

Chemical Analysis Report

TLH-ROC-2019-07-30-02

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

Event Description: **Run 7**
Request ID: **RQ-2019-07-15-32**
Customer: **TLH-ROC**
Project ID: **SMP**

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Date Certified: 19-AUG-2019 11:12



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: RUSS MILL CREEK @ UNION RD

Collection Date/Time: 07/30/2019 10:20

Field ID: G2TLHR0037

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2107166	EPA 180.1 Rev. 2.0	Turbidity	4.5	A	NTU	P368243	
	EPA 300.0 Rev. 2.1	Chloride	5.0		mg Cl/L	P368429	
		Sulfate	2.1		mg SO4/L	P368431	
	SM 2120 B	Color (true)	13		PCU	P368241	
	SM 2320 B-97	Total Alkalinity	136		mg CaCO3/L	P368838	
	SM 2540 C-97	TDS	163		mg/L	P368652	
	SM 2540 D-97	TSS	10		mg/L	P368478	
	SM 4500 F-C-97	Fluoride	0.055	I	mg F/L	P368841	
2107170	EPA 350.1 Rev. 2.0	Ammonia-N	0.058		mg N/L	P368746	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.39		mg N/L	P368368	
	EPA 353.2 Rev. 2.0	NO2NO3-N	1.0		mg N/L	P368382	
	EPA 365.1 Rev. 2.0	Total-P	0.053		mg P/L	P368271	
	SM 5310 B-00	Organic Carbon	1.9		mg C/L	P368348	
2107174	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.023		mg P/L	P368252	

Ref. Method and Comment:

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

Sample Location: BLUE HOLE SPRING @ CAVERN

Collection Date/Time: 07/30/2019 11:00

Field ID: G2TLHR0009

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2107167	EPA 180.1 Rev. 2.0	Turbidity	1.6		NTU	P368243	
	EPA 300.0 Rev. 2.1	Chloride	3.2	A	mg Cl/L	P368429	
		Sulfate	1.1	A	mg SO4/L	P368431	
	SM 2120 B	Color (true)	2.5	U	PCU	P368241	
	SM 2320 B-97	Total Alkalinity	164	A	mg CaCO3/L	P368838	
	SM 2540 C-97	TDS	172	A	mg/L	P368652	
	SM 2540 D-97	TSS	2	IA	mg/L	P368478	
	SM 4500 F-C-97	Fluoride	0.073	I	mg F/L	P368841	
2107171	EPA 350.1 Rev. 2.0	Ammonia-N	0.012		mg N/L	P368746	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.27		mg N/L	P368368	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.22		mg N/L	P368382	
	EPA 365.1 Rev. 2.0	Total-P	0.015		mg P/L	P368271	
	SM 5310 B-00	Organic Carbon	0.63	I	mg C/L	P368348	
2107175	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.005	I	mg P/L	P368252	

Ref. Method and Comment:

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

Sample Location: TENMILE CREEK @ CR274

Collection Date/Time: 07/30/2019 12:00

Field ID: G2TLHR0001

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2107178	EPA 180.1 Rev. 2.0	Turbidity	5.0		NTU	P368244	
	EPA 300.0 Rev. 2.1	Chloride	2.9		mg Cl/L	P368429	
		Sulfate	0.70		mg SO4/L	P368431	
	SM 2120 B	Color (true)	230		PCU	P368241	
	SM 2320 B-97	Total Alkalinity	0.65	U	mg CaCO3/L	P368838	
	SM 2540 C-97	TDS	29		mg/L	P368653	
	SM 2540 D-97	TSS	9	I	mg/L	P368479	
	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P368841	
2107179	EPA 350.1 Rev. 2.0	Ammonia-N	0.14		mg N/L	P368806	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.77		mg N/L	P368369	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.056		mg N/L	P368382	
	EPA 365.1 Rev. 2.0	Total-P	0.018		mg P/L	P368272	
	SM 5310 B-00	Organic Carbon	14		mg C/L	P368348	
2107180	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	I	mg P/L	P368252	
2107204	EPA 8321B	Acesulfame K**	0.10	U	ug/L	P368170	
		2,4-D	0.0020	U	ug/L	P368092	MS
		AMPA**	0.10	U	ug/L	P368170	
		Sucralose**	0.045		ug/L	P368170	
		Acetaminophen**	0.0080	U	ug/L	P368092	
		Endothall**	0.25	U	ug/L	P368170	
		Acetamiprid**	0.0020	U	ug/L	P368092	
		Glufosinate**	0.10	U	ug/L	P368170	
		Glyphosate**	0.10	U	ug/L	P368170	
		Afidopyropen**	0.0020	UJ	ug/L	P368092	
		Bentazon	8.0E-04	U	ug/L	P368092	
		Benzovindiflupyr**	0.0020	UJ	ug/L	P368092	
		Carbamazepine**	8.0E-04	U	ug/L	P368092	
		Clothianidin**	0.0020	U	ug/L	P368092	
		Dinotefuran**	0.0020	U	ug/L	P368092	
		Diuron	0.0020	U	ug/L	P368092	
		Fenuron	0.016	U	ug/L	P368092	
		Fluridone**	8.0E-04	U	ug/L	P368092	
		Imazapyr**	0.0040	U	ug/L	P368092	
		Hydrocodone**	0.0020	U	ug/L	P368092	
		Ibuprofen**	0.020	U	ug/L	P368092	
		Imidacloprid	0.0020	U	ug/L	P368092	MS
		Linuron	0.0040	U	ug/L	P368092	
		Mandestrobin**	0.0020	UJ	ug/L	P368092	
		MCP	0.0020	UJ	ug/L	P368092	LCS, MS
		Naproxen**	0.0080	U	ug/L	P368092	MS
		Primidone**	0.0040	U	ug/L	P368092	
		Pyraclostrobin**	0.0020	U	ug/L	P368092	
		Thiamethoxam**	0.0020	U	ug/L	P368092	MS

