

Chemical Analysis Report

CEN-DIST-2020-02-10-03

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

Event Description: **Boggy Creek / Lk Toho Drain**

Request ID: **RQ-2020-02-10-51**

Customer: **CEN-DIST**

Project ID: **SMP**

Send Reports to:

FL Dept. of Environmental Protection
FL Dept. of Environmental Protection
3319 Maguire Blvd., Suite 232
Orlando, FL 32803-3767
Attn: Michael Linger

For additional information please contact

Colin Wright, Ph.D.
Liang-Tsair Lin, Ph.D.
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Phone (850) 245-8085

Certified by: Thekkekalathil Chandrasekhar, Chemist Administrator

Date Certified: 02-MAR-2020 11:21



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: 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: Boggy Creek @ 1100m South of Boggy Creek Rd.

Collection Date/Time: 02/06/2020 10:31

Field ID: G4CE0127

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2156214	EPA 350.1 Rev. 2.0	Ammonia-N	0.024		mg N/L	P379081	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.49		mg N/L	P378851	MS
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.012		mg N/L	P379426	
	EPA 365.1 Rev. 2.0	Total-P	0.029		mg P/L	P379276	
	SM 5310 B-2011	Organic Carbon	11		mg C/L	P378967	

Sample Location: Boggy Creek @ 80m SE of J Lawson Blvd.

Collection Date/Time: 02/06/2020 10:05

Field ID: G4CE0181

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2156226	EPA 8321B	2,4-D	0.0020	U	ug/L	P378656	
		Acesulfame K**	0.10	U	ug/L	P378657	
		AMPA**	0.21	I	ug/L	P378657	
		Sucralose**	0.99		ug/L	P378657	
		Acetaminophen**	0.0080	U	ug/L	P378656	
		Acetamiprid**	0.0020	U	ug/L	P378656	
		Endothall**	0.25	U	ug/L	P378657	
		Glufosinate**	0.10	U	ug/L	P378657	
		Glyphosate**	0.13	I	ug/L	P378657	
		Afidopyropen**	0.0020	UJ	ug/L	P378656	
		Bentazon	0.044		ug/L	P378656	
		Benzovindiflupyr**	0.0020	UJ	ug/L	P378656	
		Carbamazepine**	0.0012	I	ug/L	P378656	
		Clothianidin**	0.0020	U	ug/L	P378656	
		Dinotefuran**	0.0026	I	ug/L	P378656	
		Diuron	0.0020	U	ug/L	P378656	
		Fenuron	0.016	U	ug/L	P378656	
		Fluridone**	0.021		ug/L	P378656	
		Imazapyr**	2.1		ug/L	P378656	
		Hydrocodone**	0.0020	U	ug/L	P378656	
		Ibuprofen**	0.020	U	ug/L	P378656	
		Imidacloprid	0.0026	I	ug/L	P378656	MS
		Linuron	0.0040	U	ug/L	P378656	
		Mandestrobin**	0.0020	UJ	ug/L	P378656	
		MCPP	0.0020	U	ug/L	P378656	
		Naproxen**	0.0080	U	ug/L	P378656	
		Primidone**	0.0040	U	ug/L	P378656	
		Pyraclostrobin**	0.0020	U	ug/L	P378656	
		Thiamethoxam**	0.0020	U	ug/L	P378656	
		Tolfenpyrad**	0.0020	U	ug/L	P378656	
		Triclopyr**	0.0040	U	ug/L	P378656	

Ref. Method and Comment:

EPA 8321B: J - second source check standards for some analytes were not available for analysis. MS accuracy for imazapyr could not be assessed due to high concentration of parameter in the spiked sample.

Non-Conformance Report

NCR ID: 8172

Event(s)

CEN-DIST-2020-02-10-03

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: Customer contacted, email correspondence attached to sample submittal forms.
Samples will be qualified as appropriate.

