

Chemical Analysis Report

SE-DIST-2021-09-14-01

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

Event Description: **SMP - 3208B deploy, 3208C nutrients**

Request ID: **RQ-2021-09-06-48**

Customer: **SE-DIST**

Project ID: **SMP**

Send Reports to:

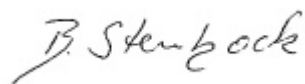
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Attn: Drew Liddick

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Certified by: Dr. rer. nat. Bettina Steinbock, Environmental Administrator

Date Certified: 07-OCT-2021 14:24



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: 09/13/2021 13:10

Field ID: G2SE0034

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2275737	EPA 180.1 Rev. 2.0	Turbidity	5.6		NTU	P403711	
	SM 2320 B-2011	Total Alkalinity	129		mg CaCO3/L	P403860	
	SM 2540 D-2011	TSS	8	I	mg/L	P404004	
	SM 4500 F-C-2011	Fluoride	0.76		mg F/L	P403863	
2275738	EPA 350.1 Rev. 2.0	Ammonia-N	0.021		mg N/L	P404120	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.64		mg N/L	P403880	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.071		mg N/L	P403801	
	EPA 365.1 Rev. 2.0	Total-P	0.11		mg P/L	P403839	
	SM 5310 B-2011	Organic Carbon	10		mg C/L	P403962	
2275739	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.082		mg P/L	P403708	
2275756	EPA 8276	Chlordane	5.3	U	ng/L	P403675	
		Toxaphene	32	U	ng/L	P403675	
2275758	EPA 8321B	Acesulfame K	0.10	U	ug/L	P403676	
		2,4-D	0.12		ug/L	P403651	MS
		2,4,5-T	0.0040	U	ug/L	P403651	
		AMPA	0.10	UJ	ug/L	P403676	SUR
		Acetaminophen	0.0080	U	ug/L	P403651	
		Acetamiprid	0.0020	U	ug/L	P403651	
		Endothall	0.25	U	ug/L	P403676	
		Glufosinate	0.10	UJ	ug/L	P403676	SUR
		Glyphosate	0.10	UJ	ug/L	P403676	SUR
		Afidopyropen	0.0020	U	ug/L	P403651	
		Bentazon	0.092		ug/L	P403651	
		Sucralose	0.15		ug/L	P403676	
		Benzovindiflupyr	0.0020	U	ug/L	P403651	
		Carbamazepine	8.0E-04	U	ug/L	P403651	
		Clothianidin	0.0020	U	ug/L	P403651	
		Dinotefuran	0.0021	I	ug/L	P403651	
		Diuron	0.055		ug/L	P403651	
		Fenuron	0.016	U	ug/L	P403651	
		Fluridone	0.0080		ug/L	P403651	
		Imazapyr	0.11		ug/L	P403651	
		Hydrocodone	0.0020	U	ug/L	P403651	
		Ibuprofen	0.020	U	ug/L	P403651	
		Imidacloprid	0.018		ug/L	P403651	
		Linuron	0.0040	U	ug/L	P403651	
		Mandestrobin	0.0020	U	ug/L	P403651	
		MCP	0.0020	U	ug/L	P403651	MS
		Naproxen	0.0080	U	ug/L	P403651	MS
		Primidone	0.0040	U	ug/L	P403651	
		Pyraclostrobin	0.0020	U	ug/L	P403651	
		Thiamethoxam	0.0047	I	ug/L	P403651	
		Tolfenpyrad	0.0020	U	ug/L	P403651	

Field ID: G2SE0034

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2275758	EPA 8321B	Triclopyr	0.0040	U	ug/L	P403651	MS
2275763	EPA 200.7 Rev. 4.4	Calcium	244		mg/L	P403821	
		Iron	170	I	ug/L	P403821	
		Magnesium	689		mg/L	P403821	
		Manganese	11	I	ug/L	P403821	
		Zinc	20	U	ug/L	P403821	
	EPA 200.8 Rev. 5.4	Aluminum	102		ug/L	P403821	
		Antimony	0.20	U	ug/L	P403821	
		Arsenic	2.24		ug/L	P403821	
		Beryllium	0.040	U	ug/L	P403821	
		Cadmium	0.080	U	ug/L	P403821	
		Chromium	1.6	U	ug/L	P403821	
		Copper	2.0	I	ug/L	P403821	
		Lead	0.80	U	ug/L	P403821	
		Nickel	2.0	U	ug/L	P403821	
		Selenium	0.80	U	ug/L	P403821	
		Silver	0.040	U	ug/L	P403821	
		Thallium	0.40	U	ug/L	P403821	

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: Results confirmed in re-extraction. Refer to the Lab Analysis Report for an explanation of QC Codes.

