

Chemical Analysis Report

CEN-DIST-2019-09-06-01

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

Event Description: **Econ Trib / Roberts**
Request ID: **RQ-2019-09-02-69**
Customer: **CEN-DIST**
Project ID: **SMP**

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Date Certified: 24-SEP-2019 13:40



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: Roberts Branch @ Curryville Rd.

Collection Date/Time: 09/05/2019 10:42

Field ID: G3CE0011

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2116911	EPA 180.1 Rev. 2.0	Turbidity	1.8		NTU	P370295	
	EPA 300.0 Rev. 2.1	Chloride	12		mg Cl/L	P370545	
		Sulfate	0.99		mg SO4/L	P370548	
	SM 2120 B	Color (true)	570		PCU	P370308	
	SM 2320 B-97	Total Alkalinity	0.65	U	mg CaCO3/L	P370399	
	SM 2540 C-97	TDS	91		mg/L	P370733	
	SM 2540 D-97	TSS	3	I	mg/L	P370619	
	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P370403	
2116912	EPA 350.1 Rev. 2.0	Ammonia-N	0.028		mg N/L	P370671	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.3		mg N/L	P370714	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.006	I	mg N/L	P370319	
	EPA 365.1 Rev. 2.0	Total-P	0.13		mg P/L	P370490	
	SM 5310 B-00	Organic Carbon	48		mg C/L	P370527	
2116913	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.099		mg P/L	P370297	
2116919	EPA 8321B	Acesulfame K**	0.10	U	ug/L	P370304	
		2,4-D	0.0020	U	ug/L	P370371	MS
		AMPA**	0.10	U	ug/L	P370304	
		Sucralose**	0.024	I	ug/L	P370304	
		Acetaminophen**	0.0080	U	ug/L	P370371	
		Endothall**	0.25	U	ug/L	P370304	
		Acetamiprid**	0.0020	U	ug/L	P370371	
		Glufosinate**	0.10	U	ug/L	P370304	
		Glyphosate**	0.10	U	ug/L	P370304	
		Afidopyrophen**	0.0020	UJ	ug/L	P370371	
		Bentazon	8.0E-04	U	ug/L	P370371	
		Benzovindiflupyr**	0.0020	UJ	ug/L	P370371	
		Carbamazepine**	8.0E-04	U	ug/L	P370371	
		Clothianidin**	0.0020	U	ug/L	P370371	
		Dinotefuran**	0.0020	U	ug/L	P370371	
		Diuron	0.0020	U	ug/L	P370371	
		Fenuron	0.016	U	ug/L	P370371	
		Fluridone**	8.0E-04	U	ug/L	P370371	
		Imazapyr**	0.0040	U	ug/L	P370371	
		Hydrocodone**	0.0020	U	ug/L	P370371	
		Ibuprofen**	0.020	U	ug/L	P370371	
		Imidacloprid	0.0020	U	ug/L	P370371	MS
		Linuron	0.0040	U	ug/L	P370371	
		Mandestrobin**	0.0020	UJ	ug/L	P370371	
		MCP	0.0020	U	ug/L	P370371	MS
		Naproxen**	0.0080	U	ug/L	P370371	
		Primidone**	0.0040	U	ug/L	P370371	
		Pyraclostrobin**	0.0020	U	ug/L	P370371	
		Thiamethoxam**	0.0020	U	ug/L	P370371	

Field ID: G3CE0011

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2116919	EPA 8321B	Tolfenpyrad**	0.0020	U	ug/L	P370371	
		Triclopyr**	0.0040	U	ug/L	P370371	

Ref. Method and Comment:

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

SM 4500 F-C-97: 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. MS accuracy for imazapyr could not be assessed due to high concentration of parameter in the spiked sample.

