

Chemical Analysis Report

SE-DIST-2021-08-31-02

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

Event Description: **SMP - 3208B Deployment Q3 2021**

Request ID: **RQ-2021-08-16-22**

Customer: **SE-DIST**

Project ID: **SMP**

Send Reports to:

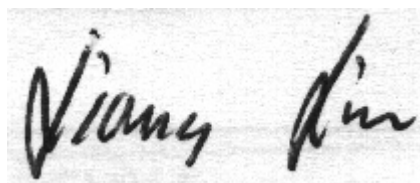
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Certified by: Liang Lin, Environmental Administrator

Date Certified: 23-SEP-2021 14:30

A handwritten signature in black ink, appearing to read "Liang Lin", is shown 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: Willoughby Creek

Collection Date/Time: 08/30/2021 12:30

Field ID: G2SE0034

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2272834	EPA 180.1 Rev. 2.0	Turbidity	6.6		NTU	P403227	
	SM 2320 B-2011	Total Alkalinity	131		mg CaCO3/L	P403301	
	SM 2540 D-2011	TSS	6	I	mg/L	P403571	
	SM 4500 F-C-2011	Fluoride	0.55		mg F/L	P403303	
2272835	EPA 350.1 Rev. 2.0	Ammonia-N	0.018		mg N/L	P403360	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.77		mg N/L	P403354	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.11		mg N/L	P403248	
	EPA 365.1 Rev. 2.0	Total-P	0.14		mg P/L	P403257	
	SM 5310 B-2011	Organic Carbon	13		mg C/L	P403620	
2272836	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.11		mg P/L	P403221	
2272869	EPA 8276	Chlordane	5.5	U	ng/L	P403259	
		Toxaphene	33	U	ng/L	P403259	
2272870	EPA 8321B	Acesulfame K	0.10	U	ug/L	P403327	
		2,4-D	0.14		ug/L	P403290	
		AMPA	1.0	U	ug/L	P403327	
		2,4,5-T	0.0040	U	ug/L	P403290	
		Acetaminophen	0.0080	U	ug/L	P403290	
		Endothall	0.25	U	ug/L	P403327	
		Acetamiprid	0.0020	U	ug/L	P403290	
		Glufosinate	1.0	U	ug/L	P403327	
		Glyphosate	1.0	U	ug/L	P403327	
		Afidopyropen	0.0020	U	ug/L	P403290	
		Sucralose	0.22		ug/L	P403327	
		Bentazon	0.049		ug/L	P403290	MS
		Benzovindiflupyr	0.0020	U	ug/L	P403290	
		Carbamazepine	8.0E-04	U	ug/L	P403290	
		Clothianidin	0.0020	U	ug/L	P403290	
		Dinotefuran	0.0020	U	ug/L	P403290	
		Diuron	0.017		ug/L	P403290	
		Fenuron	0.016	U	ug/L	P403290	
		Fluridone	0.0056		ug/L	P403290	
		Imazapyr	0.17		ug/L	P403290	
		Hydrocodone	0.0020	U	ug/L	P403290	
		Ibuprofen	0.020	U	ug/L	P403290	
		Imidacloprid	0.013		ug/L	P403290	
		Linuron	0.0040	U	ug/L	P403290	
		Mandestrobin	0.0020	U	ug/L	P403290	
		MCP	0.0020	U	ug/L	P403290	
		Naproxen	0.0080	U	ug/L	P403290	
		Primidone	0.0040	U	ug/L	P403290	MS
		Pyraclostrobin	0.0020	U	ug/L	P403290	
		Thiamethoxam	0.0031	I	ug/L	P403290	
		Tolfenpyrad	0.0020	U	ug/L	P403290	

