

Chemical Analysis Report

TLH-ROC-2020-10-14-02

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

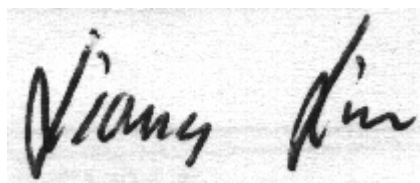
Event Description: **Run 2**
Request ID: **RQ-2020-10-05-64**
Customer: **TLH-ROC**
Project ID: **SMP**

Send Reports to:
FL Dept. of Environmental Protection
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Certified by: Liang Lin, Environmental Administrator

Date Certified: 03-NOV-2020 09:24

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

Case Narrative

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

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

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

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

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

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

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

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

Precision is reported as relative percent difference unless otherwise noted.

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

QC Codes used in this report may include:

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

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

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

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

Sample Location: Waccasassa River @ Otter Creek

Collection Date/Time: 10/14/2020 10:45

Field ID: G1TLHR0101

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2202118	EPA 180.1 Rev. 2.0	Turbidity	2.9		NTU	P388743	
	EPA 300.0 Rev. 2.1	Bromide	0.49		mg Br/L	P389481	
	SM 2320 B-2011	Total Alkalinity	137		mg CaCO3/L	P388942	
	SM 2540 D-2011	TSS	7	I	mg/L	P389161	
	SM 4500 F-C-2011	Fluoride	0.12		mg F/L	P388956	
2202119	EPA 350.1 Rev. 2.0	Ammonia-N	0.016		mg N/L	P388844	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.65		mg N/L	P389042	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.26		mg N/L	P388886	
	EPA 365.1 Rev. 2.0	Total-P	0.057		mg P/L	P388790	
	SM 5310 B-2011	Organic Carbon	16		mg C/L	P388946	
2202120	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.038		mg P/L	P388679	
2202123	EPA 8321B	Acesulfame K**	0.10	U	ug/L	P388698	
		2,4-D	0.0020	U	ug/L	P388705	RPD
		AMPA**	0.10	U	ug/L	P388698	
		Sucralose**	0.010	U	ug/L	P388698	
		Acetaminophen**	0.0080	U	ug/L	P388705	
		Acetamiprid**	0.0020	U	ug/L	P388705	
		Endothall**	0.25	U	ug/L	P388698	
		Glufosinate**	0.10	U	ug/L	P388698	
		Glyphosate**	0.10	U	ug/L	P388698	
		Afidopyropen**	0.0020	U	ug/L	P388705	MS, RPD
		Bentazon	8.0E-04	U	ug/L	P388705	MS
		Benzovindiflupyr**	0.0020	U	ug/L	P388705	
		Carbamazepine**	8.0E-04	U	ug/L	P388705	
		Clothianidin**	0.0020	U	ug/L	P388705	
		Dinotefuran**	0.0020	U	ug/L	P388705	
		Diuron	0.0020	U	ug/L	P388705	MS, RPD
		Fenuron	0.016	U	ug/L	P388705	
		Fluridone**	8.0E-04	U	ug/L	P388705	
		Imazapyr**	0.027		ug/L	P388705	
		Hydrocodone**	0.0020	U	ug/L	P388705	
		Ibuprofen**	0.020	U	ug/L	P388705	
		Imidacloprid	0.0020	U	ug/L	P388705	
		Linuron	0.0040	U	ug/L	P388705	
		Mandestrobin**	0.0020	U	ug/L	P388705	
		MCP	0.0020	U	ug/L	P388705	
		Naproxen**	0.0080	U	ug/L	P388705	
		Primidone**	0.0040	U	ug/L	P388705	
		Pyraclostrobin**	0.0020	U	ug/L	P388705	
		Thiamethoxam**	0.0020	U	ug/L	P388705	
		Tolfenpyrad**	0.0020	U	ug/L	P388705	
		Triclopyr**	0.0040	U	ug/L	P388705	MS, RPD
2202124	EPA 200.7 Rev. 4.4	Barium	4.8		ug/L	P388667	

