

Chemical Analysis Report

SE-DIST-2021-09-29-01

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

Event Description: **SMP - 3210E pickup**

Request ID: **RQ-2021-09-27-41**

Customer: **SE-DIST**

Project ID: **SMP**

Send Reports to:

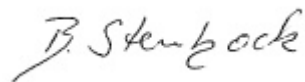
FL Dept. of Environmental Protection
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Certified by: Dr. rer. nat. Bettina Steinbock, Environmental Administrator

Date Certified: 22-OCT-2021 18:13



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: Roebuck Creek @ Locks

Collection Date/Time: 09/28/2021 11:20

Field ID: G2SE0029

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2279109	EPA 180.1 Rev. 2.0	Turbidity	9.0		NTU	P404369	
	SM 2320 B-2011	Total Alkalinity	218		mg CaCO3/L	P404567	
	SM 2540 D-2011	TSS	24		mg/L	P404760	
	SM 4500 F-C-2011	Fluoride	0.24		mg F/L	P404571	
2279110	EPA 350.1 Rev. 2.0	Ammonia-N	0.038		mg N/L	P404598	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.89		mg N/L	P404451	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.12		mg N/L	P404446	
	EPA 365.1 Rev. 2.0	Total-P	0.38		mg P/L	P404416	
	SM 5310 B-2011	Organic Carbon	14		mg C/L	P404491	
2279111	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.29		mg P/L	P404365	
2279115	EPA 8321B	2,4-D	0.0020	U	ug/L	P404499	
		Acesulfame K	0.60		ug/L	P404276	
		2,4,5-T	0.0040	U	ug/L	P404499	
		AMPA	0.21	I	ug/L	P404276	
		Acetaminophen	0.0080	U	ug/L	P404499	RPD
		Acetamiprid	0.0020	U	ug/L	P404499	
		Endothall	0.25	U	ug/L	P404276	
		Glufosinate	0.10	U	ug/L	P404276	
		Glyphosate	0.14	I	ug/L	P404276	
		Afidopyropen	0.0020	U	ug/L	P404499	
		Bentazon	0.049		ug/L	P404499	
		Sucralose	1.1		ug/L	P404276	
		Benzovindiflupyr	0.0020	U	ug/L	P404499	
		Carbamazepine	0.0025	I	ug/L	P404499	
		Clothianidin	0.0020	U	ug/L	P404499	
		Dinotefuran	0.0020	U	ug/L	P404499	
		Diuron	0.0020	U	ug/L	P404499	
		Fenuron	0.016	U	ug/L	P404499	
		Fluridone	8.4E-04	I	ug/L	P404499	
		Imazapyr	0.12		ug/L	P404499	
		Hydrocodone	0.0020	U	ug/L	P404499	
		Ibuprofen	0.020	U	ug/L	P404499	
		Imidacloprid	0.0020	U	ug/L	P404499	
		Linuron	0.0040	U	ug/L	P404499	
		Mandestrobin	0.0020	U	ug/L	P404499	
		MCP	0.0031	I	ug/L	P404499	
		Naproxen	0.0080	U	ug/L	P404499	
		Primidone	0.0055	I	ug/L	P404499	
		Pyraclostrobin	0.0020	U	ug/L	P404499	
		Thiamethoxam	0.0020	U	ug/L	P404499	
		Tolfenpyrad	0.0020	U	ug/L	P404499	
		Triclopyr	0.0040	U	ug/L	P404499	
2279116	EPA 200.7 Rev. 4.4	Calcium	96.9		mg/L	P404421	

Field ID: G2SE0029

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2279116	EPA 200.7 Rev. 4.4	Iron	770		ug/L	P404421	
		Magnesium	3.89		mg/L	P404421	
		Manganese	31.6		ug/L	P404421	
		Zinc	7.9	I	ug/L	P404421	
	EPA 200.8 Rev. 5.4	Aluminum	56		ug/L	P404421	
		Antimony	0.050	U	ug/L	P404421	
		Arsenic	0.97		ug/L	P404421	
		Beryllium	0.013	I	ug/L	P404421	
		Cadmium	0.020	U	ug/L	P404421	
		Chromium	0.45	I	ug/L	P404421	
		Copper	0.45	I	ug/L	P404421	
		Lead	0.20	U	ug/L	P404421	
		Nickel	0.53	I	ug/L	P404421	
		Selenium	0.20	U	ug/L	P404421	
		Silver	0.010	U	ug/L	P404421	
		Thallium	0.10	U	ug/L	P404421	