Field ID: G2SE0034

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2272870	EPA 8321B	Triclopyr	0.0040	U	ug/L	P403290	
2272871	EPA 200.7 Rev. 4.4	Calcium	167		mg/L	P403304	
		Iron	230	I	ug/L	P403304	
		Magnesium	436		mg/L	P403304	
		Manganese	10	I	ug/L	P403304	
		Zinc	15	U	ug/L	P403304	
	EPA 200.8 Rev. 5.4	Aluminum	174		ug/L	P403304	
		Antimony	0.20	U	ug/L	P403304	
		Arsenic	2.49		ug/L	P403304	
		Beryllium	0.042	I	ug/L	P403304	
		Cadmium	0.080	U	ug/L	P403304	
		Chromium	1.6	U	ug/L	P403304	
		Copper	2.6	I	ug/L	P403304	
		Lead	0.80	U	ug/L	P403304	
		Nickel	2.0	U	ug/L	P403304	
		Selenium	0.80	U	ug/L	P403304	
		Silver	0.040	U	ug/L	P403304	
		Thallium	0.40	U	ug/L	P403304	

Ref. Method and Comment:

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

EPA 8321B: MDL for some parameters elevated due to matrix interference. MS accuracy for Glyphosate could not be assessed due to a high concentration of parameter in the spiked sample.

EPA 8321B: MS accuracy for 2,4-D could not be assessed due to high concentration of parameter in the spiked 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: P403227

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P403304

Component	Result	Code	Units
Calcium	0.075	U	mg/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: P403304

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 350.1 Rev. 2.0
Batch ID: P403360

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P403354

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P403248

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P403257

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

Quality Assurance Report

Method Blank Results

Reference Method: EPA 365.1 Rev. 2.0 dissolved
 Batch ID: P403221

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

Reference Method: EPA 8276
 Batch ID: P403259

Component	Result	Code	Units
Chlordane	5.0	U	ng/L
Chlordane	5.0	U	ng/L
Toxaphene	30	U	ng/L
Toxaphene	30	U	ng/L

Reference Method: EPA 8321B
 Batch ID: P403290

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: P403327

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: P403301

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

Reference Method: SM 2540 D-2011
Batch ID: P403571

Component	Result	Code	Units
TSS	3	U	mg/L

Reference Method: SM 4500 F-C-2011
Batch ID: P403303

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-2011
Batch ID: P403620

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: P403304

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Calcium	101		P	85 - 115
Iron	101		P	85 - 115
Magnesium	99.9		P	85 - 115
Manganese	93.8		P	85 - 115
Zinc	93.6		P	85 - 115

Reference Method: EPA 200.8 Rev. 5.4
 Batch ID: P403304

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Aluminum	101		P	85 - 115
Antimony	102		P	85 - 115
Arsenic	94.6		P	85 - 115
Beryllium	94.3		P	85 - 115
Cadmium	99.9		P	85 - 115
Chromium	100		P	85 - 115
Copper	97.8		P	85 - 115
Lead	96.8		P	85 - 115
Nickel	99.3		P	85 - 115
Selenium	95.7		P	85 - 115
Silver	102		P	85 - 115
Thallium	100		P	85 - 115

Reference Method: EPA 350.1 Rev. 2.0
 Batch ID: P403360

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Ammonia-N	99.4		P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
 Batch ID: P403354

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Kjeldahl Nitrogen	94.5		P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
 Batch ID: P403248

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: P403257

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
 Batch ID: P403221

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

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 8276

Batch ID: P403259

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Chlordane	96.4	89.1	P/P	56 - 117
Toxaphene	100	86.2	P/P	45 - 116