Field ID: G1TLHR0101

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2202124	EPA 200.7 Rev. 4.4	Calcium	57.0		mg/L	P388667	
		Iron	620		ug/L	P388667	
		Manganese	27.0		ug/L	P388667	
		Potassium	3.0		mg/L	P388667	
		Sodium	75.8		mg/L	P388667	
	EPA 200.8 Rev. 5.4	Zinc	5.0	U	ug/L	P388667	
		Aluminum	87		ug/L	P388667	
		Antimony	0.050	U	ug/L	P388667	
		Arsenic	0.71		ug/L	P388667	
		Beryllium	0.015	I	ug/L	P388667	
		Cadmium	0.020	U	ug/L	P388667	
		Chromium	0.69	I	ug/L	P388667	
		Copper	0.40	U	ug/L	P388667	
		Lead	0.20	U	ug/L	P388667	
		Nickel	0.50	U	ug/L	P388667	
		Selenium	0.20	U	ug/L	P388667	
		Silver	0.010	U	ug/L	P388667	
		Thallium	0.10	U	ug/L	P388667	

Ref. Method and Comment:

EPA 300.0 Rev. 2.1: Bromide: Batch relative percent difference and matrix spike recoveries for one of two spiked samples are unavailable because of high analyte concentration in the QC sample.

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: P388743

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P388667

Component	Result	Code	Units
Barium	1.0	U	ug/L
Calcium	0.075	U	mg/L
Iron	30	U	ug/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: P388667

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
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: P389481

Component	Result	Code	Units
Bromide	0.013	U	mg Br/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P388844

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P389042

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

Quality Assurance Report Method Blank Results

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P388886

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P388790

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P388679

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

Reference Method: EPA 8321B
Batch ID: P388698

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: P388705

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

Quality Assurance Report Method Blank Results

Reference Method: EPA 8321B
Batch ID: P388705

Component	Result	Code	Units
Tolfenpyrad	0.0020	U	ug/L
Triclopyr	0.0040	U	ug/L

Reference Method: SM 2320 B-2011
Batch ID: P388942

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

Reference Method: SM 2540 D-2011
Batch ID: P389161

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500 F-C-2011
Batch ID: P388956

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-2011
Batch ID: P388946

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: P388667

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Barium	105		P	85 - 115
Calcium	106		P	85 - 115
Iron	105		P	85 - 115
Manganese	107		P	85 - 115
Potassium	103		P	85 - 115
Sodium	106		P	85 - 115
Zinc	102		P	85 - 115

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P388667

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Aluminum	102		P	85 - 115
Antimony	102		P	85 - 115
Arsenic	101		P	85 - 115
Beryllium	99.0		P	85 - 115
Cadmium	102		P	85 - 115
Chromium	100		P	85 - 115
Copper	101		P	85 - 115
Lead	97.8		P	85 - 115
Nickel	99.8		P	85 - 115
Selenium	99.1		P	85 - 115
Silver	99.9		P	85 - 115
Thallium	100		P	85 - 115

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P389481

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P388844

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Ammonia-N	99.9		P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P389042

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P388886

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

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 365.1 Rev. 2.0
 Batch ID: P388790

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
 Batch ID: P388679

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

Reference Method: EPA 8321B
 Batch ID: P388698

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Acesulfame K	74.3		P	40 - 150
AMPA	119		P	40 - 150
Endothall	98.1		P	40 - 150
Glufosinate	110		P	40 - 150
Glyphosate	108		P	40 - 140
Sucralose	121		P	40 - 150