Ref. Method and Comment:

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

Quality Assurance Report Method Blank Results

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P404369

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P404421

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: P404421

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: P404598

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P404451

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P404446

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P404416

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: P404365

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

Reference Method: EPA 8321B
Batch ID: P404276

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

Reference Method: EPA 8321B
Batch ID: P404499

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: SM 2320 B-2011
Batch ID: P404567

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

Quality Assurance Report

Method Blank Results

Reference Method: SM 2540 D-2011
Batch ID: P404760

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500 F-C-2011
Batch ID: P404571

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-2011
Batch ID: P404491

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: P404421

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Calcium	104		P	85 - 115
Iron	106		P	85 - 115
Magnesium	106		P	85 - 115
Manganese	99.7		P	85 - 115
Zinc	100		P	85 - 115

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P404421

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Aluminum	97.4		P	85 - 115
Antimony	100		P	85 - 115
Arsenic	93.4		P	85 - 115
Beryllium	93.1		P	85 - 115
Cadmium	94.9		P	85 - 115
Chromium	93.2		P	85 - 115
Copper	94.2		P	85 - 115
Lead	97.0		P	85 - 115
Nickel	94.5		P	85 - 115
Selenium	96.6		P	85 - 115
Silver	100		P	85 - 115
Thallium	97.2		P	85 - 115

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P404598

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: P404451

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P404446

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P404416

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P404365

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

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 8321B
Batch ID: P404276

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Acesulfame K	79.8		P	40 - 150
AMPA	92.7		P	40 - 160
Endothall	69.3		P	40 - 150
Glufosinate	97.9		P	40 - 160
Glyphosate	88.3		P	40 - 160
Sucralose	66.8		P	40 - 150

Reference Method: EPA 8321B
Batch ID: P404499

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2,4-D	79.5		P	40 - 150
2,4,5-T	75.3		P	40 - 150
Acetaminophen	83.4		P	30 - 150
Acetamiprid	77.5		P	40 - 150
Afidopyropen	68.7		P	40 - 150
Bentazon	103		P	30 - 150
Benzovindiflupyr	69.2		P	40 - 150
Carbamazepine	85.9		P	40 - 150
Clothianidin	86.5		P	40 - 150
Dinotefuran	88.8		P	40 - 150
Diuron	95.8		P	40 - 150
Fenuron	86.4		P	40 - 150
Fluridone	77.0		P	40 - 150
Hydrocodone	92.7		P	40 - 150
Ibuprofen	70.3		P	40 - 150
Imazapyr	78.3		P	40 - 150
Imidacloprid	85.3		P	40 - 150
Linuron	79.7		P	40 - 150
Mandestrobin	74.0		P	40 - 150
MCPP	79.4		P	40 - 150
Naproxen	83.1		P	40 - 150
Primidone	72.6		P	40 - 150
Pyraclostrobin	62.7		P	40 - 150
Thiamethoxam	87.3		P	40 - 150
Tolfenpyrad	40.6		P	30 - 150
Triclopyr	81.8		P	40 - 150

Reference Method: SM 2320 B-2011
Batch ID: P404567

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	98.7		P	94 - 106

Reference Method: SM 4500 F-C-2011
Batch ID: P404571

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

Quality Assurance Report

Laboratory Control Sample Accuracy

Reference Method: SM 5310 B-2011
Batch ID: P404491

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	97.2		P	85 - 115

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 200.7 Rev. 4.4

Batch ID: P404421

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2278649	Calcium	101	103	P/P	80 - 120
2278649	Iron	105	107	P/P	80 - 120
2278649	Magnesium	104	107	P/P	80 - 120
2278649	Manganese	99.9	100	P/P	80 - 120
2278649	Zinc	101	102	P/P	80 - 120
2278895	Calcium	101		P	80 - 120
2278895	Iron	105		P	80 - 120
2278895	Magnesium	99.8		P	80 - 120
2278895	Manganese	98.6		P	80 - 120
2278895	Zinc	99.1		P	80 - 120

