

Chemical Analysis Report

TLH-ROC-2021-05-25-03

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

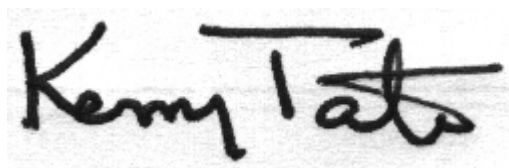
Event Description: **Run 10**
Request ID: **RQ-2021-03-08-60**
Customer: **TLH-ROC**
Project ID: **SMP**

Send Reports to:
FL Dept. of Environmental Protection
2600 Blair Stone Rd
Tallahassee, FL 32399
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Certified by: Kerry Tate, Ph.D., Environmental Administrator

Date Certified: 16-JUN-2021 10:12

A handwritten signature in black ink that reads "Kerry Tate". The signature is written in a cursive, flowing style with a horizontal line above the "T" and a long horizontal stroke at the end.

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: Apalachicola River 500m from Lola Landing Boat Ramp

Collection Date/Time: 05/25/2021 11:35

Field ID: G2TLHR0044

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2249950	EPA 180.1 Rev. 2.0	Turbidity	14		NTU	P398858	
	EPA 300.0 Rev. 2.1	Chloride	5.2		mg Cl/L	P399194	
		Sulfate	6.6		mg SO4/L	P399196	
	SM 2120 B-2011	Color (true)	18		PCU	P398862	
	SM 2320 B-2011	Total Alkalinity	37		mg CaCO3/L	P398969	
	SM 2540 C-2011	TDS	69		mg/L	P399199	
	SM 2540 D-2011	TSS	17		mg/L	P399002	
	SM 4500 F-C-2011	Fluoride	0.067	I	mg F/L	P398972	
2249951	EPA 350.1 Rev. 2.0	Ammonia-N	0.026		mg N/L	P399517	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.40		mg N/L	P398948	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.51		mg N/L	P398777	
	EPA 365.1 Rev. 2.0	Total-P	0.038		mg P/L	P398921	
	SM 5310 B-2011	Organic Carbon	2.8		mg C/L	P399095	
2249952	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.008	I	mg P/L	P398749	
2249957	EPA 8321B	2,4-D	0.042		ug/L	P398757	
		Acesulfame K	0.10	U	ug/L	P398724	
		2,4,5-T	0.0040	U	ug/L	P398757	
		AMPA	0.10	U	ug/L	P398724	
		Sucralose	0.68		ug/L	P398724	
		Acetaminophen	0.022	I	ug/L	P398757	
		Acetamiprid	0.0020	U	ug/L	P398757	
		Endothall	0.25	U	ug/L	P398724	
		Glufosinate	0.10	U	ug/L	P398724	
		Glyphosate	0.10	U	ug/L	P398724	
		Afidopyropen	0.0020	U	ug/L	P398757	MS, RPD
		Bentazon	0.0020	I	ug/L	P398757	
		Benzovindiflupyr	0.0020	U	ug/L	P398757	
		Carbamazepine	0.0017	I	ug/L	P398757	
		Clothianidin	0.0020	U	ug/L	P398757	
		Dinotefuran	0.0020	U	ug/L	P398757	
		Diuron	0.0063	I	ug/L	P398757	
		Fenuron	0.016	U	ug/L	P398757	
		Fluridone	8.0E-04	U	ug/L	P398757	
		Imazapyr	0.030		ug/L	P398757	
		Hydrocodone	0.0020	U	ug/L	P398757	
		Ibuprofen	0.020	U	ug/L	P398757	
		Imidacloprid	0.0034	I	ug/L	P398757	
		Linuron	0.0040	U	ug/L	P398757	
		Mandestrobin	0.0020	U	ug/L	P398757	
		MCP	0.012		ug/L	P398757	
		Naproxen	0.0080	U	ug/L	P398757	
		Primidone	0.0040	U	ug/L	P398757	

Field ID: G2TLHR0044

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2249957	EPA 8321B	Pyraclostrobin	0.0020	U	ug/L	P398757	
		Thiamethoxam	0.0020	U	ug/L	P398757	
		Tolfenpyrad	0.0020	U	ug/L	P398757	
		Triclopyr	0.0040	U	ug/L	P398757	
2249958	EPA 200.7 Rev. 4.4	Barium	23.6		ug/L	P398941	
		Calcium	13.7		mg/L	P398941	
		Iron	1.0E+03		ug/L	P398941	
		Magnesium	2.10		mg/L	P398941	
		Manganese	71.6		ug/L	P398941	
		Potassium	1.7		mg/L	P398941	
		Sodium	6.8		mg/L	P398941	
	EPA 200.8 Rev. 5.4	Zinc	5.0	U	ug/L	P398941	
		Aluminum	582		ug/L	P398941	
		Antimony	0.077	I	ug/L	P398941	
		Arsenic	0.48		ug/L	P398941	
		Beryllium	0.045		ug/L	P398941	
		Boron**	16.6		ug/L	P398941	
		Cadmium	0.020	U	ug/L	P398941	
		Chromium	1.1	I	ug/L	P398941	
		Copper	0.86		ug/L	P398941	
		Lead	0.51		ug/L	P398941	
		Nickel	0.59	I	ug/L	P398941	
		Selenium	0.20	U	ug/L	P398941	
		Silver	0.010	U	ug/L	P398941	
		Thallium	0.10	U	ug/L	P398941	
	SM 2340B	Hardness	42.9		mg/L	P398941	

Ref. Method and Comment:

EPA 8321B: MS accuracy for bentazon could not be assessed due to high concentration of parameter in the spiked sample.