EPA 8321B: MS accuracy for bentazon 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: P403711

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P403821

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: P403821

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: P404120

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P403880

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P403801

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P403839

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: P403708

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

Reference Method: EPA 8276
Batch ID: P403675

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: P403651

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: P403676

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: P403860

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

Reference Method: SM 2540 D-2011
Batch ID: P404004

Component	Result	Code	Units
TSS	3	U	mg/L

Reference Method: SM 4500 F-C-2011
Batch ID: P403863

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-2011
Batch ID: P403962

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: P403821

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Calcium	104		P	85 - 115
Iron	107		P	85 - 115
Magnesium	103		P	85 - 115
Manganese	102		P	85 - 115
Zinc	105		P	85 - 115

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P403821

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Aluminum	98.0		P	85 - 115
Antimony	99.7		P	85 - 115
Arsenic	94.0		P	85 - 115
Beryllium	90.4		P	85 - 115
Cadmium	96.6		P	85 - 115
Chromium	96.4		P	85 - 115
Copper	93.2		P	85 - 115
Lead	93.0		P	85 - 115
Nickel	93.3		P	85 - 115
Selenium	95.4		P	85 - 115
Silver	96.4		P	85 - 115
Thallium	99.5		P	85 - 115

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P404120

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P403880

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P403801

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: P403839

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P403708

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

Quality Assurance Report

Laboratory Control Sample Accuracy

Reference Method: EPA 8276

Batch ID: P403675

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Chlordane	96.9	96.7	P/P	56 - 117
Toxaphene	110	85.6	P/P	45 - 116

Reference Method: EPA 8321B

Batch ID: P403651

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2,4-D	102		P	40 - 150
2,4,5-T	94.4		P	40 - 150
Acetaminophen	88.6		P	30 - 150
Acetamiprid	86.9		P	40 - 150
Afidopyropen	72.0		P	40 - 150
Bentazon	137		P	30 - 150
Benzovindiflupyr	76.2		P	40 - 150
Carbamazepine	92.0		P	40 - 150
Clothianidin	95.9		P	40 - 150
Dinotefuran	78.4		P	40 - 150
Diuron	92.9		P	40 - 150
Fenuron	87.0		P	40 - 150
Fluridone	90.4		P	40 - 150
Hydrocodone	86.6		P	40 - 150
Ibuprofen	72.3		P	40 - 150
Imazapyr	81.7		P	40 - 150
Imidacloprid	85.7		P	40 - 150
Linuron	80.4		P	40 - 150
Mandestrobin	85.0		P	40 - 150
MCPP	116		P	40 - 150
Naproxen	78.8		P	40 - 150
Primidone	90.0		P	40 - 150
Pyraclostrobin	76.3		P	40 - 150
Thiamethoxam	83.4		P	40 - 150
Tolfenpyrad	44.1		P	30 - 150
Triclopyr	96.5		P	40 - 150

Reference Method: EPA 8321B

Batch ID: P403676

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Acesulfame K	92.8		P	40 - 150
AMPA	95.3		P	40 - 160
Endothall	85.4		P	40 - 150
Glufosinate	95.0		P	40 - 160
Glyphosate	89.3		P	40 - 160
Sucralose	86.5		P	40 - 150

Reference Method: SM 2320 B-2011

Batch ID: P403860

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: P403863

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	99.9		P	93 - 104

Reference Method: SM 5310 B-2011
Batch ID: P403962

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	99.3		P	85 - 115

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 200.7 Rev. 4.4

Batch ID: P403821

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2275732	Iron	106	104	P/P	70 - 130
2275732	Manganese	101	98.4	P/P	70 - 130
2275732	Zinc	108	107	P/P	70 - 130

