

Chemical Analysis Report

TLH-ROC-2019-08-27-02

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

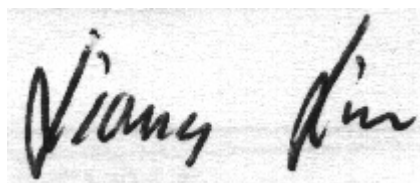
Event Description: **Run 1**
Request ID: **RQ-2019-06-24-37**
Customer: **TLH-ROC**
Project ID: **SMP**

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Certified by: Liang Lin, Environmental Administrator

Date Certified: 18-SEP-2019 10:49

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

Case Narrative

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

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

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

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

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

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

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

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

Precision is reported as relative percent difference unless otherwise noted.

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

QC Codes used in this report may include:

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

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

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

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

Sample Location: LITTLE AUCILLA RIVER

Collection Date/Time: 08/27/2019 09:35

Field ID: G1TLHR0029

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2115030	EPA 180.1 Rev. 2.0	Turbidity	0.60		NTU	P369775	
	EPA 300.0 Rev. 2.1	Chloride	3.3		mg Cl/L	P370213	
		Sulfate	0.20	U	mg SO4/L	P370216	
	SM 2120 B	Color (true)	580		PCU	P369851	
	SM 2320 B-97	Total Alkalinity	0.65	U	mg CaCO3/L	P370026	
	SM 2540 C-97	TDS	70		mg/L	P370381	
	SM 2540 D-97	TSS	2	U	mg/L	P370247	
	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P370030	
2115031	EPA 350.1 Rev. 2.0	Ammonia-N	0.040		mg N/L	P370156	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.6		mg N/L	P369913	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P369997	
	EPA 365.1 Rev. 2.0	Total-P	0.041		mg P/L	P369875	
	SM 5310 B-00	Organic Carbon	46		mg C/L	P370223	
2115032	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.008	I	mg P/L	P369843	
2115045	EPA 8321B	2,4-D	0.0023	I	ug/L	P369771	
		Acesulfame K**	0.10	U	ug/L	P369883	
		AMPA**	0.10	U	ug/L	P369883	
		Sucralose**	0.010	U	ug/L	P369883	
		Acetaminophen**	0.0080	U	ug/L	P369771	
		Endothall**	0.25	U	ug/L	P369883	
		Glufosinate**	0.10	U	ug/L	P369883	
		Glyphosate**	0.10	U	ug/L	P369883	
		Bentazon	8.0E-04	U	ug/L	P369771	
		Carbamazepine**	8.0E-04	U	ug/L	P369771	
		Diuron	0.0020	U	ug/L	P369771	
		Fenuron	0.016	U	ug/L	P369771	
		Fluridone**	8.0E-04	U	ug/L	P369771	
		Imazapyr**	0.010	I	ug/L	P369771	
		Hydrocodone**	0.0020	U	ug/L	P369771	
		Ibuprofen**	0.020	U	ug/L	P369771	
		Imidacloprid	0.0020	U	ug/L	P369771	
		Linuron	0.0040	U	ug/L	P369771	
		MCP	0.0020	U	ug/L	P369771	MS
		Naproxen**	0.0080	U	ug/L	P369771	
		Primidone**	0.0040	U	ug/L	P369771	
		Pyraclostrobin**	0.0020	UJ	ug/L	P369771	LCS, MS, RPD
		Triclopyr**	0.0040	U	ug/L	P369771	
2115047	EPA 200.7 Rev. 4.4	Barium	15.9		ug/L	P369856	
		Calcium	1.50		mg/L	P369856	
		Iron	1.55E+03		ug/L	P369856	
		Magnesium	0.81		mg/L	P369856	
		Potassium	0.56	I	mg/L	P369856	
		Sodium	1.8	I	mg/L	P369856	

Field ID: G1TLHR0029

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2115047	EPA 200.7 Rev. 4.4	Zinc	5.7	I	ug/L	P369856	
	EPA 200.8 Rev. 5.4	Aluminum	495		ug/L	P369856	
		Antimony	0.050	U	ug/L	P369856	
		Arsenic	0.42		ug/L	P369856	
		Boron**	15.7		ug/L	P369856	
		Cadmium	0.020	U	ug/L	P369856	
		Chromium	0.49	I	ug/L	P369856	
		Copper	0.40	U	ug/L	P369856	
		Lead	0.51		ug/L	P369856	
		Nickel	0.71	I	ug/L	P369856	
		Selenium	0.20	U	ug/L	P369856	
		Silver	0.010	U	ug/L	P369856	
		Thallium	0.10	U	ug/L	P369856	

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: MS accuracy for some analytes could not be assessed due to high concentration of parameter in the spiked sample. MS accuracy and precision for bentazon could not be assessed due to high concentration of parameter in the spiked sample. Refer to the narrative for an explanation of QC Codes.

