

Chemical Analysis Report

TLH-ROC-2019-09-10-02

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

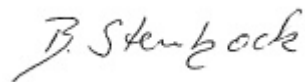
Event Description: **Run 1**
Request ID: **RQ-2019-09-09-31**
Customer: **TLH-ROC**
Project ID: **SMP**

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

Date Certified: 04-OCT-2019 17:27



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: 09/10/2019 10:35

Field ID: G1TLHR0029

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2117494	EPA 180.1 Rev. 2.0	Turbidity	0.50		NTU	P370494	
	EPA 300.0 Rev. 2.1	Chloride	4.2		mg Cl/L	P370810	
		Sulfate	0.20	U	mg SO4/L	P370813	
	SM 2120 B	Color (true)	640		PCU	P370530	
	SM 2320 B-97	Total Alkalinity	0.65	U	mg CaCO3/L	P370695	
	SM 2540 C-97	TDS	94	Q	mg/L	P371617	
	SM 2540 D-97	TSS	2	U	mg/L	P370875	
	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P370698	
2117496	EPA 350.1 Rev. 2.0	Ammonia-N	0.11		mg N/L	P370665	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.8		mg N/L	P370505	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P370467	
	EPA 365.1 Rev. 2.0	Total-P	0.034		mg P/L	P370563	
	SM 5310 B-00	Organic Carbon	55		mg C/L	P370678	
2117498	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.014		mg P/L	P370434	
2117510	EPA 8321B	Acesulfame K**	0.10	U	ug/L	P370512	
		2,4-D	0.0020	UJ	ug/L	P370469	LCS, MS
		AMPA**	0.10	U	ug/L	P370512	
		Sucralose**	0.010	U	ug/L	P370512	MS
		Acetaminophen**	0.0080	U	ug/L	P370469	
		Endothall**	0.25	U	ug/L	P370512	
		Acetamiprid**	0.0020	U	ug/L	P370469	
		Glufosinate**	0.10	U	ug/L	P370512	
		Glyphosate**	0.10	U	ug/L	P370512	
		Afidopyrophen**	0.0020	UJ	ug/L	P370469	
		Bentazon	8.0E-04	U	ug/L	P370469	
		Benzovindiflupyr**	0.0020	UJ	ug/L	P370469	
		Carbamazepine**	8.0E-04	U	ug/L	P370469	
		Clothianidin**	0.0020	U	ug/L	P370469	
		Dinotefuran**	0.0020	U	ug/L	P370469	
		Diuron	0.0020	U	ug/L	P370469	
		Fenuron	0.016	U	ug/L	P370469	
		Fluridone**	8.0E-04	U	ug/L	P370469	
		Imazapyr**	0.011	I	ug/L	P370469	
		Hydrocodone**	0.0020	U	ug/L	P370469	
		Ibuprofen**	0.020	U	ug/L	P370469	
		Imidacloprid	0.0020	U	ug/L	P370469	MS
		Linuron	0.0040	U	ug/L	P370469	
		Mandestrobin**	0.0020	UJ	ug/L	P370469	
		MCP	0.0020	UJ	ug/L	P370469	LCS, MS
		Naproxen**	0.0080	U	ug/L	P370469	
		Primidone**	0.0040	U	ug/L	P370469	
		Pyraclostrobin**	0.0020	U	ug/L	P370469	
		Thiamethoxam**	0.0020	U	ug/L	P370469	MS

Field ID: G1TLHR0029

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2117510	EPA 8321B	Tolfenpyrad**	0.0020	U	ug/L	P370469	
		Triclopyr**	0.0040	U	ug/L	P370469	
2117513	EPA 200.7 Rev. 4.4	Barium	18.1		ug/L	P370486	
		Calcium	1.72		mg/L	P370486	
		Iron	1.90E+03		ug/L	P370486	
		Magnesium	0.99		mg/L	P370486	
		Potassium	0.46	I	mg/L	P370486	
	EPA 200.8 Rev. 5.4	Sodium	2.5		mg/L	P370486	
		Zinc	65		ug/L	P370486	
		Aluminum	544		ug/L	P370486	
		Antimony	0.050	U	ug/L	P370486	
		Arsenic	0.45		ug/L	P370486	
		Boron**	15.0		ug/L	P370486	
		Cadmium	0.026	I	ug/L	P370486	
		Chromium	0.51	I	ug/L	P370486	
		Copper	20.0		ug/L	P370486	
		Lead	0.59		ug/L	P370486	
		Nickel	1.0	I	ug/L	P370486	
		Selenium	0.20	U	ug/L	P370486	
		Silver	0.010	U	ug/L	P370486	
		Thallium	0.10	U	ug/L	P370486	

Ref. Method and Comment:

SM 2540 C-97: Sample reanalyzed out of holding time because of analytical difficulties.

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. Refer to the narrative for an explanation of QC Codes.

EPA 200.7 Rev. 4.4: The zinc result was confirmed in the undigested sample on 09/21/2019.

EPA 200.8 Rev. 5.4: The copper and lead results were confirmed in the undigested sample on 10/02/2019.