Sample Location: Econ River Trib @ 170m N of Jay Blanchard Trail

Collection Date/Time: 09/05/2019 11:30

Field ID: G2CE0198

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2116908	EPA 180.1 Rev. 2.0	Turbidity	3.6		NTU	P370294	
	EPA 300.0 Rev. 2.1	Chloride	16		mg Cl/L	P370544	
		Sulfate	4.0		mg SO4/L	P370546	
	SM 2120 B	Color (true)	140		PCU	P370309	
	SM 2320 B-97	Total Alkalinity	49		mg CaCO3/L	P370400	
	SM 2540 C-97	TDS	110	A	mg/L	P370733	
	SM 2540 D-97	TSS	6	IA	mg/L	P370619	
	SM 4500 F-C-97	Fluoride	0.049	I	mg F/L	P370404	
2116909	EPA 350.1 Rev. 2.0	Ammonia-N	0.080		mg N/L	P370671	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.77		mg N/L	P370411	MS
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.20		mg N/L	P370319	
	EPA 365.1 Rev. 2.0	Total-P	0.076		mg P/L	P370490	
	SM 5310 B-00	Organic Carbon	17		mg C/L	P370527	
2116910	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.031		mg P/L	P370297	
2116920	EPA 200.7 Rev. 4.4	Barium	12.4		ug/L	P370341	
		Calcium	22.6		mg/L	P370341	
		Iron	510		ug/L	P370341	
		Magnesium	1.55		mg/L	P370341	
		Potassium	1.4		mg/L	P370341	
		Sodium	10.7		mg/L	P370341	
		Zinc	5.0	U	ug/L	P370341	
	EPA 200.8 Rev. 5.4	Aluminum	247		ug/L	P370341	
		Antimony	0.086	I	ug/L	P370341	
		Arsenic	0.84		ug/L	P370341	
		Boron**	25.9		ug/L	P370341	
		Cadmium	0.020	U	ug/L	P370341	
		Chromium	0.78	I	ug/L	P370341	
		Copper	1.15		ug/L	P370341	
		Lead	0.59		ug/L	P370341	
		Nickel	0.50	U	ug/L	P370341	
		Selenium	0.20	U	ug/L	P370341	
		Silver	0.010	U	ug/L	P370341	
		Thallium	0.10	U	ug/L	P370341	

Ref. Method and Comment:

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

Quality Assurance Report Method Blank Results

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P370294

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P370295

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P370341

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: P370341

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: P370544

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P370545

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Quality Assurance Report Method Blank Results

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P370546

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P370548

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P370671

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P370411

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P370714

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P370319

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P370490

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P370297

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

Reference Method: EPA 8321B
Batch ID: P370304

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

Quality Assurance Report

Method Blank Results

Reference Method: EPA 8321B
 Batch ID: P370304

Component	Result	Code	Units
Glyphosate	0.10	U	ug/L
Sucralose	0.010	U	ug/L

Reference Method: EPA 8321B
 Batch ID: P370371

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

Reference Method: SM 2120 B
 Batch ID: P370308

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2120 B
 Batch ID: P370309

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2320 B-97
 Batch ID: P370399

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

Quality Assurance Report

Method Blank Results

Reference Method: SM 2320 B-97
Batch ID: P370400

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

Reference Method: SM 2540 C-97
Batch ID: P370733

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P370619

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500 F-C-97
Batch ID: P370403

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 4500 F-C-97
Batch ID: P370404

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-00
Batch ID: P370527

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: P370341

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Barium	101		P	85 - 115
Calcium	108		P	85 - 115
Iron	104		P	85 - 115
Magnesium	110		P	85 - 115
Potassium	103		P	85 - 115
Sodium	110		P	85 - 115
Zinc	99.9		P	85 - 115

Reference Method: EPA 200.8 Rev. 5.4

Batch ID: P370341

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Aluminum	96.4		P	85 - 115
Antimony	97.0		P	85 - 115
Arsenic	98.5		P	85 - 115
Boron	102		P	85 - 115
Cadmium	97.9		P	85 - 115
Chromium	90.8		P	85 - 115
Copper	95.7		P	85 - 115
Lead	94.4		P	85 - 115
Nickel	96.2		P	85 - 115
Selenium	103		P	85 - 115
Silver	98.8		P	85 - 115
Thallium	97.5		P	85 - 115

Reference Method: EPA 300.0 Rev. 2.1

Batch ID: P370544

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

Reference Method: EPA 300.0 Rev. 2.1

Batch ID: P370545

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

Reference Method: EPA 300.0 Rev. 2.1

Batch ID: P370546

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

Reference Method: EPA 300.0 Rev. 2.1

Batch ID: P370548

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

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P370671

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Ammonia-N	95.8		P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P370411

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P370714

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Kjeldahl Nitrogen	94.1		P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P370319

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P370490

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P370297

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

Reference Method: EPA 8321B
Batch ID: P370304

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Acesulfame K	70.7		P	40 - 150
AMPA	126		P	40 - 150
Endothall	112		P	40 - 150
Glufosinate	131		P	40 - 150
Glyphosate	137		P	40 - 140
Sucralose	122		P	40 - 150

Reference Method: EPA 8321B
Batch ID: P370371

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2,4-D	139		P	40 - 160
Acetaminophen	85.8		P	30 - 160
Acetamiprid	105		P	40 - 160
Afidopyropen	103		P	40 - 160
Bentazon	136		P	30 - 160