Sample Location: LITTLE AUCILLA RVR @ US221

Collection Date/Time: 08/27/2019 10:05

Field ID: G1TLHR0099

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2115033	EPA 180.1 Rev. 2.0	Turbidity	0.50		NTU	P369775	
	EPA 300.0 Rev. 2.1	Chloride	3.3		mg Cl/L	P370213	
		Sulfate	0.20	U	mg SO4/L	P370216	
	SM 2120 B	Color (true)	460		PCU	P369851	
	SM 2320 B-97	Total Alkalinity	0.65	U	mg CaCO3/L	P370026	
	SM 2540 C-97	TDS	66		mg/L	P370381	
	SM 2540 D-97	TSS	2	I	mg/L	P370247	
	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P370030	
2115034	EPA 350.1 Rev. 2.0	Ammonia-N	0.020		mg N/L	P370156	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.2		mg N/L	P369913	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P369997	
	EPA 365.1 Rev. 2.0	Total-P	0.026		mg P/L	P370071	
	SM 5310 B-00	Organic Carbon	38		mg C/L	P370223	
2115035	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.006	I	mg P/L	P369843	
2115046	EPA 8321B	2,4-D	0.0020	U	ug/L	P369771	
		Acesulfame K**	0.10	U	ug/L	P369883	
		AMPA**	0.10	U	ug/L	P369883	
		Sucralose**	0.010	U	ug/L	P369883	
		Acetaminophen**	0.0080	U	ug/L	P369771	
		Endothall**	0.25	U	ug/L	P369883	
		Glufosinate**	0.10	U	ug/L	P369883	
		Glyphosate**	0.10	U	ug/L	P369883	
		Bentazon	8.0E-04	U	ug/L	P369771	
		Carbamazepine**	8.0E-04	U	ug/L	P369771	
		Diuron	0.0020	U	ug/L	P369771	
		Fenuron	0.016	U	ug/L	P369771	
		Fluridone**	8.0E-04	U	ug/L	P369771	
		Imazapyr**	0.0090	I	ug/L	P369771	
		Hydrocodone**	0.0020	U	ug/L	P369771	
		Ibuprofen**	0.020	U	ug/L	P369771	
		Imidacloprid	0.0020	U	ug/L	P369771	
		Linuron	0.0040	U	ug/L	P369771	
		MCP	0.0020	U	ug/L	P369771	MS
		Naproxen**	0.0080	U	ug/L	P369771	
		Primidone**	0.0040	U	ug/L	P369771	
		Pyraclostrobin**	0.0020	UJ	ug/L	P369771	LCS, MS, RPD
		Triclopyr**	0.0040	U	ug/L	P369771	
2115048	EPA 200.7 Rev. 4.4	Barium	16.6		ug/L	P369856	
		Calcium	1.49		mg/L	P369856	
		Iron	1.63E+03		ug/L	P369856	
		Magnesium	0.82		mg/L	P369856	
		Potassium	0.61	I	mg/L	P369856	
		Sodium	1.6	I	mg/L	P369856	

Field ID: G1TLHR0099

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2115048	EPA 200.7 Rev. 4.4	Zinc	5.0	U	ug/L	P369856	
	EPA 200.8 Rev. 5.4	Aluminum	411		ug/L	P369856	
		Antimony	0.050	U	ug/L	P369856	
		Arsenic	0.43		ug/L	P369856	
		Boron**	15.0		ug/L	P369856	
		Cadmium	0.020	U	ug/L	P369856	
		Chromium	0.47	I	ug/L	P369856	
		Copper	0.40	U	ug/L	P369856	
		Lead	0.29	I	ug/L	P369856	
		Nickel	0.63	I	ug/L	P369856	
		Selenium	0.20	U	ug/L	P369856	
		Silver	0.010	U	ug/L	P369856	
		Thallium	0.10	U	ug/L	P369856	

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: MS accuracy for some analytes could not be assessed due to high concentration of parameter in the spiked sample. MS accuracy and precision for bentazon could not be assessed due to high concentration of parameter in the spiked sample. Refer to the narrative for an explanation of QC Codes.

Sample Location: GRASSY HOLE SPRING ON ICHETUCKNEE RIVER

Collection Date/Time: 08/27/2019 12:45

Field ID: G1TLHR0100

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2115036	EPA 180.1 Rev. 2.0	Turbidity	0.10	I	NTU	P369775	
	EPA 300.0 Rev. 2.1	Chloride	7.5		mg Cl/L	P370213	
		Sulfate	18		mg SO4/L	P370216	
	SM 2120 B	Color (true)	2.5	U	PCU	P369851	
	SM 2320 B-97	Total Alkalinity	162	A	mg CaCO3/L	P370026	
	SM 2540 C-97	TDS	186		mg/L	P370381	
	SM 2540 D-97	TSS	2	U	mg/L	P370247	
	SM 4500 F-C-97	Fluoride	0.18		mg F/L	P370030	
2115037	EPA 350.1 Rev. 2.0	Ammonia-N	0.002	U	mg N/L	P370156	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.080	UJ	mg N/L	P369918	MS
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.70		mg N/L	P369997	
	EPA 365.1 Rev. 2.0	Total-P	0.051		mg P/L	P370071	
	SM 5310 B-00	Organic Carbon	0.60	I	mg C/L	P370223	
2115038	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.055		mg P/L	P369843	