Sample Location: LITTLE AUCILLA RVR @ US221

Collection Date/Time: 09/10/2019 11:00

Field ID: G1TLHR0099

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2117495	EPA 180.1 Rev. 2.0	Turbidity	0.55		NTU	P370494	
	EPA 300.0 Rev. 2.1	Chloride	4.2		mg Cl/L	P370810	
		Sulfate	0.20	U	mg SO4/L	P370813	
	SM 2120 B	Color (true)	570		PCU	P370530	
	SM 2320 B-97	Total Alkalinity	0.65	U	mg CaCO3/L	P370695	
	SM 2540 C-97	TDS	73		mg/L	P371060	
	SM 2540 D-97	TSS	2	I	mg/L	P370875	
	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P370698	
2117497	EPA 350.1 Rev. 2.0	Ammonia-N	0.028		mg N/L	P370665	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.5		mg N/L	P370505	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P370467	
	EPA 365.1 Rev. 2.0	Total-P	0.037		mg P/L	P370563	
	SM 5310 B-00	Organic Carbon	47		mg C/L	P370678	
2117499	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.012		mg P/L	P370434	
2117511	EPA 8321B	Acesulfame K**	0.10	U	ug/L	P370512	
		2,4-D	0.0020	UJ	ug/L	P370469	LCS, MS
		AMPA**	0.10	U	ug/L	P370512	
		Sucralose**	0.014	I	ug/L	P370512	MS
		Acetaminophen**	0.0080	U	ug/L	P370469	
		Endothall**	0.25	U	ug/L	P370512	
		Acetamiprid**	0.0020	U	ug/L	P370469	
		Glufosinate**	0.10	U	ug/L	P370512	
		Glyphosate**	0.10	U	ug/L	P370512	
		Afidopyrophen**	0.0020	UJ	ug/L	P370469	
		Bentazon	8.0E-04	U	ug/L	P370469	
		Benzovindiflupyr**	0.0020	UJ	ug/L	P370469	
		Carbamazepine**	8.0E-04	U	ug/L	P370469	
		Clothianidin**	0.0020	U	ug/L	P370469	
		Dinotefuran**	0.0020	U	ug/L	P370469	
		Diuron	0.0020	U	ug/L	P370469	
		Fenuron	0.016	U	ug/L	P370469	
		Fluridone**	8.0E-04	U	ug/L	P370469	
		Imazapyr**	0.029		ug/L	P370469	
		Hydrocodone**	0.0020	U	ug/L	P370469	
		Ibuprofen**	0.020	U	ug/L	P370469	
		Imidacloprid	0.0020	U	ug/L	P370469	MS
		Linuron	0.0040	U	ug/L	P370469	
		Mandestrobin**	0.0020	UJ	ug/L	P370469	
		MCP	0.0020	UJ	ug/L	P370469	LCS, MS
		Naproxen**	0.0080	U	ug/L	P370469	
		Primidone**	0.0040	U	ug/L	P370469	
		Pyraclostrobin**	0.0020	U	ug/L	P370469	
		Thiamethoxam**	0.0020	U	ug/L	P370469	MS

Field ID: G1TLHR0099

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2117511	EPA 8321B	Tolfenpyrad**	0.0020	U	ug/L	P370469	
		Triclopyr**	0.0040	U	ug/L	P370469	
2117514	EPA 200.7 Rev. 4.4	Barium	21.2		ug/L	P370486	
		Calcium	1.89		mg/L	P370486	
		Iron	2.47E+03		ug/L	P370486	
		Magnesium	1.06		mg/L	P370486	
		Potassium	0.55	I	mg/L	P370486	
		Sodium	2.5		mg/L	P370486	
		Zinc	16	I	ug/L	P370486	
	EPA 200.8 Rev. 5.4	Aluminum	477		ug/L	P370486	
		Antimony	0.050	U	ug/L	P370486	
		Arsenic	0.53		ug/L	P370486	
		Boron**	14.4		ug/L	P370486	
		Cadmium	0.021	I	ug/L	P370486	
		Chromium	0.48	I	ug/L	P370486	
		Copper	7.19		ug/L	P370486	
		Lead	0.42		ug/L	P370486	
		Nickel	0.95	I	ug/L	P370486	
		Selenium	0.20	U	ug/L	P370486	
		Silver	0.010	U	ug/L	P370486	
		Thallium	0.10	U	ug/L	P370486	

Ref. Method and Comment:

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. Refer to the narrative for an explanation of QC Codes.

EPA 200.8 Rev. 5.4: The copper result was confirmed in the undigested sample on 10/02/2019.

Sample Location: SUGAR CREEK @ SUWANNEE RIVER

Collection Date/Time: 09/10/2019 12:10

Field ID: G1TLHR0047

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2117500	EPA 180.1 Rev. 2.0	Turbidity	3.5		NTU	P370494	
	EPA 300.0 Rev. 2.1	Chloride	8.7		mg Cl/L	P370810	
		Sulfate	8.0		mg SO4/L	P370813	
	SM 2120 B	Color (true)	54	A	PCU	P370530	
	SM 2320 B-97	Total Alkalinity	54		mg CaCO3/L	P370695	
	SM 2540 C-97	TDS	106		mg/L	P371060	
	SM 2540 D-97	TSS	4	I	mg/L	P370875	
	SM 4500 F-C-97	Fluoride	0.48		mg F/L	P370698	
2117501	EPA 350.1 Rev. 2.0	Ammonia-N	0.011		mg N/L	P370665	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.36		mg N/L	P370505	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.65		mg N/L	P370553	
	EPA 365.1 Rev. 2.0	Total-P	0.91		mg P/L	P370564	
	SM 5310 B-00	Organic Carbon	6.6		mg C/L	P370678	
2117502	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.83		mg P/L	P370434	
2117512	EPA 8321B	Acesulfame K**	0.10	U	ug/L	P370512	
		2,4-D	0.0020	UJ	ug/L	P370469	LCS, MS
		AMPA**	0.23	I	ug/L	P370512	
		Sucralose**	0.040	I	ug/L	P370512	MS
		Acetaminophen**	0.0080	U	ug/L	P370469	
		Endothall**	0.25	U	ug/L	P370512	
		Acetamiprid**	0.0020	U	ug/L	P370469	
		Glufosinate**	0.10	U	ug/L	P370512	
		Glyphosate**	0.10	U	ug/L	P370512	
		Afidopyropen**	0.0020	UJ	ug/L	P370469	
		Bentazon	8.0E-04	U	ug/L	P370469	
		Benzovindiflupyr**	0.0020	UJ	ug/L	P370469	
		Carbamazepine**	8.0E-04	U	ug/L	P370469	
		Clothianidin**	0.0020	U	ug/L	P370469	
		Dinotefuran**	0.0053	I	ug/L	P370469	
		Diuron	0.0020	U	ug/L	P370469	
		Fenuron	0.016	U	ug/L	P370469	
		Fluridone**	8.0E-04	U	ug/L	P370469	
		Imazapyr**	0.0053	I	ug/L	P370469	
		Hydrocodone**	0.0020	U	ug/L	P370469	
		Ibuprofen**	0.020	U	ug/L	P370469	
		Imidacloprid	0.011	J	ug/L	P370469	MS
		Linuron	0.0040	U	ug/L	P370469	
		Mandestrobin**	0.0020	UJ	ug/L	P370469	
		MCP	0.0020	UJ	ug/L	P370469	LCS, MS
		Naproxen**	0.0080	U	ug/L	P370469	
		Primidone**	0.0040	U	ug/L	P370469	
		Pyraclostrobin**	0.0020	U	ug/L	P370469	
		Thiamethoxam**	0.0020	UJ	ug/L	P370469	MS

