

Chemical Analysis Report

NE-DIST-2021-03-04-01

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

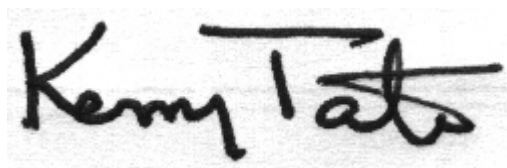
Event Description: **Nassau North 2 2021**
Request ID: **RQ-2021-02-22-16**
Customer: **NE-DIST**
Project ID: **SMP**

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Certified by: Kerry Tate, Ph.D., Environmental Administrator

Date Certified: 25-MAR-2021 10:46

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 first name.

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: Escambia Slough at Escambia St

Collection Date/Time: 03/03/2021 13:20

Field ID: G4NE0287

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2228969	EPA 180.1 Rev. 2.0	Turbidity	7.7		NTU	P394500	
	EPA 300.0 Rev. 2.1	Bromide	55		mg Br/L	P394860	
	SM 2320 B-2011	Total Alkalinity	102		mg CaCO3/L	P394735	
	SM 2540 D-2011	TSS	9.6	IA	mg/L	P394837	
	SM 4500 F-C-2011	Fluoride	0.98		mg F/L	P394740	
2228970	EPA 350.1 Rev. 2.0	Ammonia-N	0.052		mg N/L	P394588	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.34	I	mg N/L	P394719	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.011		mg N/L	P394650	
	EPA 365.1 Rev. 2.0	Total-P	0.044		mg P/L	P394549	
	SM 5310 B-2011	Organic Carbon	5.7		mg C/L	P395276	
2228971	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.025		mg P/L	P394493	
2228980	EPA 8321B	2,4-D	0.0020	U	ug/L	P394466	
		Acesulfame K	0.10	U	ug/L	P394526	MS
		2,4,5-T	0.0040	U	ug/L	P394466	
		AMPA	0.10	U	ug/L	P394526	
		Sucralose	0.045		ug/L	P394526	
		Acetaminophen	0.0080	U	ug/L	P394466	
		Acetamiprid	0.0020	U	ug/L	P394466	
		Endothall	0.25	U	ug/L	P394526	MS
		Glufosinate	0.10	U	ug/L	P394526	MS
		Glyphosate	0.10	U	ug/L	P394526	
		Afidopyropen	0.0020	U	ug/L	P394466	
		Bentazon	0.0010	I	ug/L	P394466	
		Benzovindiflupyr	0.0020	U	ug/L	P394466	
		Carbamazepine	8.0E-04	U	ug/L	P394466	
		Clothianidin	0.0020	U	ug/L	P394466	
		Dinotefuran	0.0020	U	ug/L	P394466	
		Diuron	0.0020	U	ug/L	P394466	
		Fenuron	0.016	U	ug/L	P394466	
		Fluridone	8.0E-04	U	ug/L	P394466	
		Imazapyr	0.012	I	ug/L	P394466	
		Hydrocodone	0.0020	U	ug/L	P394466	
		Ibuprofen	0.020	U	ug/L	P394466	
		Imidacloprid	0.0020	U	ug/L	P394466	
		Linuron	0.0040	U	ug/L	P394466	
		Mandestrobin	0.0020	U	ug/L	P394466	
		MCP	0.0020	U	ug/L	P394466	
		Naproxen	0.0080	U	ug/L	P394466	
		Primidone	0.0040	U	ug/L	P394466	
		Pyraclostrobin	0.0020	U	ug/L	P394466	
		Thiamethoxam	0.0020	U	ug/L	P394466	
		Tolfenpyrad	0.0020	U	ug/L	P394466	
		Triclopyr	0.0040	U	ug/L	P394466	

