

Chemical Analysis Report

SW-DIST-2020-10-16-02

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

Event Description: **Run 15**
Request ID: **RQ-2020-10-12-03**
Customer: **SW-DIST**
Project ID: **SMP**

Send Reports to:
FL Dept. of Environmental Protection
FL Dept. of Environmental Protection
13051 N. Telecom Parkway
Temple Terrace, FL 33637-0926
Attn: Ben Pawater

For additional information please contact
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Certified by: Thekkekalathil Chandrasekhar, Chemist Administrator

Date Certified: 05-NOV-2020 10:36



NON-CONFORMANCE REPORT INCLUDED

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: PP Ditch 1

Collection Date/Time: 10/14/2020 12:15

Field ID: G5SW0134

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2202915	EPA 350.1 Rev. 2.0	Ammonia-N	0.022		mg N/L	P388847	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.2		mg N/L	P389043	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.052		mg N/L	P389072	
	EPA 365.1 Rev. 2.0	Total-P	0.15		mg P/L	P388935	
	SM 5310 B-2011	Organic Carbon	14		mg C/L	P388948	
2202918	EPA 8321B	2,4-D	0.033		ug/L	P388895	
		Acesulfame K**	0.10	UJ	ug/L	P388857	SUR
		AMPA**	0.10	U	ug/L	P388857	
		Sucralose**	1.7		ug/L	P388857	
		Acetaminophen**	0.0085	I	ug/L	P388895	
		Acetamiprid**	0.0020	U	ug/L	P388895	
		Endothall**	0.25	UJ	ug/L	P388857	SUR
		Glufosinate**	0.10	U	ug/L	P388857	
		Glyphosate**	0.74		ug/L	P388857	
		Afidopyropen**	0.0020	U	ug/L	P388895	
		Bentazon	0.013		ug/L	P388895	MS
		Benzovindiflupyr**	0.0020	U	ug/L	P388895	
		Carbamazepine**	0.0036		ug/L	P388895	
		Clothianidin**	0.011		ug/L	P388895	
		Dinotefuran**	0.0061	I	ug/L	P388895	
		Diuron	0.017		ug/L	P388895	MS, RPD
		Fenuron	0.016	U	ug/L	P388895	
		Fluridone**	0.057		ug/L	P388895	
		Imazapyr**	0.045		ug/L	P388895	MS
		Hydrocodone**	0.0020	U	ug/L	P388895	
		Ibuprofen**	0.020	U	ug/L	P388895	
		Imidacloprid	0.052		ug/L	P388895	
		Linuron	0.0040	U	ug/L	P388895	
		Mandestrobin**	0.0020	U	ug/L	P388895	
		MCPP	0.0036	I	ug/L	P388895	
		Naproxen**	0.0080	U	ug/L	P388895	MS
		Primidone**	0.013	I	ug/L	P388895	RPD
		Pyraclostrobin**	0.0020	U	ug/L	P388895	
		Thiamethoxam**	0.0034	I	ug/L	P388895	
		Tolfenpyrad**	0.0020	U	ug/L	P388895	
		Triclopyr**	0.0040	U	ug/L	P388895	
2202933	EPA 200.7 Rev. 4.4	Barium	40.3		ug/L	P388890	
		Calcium	127		mg/L	P388890	
		Iron	230		ug/L	P388890	
		Manganese	27.6		ug/L	P388890	
		Potassium	42		mg/L	P388890	
		Sodium	1.09E+03		mg/L	P388890	
		Zinc	7.3	I	ug/L	P388890	
	EPA 200.8 Rev. 5.4	Aluminum	47		ug/L	P388890	

Field ID: G5SW0134

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2202933	EPA 200.8 Rev. 5.4	Antimony	0.31		ug/L	P388890	
		Arsenic	2.19		ug/L	P388890	
		Cadmium	0.020	U	ug/L	P388890	
		Chromium	0.47	I	ug/L	P388890	
		Copper	1.48		ug/L	P388890	
		Lead	0.23	I	ug/L	P388890	
		Nickel	1.3	I	ug/L	P388890	
		Selenium	0.26	I	ug/L	P388890	
		Silver	0.010	U	ug/L	P388890	
		Thallium	0.10	U	ug/L	P388890	

Ref. Method and Comment:
EPA 8321B: Results confirmed in sample duplicate. Refer to the Lab Analysis Report for an explanation of QC Codes.

