Chemical Analysis Report

SE-DIST-2021-08-27-01

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

Event Description: **SMP - PB Pickup**
Request ID: **RQ-2021-08-23-52**
Customer: **SE-DIST**
Project ID: **SMP**

Send Reports to:
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Certified by: Thekkekalathil Chandrasekhar, Environmental Consultant Date Certified: 22-SEP-2021 14:45

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: 08/26/2021 09:45**

Field ID: G2SE0029 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2272393	EPA 180.1 Rev. 2.0	Turbidity	5.8		NTU	P403098	
	SM 2320 B-2011	Total Alkalinity	206	A	mg CaCO3/L	P403167	
	SM 2540 D-2011	TSS	7	I A	mg/L	P403398	
	SM 4500 F-C-2011	Fluoride	0.22		mg F/L	P403169	
2272394	EPA 350.1 Rev. 2.0	Ammonia-N	0.029		mg N/L	P403210	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.78		mg N/L	P403315	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.11		mg N/L	P403189	
	EPA 365.1 Rev. 2.0	Total-P	0.45		mg P/L	P403170	
	SM 5310 B-2011	Organic Carbon	12		mg C/L	P403345	
2272395	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.30		mg P/L	P403090	
2272403	EPA 8321B	2,4-D	0.54		ug/L	P403027	
		Acesulfame K	0.27	I	ug/L	P402974	
		2,4,5-T	0.0040	U	ug/L	P403027	
		AMPA	0.10	I	ug/L	P402974	
		Acetaminophen	0.0080	U	ug/L	P403027	
		Acetamiprid	0.0020	U	ug/L	P403027	
		Endothall	0.25	U	ug/L	P402974	
		Glufosinate	0.10	U	ug/L	P402974	
		Glyphosate	0.26	I	ug/L	P402974	
		Afidopyropen	0.0020	U	ug/L	P403027	
		Bentazon	0.076		ug/L	P403027	
		Sucralose	0.63		ug/L	P402974	
		Benzovindiflupyr	0.0020	U	ug/L	P403027	
		Carbamazepine	9.4E-04	I	ug/L	P403027	
		Clothianidin	0.0020	U	ug/L	P403027	
		Dinotefuran	0.0020	U	ug/L	P403027	
		Diuron	0.0020	U	ug/L	P403027	
		Fenuron	0.016	U	ug/L	P403027	
		Fluridone	8.0E-04	U	ug/L	P403027	
		Imazapyr	0.13		ug/L	P403027	
		Hydrocodone	0.0020	U	ug/L	P403027	
		Ibuprofen	0.020	U	ug/L	P403027	
		Imidacloprid	0.0020	U	ug/L	P403027	
		Linuron	0.0040	U	ug/L	P403027	
		Mandestrobin	0.0020	U	ug/L	P403027	
		MCPP	0.12		ug/L	P403027	
		Naproxen	0.0080	U	ug/L	P403027	
		Primidone	0.0040	U	ug/L	P403027	MS, RPD
		Pyraclostrobin	0.0020	U	ug/L	P403027	
		Thiamethoxam	0.0020	U	ug/L	P403027	
		Tolfenpyrad	0.0020	U	ug/L	P403027	
		Triclopyr	0.0040	U	ug/L	P403027	
2272405	EPA 200.7 Rev. 4.4	Calcium	82.7		mg/L	P403121	

Field ID: G2SE0029 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2272405	EPA 200.7 Rev. 4.4	Iron	640		ug/L	P403121	
		Magnesium	3.16		mg/L	P403121	
		Manganese	47.9		ug/L	P403121	
		Zinc	8.3	I	ug/L	P403121	
	EPA 200.8 Rev. 5.4	Aluminum	87		ug/L	P403121	
		Antimony	0.055	I	ug/L	P403121	
		Arsenic	1.03		ug/L	P403121	
		Beryllium	0.017	I	ug/L	P403121	
		Cadmium	0.020	U	ug/L	P403121	
		Chromium	0.44	I	ug/L	P403121	
		Copper	0.72	I	ug/L	P403121	
		Lead	0.20	I	ug/L	P403121	
		Nickel	0.50	U	ug/L	P403121	
		Selenium	0.20	U	ug/L	P403121	
		Silver	0.010	U	ug/L	P403121	
		Thallium	0.10	U	ug/L	P403121	

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: MS accuracy for some analytes could not be assessed due to high concentration of parameter in the spiked sample.