Reference Method: EPA 8321B
 Batch ID: P388705

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2,4-D	99.2		P	30 - 160
Acetaminophen	80.4		P	30 - 160
Acetamiprid	68.8		P	30 - 160
Afidopyropen	30.5		P	30 - 160
Bentazon	45.8		P	30 - 160
Benzovindiflupyr	63.9		P	30 - 160
Carbamazepine	49.6		P	30 - 160
Clothianidin	63.9		P	30 - 160
Dinotefuran	74.9		P	30 - 160
Diuron	37.2		P	30 - 160
Fenuron	89.8		P	30 - 160
Fluridone	65.1		P	30 - 160
Hydrocodone	92.8		P	30 - 160
Ibuprofen	60.4		P	30 - 160
Imazapyr	90.9		P	30 - 160
Imidacloprid	87.8		P	30 - 160
Linuron	42.7		P	30 - 160
Mandestrobin	67.3		P	30 - 160
MCPP	61.3		P	30 - 160
Naproxen	51.6		P	30 - 160
Primidone	70.3		P	30 - 160
Pyraclostrobin	58.5		P	30 - 160
Thiamethoxam	89.3		P	30 - 160
Tolfenpyrad	40.9		P	30 - 160
Triclopyr	55.6		P	30 - 160

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: SM 2320 B-2011
Batch ID: P388942

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	99.4		P	93 - 104

Reference Method: SM 4500 F-C-2011
Batch ID: P388956

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	96.1		P	90 - 106

Reference Method: SM 5310 B-2011
Batch ID: P388946

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	95.6		P	85 - 115

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P388667

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2201859	Barium	104	103	P/P	80 - 120
2201859	Calcium	106	101	P/P	80 - 120
2201859	Iron	108	103	P/P	80 - 120
2201859	Manganese	105	103	P/P	80 - 120
2201859	Potassium	102	100	P/P	80 - 120
2201859	Sodium	102	101	P/P	80 - 120
2201859	Zinc	102	101	P/P	80 - 120

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P388667

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2201859	Aluminum	102	104	P/P	80 - 120
2201859	Antimony	102	100	P/P	80 - 120
2201859	Arsenic	100	101	P/P	80 - 120
2201859	Beryllium	102	99.4	P/P	80 - 120
2201859	Cadmium	104	105	P/P	80 - 120
2201859	Chromium	98.8	98.9	P/P	80 - 120
2201859	Copper	101	101	P/P	80 - 120
2201859	Lead	99.0	98.6	P/P	80 - 120
2201859	Nickel	101	100	P/P	80 - 120
2201859	Selenium	98.6	99.4	P/P	80 - 120
2201859	Silver	99.8	98.8	P/P	80 - 120
2201859	Thallium	103	104	P/P	80 - 120

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P389481

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2202118	Bromide	94.3		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P388844

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2202309	Ammonia-N	101	101	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P389042

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2202019	Kjeldahl Nitrogen	100	103	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P388886

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2201833	NO2NO3-N	96.5	97.0	P/P	90 - 110

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P388790

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2202005	Total-P	107	108	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P388679

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2202120	O-Phosphate-P	97.9	97.9	P/P	90 - 110

Reference Method: EPA 8321B
Batch ID: P388698

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2201778	Acesulfame K	56.0	53.5	P/P	40 - 150
2201778	AMPA	129	125	P/P	40 - 150
2201778	Endothall	87.4	89.9	P/P	40 - 150
2201778	Glufosinate	98.2	96.7	P/P	40 - 150
2201778	Glyphosate	92.7	84.9	P/P	40 - 140
2201778	Sucralose	120	116	P/P	40 - 150