Sample Location: Snug Harbor - Tp428

Collection Date/Time: 10/14/2020 10:30

Field ID: G1SW0099

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2202957	EPA 350.1 Rev. 2.0	Ammonia-N	0.074		mg N/L	P388847	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.53		mg N/L	P389099	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.017		mg N/L	P389072	
	EPA 365.1 Rev. 2.0	Total-P	0.11		mg P/L	P388935	
	SM 5310 B-2011	Organic Carbon	6.1		mg C/L	P389070	

Sample Location: McKay Tidal South of Harbor Cir

Collection Date/Time: 10/14/2020 11:40

Field ID: G5SW0152

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2202958	EPA 350.1 Rev. 2.0	Ammonia-N	0.11		mg N/L	P388847	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.76		mg N/L	P389099	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.27		mg N/L	P389072	
	EPA 365.1 Rev. 2.0	Total-P	0.096		mg P/L	P389258	
	SM 5310 B-2011	Organic Carbon	8.6		mg C/L	P389070	

Non-Conformance Report

NCR ID: 8470

Event(s)

SW-DIST-2020-10-16-02

Job(s)

Sample(s)

Test(s)

NCR Type: SHIPPING/RECEIVING

NCR Category: Samples arrived late

Observation: Samples arrived one or more days late by FedEx, samples received within the acceptable temperature range.

Resolution: Samples will be qualified as appropriate.
Customer contacted.
Biology and Chemistry supervisors were notified..

Authorized by/Date: Joshua Ayres 10/19/2020

The Non-Conformance Report details exceptions or problems encountered with the events/jobs/samples/test.
Please address questions to:

Chemistry	Colin Wright	(850) 245-8085
Biology	Cheryl Swanson	(850) 245-8177

Quality Assurance Report Method Blank Results

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P388890

Component	Result	Code	Units
Barium	1.0	U	ug/L
Calcium	0.075	U	mg/L
Iron	30	U	ug/L
Manganese	1.0	U	ug/L
Potassium	0.30	U	mg/L
Sodium	0.50	U	mg/L
Zinc	5.0	U	ug/L

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P388890

Component	Result	Code	Units
Aluminum	5.0	U	ug/L
Antimony	0.050	U	ug/L
Arsenic	0.050	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: P388847

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P389043

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P389099

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P389072

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P388935

Component	Result	Code	Units
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Quality Assurance Report Method Blank Results

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P388935

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P389258

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

Reference Method: EPA 8321B
Batch ID: P388857

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: P388895

Component	Result	Code	Units
2,4-D	0.0020	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

Quality Assurance Report Method Blank Results

Reference Method: SM 5310 B-2011
Batch ID: P388948

Component	Result	Code	Units
Organic Carbon	0.50	U	mg C/L

Reference Method: SM 5310 B-2011
Batch ID: P389070

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: P388890

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Barium	103		P	85 - 115
Calcium	105		P	85 - 115
Iron	105		P	85 - 115
Manganese	105		P	85 - 115
Potassium	101		P	85 - 115
Sodium	105		P	85 - 115
Zinc	102		P	85 - 115

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P388890

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Aluminum	106		P	85 - 115
Antimony	103		P	85 - 115
Arsenic	102		P	85 - 115
Cadmium	103		P	85 - 115
Chromium	97.9		P	85 - 115
Copper	97.3		P	85 - 115
Lead	96.3		P	85 - 115
Nickel	98.8		P	85 - 115
Selenium	96.7		P	85 - 115
Silver	96.9		P	85 - 115
Thallium	98.2		P	85 - 115

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P388847

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P389043

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P389099

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P389072

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P388935

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
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Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P388935

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total-P	106		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P389258

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

Reference Method: EPA 8321B
Batch ID: P388857

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Acesulfame K	69.4		P	40 - 150
AMPA	114		P	40 - 150
Endothall	109		P	40 - 150
Glufosinate	100		P	40 - 150
Glyphosate	104		P	40 - 140
Sucralose	116		P	40 - 150