Sample Location: Boynton Beach Canal @ Congress **Collection Date/Time: 08/26/2021 11:40**

Field ID: G3SE0054 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2272404	EPA 8321B	2,4-D	0.026		ug/L	P403027	
		Acesulfame K	0.13	I	ug/L	P402974	
		2,4,5-T	0.0040	U	ug/L	P403027	
		AMPA	0.88		ug/L	P402974	
		Acetaminophen	0.0080	U	ug/L	P403027	
		Acetamiprid	0.0020	U	ug/L	P403027	
		Endothall	0.25	U	ug/L	P402974	
		Glufosinate	0.10	U	ug/L	P402974	
		Glyphosate	1.1		ug/L	P402974	
		Afidopyropen	0.0020	U	ug/L	P403027	
		Bentazon	0.11	I	ug/L	P403027	
		Sucralose	0.70		ug/L	P402974	
		Benzovindiflupyr	0.0020	U	ug/L	P403027	
		Carbamazepine	0.0010	I	ug/L	P403027	
		Clothianidin	0.0020	U	ug/L	P403027	
		Dinotefuran	0.015		ug/L	P403027	
		Diuron	0.029		ug/L	P403027	
		Fenuron	0.016	U	ug/L	P403027	
		Fluridone	0.090		ug/L	P403027	
		Imazapyr	0.074		ug/L	P403027	
		Hydrocodone	0.0020	U	ug/L	P403027	
		Ibuprofen	0.020	U	ug/L	P403027	
		Imidacloprid	0.013		ug/L	P403027	
		Linuron	0.0040	U	ug/L	P403027	
		Mandestrobin	0.0020	U	ug/L	P403027	
		MCPP	0.0024	I	ug/L	P403027	
		Naproxen	0.0080	U	ug/L	P403027	
		Primidone	0.0040	U	ug/L	P403027	MS, RPD
		Pyraclostrobin	0.0020	U	ug/L	P403027	
		Thiamethoxam	0.0020	U	ug/L	P403027	
		Tolfenpyrad	0.0020	U	ug/L	P403027	
		Triclopyr	0.0040	U	ug/L	P403027	

Ref. Method and Comment:
EPA 8321B: MS accuracy for some analytes could not be assessed due to high concentration of parameter in the spiked sample.

Quality Assurance Report
Method Blank Results

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P403098

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P403121

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: P403121

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: P403210

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P403315

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P403189

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P403170

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: P403090

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

Reference Method: EPA 8321B
Batch ID: P402974

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: P403027

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: P403167

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: P403398

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500 F-C-2011
Batch ID: P403169

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-2011
Batch ID: P403345

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: P403121

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Calcium	100		P	85 - 115
Iron	96.0		P	85 - 115
Magnesium	97.5		P	85 - 115
Manganese	92.9		P	85 - 115
Zinc	92.2		P	85 - 115

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P403121

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Aluminum	101		P	85 - 115
Antimony	105		P	85 - 115
Arsenic	103		P	85 - 115
Beryllium	102		P	85 - 115
Cadmium	98.2		P	85 - 115
Chromium	102		P	85 - 115
Copper	103		P	85 - 115
Lead	104		P	85 - 115
Nickel	104		P	85 - 115
Selenium	102		P	85 - 115
Silver	108		P	85 - 115
Thallium	104		P	85 - 115

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P403210

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Ammonia-N	99.6		P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P403315

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P403189

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
NO2NO3-N	98.0		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P403170

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P403090

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

Quality Assurance Report
Laboratory Control Sample Accuracy

Reference Method: EPA 8321B
Batch ID: P402974

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Acesulfame K	78.6		P	40 - 150
AMPA	82.4		P	40 - 150
Endothall	68.1		P	40 - 150
Glufosinate	105		P	40 - 150
Glyphosate	107		P	40 - 150
Sucralose	90.2		P	40 - 150