Quality Assurance Report

Laboratory Control Sample Accuracy

Reference Method: EPA 8321B

Batch ID: P370371

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Benzovindiflupyr	88.9		P	40 - 160
Carbamazepine	108		P	40 - 160
Clothianidin	94.8		P	40 - 160
Dinotefuran	96.7		P	40 - 160
Diuron	128		P	40 - 160
Fenuron	110		P	40 - 160
Fluridone	98.9		P	40 - 160
Hydrocodone	101		P	40 - 160
Ibuprofen	85.5		P	30 - 160
Imazapyr	98.6		P	40 - 160
Imidacloprid	97.9		P	40 - 160
Linuron	74.8		P	40 - 160
Mandestrobin	90.4		P	40 - 160
MCPP	158		P	40 - 160
Naproxen	110		P	40 - 160
Primidone	82.0		P	40 - 160
Pyraclostrobin	84.2		P	30 - 160
Thiamethoxam	110		P	40 - 160
Tolfenpyrad	65.9		P	40 - 160
Triclopyr	116		P	30 - 160

Reference Method: SM 2120 B

Batch ID: P370308

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Color (true)	100		P	85 - 115

Reference Method: SM 2120 B

Batch ID: P370309

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

Reference Method: SM 2320 B-97

Batch ID: P370399

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

Reference Method: SM 2320 B-97

Batch ID: P370400

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	103		P	98 - 106

Reference Method: SM 4500 F-C-97

Batch ID: P370403

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	96.5		P	92 - 103

Quality Assurance Report

Laboratory Control Sample Accuracy

Reference Method: SM 4500 F-C-97
Batch ID: P370404

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	98.4		P	92 - 103

Reference Method: SM 5310 B-00
Batch ID: P370527

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

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P370341

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2116676	Barium	99.9	101	P/P	80 - 120
2116676	Calcium	110	110	P/P	80 - 120
2116676	Iron	106	107	P/P	80 - 120
2116676	Magnesium	112	112	P/P	80 - 120
2116676	Potassium	106	111	P/P	80 - 120
2116676	Sodium	107	107	P/P	80 - 120
2116676	Zinc	100	102	P/P	80 - 120

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P370341

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2116676	Aluminum	94.8	95.4	P/P	80 - 120
2116676	Antimony	93.4	94.8	P/P	80 - 120
2116676	Arsenic	96.6	97.5	P/P	80 - 120
2116676	Boron	98.3	101	P/P	80 - 120
2116676	Cadmium	94.7	96.5	P/P	80 - 120
2116676	Chromium	94.0	95.7	P/P	80 - 120
2116676	Copper	96.3	97.0	P/P	80 - 120
2116676	Lead	91.0	92.7	P/P	80 - 120
2116676	Nickel	93.9	94.8	P/P	80 - 120
2116676	Selenium	101	98.0	P/P	80 - 120
2116676	Silver	96.5	97.7	P/P	80 - 120
2116676	Thallium	97.6	98.9	P/P	80 - 120

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P370544

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2116619	Chloride	99.9		P	90 - 110
2116853	Chloride	101		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P370545

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2116911	Chloride	101	103	P/P	90 - 110
2117231	Chloride	101		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P370546

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2116619	Sulfate	99.9		P	90 - 110
2116853	Sulfate	101		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P370548

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2116911	Sulfate	102	104	P/P	90 - 110
2117231	Sulfate	102		P	90 - 110

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P370671

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2116898	Ammonia-N	95.3	97.0	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P370411

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2116935	Kjeldahl Nitrogen	93.8	88.5	P/F	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P370714

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2118232	Kjeldahl Nitrogen	99.6	102	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P370319

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2116898	NO2NO3-N	96.0	96.5	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P370490

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2116854	Total-P	95.9	96.6	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P370297

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2116969	O-Phosphate-P	97.7	98.5	P/P	90 - 110

Reference Method: EPA 8321B
Batch ID: P370304

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2116709	Acesulfame K	107	141	P/P	40 - 150
2116709	AMPA	70.0	71.4	P/P	40 - 150
2116709	Endothall	79.1	75.0	P/P	40 - 150
2116709	Glufosinate	98.4	87.7	P/P	40 - 150
2116709	Glyphosate	127	122	P/P	40 - 140
2116709	Sucralose	126	128	P/P	40 - 150

Reference Method: EPA 8321B
Batch ID: P370371

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2116708	2,4-D	151	163	P/F	40 - 160
2116708	Acetaminophen	79.5	85.1	P/P	30 - 160
2116708	Acetamiprid	117	123	P/P	40 - 160
2116708	Afidopyropen	117	128	P/P	40 - 160
2116708	Bentazon	76.0	82.0	P/P	30 - 160