Reference Method: EPA 8321B
Batch ID: P388895

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2,4-D	45.5		P	30 - 160
Acetaminophen	53.8		P	30 - 160
Acetamiprid	61.5		P	30 - 160
Afidopyropen	50.6		P	30 - 160
Bentazon	48.3		P	30 - 160
Benzovindiflupyr	65.0		P	30 - 160
Carbamazepine	63.9		P	30 - 160
Clothianidin	101		P	30 - 160
Dinotefuran	84.8		P	30 - 160
Diuron	70.2		P	30 - 160
Fenuron	100		P	30 - 160
Fluridone	83.0		P	30 - 160
Hydrocodone	79.0		P	30 - 160
Ibuprofen	48.4		P	30 - 160
Imazapyr	52.0		P	30 - 160
Imidacloprid	77.2		P	30 - 160
Linuron	61.1		P	30 - 160
Mandestrobin	78.8		P	30 - 160
MCPP	58.1		P	30 - 160
Naproxen	45.5		P	30 - 160
Primidone	90.5		P	30 - 160
Pyraclostrobin	58.8		P	30 - 160
Thiamethoxam	85.6		P	30 - 160
Tolfenpyrad	38.6		P	30 - 160
Triclopyr	50.2		P	30 - 160

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: SM 5310 B-2011
Batch ID: P388948

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

Reference Method: SM 5310 B-2011
Batch ID: P389070

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	99.6		P	85 - 115

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P388890

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2202129	Barium	102	99.6	P/P	80 - 120
2202129	Calcium	105		P	80 - 120
2202129	Iron	106	103	P/P	80 - 120
2202129	Manganese	104	102	P/P	80 - 120
2202129	Potassium	102	97.4	P/P	80 - 120
2202129	Sodium	104	98.0	P/P	80 - 120
2202129	Zinc	102	98.2	P/P	80 - 120
2203019	Barium	102		P	80 - 120
2203019	Calcium	105		P	80 - 120
2203019	Iron	106		P	80 - 120
2203019	Manganese	104		P	80 - 120
2203019	Potassium	100		P	80 - 120
2203019	Sodium	99.8		P	80 - 120
2203019	Zinc	100		P	80 - 120

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P388890

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2202129	Aluminum	106	103	P/P	80 - 120
2202129	Antimony	104	103	P/P	80 - 120
2202129	Arsenic	103	101	P/P	80 - 120
2202129	Cadmium	105	103	P/P	80 - 120
2202129	Chromium	102	99.7	P/P	80 - 120
2202129	Copper	98.6	96.5	P/P	80 - 120
2202129	Lead	97.4	95.6	P/P	80 - 120
2202129	Nickel	99.8	98.1	P/P	80 - 120
2202129	Selenium	99.2	97.6	P/P	80 - 120
2202129	Silver	98.5	98.2	P/P	80 - 120
2202129	Thallium	99.8	98.8	P/P	80 - 120
2203019	Aluminum	105		P	80 - 120
2203019	Antimony	105		P	80 - 120
2203019	Arsenic	103		P	80 - 120
2203019	Cadmium	104		P	80 - 120
2203019	Chromium	99.4		P	80 - 120
2203019	Copper	96.1		P	80 - 120
2203019	Lead	97.2		P	80 - 120
2203019	Nickel	98.1		P	80 - 120
2203019	Selenium	97.5		P	80 - 120
2203019	Silver	97.2		P	80 - 120
2203019	Thallium	99.6		P	80 - 120

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P388847

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2202529	Ammonia-N	101	102	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P389043

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
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Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 351.2 Rev. 2.0
 Batch ID: P389043

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2202272	Kjeldahl Nitrogen	109	107	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
 Batch ID: P389099

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2203762	Kjeldahl Nitrogen	105	109	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
 Batch ID: P389072

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2202807	NO2NO3-N	99.0	99.0	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
 Batch ID: P388935

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2202801	Total-P	101	103	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
 Batch ID: P389258