Field ID: G1TLHR0047

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2117512	EPA 8321B	Tolfenpyrad**	0.0020	U	ug/L	P370469	
		Triclopyr**	0.0040	U	ug/L	P370469	

Ref. Method and Comment:

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

EPA 365.1 Rev. 2.0: Total-P: Batch matrix spike recoveries are unavailable because of high analyte concentration in the QC sample.

EPA 8321B: J - second source check standards for some analytes were not available for analysis. Refer to the narrative for an explanation of QC Codes.

Quality Assurance Report Method Blank Results

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P370494

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P370486

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: P370486

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: P370810

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P370813

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P370665

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

Quality Assurance Report Method Blank Results

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P370505

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P370467

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P370553

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P370563

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P370564

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P370434

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

Reference Method: EPA 8321B
Batch ID: P370469

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

Quality Assurance Report

Method Blank Results

Reference Method: EPA 8321B
Batch ID: P370469

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

Reference Method: EPA 8321B
Batch ID: P370512

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

Reference Method: SM 2120 B
Batch ID: P370530

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2320 B-97
Batch ID: P370695

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

Reference Method: SM 2540 C-97
Batch ID: P371060

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 C-97
Batch ID: P371617

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P370875

Component	Result	Code	Units
TSS	2	U	mg/L

Quality Assurance Report

Method Blank Results

Reference Method: SM 4500 F-C-97
Batch ID: P370698

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-00
Batch ID: P370678

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: P370486

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Barium	101		P	85 - 115
Calcium	108		P	85 - 115
Iron	106		P	85 - 115
Magnesium	111		P	85 - 115
Potassium	109		P	85 - 115
Sodium	112		P	85 - 115
Zinc	99.5		P	85 - 115

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P370486

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Aluminum	103		P	85 - 115
Antimony	101		P	85 - 115
Arsenic	105		P	85 - 115
Boron	94.7		P	85 - 115
Cadmium	100		P	85 - 115
Chromium	105		P	85 - 115
Copper	103		P	85 - 115
Lead	104		P	85 - 115
Nickel	102		P	85 - 115
Selenium	102		P	85 - 115
Silver	106		P	85 - 115
Thallium	101		P	85 - 115

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P370810

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P370813

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P370665

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P370505

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

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 353.2 Rev. 2.0
 Batch ID: P370467

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

Reference Method: EPA 353.2 Rev. 2.0
 Batch ID: P370553

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

Reference Method: EPA 365.1 Rev. 2.0
 Batch ID: P370563

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total-P	92.3		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
 Batch ID: P370564

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total-P	94.0		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
 Batch ID: P370434

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

Reference Method: EPA 8321B
 Batch ID: P370469

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2,4-D	165		F	40 - 160
Acetaminophen	85.8		P	30 - 160
Acetamiprid	118		P	40 - 160
Afidopyropen	108		P	40 - 160
Bentazon	148		P	30 - 160
Benzovindiflupyr	97.0		P	40 - 160
Carbamazepine	118		P	40 - 160
Clothianidin	103		P	40 - 160
Dinotefuran	93.2		P	40 - 160
Diuron	139		P	40 - 160
Fenuron	122		P	40 - 160
Fluridone	98.7		P	40 - 160
Hydrocodone	102		P	40 - 160
Ibuprofen	87.3		P	30 - 160
Imazapyr	107		P	40 - 160
Imidacloprid	110		P	40 - 160
Linuron	78.9		P	40 - 160
Mandestrobin	98.9		P	40 - 160
MCPP	176		F	40 - 160
Naproxen	110		P	40 - 160
Primidone	91.0		P	40 - 160
Pyraclostrobin	86.8		P	30 - 160

Quality Assurance Report

Laboratory Control Sample Accuracy

Reference Method: EPA 8321B
Batch ID: P370469

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Thiamethoxam	113		P	40 - 160
Tolfenpyrad	73.7		P	40 - 160
Triclopyr	142		P	30 - 160

Reference Method: EPA 8321B
Batch ID: P370512

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Acesulfame K	128		P	40 - 150
AMPA	122		P	40 - 150
Endothall	94.1		P	40 - 150
Glufosinate	119		P	40 - 150
Glyphosate	123		P	40 - 140
Sucralose	146		P	40 - 150

Reference Method: SM 2120 B
Batch ID: P370530

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Color (true)	98.6		P	85 - 115

Reference Method: SM 2320 B-97
Batch ID: P370695

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

Reference Method: SM 4500 F-C-97
Batch ID: P370698

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	98.3		P	92 - 103

Reference Method: SM 5310 B-00
Batch ID: P370678

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

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P370486

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2117141	Barium	101	101	P/P	80 - 120
2117141	Calcium	106	108	P/P	80 - 120
2117141	Iron	104	107	P/P	80 - 120
2117141	Magnesium	109	111	P/P	80 - 120
2117141	Potassium	114	116	P/P	80 - 120
2117141	Sodium	105	106	P/P	80 - 120
2117141	Zinc	99.4	99.2	P/P	80 - 120
2117363	Barium	100		P	80 - 120
2117363	Calcium	92.0		P	80 - 120
2117363	Iron	108		P	80 - 120
2117363	Magnesium	94.6		P	80 - 120
2117363	Potassium	96.7		P	80 - 120
2117363	Sodium	96.9		P	80 - 120
2117363	Zinc	98.9		P	80 - 120