Sample Location: Dead Lakes @ SR22

Collection Date/Time: 05/25/2021 12:05

Field ID: G2TLHR0047

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2249944	EPA 180.1 Rev. 2.0	Turbidity	4.6		NTU	P398858	
	EPA 300.0 Rev. 2.1	Chloride	4.8	A	mg Cl/L	P399194	
		Sulfate	1.2	A	mg SO4/L	P399196	
	SM 2120 B-2011	Color (true)	31	A	PCU	P398862	
	SM 2320 B-2011	Total Alkalinity	79		mg CaCO3/L	P398968	
	SM 2540 C-2011	TDS	97		mg/L	P399198	
	SM 2540 D-2011	TSS	3	I	mg/L	P399001	
	SM 4500 F-C-2011	Fluoride	0.046	I	mg F/L	P398971	
2249946	EPA 350.1 Rev. 2.0	Ammonia-N	0.007		mg N/L	P399517	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.42		mg N/L	P398948	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.45		mg N/L	P398776	
	EPA 365.1 Rev. 2.0	Total-P	0.025		mg P/L	P398921	
	SM 5310 B-2011	Organic Carbon	4.2		mg C/L	P399095	
2249948	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.007	I	mg P/L	P398750	

Ref. Method and Comment:

SM 2540 D-2011: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample.

Sample Location: Dead Lakes West Arm

Collection Date/Time: 05/25/2021 12:40

Field ID: G2TLHR0048

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2249945	EPA 180.1 Rev. 2.0	Turbidity	1.4		NTU	P398858	
	EPA 300.0 Rev. 2.1	Chloride	4.3		mg Cl/L	P399194	
		Sulfate	1.3		mg SO4/L	P399196	
	SM 2120 B-2011	Color (true)	100		PCU	P398862	
	SM 2320 B-2011	Total Alkalinity	16		mg CaCO3/L	P398969	
	SM 2540 C-2011	TDS	45		mg/L	P399198	
	SM 2540 D-2011	TSS	3	I	mg/L	P399001	
	SM 4500 F-C-2011	Fluoride	0.035	U	mg F/L	P398972	
2249947	EPA 350.1 Rev. 2.0	Ammonia-N	0.007		mg N/L	P399517	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.43		mg N/L	P398948	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.034		mg N/L	P398776	
	EPA 365.1 Rev. 2.0	Total-P	0.011		mg P/L	P398921	
	SM 5310 B-2011	Organic Carbon	10		mg C/L	P399095	
2249949	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P398750	

Ref. Method and Comment:

SM 2540 D-2011: 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: P398858

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P398941

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
Manganese	1.0	U	ug/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: P398941

Component	Result	Code	Units
Aluminum	5.0	U	ug/L
Antimony	0.050	U	ug/L
Arsenic	0.050	U	ug/L
Beryllium	0.010	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: P399194

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P399196

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P399517

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

Quality Assurance Report Method Blank Results

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P398948

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P398776

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P398777

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P398921

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P398749

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P398750

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

Reference Method: EPA 8321B
Batch ID: P398724

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

Reference Method: EPA 8321B
Batch ID: P398757

Component	Result	Code	Units
2,4-D	0.0020	U	ug/L
2,4,5-T	0.0040	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: P398757

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: SM 2120 B-2011
Batch ID: P398862

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2320 B-2011
Batch ID: P398968

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

Reference Method: SM 2320 B-2011
Batch ID: P398969

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

Reference Method: SM 2540 C-2011
Batch ID: P399198

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 C-2011
Batch ID: P399199

Component	Result	Code	Units
TDS	15	U	mg/L

Quality Assurance Report

Method Blank Results

Reference Method: SM 2540 D-2011
Batch ID: P399001

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 2540 D-2011
Batch ID: P399002

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500 F-C-2011
Batch ID: P398971

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 4500 F-C-2011
Batch ID: P398972

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-2011
Batch ID: P399095

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: P398941

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Barium	100		P	85 - 115
Calcium	110		P	85 - 115
Iron	108		P	85 - 115
Magnesium	109		P	85 - 115
Manganese	103		P	85 - 115
Potassium	103		P	85 - 115
Sodium	110		P	85 - 115
Zinc	97.0		P	85 - 115

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P398941

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Aluminum	94.5		P	85 - 115
Antimony	99.4		P	85 - 115
Arsenic	97.6		P	85 - 115
Beryllium	101		P	85 - 115
Boron	96.9		P	85 - 115
Cadmium	98.1		P	85 - 115
Chromium	94.3		P	85 - 115
Copper	96.0		P	85 - 115
Lead	106		P	85 - 115
Nickel	96.3		P	85 - 115
Selenium	95.2		P	85 - 115
Silver	98.2		P	85 - 115
Thallium	103		P	85 - 115

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P399194

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P399196

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Sulfate	97.4		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P399517

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Ammonia-N	98.6		P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P398948

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

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P398776

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P398777

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P398921

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P398749

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
O-Phosphate-P	97.6		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P398750

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
O-Phosphate-P	97.4		P	90 - 110

Reference Method: EPA 8321B
Batch ID: P398724

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Acesulfame K	119		P	40 - 150
AMPA	92.6		P	40 - 150
Endothall	126		P	40 - 150
Glufosinate	96.5		P	40 - 150
Glyphosate	91.5		P	40 - 150
Sucralose	122		P	40 - 150