Reference Method: EPA 8321B
Batch ID: P403027

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2,4-D	92.8		P	40 - 150
2,4,5-T	106		P	40 - 150
Acetaminophen	80.2		P	30 - 150
Acetamiprid	96.1		P	40 - 150
Afidopyropen	83.2		P	40 - 150
Bentazon	119		P	30 - 150
Benzovindiflupyr	94.7		P	40 - 150
Carbamazepine	85.8		P	40 - 150
Clothianidin	98.4		P	40 - 150
Dinotefuran	84.8		P	40 - 150
Diuron	79.0		P	40 - 150
Fenuron	94.5		P	40 - 150
Fluridone	100		P	40 - 150
Hydrocodone	77.7		P	40 - 150
Ibuprofen	54.6		P	40 - 150
Imazapyr	85.0		P	40 - 150
Imidacloprid	97.3		P	40 - 150
Linuron	83.9		P	40 - 150
Mandestrobin	95.1		P	40 - 150
MCPP	91.7		P	40 - 150
Naproxen	98.6		P	40 - 150
Primidone	84.9		P	40 - 150
Pyraclostrobin	87.5		P	40 - 150
Thiamethoxam	92.7		P	40 - 150
Tolfenpyrad	51.5		P	30 - 150
Triclopyr	97.3		P	40 - 150

Reference Method: SM 2320 B-2011
Batch ID: P403167

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	103		P	94 - 106

Reference Method: SM 4500 F-C-2011
Batch ID: P403169

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	99.0		P	93 - 104

Quality Assurance Report
Laboratory Control Sample Accuracy

Reference Method: SM 5310 B-2011
Batch ID: P403345

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	99.2		P	85 - 115

Quality Assurance Report
Matrix Spike Accuracy

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P403121

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2272208	Calcium	103		P	80 - 120
2272208	Iron	106	108	P/P	80 - 120
2272208	Magnesium	107	110	P/P	80 - 120
2272208	Manganese	98.9	103	P/P	80 - 120
2272208	Zinc	99.6	103	P/P	80 - 120
2272344	Calcium	97.6		P	80 - 120
2272344	Iron	91.5		P	80 - 120
2272344	Magnesium	99.2		P	80 - 120
2272344	Manganese	88.1		P	80 - 120
2272344	Zinc	90.3		P	80 - 120

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P403121

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2272208	Aluminum	98.6	103	P/P	80 - 120
2272208	Antimony	105	105	P/P	80 - 120
2272208	Arsenic	100	101	P/P	80 - 120
2272208	Beryllium	99.9	98.0	P/P	80 - 120
2272208	Cadmium	100	101	P/P	80 - 120
2272208	Chromium	103	102	P/P	80 - 120
2272208	Copper	101	98.8	P/P	80 - 120
2272208	Lead	106	106	P/P	80 - 120
2272208	Nickel	102	101	P/P	80 - 120
2272208	Selenium	98.6	99.9	P/P	80 - 120
2272208	Silver	107	107	P/P	80 - 120
2272208	Thallium	107	107	P/P	80 - 120
2272344	Aluminum	100		P	80 - 120
2272344	Antimony	106		P	80 - 120
2272344	Arsenic	101		P	80 - 120
2272344	Beryllium	96.0		P	80 - 120
2272344	Cadmium	99.4		P	80 - 120
2272344	Chromium	103		P	80 - 120
2272344	Copper	97.7		P	80 - 120
2272344	Lead	105		P	80 - 120
2272344	Nickel	101		P	80 - 120
2272344	Selenium	99.4		P	80 - 120
2272344	Silver	105		P	80 - 120
2272344	Thallium	107		P	80 - 120

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P403210

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2272419	Ammonia-N	95.0	94.8	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P403315

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2272394	Kjeldahl Nitrogen	110	106	P/P	90 - 110

Quality Assurance Report
Matrix Spike Accuracy

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P403189

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2272335	NO2NO3-N	97.0	98.0	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P403170

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2272387	Total-P	107	107	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P403090

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2272388	O-Phosphate-P	93.9	95.7	P/P	90 - 110