Reference Method: EPA 200.8 Rev. 5.4

Batch ID: P404421

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2278649	Aluminum	98.3	101	P/P	80 - 120
2278649	Antimony	99.5	101	P/P	80 - 120
2278649	Arsenic	93.2	95.4	P/P	80 - 120
2278649	Beryllium	93.4	93.7	P/P	80 - 120
2278649	Cadmium	94.5	95.1	P/P	80 - 120
2278649	Chromium	94.7	96.8	P/P	80 - 120
2278649	Copper	96.2	97.8	P/P	80 - 120
2278649	Lead	98.0	98.6	P/P	80 - 120
2278649	Nickel	96.1	97.9	P/P	80 - 120
2278649	Selenium	97.2	98.6	P/P	80 - 120
2278649	Silver	98.7	101	P/P	80 - 120
2278649	Thallium	99.1	102	P/P	80 - 120
2278895	Aluminum	92.8		P	80 - 120
2278895	Antimony	97.8		P	80 - 120
2278895	Arsenic	92.1		P	80 - 120
2278895	Beryllium	94.6		P	80 - 120
2278895	Cadmium	93.2		P	80 - 120
2278895	Chromium	93.1		P	80 - 120
2278895	Copper	93.0		P	80 - 120
2278895	Lead	96.4		P	80 - 120
2278895	Nickel	93.6		P	80 - 120
2278895	Selenium	95.6		P	80 - 120
2278895	Silver	99.4		P	80 - 120
2278895	Thallium	99.6		P	80 - 120

Reference Method: EPA 350.1 Rev. 2.0

Batch ID: P404598

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2279122	Ammonia-N	96.8	96.4	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0

Batch ID: P404451

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2279121	Kjeldahl Nitrogen	92.9	93.4	P/P	90 - 110

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 353.2 Rev. 2.0

Batch ID: P404446

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2279121	NO2NO3-N	102	102	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Batch ID: P404416

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2278552	Total-P	108	105	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved

Batch ID: P404365

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2278882	O-Phosphate-P	98.1	98.4	P/P	90 - 110

Reference Method: EPA 8321B

Batch ID: P404276

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2278459	Acesulfame K	105	112	P/P	40 - 150
2278459	AMPA	96.6	94.8	P/P	40 - 160
2278459	Endothall	94.8	96.1	P/P	40 - 150
2278459	Glufosinate	101	103	P/P	40 - 160
2278459	Glyphosate	80.4	79.9	P/P	40 - 160
2278459	Sucralose	77.1	76.4	P/P	40 - 150

Reference Method: EPA 8321B

Batch ID: P404499

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2278894	2,4-D	114	118	P/P	40 - 150
2278894	2,4,5-T	114	125	P/P	40 - 150
2278894	Acetaminophen	93.9	137	P/P	30 - 150
2278894	Acetamiprid	83.5	97.2	P/P	40 - 150
2278894	Afidopyropen	66.7	82.2	P/P	40 - 150
2278894	Bentazon	104	116	P/P	30 - 150
2278894	Benzovindiflupyr	89.2	97.7	P/P	40 - 150
2278894	Carbamazepine	98.4	118	P/P	40 - 150
2278894	Clothianidin	108	126	P/P	40 - 150
2278894	Dinotefuran	101	120	P/P	40 - 150
2278894	Diuron	94.0	116	P/P	40 - 150
2278894	Fenuron	97.4	107	P/P	40 - 150
2278894	Fluridone	88.3	97.4	P/P	40 - 150
2278894	Hydrocodone	84.2	111	P/P	40 - 150
2278894	Ibuprofen	98.8	113	P/P	40 - 150
2278894	Imazapyr	104	137	P/P	40 - 150
2278894	Imidacloprid	106	135	P/P	40 - 150
2278894	Linuron	75.3	85.4	P/P	40 - 150
2278894	Mandestrobin	90.0	104	P/P	40 - 150
2278894	MCP	119	128	P/P	40 - 150
2278894	Naproxen	115	115	P/P	40 - 150
2278894	Primidone	96.1	109	P/P	40 - 150
2278894	Pyraclostrobin	78.2	91.4	P/P	40 - 150

Quality Assurance Report

Matrix Spike Accuracy

Reference Method: EPA 8321B

Batch ID: P404499

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2278894	Thiamethoxam	109	121	P/P	40 - 150
2278894	Tolfenpyrad	51.1	51.2	P/P	30 - 150
2278894	Triclopyr	91.5	113	P/P	40 - 150