Reference Method: EPA 8321B
Batch ID: P388705

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2201953	2,4-D	60.7	85.5	P/P	30 - 160
2201953	Acetaminophen	91.1	96.9	P/P	30 - 160
2201953	Acetamiprid	67.6	74.3	P/P	30 - 160
2201953	Afidopyropen	22.4	30.5	F/P	30 - 160
2201953	Bentazon	25.0	36.1	F/P	30 - 160
2201953	Benzovindiflupyr	52.9	63.2	P/P	30 - 160
2201953	Carbamazepine	38.9	50.0	P/P	30 - 160
2201953	Clothianidin	52.6	65.8	P/P	30 - 160
2201953	Dinotefuran	75.6	90.6	P/P	30 - 160
2201953	Diuron	26.4	36.4	F/P	30 - 160
2201953	Fenuron	76.0	83.3	P/P	30 - 160
2201953	Fluridone	59.9	66.2	P/P	30 - 160
2201953	Hydrocodone	70.5	90.5	P/P	30 - 160
2201953	Ibuprofen	57.1	65.6	P/P	30 - 160
2201953	Imazapyr	75.7	75.5	P/P	30 - 160
2201953	Imidacloprid	103	107	P/P	30 - 160
2201953	Linuron	40.6	45.3	P/P	30 - 160
2201953	Mandestrobin	65.0	74.6	P/P	30 - 160
2201953	MCP	48.3	65.3	P/P	30 - 160
2201953	Naproxen	36.3	32.2	P/P	30 - 160
2201953	Primidone	64.3	71.1	P/P	30 - 160
2201953	Pyraclostrobin	53.0	57.8	P/P	30 - 160
2201953	Thiamethoxam	85.2	112	P/P	30 - 160
2201953	Tolfenpyrad	32.2	38.4	P/P	30 - 160
2201953	Triclopyr	28.8	54.2	F/P	30 - 160

Quality Assurance Report Matrix Spike Accuracy

Reference Method: SM 4500 F-C-2011
Batch ID: P388956

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2202126	Fluoride	103	104	P/P	94 - 107

Reference Method: SM 5310 B-2011
Batch ID: P388946

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2202003	Organic Carbon	101		P	85 - 115

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P388743

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2202397	Turbidity	0.649	Sample	P	0 - 20

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P388667

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2201859	Barium	1.46	Spike	P	0 - 20
2201859	Calcium	3.95	Spike	P	0 - 20
2201859	Iron	3.78	Spike	P	0 - 20
2201859	Manganese	1.23	Spike	P	0 - 20
2201859	Potassium	1.79	Spike	P	0 - 20
2201859	Sodium	0.732	Spike	P	0 - 20
2201859	Zinc	1.40	Spike	P	0 - 20

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P388667

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2201859	Aluminum	1.36	Spike	P	0 - 20
2201859	Antimony	1.05	Spike	P	0 - 20
2201859	Arsenic	0.748	Spike	P	0 - 20
2201859	Beryllium	2.19	Spike	P	0 - 20
2201859	Cadmium	0.263	Spike	P	0 - 20
2201859	Chromium	0.139	Spike	P	0 - 20
2201859	Copper	0.0152	Spike	P	0 - 20
2201859	Lead	0.414	Spike	P	0 - 20
2201859	Nickel	0.920	Spike	P	0 - 20
2201859	Selenium	0.901	Spike	P	0 - 20
2201859	Silver	1.03	Spike	P	0 - 20
2201859	Thallium	0.619	Spike	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P388844

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2202309	Ammonia-N	0.0671	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P389042

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2202019	Kjeldahl Nitrogen	1.75	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P388886

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2201833	NO2NO3-N	0.517	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P388790

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2202005	Total-P	0.492	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P388679

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2202120	O-Phosphate-P	0.0	Spike	P	0 - 20

Reference Method: EPA 8321B
Batch ID: P388698

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2201778	Acesulfame K	4.54	Spike	P	0 - 30
2201778	AMPA	3.43	Spike	P	0 - 30
2201778	Endothall	2.81	Spike	P	0 - 30
2201778	Glufosinate	1.57	Spike	P	0 - 30
2201778	Glyphosate	8.78	Spike	P	0 - 30
2201778	Sucralose	3.28	Spike	P	0 - 30