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 8321B
Batch ID: P370371

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2116708	Benzovindiflupyr	92.3	97.9	P/P	40 - 160
2116708	Carbamazepine	94.9	102	P/P	40 - 160
2116708	Clothianidin	92.9	104	P/P	40 - 160
2116708	Dinotefuran	111	116	P/P	40 - 160
2116708	Diuron	109	113	P/P	40 - 160
2116708	Fenuron	88.4	95.6	P/P	40 - 160
2116708	Fluridone	91.8	96.6	P/P	40 - 160
2116708	Hydrocodone	83.2	105	P/P	40 - 160
2116708	Ibuprofen	82.8	82.2	P/P	30 - 160
2116708	Imidacloprid	186	196	F/F	40 - 160
2116708	Linuron	68.5	70.5	P/P	40 - 160
2116708	Mandestrobin	88.4	93.9	P/P	40 - 160
2116708	MCP	163	174	F/F	40 - 160
2116708	Naproxen	89.8	106	P/P	40 - 160
2116708	Primidone	89.4	94.4	P/P	40 - 160
2116708	Pyraclostrobin	91.7	90.9	P/P	30 - 160
2116708	Thiamethoxam	149	156	P/P	40 - 160
2116708	Tolfenpyrad	68.1	71.4	P/P	40 - 160
2116708	Triclopyr	137	125	P/P	30 - 160

Reference Method: SM 4500 F-C-97
Batch ID: P370404

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2116893	Fluoride	97.7	98.3	P/P	89 - 106

Reference Method: SM 5310 B-00
Batch ID: P370527

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2116909	Organic Carbon	104	106	P/P	85 - 115

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
 Batch ID: P370294

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2116894	Turbidity	2.20	Sample	P	0 - 20

Reference Method: EPA 180.1 Rev. 2.0
 Batch ID: P370295

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2116967	Turbidity	0.939	Sample	P	0 - 20

Reference Method: EPA 200.7 Rev. 4.4
 Batch ID: P370341

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2116676	Barium	1.53	Spike	P	0 - 20
2116676	Calcium	0.292	Spike	P	0 - 20
2116676	Iron	0.698	Spike	P	0 - 20
2116676	Magnesium	0.686	Spike	P	0 - 20
2116676	Potassium	5.06	Spike	P	0 - 20
2116676	Sodium	0.139	Spike	P	0 - 20
2116676	Zinc	1.84	Spike	P	0 - 20

Reference Method: EPA 200.8 Rev. 5.4
 Batch ID: P370341

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2116676	Aluminum	0.663	Spike	P	0 - 20
2116676	Antimony	1.49	Spike	P	0 - 20
2116676	Arsenic	0.926	Spike	P	0 - 20
2116676	Boron	1.94	Spike	P	0 - 20
2116676	Cadmium	1.92	Spike	P	0 - 20
2116676	Chromium	1.78	Spike	P	0 - 20
2116676	Copper	0.663	Spike	P	0 - 20
2116676	Lead	1.75	Spike	P	0 - 20
2116676	Nickel	0.921	Spike	P	0 - 20
2116676	Selenium	3.19	Spike	P	0 - 20
2116676	Silver	1.15	Spike	P	0 - 20
2116676	Thallium	1.25	Spike	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
 Batch ID: P370544

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2116619	Chloride	0.517	Sample	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P370545

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2116911	Chloride	1.10	Spike	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P370546

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2116619	Sulfate	0.166	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P370548

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2116911	Sulfate	1.72	Spike	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P370671

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2116898	Ammonia-N	1.47	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P370411

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2116935	Kjeldahl Nitrogen	2.98	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P370714

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2118232	Kjeldahl Nitrogen	1.41	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P370319

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2116898	NO2NO3-N	0.519	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P370490

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2116854	Total-P	0.729	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P370297

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2116969	O-Phosphate-P	0.815	Spike	P	0 - 20

Reference Method: EPA 8321B
Batch ID: P370304

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2116709	Acesulfame K	27.2	Spike	P	0 - 30
2116709	AMPA	2.00	Spike	P	0 - 30
2116709	Endothall	5.33	Spike	P	0 - 30
2116709	Glufosinate	11.4	Spike	P	0 - 30
2116709	Glyphosate	3.77	Spike	P	0 - 30
2116709	Sucralose	1.07	Spike	P	0 - 30