Reference Method: SM 4500 F-C-2011

Batch ID: P404571

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2279388	Fluoride	98.9	96.8	P/P	92 - 107

Reference Method: SM 5310 B-2011

Batch ID: P404491

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2279013	Organic Carbon	95.3	94.4	P/P	85 - 115

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0

Batch ID: P404369

Replicated

Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2278874	Turbidity	5.48	Sample	P	0 - 20

Reference Method: EPA 200.7 Rev. 4.4

Batch ID: P404421

Replicated

Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2278649	Calcium	1.36	Spike	P	0 - 20
2278649	Iron	1.78	Spike	P	0 - 20
2278649	Magnesium	1.80	Spike	P	0 - 20
2278649	Manganese	0.321	Spike	P	0 - 20
2278649	Zinc	0.763	Spike	P	0 - 20

Reference Method: EPA 200.8 Rev. 5.4

Batch ID: P404421

Replicated

Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2278649	Aluminum	2.56	Spike	P	0 - 20
2278649	Antimony	1.42	Spike	P	0 - 20
2278649	Arsenic	2.25	Spike	P	0 - 20
2278649	Beryllium	0.352	Spike	P	0 - 20
2278649	Cadmium	0.672	Spike	P	0 - 20
2278649	Chromium	2.20	Spike	P	0 - 20
2278649	Copper	1.56	Spike	P	0 - 20
2278649	Lead	0.542	Spike	P	0 - 20
2278649	Nickel	1.90	Spike	P	0 - 20
2278649	Selenium	1.35	Spike	P	0 - 20
2278649	Silver	2.07	Spike	P	0 - 20
2278649	Thallium	2.58	Spike	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0

Batch ID: P404598

Replicated

Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2279122	Ammonia-N	0.377	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0

Batch ID: P404451

Replicated

Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2279121	Kjeldahl Nitrogen	0.304	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0

Batch ID: P404446

Replicated

Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2279121	NO2NO3-N	0.0	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 365.1 Rev. 2.0

Batch ID: P404416

Replicated

Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2278552	Total-P	2.05	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved

Batch ID: P404365

Replicated

Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2278882	O-Phosphate-P	0.272	Spike	P	0 - 20

Reference Method: EPA 8321B

Batch ID: P404276

Replicated

Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2278459	Acesulfame K	6.01	Spike	P	0 - 30
2278459	AMPA	1.90	Spike	P	0 - 30
2278459	Endothall	1.35	Spike	P	0 - 30
2278459	Glufosinate	1.93	Spike	P	0 - 30
2278459	Glyphosate	0.672	Spike	P	0 - 30
2278459	Sucralose	0.911	Spike	P	0 - 30

Reference Method: EPA 8321B

Batch ID: P404499

Replicated

Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2278894	2,4-D	3.34	Spike	P	0 - 30
2278894	2,4,5-T	9.33	Spike	P	0 - 30
2278894	Acetaminophen	37.3	Spike	F	0 - 30
2278894	Acetamiprid	15.2	Spike	P	0 - 30
2278894	Afidopyropen	20.9	Spike	P	0 - 30
2278894	Bentazon	11.2	Spike	P	0 - 30
2278894	Benzovindiflupyr	9.08	Spike	P	0 - 30
2278894	Carbamazepine	17.9	Spike	P	0 - 30
2278894	Clothianidin	15.1	Spike	P	0 - 30
2278894	Dinotefuran	17.4	Spike	P	0 - 30
2278894	Diuron	20.6	Spike	P	0 - 30
2278894	Fenuron	9.73	Spike	P	0 - 30
2278894	Fluridone	9.81	Spike	P	0 - 30
2278894	Hydrocodone	27.2	Spike	P	0 - 30
2278894	Ibuprofen	13.3	Spike	P	0 - 30
2278894	Imazapyr	24.8	Spike	P	0 - 30
2278894	Imidacloprid	23.8	Spike	P	0 - 30
2278894	Linuron	12.6	Spike	P	0 - 30
2278894	Mandestrobin	14.5	Spike	P	0 - 30
2278894	MCPP	7.54	Spike	P	0 - 30
2278894	Naproxen	0.256	Spike	P	0 - 30
2278894	Primidone	12.9	Spike	P	0 - 30
2278894	Pyraclostrobin	15.5	Spike	P	0 - 30
2278894	Thiamethoxam	10.7	Spike	P	0 - 30
2278894	Tolfenpyrad	0.144	Spike	P	0 - 30