Reference Method: EPA 8321B
Batch ID: P398757

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2,4-D	70.8		P	40 - 150
2,4,5-T	73.1		P	40 - 150
Acetaminophen	77.8		P	30 - 150
Acetamiprid	87.7		P	40 - 150
Afidopyropen	56.6		P	40 - 150
Bentazon	115		P	30 - 150
Benzovindiflupyr	74.7		P	40 - 150
Carbamazepine	82.0		P	40 - 150
Clothianidin	78.6		P	40 - 150
Dinotefuran	80.3		P	40 - 150
Diuron	68.8		P	40 - 150

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 8321B
Batch ID: P398757

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fenuron	96.3		P	40 - 150
Fluridone	75.2		P	40 - 150
Hydrocodone	76.2		P	40 - 150
Ibuprofen	66.0		P	40 - 150
Imazapyr	87.7		P	40 - 150
Imidacloprid	80.1		P	40 - 150
Linuron	61.1		P	40 - 150
Mandestrobin	81.7		P	40 - 150
MCPP	84.7		P	40 - 150
Naproxen	47.2		P	40 - 150
Primidone	88.2		P	40 - 150
Pyraclostrobin	65.0		P	40 - 150
Thiamethoxam	76.4		P	40 - 150
Tolfenpyrad	35.4		P	30 - 150
Triclopyr	91.3		P	40 - 150

Reference Method: SM 2120 B-2011
Batch ID: P398862

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Color (true)	96.9		P	85 - 115

Reference Method: SM 2320 B-2011
Batch ID: P398968

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	97.6		P	94 - 106

Reference Method: SM 2320 B-2011
Batch ID: P398969

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	98.5		P	94 - 106

Reference Method: SM 4500 F-C-2011
Batch ID: P398971

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	97.5		P	93 - 104

Reference Method: SM 4500 F-C-2011
Batch ID: P398972

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	98.4		P	93 - 104

Reference Method: SM 5310 B-2011
Batch ID: P399095

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	95.8		P	85 - 115

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 200.7 Rev. 4.4

Batch ID: P398941

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2249958	Barium	98.7		P	80 - 120
2249958	Calcium	100		P	80 - 120
2249958	Iron	103		P	80 - 120
2249958	Magnesium	104		P	80 - 120
2249958	Manganese	99.9		P	80 - 120
2249958	Potassium	93.9		P	80 - 120
2249958	Sodium	92.6		P	80 - 120
2249958	Zinc	95.2		P	80 - 120
2250726	Barium	97.6	92.9	P/P	80 - 120
2250726	Calcium	105	100	P/P	80 - 120
2250726	Iron	105	101	P/P	80 - 120
2250726	Magnesium	106	102	P/P	80 - 120
2250726	Manganese	98.7	94.1	P/P	80 - 120
2250726	Potassium	99.8	95.2	P/P	80 - 120
2250726	Sodium	101	95.3	P/P	80 - 120
2250726	Zinc	93.3	89.0	P/P	80 - 120

Reference Method: EPA 200.8 Rev. 5.4

Batch ID: P398941

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2249958	Aluminum	83.3		P	80 - 120
2249958	Antimony	94.4		P	80 - 120
2249958	Arsenic	94.5		P	80 - 120
2249958	Beryllium	100		P	80 - 120
2249958	Boron	97.5		P	80 - 120
2249958	Cadmium	97.7		P	80 - 120
2249958	Chromium	93.2		P	80 - 120
2249958	Copper	96.4		P	80 - 120
2249958	Lead	106		P	80 - 120
2249958	Nickel	94.0		P	80 - 120
2249958	Selenium	93.3		P	80 - 120
2249958	Silver	96.8		P	80 - 120
2249958	Thallium	103		P	80 - 120
2250726	Aluminum	96.1	94.8	P/P	80 - 120
2250726	Antimony	99.8	97.1	P/P	80 - 120
2250726	Arsenic	99.6	96.7	P/P	80 - 120
2250726	Beryllium	99.8	100	P/P	80 - 120
2250726	Boron	99.4	96.4	P/P	80 - 120
2250726	Cadmium	101	99.7	P/P	80 - 120
2250726	Chromium	97.1	94.6	P/P	80 - 120
2250726	Copper	99.2	96.1	P/P	80 - 120
2250726	Lead	107	107	P/P	80 - 120
2250726	Nickel	97.8	95.4	P/P	80 - 120
2250726	Selenium	97.6	95.0	P/P	80 - 120
2250726	Silver	99.7	97.6	P/P	80 - 120
2250726	Thallium	104	102	P/P	80 - 120

Reference Method: EPA 300.0 Rev. 2.1

Batch ID: P399194

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P399194

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2249571	Chloride	91.2		P	90 - 110
2249944	Chloride	102		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P399196

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2249571	Sulfate	100		P	90 - 110
2249944	Sulfate	102		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P399517

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2249891	Ammonia-N	92.4	90.0	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P398948

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2249826	Kjeldahl Nitrogen	106	101	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P398776

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2249808	NO2NO3-N	97.5	97.5	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P398777

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2249951	NO2NO3-N	97.2	97.8	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P398921

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2249809	Total-P	105	106	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P398749

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2249782	O-Phosphate-P	94.2	97.1	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P398750

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2249833	O-Phosphate-P	96.2	97.0	P/P	90 - 110