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2202958	Total-P	103	104	P/P	90 - 110

Reference Method: EPA 8321B
 Batch ID: P388857

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2202760	Acesulfame K	89.4	90.0	P/P	40 - 150
2202760	AMPA	120	122	P/P	40 - 150
2202760	Endothall	108	109	P/P	40 - 150
2202760	Glufosinate	97.4	92.7	P/P	40 - 150
2202760	Glyphosate	85.1	86.0	P/P	40 - 140
2202760	Sucralose	122	119	P/P	40 - 150

Reference Method: EPA 8321B
 Batch ID: P388895

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2202818	2,4-D	40.9	42.4	P/P	30 - 160
2202818	Acetaminophen	85.6	100	P/P	30 - 160
2202818	Acetamiprid	60.5	51.3	P/P	30 - 160
2202818	Afidopyropen	45.1	34.0	P/P	30 - 160
2202818	Bentazon	20.2	19.8	F/F	30 - 160
2202818	Benzovindiflupyr	57.5	49.0	P/P	30 - 160
2202818	Carbamazepine	49.3	39.3	P/P	30 - 160
2202818	Clothianidin	76.6	66.5	P/P	30 - 160
2202818	Dinotefuran	68.1	63.9	P/P	30 - 160
2202818	Diuron	30.1	20.7	P/F	30 - 160
2202818	Fenuron	61.7	70.3	P/P	30 - 160

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 8321B
Batch ID: P388895

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2202818	Fluridone	66.7	51.6	P/P	30 - 160
2202818	Hydrocodone	56.5	57.6	P/P	30 - 160
2202818	Ibuprofen	36.6	35.8	P/P	30 - 160
2202818	Imazapyr	28.2	26.5	F/F	30 - 160
2202818	Imidacloprid	112	95.4	P/P	30 - 160
2202818	Linuron	53.7	54.4	P/P	30 - 160
2202818	Mandestrobin	64.4	58.6	P/P	30 - 160
2202818	MCPP	63.1	58.3	P/P	30 - 160
2202818	Naproxen	32.2	29.6	P/F	30 - 160
2202818	Primidone	63.4	40.6	P/P	30 - 160
2202818	Pyraclostrobin	57.0	50.1	P/P	30 - 160
2202818	Thiamethoxam	83.0	69.4	P/P	30 - 160
2202818	Tolfenpyrad	35.7	32.5	P/P	30 - 160
2202818	Triclopyr	54.4	46.4	P/P	30 - 160

Reference Method: SM 5310 B-2011
Batch ID: P388948

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2202890	Organic Carbon	94.1	95.3	P/P	85 - 115

Reference Method: SM 5310 B-2011
Batch ID: P389070

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2202957	Organic Carbon	98.1	98.3	P/P	85 - 115

Quality Assurance Report Precision

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P388890

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2202129	Barium	2.69	Spike	P	0 - 20
2202129	Calcium	2.03	Spike	P	0 - 20
2202129	Iron	2.66	Spike	P	0 - 20
2202129	Manganese	2.61	Spike	P	0 - 20
2202129	Potassium	3.81	Spike	P	0 - 20
2202129	Sodium	4.49	Spike	P	0 - 20
2202129	Zinc	4.03	Spike	P	0 - 20

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P388890

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2202129	Aluminum	2.60	Spike	P	0 - 20
2202129	Antimony	1.09	Spike	P	0 - 20
2202129	Arsenic	1.65	Spike	P	0 - 20
2202129	Cadmium	2.31	Spike	P	0 - 20
2202129	Chromium	2.02	Spike	P	0 - 20
2202129	Copper	2.22	Spike	P	0 - 20
2202129	Lead	1.93	Spike	P	0 - 20
2202129	Nickel	1.67	Spike	P	0 - 20
2202129	Selenium	1.67	Spike	P	0 - 20
2202129	Silver	0.288	Spike	P	0 - 20
2202129	Thallium	1.02	Spike	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P388847

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2202529	Ammonia-N	0.447	Spike	P	0 - 15

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P389043

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2202272	Kjeldahl Nitrogen	2.19	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P389099