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P370486

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2117141	Aluminum	102	103	P/P	80 - 120
2117141	Antimony	100	99.9	P/P	80 - 120
2117141	Arsenic	103	103	P/P	80 - 120
2117141	Boron	95.2	94.8	P/P	80 - 120
2117141	Cadmium	102	101	P/P	80 - 120
2117141	Chromium	106	102	P/P	80 - 120
2117141	Copper	104	104	P/P	80 - 120
2117141	Lead	104	105	P/P	80 - 120
2117141	Nickel	102	102	P/P	80 - 120
2117141	Selenium	102	102	P/P	80 - 120
2117141	Silver	107	104	P/P	80 - 120
2117141	Thallium	100	101	P/P	80 - 120
2117363	Aluminum	102		P	80 - 120
2117363	Antimony	102		P	80 - 120
2117363	Arsenic	104		P	80 - 120
2117363	Boron	95.8		P	80 - 120
2117363	Cadmium	103		P	80 - 120
2117363	Chromium	89.9		P	80 - 120
2117363	Copper	101		P	80 - 120
2117363	Lead	107		P	80 - 120
2117363	Nickel	102		P	80 - 120
2117363	Selenium	99.9		P	80 - 120
2117363	Silver	108		P	80 - 120
2117363	Thallium	105		P	80 - 120

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P370810

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2117327	Chloride	101	99.9	P/P	90 - 110
2117438	Chloride	100		P	90 - 110

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P370813

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2117327	Sulfate	101	100	P/P	90 - 110
2117438	Sulfate	102		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P370665

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2117479	Ammonia-N	101	101	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P370505

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2117501	Kjeldahl Nitrogen	102	105	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P370467

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2117479	NO2NO3-N	103	104	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P370553

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2117523	NO2NO3-N	100	100	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P370563

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2117356	Total-P	99.4	99.7	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P370434

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2117440	O-Phosphate-P	96.2	97.1	P/P	90 - 110

Reference Method: EPA 8321B
Batch ID: P370469

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2117512	2,4-D	167	154	F/P	40 - 160
2117512	Acetaminophen	104	95.5	P/P	30 - 160
2117512	Acetamiprid	117	123	P/P	40 - 160
2117512	Afidopyropen	101	117	P/P	40 - 160
2117512	Bentazon	104	110	P/P	30 - 160
2117512	Benzovindiflupyr	106	92.7	P/P	40 - 160
2117512	Carbamazepine	111	111	P/P	40 - 160
2117512	Clothianidin	123	110	P/P	40 - 160
2117512	Dinotefuran	117	111	P/P	40 - 160

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 8321B
 Batch ID: P370469

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2117512	Diuron	125	125	P/P	40 - 160
2117512	Fenuron	117	118	P/P	40 - 160
2117512	Fluridone	102	99.5	P/P	40 - 160
2117512	Hydrocodone	118	101	P/P	40 - 160
2117512	Ibuprofen	90.5	79.4	P/P	30 - 160
2117512	Imazapyr	138	148	P/P	40 - 160
2117512	Imidacloprid	213	180	F/F	40 - 160
2117512	Linuron	78.3	70.5	P/P	40 - 160
2117512	Mandestrobin	98.6	90.1	P/P	40 - 160
2117512	MCP	168	164	F/F	40 - 160
2117512	Naproxen	99.5	94.3	P/P	40 - 160
2117512	Primidone	99.2	96.8	P/P	40 - 160
2117512	Pyraclostrobin	105	92.3	P/P	30 - 160
2117512	Thiamethoxam	180	151	F/P	40 - 160
2117512	Tolfenpyrad	81.9	76.5	P/P	40 - 160
2117512	Triclopyr	141	131	P/P	30 - 160

Reference Method: EPA 8321B
 Batch ID: P370512

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2117252	Acesulfame K	94.2	124	P/P	40 - 150
2117252	AMPA	68.0	69.3	P/P	40 - 150
2117252	Endothall	69.5	73.0	P/P	40 - 150
2117252	Glufosinate	94.6	93.8	P/P	40 - 150
2117252	Glyphosate	123	113	P/P	40 - 140
2117252	Sucralose	165	153	F/F	40 - 150

Reference Method: SM 4500 F-C-97
 Batch ID: P370698

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2117328	Fluoride	99.1	98.5	P/P	89 - 106

Reference Method: SM 5310 B-00
 Batch ID: P370678

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2117872	Organic Carbon	106	105	P/P	85 - 115

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P370494

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2117704	Turbidity	2.33	Sample	P	0 - 20

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P370486

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2117141	Barium	0.516	Spike	P	0 - 20
2117141	Calcium	1.66	Spike	P	0 - 20
2117141	Iron	2.12	Spike	P	0 - 20
2117141	Magnesium	1.66	Spike	P	0 - 20
2117141	Potassium	1.48	Spike	P	0 - 20
2117141	Sodium	0.624	Spike	P	0 - 20
2117141	Zinc	0.219	Spike	P	0 - 20

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P370486

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2117141	Aluminum	0.911	Spike	P	0 - 20
2117141	Antimony	0.429	Spike	P	0 - 20
2117141	Arsenic	0.00934	Spike	P	0 - 20
2117141	Boron	0.377	Spike	P	0 - 20
2117141	Cadmium	1.12	Spike	P	0 - 20
2117141	Chromium	4.28	Spike	P	0 - 20
2117141	Copper	0.277	Spike	P	0 - 20
2117141	Lead	0.367	Spike	P	0 - 20
2117141	Nickel	0.250	Spike	P	0 - 20
2117141	Selenium	0.300	Spike	P	0 - 20
2117141	Silver	3.01	Spike	P	0 - 20
2117141	Thallium	0.793	Spike	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P370810