Ref. Method and Comment:

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

EPA 351.2 Rev. 2.0: 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: P369775

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P369856

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: P369856

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: P370213

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P370216

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P370156

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: P369913

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

Reference Method: EPA 351.2 Rev. 2.0
 Batch ID: P369918

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

Reference Method: EPA 353.2 Rev. 2.0
 Batch ID: P369997

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

Reference Method: EPA 365.1 Rev. 2.0
 Batch ID: P369875

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

Reference Method: EPA 365.1 Rev. 2.0
 Batch ID: P370071

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
 Batch ID: P369843

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

Reference Method: EPA 8321B
 Batch ID: P369771

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

Quality Assurance Report Method Blank Results

Reference Method: EPA 8321B
Batch ID: P369771

Component	Result	Code	Units
Triclopyr	0.0040	U	ug/L

Reference Method: EPA 8321B
Batch ID: P369883

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: P369851

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2320 B-97
Batch ID: P370026

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

Reference Method: SM 2540 C-97
Batch ID: P370381

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P370247

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500 F-C-97
Batch ID: P370030

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-00
Batch ID: P370223

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: P369856

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Barium	100		P	80 - 120
Calcium	104		P	80 - 120
Iron	104		P	80 - 120
Magnesium	105		P	80 - 120
Potassium	107		P	80 - 120
Sodium	108		P	80 - 120
Zinc	97.0		P	80 - 120

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P369856

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Aluminum	101		P	85 - 115
Antimony	99.1		P	85 - 115
Arsenic	99.6		P	85 - 115
Boron	100		P	85 - 115
Cadmium	100		P	85 - 115
Chromium	97.4		P	85 - 115
Copper	96.7		P	85 - 115
Lead	97.8		P	85 - 115
Nickel	97.6		P	85 - 115
Selenium	99.0		P	85 - 115
Silver	100		P	85 - 115
Thallium	102		P	85 - 115

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P370213

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P370216

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P370156

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Ammonia-N	97.0		P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P369913

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

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 351.2 Rev. 2.0
 Batch ID: P369918

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: P369997

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

Reference Method: EPA 365.1 Rev. 2.0
 Batch ID: P369875

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

Reference Method: EPA 365.1 Rev. 2.0
 Batch ID: P370071

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total-P	94.9		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
 Batch ID: P369843

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

Reference Method: EPA 8321B
 Batch ID: P369771

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2,4-D	85.3		P	40 - 160
Acetaminophen	70.8		P	30 - 160
Bentazon	94.9		P	30 - 160
Carbamazepine	89.9		P	40 - 160
Diuron	84.4		P	40 - 160
Fenuron	112		P	40 - 160
Fluridone	94.7		P	40 - 160
Hydrocodone	96.1		P	40 - 160
Ibuprofen	78.9		P	30 - 160
Imazapyr	93.0		P	40 - 160
Imidacloprid	93.5		P	40 - 160
Linuron	71.8		P	40 - 160
MCPP	88.2		P	40 - 160
Naproxen	62.2		P	40 - 160
Primidone	97.8		P	40 - 160
Pyraclostrobin	28.9		F	30 - 160
Triclopyr	60.2		P	30 - 160

Reference Method: EPA 8321B
 Batch ID: P369883

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

Reference Method: EPA 8321B
Batch ID: P369883

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Acesulfame K	137		P	40 - 150
AMPA	132		P	40 - 150
Endothall	95.6		P	40 - 150
Glufosinate	108		P	40 - 150
Glyphosate	110		P	40 - 140
Sucralose	93.0		P	40 - 150

Reference Method: SM 2120 B
Batch ID: P369851

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

Reference Method: SM 2320 B-97
Batch ID: P370026

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

Reference Method: SM 4500 F-C-97
Batch ID: P370030

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	97.6		P	92 - 103

Reference Method: SM 5310 B-00
Batch ID: P370223

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

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P369856

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2114588	Barium	97.5	97.1	P/P	80 - 120
2114588	Calcium	103		P	80 - 120
2114588	Iron	103	104	P/P	80 - 120
2114588	Magnesium	104		P	80 - 120
2114588	Potassium	108	99.1	P/P	80 - 120
2114588	Sodium	106		P	80 - 120
2114588	Zinc	96.0	95.7	P/P	80 - 120
2114889	Barium	98.2		P	80 - 120
2114889	Calcium	102		P	80 - 120
2114889	Iron	102		P	80 - 120
2114889	Magnesium	104		P	80 - 120
2114889	Potassium	106		P	80 - 120
2114889	Sodium	102		P	80 - 120
2114889	Zinc	95.3		P	80 - 120