Field ID: G4NE0287

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2228981	EPA 200.7 Rev. 4.4	Calcium	338		mg/L	P394495	
		Chromium	9.3	I	ug/L	P394495	
		Iron	310	I	ug/L	P394495	
		Magnesium	1.02E+03		mg/L	P394495	
		Manganese	16		ug/L	P394495	
	EPA 200.8 Rev. 5.4	Zinc	20	U	ug/L	P394495	
		Aluminum	337		ug/L	P394495	
		Antimony	0.20	U	ug/L	P394495	
		Arsenic	2.07		ug/L	P394495	
		Beryllium	0.040	U	ug/L	P394495	
		Cadmium	0.080	U	ug/L	P394495	
		Copper	1.6	U	ug/L	P394495	
		Lead	2.0	U	ug/L	P394495	
		Nickel	2.0	U	ug/L	P394495	
		Selenium	0.80	U	ug/L	P394495	
		Silver	0.040	U	ug/L	P394495	
		Thallium	1.0	U	ug/L	P394495	

Ref. Method and Comment:

SM 2540 D-2011: 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 calcium and magnesium are unavailable 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: P394500

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P394495

Component	Result	Code	Units
Calcium	0.075	U	mg/L
Chromium	1.0	U	ug/L
Iron	30	U	ug/L
Magnesium	0.040	U	mg/L
Manganese	1.0	U	ug/L
Zinc	5.0	U	ug/L

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P394495

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
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: P394860

Component	Result	Code	Units
Bromide	0.013	U	mg Br/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P394588

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P394719

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P394650

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

Quality Assurance Report Method Blank Results

Reference Method: EPA 365.1 Rev. 2.0

Batch ID: P394549

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved

Batch ID: P394493

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

Reference Method: EPA 8321B

Batch ID: P394466

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
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: P394526

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

Quality Assurance Report

Method Blank Results

Reference Method: SM 2320 B-2011
Batch ID: P394735

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

Reference Method: SM 2540 D-2011
Batch ID: P394837

Component	Result	Code	Units
TSS	3	U	mg/L

Reference Method: SM 4500 F-C-2011
Batch ID: P394740

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-2011
Batch ID: P395276

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: P394495

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Calcium	106		P	85 - 115
Chromium	94.3		P	85 - 115
Iron	101		P	85 - 115
Magnesium	103		P	85 - 115
Manganese	97.8		P	85 - 115
Zinc	99.1		P	85 - 115

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P394495

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Aluminum	87.5		P	80 - 120
Antimony	92.4		P	80 - 120
Arsenic	86.2		P	80 - 120
Beryllium	87.3		P	80 - 120
Cadmium	89.0		P	80 - 120
Copper	84.5		P	80 - 120
Lead	86.2		P	80 - 120
Nickel	83.6		P	80 - 120
Selenium	87.3		P	80 - 120
Silver	106		P	85 - 115
Thallium	93.7		P	80 - 120

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P394860

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P394588

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P394719

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Kjeldahl Nitrogen	109		P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P394650

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P394549

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

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P394493

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

Reference Method: EPA 8321B
Batch ID: P394466

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2,4-D	91.0		P	30 - 160
2,4,5-T	78.0		P	30 - 160
Acetaminophen	99.7		P	30 - 160
Acetamiprid	72.9		P	30 - 160
Afidopyropen	52.2		P	30 - 160
Bentazon	81.9		P	30 - 160
Benzovindiflupyr	71.7		P	30 - 160
Carbamazepine	83.8		P	30 - 160
Clothianidin	87.9		P	30 - 160
Dinotefuran	83.9		P	30 - 160
Diuron	64.3		P	30 - 160
Fenuron	96.6		P	30 - 160
Fluridone	74.6		P	30 - 160
Hydrocodone	90.2		P	30 - 160
Ibuprofen	77.4		P	30 - 160
Imazapyr	99.7		P	30 - 160
Imidacloprid	94.0		P	30 - 160
Linuron	73.8		P	30 - 160
Mandestrobin	79.7		P	30 - 160
MCPP	87.8		P	30 - 160
Naproxen	53.5		P	30 - 160
Primidone	90.3		P	30 - 160
Pyraclostrobin	68.9		P	30 - 160
Thiamethoxam	88.9		P	30 - 160
Tolfenpyrad	47.9		P	30 - 160
Triclopyr	79.7		P	30 - 160