Quality Assurance Report Precision

Reference Method: EPA 8321B
Batch ID: P404499

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2278894	Triclopyr	21.4	Spike	P	0 - 30

Reference Method: SM 2320 B-2011
Batch ID: P404567

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2279388	Total Alkalinity	0.705	Sample	P	0 - 5.2

Reference Method: SM 4500 F-C-2011
Batch ID: P404571

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2279388	Fluoride	1.38	Spike	P	0 - 2.1

Reference Method: SM 5310 B-2011
Batch ID: P404491

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2279013	Organic Carbon	0.599	Spike	P	0 - 20

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

Quality Assurance Report Surrogates

Lab Sample ID: 2279115

Field Sample ID: G2SE0029

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	2,4-D-d3	125	P	30 - 160
EPA 8321B	Acetaminophen-d4	107	P	30 - 160
EPA 8321B	Carbamazepine-d10	113	P	30 - 160
EPA 8321B	Diuron-d6	98.4	P	30 - 160
EPA 8321B	Endothall-d6	91.7	P	30 - 160
EPA 8321B	Glyphosate 13C 15N	74.8	P	30 - 160
EPA 8321B	Ibuprofen-d3	57.7	P	30 - 160
EPA 8321B	Primidone-d5	89.0	P	30 - 160
EPA 8321B	Sucralose-d6	81.9	P	30 - 160

Quality Assurance Report Calibration Verification

Reference Method: EPA 365.1 Rev. 2.0 dissolved

Run ID: A108064

Included Lab Sample IDs: 2279111

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	96.8	99.7	P/P	90 - 110

Reference Method: EPA 180.1 Rev. 2.0

Run ID: A108065

Included Lab Sample IDs: 2279109

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

Reference Method: EPA 8321B

Run ID: A108094

Included Lab Sample IDs: 2279115

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
AMPA	99.9	99.7	P/P	60 - 160
Glufosinate	112	111	P/P	60 - 160
Glyphosate	97.3	102	P/P	60 - 160

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A108099

Included Lab Sample IDs: 2279110

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

Reference Method: EPA 200.7 Rev. 4.4

Run ID: A108115

Included Lab Sample IDs: 2279116

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Calcium	102	101	P/P	90 - 110
Iron	102	102	P/P	90 - 110
Magnesium	101	101	P/P	90 - 110
Manganese	102	102	P/P	90 - 110
Zinc	101	100	P/P	90 - 110

Reference Method: EPA 8321B

Run ID: A108117

Included Lab Sample IDs: 2279115

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Acesulfame K	80.3	118	P/P	60 - 160
Endothall	86.5	78.3	P/P	60 - 160
Sucralose	82.6	83.4	P/P	60 - 160

Reference Method: SM 5310 B-2011

Run ID: A108119

Included Lab Sample IDs: 2279110

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	95.4	95.6	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: EPA 200.8 Rev. 5.4

Run ID: A108124

Included Lab Sample IDs: 2279116

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Aluminum	94.9	96.9	P/P	90 - 110
Antimony	99.6	101	P/P	90 - 110
Arsenic	93.2	95.1	P/P	90 - 110
Beryllium	92.8	92.5	P/P	90 - 110
Cadmium	94.2	94.8	P/P	90 - 110
Chromium	92.1	93.2	P/P	90 - 110
Copper	92.8	92.9	P/P	90 - 110
Lead	93.3	94.9	P/P	90 - 110
Nickel	92.8	93.7	P/P	90 - 110
Selenium	94.5	96.2	P/P	90 - 110
Silver	98.8	99.0	P/P	90 - 110
Thallium	96.8	96.8	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A108126

Included Lab Sample IDs: 2279110

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	99.1	100	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A108133

Included Lab Sample IDs: 2279110

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

Reference Method: SM 2320 B-2011

Run ID: A108145

Included Lab Sample IDs: 2279109

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	96.1	98.2	P/P	90 - 110

Reference Method: SM 4500 F-C-2011

Run ID: A108145

Included Lab Sample IDs: 2279109

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

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A108153

Included Lab Sample IDs: 2279110

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	97.3	97.8	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: EPA 8321B
 Run ID: A108255
 Included Lab Sample IDs: 2279115