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P369856

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2114588	Aluminum	98.7	99.6	P/P	80 - 120
2114588	Antimony	101	102	P/P	80 - 120
2114588	Arsenic	101	101	P/P	80 - 120
2114588	Boron	101	101	P/P	80 - 120
2114588	Cadmium	103	102	P/P	80 - 120
2114588	Chromium	98.4	98.6	P/P	80 - 120
2114588	Copper	93.0	93.7	P/P	80 - 120
2114588	Lead	98.1	98.8	P/P	80 - 120
2114588	Nickel	96.7	96.6	P/P	80 - 120
2114588	Selenium	99.3	99.5	P/P	80 - 120
2114588	Silver	99.3	100	P/P	80 - 120
2114588	Thallium	104	105	P/P	80 - 120
2114889	Aluminum	100		P	80 - 120
2114889	Antimony	101		P	80 - 120
2114889	Arsenic	102		P	80 - 120
2114889	Boron	104		P	80 - 120
2114889	Cadmium	101		P	80 - 120
2114889	Chromium	101		P	80 - 120
2114889	Copper	97.9		P	80 - 120
2114889	Lead	99.3		P	80 - 120
2114889	Nickel	102		P	80 - 120
2114889	Selenium	100		P	80 - 120
2114889	Silver	101		P	80 - 120
2114889	Thallium	105		P	80 - 120

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P370213

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2115024	Chloride	101		P	90 - 110
2115145	Chloride	99.5		P	90 - 110

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P370216

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2115024	Sulfate	99.9		P	90 - 110
2115145	Sulfate	97.2		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P370156

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2114867	Ammonia-N	97.4	98.7	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P369913

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2115025	Kjeldahl Nitrogen	100	94.6	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P369918

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2115037	Kjeldahl Nitrogen	108	110	P/F	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P369997

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2115073	NO2NO3-N	104	104	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P369875

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2115116	Total-P	96.6	95.0	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P370071

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2114868	Total-P	94.8	97.0	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P369843

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2115074	O-Phosphate-P	95.8	96.6	P/P	90 - 110

Reference Method: EPA 8321B
Batch ID: P369771

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2114832	Acetaminophen	83.1	80.6	P/P	30 - 160
2114832	Carbamazepine	97.1	94.0	P/P	40 - 160
2114832	Diuron	94.0	90.2	P/P	40 - 160

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 8321B
Batch ID: P369771

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2114832	Fenuron	78.3	82.3	P/P	40 - 160
2114832	Hydrocodone	109	103	P/P	40 - 160
2114832	Ibuprofen	112	93.4	P/P	30 - 160
2114832	Linuron	78.6	75.2	P/P	40 - 160
2114832	MCP	213	188	F/F	40 - 160
2114832	Naproxen	130	133	P/P	40 - 160
2114832	Primidone	110	112	P/P	40 - 160
2114832	Pyraclostrobin	70.7	29.6	P/F	30 - 160
2114832	Triclopyr	151	116	P/P	30 - 160

Reference Method: EPA 8321B
Batch ID: P369883

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2114790	Acesulfame K	97.6	81.2	P/P	40 - 150
2114790	AMPA	61.6	64.5	P/P	40 - 150
2114790	Endothall	82.6	92.6	P/P	40 - 150
2114790	Glufosinate	72.5	72.4	P/P	40 - 150
2114790	Glyphosate	94.7	107	P/P	40 - 140
2114790	Sucralose	78.5	91.0	P/P	40 - 150

Reference Method: SM 4500 F-C-97
Batch ID: P370030

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2115036	Fluoride	99.3	98.6	P/P	89 - 106

Reference Method: SM 5310 B-00
Batch ID: P370223

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2114895	Organic Carbon	98.9	98.5	P/P	85 - 115

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P369775

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2115024	Turbidity	2.78	Sample	P	0 - 20

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P369856

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2114588	Barium	0.449	Spike	P	0 - 20
2114588	Calcium	1.60	Spike	P	0 - 20
2114588	Iron	0.976	Spike	P	0 - 20
2114588	Magnesium	2.16	Spike	P	0 - 20
2114588	Potassium	4.67	Spike	P	0 - 20
2114588	Sodium	0.478	Spike	P	0 - 20
2114588	Zinc	0.302	Spike	P	0 - 20

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P369856

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2114588	Aluminum	0.839	Spike	P	0 - 20
2114588	Antimony	1.29	Spike	P	0 - 20
2114588	Arsenic	0.394	Spike	P	0 - 20
2114588	Boron	0.0156	Spike	P	0 - 20
2114588	Cadmium	0.853	Spike	P	0 - 20
2114588	Chromium	0.183	Spike	P	0 - 20
2114588	Copper	0.719	Spike	P	0 - 20
2114588	Lead	0.702	Spike	P	0 - 20
2114588	Nickel	0.0745	Spike	P	0 - 20
2114588	Selenium	0.233	Spike	P	0 - 20
2114588	Silver	0.677	Spike	P	0 - 20
2114588	Thallium	0.978	Spike	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P370213

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2115024	Chloride	0.0963	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P370216

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2115024	Sulfate	0.120	Sample	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P370156