Reference Method: EPA 8321B
Batch ID: P394526

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Acesulfame K	142		P	40 - 150
AMPA	95.1		P	40 - 150
Endothall	86.4		P	40 - 150
Glufosinate	101		P	40 - 150
Glyphosate	97.3		P	40 - 140
Sucralose	96.9		P	40 - 150

Reference Method: SM 2320 B-2011
Batch ID: P394735

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	100		P	93 - 104

Quality Assurance Report

Laboratory Control Sample Accuracy

Reference Method: SM 4500 F-C-2011
Batch ID: P394740

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	98.2		P	90 - 106

Reference Method: SM 5310 B-2011
Batch ID: P395276

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	94.6		P	85 - 115

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 200.7 Rev. 4.4

Batch ID: P394495

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2227751	Chromium	93.5	94.1	P/P	70 - 130
2227751	Iron	103	102	P/P	70 - 130
2227751	Manganese	96.4	99.7	P/P	70 - 130
2227751	Zinc	100	99.9	P/P	70 - 130

Reference Method: EPA 200.8 Rev. 5.4

Batch ID: P394495

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2227751	Aluminum	99.6	96.9	P/P	70 - 130
2227751	Antimony	94.6	92.7	P/P	70 - 130
2227751	Arsenic	97.2	93.9	P/P	70 - 130
2227751	Beryllium	99.2	92.4	P/P	70 - 130
2227751	Cadmium	84.0	82.5	P/P	70 - 130
2227751	Copper	96.3	94.4	P/P	70 - 130
2227751	Lead	98.8	96.6	P/P	70 - 130
2227751	Nickel	101	99.5	P/P	70 - 130
2227751	Selenium	89.7	89.1	P/P	70 - 130
2227751	Silver	96.2	94.1	P/P	70 - 130
2227751	Thallium	104	102	P/P	70 - 130

Reference Method: EPA 300.0 Rev. 2.1

Batch ID: P394860

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2229539	Bromide	97.1	94.9	P/P	90 - 110
2229543	Bromide	95.7		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0

Batch ID: P394588

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2228897	Ammonia-N	102	102	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0

Batch ID: P394719

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2228900	Kjeldahl Nitrogen	101	103	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0

Batch ID: P394650

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2228970	NO2NO3-N	106	107	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Batch ID: P394549

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2228900	Total-P	99.5	98.8	P/P	90 - 110

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P394493

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2228971	O-Phosphate-P	101	100	P/P	90 - 110

Reference Method: EPA 8321B
Batch ID: P394466

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2228915	2,4-D	94.4	90.3	P/P	30 - 160
2228915	2,4,5-T	79.7	72.8	P/P	30 - 160
2228915	Acetaminophen	113	114	P/P	30 - 160
2228915	Acetamiprid	97.8	92.0	P/P	30 - 160
2228915	Afidopyropen	73.2	67.6	P/P	30 - 160
2228915	Bentazon	76.9	70.9	P/P	30 - 160
2228915	Benzovindiflupyr	76.2	74.3	P/P	30 - 160
2228915	Carbamazepine	92.4	85.8	P/P	30 - 160
2228915	Clothianidin	94.2	97.4	P/P	30 - 160
2228915	Dinotefuran	90.5	89.9	P/P	30 - 160
2228915	Diuron	68.7	62.3	P/P	30 - 160
2228915	Fenuron	95.8	83.2	P/P	30 - 160
2228915	Fluridone	95.3	96.4	P/P	30 - 160
2228915	Hydrocodone	107	97.1	P/P	30 - 160
2228915	Ibuprofen	70.4	76.4	P/P	30 - 160
2228915	Imazapyr	88.0	93.9	P/P	30 - 160
2228915	Imidacloprid	110	95.6	P/P	30 - 160
2228915	Linuron	76.7	73.7	P/P	30 - 160
2228915	Mandestrobin	82.5	77.0	P/P	30 - 160
2228915	MCPP	83.0	88.7	P/P	30 - 160
2228915	Naproxen	49.7	40.6	P/P	30 - 160
2228915	Primidone	97.8	98.9	P/P	30 - 160
2228915	Pyraclostrobin	73.3	69.5	P/P	30 - 160
2228915	Thiamethoxam	105	98.5	P/P	30 - 160
2228915	Tolfenpyrad	46.8	45.8	P/P	30 - 160
2228915	Triclopyr	77.8	69.6	P/P	30 - 160

