90 - 110
Arsenic	99.1	101	P/P	90 - 110
Boron	96.3	97.6	P/P	90 - 110
Cadmium	97.3	96.8	P/P	90 - 110
Chromium	97.6	100	P/P	90 - 110
Copper	99.4	100	P/P	90 - 110
Lead	97.8	97.7	P/P	90 - 110
Selenium	98.7	97.8	P/P	90 - 110
Thallium	96.4	95.8	P/P	90 - 110

Reference Method: EPA 200.8 Rev. 5.4

Run ID: A94047

Included Lab Sample IDs: 2112650, 2112651

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Nickel	96.9	97.8	P/P	90 - 110
Silver	99.7	99.9	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						10.9	
EPA 200.7 Rev. 4.4	Barium	102	101	101	102			0.0122
	Calcium	110	109	109	109			0.0511
	Iron	106	106	105	105			0.172
	Magnesium	112	111	110	110			0.0475
	Potassium	108	108	112	111			0.298
	Sodium	113	103	102	102			0.0534
	Zinc	98.4	97.4	99.5	98.0			1.54
EPA 200.8 Rev. 5.4	Aluminum	103	103	101	102			0.921
	Antimony	97.3	98.1	96.4	97.6			1.25
	Arsenic	102	102	101	101			0.231
	Boron	103	102	102	104			1.94
	Cadmium	99.3	99.0	98.0	99.1			1.07
	Chromium	96.5	99.0	98.4	99.9			1.51
	Copper	98.5	99.4	98.8	98.9			0.0758
	Lead	96.6	99.1	97.9	98.7			0.773
	Nickel	97.9	96.5	98.4	99.3			0.921
	Selenium	103	100	99.0	100			1.01
	Silver	98.6	99.2	97.6	99.2			1.66
	Thallium	99.1	101	99.4	102			2.81
EPA 300.0 Rev. 2.1	Chloride	98.3	98.2	98.8			0.185	
	Sulfate	101	101	103				
EPA 350.1 Rev. 2.0	Ammonia-N	102	101	98.4				2.40
	Ammonia-N	99.3	94.9	95.3				0.429
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	105	110	110				0.303
EPA 353.2 Rev. 2.0	NO2NO3-N	102	98.5	99.5				0.800
EPA 365.1 Rev. 2.0	Total-P	104	103	104				0.758
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	97.7	94.6	97.1				2.46
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

Quality Assurance Report Summary

Ref. Method	Analyte	LCS % Recovery	MS % Recovery		Precision	
					LCS	MS
EPA 8321B	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
SM 2120 B	Color (true)	101			1.52	
SM 2320 B-97	Total Alkalinity	105			0.0082	
SM 2540 C-97	TDS				4.35	
SM 4500 F-C-97	Fluoride	96.1	103	102		0.519
SM 5310 B-00	Organic Carbon	89.0	97.0			0.0258

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	2112634, 2112635, 2112640
EPA 200.7 Rev. 4.4 / E31780	Total Recoverable Metals analysis using ICP emission spectroscopy for aqueous samples supporting Clean Water Act Projects	2112650, 2112651
EPA 200.8 Rev. 5.4 / E31780	Total Recoverable Metals analysis using ICP-MS for aqueous samples supporting Clean Water Act Projects	2112650, 2112651
EPA 300.0 Rev. 2.1 / E31780	Chloride in aqueous matrices	2112634, 2112635, 2112640
EPA 300.0 Rev. 2.1 / E31780	Sulfate in aqueous matrices	2112634, 2112635, 2112640
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	2112636, 2112637, 2112641
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	2112636, 2112637, 2112641
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	2112636, 2112637, 2112641
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	2112636, 2112637, 2112641
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	2112638, 2112639, 2112642
EPA 8321B / E31780	Pesticides, herbicides, and other chemicals in water matrices by HPLC/MS/MS	2112648, 2112649
EPA 8321B / E31780	Water soluble organic compounds by HPLC/MS/MS	2112648, 2112649
SM 2120 B / E31780	True Color measured at 450 nm	2112634, 2112635, 2112640
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO ₃ /L	2112634, 2112635, 2112640
SM 2540 C-97 / E31780	Total Dissolved Solids in aqueous matrices	2112634, 2112635, 2112640
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices using a maximum of 250 mL of sample	2112634, 2112635, 2112640
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	2112634, 2112635, 2112640
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	2112636, 2112637, 2112641