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2114867	Ammonia-N	1.11	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P369913

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2115025	Kjeldahl Nitrogen	4.52	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P369918

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2115037	Kjeldahl Nitrogen	1.94	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P369997

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2115073	NO2NO3-N	0.482	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P369875

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2115116	Total-P	1.63	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P370071

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2114868	Total-P	2.19	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P369843

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2115074	O-Phosphate-P	0.832	Spike	P	0 - 20

Reference Method: EPA 8321B
Batch ID: P369771

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2114832	2,4-D	3.05	Spike	P	0 - 30
2114832	Acetaminophen	3.13	Spike	P	0 - 30

Quality Assurance Report Precision

Reference Method: EPA 8321B
Batch ID: P369771

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2114832	Carbamazepine	2.58	Spike	P	0 - 30
2114832	Diuron	2.63	Spike	P	0 - 30
2114832	Fenuron	3.39	Spike	P	0 - 30
2114832	Fluridone	9.35	Spike	P	0 - 30
2114832	Hydrocodone	5.38	Spike	P	0 - 30
2114832	Ibuprofen	18.2	Spike	P	0 - 30
2114832	Imazapyr	0.891	Spike	P	0 - 30
2114832	Imidacloprid	0.409	Spike	P	0 - 30
2114832	Linuron	4.42	Spike	P	0 - 30
2114832	MCPP	11.9	Spike	P	0 - 30
2114832	Naproxen	2.34	Spike	P	0 - 30
2114832	Primidone	2.14	Spike	P	0 - 30
2114832	Pyraclostrobin	82.0	Spike	F	0 - 30
2114832	Triclopyr	25.9	Spike	P	0 - 30

Reference Method: EPA 8321B
Batch ID: P369883

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2114790	Acesulfame K	18.3	Spike	P	0 - 30
2114790	AMPA	3.04	Spike	P	0 - 30
2114790	Endothall	11.4	Spike	P	0 - 30
2114790	Glufosinate	0.171	Spike	P	0 - 30
2114790	Glyphosate	7.91	Spike	P	0 - 30
2114790	Sucralose	14.7	Spike	P	0 - 30

Reference Method: SM 2120 B
Batch ID: P369851

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2115115	Color (true)	6.22	Sample	P	0 - 20

Reference Method: SM 2320 B-97
Batch ID: P370026

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2115036	Total Alkalinity	0.144	Sample	P	0 - 2.8

Reference Method: SM 2540 C-97
Batch ID: P370381

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2115024	TDS	2.71	Sample	P	0 - 10

Quality Assurance Report Precision

Reference Method: SM 4500 F-C-97
Batch ID: P370030

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2115036	Fluoride	0.477	Spike	P	0 - 2.5

Reference Method: SM 5310 B-00
Batch ID: P370223

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2114895	Organic Carbon	0.221	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: 2115045
Field Sample ID: G1TLHR0029

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	2,4-D-d3	148	P	30 - 160
EPA 8321B	Acetaminophen-d4	78.7	P	30 - 160
EPA 8321B	Carbamazepine-d10	73.3	P	30 - 160
EPA 8321B	Diuron-d6	84.0	P	30 - 160
EPA 8321B	Endothall-d6	90.3	P	30 - 160
EPA 8321B	Endothall-d6	90.3	P	30 - 160
EPA 8321B	Glyphosate 13C 15N	67.8	P	30 - 160
EPA 8321B	Glyphosate 13C 15N	67.8	P	30 - 160
EPA 8321B	Ibuprofen-d3	127	P	30 - 160
EPA 8321B	Primidone-d5	97.4	P	30 - 160
EPA 8321B	Sucralose-d6	81.6	P	30 - 160
EPA 8321B	Sucralose-d6	81.6	P	30 - 160

Lab Sample ID: 2115046
Field Sample ID: G1TLHR0099

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	2,4-D-d3	128	P	30 - 160
EPA 8321B	Acetaminophen-d4	74.4	P	30 - 160
EPA 8321B	Carbamazepine-d10	69.8	P	30 - 160
EPA 8321B	Diuron-d6	77.4	P	30 - 160
EPA 8321B	Endothall-d6	91.3	P	30 - 160
EPA 8321B	Endothall-d6	91.3	P	30 - 160
EPA 8321B	Glyphosate 13C 15N	61.4	P	30 - 160
EPA 8321B	Glyphosate 13C 15N	61.4	P	30 - 160
EPA 8321B	Ibuprofen-d3	95.2	P	30 - 160
EPA 8321B	Primidone-d5	88.1	P	30 - 160
EPA 8321B	Sucralose-d6	33.3	P	30 - 160
EPA 8321B	Sucralose-d6	33.3	P	30 - 160