Reference Method: EPA 8321B
Batch ID: P388705

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2201953	2,4-D	30.9	Spike	F	0 - 30
2201953	Acetaminophen	6.09	Spike	P	0 - 30
2201953	Acetamiprid	9.32	Spike	P	0 - 30
2201953	Afidopyropen	30.6	Spike	F	0 - 30
2201953	Bentazon	15.7	Spike	P	0 - 30
2201953	Benzovindiflupyr	17.7	Spike	P	0 - 30
2201953	Carbamazepine	24.9	Spike	P	0 - 30
2201953	Clothianidin	22.3	Spike	P	0 - 30
2201953	Dinotefuran	18.1	Spike	P	0 - 30
2201953	Diuron	32.0	Spike	F	0 - 30
2201953	Fenuron	9.21	Spike	P	0 - 30
2201953	Fluridone	8.95	Spike	P	0 - 30
2201953	Hydrocodone	24.8	Spike	P	0 - 30
2201953	Ibuprofen	13.8	Spike	P	0 - 30
2201953	Imazapyr	0.194	Spike	P	0 - 30
2201953	Imidacloprid	3.33	Spike	P	0 - 30
2201953	Linuron	10.8	Spike	P	0 - 30
2201953	Mandestrobin	13.7	Spike	P	0 - 30

Quality Assurance Report Precision

Reference Method: EPA 8321B
 Batch ID: P388705

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2201953	MCP	29.9	Spike	P	0 - 30
2201953	Naproxen	12.0	Spike	P	0 - 30
2201953	Primidone	10.0	Spike	P	0 - 30
2201953	Pyraclostrobin	8.72	Spike	P	0 - 30
2201953	Thiamethoxam	27.0	Spike	P	0 - 30
2201953	Tolfenpyrad	17.7	Spike	P	0 - 30
2201953	Triclopyr	61.2	Spike	F	0 - 30

Reference Method: SM 2320 B-2011
 Batch ID: P388942

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2202126	Total Alkalinity	7.08	Sample	P	0 - 8.1

Reference Method: SM 4500 F-C-2011
 Batch ID: P388956

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2202126	Fluoride	0.479	Spike	P	0 - 2.8

Reference Method: SM 5310 B-2011
 Batch ID: P388946

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2202003	Organic Carbon	0.0998	Spike	P	0 - 20

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

Quality Assurance Report Surrogates

Lab Sample ID: 2202123

Field Sample ID: G1TLHR0101

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	2,4-D-d3	84.4	P	30 - 160
EPA 8321B	Acetaminophen-d4	102	P	30 - 160
EPA 8321B	Carbamazepine-d10	42.8	P	30 - 160
EPA 8321B	Diuron-d6	38.3	P	30 - 160
EPA 8321B	Endothall-d6	128	P	30 - 160
EPA 8321B	Endothall-d6	128	P	30 - 160
EPA 8321B	Glyphosate 13C 15N	92.8	P	30 - 160
EPA 8321B	Glyphosate 13C 15N	92.8	P	30 - 160
EPA 8321B	Ibuprofen-d3	64.1	P	30 - 160
EPA 8321B	Primidone-d5	76.6	P	30 - 160
EPA 8321B	Sucralose-d6	48.7	P	30 - 160
EPA 8321B	Sucralose-d6	48.7	P	30 - 160

Quality Assurance Report Calibration Verification

Reference Method: EPA 365.1 Rev. 2.0 dissolved

Run ID: A101518

Included Lab Sample IDs: 2202120

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	98.7	98.2	P/P	90 - 110

Reference Method: EPA 180.1 Rev. 2.0

Run ID: A101544

Included Lab Sample IDs: 2202118

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Turbidity	101	99.5	P/P	95 - 105

Reference Method: EPA 200.7 Rev. 4.4

Run ID: A101548

Included Lab Sample IDs: 2202124

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Barium	102	102	P/P	90 - 110
Calcium	99.0	99.4	P/P	90 - 110
Iron	99.7	100	P/P	90 - 110
Manganese	103	103	P/P	90 - 110
Potassium	97.0	97.3	P/P	90 - 110
Sodium	98.5	97.9	P/P	90 - 110
Zinc	102	103	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A101575