Reference Method: EPA 200.8 Rev. 5.4

Batch ID: P403821

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2275732	Aluminum	106	101	P/P	70 - 130
2275732	Antimony	103	99.5	P/P	70 - 130
2275732	Arsenic	109	104	P/P	70 - 130
2275732	Beryllium	107	106	P/P	70 - 130
2275732	Cadmium	92.7	90.5	P/P	70 - 130
2275732	Chromium	103	98.6	P/P	70 - 130
2275732	Copper	103	97.7	P/P	70 - 130
2275732	Lead	101	97.1	P/P	70 - 130
2275732	Nickel	108	104	P/P	70 - 130
2275732	Selenium	102	98.3	P/P	70 - 130
2275732	Silver	90.6	87.0	P/P	70 - 130
2275732	Thallium	108	104	P/P	70 - 130

Reference Method: EPA 350.1 Rev. 2.0

Batch ID: P404120

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2276906	Ammonia-N	104	104	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0

Batch ID: P403880

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2276126	Kjeldahl Nitrogen	98.8	99.8	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0

Batch ID: P403801

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2275651	NO2NO3-N	99.0	99.0	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Batch ID: P403839

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2276154	Total-P	98.4	96.3	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved

Batch ID: P403708

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2275720	O-Phosphate-P	96.1	97.6	P/P	90 - 110

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 8276

Batch ID: P403675

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2276091	Chlordane	100	96.0	P/P	47 - 128
2276091	Toxaphene	90.8	99.9	P/P	11 - 163

Reference Method: EPA 8321B

Batch ID: P403651

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2274827	2,4-D	153	139	F/P	40 - 150
2274827	2,4,5-T	143	123	P/P	40 - 150
2274827	Acetaminophen	53.8	55.6	P/P	30 - 150
2274827	Acetamiprid	93.8	95.8	P/P	40 - 150
2274827	Afidopyropen	106	93.0	P/P	40 - 150
2274827	Benzovindiflupyr	91.6	92.5	P/P	40 - 150
2274827	Carbamazepine	89.3	92.5	P/P	40 - 150
2274827	Clothianidin	53.4	55.2	P/P	40 - 150
2274827	Dinotefuran	98.7	98.8	P/P	40 - 150
2274827	Diuron	92.7	99.6	P/P	40 - 150
2274827	Fenuron	97.8	93.3	P/P	40 - 150
2274827	Fluridone	110	101	P/P	40 - 150
2274827	Hydrocodone	130	119	P/P	40 - 150
2274827	Ibuprofen	127	125	P/P	40 - 150
2274827	Imazapyr	128	110	P/P	40 - 150
2274827	Imidacloprid	97.3	108	P/P	40 - 150
2274827	Linuron	81.9	77.8	P/P	40 - 150
2274827	Mandestrobin	96.2	103	P/P	40 - 150
2274827	MCPP	183	170	F/F	40 - 150
2274827	Naproxen	151	142	F/P	40 - 150
2274827	Primidone	50.5	66.4	P/P	40 - 150
2274827	Pyraclostrobin	85.4	88.1	P/P	40 - 150
2274827	Thiamethoxam	105	105	P/P	40 - 150
2274827	Tolfenpyrad	53.9	56.9	P/P	30 - 150
2274827	Triclopyr	157	138	F/P	40 - 150

Reference Method: EPA 8321B

Batch ID: P403676

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2275530	Acesulfame K	96.1	91.3	P/P	40 - 150
2275530	AMPA	99.1	99.3	P/P	40 - 160
2275530	Endothall	91.1	91.6	P/P	40 - 150
2275530	Glufosinate	93.6	93.3	P/P	40 - 160
2275530	Glyphosate	87.4	85.4	P/P	40 - 160
2275530	Sucralose	92.9	92.0	P/P	40 - 150

Reference Method: SM 4500 F-C-2011

Batch ID: P403863

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2275712	Fluoride	101	101	P/P	92 - 107

Quality Assurance Report

Matrix Spike Accuracy

Reference Method: SM 5310 B-2011
Batch ID: P403962

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2274865	Organic Carbon	98.0	97.5	P/P	85 - 115

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P403711

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2275715	Turbidity	0.336	Sample	P	0 - 20

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P403821

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2275732	Calcium	3.20	Spike	P	0 - 20
2275732	Iron	2.26	Spike	P	0 - 20
2275732	Magnesium	3.41	Spike	P	0 - 20
2275732	Manganese	2.69	Spike	P	0 - 20
2275732	Zinc	0.750	Spike	P	0 - 20