Field ID: G2TLHR0001

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2107204	EPA 8321B	Tolfenpyrad**	0.0020	U	ug/L	P368092	
		Triclopyr**	0.0040	U	ug/L	P368092	

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. MS accuracy for acetaminophen and imazapyr 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: Chipola River @ Magnolia Rd

Collection Date/Time: 07/30/2019 12:40

Field ID: G2TLHR0016

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2107168	EPA 180.1 Rev. 2.0	Turbidity	1.9		NTU	P368243	
	EPA 300.0 Rev. 2.1	Chloride	5.2		mg Cl/L	P368429	
		Sulfate	1.4		mg SO4/L	P368431	
	SM 2120 B	Color (true)	6.5		PCU	P368241	
	SM 2320 B-97	Total Alkalinity	121		mg CaCO3/L	P368838	
	SM 2540 C-97	TDS	147		mg/L	P368653	
	SM 2540 D-97	TSS	4	I	mg/L	P368479	
	SM 4500 F-C-97	Fluoride	0.045	I	mg F/L	P368841	
2107172	EPA 350.1 Rev. 2.0	Ammonia-N	0.014		mg N/L	P368746	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.29		mg N/L	P368369	
	EPA 353.2 Rev. 2.0	NO2NO3-N	1.9		mg N/L	P368382	
	EPA 365.1 Rev. 2.0	Total-P	0.016		mg P/L	P368272	
	SM 5310 B-00	Organic Carbon	1.4		mg C/L	P368348	
2107176	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.006	I	mg P/L	P368252	

Ref. Method and Comment:

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

Sample Location: CHIPOLA RIVER

Collection Date/Time: 07/30/2019 13:30

Field ID: G2TLHR0011

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2107169	EPA 180.1 Rev. 2.0	Turbidity	2.2		NTU	P368243	
	EPA 300.0 Rev. 2.1	Chloride	5.1		mg Cl/L	P368429	
		Sulfate	1.8		mg SO4/L	P368431	
	SM 2120 B	Color (true)	9.5		PCU	P368241	
	SM 2320 B-97	Total Alkalinity	116		mg CaCO3/L	P368838	
	SM 2540 C-97	TDS	137	A	mg/L	P368653	
	SM 2540 D-97	TSS	5	IA	mg/L	P368479	
	SM 4500 F-C-97	Fluoride	0.058	I	mg F/L	P368841	
2107173	EPA 350.1 Rev. 2.0	Ammonia-N	0.015		mg N/L	P368806	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.34		mg N/L	P368369	
	EPA 353.2 Rev. 2.0	NO2NO3-N	1.2		mg N/L	P368382	
	EPA 365.1 Rev. 2.0	Total-P	0.014		mg P/L	P368272	
	SM 5310 B-00	Organic Carbon	1.9		mg C/L	P368348	
2107177	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.005	I	mg P/L	P368252	

Ref. Method and Comment:

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

Sample Location: Apalachicola River @ Bristol Landing

Collection Date/Time: 07/30/2019 14:15

Field ID: G2TLHR0043

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2107181	EPA 180.1 Rev. 2.0	Turbidity	3.3		NTU	P368244	
	EPA 300.0 Rev. 2.1	Chloride	5.0		mg Cl/L	P368429	
		Sulfate	5.7		mg SO4/L	P368431	
	SM 2120 B	Color (true)	11		PCU	P368240	
	SM 2320 B-97	Total Alkalinity	49		mg CaCO3/L	P368838	
	SM 2540 C-97	TDS	78		mg/L	P368653	
	SM 2540 D-97	TSS	5	I	mg/L	P368479	
	SM 4500 F-C-97	Fluoride	0.065	I	mg F/L	P368841	
2107182	EPA 350.1 Rev. 2.0	Ammonia-N	0.024		mg N/L	P368806	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.32		mg N/L	P368369	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.51		mg N/L	P368382	
	EPA 365.1 Rev. 2.0	Total-P	0.021		mg P/L	P368272	
	SM 5310 B-00	Organic Carbon	2.7		mg C/L	P368348	
2107183	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.005	I	mg P/L	P368252	
2107205	EPA 200.7 Rev. 4.4	Barium	19.5		ug/L	P368439	
		Calcium	17.5		mg/L	P368439	
		Iron	190		ug/L	P368439	
		Magnesium	2.06		mg/L	P368439	
		Potassium	1.7		mg/L	P368439	
		Sodium	6.4		mg/L	P368439	
		Zinc	5.0	U	ug/L	P368439	
	EPA 200.8 Rev. 5.4	Aluminum	126		ug/L	P368439	
		Antimony	0.056	I	ug/L	P368439	
		Arsenic	0.47		ug/L	P368439	
		Boron**	16.0		ug/L	P368439	
		Cadmium	0.020	U	ug/L	P368439	
		Chromium	0.40	U	ug/L	P368439	
		Copper	0.51	I	ug/L	P368439	
		Lead	0.20	U	ug/L	P368439	
		Nickel	0.50	U	ug/L	P368439	
		Selenium	0.20	U	ug/L	P368439	
		Silver	0.010	U	ug/L	P368439	
		Thallium	0.10	U	ug/L	P368439	

Ref. Method and Comment:

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

EPA 200.7 Rev. 4.4: Batch matrix spike recoveries for sodium are unavailable for one of two spiked samples because of high analyte concentration in the QC sample.

EPA 200.8 Rev. 5.4: Batch matrix spike recoveries for boron are unavailable for one of two spiked samples because of high analyte concentration in the QC sample.