Included Lab Sample IDs: 2202119

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

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A101590

Included Lab Sample IDs: 2202119

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

Reference Method: EPA 8321B

Run ID: A101600

Included Lab Sample IDs: 2202123

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
AMPA	102	96.2	P/P	50 - 160
Glufosinate	113	111	P/P	50 - 160
Glyphosate	107	107	P/P	50 - 160

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A101602

Included Lab Sample IDs: 2202119

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

Quality Assurance Report Calibration Verification

Reference Method: EPA 8321B
Run ID: A101603
Included Lab Sample IDs: 2202123

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Acesulfame K	63.6	67.5	P/P	50 - 160
Endothall	124	142	P/P	60 - 160

Reference Method: SM 2320 B-2011
Run ID: A101630
Included Lab Sample IDs: 2202118

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	99.5	101	P/P	90 - 110

Reference Method: SM 4500 F-C-2011
Run ID: A101630
Included Lab Sample IDs: 2202118

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	99.5	97.6	P/P	90 - 110

Reference Method: SM 5310 B-2011
Run ID: A101631
Included Lab Sample IDs: 2202119

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	99.8	97.4	P/P	90 - 110

Reference Method: EPA 8321B
Run ID: A101652
Included Lab Sample IDs: 2202123

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
2,4-D	114	125	P/P	50 - 150
Acetaminophen	113	114	P/P	60 - 160
Acetamiprid	117	109	P/P	50 - 150
Afidopyropen	85.4	93.0	P/P	50 - 150
Bentazon	112	130	P/P	50 - 160
Benzovindiflupyr	98.3	108	P/P	50 - 150
Carbamazepine	113	113	P/P	60 - 150
Clothianidin	93.4	96.2	P/P	60 - 150
Dinotefuran	99.4	104	P/P	50 - 150
Diuron	115	119	P/P	60 - 160
Fenuron	106	104	P/P	60 - 150
Fluridone	110	94.3	P/P	60 - 160
Hydrocodone	123	114	P/P	60 - 150
Ibuprofen	94.4	123	P/P	50 - 160
Imazapyr	100	94.8	P/P	50 - 160
Imidacloprid	102	95.7	P/P	60 - 150
Linuron	91.3	85.9	P/P	60 - 150
Mandestrobin	102	111	P/P	50 - 150
MCPP	88.6	98.7	P/P	50 - 150
Naproxen	129	81.6	P/P	50 - 160
Primidone	104	99.2	P/P	60 - 150
Pyraclostrobin	103	106	P/P	60 - 150

Quality Assurance Report Calibration Verification

Reference Method: EPA 8321B
Run ID: A101652
Included Lab Sample IDs: 2202123

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Thiamethoxam	113	108	P/P	50 - 150
Tolfenpyrad	97.8	95.8	P/P	60 - 150
Triclopyr	107	115	P/P	50 - 150

Reference Method: EPA 8321B
Run ID: A101686
Included Lab Sample IDs: 2202123

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Sucralose	124	120	P/P	50 - 160

Reference Method: EPA 351.2 Rev. 2.0
Run ID: A101732
Included Lab Sample IDs: 2202119

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

Reference Method: EPA 200.8 Rev. 5.4
Run ID: A101737
Included Lab Sample IDs: 2202124

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Aluminum	97.8	97.1	P/P	90 - 110
Antimony	98.4	97.5	P/P	90 - 110
Arsenic	97.1	95.9	P/P	90 - 110
Beryllium	100	99.7	P/P	90 - 110
Cadmium	99.0	98.3	P/P	90 - 110
Chromium	94.4	94.8	P/P	90 - 110
Copper	94.7	95.7	P/P	90 - 110
Lead	96.3	95.5	P/P	90 - 110
Nickel	93.8	94.9	P/P	90 - 110
Selenium	96.6	96.6	P/P	90 - 110
Silver	99.9	99.1	P/P	90 - 110
Thallium	95.3	93.6	P/P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Run ID: A101855
Included Lab Sample IDs: 2202118