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 8321B
Batch ID: P398724

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2249591	Acesulfame K	115	118	P/P	40 - 150
2249591	AMPA	106	106	P/P	40 - 150
2249591	Endothall	95.0	105	P/P	40 - 150
2249591	Glufosinate	96.5	103	P/P	40 - 150
2249591	Glyphosate	107	108	P/P	40 - 150
2249591	Sucralose	114	116	P/P	40 - 150

Reference Method: EPA 8321B
Batch ID: P398757

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2249593	2,4-D	121	99.3	P/P	40 - 150
2249593	2,4,5-T	126	112	P/P	40 - 150
2249593	Acetaminophen	92.4	76.3	P/P	30 - 150
2249593	Acetamiprid	94.8	84.2	P/P	40 - 150
2249593	Afidopyropen	74.1	29.9	P/F	40 - 150
2249593	Benzovindiflupyr	91.4	80.4	P/P	40 - 150
2249593	Carbamazepine	101	85.0	P/P	40 - 150
2249593	Clothianidin	84.1	92.5	P/P	40 - 150
2249593	Dinotefuran	99.5	70.3	P/P	40 - 150
2249593	Diuron	80.7	76.1	P/P	40 - 150
2249593	Fenuron	117	107	P/P	40 - 150
2249593	Fluridone	89.4	87.8	P/P	40 - 150
2249593	Hydrocodone	87.5	84.4	P/P	40 - 150
2249593	Ibuprofen	83.7	69.4	P/P	40 - 150
2249593	Imazapyr	115	88.4	P/P	40 - 150
2249593	Imidacloprid	105	104	P/P	40 - 150
2249593	Linuron	75.0	76.6	P/P	40 - 150
2249593	Mandestrobin	102	90.6	P/P	40 - 150
2249593	MCP	132	116	P/P	40 - 150
2249593	Naproxen	73.8	68.9	P/P	40 - 150
2249593	Primidone	95.2	99.4	P/P	40 - 150
2249593	Pyraclostrobin	88.3	78.7	P/P	40 - 150
2249593	Thiamethoxam	85.4	84.5	P/P	40 - 150
2249593	Tolfenpyrad	58.8	50.7	P/P	30 - 150
2249593	Triclopyr	143	118	P/P	40 - 150

Reference Method: SM 4500 F-C-2011
Batch ID: P398971

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2249937	Fluoride	97.2	97.8	P/P	92 - 107

Reference Method: SM 4500 F-C-2011
Batch ID: P398972

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2250461	Fluoride	97.7	98.4	P/P	92 - 107

Quality Assurance Report

Matrix Spike Accuracy

Reference Method: SM 5310 B-2011
Batch ID: P399095

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2250058	Organic Carbon	100	99.8	P/P	85 - 115

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0

Batch ID: P398858

Replicated

Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2249983	Turbidity	3.06	Sample	P	0 - 20

Reference Method: EPA 200.7 Rev. 4.4

Batch ID: P398941

Replicated

Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2250726	Barium	4.78	Spike	P	0 - 20
2250726	Calcium	3.99	Spike	P	0 - 20
2250726	Iron	3.68	Spike	P	0 - 20
2250726	Magnesium	3.97	Spike	P	0 - 20
2250726	Manganese	4.75	Spike	P	0 - 20
2250726	Potassium	4.77	Spike	P	0 - 20
2250726	Sodium	4.07	Spike	P	0 - 20
2250726	Zinc	4.82	Spike	P	0 - 20

Reference Method: EPA 200.8 Rev. 5.4

Batch ID: P398941

Replicated

Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2250726	Aluminum	1.24	Spike	P	0 - 20
2250726	Antimony	2.74	Spike	P	0 - 20
2250726	Arsenic	2.97	Spike	P	0 - 20
2250726	Beryllium	0.630	Spike	P	0 - 20
2250726	Boron	2.91	Spike	P	0 - 20
2250726	Cadmium	1.21	Spike	P	0 - 20
2250726	Chromium	2.68	Spike	P	0 - 20
2250726	Copper	3.16	Spike	P	0 - 20
2250726	Lead	0.770	Spike	P	0 - 20
2250726	Nickel	2.46	Spike	P	0 - 20
2250726	Selenium	2.76	Spike	P	0 - 20
2250726	Silver	2.13	Spike	P	0 - 20
2250726	Thallium	1.75	Spike	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1

Batch ID: P399194

Replicated

Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2249944	Chloride	0.0352	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1

Batch ID: P399196

Replicated

Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2249944	Sulfate	0.515	Sample	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 350.1 Rev. 2.0
 Batch ID: P399517

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2249891	Ammonia-N	1.44	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
 Batch ID: P398948

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2249826	Kjeldahl Nitrogen	3.31	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
 Batch ID: P398776

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2249808	NO2NO3-N	0.0	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
 Batch ID: P398777

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2249951	NO2NO3-N	0.311	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
 Batch ID: P398921

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2249809	Total-P	1.49	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
 Batch ID: P398749

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2249782	O-Phosphate-P	3.03	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
 Batch ID: P398750

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2249833	O-Phosphate-P	0.828	Spike	P	0 - 20

Reference Method: EPA 8321B
 Batch ID: P398724

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2249591	Acesulfame K	2.71	Spike	P	0 - 30
2249591	AMPA	0.200	Spike	P	0 - 30

Quality Assurance Report

Precision

Reference Method: EPA 8321B

Batch ID: P398724

Replicated

Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2249591	Endothall	9.70	Spike	P	0 - 30
2249591	Glufosinate	6.86	Spike	P	0 - 30
2249591	Glyphosate	1.67	Spike	P	0 - 30
2249591	Sucralose	2.00	Spike	P	0 - 30