Reference Method: EPA 8321B
Batch ID: P370371

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2116708	2,4-D	7.67	Spike	P	0 - 30
2116708	Acetaminophen	6.71	Spike	P	0 - 30
2116708	Acetamiprid	5.24	Spike	P	0 - 30
2116708	Afidopyrophen	8.78	Spike	P	0 - 30
2116708	Bentazon	7.64	Spike	P	0 - 30
2116708	Benzovindiflupyr	5.89	Spike	P	0 - 30
2116708	Carbamazepine	7.28	Spike	P	0 - 30
2116708	Clothianidin	10.9	Spike	P	0 - 30
2116708	Dinotefuran	4.47	Spike	P	0 - 30
2116708	Diuron	3.20	Spike	P	0 - 30
2116708	Fenuron	7.91	Spike	P	0 - 30
2116708	Fluridone	5.07	Spike	P	0 - 30
2116708	Hydrocodone	23.2	Spike	P	0 - 30
2116708	Ibuprofen	0.724	Spike	P	0 - 30
2116708	Imazapyr	0.420	Spike	P	0 - 30
2116708	Imidacloprid	5.37	Spike	P	0 - 30
2116708	Linuron	2.87	Spike	P	0 - 30
2116708	Mandestrobin	6.03	Spike	P	0 - 30
2116708	MCP	6.14	Spike	P	0 - 30
2116708	Naproxen	16.6	Spike	P	0 - 30
2116708	Primidone	5.41	Spike	P	0 - 30
2116708	Pyraclostrobin	0.861	Spike	P	0 - 30
2116708	Thiamethoxam	4.78	Spike	P	0 - 30
2116708	Tolfenpyrad	4.83	Spike	P	0 - 30
2116708	Triclopyr	9.51	Spike	P	0 - 30

Reference Method: SM 2120 B
Batch ID: P370308

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2116826	Color (true)	2.09	Sample	P	0 - 20

Quality Assurance Report Precision

Reference Method: SM 2120 B
 Batch ID: P370309

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2116934	Color (true)	3.49	Sample	P	0 - 20

Reference Method: SM 2320 B-97
 Batch ID: P370399

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2116620	Total Alkalinity	1.21	Sample	P	0 - 2.8

Reference Method: SM 2320 B-97
 Batch ID: P370400

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2116893	Total Alkalinity	0.954	Sample	P	0 - 2.8

Reference Method: SM 2540 C-97
 Batch ID: P370733

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2116908	TDS	5.45	Sample	P	0 - 10

Reference Method: SM 4500 F-C-97
 Batch ID: P370403

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2116620	Fluoride	0.471	Spike	P	0 - 2.5

Reference Method: SM 4500 F-C-97
 Batch ID: P370404

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2116893	Fluoride	0.470	Spike	P	0 - 2.5

Reference Method: SM 5310 B-00
 Batch ID: P370527

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2116909	Organic Carbon	1.27	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: 2116919
Field Sample ID: G3CE0011

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	2,4-D-d3	129	P	30 - 160
EPA 8321B	Acetaminophen-d4	80.4	P	30 - 160
EPA 8321B	Carbamazepine-d10	82.7	P	30 - 160
EPA 8321B	Diuron-d6	83.4	P	30 - 160
EPA 8321B	Endothall-d6	117	P	30 - 160
EPA 8321B	Endothall-d6	117	P	30 - 160
EPA 8321B	Glyphosate 13C 15N	79.2	P	30 - 160
EPA 8321B	Glyphosate 13C 15N	79.2	P	30 - 160
EPA 8321B	Ibuprofen-d3	77.4	P	30 - 160
EPA 8321B	Primidone-d5	78.3	P	30 - 160
EPA 8321B	Sucralose-d6	108	P	30 - 160
EPA 8321B	Sucralose-d6	108	P	30 - 160

Quality Assurance Report Calibration Verification

Reference Method: EPA 180.1 Rev. 2.0

Run ID: A94042

Included Lab Sample IDs: 2116908, 2116911

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved

Run ID: A94044

Included Lab Sample IDs: 2116910, 2116913

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	99.1	98.9	P/P	90 - 110

Reference Method: SM 2120 B

Run ID: A94055

Included Lab Sample IDs: 2116908, 2116911

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	102	102	P/P	90 - 115
Color (true)	104	102	P/P	90 - 115

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A94057

Included Lab Sample IDs: 2116909, 2116912

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

Reference Method: EPA 8321B

Run ID: A94082

Included Lab Sample IDs: 2116919

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
AMPA	72.7	80.1	P/P	60 - 160
Glufosinate	108	120	P/P	60 - 160
Glyphosate	137	144	P/P	60 - 160