Reference Method: EPA 8321B

Batch ID: P403290

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2,4-D	90.6		P	40 - 150
2,4,5-T	86.4		P	40 - 150
Acetaminophen	78.0		P	30 - 150
Acetamiprid	80.5		P	40 - 150
Afidopyropen	74.5		P	40 - 150
Bentazon	98.4		P	30 - 150
Benzovindiflupyr	86.4		P	40 - 150
Carbamazepine	80.4		P	40 - 150
Clothianidin	86.3		P	40 - 150
Dinotefuran	80.5		P	40 - 150
Diuron	81.8		P	40 - 150
Fenuron	89.0		P	40 - 150
Fluridone	92.3		P	40 - 150
Hydrocodone	85.3		P	40 - 150
Ibuprofen	54.2		P	40 - 150
Imazapyr	86.5		P	40 - 150
Imidacloprid	97.7		P	40 - 150
Linuron	86.3		P	40 - 150
Mandestrobin	86.4		P	40 - 150
MCPP	82.6		P	40 - 150
Naproxen	76.6		P	40 - 150
Primidone	99.3		P	40 - 150
Pyraclostrobin	72.0		P	40 - 150
Thiamethoxam	90.9		P	40 - 150
Tolfenpyrad	50.7		P	30 - 150
Triclopyr	91.8		P	40 - 150

Reference Method: EPA 8321B

Batch ID: P403327

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Acesulfame K	105		P	40 - 150
AMPA	71.1		P	40 - 150
Endothall	125		P	40 - 150
Glufosinate	97.7		P	40 - 150
Glyphosate	101		P	40 - 150
Sucralose	89.1		P	40 - 150

Reference Method: SM 2320 B-2011

Batch ID: P403301

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	102		P	94 - 106

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: SM 4500 F-C-2011
Batch ID: P403303

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	99.8		P	93 - 104

Reference Method: SM 5310 B-2011
Batch ID: P403620

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	97.6		P	85 - 115

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 200.7 Rev. 4.4

Batch ID: P403304

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2272871	Iron	101	103	P/P	70 - 130
2272871	Manganese	92.3	93.0	P/P	70 - 130
2272871	Zinc	94.6	96.8	P/P	70 - 130

Reference Method: EPA 200.8 Rev. 5.4

Batch ID: P403304

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2272871	Aluminum	114	106	P/P	70 - 130
2272871	Antimony	107	121	P/P	70 - 130
2272871	Arsenic	111	127	P/P	70 - 130
2272871	Beryllium	108	104	P/P	70 - 130
2272871	Cadmium	97.1	108	P/P	70 - 130
2272871	Chromium	104	118	P/P	70 - 130
2272871	Copper	109	124	P/P	70 - 130
2272871	Lead	108	121	P/P	70 - 130
2272871	Nickel	116	111	P/P	70 - 130
2272871	Selenium	106	117	P/P	70 - 130
2272871	Silver	94.2	107	P/P	70 - 130
2272871	Thallium	109	125	P/P	70 - 130

Reference Method: EPA 350.1 Rev. 2.0

Batch ID: P403360

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2273394	Ammonia-N	103	103	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0

Batch ID: P403354

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2272759	Kjeldahl Nitrogen	100	101	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0

Batch ID: P403248

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2272331	NO2NO3-N	102	101	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Batch ID: P403257

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2272353	Total-P	102	103	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved

Batch ID: P403221

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2272760	O-Phosphate-P	100	101	P/P	90 - 110

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 8276

Batch ID: P403259

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2272899	Chlordane	66.2	78.4	P/P	47 - 128
2272899	Toxaphene	74.5	77.1	P/P	11 - 163

Reference Method: EPA 8321B

Batch ID: P403290

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2273120	2,4,5-T	119	118	P/P	40 - 150
2273120	Acetaminophen	70.0	64.7	P/P	30 - 150
2273120	Acetamiprid	74.3	69.4	P/P	40 - 150
2273120	Afidopyropen	92.4	79.4	P/P	40 - 150
2273120	Bentazon	227	206	F/F	30 - 150
2273120	Benzovindiflupyr	87.3	92.3	P/P	40 - 150
2273120	Carbamazepine	75.6	71.7	P/P	40 - 150
2273120	Clothianidin	46.4	43.7	P/P	40 - 150
2273120	Dinotefuran	74.6	75.9	P/P	40 - 150
2273120	Diuron	83.2	74.1	P/P	40 - 150
2273120	Fenuron	94.6	89.3	P/P	40 - 150
2273120	Fluridone	91.1	89.2	P/P	40 - 150
2273120	Hydrocodone	106	112	P/P	40 - 150
2273120	Ibuprofen	75.3	64.4	P/P	40 - 150
2273120	Imazapyr	106	111	P/P	40 - 150
2273120	Imidacloprid	88.2	82.7	P/P	40 - 150
2273120	Linuron	85.1	91.6	P/P	40 - 150
2273120	Mandestrobin	98.4	98.5	P/P	40 - 150
2273120	MCPP	123	114	P/P	40 - 150
2273120	Naproxen	93.1	71.6	P/P	40 - 150
2273120	Primidone	25.0	23.9	F/F	40 - 150
2273120	Pyraclostrobin	90.2	91.2	P/P	40 - 150
2273120	Thiamethoxam	75.0	79.4	P/P	40 - 150
2273120	Tolfenpyrad	48.7	52.4	P/P	30 - 150
2273120	Triclopyr	110	113	P/P	40 - 150