Reference Method: EPA 8321B

Batch ID: P398757

Replicated

Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2249593	2,4-D	19.3	Spike	P	0 - 30
2249593	2,4,5-T	11.9	Spike	P	0 - 30
2249593	Acetaminophen	19.0	Spike	P	0 - 30
2249593	Acetamiprid	11.9	Spike	P	0 - 30
2249593	Afidopyropen	85.1	Spike	F	0 - 30
2249593	Bentazon	14.2	Spike	P	0 - 30
2249593	Benzovindiflupyr	12.9	Spike	P	0 - 30
2249593	Carbamazepine	17.2	Spike	P	0 - 30
2249593	Clothianidin	9.46	Spike	P	0 - 30
2249593	Dinotefuran	15.8	Spike	P	0 - 30
2249593	Diuron	5.88	Spike	P	0 - 30
2249593	Fenuron	9.35	Spike	P	0 - 30
2249593	Fluridone	1.87	Spike	P	0 - 30
2249593	Hydrocodone	3.60	Spike	P	0 - 30
2249593	Ibuprofen	18.8	Spike	P	0 - 30
2249593	Imazapyr	26.5	Spike	P	0 - 30
2249593	Imidacloprid	0.684	Spike	P	0 - 30
2249593	Linuron	2.10	Spike	P	0 - 30
2249593	Mandestrobin	11.9	Spike	P	0 - 30
2249593	MCP	13.0	Spike	P	0 - 30
2249593	Naproxen	6.84	Spike	P	0 - 30
2249593	Primidone	4.25	Spike	P	0 - 30
2249593	Pyraclostrobin	11.5	Spike	P	0 - 30
2249593	Thiamethoxam	1.02	Spike	P	0 - 30
2249593	Tolfenpyrad	14.7	Spike	P	0 - 30
2249593	Triclopyr	19.4	Spike	P	0 - 30

Reference Method: SM 2120 B-2011

Batch ID: P398862

Replicated

Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2249944	Color (true)	2.76	Sample	P	0 - 20

Reference Method: SM 2320 B-2011

Batch ID: P398968

Replicated

Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2249937	Total Alkalinity	1.38	Sample	P	0 - 5.2

Quality Assurance Report Precision

Reference Method: SM 2320 B-2011
 Batch ID: P398969

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2250461	Total Alkalinity	0.440	Sample	P	0 - 5.2

Reference Method: SM 2540 C-2011
 Batch ID: P399198

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2249807	TDS	0.837	Sample	P	0 - 10

Reference Method: SM 2540 C-2011
 Batch ID: P399199

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2250143	TDS	7.48	Sample	P	0 - 10

Reference Method: SM 2540 D-2011
 Batch ID: P399002

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2250143	TSS	6.90	Sample	P	0 - 10

Reference Method: SM 4500 F-C-2011
 Batch ID: P398971

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2249937	Fluoride	0.464	Spike	P	0 - 2.1

Reference Method: SM 4500 F-C-2011
 Batch ID: P398972

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2250461	Fluoride	0.502	Spike	P	0 - 2.1

Reference Method: SM 5310 B-2011
 Batch ID: P399095

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2250058	Organic Carbon	0.389	Spike	P	0 - 20

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

Quality Assurance Report Surrogates

Lab Sample ID: 2249957

Field Sample ID: G2TLHR0044

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	2,4-D-d3	105	P	30 - 160
EPA 8321B	Acetaminophen-d4	109	P	30 - 160
EPA 8321B	Carbamazepine-d10	109	P	30 - 160
EPA 8321B	Diuron-d6	78.8	P	30 - 160
EPA 8321B	Endothall-d6	68.2	P	30 - 160
EPA 8321B	Endothall-d6	68.2	P	30 - 160
EPA 8321B	Glyphosate 13C 15N	98.6	P	30 - 160
EPA 8321B	Glyphosate 13C 15N	98.6	P	30 - 160
EPA 8321B	Ibuprofen-d3	98.3	P	30 - 160
EPA 8321B	Primidone-d5	107	P	30 - 160
EPA 8321B	Sucralose-d6	74.9	P	30 - 160
EPA 8321B	Sucralose-d6	74.9	P	30 - 160

Quality Assurance Report Calibration Verification

Reference Method: EPA 365.1 Rev. 2.0 dissolved

Run ID: A105649

Included Lab Sample IDs: 2249948, 2249949, 2249952

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	98.0	97.5	P/P	90 - 110
O-Phosphate-P	98.3	98.0	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A105660

Included Lab Sample IDs: 2249946, 2249947, 2249951

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

Reference Method: EPA 180.1 Rev. 2.0

Run ID: A105696

Included Lab Sample IDs: 2249944, 2249945, 2249950

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Turbidity	99.5	100	P/P	95 - 105

Reference Method: SM 2120 B-2011

Run ID: A105697

Included Lab Sample IDs: 2249944, 2249945, 2249950

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	98.1	98.8	P/P	90 - 115

Reference Method: EPA 8321B

Run ID: A105748

Included Lab Sample IDs: 2249957

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Acesulfame K	109	103	P/P	60 - 160
Endothall	123	121	P/P	60 - 160

Reference Method: EPA 8321B

Run ID: A105750

Included Lab Sample IDs: 2249957

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Sucralose	120	124	P/P	60 - 160

Reference Method: EPA 8321B

Run ID: A105751

Included Lab Sample IDs: 2249957

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
AMPA	110	102	P/P	60 - 160
Glufosinate	95.4	100	P/P	60 - 160
Glyphosate	103	103	P/P	60 - 160