Reference Method: SM 2320 B-97

Run ID: A94093

Included Lab Sample IDs: 2116908, 2116911

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

Reference Method: SM 4500 F-C-97

Run ID: A94093

Included Lab Sample IDs: 2116908, 2116911

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	99.5	99.5	P/P	90 - 110
Fluoride	99.5	98.5	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: EPA 200.7 Rev. 4.4

Run ID: A94108

Included Lab Sample IDs: 2116920

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Barium	102	102	P/P	90 - 110
Calcium	105	100	P/P	90 - 110
Iron	104	103	P/P	90 - 110
Magnesium	105	103	P/P	90 - 110
Potassium	104	102	P/P	90 - 110
Sodium	107	104	P/P	90 - 110
Zinc	101	99.1	P/P	90 - 110

Reference Method: EPA 8321B

Run ID: A94125

Included Lab Sample IDs: 2116919

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Acesulfame K	117	111	P/P	60 - 160
Endothall	111	114	P/P	60 - 160

Reference Method: EPA 8321B

Run ID: A94127

Included Lab Sample IDs: 2116919

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Sucralose	123	133	P/P	60 - 160

Reference Method: SM 5310 B-00

Run ID: A94151

Included Lab Sample IDs: 2116909, 2116912

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	107	110	P/P	90 - 110
Organic Carbon	108	107	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A94153

Included Lab Sample IDs: 2116909

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	94.1	94.1	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A94158

Included Lab Sample IDs: 2116909, 2116912

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	98.7	98.8	P/P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1

Run ID: A94159

Included Lab Sample IDs: 2116908, 2116911

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

Quality Assurance Report Calibration Verification

Reference Method: EPA 300.0 Rev. 2.1

Run ID: A94159

Included Lab Sample IDs: 2116908, 2116911

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	100	101	P/P	90 - 110
Sulfate	102	102	P/P	90 - 110
Sulfate	102	103	P/P	90 - 110

Reference Method: EPA 200.8 Rev. 5.4

Run ID: A94206

Included Lab Sample IDs: 2116920

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Aluminum	97.2	98.2	P/P	90 - 110
Antimony	95.6	96.1	P/P	90 - 110
Arsenic	99.6	101	P/P	90 - 110
Boron	102	99.6	P/P	90 - 110
Cadmium	100	101	P/P	90 - 110
Copper	99.0	99.2	P/P	90 - 110
Lead	95.3	97.0	P/P	90 - 110
Nickel	98.3	99.2	P/P	90 - 110
Silver	98.1	98.2	P/P	90 - 110
Thallium	93.9	94.6	P/P	90 - 110

Reference Method: EPA 200.8 Rev. 5.4

Run ID: A94208

Included Lab Sample IDs: 2116920

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chromium	102	96.0	P/P	90 - 110

Reference Method: EPA 200.8 Rev. 5.4

Run ID: A94209

Included Lab Sample IDs: 2116920

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

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A94214

Included Lab Sample IDs: 2116909, 2116912

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	97.4	98.2	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A94277

Included Lab Sample IDs: 2116912

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	101	103	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: EPA 8321B

Run ID: A94400

Included Lab Sample IDs: 2116919

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
2,4-D	104	113	P/P	50 - 150
Acetaminophen	101	104	P/P	60 - 160
Acetamiprid	110	114	P/P	50 - 150
Afidopyropen	125	109	P/P	50 - 150
Bentazon	105	107	P/P	50 - 160
Benzovindiflupyr	100	97.9	P/P	50 - 150
Carbamazepine	108	106	P/P	60 - 150
Clothianidin	101	99.2	P/P	60 - 150
Dinotefuran	91.8	86.4	P/P	50 - 150
Diuron	133	136	P/P	60 - 150
Fenuron	115	116	P/P	60 - 150
Fluridone	107	107	P/P	60 - 160
Hydrocodone	107	109	P/P	60 - 150
Ibuprofen	76.7	91.3	P/P	50 - 160
Imazapyr	90.1	113	P/P	50 - 150
Imidacloprid	100	103	P/P	60 - 150
Linuron	102	94.0	P/P	60 - 150
Mandestrobin	113	111	P/P	50 - 150
MCPP	99.1	103	P/P	50 - 150
Naproxen	82.3	103	P/P	50 - 160
Primidone	94.7	92.4	P/P	60 - 150
Pyraclostrobin	104	111	P/P	60 - 150
Thiamethoxam	107	106	P/P	50 - 150
Tolfenpyrad	106	115	P/P	60 - 150
Triclopyr	100	97.7	P/P	50 - 150