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P403821

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2275732	Aluminum	4.76	Spike	P	0 - 20
2275732	Antimony	3.55	Spike	P	0 - 20
2275732	Arsenic	4.83	Spike	P	0 - 20
2275732	Beryllium	0.625	Spike	P	0 - 20
2275732	Cadmium	2.41	Spike	P	0 - 20
2275732	Chromium	4.17	Spike	P	0 - 20
2275732	Copper	5.45	Spike	P	0 - 20
2275732	Lead	4.41	Spike	P	0 - 20
2275732	Nickel	3.94	Spike	P	0 - 20
2275732	Selenium	3.30	Spike	P	0 - 20
2275732	Silver	4.08	Spike	P	0 - 20
2275732	Thallium	4.01	Spike	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P404120

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2276906	Ammonia-N	0.0	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P403880

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2276126	Kjeldahl Nitrogen	0.822	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P403801

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2275651	NO2NO3-N	0.0	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 365.1 Rev. 2.0

Batch ID: P403839

Replicated

Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2276154	Total-P	2.14	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved

Batch ID: P403708

Replicated

Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2275720	O-Phosphate-P	1.55	Spike	P	0 - 20

Reference Method: EPA 8276

Batch ID: P403675

Replicated

Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2276091	Chlordane	4.08	Spike	P	0 - 30
2276091	Toxaphene	9.54	Spike	P	0 - 30
LFB	Chlordane	0.165	LCS	P	0 - 30
LFB	Toxaphene	24.9	LCS	P	0 - 30

Reference Method: EPA 8321B

Batch ID: P403651

Replicated

Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2274827	2,4-D	8.88	Spike	P	0 - 30
2274827	2,4,5-T	15.3	Spike	P	0 - 30
2274827	Acetaminophen	3.16	Spike	P	0 - 30
2274827	Acetamiprid	2.15	Spike	P	0 - 30
2274827	Afidopyropen	12.6	Spike	P	0 - 30
2274827	Bentazon	6.63	Spike	P	0 - 30
2274827	Benzovindiflupyr	0.981	Spike	P	0 - 30
2274827	Carbamazepine	3.47	Spike	P	0 - 30
2274827	Clothianidin	3.02	Spike	P	0 - 30
2274827	Dinotefuran	0.114	Spike	P	0 - 30
2274827	Diuron	6.69	Spike	P	0 - 30
2274827	Fenuron	4.65	Spike	P	0 - 30
2274827	Fluridone	5.09	Spike	P	0 - 30
2274827	Hydrocodone	8.95	Spike	P	0 - 30
2274827	Ibuprofen	1.84	Spike	P	0 - 30
2274827	Imazapyr	9.34	Spike	P	0 - 30
2274827	Imidacloprid	9.08	Spike	P	0 - 30
2274827	Linuron	5.19	Spike	P	0 - 30
2274827	Mandestrobin	7.19	Spike	P	0 - 30
2274827	MCP	7.17	Spike	P	0 - 30
2274827	Naproxen	6.14	Spike	P	0 - 30
2274827	Primidone	27.1	Spike	P	0 - 30
2274827	Pyraclostrobin	3.16	Spike	P	0 - 30
2274827	Thiamethoxam	0.294	Spike	P	0 - 30
2274827	Tolfenpyrad	5.44	Spike	P	0 - 30
2274827	Triclopyr	13.0	Spike	P	0 - 30

Quality Assurance Report Precision

Reference Method: EPA 8321B
 Batch ID: P403676

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2275530	Acesulfame K	5.07	Spike	P	0 - 30
2275530	AMPA	0.211	Spike	P	0 - 30
2275530	Endothall	0.561	Spike	P	0 - 30
2275530	Glufosinate	0.339	Spike	P	0 - 30
2275530	Glyphosate	2.16	Spike	P	0 - 30
2275530	Sucralose	0.689	Spike	P	0 - 30

Reference Method: SM 2320 B-2011
 Batch ID: P403860

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2275712	Total Alkalinity	2.70	Sample	P	0 - 5.2

Reference Method: SM 4500 F-C-2011
 Batch ID: P403863

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2275712	Fluoride	0.0	Spike	P	0 - 2.1

Reference Method: SM 5310 B-2011
 Batch ID: P403962

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2274865	Organic Carbon	0.352	Spike	P	0 - 20

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

Quality Assurance Report Surrogates

Lab Sample ID: 2275756
Field Sample ID: G2SE0034

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8276	Decachlorobiphenyl	71.3	P	29 - 92.0
EPA 8276	PCNB	84.3	P	43 - 134