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2117327	Chloride	0.684	Spike	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P370813

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2117327	Sulfate	0.909	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P370665

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2117479	Ammonia-N	0.145	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P370505

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2117501	Kjeldahl Nitrogen	2.09	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P370467

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2117479	NO2NO3-N	0.908	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P370553

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2117523	NO2NO3-N	0.299	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P370563

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2117356	Total-P	0.252	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P370564

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2117501	Total-P	1.81	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P370434

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2117440	O-Phosphate-P	0.931	Spike	P	0 - 20

Reference Method: EPA 8321B
Batch ID: P370469

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2117512	2,4-D	7.69	Spike	P	0 - 30
2117512	Acetaminophen	8.25	Spike	P	0 - 30

Quality Assurance Report Precision

Reference Method: EPA 8321B

Batch ID: P370469

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2117512	Acetamiprid	4.86	Spike	P	0 - 30
2117512	Afidopyropen	14.6	Spike	P	0 - 30
2117512	Bentazon	6.36	Spike	P	0 - 30
2117512	Benzovindiflupyr	13.4	Spike	P	0 - 30
2117512	Carbamazepine	0.547	Spike	P	0 - 30
2117512	Clothianidin	11.4	Spike	P	0 - 30
2117512	Dinotefuran	5.01	Spike	P	0 - 30
2117512	Diuron	0.301	Spike	P	0 - 30
2117512	Fenuron	1.36	Spike	P	0 - 30
2117512	Fluridone	2.75	Spike	P	0 - 30
2117512	Hydrocodone	15.4	Spike	P	0 - 30
2117512	Ibuprofen	13.1	Spike	P	0 - 30
2117512	Imazapyr	6.90	Spike	P	0 - 30
2117512	Imidacloprid	15.5	Spike	P	0 - 30
2117512	Linuron	10.4	Spike	P	0 - 30
2117512	Mandestrobin	8.96	Spike	P	0 - 30
2117512	MCPP	2.67	Spike	P	0 - 30
2117512	Naproxen	5.37	Spike	P	0 - 30
2117512	Primidone	2.44	Spike	P	0 - 30
2117512	Pyraclostrobin	13.1	Spike	P	0 - 30
2117512	Thiamethoxam	17.3	Spike	P	0 - 30
2117512	Tolfenpyrad	6.80	Spike	P	0 - 30
2117512	Triclopyr	7.35	Spike	P	0 - 30

Reference Method: EPA 8321B

Batch ID: P370512

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2117252	Acesulfame K	25.8	Spike	P	0 - 30
2117252	AMPA	0.691	Spike	P	0 - 30
2117252	Endothall	4.86	Spike	P	0 - 30
2117252	Glufosinate	0.774	Spike	P	0 - 30
2117252	Glyphosate	3.36	Spike	P	0 - 30
2117252	Sucralose	6.19	Spike	P	0 - 30

Reference Method: SM 2120 B

Batch ID: P370530

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2117500	Color (true)	0.131	Sample	P	0 - 20

Reference Method: SM 2320 B-97

Batch ID: P370695

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2117328	Total Alkalinity	0.530	Sample	P	0 - 2.8

Quality Assurance Report Precision

Reference Method: SM 2540 C-97
Batch ID: P371060

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2117336	TDS	0.713	Sample	P	0 - 10

Reference Method: SM 2540 C-97
Batch ID: P371617

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2121802	TDS	4.83	Sample	P	0 - 10

Reference Method: SM 4500 F-C-97
Batch ID: P370698

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2117328	Fluoride	0.482	Spike	P	0 - 2.5

Reference Method: SM 5310 B-00
Batch ID: P370678

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2117872	Organic Carbon	0.520	Spike	P	0 - 20

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

Quality Assurance Report Surrogates

Lab Sample ID: 2117510
Field Sample ID: G1TLHR0029

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	2,4-D-d3	125	P	30 - 160
EPA 8321B	Acetaminophen-d4	73.6	P	30 - 160
EPA 8321B	Carbamazepine-d10	69.0	P	30 - 160
EPA 8321B	Diuron-d6	72.0	P	30 - 160
EPA 8321B	Endothall-d6	99.6	P	30 - 160
EPA 8321B	Endothall-d6	99.6	P	30 - 160
EPA 8321B	Glyphosate 13C 15N	58.8	P	30 - 160
EPA 8321B	Glyphosate 13C 15N	58.8	P	30 - 160
EPA 8321B	Ibuprofen-d3	79.9	P	30 - 160
EPA 8321B	Primidone-d5	58.1	P	30 - 160
EPA 8321B	Sucralose-d6	128	P	30 - 160
EPA 8321B	Sucralose-d6	128	P	30 - 160

Lab Sample ID: 2117511
Field Sample ID: G1TLHR0099

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	2,4-D-d3	131	P	30 - 160
EPA 8321B	Acetaminophen-d4	68.9	P	30 - 160
EPA 8321B	Carbamazepine-d10	69.1	P	30 - 160
EPA 8321B	Diuron-d6	77.6	P	30 - 160
EPA 8321B	Endothall-d6	97.0	P	30 - 160
EPA 8321B	Endothall-d6	97.0	P	30 - 160
EPA 8321B	Glyphosate 13C 15N	53.3	P	30 - 160
EPA 8321B	Glyphosate 13C 15N	53.3	P	30 - 160
EPA 8321B	Ibuprofen-d3	81.3	P	30 - 160
EPA 8321B	Primidone-d5	58.3	P	30 - 160
EPA 8321B	Sucralose-d6	134	P	30 - 160
EPA 8321B	Sucralose-d6	134	P	30 - 160