Reference Method: EPA 8321B

Batch ID: P403327

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2273120	Acesulfame K	148	148	P/P	40 - 150
2273120	AMPA	101	99.9	P/P	40 - 150
2273120	Endothall	113	109	P/P	40 - 150
2273120	Glufosinate	108	109	P/P	40 - 150
2273120	Sucralose	90.1	92.2	P/P	40 - 150

Reference Method: SM 4500 F-C-2011

Batch ID: P403303

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2272352	Fluoride	98.0	99.4	P/P	92 - 107

Quality Assurance Report

Matrix Spike Accuracy

Reference Method: SM 5310 B-2011
Batch ID: P403620

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2272930	Organic Carbon	94.2	94.8	P/P	85 - 115

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P403227

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2272771	Turbidity	0.0	Sample	P	0 - 20

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P403304

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2272871	Calcium	2.31	Spike	P	0 - 20
2272871	Iron	1.45	Spike	P	0 - 20
2272871	Magnesium	0.598	Spike	P	0 - 20
2272871	Manganese	0.690	Spike	P	0 - 20
2272871	Zinc	2.33	Spike	P	0 - 20

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P403304

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2272871	Aluminum	6.68	Spike	P	0 - 20
2272871	Antimony	11.5	Spike	P	0 - 20
2272871	Arsenic	12.8	Spike	P	0 - 20
2272871	Beryllium	4.00	Spike	P	0 - 20
2272871	Cadmium	10.7	Spike	P	0 - 20
2272871	Chromium	12.2	Spike	P	0 - 20
2272871	Copper	11.9	Spike	P	0 - 20
2272871	Lead	11.3	Spike	P	0 - 20
2272871	Nickel	4.83	Spike	P	0 - 20
2272871	Selenium	10.2	Spike	P	0 - 20
2272871	Silver	12.8	Spike	P	0 - 20
2272871	Thallium	13.1	Spike	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P403360

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2273394	Ammonia-N	0.512	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P403354

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2272759	Kjeldahl Nitrogen	0.791	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P403248

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2272331	NO2NO3-N	0.494	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 365.1 Rev. 2.0

Batch ID: P403257

Replicated

Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2272353	Total-P	1.10	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved

Batch ID: P403221

Replicated

Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2272760	O-Phosphate-P	0.968	Spike	P	0 - 20

Reference Method: EPA 8276

Batch ID: P403259

Replicated

Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2272899	Chlordane	16.9	Spike	P	0 - 30
2272899	Toxaphene	3.45	Spike	P	0 - 30
LFB	Chlordane	7.84	LCS	P	0 - 30
LFB	Toxaphene	15.1	LCS	P	0 - 30