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
2,4-D	85.9	83.1	P/P	50 - 150
2,4,5-T	82.9	87.1	P/P	50 - 150
Acetaminophen	89.0	89.2	P/P	60 - 160
Acetamiprid	95.0	89.0	P/P	50 - 150
Afidopyropen	101	101	P/P	50 - 150
Bentazon	97.9	116	P/P	50 - 160
Benzovindiflupyr	82.2	71.1	P/P	50 - 150
Carbamazepine	100	104	P/P	60 - 150
Clothianidin	108	108	P/P	60 - 150
Dinotefuran	108	107	P/P	50 - 150
Diuron	107	121	P/P	60 - 160
Fenuron	92.1	98.9	P/P	60 - 150
Fluridone	91.9	95.5	P/P	60 - 160
Hydrocodone	98.7	101	P/P	60 - 150
Ibuprofen	87.3	61.5	P/P	50 - 160
Imazapyr	88.1	99.5	P/P	50 - 150
Imidacloprid	84.7	104	P/P	60 - 150
Linuron	79.2	108	P/P	60 - 150
Mandestrobin	90.4	87.2	P/P	50 - 150
MCPP	81.8	89.4	P/P	50 - 150
Naproxen	104	80.1	P/P	50 - 160
Primidone	93.9	92.1	P/P	60 - 150
Pyraclostrobin	82.7	84.0	P/P	60 - 150
Thiamethoxam	106	95.1	P/P	50 - 150
Tolfenpyrad	89.7	85.5	P/P	60 - 150
Triclopyr	85.6	95.3	P/P	50 - 150

* 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						5.48	
EPA 200.7 Rev. 4.4	Calcium	104	101	103	101			1.36
	Iron	106	105	107	105			1.78
	Magnesium	106	104	107	99.8			1.80
	Manganese	99.7	99.9	100	98.6			0.321
	Zinc	100	101	102	99.1			0.763
EPA 200.8 Rev. 5.4	Aluminum	97.4	98.3	101	92.8			2.56
	Antimony	100	99.5	101	97.8			1.42
	Arsenic	93.4	93.2	95.4	92.1			2.25
	Beryllium	93.1	93.4	93.7	94.6			0.352
	Cadmium	94.9	94.5	95.1	93.2			0.672
	Chromium	93.2	94.7	96.8	93.1			2.20
	Copper	94.2	96.2	97.8	93.0			1.56
	Lead	97.0	98.0	98.6	96.4			0.542
	Nickel	94.5	93.6	96.1	97.9			1.90
	Selenium	96.6	97.2	98.6	95.6			1.35
	Silver	100	98.7	101	99.4			2.07
	Thallium	97.2	99.1	102	99.6			2.58
EPA 350.1 Rev. 2.0	Ammonia-N	99.0	96.8	96.4				0.377
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	101	92.9	93.4				0.304
EPA 353.2 Rev. 2.0	NO ₂ NO ₃ -N	102	102	102				0.0
EPA 365.1 Rev. 2.0	Total-P	108	108	105				2.05
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	97.9	98.1	98.4				0.272
EPA 8321B	2,4-D	79.5	114	118				3.34
	2,4,5-T	75.3	114	125				9.33
	Acesulfame K	79.8	105	112				6.01
	Acetaminophen	83.4	93.9	137				37.3
	Acetamiprid	77.5	83.5	97.2				15.2
	Afidopyropen	68.7	66.7	82.2				20.9
	AMPA	92.7	96.6	94.8				1.90
	Bentazon	103	104	116				11.2
	Benzovindiflupyr	69.2	89.2	97.7				9.08
	Carbamazepine	85.9	98.4	118				17.9
	Clothianidin	86.5	108	126				15.1
	Dinotefuran	88.8	101	120				17.4
	Diuron	95.8	94.0	116				20.6
	Endothall	69.3	94.8	96.1				1.35
	Fenuron	86.4	97.4	107				9.73
	Fluridone	77.0	88.3	97.4				9.81
	Glufosinate	97.9	101	103				1.93
	Glyphosate	88.3	80.4	79.9				0.672
	Hydrocodone	92.7	84.2	111				27.2
	Ibuprofen	70.3	98.8	113				13.3
	Imazapyr	78.3	104	137				24.8
	Imidacloprid	85.3	106	135				23.8
	Linuron	79.7	75.3	85.4				12.6
	Mandestrobin	74.0	90.0	104				14.5
	MCPP	79.4	119	128				7.54
	Naproxen	83.1	115	115				0.256
	Primidone	72.6	96.1	109				12.9
	Pyraclostrobin	62.7	78.2	91.4				15.5
	Sucralose	66.8	77.1	76.4				0.911
	Thiamethoxam	87.3	109	121				10.7
	Tolfenpyrad	40.6	51.1	51.2				0.144