Authorized by/Date: Joshua Ayres 2/19/2020

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 350.1 Rev. 2.0
Batch ID: P379081

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P378851

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P379426

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P379276

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

Reference Method: EPA 8321B
Batch ID: P378656

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: EPA 8321B
Batch ID: P378657

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: SM 5310 B-2011
Batch ID: P378967

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

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 350.1 Rev. 2.0
 Batch ID: P379081

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

Reference Method: EPA 351.2 Rev. 2.0
 Batch ID: P378851

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

Reference Method: EPA 353.2 Rev. 2.0
 Batch ID: P379426

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

Reference Method: EPA 365.1 Rev. 2.0
 Batch ID: P379276

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

Reference Method: EPA 8321B
 Batch ID: P378656

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2,4-D	122		P	30 - 160
Acetaminophen	93.0		P	30 - 160
Acetamiprid	89.9		P	30 - 160
Afidopyropen	75.9		P	30 - 160
Bentazon	84.8		P	30 - 160
Benzovindiflupyr	80.0		P	30 - 160
Carbamazepine	89.4		P	30 - 160
Clothianidin	91.1		P	30 - 160
Dinotefuran	90.1		P	30 - 160
Diuron	89.6		P	30 - 160
Fenuron	109		P	30 - 160
Fluridone	87.7		P	30 - 160
Hydrocodone	101		P	30 - 160
Ibuprofen	76.8		P	30 - 160
Imazapyr	105		P	30 - 160
Imidacloprid	109		P	30 - 160
Linuron	70.7		P	30 - 160
Mandestrobin	83.6		P	30 - 160
MCP	122		P	30 - 160
Naproxen	77.0		P	30 - 160
Primidone	98.2		P	30 - 160
Pyraclostrobin	76.4		P	30 - 160
Thiamethoxam	69.0		P	30 - 160
Tolfenpyrad	49.7		P	30 - 160
Triclopyr	95.5		P	30 - 160

Quality Assurance Report

Laboratory Control Sample Accuracy

Reference Method: EPA 8321B

Batch ID: P378657

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Acesulfame K	100		P	40 - 150
AMPA	124		P	40 - 150
Endothall	94.3		P	40 - 150
Glufosinate	111		P	40 - 150
Glyphosate	140		P	40 - 140
Sucralose	98.2		P	40 - 150

Reference Method: SM 5310 B-2011

Batch ID: P378967

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	99.7		P	85 - 115

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 350.1 Rev. 2.0
 Batch ID: P379081

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2156273	Ammonia-N	99.4	101	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
 Batch ID: P378851

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2156274	Kjeldahl Nitrogen	111	105	F/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
 Batch ID: P379426

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2155277	NO2NO3-N	98.2		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
 Batch ID: P379276

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2155242	Total-P	102	102	P/P	90 - 110

Reference Method: EPA 8321B
 Batch ID: P378656

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2156209	2,4-D	133	127	P/P	30 - 160
2156209	Acetaminophen	100	106	P/P	30 - 160
2156209	Acetamiprid	93.4	83.3	P/P	30 - 160
2156209	Afidopyropen	97.8	86.7	P/P	30 - 160
2156209	Bentazon	72.7	69.3	P/P	30 - 160
2156209	Benzovindiflupyr	84.7	80.7	P/P	30 - 160
2156209	Carbamazepine	88.3	71.8	P/P	30 - 160
2156209	Clothianidin	99.7	83.6	P/P	30 - 160
2156209	Dinotefuran	112	103	P/P	30 - 160
2156209	Diuron	77.2	76.9	P/P	30 - 160
2156209	Fenuron	76.7	88.4	P/P	30 - 160
2156209	Fluridone	86.7	85.7	P/P	30 - 160
2156209	Hydrocodone	93.6	107	P/P	30 - 160
2156209	Ibuprofen	81.7	84.0	P/P	30 - 160
2156209	Imidacloprid	163	172	F/F	30 - 160
2156209	Linuron	66.9	65.0	P/P	30 - 160
2156209	Mandestrobin	84.3	83.1	P/P	30 - 160
2156209	MCP	133	131	P/P	30 - 160
2156209	Naproxen	99.7	102	P/P	30 - 160
2156209	Primidone	103	96.6	P/P	30 - 160
2156209	Pyraclostrobin	81.7	84.6	P/P	30 - 160
2156209	Thiamethoxam	132	113	P/P	30 - 160
2156209	Tolfenpyrad	49.2	55.7	P/P	30 - 160
2156209	Triclopyr	106	108	P/P	30 - 160