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2203762	Kjeldahl Nitrogen	2.81	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P389072

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
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Quality Assurance Report Precision

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P389072

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2202807	NO2NO3-N	0.0	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P388935

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2202801	Total-P	1.85	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P389258

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2202958	Total-P	0.894	Spike	P	0 - 20

Reference Method: EPA 8321B
Batch ID: P388857

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2202760	Acesulfame K	0.707	Spike	P	0 - 30
2202760	AMPA	0.939	Spike	P	0 - 30
2202760	Endothall	0.924	Spike	P	0 - 30
2202760	Glufosinate	4.95	Spike	P	0 - 30
2202760	Glyphosate	1.02	Spike	P	0 - 30
2202760	Sucralose	2.67	Spike	P	0 - 30

Reference Method: EPA 8321B
Batch ID: P388895

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2202818	2,4-D	2.97	Spike	P	0 - 30
2202818	Acetaminophen	15.7	Spike	P	0 - 30
2202818	Acetamiprid	16.4	Spike	P	0 - 30
2202818	Afidopyropen	28.0	Spike	P	0 - 30
2202818	Bentazon	0.898	Spike	P	0 - 30
2202818	Benzovindiflupyr	15.9	Spike	P	0 - 30
2202818	Carbamazepine	22.4	Spike	P	0 - 30
2202818	Clothianidin	14.1	Spike	P	0 - 30
2202818	Dinotefuran	6.44	Spike	P	0 - 30
2202818	Diuron	31.8	Spike	F	0 - 30
2202818	Fenuron	13.0	Spike	P	0 - 30
2202818	Fluridone	20.5	Spike	P	0 - 30
2202818	Hydrocodone	2.04	Spike	P	0 - 30
2202818	Ibuprofen	2.25	Spike	P	0 - 30
2202818	Imazapyr	3.05	Spike	P	0 - 30
2202818	Imidacloprid	15.4	Spike	P	0 - 30
2202818	Linuron	1.34	Spike	P	0 - 30
2202818	Mandestrobin	9.44	Spike	P	0 - 30

Quality Assurance Report Precision

Reference Method: EPA 8321B
Batch ID: P388895

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2202818	MCP	8.05	Spike	P	0 - 30
2202818	Naproxen	8.26	Spike	P	0 - 30
2202818	Primidone	43.7	Spike	F	0 - 30
2202818	Pyraclostrobin	12.9	Spike	P	0 - 30
2202818	Thiamethoxam	17.7	Spike	P	0 - 30
2202818	Tolfenpyrad	9.44	Spike	P	0 - 30
2202818	Triclopyr	15.9	Spike	P	0 - 30

Reference Method: SM 5310 B-2011
Batch ID: P388948

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2202890	Organic Carbon	1.07	Spike	P	0 - 20

Reference Method: SM 5310 B-2011
Batch ID: P389070

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2202957	Organic Carbon	0.220	Spike	P	0 - 20

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

Quality Assurance Report Surrogates

Lab Sample ID: 2202918

Field Sample ID: G5SW0134

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	2,4-D-d3	51.2	P	30 - 160
EPA 8321B	Acetaminophen-d4	75.2	P	30 - 160
EPA 8321B	Carbamazepine-d10	49.3	P	30 - 160
EPA 8321B	Diuron-d6	34.8	P	30 - 160
EPA 8321B	Endothall-d6	325	F	30 - 160
EPA 8321B	Endothall-d6	325	F	30 - 160
EPA 8321B	Glyphosate 13C 15N	35.2	P	30 - 160
EPA 8321B	Glyphosate 13C 15N	35.2	P	30 - 160
EPA 8321B	Ibuprofen-d3	58.8	P	30 - 160
EPA 8321B	Primidone-d5	54.1	P	30 - 160
EPA 8321B	Sucralose-d6	51.0	P	30 - 160
EPA 8321B	Sucralose-d6	51.0	P	30 - 160

Quality Assurance Report Calibration Verification

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A101575

Included Lab Sample IDs: 2202915, 2202957, 2202958

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	101	100	P/P	90 - 110
Ammonia-N	102	101	P/P	90 - 110