Reference Method: EPA 8321B

Batch ID: P403290

Replicated

Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2273120	2,4-D	5.50	Spike	P	0 - 30
2273120	2,4,5-T	1.19	Spike	P	0 - 30
2273120	Acetaminophen	7.77	Spike	P	0 - 30
2273120	Acetamiprid	6.83	Spike	P	0 - 30
2273120	Afidopyropen	15.1	Spike	P	0 - 30
2273120	Bentazon	8.88	Spike	P	0 - 30
2273120	Benzovindiflupyr	5.58	Spike	P	0 - 30
2273120	Carbamazepine	4.86	Spike	P	0 - 30
2273120	Clothianidin	5.99	Spike	P	0 - 30
2273120	Dinotefuran	0.784	Spike	P	0 - 30
2273120	Diuron	10.7	Spike	P	0 - 30
2273120	Fenuron	5.78	Spike	P	0 - 30
2273120	Fluridone	2.01	Spike	P	0 - 30
2273120	Hydrocodone	5.12	Spike	P	0 - 30
2273120	Ibuprofen	15.5	Spike	P	0 - 30
2273120	Imazapyr	3.01	Spike	P	0 - 30
2273120	Imidacloprid	6.44	Spike	P	0 - 30
2273120	Linuron	7.29	Spike	P	0 - 30
2273120	Mandestrobin	0.0138	Spike	P	0 - 30
2273120	MCPP	8.03	Spike	P	0 - 30
2273120	Naproxen	26.1	Spike	P	0 - 30
2273120	Primidone	4.72	Spike	P	0 - 30
2273120	Pyraclostrobin	1.04	Spike	P	0 - 30
2273120	Thiamethoxam	4.80	Spike	P	0 - 30
2273120	Tolfenpyrad	7.34	Spike	P	0 - 30
2273120	Triclopyr	2.54	Spike	P	0 - 30

Quality Assurance Report Precision

Reference Method: EPA 8321B
Batch ID: P403327

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2273120	Acesulfame K	0.279	Spike	P	0 - 30
2273120	AMPA	0.431	Spike	P	0 - 30
2273120	Endothall	3.43	Spike	P	0 - 30
2273120	Glufosinate	1.17	Spike	P	0 - 30
2273120	Glyphosate	6.53	Spike	P	0 - 30
2273120	Sucralose	2.26	Spike	P	0 - 30

Reference Method: SM 2320 B-2011
Batch ID: P403301

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2272352	Total Alkalinity	0.978	Sample	P	0 - 5.2

Reference Method: SM 4500 F-C-2011
Batch ID: P403303

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2272352	Fluoride	0.915	Spike	P	0 - 2.1

Reference Method: SM 5310 B-2011
Batch ID: P403620

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2272930	Organic Carbon	0.584	Spike	P	0 - 20

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

Quality Assurance Report Surrogates

Lab Sample ID: 2272869
Field Sample ID: G2SE0034

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8276	Decachlorobiphenyl	67.4	P	29 - 92.0
EPA 8276	PCNB	84.7	P	43 - 134

Lab Sample ID: 2272870
Field Sample ID: G2SE0034

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	2,4-D-d3	106	P	30 - 160
EPA 8321B	Acetaminophen-d4	74.9	P	30 - 160
EPA 8321B	Carbamazepine-d10	97.1	P	30 - 160
EPA 8321B	Diuron-d6	98.5	P	30 - 160
EPA 8321B	Endothall-d6	118	P	30 - 160
EPA 8321B	Glyphosate 13C 15N	51.9	P	30 - 160
EPA 8321B	Glyphosate 13C 15N	51.9	P	30 - 160
EPA 8321B	Ibuprofen-d3	57.0	P	30 - 160
EPA 8321B	Primidone-d5	51.7	P	30 - 160
EPA 8321B	Sucralose-d6	90.7	P	30 - 160

Quality Assurance Report Calibration Verification

Reference Method: EPA 365.1 Rev. 2.0 dissolved

Run ID: A107576

Included Lab Sample IDs: 2272836

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

Reference Method: EPA 180.1 Rev. 2.0

Run ID: A107578

Included Lab Sample IDs: 2272834

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

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A107595

Included Lab Sample IDs: 2272835

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

Reference Method: SM 2320 B-2011

Run ID: A107614

Included Lab Sample IDs: 2272834

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	99.6	103	P/P	90 - 110

Reference Method: SM 4500 F-C-2011

Run ID: A107614

Included Lab Sample IDs: 2272834

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	103	102	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A107615