Quality Assurance Report Calibration Verification

Reference Method: EPA 180.1 Rev. 2.0

Run ID: A93821

Included Lab Sample IDs: 2115030, 2115033, 2115036

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved

Run ID: A93839

Included Lab Sample IDs: 2115032, 2115035, 2115038

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

Reference Method: SM 2120 B

Run ID: A93842

Included Lab Sample IDs: 2115030, 2115033, 2115036

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

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A93923

Included Lab Sample IDs: 2115031, 2115034, 2115037

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

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A93925

Included Lab Sample IDs: 2115031, 2115034, 2115037

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

Reference Method: SM 2320 B-97

Run ID: A93928

Included Lab Sample IDs: 2115030, 2115033, 2115036

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	103	106	P/P	90 - 110
Total Alkalinity	104	103	P/P	90 - 110

Reference Method: SM 4500 F-C-97

Run ID: A93928

Included Lab Sample IDs: 2115030, 2115033, 2115036

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	100	102	P/P	90 - 110
Fluoride	102	101	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: EPA 8321B

Run ID: A93944

Included Lab Sample IDs: 2115045, 2115046

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
AMPA	117	68.6	P/P	60 - 160
Glufosinate	104	65.3	P/P	60 - 160
Glyphosate	109	77.3	P/P	60 - 160

Reference Method: EPA 8321B

Run ID: A93946

Included Lab Sample IDs: 2115045, 2115046

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Acesulfame K	115	110	P/P	60 - 160
Endothall	98.9	99.4	P/P	60 - 160

Reference Method: EPA 200.7 Rev. 4.4

Run ID: A93964

Included Lab Sample IDs: 2115047, 2115048

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Barium	101	101	P/P	90 - 110
Barium	101	101	P/P	90 - 110
Calcium	98.6	98.9	P/P	90 - 110
Calcium	99.2	98.6	P/P	90 - 110
Iron	101	102	P/P	90 - 110
Iron	102	102	P/P	90 - 110
Magnesium	101	102	P/P	90 - 110
Magnesium	102	102	P/P	90 - 110
Potassium	101	101	P/P	90 - 110
Potassium	102	101	P/P	90 - 110
Sodium	103	105	P/P	90 - 110
Sodium	104	103	P/P	90 - 110
Zinc	97.5	97.6	P/P	90 - 110
Zinc	97.6	98.4	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A93970

Included Lab Sample IDs: 2115037

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	101	99.0	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A93973

Included Lab Sample IDs: 2115034

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

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A93978

Included Lab Sample IDs: 2115031

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

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A93978

Included Lab Sample IDs: 2115031

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	97.8	98.0	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A93986

Included Lab Sample IDs: 2115031, 2115034, 2115037

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

Reference Method: EPA 8321B

Run ID: A93996

Included Lab Sample IDs: 2115045, 2115046

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Sucralose	86.2	84.4	P/P	60 - 160

Reference Method: EPA 300.0 Rev. 2.1

Run ID: A94012

Included Lab Sample IDs: 2115030, 2115033, 2115036

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

Reference Method: SM 5310 B-00

Run ID: A94014

Included Lab Sample IDs: 2115031, 2115034, 2115037

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	106	109	P/P	90 - 110

Reference Method: EPA 8321B

Run ID: A94124

Included Lab Sample IDs: 2115045, 2115046

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
2,4-D	93.3	96.2	P/P	50 - 150
Acetaminophen	79.1	104	P/P	60 - 160
Bentazon	104	105	P/P	50 - 160
Carbamazepine	112	112	P/P	60 - 150
Diuron	105	99.3	P/P	60 - 150
Fenuron	110	107	P/P	60 - 150
Fluridone	123	125	P/P	60 - 160
Hydrocodone	106	108	P/P	60 - 150
Ibuprofen	97.9	73.9	P/P	50 - 160
Imazapyr	96.8	90.3	P/P	50 - 150
Imidacloprid	100	98.6	P/P	60 - 150
Linuron	91.4	102	P/P	60 - 150
MCP	109	109	P/P	50 - 150
Naproxen	75.4	131	P/P	50 - 160
Primidone	102	97.9	P/P	60 - 150

Quality Assurance Report Calibration Verification

Reference Method: EPA 8321B

Run ID: A94124

Included Lab Sample IDs: 2115045, 2115046

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Pyraclostrobin	113	111	P/P	60 - 150
Triclopyr	103	96.4	P/P	50 - 150