Reference Method: EPA 8321B

Run ID: A101618

Included Lab Sample IDs: 2202918

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Acesulfame K	69.4	69.1	P/P	50 - 160
Endothall	123	125	P/P	60 - 160

Reference Method: SM 5310 B-2011

Run ID: A101631

Included Lab Sample IDs: 2202915

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	94.6	94.7	P/P	90 - 110

Reference Method: EPA 8321B

Run ID: A101643

Included Lab Sample IDs: 2202918

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
AMPA	110	117	P/P	50 - 160
Glufosinate	108	111	P/P	50 - 160
Glyphosate	106	105	P/P	50 - 160

Reference Method: EPA 200.7 Rev. 4.4

Run ID: A101646

Included Lab Sample IDs: 2202933

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Barium	102	101	P/P	90 - 110
Calcium	105	103	P/P	90 - 110
Iron	104	101	P/P	90 - 110
Manganese	103	104	P/P	90 - 110
Potassium	102	99.2	P/P	90 - 110
Sodium	102	99.8	P/P	90 - 110
Zinc	103	103	P/P	90 - 110

Reference Method: EPA 8321B

Run ID: A101671

Included Lab Sample IDs: 2202918

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
2,4-D	75.7	80.2	P/P	50 - 150
Acetaminophen	98.3	115	P/P	60 - 160
Acetamiprid	117	118	P/P	50 - 150
Afidopyropen	90.2	94.6	P/P	50 - 150
Bentazon	80.7	80.7	P/P	50 - 160
Benzovindiflupyr	99.9	92.9	P/P	50 - 150

Quality Assurance Report Calibration Verification

Reference Method: EPA 8321B

Run ID: A101671

Included Lab Sample IDs: 2202918

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Carbamazepine	109	99.5	P/P	60 - 150
Clothianidin	107	100	P/P	60 - 150
Dinotefuran	92.4	94.8	P/P	50 - 150
Diuron	101	100	P/P	60 - 160
Fenuron	106	110	P/P	60 - 150
Fluridone	97.3	101	P/P	60 - 160
Hydrocodone	98.8	100	P/P	60 - 150
Ibuprofen	79.9	80.9	P/P	50 - 160
Imazapyr	112	113	P/P	50 - 160
Imidacloprid	89.6	96.4	P/P	60 - 150
Linuron	62.6	67.6	P/P	60 - 150
Mandestrobin	101	109	P/P	50 - 150
MCPP	70.2	63.7	P/P	50 - 150
Naproxen	83.3	124	P/P	50 - 160
Primidone	82.2	102	P/P	60 - 150
Pyraclostrobin	97.0	90.9	P/P	60 - 150
Thiamethoxam	91.6	90.1	P/P	50 - 150
Tolfenpyrad	76.5	89.6	P/P	60 - 150
Triclopyr	71.7	79.4	P/P	50 - 150

Reference Method: SM 5310 B-2011

Run ID: A101673

Included Lab Sample IDs: 2202957, 2202958

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	98.1	98.0	P/P	90 - 110
Organic Carbon	98.8	98.1	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A101675

Included Lab Sample IDs: 2202915, 2202957, 2202958

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO2NO3-N	100	100	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A101680

Included Lab Sample IDs: 2202915, 2202957

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

Reference Method: EPA 8321B

Run ID: A101686

Included Lab Sample IDs: 2202918

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Sucralose	114	123	P/P	50 - 160

Quality Assurance Report Calibration Verification

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A101732

Included Lab Sample IDs: 2202915, 2202957, 2202958

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	100	103	P/P	90 - 110
Kjeldahl Nitrogen	104	100	P/P	90 - 110
Kjeldahl Nitrogen	106	101	P/P	90 - 110

Reference Method: EPA 200.8 Rev. 5.4

Run ID: A101777

Included Lab Sample IDs: 2202933

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Antimony	101	101	P/P	90 - 110
Arsenic	99.3	98.9	P/P	90 - 110
Cadmium	99.5	101	P/P	90 - 110
Chromium	95.1	94.2	P/P	90 - 110
Copper	94.6	93.8	P/P	90 - 110
Lead	95.4	96.2	P/P	90 - 110
Nickel	95.5	94.2	P/P	90 - 110
Selenium	98.5	97.6	P/P	90 - 110
Silver	99.8	101	P/P	90 - 110
Thallium	92.3	93.7	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A101803