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Bromide	97.2	91.6	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					0.649	
EPA 200.7 Rev. 4.4	Barium	105	104	103			1.46
	Calcium	106	106	101			3.95
	Iron	105	108	103			3.78
	Manganese	107	105	103			1.23
	Potassium	103	102	100			1.79
	Sodium	106	102	101			0.732
	Zinc	102	102	101			1.40
EPA 200.8 Rev. 5.4	Aluminum	102	102	104			1.36
	Antimony	102	102	100			1.05
	Arsenic	101	100	101			0.748
	Beryllium	99.0	102	99.4			2.19
	Cadmium	102	104	105			0.263
	Chromium	100	98.8	98.9			0.139
	Copper	101	101	101			0.0152
	Lead	97.8	99.0	98.6			0.414
	Nickel	99.8	101	100			0.920
	Selenium	99.1	98.6	99.4			0.901
	Silver	99.9	99.8	98.8			1.03
	Thallium	100	103	104			0.619
EPA 300.0 Rev. 2.1	Bromide	103	94.3				
EPA 350.1 Rev. 2.0	Ammonia-N	99.9	101	101			0.0671
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	102	100	103			1.75
EPA 353.2 Rev. 2.0	NO2NO3-N	100	96.5	97.0			0.517
EPA 365.1 Rev. 2.0	Total-P	110	107	108			0.492
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	100	97.9	97.9			0.0
EPA 8321B	2,4-D	99.2	60.7	85.5			30.9
	Acesulfame K	74.3	56.0	53.5			4.54
	Acetaminophen	80.4	91.1	96.9			6.09
	Acetamiprid	68.8	67.6	74.3			9.32
	Afidopyropen	30.5	22.4	30.5			30.6
	AMPA	119	129	125			3.43
	Bentazon	45.8	25.0	36.1			15.7
	Benzovindiflupyr	63.9	52.9	63.2			17.7
	Carbamazepine	49.6	38.9	50.0			24.9
	Clothianidin	63.9	52.6	65.8			22.3
	Dinotefuran	74.9	75.6	90.6			18.1
	Diuron	37.2	26.4	36.4			32.0
	Endothall	98.1	87.4	89.9			2.81
	Fenuron	89.8	76.0	83.3			9.21
	Fluridone	65.1	59.9	66.2			8.95
	Glufosinate	110	98.2	96.7			1.57
	Glyphosate	108	92.7	84.9			8.78
	Hydrocodone	92.8	70.5	90.5			24.8
	Ibuprofen	60.4	57.1	65.6			13.8
	Imazapyr	90.9	75.7	75.5			0.194
	Imidacloprid	87.8	103	107			3.33
	Linuron	42.7	40.6	45.3			10.8
	Mandestrobin	67.3	65.0	74.6			13.7
	MCPP	61.3	48.3	65.3			29.9
	Naproxen	51.6	36.3	32.2			12.0
	Primidone	70.3	64.3	71.1			10.0
	Pyraclostrobin	58.5	53.0	57.8			8.72
	Sucralose	121	120	116			3.28

Quality Assurance Report Summary

Ref. Method	Analyte	LCS % Recovery	MS % Recovery		LCS	Precision	MS
						SMP	
EPA 8321B	Thiamethoxam	89.3	85.2	112			27.0
	Tolfenpyrad	40.9	32.2	38.4			17.7
	Triclopyr	55.6	28.8	54.2			61.2
SM 2320 B-2011	Total Alkalinity	99.4				7.08	
SM 4500 F-C-2011	Fluoride	96.1	103	104			0.479
SM 5310 B-2011	Organic Carbon	95.6	101				0.0998