Quality Assurance Report Calibration Verification

Reference Method: SM 2320 B-2011

Run ID: A105756

Included Lab Sample IDs: 2249944, 2249945, 2249950

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	97.2	100	P/P	90 - 110
Total Alkalinity	99.6	97.2	P/P	90 - 110

Reference Method: SM 4500 F-C-2011

Run ID: A105756

Included Lab Sample IDs: 2249944, 2249945, 2249950

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

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A105757

Included Lab Sample IDs: 2249946, 2249947, 2249951

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	99.0	98.2	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A105794

Included Lab Sample IDs: 2249946, 2249947, 2249951

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	100	92.6	P/P	90 - 110

Reference Method: EPA 200.8 Rev. 5.4

Run ID: A105802

Included Lab Sample IDs: 2249958

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Aluminum	97.7	98.3	P/P	90 - 110
Antimony	98.3	96.9	P/P	90 - 110
Arsenic	97.5	96.6	P/P	90 - 110
Boron	96.7	100	P/P	90 - 110
Cadmium	98.0	97.0	P/P	90 - 110
Chromium	94.6	93.3	P/P	90 - 110
Copper	95.6	94.0	P/P	90 - 110
Nickel	95.9	95.1	P/P	90 - 110
Selenium	99.2	98.2	P/P	90 - 110
Silver	95.5	94.7	P/P	90 - 110
Thallium	94.6	94.0	P/P	90 - 110

Reference Method: EPA 8321B

Run ID: A105808

Included Lab Sample IDs: 2249957

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
2,4-D	79.8	85.2	P/P	50 - 150
2,4,5-T	140	124	P/P	50 - 150
Acetaminophen	79.3	76.1	P/P	60 - 160
Acetamiprid	102	101	P/P	50 - 150

Quality Assurance Report Calibration Verification

Reference Method: EPA 8321B
Run ID: A105808
Included Lab Sample IDs: 2249957

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Afidopyropen	84.2	85.9	P/P	50 - 150
Bentazon	140	125	P/P	50 - 160
Benzovindiflupyr	95.5	96.1	P/P	50 - 150
Carbamazepine	98.8	98.9	P/P	60 - 150
Clothianidin	96.2	94.4	P/P	60 - 150
Dinotefuran	93.8	90.4	P/P	50 - 150
Diuron	98.9	109	P/P	60 - 160
Fenuron	95.4	90.8	P/P	60 - 150
Fluridone	102	97.6	P/P	60 - 160
Hydrocodone	91.9	90.1	P/P	60 - 150
Ibuprofen	112	119	P/P	50 - 160
Imazapyr	94.9	102	P/P	50 - 150
Imidacloprid	97.3	87.7	P/P	60 - 150
Linuron	89.2	86.7	P/P	60 - 150
Mandestrobin	96.9	92.0	P/P	50 - 150
MCPP	95.0	90.1	P/P	50 - 150
Naproxen	78.7	105	P/P	50 - 160
Primidone	89.6	92.3	P/P	60 - 150
Pyraclostrobin	94.9	94.2	P/P	60 - 150
Thiamethoxam	97.5	93.9	P/P	50 - 150
Tolfenpyrad	82.1	86.8	P/P	60 - 150
Triclopyr	139	120	P/P	50 - 150

Reference Method: SM 5310 B-2011
Run ID: A105818
Included Lab Sample IDs: 2249946, 2249947, 2249951

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	97.6	98.1	P/P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Run ID: A105834
Included Lab Sample IDs: 2249944, 2249945, 2249950

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

Reference Method: EPA 200.7 Rev. 4.4
Run ID: A105871
Included Lab Sample IDs: 2249958

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Barium	101	102	P/P	90 - 110
Calcium	101	103	P/P	90 - 110
Iron	98.9	101	P/P	90 - 110
Magnesium	99.8	102	P/P	90 - 110
Manganese	104	104	P/P	90 - 110
Potassium	99.9	102	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: EPA 200.7 Rev. 4.4

Run ID: A105871

Included Lab Sample IDs: 2249958

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Sodium	99.4	103	P/P	90 - 110
Zinc	94.7	95.0	P/P	90 - 110

Reference Method: EPA 200.8 Rev. 5.4

Run ID: A105975

Included Lab Sample IDs: 2249958

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Beryllium	95.5	96.3	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A105993

Included Lab Sample IDs: 2249946, 2249947, 2249951

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	97.6	97.0	P/P	90 - 110

Reference Method: EPA 200.8 Rev. 5.4

Run ID: A106003

Included Lab Sample IDs: 2249958

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

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

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

Where they are different, both control limits are provided.