Lab Sample ID: 2117512
Field Sample ID: G1TLHR0047

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	2,4-D-d3	155	P	30 - 160
EPA 8321B	Acetaminophen-d4	95.3	P	30 - 160
EPA 8321B	Carbamazepine-d10	102	P	30 - 160
EPA 8321B	Diuron-d6	110	P	30 - 160
EPA 8321B	Endothall-d6	88.6	P	30 - 160
EPA 8321B	Endothall-d6	88.6	P	30 - 160
EPA 8321B	Glyphosate 13C 15N	97.1	P	30 - 160
EPA 8321B	Glyphosate 13C 15N	97.1	P	30 - 160
EPA 8321B	Ibuprofen-d3	75.1	P	30 - 160
EPA 8321B	Primidone-d5	91.4	P	30 - 160
EPA 8321B	Sucralose-d6	136	P	30 - 160
EPA 8321B	Sucralose-d6	136	P	30 - 160

Quality Assurance Report Calibration Verification

Reference Method: EPA 365.1 Rev. 2.0 dissolved

Run ID: A94105

Included Lab Sample IDs: 2117498, 2117499, 2117502

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	102	98.4	P/P	90 - 110
O-Phosphate-P	99.0	98.9	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A94120

Included Lab Sample IDs: 2117496, 2117497

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO2NO3-N	101	104	P/P	90 - 110

Reference Method: EPA 180.1 Rev. 2.0

Run ID: A94136

Included Lab Sample IDs: 2117494, 2117495, 2117500

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Turbidity	100	101	P/P	95 - 105

Reference Method: SM 2120 B

Run ID: A94152

Included Lab Sample IDs: 2117494, 2117495, 2117500

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	101	102	P/P	90 - 115
Color (true)	99.5	101	P/P	90 - 115

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A94154

Included Lab Sample IDs: 2117501

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

Reference Method: EPA 300.0 Rev. 2.1

Run ID: A94159

Included Lab Sample IDs: 2117494, 2117495, 2117500

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	101	101	P/P	90 - 110
Chloride	101	101	P/P	90 - 110
Sulfate	102	103	P/P	90 - 110
Sulfate	103	103	P/P	90 - 110

Reference Method: EPA 200.7 Rev. 4.4

Run ID: A94176

Included Lab Sample IDs: 2117513, 2117514

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

Quality Assurance Report Calibration Verification

Reference Method: EPA 200.7 Rev. 4.4

Run ID: A94176

Included Lab Sample IDs: 2117513, 2117514

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Potassium	103	103	P/P	90 - 110
Sodium	105	106	P/P	90 - 110
Zinc	98.3	98.5	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A94202

Included Lab Sample IDs: 2117501

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	99.3	98.1	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A94203

Included Lab Sample IDs: 2117496, 2117497, 2117501

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	105	107	P/P	90 - 110
Kjeldahl Nitrogen	107	100	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A94212

Included Lab Sample IDs: 2117496, 2117497, 2117501

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

Reference Method: SM 5310 B-00

Run ID: A94219

Included Lab Sample IDs: 2117496, 2117497, 2117501

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

Reference Method: SM 2320 B-97

Run ID: A94232

Included Lab Sample IDs: 2117494, 2117495, 2117500

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

Reference Method: SM 4500 F-C-97

Run ID: A94232

Included Lab Sample IDs: 2117494, 2117495, 2117500

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	99.5	102	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A94237

Included Lab Sample IDs: 2117496, 2117497

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

Reference Method: EPA 8321B

Run ID: A94238

Included Lab Sample IDs: 2117510, 2117511, 2117512

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
AMPA	119	117	P/P	60 - 160
Glufosinate	113	120	P/P	60 - 160
Glyphosate	116	120	P/P	60 - 160

Reference Method: EPA 8321B

Run ID: A94243

Included Lab Sample IDs: 2117510, 2117511, 2117512

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Acesulfame K	125	125	P/P	60 - 160
Endothall	98.2	104	P/P	60 - 160

Reference Method: EPA 200.8 Rev. 5.4

Run ID: A94323

Included Lab Sample IDs: 2117513, 2117514

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Aluminum	102	100	P/P	90 - 110
Antimony	96.5	97.0	P/P	90 - 110
Arsenic	101	100	P/P	90 - 110
Cadmium	101	101	P/P	90 - 110
Copper	102	102	P/P	90 - 110
Lead	105	105	P/P	90 - 110
Nickel	102	102	P/P	90 - 110
Selenium	99.3	100	P/P	90 - 110
Thallium	94.8	93.5	P/P	90 - 110

Reference Method: EPA 200.8 Rev. 5.4

Run ID: A94342

Included Lab Sample IDs: 2117513, 2117514

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Boron	94.6	92.9	P/P	90 - 110
Chromium	91.3	91.6	P/P	90 - 110

Reference Method: EPA 200.8 Rev. 5.4

Run ID: A94372

Included Lab Sample IDs: 2117513, 2117514

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

Quality Assurance Report Calibration Verification

Reference Method: EPA 8321B

Run ID: A94400

Included Lab Sample IDs: 2117510, 2117511, 2117512

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
2,4-D	111	102	P/P	50 - 150
Acetaminophen	105	102	P/P	60 - 160
Acetamiprid	112	116	P/P	50 - 150
Afidopyropen	132	114	P/P	50 - 150
Bentazon	100	97.4	P/P	50 - 160
Benzovindiflupyr	106	100	P/P	50 - 150
Carbamazepine	105	107	P/P	60 - 150
Clothianidin	101	94.6	P/P	60 - 150
Dinotefuran	96.7	104	P/P	50 - 150
Diuron	132	132	P/P	60 - 150
Fenuron	111	112	P/P	60 - 150
Fluridone	108	107	P/P	60 - 160
Hydrocodone	108	108	P/P	60 - 150
Ibuprofen	77.6	82.8	P/P	50 - 160
Imazapyr	101	98.6	P/P	50 - 150
Imidacloprid	94.9	96.6	P/P	60 - 150
Linuron	99.1	99.3	P/P	60 - 150
Mandestrobin	111	113	P/P	50 - 150
MCPP	90.9	91.6	P/P	50 - 150
Naproxen	125	77.8	P/P	50 - 160
Primidone	90.8	91.6	P/P	60 - 150
Pyraclostrobin	100	114	P/P	60 - 150
Thiamethoxam	103	112	P/P	50 - 150
Tolfenpyrad	110	125	P/P	60 - 150
Triclopyr	93.2	85.0	P/P	50 - 150

Reference Method: EPA 8321B

Run ID: A94533

Included Lab Sample IDs: 2117510, 2117511, 2117512

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Sucralose	139	138	P/P	60 - 160

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

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

Where they are different, both control limits are provided.