Lab Sample ID: 2275758
Field Sample ID: G2SE0034

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	2,4-D-d3	124	P	30 - 160
EPA 8321B	2,4-D-d3	124	P	30 - 160
EPA 8321B	Acetaminophen-d4	46.6	P	30 - 160
EPA 8321B	Acetaminophen-d4	46.6	P	30 - 160
EPA 8321B	Carbamazepine-d10	78.9	P	30 - 160
EPA 8321B	Carbamazepine-d10	78.9	P	30 - 160
EPA 8321B	Carbaryl-d7	75.3	P	30 - 160
EPA 8321B	Carbaryl-d7	75.3	P	30 - 160
EPA 8321B	Diuron-d6	80.9	P	30 - 160
EPA 8321B	Diuron-d6	80.9	P	30 - 160
EPA 8321B	Endothall-d6	70.3	P	30 - 160
EPA 8321B	Glyphosate 13C 15N	4.05	F	30 - 160
EPA 8321B	Ibuprofen-d3	88.4	P	30 - 160
EPA 8321B	Ibuprofen-d3	88.4	P	30 - 160
EPA 8321B	Primidone-d5	48.8	P	30 - 160
EPA 8321B	Primidone-d5	48.8	P	30 - 160
EPA 8321B	Sucralose-d6	77.5	P	30 - 160

Quality Assurance Report

Calibration Verification

Reference Method: EPA 365.1 Rev. 2.0 dissolved

Run ID: A107781

Included Lab Sample IDs: 2275739

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	99.2	98.6	P/P	90 - 110

Reference Method: EPA 180.1 Rev. 2.0

Run ID: A107782

Included Lab Sample IDs: 2275737

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

Reference Method: EPA 8321B

Run ID: A107792

Included Lab Sample IDs: 2275758

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
2,4-D	131	113	P/P	50 - 150
2,4,5-T	107	111	P/P	50 - 150
Acetaminophen	101	100	P/P	60 - 160
Acetamiprid	98.6	94.3	P/P	50 - 150
Afidopyropen	102	106	P/P	50 - 150
Bentazon	127	125	P/P	50 - 160
Benzovindiflupyr	105	105	P/P	50 - 150
Carbamazepine	107	103	P/P	60 - 150
Clothianidin	85.0	81.3	P/P	60 - 150
Dinotefuran	93.3	87.7	P/P	50 - 150
Diuron	106	99.3	P/P	60 - 160
Fenuron	104	100	P/P	60 - 150
Fluridone	112	104	P/P	60 - 160
Hydrocodone	96.0	94.4	P/P	60 - 150
Ibuprofen	145	132	P/P	50 - 160
Imazapyr	84.3	96.9	P/P	50 - 150
Imidacloprid	94.3	85.7	P/P	60 - 150
Linuron	107	109	P/P	60 - 150
Mandestrobin	105	104	P/P	50 - 150
MCP	126	109	P/P	50 - 150
Naproxen	125	92.8	P/P	50 - 160
Primidone	88.6	83.0	P/P	60 - 150
Pyraclostrobin	111	109	P/P	60 - 150
Thiamethoxam	80.0	74.6	P/P	50 - 150
Tolfenpyrad	108	116	P/P	60 - 150
Triclopyr	109	117	P/P	50 - 150

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A107818

Included Lab Sample IDs: 2275738

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO2NO3-N	102	103	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: SM 2320 B-2011

Run ID: A107847

Included Lab Sample IDs: 2275737

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	103	100	P/P	90 - 110

Reference Method: SM 4500 F-C-2011

Run ID: A107847

Included Lab Sample IDs: 2275737

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

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A107863

Included Lab Sample IDs: 2275738

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

Reference Method: EPA 8321B

Run ID: A107868

Included Lab Sample IDs: 2275758

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Acesulfame K	92.9	87.8	P/P	60 - 160
Endothall	77.8	66.7	P/P	60 - 160
Sucralose	88.2	90.1	P/P	60 - 160

Reference Method: EPA 8321B

Run ID: A107869

Included Lab Sample IDs: 2275758

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
AMPA	94.0	93.4	P/P	60 - 160
Glufosinate	92.0	94.2	P/P	60 - 160
Glyphosate	86.2	82.9	P/P	60 - 160