Reference Method Descriptions

Method	Description	Associated Samples
EPA 180.1 Rev. 2.0	Turbidity in aqueous matrices	2202118
EPA 200.7 Rev. 4.4	Total Recoverable Metals analysis using ICP emission spectroscopy for aqueous samples supporting Clean Water Act Projects	2202124
EPA 200.8 Rev. 5.4	Total Recoverable Metals analysis using ICP-MS for aqueous samples supporting Clean Water Act Projects	2202124
EPA 300.0 Rev. 2.1	Bromide in aqueous matrices	2202118
EPA 350.1 Rev. 2.0	Ammonia in aqueous matrices as mg N/L	2202119
EPA 351.2 Rev. 2.0	Total Kjeldahl Nitrogen in aqueous matrices	2202119
EPA 353.2 Rev. 2.0	Nitrite/Nitrate in aqueous matrices as mg N/L	2202119
EPA 365.1 Rev. 2.0	Total Phosphorus in aqueous matrices as mg P/L	2202119
EPA 365.1 Rev. 2.0 dissolved	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	2202120
EPA 8321B	Pesticides, herbicides, and other chemicals in water matrices by HPLC/MS/MS	2202123
EPA 8321B	Water soluble organic compounds by HPLC/MS/MS	2202123
SM 2320 B-2011	Alkalinity in aqueous matrices as mg CaCO ₃ /L	2202118
SM 2540 D-2011	Total Suspended Solids in aqueous matrices using a maximum of 250 mL of sample	2202118
SM 4500 F-C-2011	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	2202118
SM 5310 B-2011	Nonpurgeable Organic Carbon in aqueous matrices	2202119

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	10/14/2020			10/15/2020 15:36	Yen Ta	2202118
EPA 200.7 Rev. 4.4	10/14/2020	10/14/2020 16:20	Elliott D. Healy	10/15/2020 17:05	Betina Topolski	2202124
EPA 200.8 Rev. 5.4	10/14/2020	10/14/2020 16:20	Elliott D. Healy	10/23/2020 15:03	Alexander Thompson	2202124
EPA 300.0 Rev. 2.1	10/14/2020			10/28/2020 17:19	Lipi Saha	2202118
EPA 350.1 Rev. 2.0	10/14/2020			10/18/2020 11:26	Ping Hua	2202119
EPA 351.2 Rev. 2.0	10/14/2020	10/21/2020 13:53	David Boose	10/23/2020 15:08	Elliott Rodriguez	2202119
EPA 353.2 Rev. 2.0	10/14/2020			10/19/2020 11:13	Beverly Y. Sanders	2202119
EPA 365.1 Rev. 2.0	10/14/2020	10/16/2020 14:57	Yen Ta	10/19/2020 15:04	Lipi Saha	2202119
EPA 365.1 Rev. 2.0 dissolved	10/14/2020			10/14/2020 16:27	Samantha Davila	2202120
EPA 8321B	10/14/2020	10/15/2020 11:00	Rebecca Ware	10/15/2020 16:49	Rebecca Ware	2202123
	10/14/2020	10/15/2020 11:00	Rebecca Ware	10/16/2020 15:42	Rebecca Ware	2202123
	10/14/2020	10/15/2020 11:00	Rebecca Ware	10/22/2020 00:42	Rebecca Ware	2202123
	10/14/2020	10/19/2020 09:00	Hoor Shaik	10/20/2020 03:19	Juyoung Kim	2202123
SM 2320 B-2011	10/14/2020			10/20/2020 03:15	Samantha Davila	2202118
SM 2540 D-2011	10/14/2020			10/15/2020 15:25	Yijie Li	2202118
SM 4500 F-C-2011	10/14/2020			10/20/2020 03:15	Samantha Davila	2202118
SM 5310 B-2011	10/14/2020			10/19/2020 19:23	Lauren Lees	2202119