Reference Method: EPA 8321B
Batch ID: P394526

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2228966	Acesulfame K	207	213	F/F	40 - 150
2228966	AMPA	109	110	P/P	40 - 150
2228966	Endothall	149	198	P/F	40 - 150
2228966	Glufosinate	133	151	P/F	40 - 150
2228966	Glyphosate	71.8	83.2	P/P	40 - 140
2228966	Sucralose	114	115	P/P	40 - 150

Reference Method: SM 4500 F-C-2011
Batch ID: P394740

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2227520	Fluoride	97.9	99.7	P/P	94 - 107

Quality Assurance Report

Matrix Spike Accuracy

Reference Method: SM 5310 B-2011
Batch ID: P395276

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2228899	Organic Carbon	91.3	93.6	P/P	85 - 115

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P394500

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2228947	Turbidity	3.13	Sample	P	0 - 20

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P394495

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2227751	Calcium	2.11	Spike	P	0 - 20
2227751	Chromium	0.648	Spike	P	0 - 20
2227751	Iron	0.532	Spike	P	0 - 20
2227751	Magnesium	0.791	Spike	P	0 - 20
2227751	Manganese	3.22	Spike	P	0 - 20
2227751	Zinc	0.271	Spike	P	0 - 20

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P394495

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2227751	Aluminum	2.41	Spike	P	0 - 20
2227751	Antimony	2.00	Spike	P	0 - 20
2227751	Arsenic	3.41	Spike	P	0 - 20
2227751	Beryllium	7.13	Spike	P	0 - 20
2227751	Cadmium	1.80	Spike	P	0 - 20
2227751	Copper	2.00	Spike	P	0 - 20
2227751	Lead	2.32	Spike	P	0 - 20
2227751	Nickel	1.17	Spike	P	0 - 20
2227751	Selenium	0.700	Spike	P	0 - 20
2227751	Silver	2.20	Spike	P	0 - 20
2227751	Thallium	1.96	Spike	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P394860

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2229539	Bromide	1.81	Spike	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P394588

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2228897	Ammonia-N	0.168	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P394719

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2228900	Kjeldahl Nitrogen	2.00	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 353.2 Rev. 2.0

Batch ID: P394650

Replicated

Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2228970	NO2NO3-N	0.893	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0

Batch ID: P394549

Replicated

Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2228900	Total-P	0.756	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved

Batch ID: P394493

Replicated

Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2228971	O-Phosphate-P	0.400	Spike	P	0 - 20