Quality Assurance Report Summary

Ref. Method	Analyte	LCS % Recovery	MS % Recovery			LCS	Precision SMP	MS
EPA 180.1 Rev. 2.0	Turbidity						3.06	
EPA 200.7 Rev. 4.4	Barium	100	98.7	97.6	92.9			4.78
	Calcium	110	100	105	100			3.99
	Iron	108	103	105	101			3.68
	Magnesium	109	104	106	102			3.97
	Manganese	103	99.9	98.7	94.1			4.75
	Potassium	103	93.9	99.8	95.2			4.77
	Sodium	110	92.6	101	95.3			4.07
	Zinc	97.0	95.2	93.3	89.0			4.82
EPA 200.8 Rev. 5.4	Aluminum	94.5	96.1	94.8	83.3			1.24
	Antimony	99.4	99.8	97.1	94.4			2.74
	Arsenic	97.6	99.6	96.7	94.5			2.97
	Beryllium	101	99.8	100	100			0.630
	Boron	96.9	99.4	96.4	97.5			2.91
	Cadmium	98.1	101	99.7	97.7			1.21
	Chromium	94.3	97.1	94.6	93.2			2.68
	Copper	96.0	99.2	96.1	96.4			3.16
	Lead	106	107	107	106			0.770
	Nickel	96.3	97.8	95.4	94.0			2.46
	Selenium	95.2	97.6	95.0	93.3			2.76
	Silver	98.2	99.7	97.6	96.8			2.13
	Thallium	103	104	102	103			1.75
EPA 300.0 Rev. 2.1	Chloride	102	102	91.2			0.0352	
	Sulfate	97.4	102	100			0.515	
EPA 350.1 Rev. 2.0	Ammonia-N	98.6	92.4	90.0				1.44
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	104	106	101				3.31
EPA 353.2 Rev. 2.0	NO ₂ NO ₃ -N	100	97.5	97.5				0.0
	NO ₂ NO ₃ -N	100	97.2	97.8				0.311
EPA 365.1 Rev. 2.0	Total-P	105	105	106				1.49
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	97.6	94.2	97.1				3.03
	O-Phosphate-P	97.4	96.2	97.0				0.828
EPA 8321B	2,4-D	70.8	121	99.3				19.3
	2,4,5-T	73.1	126	112				11.9
	Acesulfame K	119	115	118				2.71
	Acetaminophen	77.8	92.4	76.3				19.0
	Acetamiprid	87.7	94.8	84.2				11.9
	Afidopyropen	56.6	74.1	29.9				85.1
	AMPA	92.6	106	106				0.200
	Bentazon	115						14.2
	Benzovindiflupyr	74.7	91.4	80.4				12.9
	Carbamazepine	82.0	101	85.0				17.2
	Clothianidin	78.6	84.1	92.5				9.46
	Dinotefuran	80.3	99.5	70.3				15.8
	Diuron	68.8	80.7	76.1				5.88
	Endothall	126	95.0	105				9.70
	Fenuron	96.3	117	107				9.35
	Fluridone	75.2	89.4	87.8				1.87
	Glufosinate	96.5	96.5	103				6.86
	Glyphosate	91.5	107	108				1.67
	Hydrocodone	76.2	87.5	84.4				3.60
	Ibuprofen	66.0	83.7	69.4				18.8
	Imazapyr	87.7	115	88.4				26.5
	Imidacloprid	80.1	105	104				0.684
	Linuron	61.1	75.0	76.6				2.10

Quality Assurance Report Summary

Ref. Method	Analyte	LCS % Recovery	MS % Recovery		Precision	
					LCS	MS
EPA 8321B	Mandestrobin	81.7	102	90.6		11.9
	MCPPE	84.7	132	116		13.0
	Naproxen	47.2	73.8	68.9		6.84
	Primidone	88.2	95.2	99.4		4.25
	Pyraclostrobin	65.0	88.3	78.7		11.5
	Sucralose	122	114	116		2.00
	Thiamethoxam	76.4	85.4	84.5		1.02
	Tolfenpyrad	35.4	58.8	50.7		14.7
	Triclopyr	91.3	143	118		19.4
SM 2120 B-2011	Color (true)	96.9			2.76	
SM 2320 B-2011	Total Alkalinity	97.6			1.38	
	Total Alkalinity	98.5			0.440	
SM 2540 C-2011	TDS				0.837	
	TDS				7.48	
SM 2540 D-2011	TSS				6.90	
SM 4500 F-C-2011	Fluoride	97.5	97.2	97.8		0.464
	Fluoride	98.4	97.7	98.4		0.502
SM 5310 B-2011	Organic Carbon	95.8	100	99.8		0.389

Reference Method Descriptions

Method	Description	Associated Samples
EPA 180.1 Rev. 2.0	Turbidity in aqueous matrices	2249944, 2249945, 2249950
EPA 200.7 Rev. 4.4	Total Recoverable Metals analysis using ICP emission spectroscopy for aqueous samples supporting Clean Water Act Projects	2249958
EPA 200.8 Rev. 5.4	Total Recoverable Metals analysis using ICP-MS for aqueous samples supporting Clean Water Act Projects	2249958
EPA 300.0 Rev. 2.1	Chloride in aqueous matrices	2249944, 2249945, 2249950
EPA 300.0 Rev. 2.1	Sulfate in aqueous matrices	2249944, 2249945, 2249950
EPA 350.1 Rev. 2.0	Ammonia in aqueous matrices as mg N/L	2249946, 2249947, 2249951
EPA 351.2 Rev. 2.0	Total Kjeldahl Nitrogen in aqueous matrices	2249946, 2249947, 2249951
EPA 353.2 Rev. 2.0	Nitrite/Nitrate in aqueous matrices as mg N/L	2249946, 2249947, 2249951
EPA 365.1 Rev. 2.0	Total Phosphorus in aqueous matrices as mg P/L	2249946, 2249947, 2249951
EPA 365.1 Rev. 2.0 dissolved	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	2249948, 2249949, 2249952
EPA 8321B	Pesticides, herbicides, and other chemicals in water matrices by HPLC/MS/MS	2249957
EPA 8321B	Water soluble organic compounds by HPLC/MS/MS	2249957
SM 2120 B-2011	True Color measured at 450 nm (not valid for NPDES monitoring)	2249944, 2249945, 2249950
SM 2320 B-2011	Alkalinity in aqueous matrices as mg CaCO3/L	2249944, 2249945, 2249950
SM 2340B	Hardness by calculation, in aqueous matrices, reported as mg/L CaCO3	2249958
SM 2540 C-2011	Total Dissolved Solids in aqueous matrices	2249944, 2249945, 2249950
SM 2540 D-2011	Total Suspended Solids in aqueous matrices using a maximum of 250 mL of sample	2249944, 2249945, 2249950
SM 4500 F-C-2011	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	2249944, 2249945, 2249950
SM 5310 B-2011	Nonpurgeable Organic Carbon in aqueous matrices	2249946, 2249947, 2249951