Included Lab Sample IDs: 2272835

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	97.5	98.4	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A107641

Included Lab Sample IDs: 2272835

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	98.9	98.7	P/P	90 - 110

Reference Method: EPA 200.8 Rev. 5.4

Run ID: A107642

Included Lab Sample IDs: 2272871

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Antimony	99.5	102	P/P	90 - 110
Arsenic	96.4	98.8	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: EPA 200.8 Rev. 5.4

Run ID: A107642

Included Lab Sample IDs: 2272871

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Cadmium	96.8	97.6	P/P	90 - 110
Chromium	97.9	96.4	P/P	90 - 110
Copper	100	102	P/P	90 - 110
Lead	93.6	95.0	P/P	90 - 110
Selenium	96.9	98.2	P/P	90 - 110
Silver	93.7	94.7	P/P	90 - 110
Thallium	95.9	96.6	P/P	90 - 110

Reference Method: EPA 8321B

Run ID: A107646

Included Lab Sample IDs: 2272870

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
AMPA	77.4		P	60 - 160
Glufosinate	98.3		P	60 - 160
Glyphosate	103		P	60 - 160

Reference Method: EPA 8321B

Run ID: A107647

Included Lab Sample IDs: 2272870

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Acesulfame K	104	101	P/P	60 - 160
Endothall	123	117	P/P	60 - 160
Sucralose	84.9	89.2	P/P	60 - 160

Reference Method: EPA 200.7 Rev. 4.4

Run ID: A107649

Included Lab Sample IDs: 2272871

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Calcium	97.0	96.0	P/P	95 - 105
Iron	96.8	96.2	P/P	95 - 105
Magnesium	95.1	93.7	P/P	90 - 110
Manganese	101	98.0	P/P	95 - 105
Zinc	96.9	95.5	P/P	95 - 105

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A107660

Included Lab Sample IDs: 2272835

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	95.5	97.5	P/P	90 - 110

Reference Method: EPA 8321B

Run ID: A107667

Included Lab Sample IDs: 2272870

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
2,4-D	109	115	P/P	50 - 150
2,4,5-T	96.7	90.7	P/P	50 - 150

Quality Assurance Report Calibration Verification

Reference Method: EPA 8321B
Run ID: A107667
Included Lab Sample IDs: 2272870

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Acetaminophen	106	106	P/P	60 - 160
Acetamiprid	109	112	P/P	50 - 150
Afidopyropen	113	118	P/P	50 - 150
Bentazon	105	85.2	P/P	50 - 160
Benzovindiflupyr	118	108	P/P	50 - 150
Carbamazepine	104	105	P/P	60 - 150
Clothianidin	111	108	P/P	60 - 150
Dinotefuran	109	101	P/P	50 - 150
Diuron	111	98.7	P/P	60 - 160
Fenuron	101	102	P/P	60 - 150
Fluridone	105	108	P/P	60 - 160
Hydrocodone	110	105	P/P	60 - 150
Ibuprofen	75.2	129	P/P	50 - 160
Imazapyr	107	104	P/P	50 - 150
Imidacloprid	123	109	P/P	60 - 150
Linuron	114	109	P/P	60 - 150
Mandestrobin	104	111	P/P	50 - 150
MCPP	104	107	P/P	50 - 150
Naproxen	148	119	P/P	50 - 160
Primidone	115	115	P/P	60 - 150
Pyraclostrobin	116	119	P/P	60 - 150
Thiamethoxam	106	101	P/P	50 - 150
Tolfenpyrad	121	117	P/P	60 - 150
Triclopyr	101	102	P/P	50 - 150

Reference Method: EPA 200.8 Rev. 5.4
Run ID: A107676
Included Lab Sample IDs: 2272871

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Aluminum	103	101	P/P	90 - 110
Beryllium	102	101	P/P	90 - 110
Nickel	100	98.4	P/P	90 - 110