Reference Method: EPA 8321B

Batch ID: P394466

Replicated

Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2228915	2,4-D	4.43	Spike	P	0 - 30
2228915	2,4,5-T	9.11	Spike	P	0 - 30
2228915	Acetaminophen	0.697	Spike	P	0 - 30
2228915	Acetamiprid	6.03	Spike	P	0 - 30
2228915	Afidopyropen	7.91	Spike	P	0 - 30
2228915	Bentazon	6.46	Spike	P	0 - 30
2228915	Benzovindiflupyr	2.49	Spike	P	0 - 30
2228915	Carbamazepine	7.40	Spike	P	0 - 30
2228915	Clothianidin	3.42	Spike	P	0 - 30
2228915	Dinotefuran	0.607	Spike	P	0 - 30
2228915	Diuron	9.76	Spike	P	0 - 30
2228915	Fenuron	14.1	Spike	P	0 - 30
2228915	Fluridone	1.16	Spike	P	0 - 30
2228915	Hydrocodone	10.2	Spike	P	0 - 30
2228915	Ibuprofen	8.10	Spike	P	0 - 30
2228915	Imazapyr	6.48	Spike	P	0 - 30
2228915	Imidacloprid	13.1	Spike	P	0 - 30
2228915	Linuron	3.97	Spike	P	0 - 30
2228915	Mandestrobin	6.92	Spike	P	0 - 30
2228915	MCPP	6.63	Spike	P	0 - 30
2228915	Naproxen	15.7	Spike	P	0 - 30
2228915	Primidone	1.09	Spike	P	0 - 30
2228915	Pyraclostrobin	5.42	Spike	P	0 - 30
2228915	Thiamethoxam	6.36	Spike	P	0 - 30
2228915	Tolfenpyrad	2.14	Spike	P	0 - 30
2228915	Triclopyr	11.2	Spike	P	0 - 30

Quality Assurance Report Precision

Reference Method: EPA 8321B

Batch ID: P394526

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2228966	Acesulfame K	2.84	Spike	P	0 - 30
2228966	AMPA	0.907	Spike	P	0 - 30
2228966	Endothall	28.4	Spike	P	0 - 30
2228966	Glufosinate	12.8	Spike	P	0 - 30
2228966	Glyphosate	14.8	Spike	P	0 - 30
2228966	Sucralose	1.07	Spike	P	0 - 30

Reference Method: SM 2320 B-2011

Batch ID: P394735

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2229533	Total Alkalinity	0.0382	Sample	P	0 - 8.1

Reference Method: SM 4500 F-C-2011

Batch ID: P394740

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2227520	Fluoride	1.46	Spike	P	0 - 2.8

Reference Method: SM 5310 B-2011

Batch ID: P395276

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2228899	Organic Carbon	2.27	Spike	P	0 - 20

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

Quality Assurance Report Surrogates

Lab Sample ID: 2228980

Field Sample ID: G4NE0287

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	2,4-D-d3	78.9	P	30 - 160
EPA 8321B	Acetaminophen-d4	99.4	P	30 - 160
EPA 8321B	Carbamazepine-d10	81.7	P	30 - 160
EPA 8321B	Diuron-d6	64.2	P	30 - 160
EPA 8321B	Endothall-d6	71.7	P	40 - 160
EPA 8321B	Endothall-d6	71.7	P	40 - 160
EPA 8321B	Glyphosate 13C 15N	68.6	P	40 - 160
EPA 8321B	Glyphosate 13C 15N	68.6	P	40 - 160
EPA 8321B	Ibuprofen-d3	78.2	P	30 - 160
EPA 8321B	Primidone-d5	109	P	30 - 160
EPA 8321B	Sucralose-d6	90.5	P	30 - 160
EPA 8321B	Sucralose-d6	90.5	P	30 - 160

Quality Assurance Report Calibration Verification

Reference Method: EPA 365.1 Rev. 2.0 dissolved

Run ID: A103892

Included Lab Sample IDs: 2228971

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	99.3	99.0	P/P	90 - 110

Reference Method: EPA 180.1 Rev. 2.0

Run ID: A103894

Included Lab Sample IDs: 2228969

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Turbidity	100	102	P/P	95 - 105

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A103925

Included Lab Sample IDs: 2228970

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	98.8	98.1	P/P	90 - 110

Reference Method: EPA 200.7 Rev. 4.4

Run ID: A103926

Included Lab Sample IDs: 2228981

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Calcium	104	104	P/P	90 - 110
Chromium	99.3	101	P/P	90 - 110
Iron	103	103	P/P	90 - 110
Magnesium	101	101	P/P	90 - 110
Manganese	103	102	P/P	90 - 110
Zinc	102	103	P/P	90 - 110