Included Lab Sample IDs: 2202958

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	95.2	96.2	P/P	90 - 110

Reference Method: EPA 200.8 Rev. 5.4

Run ID: A101828

Included Lab Sample IDs: 2202933

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Aluminum	101	100	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			Precision SMP	MS
			LCS				
EPA 200.7 Rev. 4.4	Barium	103	102	99.6	102		2.69
	Calcium	105	105	105			2.03
	Iron	105	106	103	106		2.66
	Manganese	105	104	102	104		2.61
	Potassium	101	102	97.4	100		3.81
	Sodium	105	104	98.0	99.8		4.49
	Zinc	102	102	98.2	100		4.03
EPA 200.8 Rev. 5.4	Aluminum	106	106	103	105		2.60
	Antimony	103	104	103	105		1.09
	Arsenic	102	103	101	103		1.65
	Cadmium	103	105	103	104		2.31
	Chromium	97.9	102	99.7	99.4		2.02
	Copper	97.3	96.1	98.6	96.5		2.22
	Lead	96.3	97.4	95.6	97.2		1.93
	Nickel	98.8	99.8	98.1	98.1		1.67
	Selenium	96.7	99.2	97.6	97.5		1.67
	Silver	96.9	98.5	98.2	97.2		0.288
	Thallium	98.2	99.8	98.8	99.6		1.02
EPA 350.1 Rev. 2.0	Ammonia-N	102	101	102			0.447
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	103	109	107			2.19
	Kjeldahl Nitrogen	109	105	109			2.81
EPA 353.2 Rev. 2.0	NO2NO3-N	99.0	99.0	99.0			0.0
EPA 365.1 Rev. 2.0	Total-P	106	101	103			1.85
	Total-P	103	103	104			0.894
EPA 8321B	2,4-D	45.5	40.9	42.4			2.97
	Acesulfame K	69.4	89.4	90.0			0.707
	Acetaminophen	53.8	85.6	100			15.7
	Acetamiprid	61.5	60.5	51.3			16.4
	Afidopyropen	50.6	45.1	34.0			28.0
	AMPA	114	120	122			0.939
	Bentazon	48.3	20.2	19.8			0.898
	Benzovindiflupyr	65.0	57.5	49.0			15.9
	Carbamazepine	63.9	49.3	39.3			22.4
	Clothianidin	101	76.6	66.5			14.1
	Dinotefuran	84.8	68.1	63.9			6.44
	Diuron	70.2	30.1	20.7			31.8
	Endothall	109	108	109			0.924
	Fenuron	100	61.7	70.3			13.0
	Fluridone	83.0	66.7	51.6			20.5
	Glufosinate	100	97.4	92.7			4.95
	Glyphosate	104	85.1	86.0			1.02
	Hydrocodone	79.0	56.5	57.6			2.04
	Ibuprofen	48.4	36.6	35.8			2.25
	Imazapyr	52.0	28.2	26.5			3.05
	Imidacloprid	77.2	112	95.4			15.4
	Linuron	61.1	53.7	54.4			1.34
	Mandestrobin	78.8	64.4	58.6			9.44
	MCPP	58.1	63.1	58.3			8.05
	Naproxen	45.5	32.2	29.6			8.26
	Primidone	90.5	63.4	40.6			43.7
	Pyraclostrobin	58.8	57.0	50.1			12.9
	Sucralose	116	122	119			2.67
	Thiamethoxam	85.6	83.0	69.4			17.7
	Tolfenpyrad	38.6	35.7	32.5			9.44

Quality Assurance Report Summary

Ref. Method	Analyte	LCS % Recovery	MS % Recovery		Precision	
					LCS	MS
EPA 8321B	Triclopyr	50.2	54.4	46.4		15.9
SM 5310 B-2011	Organic Carbon	94.8	94.1	95.3		1.07
	Organic Carbon	99.6	98.1	98.3		0.220