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 8321B
Batch ID: P378657

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2156136	Acesulfame K	41.8	42.7	P/P	40 - 150
2156136	AMPA	104	102	P/P	40 - 150
2156136	Endothall	113	112	P/P	40 - 150
2156136	Glufosinate	120	121	P/P	40 - 150
2156136	Glyphosate	120	120	P/P	40 - 140
2156136	Sucralose	109	102	P/P	40 - 150

Reference Method: SM 5310 B-2011
Batch ID: P378967

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2156150	Organic Carbon	105	102	P/P	85 - 115

Quality Assurance Report Precision

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P379081

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2156273	Ammonia-N	0.708	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P378851

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2156274	Kjeldahl Nitrogen	3.73	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P379426

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2155277	NO2NO3-N	0.0	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P379276

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2155242	Total-P	0.344	Spike	P	0 - 20

Reference Method: EPA 8321B
Batch ID: P378656

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2156209	2,4-D	4.03	Spike	P	0 - 30
2156209	Acetaminophen	4.95	Spike	P	0 - 30
2156209	Acetamiprid	11.4	Spike	P	0 - 30
2156209	Afidopyropen	12.0	Spike	P	0 - 30
2156209	Bentazon	4.81	Spike	P	0 - 30
2156209	Benzovindiflupyr	4.87	Spike	P	0 - 30
2156209	Carbamazepine	20.5	Spike	P	0 - 30
2156209	Clothianidin	16.4	Spike	P	0 - 30
2156209	Dinotefuran	8.57	Spike	P	0 - 30
2156209	Diuron	0.306	Spike	P	0 - 30
2156209	Fenuron	14.1	Spike	P	0 - 30
2156209	Fluridone	1.17	Spike	P	0 - 30
2156209	Hydrocodone	13.7	Spike	P	0 - 30
2156209	Ibuprofen	2.75	Spike	P	0 - 30
2156209	Imazapyr	0.0409	Spike	P	0 - 30
2156209	Imidacloprid	4.52	Spike	P	0 - 30
2156209	Linuron	2.85	Spike	P	0 - 30
2156209	Mandestrobin	1.43	Spike	P	0 - 30
2156209	MCPP	1.48	Spike	P	0 - 30
2156209	Naproxen	2.70	Spike	P	0 - 30
2156209	Primidone	6.40	Spike	P	0 - 30
2156209	Pyraclostrobin	3.55	Spike	P	0 - 30
2156209	Thiamethoxam	14.7	Spike	P	0 - 30

Quality Assurance Report Precision

Reference Method: EPA 8321B
 Batch ID: P378656

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2156209	Tolfenpyrad	12.5	Spike	P	0 - 30
2156209	Triclopyr	1.73	Spike	P	0 - 30

Reference Method: EPA 8321B
 Batch ID: P378657

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2156136	Acesulfame K	2.00	Spike	P	0 - 30
2156136	AMPA	1.82	Spike	P	0 - 30
2156136	Endothall	0.738	Spike	P	0 - 30
2156136	Glufosinate	0.896	Spike	P	0 - 30
2156136	Glyphosate	0.0723	Spike	P	0 - 30
2156136	Sucralose	5.80	Spike	P	0 - 30

Reference Method: SM 5310 B-2011
 Batch ID: P378967

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2156150	Organic Carbon	2.15	Spike	P	0 - 20