Reference Method: EPA 8321B

Run ID: A103927

Included Lab Sample IDs: 2228980

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
2,4-D	66.3	64.7	P/P	50 - 150
2,4,5-T	73.9	67.2	P/P	50 - 150
Acetaminophen	88.1	109	P/P	60 - 160
Acetamiprid	94.9	99.6	P/P	50 - 150
Afidopyropen	76.0	79.6	P/P	50 - 150
Bentazon	118	110	P/P	50 - 160
Benzovindiflupyr	92.9	88.4	P/P	50 - 160
Carbamazepine	91.3	91.1	P/P	60 - 150
Clothianidin	105	96.2	P/P	60 - 150
Dinotefuran	85.3	95.7	P/P	50 - 150
Diuron	97.7	89.6	P/P	60 - 160
Fenuron	105	103	P/P	60 - 150
Fluridone	115	120	P/P	60 - 160
Hydrocodone	93.1	99.7	P/P	60 - 150
Ibuprofen	94.4	79.5	P/P	50 - 160
Imazapyr	104	94.8	P/P	50 - 160
Imidacloprid	95.5	93.6	P/P	60 - 150
Linuron	96.3	101	P/P	60 - 150

Quality Assurance Report Calibration Verification

Reference Method: EPA 8321B
Run ID: A103927
Included Lab Sample IDs: 2228980

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Mandestrobin	91.7	94.4	P/P	50 - 150
MCPD	73.3	77.5	P/P	50 - 150
Naproxen	127	123	P/P	50 - 160
Primidone	104	91.9	P/P	60 - 150
Pyraclostrobin	88.6	87.5	P/P	60 - 150
Thiamethoxam	93.8	93.0	P/P	50 - 150
Tolfenpyrad	91.9	87.4	P/P	60 - 150
Triclopyr	60.7	78.4	P/P	50 - 150

Reference Method: EPA 8321B
Run ID: A103949
Included Lab Sample IDs: 2228980

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Acesulfame K	95.0	61.6	P/P	60 - 160
AMPA	113	112	P/P	60 - 160
Endothall	145	120	P/P	60 - 160
Glufosinate	96.4	103	P/P	60 - 160
Glyphosate	132	123	P/P	60 - 160

Reference Method: EPA 365.1 Rev. 2.0
Run ID: A103950
Included Lab Sample IDs: 2228970

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	98.2	97.8	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Run ID: A103962
Included Lab Sample IDs: 2228970

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO2NO3-N	102	104	P/P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Run ID: A103980
Included Lab Sample IDs: 2228969

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

Reference Method: SM 2320 B-2011
Run ID: A103989
Included Lab Sample IDs: 2228969

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	97.7	100	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: SM 4500 F-C-2011

Run ID: A103989

Included Lab Sample IDs: 2228969

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

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A104011

Included Lab Sample IDs: 2228970

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	104	105	P/P	90 - 110

Reference Method: EPA 200.8 Rev. 5.4

Run ID: A104030

Included Lab Sample IDs: 2228981

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Aluminum	96.6	96.9	P/P	90 - 110
Antimony	93.8	95.4	P/P	90 - 110
Arsenic	93.0	92.9	P/P	90 - 110
Beryllium	99.6	103	P/P	90 - 110
Cadmium	91.2	91.2	P/P	90 - 110
Copper	93.2	93.8	P/P	90 - 110
Lead	92.1	92.6	P/P	90 - 110
Nickel	92.9	94.8	P/P	90 - 110
Selenium	93.8	94.5	P/P	90 - 110
Thallium	95.7	96.6	P/P	90 - 110

Reference Method: EPA 200.8 Rev. 5.4

Run ID: A104051

Included Lab Sample IDs: 2228981

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

Reference Method: EPA 8321B

Run ID: A104071

Included Lab Sample IDs: 2228980

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Sucralose	95.6	96.1	P/P	60 - 160