Reference Method: EPA 8321B
Batch ID: P402974

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2271284	Acesulfame K	56.7	57.9	P/P	40 - 150
2271284	AMPA	91.0	91.7	P/P	40 - 150
2271284	Endothall	101	103	P/P	40 - 150
2271284	Glufosinate	107	106	P/P	40 - 150
2271284	Glyphosate	108	110	P/P	40 - 150
2271284	Sucralose	93.6	94.0	P/P	40 - 150

Reference Method: EPA 8321B
Batch ID: P403027

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2271466	2,4-D	105	96.8	P/P	40 - 150
2271466	2,4,5-T	111	101	P/P	40 - 150
2271466	Acetaminophen	81.5	84.3	P/P	30 - 150
2271466	Acetamiprid	91.7	84.6	P/P	40 - 150
2271466	Afidopyropen	111	99.8	P/P	40 - 150
2271466	Benzovindiflupyr	92.0	95.7	P/P	40 - 150
2271466	Carbamazepine	88.7	92.1	P/P	40 - 150
2271466	Clothianidin	68.7	70.6	P/P	40 - 150
2271466	Diuron	89.8	87.8	P/P	40 - 150
2271466	Fenuron	99.3	95.6	P/P	40 - 150
2271466	Fluridone	94.8	100	P/P	40 - 150
2271466	Hydrocodone	98.2	87.5	P/P	40 - 150
2271466	Ibuprofen	70.5	65.9	P/P	40 - 150
2271466	Imidacloprid	92.3	91.1	P/P	40 - 150
2271466	Linuron	99.3	77.0	P/P	40 - 150
2271466	Mandestrobin	104	101	P/P	40 - 150
2271466	MCPP	118	110	P/P	40 - 150
2271466	Naproxen	94.3	87.8	P/P	40 - 150
2271466	Primidone	32.3	50.6	F/P	40 - 150
2271466	Pyraclostrobin	91.3	87.3	P/P	40 - 150
2271466	Thiamethoxam	99.5	90.5	P/P	40 - 150
2271466	Tolfenpyrad	52.1	52.1	P/P	30 - 150
2271466	Triclopyr	106	96.9	P/P	40 - 150

Quality Assurance Report
Matrix Spike Accuracy

Reference Method: SM 4500 F-C-2011
Batch ID: P403169

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2272393	Fluoride	98.4	98.4	P/P	92 - 107

Reference Method: SM 5310 B-2011
Batch ID: P403345

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2272233	Organic Carbon	96.2	98.8	P/P	85 - 115

Quality Assurance Report
Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P403098

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2272376	Turbidity	0.242	Sample	P	0 - 20

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P403121

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2272208	Calcium	3.07	Spike	P	0 - 20
2272208	Iron	2.31	Spike	P	0 - 20
2272208	Magnesium	2.62	Spike	P	0 - 20
2272208	Manganese	3.68	Spike	P	0 - 20
2272208	Zinc	2.94	Spike	P	0 - 20

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P403121

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2272208	Aluminum	3.49	Spike	P	0 - 20
2272208	Antimony	0.549	Spike	P	0 - 20
2272208	Arsenic	0.783	Spike	P	0 - 20
2272208	Beryllium	1.76	Spike	P	0 - 20
2272208	Cadmium	0.464	Spike	P	0 - 20
2272208	Chromium	0.638	Spike	P	0 - 20
2272208	Copper	1.95	Spike	P	0 - 20
2272208	Lead	0.270	Spike	P	0 - 20
2272208	Nickel	1.16	Spike	P	0 - 20
2272208	Selenium	1.32	Spike	P	0 - 20
2272208	Silver	0.431	Spike	P	0 - 20
2272208	Thallium	0.664	Spike	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P403210

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2272419	Ammonia-N	0.181	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P403315

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2272394	Kjeldahl Nitrogen	2.04	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P403189

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2272335	NO2NO3-N	0.621	Spike	P	0 - 20

Quality Assurance Report
Precision

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P403170

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2272387	Total-P	0.134	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P403090

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2272388	O-Phosphate-P	1.90	Spike	P	0 - 20