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

Quality Assurance Report Surrogates

Lab Sample ID: 2156226
Field Sample ID: G4CE0181

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	2,4-D-d3	108	P	30 - 160
EPA 8321B	Acetaminophen-d4	102	P	30 - 160
EPA 8321B	Carbamazepine-d10	95.1	P	30 - 160
EPA 8321B	Diuron-d6	73.8	P	30 - 160
EPA 8321B	Endothall-d6	103	P	30 - 160
EPA 8321B	Endothall-d6	103	P	30 - 160
EPA 8321B	Glyphosate 13C 15N	73.3	P	30 - 160
EPA 8321B	Glyphosate 13C 15N	73.3	P	30 - 160
EPA 8321B	Ibuprofen-d3	93.1	P	30 - 160
EPA 8321B	Primidone-d5	121	P	30 - 160
EPA 8321B	Sucralose-d6	93.5	P	30 - 160
EPA 8321B	Sucralose-d6	93.5	P	30 - 160

Quality Assurance Report Calibration Verification

Reference Method: EPA 8321B
 Run ID: A97533
 Included Lab Sample IDs: 2156226

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
2,4-D	81.6	96.0	P/P	50 - 150
Acetaminophen	110	103	P/P	60 - 160
Acetamiprid	112	108	P/P	50 - 150
Afidopyropen	103	88.6	P/P	50 - 150
Bentazon	103	105	P/P	50 - 160
Benzovindiflupyr	104	107	P/P	50 - 150
Carbamazepine	112	104	P/P	60 - 150
Clothianidin	108	101	P/P	60 - 150
Dinotefuran	102	98.6	P/P	50 - 150
Diuron	111	117	P/P	60 - 150
Fenuron	104	106	P/P	60 - 150
Fluridone	102	108	P/P	60 - 160
Hydrocodone	109	114	P/P	60 - 150
Ibuprofen	103	91.7	P/P	50 - 160
Imazapyr	103	105	P/P	50 - 150
Imidacloprid	85.9	107	P/P	60 - 150
Linuron	100	99.7	P/P	60 - 150
Mandestrobin	100	105	P/P	50 - 150
MCPP	87.5	85.8	P/P	50 - 150
Naproxen	81.4	126	P/P	50 - 160
Primidone	93.0	107	P/P	60 - 150
Pyraclostrobin	102	104	P/P	60 - 150
Thiamethoxam	102	108	P/P	50 - 150
Tolfenpyrad	99.6	100	P/P	60 - 150
Triclopyr	99.2	97.2	P/P	50 - 150

Reference Method: SM 5310 B-2011
 Run ID: A97553
 Included Lab Sample IDs: 2156214

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	97.7	102	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
 Run ID: A97563
 Included Lab Sample IDs: 2156214

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	105	102	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
 Run ID: A97592
 Included Lab Sample IDs: 2156214

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

Quality Assurance Report Calibration Verification

Reference Method: EPA 8321B
Run ID: A97601
Included Lab Sample IDs: 2156226

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Acesulfame K	64.9	90.7	P/P	60 - 160
Endothall	99.8	102	P/P	60 - 160

Reference Method: EPA 8321B
Run ID: A97612
Included Lab Sample IDs: 2156226

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
AMPA	115	124	P/P	60 - 160
Glufosinate	117	136	P/P	60 - 160
Glyphosate	142	139	P/P	60 - 160

Reference Method: EPA 353.2 Rev. 2.0
Run ID: A97741
Included Lab Sample IDs: 2156214

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO2NO3-N	101	101	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Run ID: A97757
Included Lab Sample IDs: 2156214

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	97.0	97.2	P/P	90 - 110

Reference Method: EPA 8321B
Run ID: A97805
Included Lab Sample IDs: 2156226

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Sucralose	105	99.3	P/P	60 - 160