Quality Assurance Report Method Blank Results

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P368243

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P368244

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P368439

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: P368439

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: P368429

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P368431

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Quality Assurance Report Method Blank Results

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P368746

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P368806

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P368368

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P368369

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P368382

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P368271

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P368272

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P368252

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

Reference Method: EPA 8321B
Batch ID: P368092

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

Quality Assurance Report

Method Blank Results

Reference Method: EPA 8321B
Batch ID: P368092

Component	Result	Code	Units
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: EPA 8321B
Batch ID: P368170

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: P368240

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2120 B
Batch ID: P368241

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2320 B-97
Batch ID: P368838

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

Quality Assurance Report

Method Blank Results

Reference Method: SM 2540 C-97
Batch ID: P368652

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 C-97
Batch ID: P368653

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P368478

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P368479

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500 F-C-97
Batch ID: P368841

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-00
Batch ID: P368348

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: P368439

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Barium	101		P	85 - 115
Calcium	104		P	85 - 115
Iron	104		P	85 - 115
Magnesium	111		P	85 - 115
Potassium	108		P	85 - 115
Sodium	104		P	85 - 115
Zinc	99.0		P	85 - 115

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P368439

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Aluminum	102		P	85 - 115
Antimony	98.7		P	85 - 115
Arsenic	103		P	85 - 115
Boron	104		P	85 - 115
Cadmium	101		P	85 - 115
Chromium	100		P	85 - 115
Copper	99.6		P	85 - 115
Lead	99.2		P	85 - 115
Nickel	101		P	85 - 115
Selenium	101		P	85 - 115
Silver	101		P	85 - 115
Thallium	101		P	85 - 115

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P368429

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Chloride	97.7		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P368431

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P368746

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P368806

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Ammonia-N	99.2		P	90 - 110

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 351.2 Rev. 2.0
 Batch ID: P368368

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Kjeldahl Nitrogen	106		P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
 Batch ID: P368369

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

Reference Method: EPA 353.2 Rev. 2.0
 Batch ID: P368382

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
NO2NO3-N	99.0		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
 Batch ID: P368271

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

Reference Method: EPA 365.1 Rev. 2.0
 Batch ID: P368272

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
 Batch ID: P368252

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

Reference Method: EPA 8321B
 Batch ID: P368092

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2,4-D	142		P	40 - 150
Acetaminophen	99.3		P	30 - 150
Acetamiprid	101		P	40 - 150
Afidopyropen	99.1		P	40 - 150
Bentazon	130		P	30 - 150
Benzovindiflupyr	98.3		P	40 - 150
Carbamazepine	102		P	40 - 150
Clothianidin	106		P	40 - 150
Dinotefuran	99.7		P	40 - 150
Diuron	106		P	40 - 150
Fenuron	111		P	40 - 150
Fluridone	105		P	40 - 150
Hydrocodone	105		P	40 - 150
Ibuprofen	100		P	30 - 150
Imazapyr	98.9		P	40 - 150
Imidacloprid	103		P	40 - 150

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 8321B
Batch ID: P368092

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Linuron	70.1		P	40 - 150
Mandestrobin	102		P	40 - 150
MCP	151		F	40 - 150
Naproxen	119		P	40 - 150
Primidone	100		P	40 - 150
Pyraclostrobin	87.5		P	30 - 150
Thiamethoxam	107		P	40 - 150
Tolfenpyrad	53.7		P	40 - 150
Triclopyr	121		P	30 - 150

Reference Method: EPA 8321B
Batch ID: P368170

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Acesulfame K	87.9		P	40 - 150
AMPA	83.4		P	40 - 150
Endothall	91.4		P	40 - 150
Glufosinate	70.1		P	40 - 150
Glyphosate	83.1		P	40 - 140
Sucralose	93.9		P	40 - 150

Reference Method: SM 2120 B
Batch ID: P368240

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Color (true)	104		P	85 - 115

Reference Method: SM 2120 B
Batch ID: P368241

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Color (true)	103		P	85 - 115

Reference Method: SM 2320 B-97
Batch ID: P368838

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

Reference Method: SM 4500 F-C-97
Batch ID: P368841

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	100		P	92 - 103

Reference Method: SM 5310 B-00
Batch ID: P368348

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	100		P	85 - 115

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P368439

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2107205	Barium	98.6	98.4	P/P	80 - 120
2107205	Calcium	97.9		P	80 - 120
2107205	Iron	102	103	P/P	80 - 120
2107205	Magnesium	106	107	P/P	80 - 120
2107205	Potassium	107	108	P/P	80 - 120
2107205	Sodium	100		P	80 - 120
2107205	Zinc	97.2	95.2	P/P	80 - 120
2107878	Barium	94.6		P	80 - 120
2107878	Calcium	102		P	80 - 120
2107878	Iron	98.3		P	80 - 120
2107878	Magnesium	98.3		P	80 - 120
2107878	Potassium	108		P	80 - 120
2107878	Zinc	101		P	80 - 120

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P368439

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2107205	Aluminum	100	101	P/P	80 - 120
2107205	Antimony	100	99.9	P/P	80 - 120
2107205	Arsenic	104	104	P/P	80 - 120
2107205	Boron	107	108	P/P	80 - 120
2107205	Cadmium	102	104	P/P	80 - 120
2107205	Chromium	102	102	P/P	80 - 120
2107205	Copper	99.7	101	P/P	80 - 120
2107205	Lead	101	101	P/P	80 - 120
2107205	Nickel	102	102	P/P	80 - 120
2107205	Selenium	102	101	P/P	80 - 120
2107205	Silver	101	102	P/P	80 - 120
2107205	Thallium	104	105	P/P	80 - 120
2107878	Aluminum	103		P	80 - 120
2107878	Antimony	103		P	80 - 120
2107878	Arsenic	109		P	80 - 120
2107878	Cadmium	102		P	80 - 120
2107878	Chromium	96.3		P	80 - 120
2107878	Copper	99.1		P	80 - 120
2107878	Lead	103		P	80 - 120
2107878	Nickel	100		P	80 - 120
2107878	Selenium	96.7		P	80 - 120
2107878	Silver	98.1		P	80 - 120
2107878	Thallium	105		P	80 - 120