Reference Method: EPA 8276
Run ID: A107749
Included Lab Sample IDs: 2272869

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chlordane	99.6		P	80 - 120
Toxaphene	109		P	80 - 120

Reference Method: SM 5310 B-2011
Run ID: A107751
Included Lab Sample IDs: 2272835

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	98.0	98.0	P/P	90 - 110

Quality Assurance Report

Calibration Verification

* 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						0.0	
EPA 200.7 Rev. 4.4	Calcium	101						2.31
	Iron	101		101	103			1.45
	Magnesium	99.9						0.598
	Manganese	93.8		92.3	93.0			0.690
	Zinc	93.6		94.6	96.8			2.33
EPA 200.8 Rev. 5.4	Aluminum	101		114	106			6.68
	Antimony	102		107	121			11.5
	Arsenic	94.6		111	127			12.8
	Beryllium	94.3		108	104			4.00
	Cadmium	99.9		97.1	108			10.7
	Chromium	100		104	118			12.2
	Copper	97.8		109	124			11.9
	Lead	96.8		108	121			11.3
	Nickel	99.3		116	111			4.83
	Selenium	95.7		106	117			10.2
	Silver	102		94.2	107			12.8
	Thallium	100		109	125			13.1
EPA 350.1 Rev. 2.0	Ammonia-N	99.4		103	103			0.512
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	94.5		100	101			0.791
EPA 353.2 Rev. 2.0	NO2NO3-N	100		102	101			0.494
EPA 365.1 Rev. 2.0	Total-P	104		102	103			1.10
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	101		100	101			0.968
EPA 8276	Chlordane	96.4	89.1	66.2	78.4	7.84		16.9
	Toxaphene	100	86.2	74.5	77.1	15.1		3.45
EPA 8321B	2,4-D	90.6						5.50
	2,4,5-T	86.4		119	118			1.19
	Acesulfame K	105		148	148			0.279
	Acetaminophen	78.0		70.0	64.7			7.77
	Acetamiprid	80.5		74.3	69.4			6.83
	Afidopyropen	74.5		92.4	79.4			15.1
	AMPA	71.1		101	99.9			0.431
	Bentazon	98.4		227	206			8.88
	Benzovindiflupyr	86.4		87.3	92.3			5.58
	Carbamazepine	80.4		75.6	71.7			4.86
	Clothianidin	86.3		46.4	43.7			5.99
	Dinotefuran	80.5		74.6	75.9			0.784
	Diuron	81.8		83.2	74.1			10.7
	Endothall	125		113	109			3.43
	Fenuron	89.0		94.6	89.3			5.78
	Fluridone	92.3		91.1	89.2			2.01
	Glufosinate	97.7		108	109			1.17
	Glyphosate	101						6.53
	Hydrocodone	85.3		106	112			5.12
	Ibuprofen	54.2		75.3	64.4			15.5
	Imazapyr	86.5		106	111			3.01
	Imidacloprid	97.7		88.2	82.7			6.44
	Linuron	86.3		85.1	91.6			7.29
	Mandestrobin	86.4		98.4	98.5			0.0138
	MCPP	82.6		123	114			8.03
	Naproxen	76.6		93.1	71.6			26.1
	Primidone	99.3		25.0	23.9			4.72
	Pyraclostrobin	72.0		90.2	91.2			1.04
	Sucralose	89.1		90.1	92.2			2.26

Quality Assurance Report Summary

Ref. Method	Analyte	LCS % Recovery	MS % Recovery	LCS	Precision SMP	MS
EPA 8321B	Thiamethoxam	90.9	75.0 79.4			4.80
	Tolfenpyrad	50.7	48.7 52.4			7.34
	Triclopyr	91.8	110 113			2.54
SM 2320 B-2011	Total Alkalinity	102			0.978	
SM 4500 F-C-2011	Fluoride	99.8	98.0 99.4			0.915
SM 5310 B-2011	Organic Carbon	97.6	94.2 94.8			0.584