Reference Method: EPA 8321B
Batch ID: P402974

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2271284	Acesulfame K	2.14	Spike	P	0 - 30
2271284	AMPA	0.789	Spike	P	0 - 30
2271284	Endothall	2.32	Spike	P	0 - 30
2271284	Glufosinate	0.745	Spike	P	0 - 30
2271284	Glyphosate	2.50	Spike	P	0 - 30
2271284	Sucralose	0.483	Spike	P	0 - 30

Reference Method: EPA 8321B
Batch ID: P403027

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2271466	2,4-D	7.65	Spike	P	0 - 30
2271466	2,4,5-T	9.54	Spike	P	0 - 30
2271466	Acetaminophen	3.38	Spike	P	0 - 30
2271466	Acetamiprid	8.00	Spike	P	0 - 30
2271466	Afidopyropen	10.3	Spike	P	0 - 30
2271466	Bentazon	11.5	Spike	P	0 - 30
2271466	Benzovindiflupyr	3.81	Spike	P	0 - 30
2271466	Carbamazepine	3.45	Spike	P	0 - 30
2271466	Clothianidin	2.74	Spike	P	0 - 30
2271466	Dinotefuran	7.69	Spike	P	0 - 30
2271466	Diuron	2.22	Spike	P	0 - 30
2271466	Fenuron	3.73	Spike	P	0 - 30
2271466	Fluridone	5.58	Spike	P	0 - 30
2271466	Hydrocodone	11.5	Spike	P	0 - 30
2271466	Ibuprofen	6.74	Spike	P	0 - 30
2271466	Imazapyr	11.0	Spike	P	0 - 30
2271466	Imidacloprid	1.18	Spike	P	0 - 30
2271466	Linuron	25.3	Spike	P	0 - 30
2271466	Mandestrobin	3.39	Spike	P	0 - 30
2271466	MCPP	6.59	Spike	P	0 - 30
2271466	Naproxen	7.15	Spike	P	0 - 30
2271466	Primidone	44.0	Spike	F	0 - 30
2271466	Pyraclostrobin	4.52	Spike	P	0 - 30
2271466	Thiamethoxam	9.47	Spike	P	0 - 30
2271466	Tolfenpyrad	0.0501	Spike	P	0 - 30

Quality Assurance Report
Precision

Reference Method: EPA 8321B
Batch ID: P403027

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2271466	Triclopyr	8.83	Spike	P	0 - 30

Reference Method: SM 2320 B-2011
Batch ID: P403167

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2272393	Total Alkalinity	0.0994	Sample	P	0 - 5.2

Reference Method: SM 4500 F-C-2011
Batch ID: P403169

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2272393	Fluoride	0.0	Spike	P	0 - 2.1

Reference Method: SM 5310 B-2011
Batch ID: P403345

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2272233	Organic Carbon	1.58	Spike	P	0 - 20

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

Quality Assurance Report
Surrogates

Lab Sample ID: 2272403
Field Sample ID: G2SE0029

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	2,4-D-d3	102	P	30 - 160
EPA 8321B	Acetaminophen-d4	61.8	P	30 - 160
EPA 8321B	Carbamazepine-d10	76.3	P	30 - 160
EPA 8321B	Diuron-d6	79.4	P	30 - 160
EPA 8321B	Endothall-d6	123	P	30 - 160
EPA 8321B	Glyphosate 13C 15N	84.7	P	30 - 160
EPA 8321B	Ibuprofen-d3	43.9	P	30 - 160
EPA 8321B	Primidone-d5	37.2	P	30 - 160
EPA 8321B	Sucralose-d6	104	P	30 - 160

Lab Sample ID: 2272404
Field Sample ID: G3SE0054

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	2,4-D-d3	98.6	P	30 - 160
EPA 8321B	Acetaminophen-d4	63.5	P	30 - 160
EPA 8321B	Carbamazepine-d10	77.3	P	30 - 160
EPA 8321B	Diuron-d6	73.3	P	30 - 160
EPA 8321B	Endothall-d6	117	P	30 - 160
EPA 8321B	Glyphosate 13C 15N	81.8	P	30 - 160
EPA 8321B	Ibuprofen-d3	50.6	P	30 - 160
EPA 8321B	Primidone-d5	32.3	P	30 - 160
EPA 8321B	Sucralose-d6	101	P	30 - 160