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P368429

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2107124	Chloride	98.9		P	90 - 110
2107167	Chloride	98.0		P	90 - 110

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P368431

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2107124	Sulfate	102		P	90 - 110
2107167	Sulfate	101		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P368746

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2107139	Ammonia-N	99.0	101	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P368806

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2107173	Ammonia-N	98.4	97.9	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P368368

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2107126	Kjeldahl Nitrogen	96.1	94.9	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P368369

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2107173	Kjeldahl Nitrogen	98.0	101	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P368382

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2107171	NO2NO3-N	98.5	99.5	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P368271

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2107127	Total-P	102	102	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P368272

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2107172	Total-P	94.8	99.8	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P368252

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2107143	O-Phosphate-P	93.8	94.2	P/P	90 - 110

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 8321B
Batch ID: P368092

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2106899	2,4-D	157	166	F/F	40 - 150
2106899	Acetamiprid	110	116	P/P	40 - 150
2106899	Afidopyropen	119	113	P/P	40 - 150
2106899	Bentazon	86.2	96.4	P/P	30 - 150
2106899	Benzovindiflupyr	105	100	P/P	40 - 150
2106899	Carbamazepine	98.7	99.8	P/P	40 - 150
2106899	Clothianidin	113	111	P/P	40 - 150
2106899	Dinotefuran	109	103	P/P	40 - 150
2106899	Diuron	89.1	87.8	P/P	40 - 150
2106899	Fenuron	97.8	95.7	P/P	40 - 150
2106899	Fluridone	100	96.2	P/P	40 - 150
2106899	Hydrocodone	110	109	P/P	40 - 150
2106899	Ibuprofen	90.6	92.1	P/P	30 - 150
2106899	Imidacloprid	177	172	F/F	40 - 150
2106899	Linuron	68.3	67.6	P/P	40 - 150
2106899	Mandestrobin	98.5	96.4	P/P	40 - 150
2106899	MCCP	169	171	F/F	40 - 150
2106899	Naproxen	152	104	F/P	40 - 150
2106899	Primidone	109	105	P/P	40 - 150
2106899	Pyraclostrobin	96.9	92.5	P/P	30 - 150
2106899	Thiamethoxam	153	147	F/P	40 - 150
2106899	Tolfenpyrad	67.6	66.4	P/P	40 - 150
2106899	Triclopyr	134	137	P/P	30 - 150

Reference Method: EPA 8321B
Batch ID: P368170

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2106299	Acesulfame K	117	96.4	P/P	40 - 150
2106299	AMPA	45.2	44.3	P/P	40 - 150
2106299	Endothall	81.6	83.0	P/P	40 - 150
2106299	Glufosinate	65.8	54.0	P/P	40 - 150
2106299	Glyphosate	61.9	63.2	P/P	40 - 140
2106299	Sucralose	104	94.9	P/P	40 - 150

Reference Method: SM 4500 F-C-97
Batch ID: P368841

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2107167	Fluoride	97.5	95.8	P/P	89 - 106

Reference Method: SM 5310 B-00
Batch ID: P368348

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2107139	Organic Carbon	101	98.5	P/P	85 - 115

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P368243

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2107166	Turbidity	0.221	Sample	P	0 - 20

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P368244

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2107253	Turbidity	2.71	Sample	P	0 - 20

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P368439

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2107205	Barium	0.263	Spike	P	0 - 20
2107205	Calcium	0.232	Spike	P	0 - 20
2107205	Iron	0.778	Spike	P	0 - 20
2107205	Magnesium	0.966	Spike	P	0 - 20
2107205	Potassium	0.805	Spike	P	0 - 20
2107205	Sodium	0.643	Spike	P	0 - 20
2107205	Zinc	2.12	Spike	P	0 - 20

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P368439

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2107205	Aluminum	0.407	Spike	P	0 - 20
2107205	Antimony	0.465	Spike	P	0 - 20
2107205	Arsenic	0.430	Spike	P	0 - 20
2107205	Boron	0.916	Spike	P	0 - 20
2107205	Cadmium	1.30	Spike	P	0 - 20
2107205	Chromium	0.378	Spike	P	0 - 20
2107205	Copper	1.70	Spike	P	0 - 20
2107205	Lead	0.240	Spike	P	0 - 20
2107205	Nickel	0.0740	Spike	P	0 - 20
2107205	Selenium	0.937	Spike	P	0 - 20
2107205	Silver	0.434	Spike	P	0 - 20
2107205	Thallium	0.857	Spike	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P368429

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2107167	Chloride	0.344	Sample	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P368431

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2107167	Sulfate	2.98	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P368746

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2107139	Ammonia-N	1.39	Spike	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P368806

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2107173	Ammonia-N	0.366	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P368368

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2107126	Kjeldahl Nitrogen	1.04	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P368369

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2107173	Kjeldahl Nitrogen	1.94	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P368382

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2107171	NO2NO3-N	0.655	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P368271

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2107127	Total-P	0.651	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P368272

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2107172	Total-P	4.85	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P368252

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2107143	O-Phosphate-P	0.407	Spike	P	0 - 20