Reference Method Descriptions

Method	Description	<u>Associated Samples</u>
EPA 200.7 Rev. 4.4	Total Recoverable Metals analysis using ICP emission spectroscopy for aqueous samples supporting Clean Water Act Projects	2202933
EPA 200.8 Rev. 5.4	Total Recoverable Metals analysis using ICP-MS for aqueous samples supporting Clean Water Act Projects	2202933
EPA 350.1 Rev. 2.0	Ammonia in aqueous matrices as mg N/L	2202915, 2202957, 2202958
EPA 351.2 Rev. 2.0	Total Kjeldahl Nitrogen in aqueous matrices	2202915, 2202957, 2202958
EPA 353.2 Rev. 2.0	Nitrite/Nitrate in aqueous matrices as mg N/L	2202915, 2202957, 2202958
EPA 365.1 Rev. 2.0	Total Phosphorus in aqueous matrices as mg P/L	2202915, 2202957, 2202958
EPA 8321B	Pesticides, herbicides, and other chemicals in water matrices by HPLC/MS/MS	2202918
EPA 8321B	Water soluble organic compounds by HPLC/MS/MS	2202918
SM 5310 B-2011	Nonpurgeable Organic Carbon in aqueous matrices	2202915, 2202957, 2202958

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
EPA 200.7 Rev. 4.4	10/16/2020	10/19/2020 13:20	Elliott D. Healy	10/20/2020 17:26	Betina Topolski	2202933
	10/16/2020	10/19/2020 13:20	Elliott D. Healy	10/20/2020 17:34	Betina Topolski	2202933
EPA 200.8 Rev. 5.4	10/16/2020	10/19/2020 13:20	Elliott D. Healy	10/26/2020 21:46	Alexander Thompson	2202933
	10/16/2020	10/19/2020 13:20	Elliott D. Healy	10/28/2020 18:08	Alexander Thompson	2202933
EPA 350.1 Rev. 2.0	10/16/2020			10/18/2020 12:47	Ping Hua	2202957
	10/16/2020			10/18/2020 13:08	Ping Hua	2202915
	10/16/2020			10/18/2020 13:10	Ping Hua	2202958
EPA 351.2 Rev. 2.0	10/16/2020	10/21/2020 13:53	David Boose	10/23/2020 15:41	Elliott Rodriguez	2202915
	10/16/2020	10/22/2020 13:40	David Boose	10/23/2020 16:50	Elliott Rodriguez	2202957
	10/16/2020	10/22/2020 13:40	David Boose	10/23/2020 16:55	Elliott Rodriguez	2202958
EPA 353.2 Rev. 2.0	10/16/2020			10/22/2020 09:23	Beverly Y. Sanders	2202915
	10/16/2020			10/22/2020 09:25	Beverly Y. Sanders	2202957
	10/16/2020			10/22/2020 09:26	Beverly Y. Sanders	2202958
EPA 365.1 Rev. 2.0	10/16/2020	10/20/2020 12:45	Yen Ta	10/22/2020 11:09	Lipi Saha	2202915
	10/16/2020	10/20/2020 12:45	Yen Ta	10/22/2020 11:10	Lipi Saha	2202957
	10/16/2020	10/26/2020 13:20	Yen Ta	10/27/2020 15:16	Shengyu Wang	2202958
EPA 8321B	10/16/2020	10/19/2020 10:15	Rebecca Ware	10/19/2020 15:22	Rebecca Ware	2202918
	10/16/2020	10/19/2020 10:15	Rebecca Ware	10/20/2020 13:34	Rebecca Ware	2202918
	10/16/2020	10/19/2020 10:15	Rebecca Ware	10/22/2020 04:25	Rebecca Ware	2202918
	10/16/2020	10/20/2020 13:30	Hoor Shaik	10/22/2020 02:06	Juyoung Kim	2202918
SM 5310 B-2011	10/16/2020			10/20/2020 07:59	Lauren Lees	2202915
	10/16/2020			10/22/2020 02:31	Lauren Lees	2202957
	10/16/2020			10/22/2020 04:35	Lauren Lees	2202958