Quality Assurance Report
Calibration Verification

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Run ID: A107515
Included Lab Sample IDs: 2272395

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

Reference Method: EPA 180.1 Rev. 2.0
Run ID: A107517
Included Lab Sample IDs: 2272393

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

Reference Method: EPA 8321B
Run ID: A107519
Included Lab Sample IDs: 2272403, 2272404

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
AMPA	78.1		P	60 - 160
Glufosinate	99.7		P	60 - 160
Glyphosate	101		P	60 - 160

Reference Method: EPA 8321B
Run ID: A107530
Included Lab Sample IDs: 2272403, 2272404

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Acesulfame K	103	74.6	P/P	60 - 160
Endothall	82.6	105	P/P	60 - 160
Sucralose	97.4	101	P/P	60 - 160

Reference Method: SM 2320 B-2011
Run ID: A107559
Included Lab Sample IDs: 2272393

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

Reference Method: SM 4500 F-C-2011
Run ID: A107559
Included Lab Sample IDs: 2272393

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

Reference Method: EPA 353.2 Rev. 2.0
Run ID: A107563
Included Lab Sample IDs: 2272394

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO2NO3-N	99.5	99.5	P/P	90 - 110

Quality Assurance Report
Calibration Verification

Reference Method: EPA 350.1 Rev. 2.0
Run ID: A107569
Included Lab Sample IDs: 2272394

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	100	99.8	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Run ID: A107594
Included Lab Sample IDs: 2272394

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

Reference Method: EPA 200.7 Rev. 4.4
Run ID: A107604
Included Lab Sample IDs: 2272405

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Calcium	96.1	96.1	P/P	90 - 110
Iron	95.6	95.7	P/P	90 - 110
Magnesium	95.9	96.1	P/P	90 - 110
Manganese	100	97.2	P/P	90 - 110
Zinc	98.2	95.0	P/P	90 - 110

Reference Method: EPA 200.8 Rev. 5.4
Run ID: A107605
Included Lab Sample IDs: 2272405

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Aluminum	101	99.7	P/P	90 - 110
Antimony	105	102	P/P	90 - 110
Arsenic	99.8	98.8	P/P	90 - 110
Beryllium	94.5	94.6	P/P	90 - 110
Cadmium	98.8	98.2	P/P	90 - 110
Chromium	102	98.6	P/P	90 - 110
Copper	98.2	96.4	P/P	90 - 110
Lead	100	99.2	P/P	90 - 110
Nickel	99.2	97.4	P/P	90 - 110
Selenium	99.4	97.3	P/P	90 - 110
Silver	102	101	P/P	90 - 110
Thallium	103	100	P/P	90 - 110

Reference Method: SM 5310 B-2011
Run ID: A107635
Included Lab Sample IDs: 2272394

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	100	102	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Run ID: A107640
Included Lab Sample IDs: 2272394

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	99.0	101	P/P	90 - 110

Quality Assurance Report
Calibration Verification

Reference Method: EPA 8321B
Run ID: A107667
Included Lab Sample IDs: 2272403, 2272404

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Bentazon	104	112	P/P	50 - 160

Reference Method: EPA 8321B
Run ID: A107670
Included Lab Sample IDs: 2272403, 2272404