Quality Assurance Report Summary

Ref. Method	Analyte	LCS % Recovery	MS % Recovery		Precision SMP	MS
					LCS	
EPA 8321B	Triclopyr	81.8	91.5	113		21.4
SM 2320 B-2011	Total Alkalinity	98.7			0.705	
SM 4500 F-C-2011	Fluoride	100	98.9	96.8		1.38
SM 5310 B-2011	Organic Carbon	97.2	95.3	94.4		0.599

Reference Method Descriptions

Method	Description	Associated Samples
EPA 180.1 Rev. 2.0	Turbidity in aqueous matrices	2279109
EPA 200.7 Rev. 4.4	Total Recoverable Metals analysis using ICP emission spectroscopy for aqueous samples supporting Clean Water Act Projects	2279116
EPA 200.8 Rev. 5.4	Total Recoverable Metals analysis using ICP-MS for aqueous samples supporting Clean Water Act Projects	2279116
EPA 350.1 Rev. 2.0	Ammonia in aqueous matrices as mg N/L	2279110
EPA 351.2 Rev. 2.0	Total Kjeldahl Nitrogen in aqueous matrices	2279110
EPA 353.2 Rev. 2.0	Nitrite/Nitrate in aqueous matrices as mg N/L	2279110
EPA 365.1 Rev. 2.0	Total Phosphorus in aqueous matrices as mg P/L	2279110
EPA 365.1 Rev. 2.0 dissolved	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	2279111
EPA 8321B	Pesticides, herbicides, and other chemicals in water matrices by HPLC/MS/MS	2279115
SM 2320 B-2011	Alkalinity in aqueous matrices as mg CaCO ₃ /L	2279109
SM 2540 D-2011	Total Suspended Solids in aqueous matrices using a maximum of 250 mL of sample	2279109
SM 4500 F-C-2011	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	2279109
SM 5310 B-2011	Nonpurgeable Organic Carbon in aqueous matrices	2279110

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	09/29/2021			09/29/2021 16:38	Khloe J Berg	2279109
EPA 200.7 Rev. 4.4	09/29/2021	10/01/2021 10:00	Emily M Philpot	10/01/2021 19:32	Josef B Mick	2279116
EPA 200.8 Rev. 5.4	09/29/2021	10/01/2021 10:00	Emily M Philpot	10/02/2021 01:17	McKinley C Carter	2279116
EPA 350.1 Rev. 2.0	09/29/2021			10/05/2021 15:07	Ping Hua	2279110
EPA 351.2 Rev. 2.0	09/29/2021	10/01/2021 12:37	Benjamin T. Nordmann	10/04/2021 11:07	Alexandra J Mattheus	2279110
EPA 353.2 Rev. 2.0	09/29/2021			10/01/2021 10:20	Beverly Y. Sanders	2279110
EPA 365.1 Rev. 2.0	09/29/2021	10/01/2021 14:15	Simonne.V. Calhoun	10/04/2021 13:59	Lipi Saha	2279110
EPA 365.1 Rev. 2.0 dissolved	09/29/2021			09/29/2021 15:07	James L Waggeberby	2279111
EPA 8321B	09/29/2021	09/30/2021 13:00	Juyoung Kim	09/30/2021 17:03	Juyoung Kim	2279115
	09/29/2021	09/30/2021 13:00	Juyoung Kim	10/01/2021 14:03	Manjita Shrestha	2279115
	09/29/2021	10/05/2021 09:00	Hoor Shaik	10/09/2021 14:55	Juyoung Kim	2279115
SM 2320 B-2011	09/29/2021			10/02/2021 05:55	Dale L. Simmons	2279109
SM 2540 D-2011	09/29/2021			09/30/2021 15:26	Yijie Li	2279109
SM 4500 F-C-2011	09/29/2021			10/02/2021 05:55	Dale L. Simmons	2279109
SM 5310 B-2011	09/29/2021			10/02/2021 01:56	Madeline Gruver	2279110