Reference Method: EPA 8321B
Batch ID: P368092

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2106899	2,4-D	4.29	Spike	P	0 - 30
2106899	Acetaminophen	3.93	Spike	P	0 - 30
2106899	Acetamiprid	5.14	Spike	P	0 - 30
2106899	Afidopyropen	5.70	Spike	P	0 - 30
2106899	Bentazon	9.68	Spike	P	0 - 30
2106899	Benzovindiflupyr	4.33	Spike	P	0 - 30
2106899	Carbamazepine	1.09	Spike	P	0 - 30
2106899	Clothianidin	1.69	Spike	P	0 - 30
2106899	Dinotefuran	5.37	Spike	P	0 - 30
2106899	Diuron	1.17	Spike	P	0 - 30
2106899	Fenuron	2.12	Spike	P	0 - 30
2106899	Fluridone	2.74	Spike	P	0 - 30
2106899	Hydrocodone	0.561	Spike	P	0 - 30
2106899	Ibuprofen	1.43	Spike	P	0 - 30
2106899	Imazapyr	0.286	Spike	P	0 - 30
2106899	Imidacloprid	2.78	Spike	P	0 - 30
2106899	Linuron	0.969	Spike	P	0 - 30
2106899	Mandestrobin	2.19	Spike	P	0 - 30
2106899	MCP	0.649	Spike	P	0 - 30
2106899	Naproxen	26.9	Spike	P	0 - 30
2106899	Primidone	4.14	Spike	P	0 - 30
2106899	Pyraclostrobin	4.59	Spike	P	0 - 30
2106899	Thiamethoxam	3.76	Spike	P	0 - 30
2106899	Tolfenpyrad	1.79	Spike	P	0 - 30
2106899	Triclopyr	1.84	Spike	P	0 - 30

Reference Method: EPA 8321B
Batch ID: P368170

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2106299	Acesulfame K	19.1	Spike	P	0 - 30
2106299	AMPA	1.29	Spike	P	0 - 30
2106299	Endothall	1.76	Spike	P	0 - 30
2106299	Glufosinate	19.6	Spike	P	0 - 30
2106299	Glyphosate	1.36	Spike	P	0 - 30
2106299	Sucralose	9.13	Spike	P	0 - 30

Reference Method: SM 2120 B
Batch ID: P368240

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2107309	Color (true)	1.92	Sample	P	0 - 20

Quality Assurance Report Precision

Reference Method: SM 2120 B
Batch ID: P368241

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2107135	Color (true)	1.55	Sample	P	0 - 20

Reference Method: SM 2320 B-97
Batch ID: P368838

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2107167	Total Alkalinity	0.297	Sample	P	0 - 2.8

Reference Method: SM 2540 C-97
Batch ID: P368652

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2107167	TDS	4.65	Sample	P	0 - 10

Reference Method: SM 2540 C-97
Batch ID: P368653

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2107169	TDS	2.92	Sample	P	0 - 10

Reference Method: SM 4500 F-C-97
Batch ID: P368841

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2107167	Fluoride	1.48	Spike	P	0 - 2.5

Reference Method: SM 5310 B-00
Batch ID: P368348

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2107139	Organic Carbon	1.69	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: 2107204

Field Sample ID: G2TLHR0001

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	2,4-D-d3	143	P	30 - 160
EPA 8321B	Acetaminophen-d4	90.2	P	30 - 160
EPA 8321B	Carbamazepine-d10	89.3	P	30 - 160
EPA 8321B	Diuron-d6	80.6	P	30 - 160
EPA 8321B	Endothall-d6	95.3	P	30 - 160
EPA 8321B	Endothall-d6	95.3	P	30 - 160
EPA 8321B	Glyphosate 13C 15N	94.8	P	30 - 160
EPA 8321B	Glyphosate 13C 15N	94.8	P	30 - 160
EPA 8321B	Ibuprofen-d3	84.0	P	30 - 160
EPA 8321B	Primidone-d5	88.6	P	30 - 160
EPA 8321B	Sucralose-d6	100	P	30 - 160
EPA 8321B	Sucralose-d6	100	P	30 - 160

Quality Assurance Report Calibration Verification

Reference Method: EPA 300.0 Rev. 2.1

Run ID: A93147

Included Lab Sample IDs: 2107166, 2107167, 2107168, 2107169, 2107178, 2107181

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	96.7	98.3	P/P	90 - 110
Chloride	96.9	96.7	P/P	90 - 110
Sulfate	101	101	P/P	90 - 110
Sulfate	101	103	P/P	90 - 110

Reference Method: SM 2120 B

Run ID: A93172

Included Lab Sample IDs: 2107166, 2107167, 2107168, 2107169, 2107178, 2107181

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

Reference Method: EPA 180.1 Rev. 2.0

Run ID: A93173

Included Lab Sample IDs: 2107166, 2107167, 2107168, 2107169, 2107178, 2107181

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved

Run ID: A93174

Included Lab Sample IDs: 2107174, 2107175, 2107176, 2107177, 2107180, 2107183

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

Reference Method: SM 5310 B-00

Run ID: A93216

Included Lab Sample IDs: 2107170, 2107171, 2107172, 2107173, 2107179, 2107182

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	98.6	99.5	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A93218

Included Lab Sample IDs: 2107170

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

Reference Method: EPA 8321B

Run ID: A93226

Included Lab Sample IDs: 2107204

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Acesulfame K	64.1	69.7	P/P	60 - 160
Endothall	109	100	P/P	60 - 160

Quality Assurance Report Calibration Verification

Reference Method: EPA 8321B

Run ID: A93229

Included Lab Sample IDs: 2107204

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
AMPA	66.7	86.4	P/P	60 - 160
Glufosinate	71.2	84.8	P/P	60 - 160
Glyphosate	74.7	89.8	P/P	60 - 160

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A93231

Included Lab Sample IDs: 2107170, 2107171, 2107172, 2107173, 2107179, 2107182

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO2NO3-N	100	100	P/P	90 - 110
NO2NO3-N	100	102	P/P	90 - 110
NO2NO3-N	101	100	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A93233