* 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						2.20	
	Turbidity						0.939	
EPA 200.7 Rev. 4.4	Barium	101		99.9	101			1.53
	Calcium	108		110	110			0.292
	Iron	104		106	107			0.698
	Magnesium	110		112	112			0.686
	Potassium	103		106	111			5.06
	Sodium	110		107	107			0.139
	Zinc	99.9		100	102			1.84
EPA 200.8 Rev. 5.4	Aluminum	96.4		94.8	95.4			0.663
	Antimony	97.0		93.4	94.8			1.49
	Arsenic	98.5		96.6	97.5			0.926
	Boron	102		98.3	101			1.94
	Cadmium	97.9		94.7	96.5			1.92
	Chromium	90.8		94.0	95.7			1.78
	Copper	95.7		96.3	97.0			0.663
	Lead	94.4		91.0	92.7			1.75
	Nickel	96.2		93.9	94.8			0.921
	Selenium	103		101	98.0			3.19
	Silver	98.8		96.5	97.7			1.15
	Thallium	97.5		97.6	98.9			1.25
EPA 300.0 Rev. 2.1	Chloride	98.8		99.9	101		0.517	
	Chloride	100		101	103	101		1.10
	Sulfate	99.5		99.9	101		0.166	
	Sulfate	101		102	104	102		1.72
EPA 350.1 Rev. 2.0	Ammonia-N	95.8		95.3	97.0			1.47
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	98.7		93.8	88.5			2.98
	Kjeldahl Nitrogen	94.1		99.6	102			1.41
EPA 353.2 Rev. 2.0	NO ₂ NO ₃ -N	99.5		96.0	96.5			0.519
EPA 365.1 Rev. 2.0	Total-P	97.8		95.9	96.6			0.729
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	101		97.7	98.5			0.815
EPA 8321B	2,4-D	139		151	163			7.67
	Acesulfame K	70.7		107	141			27.2
	Acetaminophen	85.8		79.5	85.1			6.71
	Acetamiprid	105		117	123			5.24
	Afidopyropen	103		117	128			8.78
	AMPA	126		70.0	71.4			2.00
	Bentazon	136		76.0	82.0			7.64
	Benzovindiflupyr	88.9		92.3	97.9			5.89
	Carbamazepine	108		94.9	102			7.28
	Clothianidin	94.8		92.9	104			10.9
	Dinotefuran	96.7		111	116			4.47
	Diuron	128		109	113			3.20
	Endothall	112		79.1	75.0			5.33
	Fenuron	110		88.4	95.6			7.91
	Fluridone	98.9		91.8	96.6			5.07
	Glufosinate	131		98.4	87.7			11.4
	Glyphosate	137		127	122			3.77
	Hydrocodone	101		83.2	105			23.2
	Ibuprofen	85.5		82.8	82.2			0.724
	Imazapyr	98.6						0.420
	Imidacloprid	97.9		186	196			5.37
	Linuron	74.8		68.5	70.5			2.87
	Mandestrobin	90.4		88.4	93.9			6.03

Quality Assurance Report Summary

Ref. Method	Analyte	LCS % Recovery	MS % Recovery		Precision LCS	SMP	MS
EPA 8321B	MCP	158	163	174			6.14
	Naproxen	110	89.8	106			16.6
	Primidone	82.0	89.4	94.4			5.41
	Pyraclostrobin	84.2	91.7	90.9			0.861
	Sucralose	122	126	128			1.07
	Thiamethoxam	110	149	156			4.78
	Tolfenpyrad	65.9	68.1	71.4			4.83
	Triclopyr	116	137	125			9.51
SM 2120 B	Color (true)	100				2.09	
	Color (true)	101				3.49	
SM 2320 B-97	Total Alkalinity	105				1.21	
	Total Alkalinity	103				0.954	
SM 2540 C-97	TDS					5.45	
SM 4500 F-C-97	Fluoride	96.5					0.471
	Fluoride	98.4	97.7	98.3			0.470
SM 5310 B-00	Organic Carbon	107	104	106			1.27