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
2,4-D	116	70.1	P/P	50 - 150
2,4,5-T	93.3	88.9	P/P	50 - 150
Acetaminophen	110	104	P/P	60 - 160
Acetamiprid	111	109	P/P	50 - 150
Afidopyropen	109	112	P/P	50 - 150
Benzovindiflupyr	110	107	P/P	50 - 150
Carbamazepine	116	110	P/P	60 - 150
Clothianidin	118	107	P/P	60 - 150
Dinotefuran	101	103	P/P	50 - 150
Diuron	105	112	P/P	60 - 160
Fenuron	104	101	P/P	60 - 150
Fluridone	110	106	P/P	60 - 160
Hydrocodone	100	96.6	P/P	60 - 150
Ibuprofen	68.9	96.1	P/P	50 - 160
Imazapyr	89.9	105	P/P	50 - 150
Imidacloprid	110	114	P/P	60 - 150
Linuron	99.3	104	P/P	60 - 150
Mandestrobin	105	108	P/P	50 - 150
MCPP	110	99.6	P/P	50 - 150
Naproxen	120	80.2	P/P	50 - 160
Primidone	117	102	P/P	60 - 150
Pyraclostrobin	112	109	P/P	60 - 150
Thiamethoxam	111	114	P/P	50 - 150
Tolfenpyrad	107	105	P/P	60 - 150
Triclopyr	112	94.6	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			Precision		
						LCS	SMP	MS
EPA 180.1 Rev. 2.0	Turbidity						0.242	
EPA 200.7 Rev. 4.4	Calcium	100	103	97.6				3.07
	Iron	96.0	106	108	91.5			2.31
	Magnesium	97.5	107	110	99.2			2.62
	Manganese	92.9	98.9	103	88.1			3.68
	Zinc	92.2	99.6	103	90.3			2.94
EPA 200.8 Rev. 5.4	Aluminum	101	98.6	103	100			3.49
	Antimony	105	105	105	106			0.549
	Arsenic	103	100	101	101			0.783
	Beryllium	102	99.9	98.0	96.0			1.76
	Cadmium	98.2	100	101	99.4			0.464
	Chromium	102	103	102	103			0.638
	Copper	103	101	98.8	97.7			1.95
	Lead	104	106	106	105			0.270
	Nickel	104	102	101	101			1.16
	Selenium	102	98.6	99.9	99.4			1.32
	Silver	108	107	107	105			0.431
	Thallium	104	107	107	107			0.664
EPA 350.1 Rev. 2.0	Ammonia-N	99.6	95.0	94.8				0.181
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	105	110	106				2.04
EPA 353.2 Rev. 2.0	NO2NO3-N	98.0	97.0	98.0				0.621
EPA 365.1 Rev. 2.0	Total-P	107	107	107				0.134
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	99.2	93.9	95.7				1.90
EPA 8321B	2,4-D	92.8	105	96.8				7.65
	2,4,5-T	106	111	101				9.54
	Acesulfame K	78.6	56.7	57.9				2.14
	Acetaminophen	80.2	81.5	84.3				3.38
	Acetamiprid	96.1	91.7	84.6				8.00
	Afidopyropen	83.2	111	99.8				10.3
	AMPA	82.4	91.0	91.7				0.789
	Bentazon	119						11.5
	Benzovindiflupyr	94.7	92.0	95.7				3.81
	Carbamazepine	85.8	88.7	92.1				3.45
	Clothianidin	98.4	68.7	70.6				2.74
	Dinotefuran	84.8						7.69
	Diuron	79.0	89.8	87.8				2.22
	Endothall	68.1	101	103				2.32
	Fenuron	94.5	99.3	95.6				3.73
	Fluridone	100	94.8	100				5.58
	Glufosinate	105	107	106				0.745
	Glyphosate	107	108	110				2.50
	Hydrocodone	77.7	98.2	87.5				11.5
	Ibuprofen	54.6	70.5	65.9				6.74
	Imazapyr	85.0						11.0
	Imidacloprid	97.3	92.3	91.1				1.18
	Linuron	83.9	99.3	77.0				25.3
	Mandestrobin	95.1	104	101				3.39
	MCPP	91.7	118	110				6.59
	Naproxen	98.6	94.3	87.8				7.15
	Primidone	84.9	32.3	50.6				44.0
	Pyraclostrobin	87.5	91.3	87.3				4.52
	Sucralose	90.2	93.6	94.0				0.483
	Thiamethoxam	92.7	99.5	90.5				9.47
	Tolfenpyrad	51.5	52.1	52.1				0.0501

Quality Assurance Report
Summary

Ref. Method	Analyte	LCS % Recovery	MS % Recovery		Precision		
					LCS	SMP	MS
EPA 8321B	Triclopyr	97.3	106	96.9			8.83
SM 2320 B-2011	Total Alkalinity	103				0.0994	
SM 4500 F-C-2011	Fluoride	99.0	98.4	98.4			0.0
SM 5310 B-2011	Organic Carbon	99.2	96.2	98.8			1.58