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	05/25/2021			05/26/2021 15:34	Yen Ta	2249944, 2249945, 2249950
EPA 200.7 Rev. 4.4	05/25/2021	05/27/2021 17:00	Elliott D. Healy	06/03/2021 14:01	Josef B Mick	2249958
EPA 200.8 Rev. 5.4	05/25/2021	05/27/2021 17:00	Elliott D. Healy	06/01/2021 19:01	McKinley C Carter	2249958
	05/25/2021	05/27/2021 17:00	Elliott D. Healy	06/09/2021 20:53	Alexander Thompson	2249958
	05/25/2021	05/27/2021 17:00	Elliott D. Healy	06/10/2021 14:20	Alexander Thompson	2249958
EPA 300.0 Rev. 2.1	05/25/2021			06/03/2021 20:42	Lipi Saha	2249944
	05/25/2021			06/03/2021 23:43	Lipi Saha	2249945
	05/25/2021			06/03/2021 23:55	Lipi Saha	2249950
EPA 350.1 Rev. 2.0	05/25/2021			06/10/2021 13:30	Roberta Tatti	2249946
	05/25/2021			06/10/2021 13:31	Roberta Tatti	2249947
	05/25/2021			06/10/2021 13:33	Roberta Tatti	2249951
EPA 351.2 Rev. 2.0	05/25/2021	05/27/2021 13:11	Benjamin T. Nordmann	06/01/2021 14:02	Virginia P. Brown	2249946
	05/25/2021	05/27/2021 13:11	Benjamin T. Nordmann	06/01/2021 14:03	Virginia P. Brown	2249947
	05/25/2021	05/27/2021 13:11	Benjamin T. Nordmann	06/01/2021 14:05	Virginia P. Brown	2249951
EPA 353.2 Rev. 2.0	05/25/2021			05/26/2021 10:03	Beverly Y. Sanders	2249947
	05/25/2021			05/26/2021 10:33	Beverly Y. Sanders	2249946
	05/25/2021			05/26/2021 10:36	Beverly Y. Sanders	2249951
EPA 365.1 Rev. 2.0	05/25/2021	05/27/2021 13:22	Yen Ta	05/28/2021 12:12	Shengyu Ding	2249946
	05/25/2021	05/27/2021 13:22	Yen Ta	05/28/2021 12:13	Shengyu Ding	2249947
	05/25/2021	05/27/2021 13:22	Yen Ta	05/28/2021 12:14	Shengyu Ding	2249951
EPA 365.1 Rev. 2.0 dissolved	05/25/2021			05/25/2021 15:49	Ping Hua	2249948
	05/25/2021			05/25/2021 15:50	Ping Hua	2249949
	05/25/2021			05/25/2021 15:55	Ping Hua	2249952
EPA 8321B	05/25/2021	05/26/2021 13:00	Hoor Shaik	05/29/2021 03:42	Juyoung Kim	2249957
	05/25/2021	05/27/2021 09:30	Pramila Ghimire	05/27/2021 12:45	Juyoung Kim	2249957
	05/25/2021	05/27/2021 09:30	Pramila Ghimire	05/27/2021 13:54	Pramila Ghimire	2249957
	05/25/2021	05/27/2021 09:30	Pramila Ghimire	05/27/2021 21:35	Pramila Ghimire	2249957
SM 2120 B-2011	05/25/2021			05/26/2021 15:49	Sarah A Nixon	2249944
	05/25/2021			05/26/2021 15:50	Sarah A Nixon	2249945
	05/25/2021			05/26/2021 15:51	Sarah A Nixon	2249950
SM 2320 B-2011	05/25/2021			05/28/2021 02:24	Dale L. Simmons	2249944
	05/25/2021			05/28/2021 06:05	Dale L. Simmons	2249945
	05/25/2021			05/28/2021 06:19	Dale L. Simmons	2249950
SM 2340B	05/25/2021			06/03/2021 14:01	Josef B Mick	2249958
SM 2540 C-2011	05/25/2021			05/27/2021 14:42	Yijie Li	2249944, 2249945, 2249950
SM 2540 D-2011	05/25/2021			05/27/2021 14:42	Yijie Li	2249944, 2249945, 2249950
SM 4500 F-C-2011	05/25/2021			05/28/2021 02:24	Dale L. Simmons	2249944
	05/25/2021			05/28/2021 06:05	Dale L. Simmons	2249945
	05/25/2021			05/28/2021 06:19	Dale L. Simmons	2249950
SM 5310 B-2011	05/25/2021			06/01/2021 21:40	Madeline Gruver	2249946

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
SM 5310 B-2011	05/25/2021			06/01/2021 21:53	Madeline Gruver	2249947
	05/25/2021			06/01/2021 22:06	Madeline Gruver	2249951