Quality Assurance Report Summary

Ref. Method	Analyte	LCS % Recovery	MS % Recovery			LCS	Precision SMP	MS
EPA 180.1 Rev. 2.0	Turbidity						2.33	
EPA 200.7 Rev. 4.4	Barium	101	101	101	100			0.516
	Calcium	108	106	108	92.0			1.66
	Iron	106	104	107	108			2.12
	Magnesium	111	109	111	94.6			1.66
	Potassium	109	114	116	96.7			1.48
	Sodium	112	105	106	96.9			0.624
	Zinc	99.5	99.4	99.2	98.9			0.219
EPA 200.8 Rev. 5.4	Aluminum	103	102	103	102			0.911
	Antimony	101	100	99.9	102			0.429
	Arsenic	105	103	103	104			0.0093
	Boron	94.7	95.2	94.8	95.8			0.377
	Cadmium	100	102	101	103			1.12
	Chromium	105	89.9	106	102			4.28
	Copper	103	104	104	101			0.277
	Lead	104	104	105	107			0.367
	Nickel	102	102	102	102			0.250
	Selenium	102	102	102	99.9			0.300
	Silver	106	107	104	108			3.01
	Thallium	101	100	101	105			0.793
EPA 300.0 Rev. 2.1	Chloride	100	101	99.9	100			0.684
	Sulfate	101	101	100	102			0.909
EPA 350.1 Rev. 2.0	Ammonia-N	102	101	101				0.145
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	102	102	105				2.09
EPA 353.2 Rev. 2.0	NO2NO3-N	100	103	104				0.908
	NO2NO3-N	100	100	100				0.299
EPA 365.1 Rev. 2.0	Total-P	92.3	99.4	99.7				0.252
	Total-P	94.0						1.81
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	99.6	96.2	97.1				0.931
EPA 8321B	2,4-D	165	167	154				7.69
	Acesulfame K	128	94.2	124				25.8
	Acetaminophen	85.8	95.5	104				8.25
	Acetamiprid	118	123	117				4.86
	Afidopyropen	108	117	101				14.6
	AMPA	122	69.3	68.0				0.691
	Bentazon	148	104	110				6.36
	Benzovindiflupyr	97.0	106	92.7				13.4
	Carbamazepine	118	111	111				0.547
	Clothianidin	103	110	123				11.4
	Dinotefuran	93.2	111	117				5.01
	Diuron	139	125	125				0.301
	Endothall	94.1	69.5	73.0				4.86
	Fenuron	122	118	117				1.36
	Fluridone	98.7	99.5	102				2.75
	Glufosinate	119	93.8	94.6				0.774
	Glyphosate	123	123	113				3.36
	Hydrocodone	102	101	118				15.4
	Ibuprofen	87.3	90.5	79.4				13.1
	Imazapyr	107	138	148				6.90
	Imidacloprid	110	180	213				15.5
	Linuron	78.9	70.5	78.3				10.4
	Mandestrobin	98.9	98.6	90.1				8.96
	MCPP	176	168	164				2.67
	Naproxen	110	99.5	94.3				5.37

Quality Assurance Report Summary

Ref. Method	Analyte	LCS % Recovery	MS % Recovery		Precision	
					LCS	MS
EPA 8321B	Primidone	91.0	96.8	99.2		2.44
	Pyraclostrobin	86.8	105	92.3		13.1
	Sucralose	146	165	153		6.19
	Thiamethoxam	113	151	180		17.3
	Tolfenpyrad	73.7	81.9	76.5		6.80
	Triclopyr	142	141	131		7.35
SM 2120 B	Color (true)	98.6			0.131	
SM 2320 B-97	Total Alkalinity	104			0.530	
SM 2540 C-97	TDS				0.713	
	TDS				4.83	
SM 4500 F-C-97	Fluoride	98.3	99.1	98.5		0.482
SM 5310 B-00	Organic Carbon	104	106	105		0.520

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	2117494, 2117495, 2117500
EPA 200.7 Rev. 4.4 / E31780	Total Recoverable Metals analysis using ICP emission spectroscopy for aqueous samples supporting Clean Water Act Projects	2117513, 2117514
EPA 200.8 Rev. 5.4 / E31780	Total Recoverable Metals analysis using ICP-MS for aqueous samples supporting Clean Water Act Projects	2117513, 2117514
EPA 300.0 Rev. 2.1 / E31780	Chloride in aqueous matrices	2117494, 2117495, 2117500
EPA 300.0 Rev. 2.1 / E31780	Sulfate in aqueous matrices	2117494, 2117495, 2117500
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	2117496, 2117497, 2117501
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	2117496, 2117497, 2117501
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	2117496, 2117497, 2117501
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	2117496, 2117497, 2117501
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	2117498, 2117499, 2117502
EPA 8321B / E31780	Pesticides, herbicides, and other chemicals in water matrices by HPLC/MS/MS	2117510, 2117511, 2117512
EPA 8321B / E31780	Water soluble organic compounds by HPLC/MS/MS	2117510, 2117511, 2117512
SM 2120 B / E31780	True Color measured at 450 nm	2117494, 2117495, 2117500
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO ₃ /L	2117494, 2117495, 2117500
SM 2540 C-97 / E31780	Total Dissolved Solids in aqueous matrices	2117494, 2117495, 2117500
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices using a maximum of 250 mL of sample	2117494, 2117495, 2117500
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	2117494, 2117495, 2117500
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	2117496, 2117497, 2117501