Reference Method Descriptions

Method	Description	Associated Samples
EPA 180.1 Rev. 2.0	Turbidity in aqueous matrices	2272393
EPA 200.7 Rev. 4.4	Total Recoverable Metals analysis using ICP emission spectroscopy for aqueous samples supporting Clean Water Act Projects	2272405
EPA 200.8 Rev. 5.4	Total Recoverable Metals analysis using ICP-MS for aqueous samples supporting Clean Water Act Projects	2272405
EPA 350.1 Rev. 2.0	Ammonia in aqueous matrices as mg N/L	2272394
EPA 351.2 Rev. 2.0	Total Kjeldahl Nitrogen in aqueous matrices	2272394
EPA 353.2 Rev. 2.0	Nitrite/Nitrate in aqueous matrices as mg N/L	2272394
EPA 365.1 Rev. 2.0	Total Phosphorus in aqueous matrices as mg P/L	2272394
EPA 365.1 Rev. 2.0 dissolved	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	2272395
EPA 8321B	Pesticides, herbicides, and other chemicals in water matrices by HPLC/MS/MS	2272403, 2272404
SM 2320 B-2011	Alkalinity in aqueous matrices as mg CaCO3/L	2272393
SM 2540 D-2011	Total Suspended Solids in aqueous matrices using a maximum of 250 mL of sample	2272393
SM 4500 F-C-2011	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	2272393
SM 5310 B-2011	Nonpurgeable Organic Carbon in aqueous matrices	2272394

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	08/27/2021			08/27/2021 15:00	Sarah A Nixon	2272393
EPA 200.7 Rev. 4.4	08/27/2021	08/30/2021 13:10	Elliott D. Healy	09/02/2021 04:35	Josef B Mick	2272405
EPA 200.8 Rev. 5.4	08/27/2021	08/30/2021 13:10	Elliott D. Healy	09/01/2021 17:42	Alexander Thompson	2272405
EPA 350.1 Rev. 2.0	08/27/2021			08/31/2021 12:26	Ping Hua	2272394
EPA 351.2 Rev. 2.0	08/27/2021	09/02/2021 13:17	Benjamin T. Nordmann	09/03/2021 12:26	Alexandra J Mattheus	2272394
EPA 353.2 Rev. 2.0	08/27/2021			08/31/2021 09:37	Beverly Y. Sanders	2272394
EPA 365.1 Rev. 2.0	08/27/2021	08/31/2021 14:38	Simonne.V. Calhoun	09/01/2021 10:35	Shengyu Ding	2272394
EPA 365.1 Rev. 2.0 dissolved	08/27/2021			08/27/2021 14:51	James L Waggerby	2272395
EPA 8321B	08/27/2021	08/27/2021 11:30	Juyoung Kim	08/27/2021 13:59	Juyoung Kim	2272403
	08/27/2021	08/27/2021 11:30	Juyoung Kim	08/27/2021 14:10	Juyoung Kim	2272404
	08/27/2021	08/27/2021 11:30	Juyoung Kim	08/30/2021 09:47	Juyoung Kim	2272403
	08/27/2021	08/27/2021 11:30	Juyoung Kim	08/30/2021 10:01	Juyoung Kim	2272404
	08/27/2021	08/27/2021 14:00	Hoor Shaik	08/28/2021 07:33	Juyoung Kim	2272403
	08/27/2021	08/27/2021 14:00	Hoor Shaik	08/28/2021 08:08	Juyoung Kim	2272404
	08/27/2021	08/27/2021 14:00	Hoor Shaik	09/07/2021 19:21	Juyoung Kim	2272403
	08/27/2021	08/27/2021 14:00	Hoor Shaik	09/07/2021 19:56	Juyoung Kim	2272404
SM 2320 B-2011	08/27/2021			08/30/2021 16:11	Dale L. Simmons	2272393
SM 2540 D-2011	08/27/2021			08/30/2021 14:36	Yijie Li	2272393
SM 4500 F-C-2011	08/27/2021			08/30/2021 15:58	Dale L. Simmons	2272393
SM 5310 B-2011	08/27/2021			09/02/2021 07:03	Touraj Touran	2272394