Reference Method: EPA 200.7 Rev. 4.4

Run ID: A107874

Included Lab Sample IDs: 2275763

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

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A107880

Included Lab Sample IDs: 2275738

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

Quality Assurance Report Calibration Verification

Reference Method: SM 5310 B-2011

Run ID: A107898

Included Lab Sample IDs: 2275738

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	101	99.8	P/P	90 - 110

Reference Method: EPA 200.8 Rev. 5.4

Run ID: A107945

Included Lab Sample IDs: 2275763

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Aluminum	101	102	P/P	90 - 110
Antimony	99.0	99.6	P/P	90 - 110
Arsenic	96.2	95.8	P/P	90 - 110
Beryllium	95.0	101	P/P	90 - 110
Cadmium	97.3	97.5	P/P	90 - 110
Chromium	96.3	99.3	P/P	90 - 110
Copper	95.9	98.0	P/P	90 - 110
Lead	92.6	92.6	P/P	90 - 110
Nickel	96.2	97.8	P/P	90 - 110
Selenium	96.3	97.8	P/P	90 - 110
Silver	92.1	91.6	P/P	90 - 110
Thallium	97.6	98.0	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A107961

Included Lab Sample IDs: 2275738

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	99.2	99.1	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						0.336	
EPA 200.7 Rev. 4.4	Calcium	104						3.20
	Iron	107		106	104			2.26
	Magnesium	103						3.41
	Manganese	102		101	98.4			2.69
	Zinc	105		108	107			0.750
EPA 200.8 Rev. 5.4	Aluminum	98.0		106	101			4.76
	Antimony	99.7		103	99.5			3.55
	Arsenic	94.0		109	104			4.83
	Beryllium	90.4		107	106			0.625
	Cadmium	96.6		92.7	90.5			2.41
	Chromium	96.4		103	98.6			4.17
	Copper	93.2		103	97.7			5.45
	Lead	93.0		101	97.1			4.41
	Nickel	93.3		108	104			3.94
	Selenium	95.4		102	98.3			3.30
	Silver	96.4		90.6	87.0			4.08
	Thallium	99.5		108	104			4.01
EPA 350.1 Rev. 2.0	Ammonia-N	99.0		104	104			0.0
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	98.0		98.8	99.8			0.822
EPA 353.2 Rev. 2.0	NO2NO3-N	100		99.0	99.0			0.0
EPA 365.1 Rev. 2.0	Total-P	105		98.4	96.3			2.14
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	99.0		96.1	97.6			1.55
EPA 8276	Chlordane	96.9	96.7	100	96.0	0.165		4.08
	Toxaphene	110	85.6	90.8	99.9	24.9		9.54
EPA 8321B	2,4-D	102		139	153			8.88
	2,4,5-T	94.4		143	123			15.3
	Acesulfame K	92.8		96.1	91.3			5.07
	Acetaminophen	88.6		55.6	53.8			3.16
	Acetamiprid	86.9		95.8	93.8			2.15
	Afidopyropen	72.0		93.0	106			12.6
	AMPA	95.3		99.1	99.3			0.211
	Bentazon	137						6.63
	Benzovindiflupyr	76.2		92.5	91.6			0.981
	Carbamazepine	92.0		92.5	89.3			3.47
	Clothianidin	95.9		55.2	53.4			3.02
	Dinotefuran	78.4		98.8	98.7			0.114
	Diuron	92.9		99.6	92.7			6.69
	Endothall	85.4		91.1	91.6			0.561
	Fenuron	87.0		93.3	97.8			4.65
	Fluridone	90.4		101	110			5.09
	Glufosinate	95.0		93.6	93.3			0.339
	Glyphosate	89.3		87.4	85.4			2.16
	Hydrocodone	86.6		119	130			8.95
	Ibuprofen	72.3		127	125			1.84
	Imazapyr	81.7		110	128			9.34
	Imidacloprid	85.7		108	97.3			9.08
	Linuron	80.4		77.8	81.9			5.19
	Mandestrobin	85.0		103	96.2			7.19
	MCPP	116		183	170			7.17
	Naproxen	78.8		142	151			6.14
	Primidone	90.0		66.4	50.5			27.1
	Pyraclostrobin	76.3		88.1	85.4			3.16
	Sucralose	86.5		92.9	92.0			0.689