Reference Method: SM 5310 B-2011

Run ID: A104189

Included Lab Sample IDs: 2228970

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	95.4	92.9	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					3.13	
EPA 200.7 Rev. 4.4	Calcium	106					2.11
	Chromium	94.3	93.5	94.1			0.648
	Iron	101	103	102			0.532
	Magnesium	103					0.791
	Manganese	97.8	96.4	99.7			3.22
	Zinc	99.1	100	99.9			0.271
EPA 200.8 Rev. 5.4	Aluminum	87.5	99.6	96.9			2.41
	Antimony	92.4	94.6	92.7			2.00
	Arsenic	86.2	97.2	93.9			3.41
	Beryllium	87.3	99.2	92.4			7.13
	Cadmium	89.0	84.0	82.5			1.80
	Copper	84.5	96.3	94.4			2.00
	Lead	86.2	98.8	96.6			2.32
	Nickel	83.6	101	99.5			1.17
	Selenium	87.3	89.7	89.1			0.700
	Silver	106	96.2	94.1			2.20
	Thallium	93.7	104	102			1.96
EPA 300.0 Rev. 2.1	Bromide	99.5	97.1	94.9	95.7		1.81
EPA 350.1 Rev. 2.0	Ammonia-N	97.4	102	102			0.168
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	109	101	103			2.00
EPA 353.2 Rev. 2.0	NO2NO3-N	101	106	107			0.893
EPA 365.1 Rev. 2.0	Total-P	101	99.5	98.8			0.756
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	101	101	100			0.400
EPA 8321B	2,4-D	91.0	94.4	90.3			4.43
	2,4,5-T	78.0	79.7	72.8			9.11
	Acesulfame K	142	207	213			2.84
	Acetaminophen	99.7	113	114			0.697
	Acetamiprid	72.9	97.8	92.0			6.03
	Afidopyropen	52.2	73.2	67.6			7.91
	AMPA	95.1	109	110			0.907
	Bentazon	81.9	76.9	70.9			6.46
	Benzovindiflupyr	71.7	76.2	74.3			2.49
	Carbamazepine	83.8	92.4	85.8			7.40
	Clothianidin	87.9	94.2	97.4			3.42
	Dinotefuran	83.9	90.5	89.9			0.607
	Diuron	64.3	68.7	62.3			9.76
	Endothall	86.4	149	198			28.4
	Fenuron	96.6	95.8	83.2			14.1
	Fluridone	74.6	95.3	96.4			1.16
	Glufosinate	101	133	151			12.8
	Glyphosate	97.3	71.8	83.2			14.8
	Hydrocodone	90.2	107	97.1			10.2
	Ibuprofen	77.4	70.4	76.4			8.10
	Imazapyr	99.7	88.0	93.9			6.48
	Imidacloprid	94.0	110	95.6			13.1
	Linuron	73.8	76.7	73.7			3.97
	Mandestrobin	79.7	82.5	77.0			6.92
	MCPP	87.8	83.0	88.7			6.63
	Naproxen	53.5	49.7	40.6			15.7
	Primidone	90.3	97.8	98.9			1.09
	Pyraclostrobin	68.9	73.3	69.5			5.42
	Sucralose	96.9	114	115			1.07
	Thiamethoxam	88.9	105	98.5			6.36

Quality Assurance Report Summary

Ref. Method	Analyte	LCS % Recovery	MS % Recovery		Precision SMP	MS
					LCS	
EPA 8321B	Tolfenpyrad	47.9	46.8	45.8		2.14
	Triclopyr	79.7	77.8	69.6		11.2
SM 2320 B-2011	Total Alkalinity	100			0.0382	
SM 4500 F-C-2011	Fluoride	98.2	97.9	99.7		1.46
SM 5310 B-2011	Organic Carbon	94.6	91.3	93.6		2.27