Included Lab Sample IDs: 2107171, 2107172, 2107173, 2107179, 2107182

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	100	99.2	P/P	90 - 110
Total-P	98.2	100	P/P	90 - 110

Reference Method: EPA 8321B

Run ID: A93264

Included Lab Sample IDs: 2107204

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
2,4-D	98.1	99.4	P/P	50 - 150
Acetaminophen	115	111	P/P	60 - 160
Acetamiprid	107	106	P/P	50 - 150
Afidopyropen	114	111	P/P	50 - 150
Bentazon	108	114	P/P	50 - 160
Benzovindiflupyr	109	108	P/P	50 - 150
Carbamazepine	109	107	P/P	60 - 150
Clothianidin	111	110	P/P	60 - 150
Dinotefuran	108	100	P/P	50 - 150
Diuron	114	115	P/P	60 - 150
Fenuron	107	108	P/P	60 - 150
Fluridone	114	115	P/P	60 - 160
Hydrocodone	107	106	P/P	60 - 150
Ibuprofen	94.2	117	P/P	50 - 160
Imazapyr	87.0	87.0	P/P	50 - 150
Imidacloprid	100	100	P/P	60 - 150
Linuron	107	102	P/P	60 - 150
Mandestrobin	112	111	P/P	50 - 150
MCPP	89.5	93.6	P/P	50 - 150
Naproxen	106	120	P/P	50 - 160
Primidone	104	109	P/P	60 - 150
Pyraclostrobin	112	109	P/P	60 - 150
Thiamethoxam	109	114	P/P	50 - 150
Tolfenpyrad	106	106	P/P	60 - 150
Triclopyr	101	95.5	P/P	50 - 150

Quality Assurance Report Calibration Verification

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A93275

Included Lab Sample IDs: 2107170, 2107171, 2107172, 2107173, 2107179, 2107182

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	104	107	P/P	90 - 110
Kjeldahl Nitrogen	107	99.9	P/P	90 - 110

Reference Method: EPA 200.7 Rev. 4.4

Run ID: A93346

Included Lab Sample IDs: 2107205

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Barium	102	100	P/P	95 - 105
Calcium	102	99.9	P/P	95 - 105
Iron	100	100	P/P	95 - 105
Magnesium	101	99.4	P/P	95 - 105
Potassium	101	101	P/P	95 - 105
Sodium	102	104	P/P	95 - 105
Zinc	101	97.8	P/P	95 - 105

Reference Method: EPA 200.8 Rev. 5.4

Run ID: A93366

Included Lab Sample IDs: 2107205

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Aluminum	100	103	P/P	90 - 110
Antimony	95.0	95.2	P/P	90 - 110
Arsenic	101	101	P/P	90 - 110
Cadmium	98.3	99.0	P/P	90 - 110
Chromium	101	99.9	P/P	90 - 110
Copper	101	101	P/P	90 - 110
Lead	99.6	100	P/P	90 - 110
Nickel	101	101	P/P	90 - 110
Selenium	99.5	100	P/P	90 - 110
Silver	102	103	P/P	90 - 110
Thallium	97.5	98.8	P/P	90 - 110

Reference Method: EPA 200.8 Rev. 5.4

Run ID: A93371

Included Lab Sample IDs: 2107205

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Boron	99.5	107	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A93374

Included Lab Sample IDs: 2107170, 2107171, 2107172

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

Quality Assurance Report Calibration Verification

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A93406

Included Lab Sample IDs: 2107173, 2107179, 2107182

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

Reference Method: SM 2320 B-97

Run ID: A93419

Included Lab Sample IDs: 2107166, 2107167, 2107168, 2107169, 2107178, 2107181

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

Reference Method: SM 4500 F-C-97

Run ID: A93419

Included Lab Sample IDs: 2107166, 2107167, 2107168, 2107169, 2107178, 2107181

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	99.5	99.1	P/P	90 - 110

Reference Method: EPA 8321B

Run ID: A93447

Included Lab Sample IDs: 2107204

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Sucralose	89.7	88.5	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						0.221	
	Turbidity						2.71	
EPA 200.7 Rev. 4.4	Barium	101	98.6	98.4	94.6			0.263
	Calcium	104	97.9	102				0.232
	Iron	104	102	103	98.3			0.778
	Magnesium	111	106	107	98.3			0.966
	Potassium	108	107	108	108			0.805
	Sodium	104	100					0.643
	Zinc	99.0	97.2	95.2	101			2.12
EPA 200.8 Rev. 5.4	Aluminum	102	100	101	103			0.407
	Antimony	98.7	100	99.9	103			0.465
	Arsenic	103	104	104	109			0.430
	Boron	104	107	108				0.916
	Cadmium	101	102	104	102			1.30
	Chromium	100	102	102	96.3			0.378
	Copper	99.6	99.7	101	99.1			1.70
	Lead	99.2	101	101	103			0.240
	Nickel	101	102	102	100			0.0740
	Selenium	101	102	101	96.7			0.937
	Silver	101	101	102	98.1			0.434
	Thallium	101	104	105	105			0.857
EPA 300.0 Rev. 2.1	Chloride	97.7	98.0	98.9			0.344	
	Sulfate	102	101	102			2.98	
EPA 350.1 Rev. 2.0	Ammonia-N	102	99.0	101				1.39
	Ammonia-N	99.2	98.4	97.9				0.366
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	106	96.1	94.9				1.04
	Kjeldahl Nitrogen	108	98.0	101				1.94
EPA 353.2 Rev. 2.0	NO ₂ NO ₃ -N	99.0	98.5	99.5				0.655
EPA 365.1 Rev. 2.0	Total-P	101	102	102				0.651
	Total-P	99.0	94.8	99.8				4.85
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	98.3	93.8	94.2				0.407
EPA 8321B	2,4-D	142	157	166				4.29
	Acesulfame K	87.9	117	96.4				19.1
	Acetaminophen	99.3						3.93
	Acetamiprid	101	110	116				5.14
	Afidopyropen	99.1	119	113				5.70
	AMPA	83.4	45.2	44.3				1.29
	Bentazon	130	86.2	96.4				9.68
	Benzovindiflupyr	98.3	105	100				4.33
	Carbamazepine	102	98.7	99.8				1.09
	Clothianidin	106	113	111				1.69
	Dinotefuran	99.7	109	103				5.37
	Diuron	106	89.1	87.8				1.17
	Endothall	91.4	81.6	83.0				1.76
	Fenuron	111	97.8	95.7				2.12
	Fluridone	105	100	96.2				2.74
	Glufosinate	70.1	65.8	54.0				19.6
	Glyphosate	83.1	61.9	63.2				1.36
	Hydrocodone	105	110	109				0.561
	Ibuprofen	100	90.6	92.1				1.43
	Imazapyr	98.9						0.286
	Imidacloprid	103	177	172				2.78
	Linuron	70.1	68.3	67.6				0.969
	Mandestrobin	102	98.5	96.4				2.19