Quality Assurance Report Summary

Ref. Method	Analyte	LCS % Recovery	MS % Recovery		LCS	Precision	MS
						SMP	
EPA 8321B	Thiamethoxam	83.4	105	105			0.294
	Tolfenpyrad	44.1	56.9	53.9			5.44
	Triclopyr	96.5	138	157			13.0
SM 2320 B-2011	Total Alkalinity	102				2.70	
SM 4500 F-C-2011	Fluoride	99.9	101	101			0.0
SM 5310 B-2011	Organic Carbon	99.3	98.0	97.5			0.352

Reference Method Descriptions

Method	Description	Associated Samples
EPA 180.1 Rev. 2.0	Turbidity in aqueous matrices	2275737
EPA 200.7 Rev. 4.4	Total Recoverable Metals analysis using ICP emission spectroscopy for aqueous samples supporting Clean Water Act Projects	2275763
EPA 200.8 Rev. 5.4	Total Recoverable Metals analysis using ICP-MS for aqueous samples supporting Clean Water Act Projects	2275763
EPA 350.1 Rev. 2.0	Ammonia in aqueous matrices as mg N/L	2275738
EPA 351.2 Rev. 2.0	Total Kjeldahl Nitrogen in aqueous matrices	2275738
EPA 353.2 Rev. 2.0	Nitrite/Nitrate in aqueous matrices as mg N/L	2275738
EPA 365.1 Rev. 2.0	Total Phosphorus in aqueous matrices as mg P/L	2275738
EPA 365.1 Rev. 2.0 dissolved	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	2275739
EPA 8276	Organochlorine pesticides in water matrices by GC/MS with Negative Chemical Ionization	2275756
EPA 8321B	Pesticides, herbicides, and other chemicals in water matrices by HPLC/MS/MS	2275758
SM 2320 B-2011	Alkalinity in aqueous matrices as mg CaCO ₃ /L	2275737
SM 2540 D-2011	Total Suspended Solids in aqueous matrices using a maximum of 250 mL of sample	2275737
SM 4500 F-C-2011	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	2275737
SM 5310 B-2011	Nonpurgeable Organic Carbon in aqueous matrices	2275738

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	09/14/2021			09/14/2021 16:38	Sarah A Nixon	2275737
EPA 200.7 Rev. 4.4	09/14/2021	09/16/2021 13:30	Elliott D. Healy	09/17/2021 21:09	Josef B Mick	2275763
	09/14/2021	09/16/2021 13:30	Elliott D. Healy	09/17/2021 21:17	Josef B Mick	2275763
EPA 200.8 Rev. 5.4	09/14/2021	09/16/2021 13:30	Elliott D. Healy	09/22/2021 16:49	Alexander Thompson	2275763
EPA 350.1 Rev. 2.0	09/14/2021			09/23/2021 12:43	Ping Hua	2275738
EPA 351.2 Rev. 2.0	09/14/2021	09/17/2021 12:17	Benjamin T. Nordmann	09/20/2021 11:00	Alexandra J Mattheus	2275738
EPA 353.2 Rev. 2.0	09/14/2021			09/16/2021 09:32	Beverly Y. Sanders	2275738
EPA 365.1 Rev. 2.0	09/14/2021	09/16/2021 15:28	Simonne.V. Calhoun	09/17/2021 13:28	Virginia P. Brown	2275738
EPA 365.1 Rev. 2.0 dissolved	09/14/2021			09/14/2021 16:18	Blanca Fach	2275739
EPA 8276	09/14/2021	09/17/2021 08:30	Fe-Val Siddell	09/24/2021 05:25	Julie Wi	2275756
EPA 8321B	09/14/2021	09/14/2021 12:00	Hoor Shaik	09/15/2021 14:34	Juyoung Kim	2275758
	09/14/2021	09/17/2021 08:00	Mohammad Ghaffari	09/17/2021 10:51	Mohammad Ghaffari	2275758
	09/14/2021	09/17/2021 08:00	Mohammad Ghaffari	09/17/2021 14:42	Manjita Shrestha	2275758
SM 2320 B-2011	09/14/2021			09/16/2021 23:02	Dale L. Simmons	2275737
SM 2540 D-2011	09/14/2021			09/16/2021 15:25	Yijie Li	2275737
SM 4500 F-C-2011	09/14/2021			09/16/2021 21:01	Dale L. Simmons	2275737
SM 5310 B-2011	09/14/2021			09/21/2021 00:24	Madeline Gruver	2275738