Reference Method Descriptions

Method	Description	Associated Samples
EPA 180.1 Rev. 2.0	Turbidity in aqueous matrices	2272834
EPA 200.7 Rev. 4.4	Total Recoverable Metals analysis using ICP emission spectroscopy for aqueous samples supporting Clean Water Act Projects	2272871
EPA 200.8 Rev. 5.4	Total Recoverable Metals analysis using ICP-MS for aqueous samples supporting Clean Water Act Projects	2272871
EPA 350.1 Rev. 2.0	Ammonia in aqueous matrices as mg N/L	2272835
EPA 351.2 Rev. 2.0	Total Kjeldahl Nitrogen in aqueous matrices	2272835
EPA 353.2 Rev. 2.0	Nitrite/Nitrate in aqueous matrices as mg N/L	2272835
EPA 365.1 Rev. 2.0	Total Phosphorus in aqueous matrices as mg P/L	2272835
EPA 365.1 Rev. 2.0 dissolved	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	2272836
EPA 8276	Organochlorine pesticides in water matrices by GC/MS with Negative Chemical Ionization	2272869
EPA 8321B	Pesticides, herbicides, and other chemicals in water matrices by HPLC/MS/MS	2272870
SM 2320 B-2011	Alkalinity in aqueous matrices as mg CaCO ₃ /L	2272834
SM 2540 D-2011	Total Suspended Solids in aqueous matrices using a maximum of 250 mL of sample	2272834
SM 4500 F-C-2011	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	2272834
SM 5310 B-2011	Nonpurgeable Organic Carbon in aqueous matrices	2272835

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	08/31/2021			08/31/2021 14:52	Sarah A Nixon	2272834
EPA 200.7 Rev. 4.4	08/31/2021	09/02/2021 12:35	Elliott D. Healy	09/03/2021 15:20	Josef B Mick	2272871
	08/31/2021	09/02/2021 12:35	Elliott D. Healy	09/03/2021 16:29	Josef B Mick	2272871
EPA 200.8 Rev. 5.4	08/31/2021	09/02/2021 12:35	Elliott D. Healy	09/03/2021 13:27	Alexander Thompson	2272871
	08/31/2021	09/02/2021 12:35	Elliott D. Healy	09/08/2021 13:26	Alexander Thompson	2272871
EPA 350.1 Rev. 2.0	08/31/2021			09/03/2021 12:08	Ping Hua	2272835
EPA 351.2 Rev. 2.0	08/31/2021	09/03/2021 17:03	Benjamin T. Nordmann	09/07/2021 10:41	Alexandra J Mattheus	2272835
EPA 353.2 Rev. 2.0	08/31/2021			09/01/2021 10:38	Beverly Y. Sanders	2272835
EPA 365.1 Rev. 2.0	08/31/2021	09/01/2021 14:48	Simonne.V. Calhoun	09/02/2021 11:28	Lipi Saha	2272835
EPA 365.1 Rev. 2.0 dissolved	08/31/2021			08/31/2021 15:13	James L Waggeberby	2272836
EPA 8276	08/31/2021	09/03/2021 08:00	Rasheda Ghaffari	09/10/2021 08:17	Julie Wi	2272869
EPA 8321B	08/31/2021	09/03/2021 08:00	Mohammad Ghaffari	09/03/2021 11:08	Mohammad Ghaffari	2272870
	08/31/2021	09/03/2021 08:00	Mohammad Ghaffari	09/03/2021 11:52	Mohammad Ghaffari	2272870
	08/31/2021	09/03/2021 14:00	Hoor Shaik	09/08/2021 13:30	Juyoung Kim	2272870
SM 2320 B-2011	08/31/2021			09/01/2021 19:54	Dale L. Simmons	2272834
SM 2540 D-2011	08/31/2021			09/03/2021 14:31	Yijie Li	2272834
SM 4500 F-C-2011	08/31/2021			09/01/2021 18:21	Dale L. Simmons	2272834
SM 5310 B-2011	08/31/2021			09/11/2021 00:54	Madeline Gruver	2272835