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	2116908, 2116911
EPA 200.7 Rev. 4.4 / E31780	Total Recoverable Metals analysis using ICP emission spectroscopy for aqueous samples supporting Clean Water Act Projects	2116920
EPA 200.8 Rev. 5.4 / E31780	Total Recoverable Metals analysis using ICP-MS for aqueous samples supporting Clean Water Act Projects	2116920
EPA 300.0 Rev. 2.1 / E31780	Chloride in aqueous matrices	2116908, 2116911
EPA 300.0 Rev. 2.1 / E31780	Sulfate in aqueous matrices	2116908, 2116911
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	2116909, 2116912
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	2116909, 2116912
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	2116909, 2116912
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	2116909, 2116912
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	2116910, 2116913
EPA 8321B / E31780	Pesticides, herbicides, and other chemicals in water matrices by HPLC/MS/MS	2116919
EPA 8321B / E31780	Water soluble organic compounds by HPLC/MS/MS	2116919
SM 2120 B / E31780	True Color measured at 450 nm	2116908, 2116911
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO ₃ /L	2116908, 2116911
SM 2540 C-97 / E31780	Total Dissolved Solids in aqueous matrices	2116908, 2116911
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices using a maximum of 250 mL of sample	2116908, 2116911
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	2116908, 2116911
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	2116909, 2116912

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	09/06/2019			09/06/2019 16:35	Samantha Davila	2116908, 2116911
EPA 200.7 Rev. 4.4	09/06/2019	09/09/2019 13:25	Elliott D. Healy	09/10/2019 13:56	Alexander Thompson	2116920
EPA 200.8 Rev. 5.4	09/06/2019	09/09/2019 13:25	Elliott D. Healy	09/13/2019 08:55	Robert K Palmer	2116920
	09/06/2019	09/09/2019 13:25	Elliott D. Healy	09/14/2019 09:21	Robert K Palmer	2116920
	09/06/2019	09/09/2019 13:25	Elliott D. Healy	09/15/2019 07:22	Robert K Palmer	2116920
EPA 300.0 Rev. 2.1	09/06/2019			09/11/2019 20:37	Jhamieka S. Greenwood	2116908
	09/06/2019			09/11/2019 22:01	Jhamieka S. Greenwood	2116911
EPA 350.1 Rev. 2.0	09/06/2019			09/13/2019 12:03	Ping Hua	2116909
	09/06/2019			09/13/2019 12:04	Ping Hua	2116912
EPA 351.2 Rev. 2.0	09/06/2019	09/10/2019 13:06	Sima Feizi	09/11/2019 15:29	Julia Storbeck	2116909
	09/06/2019	09/16/2019 14:05	Sima Feizi	09/17/2019 13:15	Julia Storbeck	2116912
EPA 353.2 Rev. 2.0	09/06/2019			09/09/2019 09:14	Beverly Y. Sanders	2116909
	09/06/2019			09/09/2019 09:15	Beverly Y. Sanders	2116912
EPA 365.1 Rev. 2.0	09/06/2019	09/11/2019 10:25	Lipi Saha	09/12/2019 09:35	Rosalyn Ballman	2116909
	09/06/2019	09/11/2019 10:25	Lipi Saha	09/12/2019 09:36	Rosalyn Ballman	2116912
EPA 365.1 Rev. 2.0 dissolved	09/06/2019			09/06/2019 16:28	Jhamieka S. Greenwood	2116910
	09/06/2019			09/06/2019 16:30	Jhamieka S. Greenwood	2116913
EPA 8321B	09/06/2019	09/09/2019 11:00	Rebecca Ware	09/09/2019 17:30	Rebecca Ware	2116919
	09/06/2019	09/09/2019 11:00	Rebecca Ware	09/10/2019 11:11	Rebecca Ware	2116919
	09/06/2019	09/09/2019 11:00	Rebecca Ware	09/10/2019 20:27	Rebecca Ware	2116919
	09/06/2019	09/11/2019 09:00	Hoor Shaik	09/13/2019 07:21	Juyoung Kim	2116919
SM 2120 B	09/06/2019			09/06/2019 17:08	Madeline Funaro	2116908
	09/06/2019			09/06/2019 17:30	Madeline Funaro	2116911
SM 2320 B-97	09/06/2019			09/09/2019 21:04	Dale L. Simmons	2116911
	09/06/2019			09/10/2019 00:23	Dale L. Simmons	2116908
SM 2540 C-97	09/06/2019			09/10/2019 14:32	Yijie Li	2116908, 2116911
SM 2540 D-97	09/06/2019			09/10/2019 14:32	Yijie Li	2116908, 2116911
SM 4500 F-C-97	09/06/2019			09/09/2019 21:04	Dale L. Simmons	2116911
	09/06/2019			09/10/2019 00:23	Dale L. Simmons	2116908
SM 5310 B-00	09/06/2019			09/11/2019 15:00	Madeline Funaro	2116909
	09/06/2019			09/11/2019 17:44	Madeline Funaro	2116912