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	08/19/2019			08/20/2019 16:54	Rosalyn Ballman	2112634, 2112635, 2112640
EPA 200.7 Rev. 4.4	08/19/2019	08/20/2019 16:10	Elliott D. Healy	08/21/2019 17:43	Alexander Thompson	2112650
	08/19/2019	08/20/2019 16:10	Elliott D. Healy	08/21/2019 17:47	Alexander Thompson	2112651
EPA 200.8 Rev. 5.4	08/19/2019	08/20/2019 16:10	Elliott D. Healy	09/04/2019 23:48	Robert K Palmer	2112650
	08/19/2019	08/20/2019 16:10	Elliott D. Healy	09/04/2019 23:58	Robert K Palmer	2112651
	08/19/2019	08/20/2019 16:10	Elliott D. Healy	09/07/2019 01:59	Robert K Palmer	2112650
	08/19/2019	08/20/2019 16:10	Elliott D. Healy	09/07/2019 02:05	Robert K Palmer	2112651
EPA 300.0 Rev. 2.1	08/19/2019			08/22/2019 09:27	Julia Storbeck	2112635
	08/19/2019			08/22/2019 13:23	Julia Storbeck	2112634
	08/19/2019			08/22/2019 13:35	Julia Storbeck	2112640
EPA 350.1 Rev. 2.0	08/19/2019			08/27/2019 11:29	Ping Hua	2112636
	08/19/2019			08/27/2019 11:31	Ping Hua	2112637
	08/19/2019			08/27/2019 11:37	Ping Hua	2112641
EPA 351.2 Rev. 2.0	08/19/2019	08/22/2019 11:15	Sima Feizi	08/23/2019 10:40	Joseph Suarez	2112636
	08/19/2019	08/22/2019 11:15	Sima Feizi	08/23/2019 10:42	Joseph Suarez	2112637
	08/19/2019	08/22/2019 11:15	Sima Feizi	08/23/2019 10:43	Joseph Suarez	2112641
EPA 353.2 Rev. 2.0	08/19/2019			08/21/2019 11:53	Beverly Y. Sanders	2112636
	08/19/2019			08/21/2019 11:54	Beverly Y. Sanders	2112637
	08/19/2019			08/21/2019 11:55	Beverly Y. Sanders	2112641
EPA 365.1 Rev. 2.0	08/19/2019	08/22/2019 12:30	Lipi Saha	08/23/2019 16:02	Lipi Saha	2112641
	08/19/2019	08/22/2019 12:30	Lipi Saha	08/26/2019 11:46	Lipi Saha	2112636
	08/19/2019	08/22/2019 12:30	Lipi Saha	08/26/2019 11:47	Lipi Saha	2112637
EPA 365.1 Rev. 2.0 dissolved	08/19/2019			08/20/2019 15:30	Jhamieka S. Greenwood	2112639
	08/19/2019			08/20/2019 15:59	Jhamieka S. Greenwood	2112642
	08/19/2019			08/20/2019 16:07	Jhamieka S. Greenwood	2112638
EPA 8321B	08/19/2019	08/21/2019 10:00	Rebecca Ware	08/21/2019 12:42	Rebecca Ware	2112648
	08/19/2019	08/21/2019 10:00	Rebecca Ware	08/21/2019 12:56	Rebecca Ware	2112649
	08/19/2019	08/21/2019 10:00	Rebecca Ware	08/21/2019 19:51	Rebecca Ware	2112648
	08/19/2019	08/21/2019 10:00	Rebecca Ware	08/21/2019 20:02	Rebecca Ware	2112649
	08/19/2019	08/21/2019 10:00	Rebecca Ware	08/28/2019 12:47	Rebecca Ware	2112648
	08/19/2019	08/21/2019 10:00	Rebecca Ware	08/28/2019 12:59	Rebecca Ware	2112649
	08/19/2019	08/22/2019 09:00	Fe-Val Siddell	08/24/2019 10:08	Juyoung Kim	2112648
	08/19/2019	08/22/2019 09:00	Fe-Val Siddell	08/24/2019 10:43	Juyoung Kim	2112649
SM 2120 B	08/19/2019			08/20/2019 16:37	Madeline Funaro	2112640
	08/19/2019			08/20/2019 17:03	Madeline Funaro	2112634
	08/19/2019			08/20/2019 17:04	Madeline Funaro	2112635
SM 2320 B-97	08/19/2019			08/28/2019 01:13	Dale L. Simmons	2112634
	08/19/2019			08/28/2019 01:21	Dale L. Simmons	2112635
	08/19/2019			08/28/2019 01:34	Dale L. Simmons	2112640
SM 2540 C-97	08/19/2019			08/21/2019 14:21	Yijie Li	2112634, 2112635, 2112640

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
SM 2540 D-97	08/19/2019			08/21/2019 14:21	Yijie Li	2112634, 2112635, 2112640
SM 4500 F-C-97	08/19/2019			08/28/2019 01:13	Dale L. Simmons	2112634
	08/19/2019			08/28/2019 01:21	Dale L. Simmons	2112635
	08/19/2019			08/28/2019 01:34	Dale L. Simmons	2112640
SM 5310 B-00	08/19/2019			08/21/2019 04:04	Madeline Funaro	2112636
	08/19/2019			08/21/2019 04:19	Madeline Funaro	2112637
	08/19/2019			08/21/2019 04:32	Madeline Funaro	2112641