Reference Method: EPA 200.8 Rev. 5.4

Run ID: A94220

Included Lab Sample IDs: 2115047, 2115048

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Aluminum	100	99.1	P/P	90 - 110
Antimony	98.5	99.2	P/P	90 - 110
Arsenic	102	103	P/P	90 - 110
Boron	101	99.6	P/P	90 - 110
Cadmium	103	103	P/P	90 - 110
Chromium	102	102	P/P	90 - 110
Copper	98.6	99.1	P/P	90 - 110
Lead	98.8	98.9	P/P	90 - 110
Nickel	99.5	99.8	P/P	90 - 110
Selenium	103	104	P/P	90 - 110
Silver	97.5	97.9	P/P	90 - 110
Thallium	97.1	96.4	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								2.78	
EPA 200.7 Rev. 4.4	Barium	100			97.5	97.1	98.2			0.449
	Calcium	104			103	102				1.60
	Iron	104			103	104	102			0.976
	Magnesium	105			104	104				2.16
	Potassium	107			108	99.1	106			4.67
	Sodium	108			106	102				0.478
	Zinc	97.0			96.0	95.7	95.3			0.302
EPA 200.8 Rev. 5.4	Aluminum	101			98.7	99.6	100			0.839
	Antimony	99.1			101	102	101			1.29
	Arsenic	99.6			101	101	102			0.394
	Boron	100			101	101	104			0.0156
	Cadmium	100			103	102	101			0.853
	Chromium	97.4			98.4	98.6	101			0.183
	Copper	96.7			93.0	93.7	97.9			0.719
	Lead	97.8			98.1	98.8	99.3			0.702
	Nickel	97.6			96.7	96.6	102			0.0745
	Selenium	99.0			99.3	99.5	100			0.233
	Silver	100			99.3	100	101			0.677
	Thallium	102			104	105	105			0.978
EPA 300.0 Rev. 2.1	Chloride	99.6			101	99.5			0.0963	
	Sulfate	100			99.9	97.2			0.120	
EPA 350.1 Rev. 2.0	Ammonia-N	97.0			97.4	98.7				1.11
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	101			100	94.6				4.52
	Kjeldahl Nitrogen	105			108	110				1.94
EPA 353.2 Rev. 2.0	NO2NO3-N	103			104	104				0.482
EPA 365.1 Rev. 2.0	Total-P	96.6			96.6	95.0				1.63
	Total-P	94.9			94.8	97.0				2.19
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	98.7			95.8	96.6				0.832
EPA 8321B	2,4-D	85.3								3.05
	Acesulfame K	137			97.6	81.2				18.3
	Acetaminophen	70.8			83.1	80.6				3.13
	AMPA	132			61.6	64.5				3.04
	Bentazon	94.9								
	Carbamazepine	89.9			97.1	94.0				2.58
	Diuron	84.4			94.0	90.2				2.63
	Endothall	95.6			82.6	92.6				11.4
	Fenuron	112			78.3	82.3				3.39
	Fluridone	94.7								9.35
	Glufosinate	108			72.5	72.4				0.171
	Glyphosate	110			94.7	107				7.91
	Hydrocodone	96.1			109	103				5.38
	Ibuprofen	78.9			112	93.4				18.2
	Imazapyr	93.0								0.891
	Imidacloprid	93.5								0.409
	Linuron	71.8			78.6	75.2				4.42
	MCPD	88.2			213	188				11.9
	Naproxen	62.2			130	133				2.34
	Primidone	97.8			110	112				2.14
	Pyraclostrobin	28.9			70.7	29.6				82.0
	Sucralose	93.0			78.5	91.0				14.7
	Triclopyr	60.2			151	116				25.9
SM 2120 B	Color (true)	101							6.22	
SM 2320 B-97	Total Alkalinity	104							0.144	

Quality Assurance Report Summary

Ref. Method	Analyte	LCS % Recovery	MS % Recovery		Precision SMP	MS
					LCS	
SM 2540 C-97	TDS				2.71	
SM 4500 F-C-97	Fluoride	97.6	99.3	98.6		0.477
SM 5310 B-00	Organic Carbon	103	98.9	98.5		0.221

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	2115030, 2115033, 2115036
EPA 200.7 Rev. 4.4 / E31780	Total Recoverable Metals analysis using ICP emission spectroscopy for aqueous samples supporting Clean Water Act Projects	2115047, 2115048
EPA 200.8 Rev. 5.4 / E31780	Total Recoverable Metals analysis using ICP-MS for aqueous samples supporting Clean Water Act Projects	2115047, 2115048
EPA 300.0 Rev. 2.1 / E31780	Chloride in aqueous matrices	2115030, 2115033, 2115036
EPA 300.0 Rev. 2.1 / E31780	Sulfate in aqueous matrices	2115030, 2115033, 2115036
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	2115031, 2115034, 2115037
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	2115031, 2115034, 2115037
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	2115031, 2115034, 2115037
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	2115031, 2115034, 2115037
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	2115032, 2115035, 2115038
EPA 8321B / E31780	Pesticides, herbicides, and other chemicals in water matrices by HPLC/MS/MS	2115045, 2115046
EPA 8321B / E31780	Water soluble organic compounds by HPLC/MS/MS	2115045, 2115046
SM 2120 B / E31780	True Color measured at 450 nm	2115030, 2115033, 2115036
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO ₃ /L	2115030, 2115033, 2115036
SM 2540 C-97 / E31780	Total Dissolved Solids in aqueous matrices	2115030, 2115033, 2115036
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices using a maximum of 250 mL of sample	2115030, 2115033, 2115036
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	2115030, 2115033, 2115036
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	2115031, 2115034, 2115037