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	09/10/2019			09/11/2019 16:13	Samantha Davila	2117494, 2117495, 2117500
EPA 200.7 Rev. 4.4	09/10/2019	09/11/2019 14:55	Elliott D. Healy	09/12/2019 16:54	Alexander Thompson	2117513
	09/10/2019	09/11/2019 14:55	Elliott D. Healy	09/12/2019 16:58	Alexander Thompson	2117514
EPA 200.8 Rev. 5.4	09/10/2019	09/11/2019 14:55	Elliott D. Healy	09/18/2019 02:29	Robert K Palmer	2117513
	09/10/2019	09/11/2019 14:55	Elliott D. Healy	09/18/2019 02:39	Robert K Palmer	2117514
	09/10/2019	09/11/2019 14:55	Elliott D. Healy	09/18/2019 20:33	Robert K Palmer	2117513
	09/10/2019	09/11/2019 14:55	Elliott D. Healy	09/18/2019 20:39	Robert K Palmer	2117514
	09/10/2019	09/11/2019 14:55	Elliott D. Healy	09/19/2019 23:24	Robert K Palmer	2117513
	09/10/2019	09/11/2019 14:55	Elliott D. Healy	09/19/2019 23:30	Robert K Palmer	2117514
EPA 300.0 Rev. 2.1	09/10/2019			09/13/2019 21:52	Jhamieka S. Greenwood	2117494
	09/10/2019			09/13/2019 22:04	Jhamieka S. Greenwood	2117495
	09/10/2019			09/13/2019 22:41	Jhamieka S. Greenwood	2117500
EPA 350.1 Rev. 2.0	09/10/2019			09/13/2019 11:57	Ping Hua	2117496
	09/10/2019			09/13/2019 11:58	Ping Hua	2117497
	09/10/2019			09/13/2019 12:00	Ping Hua	2117501
EPA 351.2 Rev. 2.0	09/10/2019	09/11/2019 14:10	Sima Feizi	09/12/2019 16:48	Julia Storbeck	2117501
	09/10/2019	09/11/2019 14:10	Sima Feizi	09/12/2019 17:03	Julia Storbeck	2117496
	09/10/2019	09/11/2019 14:10	Sima Feizi	09/12/2019 17:05	Julia Storbeck	2117497
EPA 353.2 Rev. 2.0	09/10/2019			09/11/2019 10:00	Beverly Y. Sanders	2117496
	09/10/2019			09/11/2019 10:01	Beverly Y. Sanders	2117497
	09/10/2019			09/12/2019 09:36	Beverly Y. Sanders	2117501
EPA 365.1 Rev. 2.0	09/10/2019	09/12/2019 13:45	Lipi Saha	09/13/2019 14:03	Rosalyn Ballman	2117501
	09/10/2019	09/12/2019 13:45	Lipi Saha	09/13/2019 17:40	Rosalyn Ballman	2117496, 2117497
EPA 365.1 Rev. 2.0 dissolved	09/10/2019			09/10/2019 16:05	Jhamieka S. Greenwood	2117498
	09/10/2019			09/10/2019 16:28	Jhamieka S. Greenwood	2117499
	09/10/2019			09/10/2019 16:29	Jhamieka S. Greenwood	2117502
EPA 8321B	09/10/2019	09/12/2019 10:00	Rebecca Ware	09/12/2019 17:06	Rebecca Ware	2117510
	09/10/2019	09/12/2019 10:00	Rebecca Ware	09/12/2019 17:20	Rebecca Ware	2117511
	09/10/2019	09/12/2019 10:00	Rebecca Ware	09/12/2019 17:34	Rebecca Ware	2117512
	09/10/2019	09/12/2019 10:00	Rebecca Ware	09/13/2019 16:26	Rebecca Ware	2117510
	09/10/2019	09/12/2019 10:00	Rebecca Ware	09/13/2019 16:37	Rebecca Ware	2117511
	09/10/2019	09/12/2019 10:00	Rebecca Ware	09/13/2019 16:48	Rebecca Ware	2117512
	09/10/2019	09/12/2019 10:00	Rebecca Ware	09/25/2019 13:24	Rebecca Ware	2117510
	09/10/2019	09/12/2019 10:00	Rebecca Ware	09/25/2019 13:36	Rebecca Ware	2117511
	09/10/2019	09/12/2019 10:00	Rebecca Ware	09/25/2019 13:48	Rebecca Ware	2117512
	09/10/2019	09/13/2019 10:00	Hoor Shaik	09/14/2019 12:46	Juyoung Kim	2117512
	09/10/2019	09/13/2019 10:00	Hoor Shaik	09/14/2019 13:20	Juyoung Kim	2117510
	09/10/2019	09/13/2019 10:00	Hoor Shaik	09/14/2019 13:55	Juyoung Kim	2117511
SM 2120 B	09/10/2019			09/11/2019 17:30	Madeline Funaro	2117500
	09/10/2019			09/11/2019 17:58	Madeline Funaro	2117494, 2117495

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
SM 2320 B-97	09/10/2019			09/14/2019 04:28	Dale L. Simmons	2117494
	09/10/2019			09/14/2019 04:37	Dale L. Simmons	2117495
	09/10/2019			09/14/2019 04:50	Dale L. Simmons	2117500
SM 2540 C-97	09/10/2019			09/13/2019 15:21	Yijie Li	2117495, 2117500
	09/10/2019			09/25/2019 14:25	Yijie Li	2117494
SM 2540 D-97	09/10/2019			09/13/2019 15:21	Yijie Li	2117494, 2117495, 2117500
SM 4500 F-C-97	09/10/2019			09/14/2019 04:28	Dale L. Simmons	2117494
	09/10/2019			09/14/2019 04:37	Dale L. Simmons	2117495
	09/10/2019			09/14/2019 04:50	Dale L. Simmons	2117500
SM 5310 B-00	09/10/2019			09/14/2019 01:01	Madeline Funaro	2117496
	09/10/2019			09/14/2019 01:13	Madeline Funaro	2117501
	09/10/2019			09/14/2019 03:15	Madeline Funaro	2117497