Quality Assurance Report Summary

Ref. Method	Analyte	LCS % Recovery	MS % Recovery		Precision	
					LCS	MS
EPA 8321B	MCPP	151	171	169		0.649
	Naproxen	119	152	104		26.9
	Primidone	100	109	105		4.14
	Pyraclostrobin	87.5	96.9	92.5		4.59
	Sucralose	93.9	104	94.9		9.13
	Thiamethoxam	107	153	147		3.76
	Tolfenpyrad	53.7	67.6	66.4		1.79
	Triclopyr	121	134	137		1.84
SM 2120 B	Color (true)	104			1.92	
	Color (true)	103			1.55	
SM 2320 B-97	Total Alkalinity	104			0.297	
SM 2540 C-97	TDS				4.65	
	TDS				2.92	
SM 4500 F-C-97	Fluoride	100	97.5	95.8		1.48
SM 5310 B-00	Organic Carbon	100	101	98.5		1.69

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	2107166, 2107167, 2107168, 2107169, 2107178, 2107181
EPA 200.7 Rev. 4.4 / E31780	Total Recoverable Metals analysis using ICP emission spectroscopy for aqueous samples supporting Clean Water Act Projects	2107205
EPA 200.8 Rev. 5.4 / E31780	Total Recoverable Metals analysis using ICP-MS for aqueous samples supporting Clean Water Act Projects	2107205
EPA 300.0 Rev. 2.1 / E31780	Chloride in aqueous matrices	2107166, 2107167, 2107168, 2107169, 2107178, 2107181
EPA 300.0 Rev. 2.1 / E31780	Sulfate in aqueous matrices	2107166, 2107167, 2107168, 2107169, 2107178, 2107181
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	2107170, 2107171, 2107172, 2107173, 2107179, 2107182
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	2107170, 2107171, 2107172, 2107173, 2107179, 2107182
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	2107170, 2107171, 2107172, 2107173, 2107179, 2107182
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	2107170, 2107171, 2107172, 2107173, 2107179, 2107182
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	2107174, 2107175, 2107176, 2107177, 2107180, 2107183
EPA 8321B / E31780	Pesticides, herbicides, and other chemicals in water matrices by HPLC/MS/MS	2107204
EPA 8321B / E31780	Water soluble organic compounds by HPLC/MS/MS	2107204
SM 2120 B / E31780	True Color measured at 450 nm	2107166, 2107167, 2107168, 2107169, 2107178, 2107181
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO3/L	2107166, 2107167, 2107168, 2107169, 2107178, 2107181
SM 2540 C-97 / E31780	Total Dissolved Solids in aqueous matrices	2107166, 2107167, 2107168, 2107169, 2107178, 2107181
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices using a maximum of 250 mL of sample	2107166, 2107167, 2107168, 2107169, 2107178, 2107181
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	2107166, 2107167, 2107168, 2107169, 2107178, 2107181
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	2107170, 2107171, 2107172, 2107173, 2107179, 2107182