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	08/27/2019			08/27/2019 16:17	Rosalyn Ballman	2115030, 2115033, 2115036
EPA 200.7 Rev. 4.4	08/27/2019	08/28/2019 17:20	Elliott D. Healy	09/03/2019 18:30	Alexander Thompson	2115047
	08/27/2019	08/28/2019 17:20	Elliott D. Healy	09/03/2019 18:58	Alexander Thompson	2115048
EPA 200.8 Rev. 5.4	08/27/2019	08/28/2019 17:20	Elliott D. Healy	09/13/2019 18:38	Justin Cutchin	2115047
	08/27/2019	08/28/2019 17:20	Elliott D. Healy	09/13/2019 18:47	Justin Cutchin	2115048
EPA 300.0 Rev. 2.1	08/27/2019			09/04/2019 17:34	Jhamieka S. Greenwood	2115030
	08/27/2019			09/04/2019 17:46	Jhamieka S. Greenwood	2115033
	08/27/2019			09/04/2019 17:58	Jhamieka S. Greenwood	2115036
EPA 350.1 Rev. 2.0	08/27/2019			09/04/2019 13:26	Ping Hua	2115031
	08/27/2019			09/04/2019 13:28	Ping Hua	2115034
	08/27/2019			09/04/2019 13:29	Ping Hua	2115037
EPA 351.2 Rev. 2.0	08/27/2019	08/29/2019 11:55	Sima Feizi	08/30/2019 11:53	Joseph Suarez	2115031
	08/27/2019	08/29/2019 11:55	Sima Feizi	08/30/2019 11:55	Joseph Suarez	2115034
	08/27/2019	08/29/2019 11:55	Sima Feizi	08/30/2019 12:11	Joseph Suarez	2115037
EPA 353.2 Rev. 2.0	08/27/2019			08/30/2019 12:02	Beverly Y. Sanders	2115031
	08/27/2019			08/30/2019 12:03	Beverly Y. Sanders	2115034
	08/27/2019			08/30/2019 12:04	Beverly Y. Sanders	2115037
EPA 365.1 Rev. 2.0	08/27/2019	08/29/2019 07:30	Joseph Suarez	08/30/2019 13:17	Lipi Saha	2115031
	08/27/2019	09/03/2019 13:30	Lipi Saha	09/04/2019 10:10	Lipi Saha	2115037
	08/27/2019	09/03/2019 13:30	Lipi Saha	09/04/2019 12:15	Lipi Saha	2115034
EPA 365.1 Rev. 2.0 dissolved	08/27/2019			08/28/2019 15:03	Jhamieka S. Greenwood	2115038
	08/27/2019			08/28/2019 15:04	Jhamieka S. Greenwood	2115032
	08/27/2019			08/28/2019 15:05	Jhamieka S. Greenwood	2115035
EPA 8321B	08/27/2019	08/29/2019 09:45	Rebecca Ware	08/29/2019 16:19	Rebecca Ware	2115045
	08/27/2019	08/29/2019 09:45	Rebecca Ware	08/29/2019 16:33	Rebecca Ware	2115046
	08/27/2019	08/29/2019 09:45	Rebecca Ware	08/30/2019 11:28	Rebecca Ware	2115045
	08/27/2019	08/29/2019 09:45	Rebecca Ware	08/30/2019 11:38	Rebecca Ware	2115046
	08/27/2019	08/29/2019 09:45	Rebecca Ware	09/04/2019 22:48	Rebecca Ware	2115045
	08/27/2019	08/29/2019 09:45	Rebecca Ware	09/04/2019 22:59	Rebecca Ware	2115046
	08/27/2019	08/30/2019 12:30	Hoor Shaik	09/01/2019 09:31	Juyoung Kim	2115045
	08/27/2019	08/30/2019 12:30	Hoor Shaik	09/01/2019 10:06	Juyoung Kim	2115046
SM 2120 B	08/27/2019			08/28/2019 16:18	Madeline Funaro	2115036
	08/27/2019			08/28/2019 16:37	Madeline Funaro	2115030, 2115033
SM 2320 B-97	08/27/2019			08/30/2019 11:55	Dale L. Simmons	2115036
	08/27/2019			08/30/2019 15:15	Dale L. Simmons	2115030
	08/27/2019			08/30/2019 15:24	Dale L. Simmons	2115033
SM 2540 C-97	08/27/2019			08/30/2019 15:41	Yijie Li	2115030, 2115033, 2115036
SM 2540 D-97	08/27/2019			08/30/2019 15:41	Yijie Li	2115030, 2115033, 2115036
SM 4500 F-C-97	08/27/2019			08/30/2019 11:45	Dale L. Simmons	2115036
	08/27/2019			08/30/2019 15:15	Dale L. Simmons	2115030

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
SM 4500 F-C-97	08/27/2019			08/30/2019 15:24	Dale L. Simmons	2115033
SM 5310 B-00	08/27/2019			09/04/2019 23:03	Madeline Funaro	2115031
	08/27/2019			09/04/2019 23:15	Madeline Funaro	2115034
	08/27/2019			09/04/2019 23:27	Madeline Funaro	2115037