Reference Method Descriptions

Method	Description	Associated Samples
EPA 180.1 Rev. 2.0	Turbidity in aqueous matrices	2228969
EPA 200.7 Rev. 4.4	Total Recoverable Metals analysis using ICP emission spectroscopy for aqueous samples supporting Clean Water Act Projects	2228981
EPA 200.8 Rev. 5.4	Total Recoverable Metals analysis using ICP-MS for aqueous samples supporting Clean Water Act Projects	2228981
EPA 300.0 Rev. 2.1	Bromide in aqueous matrices	2228969
EPA 350.1 Rev. 2.0	Ammonia in aqueous matrices as mg N/L	2228970
EPA 351.2 Rev. 2.0	Total Kjeldahl Nitrogen in aqueous matrices	2228970
EPA 353.2 Rev. 2.0	Nitrite/Nitrate in aqueous matrices as mg N/L	2228970
EPA 365.1 Rev. 2.0	Total Phosphorus in aqueous matrices as mg P/L	2228970
EPA 365.1 Rev. 2.0 dissolved	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	2228971
EPA 8321B	Pesticides, herbicides, and other chemicals in water matrices by HPLC/MS/MS	2228980
EPA 8321B	Water soluble organic compounds by HPLC/MS/MS	2228980
SM 2320 B-2011	Alkalinity in aqueous matrices as mg CaCO ₃ /L	2228969
SM 2540 D-2011	Total Suspended Solids in aqueous matrices using a maximum of 250 mL of sample	2228969
SM 4500 F-C-2011	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	2228969
SM 5310 B-2011	Nonpurgeable Organic Carbon in aqueous matrices	2228970

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	03/04/2021			03/04/2021 16:10	Yen Ta	2228969
EPA 200.7 Rev. 4.4	03/04/2021	03/04/2021 16:20	Elliott D. Healy	03/05/2021 18:50	Betina Topolski	2228981
	03/04/2021	03/04/2021 16:20	Elliott D. Healy	03/05/2021 18:58	Betina Topolski	2228981
EPA 200.8 Rev. 5.4	03/04/2021	03/04/2021 16:20	Elliott D. Healy	03/11/2021 17:49	Josef B Mick	2228981
	03/04/2021	03/04/2021 16:20	Elliott D. Healy	03/11/2021 18:54	Josef B Mick	2228981
	03/04/2021	03/04/2021 16:20	Elliott D. Healy	03/12/2021 20:34	Josef B Mick	2228981
EPA 300.0 Rev. 2.1	03/04/2021			03/10/2021 15:56	Lipi Saha	2228969
EPA 350.1 Rev. 2.0	03/04/2021			03/07/2021 12:33	Ping Hua	2228970
EPA 351.2 Rev. 2.0	03/04/2021	03/10/2021 12:23	Benjamin T. Nordmann	03/11/2021 12:42	Virginia P. Brown	2228970
EPA 353.2 Rev. 2.0	03/04/2021			03/09/2021 09:44	Beverly Y. Sanders	2228970
EPA 365.1 Rev. 2.0	03/04/2021	03/05/2021 13:30	Lipi Saha	03/08/2021 14:21	Shengyu Ding	2228970
EPA 365.1 Rev. 2.0 dissolved	03/04/2021			03/04/2021 15:29	Blanca Fach	2228971
EPA 8321B	03/04/2021	03/05/2021 11:30	Rebecca Ware	03/05/2021 19:23	Rebecca Ware	2228980
	03/04/2021	03/05/2021 11:30	Rebecca Ware	03/12/2021 16:08	Rebecca Ware	2228980
	03/04/2021	03/05/2021 13:00	Hoor Shaik	03/08/2021 08:56	Juyoung Kim	2228980
SM 2320 B-2011	03/04/2021			03/10/2021 07:21	Dale L. Simmons	2228969
SM 2540 D-2011	03/04/2021			03/08/2021 14:25	Yijie Li	2228969
SM 4500 F-C-2011	03/04/2021			03/10/2021 06:35	Dale L. Simmons	2228969
SM 5310 B-2011	03/04/2021			03/20/2021 14:50	Madeline Gruver	2228970