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	07/30/2019			07/31/2019 16:21	Samantha Davila	2107166, 2107167, 2107168, 2107169, 2107178, 2107181
EPA 200.7 Rev. 4.4	07/30/2019	08/05/2019 13:30	Elliott D. Healy	08/07/2019 14:31	Alexander Thompson	2107205
EPA 200.8 Rev. 5.4	07/30/2019	08/05/2019 13:30	Elliott D. Healy	08/07/2019 13:53	Robert K Palmer	2107205
	07/30/2019	08/05/2019 13:30	Elliott D. Healy	08/07/2019 21:02	Robert K Palmer	2107205
EPA 300.0 Rev. 2.1	07/30/2019			08/02/2019 17:25	Jhamieka S. Greenwood	2107167
	07/30/2019			08/02/2019 20:15	Jhamieka S. Greenwood	2107166
	07/30/2019			08/02/2019 20:27	Jhamieka S. Greenwood	2107168
	07/30/2019			08/02/2019 20:39	Jhamieka S. Greenwood	2107169
	07/30/2019			08/02/2019 20:51	Jhamieka S. Greenwood	2107178
	07/30/2019			08/02/2019 21:04	Jhamieka S. Greenwood	2107181
EPA 350.1 Rev. 2.0	07/30/2019			08/08/2019 12:07	Ping Hua	2107170
	07/30/2019			08/08/2019 12:08	Ping Hua	2107171
	07/30/2019			08/08/2019 12:10	Ping Hua	2107172
	07/30/2019			08/10/2019 12:43	Ping Hua	2107173
	07/30/2019			08/10/2019 12:53	Ping Hua	2107179
	07/30/2019			08/10/2019 12:55	Ping Hua	2107182
EPA 351.2 Rev. 2.0	07/30/2019	08/02/2019 12:30	Adrian Shelby	08/05/2019 15:19	Joseph Suarez	2107170
	07/30/2019	08/02/2019 12:30	Adrian Shelby	08/05/2019 15:20	Joseph Suarez	2107171
	07/30/2019	08/02/2019 12:30	Adrian Shelby	08/05/2019 15:28	Joseph Suarez	2107172
	07/30/2019	08/02/2019 12:30	Adrian Shelby	08/05/2019 15:30	Joseph Suarez	2107173
	07/30/2019	08/02/2019 12:30	Adrian Shelby	08/05/2019 15:38	Joseph Suarez	2107179
	07/30/2019	08/02/2019 12:30	Adrian Shelby	08/05/2019 15:39	Joseph Suarez	2107182
EPA 353.2 Rev. 2.0	07/30/2019			08/02/2019 11:17	Beverly Y. Sanders	2107171
	07/30/2019			08/02/2019 11:22	Beverly Y. Sanders	2107182
	07/30/2019			08/02/2019 13:19	Beverly Y. Sanders	2107172
	07/30/2019			08/02/2019 13:24	Beverly Y. Sanders	2107173
	07/30/2019			08/02/2019 13:25	Beverly Y. Sanders	2107179
	07/30/2019			08/02/2019 13:26	Beverly Y. Sanders	2107170
EPA 365.1 Rev. 2.0	07/30/2019	08/01/2019 11:17	Vijayalakshmi Reddy	08/02/2019 09:12	Lipi Saha	2107170
	07/30/2019	08/01/2019 11:17	Vijayalakshmi Reddy	08/02/2019 14:04	Lipi Saha	2107171
	07/30/2019	08/01/2019 11:17	Vijayalakshmi Reddy	08/02/2019 14:06	Lipi Saha	2107172
	07/30/2019	08/01/2019 11:17	Vijayalakshmi Reddy	08/02/2019 14:07	Lipi Saha	2107173
	07/30/2019	08/01/2019 11:17	Vijayalakshmi Reddy	08/02/2019 14:15	Lipi Saha	2107179
	07/30/2019	08/01/2019 11:17	Vijayalakshmi Reddy	08/02/2019 14:16	Lipi Saha	2107182
EPA 365.1 Rev. 2.0 dissolved	07/30/2019			07/31/2019 16:42	Jhamieka S. Greenwood	2107174
	07/30/2019			07/31/2019 16:43	Jhamieka S. Greenwood	2107175
	07/30/2019			07/31/2019 16:44	Jhamieka S. Greenwood	2107176, 2107177
	07/30/2019			07/31/2019 16:45	Jhamieka S. Greenwood	2107180
	07/30/2019			07/31/2019 16:46	Jhamieka S. Greenwood	2107183

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
EPA 8321B	07/30/2019	07/31/2019 10:15	Rebecca Ware	07/31/2019 18:22	Rebecca Ware	2107204
	07/30/2019	07/31/2019 10:15	Rebecca Ware	08/01/2019 12:49	Rebecca Ware	2107204
	07/30/2019	07/31/2019 10:15	Rebecca Ware	08/12/2019 17:31	Rebecca Ware	2107204
	07/30/2019	08/01/2019 10:00	Hoor Shaik	08/02/2019 14:11	Juyoung Kim	2107204
SM 2120 B	07/30/2019			07/31/2019 15:06	Madeline Funaro	2107166
	07/30/2019			07/31/2019 15:07	Madeline Funaro	2107167, 2107168
	07/30/2019			07/31/2019 15:08	Madeline Funaro	2107169
	07/30/2019			07/31/2019 15:13	Madeline Funaro	2107181
	07/30/2019			07/31/2019 15:27	Madeline Funaro	2107178
SM 2320 B-97	07/30/2019			08/09/2019 07:49	Dale L. Simmons	2107167
	07/30/2019			08/09/2019 08:23	Dale L. Simmons	2107166
	07/30/2019			08/09/2019 08:35	Dale L. Simmons	2107168
	07/30/2019			08/09/2019 08:48	Dale L. Simmons	2107169
	07/30/2019			08/09/2019 08:58	Dale L. Simmons	2107178
SM 2540 C-97	07/30/2019			08/09/2019 09:10	Dale L. Simmons	2107181
	07/30/2019			08/01/2019 14:10	Sima Feizi	2107166, 2107167, 2107168, 2107169, 2107178, 2107181
SM 2540 D-97	07/30/2019			08/01/2019 14:10	Sima Feizi	2107166, 2107167, 2107168, 2107169, 2107178, 2107181
SM 4500 F-C-97	07/30/2019			08/09/2019 07:38	Dale L. Simmons	2107167
	07/30/2019			08/09/2019 08:23	Dale L. Simmons	2107166
	07/30/2019			08/09/2019 08:35	Dale L. Simmons	2107168
	07/30/2019			08/09/2019 08:48	Dale L. Simmons	2107169
	07/30/2019			08/09/2019 08:58	Dale L. Simmons	2107178
SM 5310 B-00	07/30/2019			08/09/2019 09:10	Dale L. Simmons	2107181
	07/30/2019			08/01/2019 18:59	Madeline Funaro	2107170
	07/30/2019			08/01/2019 19:11	Madeline Funaro	2107171
	07/30/2019			08/01/2019 19:23	Madeline Funaro	2107172
	07/30/2019			08/01/2019 19:36	Madeline Funaro	2107173
	07/30/2019			08/01/2019 19:48	Madeline Funaro	2107179
	07/30/2019			08/01/2019 20:00	Madeline Funaro	2107182