* 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 350.1 Rev. 2.0	Ammonia-N	101	99.4	101			0.708
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	104	111	105			3.73
EPA 353.2 Rev. 2.0	NO ₂ NO ₃ -N	101	98.2				0.0
EPA 365.1 Rev. 2.0	Total-P	102	102	102			0.344
EPA 8321B	2,4-D	122	133	127			4.03
	Acesulfame K	100	41.8	42.7			2.00
	Acetaminophen	93.0	100	106			4.95
	Acetamiprid	89.9	93.4	83.3			11.4
	Afidopyropen	75.9	97.8	86.7			12.0
	AMPA	124	104	102			1.82
	Bentazon	84.8	72.7	69.3			4.81
	Benzovindiflupyr	80.0	84.7	80.7			4.87
	Carbamazepine	89.4	88.3	71.8			20.5
	Clothianidin	91.1	99.7	83.6			16.4
	Dinotefuran	90.1	112	103			8.57
	Diuron	89.6	77.2	76.9			0.306
	Endothall	94.3	113	112			0.738
	Fenuron	109	76.7	88.4			14.1
	Fluridone	87.7	86.7	85.7			1.17
	Glufosinate	111	120	121			0.896
	Glyphosate	140	120	120			0.0723
	Hydrocodone	101	93.6	107			13.7
	Ibuprofen	76.8	81.7	84.0			2.75
	Imazapyr	105					0.0409
	Imidacloprid	109	163	172			4.52
	Linuron	70.7	66.9	65.0			2.85
	Mandestrobin	83.6	84.3	83.1			1.43
	MCPP	122	133	131			1.48
	Naproxen	77.0	99.7	102			2.70
	Primidone	98.2	103	96.6			6.40
	Pyraclostrobin	76.4	81.7	84.6			3.55
	Sucralose	98.2	109	102			5.80
	Thiamethoxam	69.0	132	113			14.7
	Tolfenpyrad	49.7	49.2	55.7			12.5
	Triclopyr	95.5	106	108			1.73
SM 5310 B-2011	Organic Carbon	99.7	105	102			2.15

Reference Method Descriptions

Method	Description	Associated Samples
EPA 350.1 Rev. 2.0	Ammonia in aqueous matrices as mg N/L	2156214
EPA 351.2 Rev. 2.0	Total Kjeldahl Nitrogen in aqueous matrices	2156214
EPA 353.2 Rev. 2.0	Nitrite/Nitrate in aqueous matrices as mg N/L	2156214
EPA 365.1 Rev. 2.0	Total Phosphorus in aqueous matrices as mg P/L	2156214
EPA 8321B	Pesticides, herbicides, and other chemicals in water matrices by HPLC/MS/MS	2156226
EPA 8321B	Water soluble organic compounds by HPLC/MS/MS	2156226
SM 5310 B-2011	Nonpurgeable Organic Carbon in aqueous matrices	2156214

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
EPA 350.1 Rev. 2.0	02/10/2020			02/17/2020 09:07	Ping Hua	2156214
EPA 351.2 Rev. 2.0	02/10/2020	02/13/2020 10:45	Elliott Rodriguez	02/14/2020 15:12	Virginia P. Brown	2156214
EPA 353.2 Rev. 2.0	02/10/2020			02/20/2020 10:40	Beverly Y. Sanders	2156214
EPA 365.1 Rev. 2.0	02/10/2020	02/20/2020 15:00	Lipi Saha	02/24/2020 12:01	Benjamin T. Nordmann	2156214
EPA 8321B	02/10/2020	02/11/2020 13:45	Rebecca Ware	02/11/2020 21:27	Rebecca Ware	2156226
	02/10/2020	02/11/2020 13:45	Rebecca Ware	02/12/2020 18:09	Rebecca Ware	2156226
	02/10/2020	02/11/2020 13:45	Rebecca Ware	02/22/2020 21:01	Rebecca Ware	2156226
	02/10/2020	02/12/2020 09:30	Hoor Shaik	02/14/2020 20:49	Juyoung Kim	2156226
	02/10/2020	02/12/2020 09:30	Hoor Shaik	02/17/2020 11:01	Juyoung Kim	2156226
SM 5310 B-2011	02/10/2020			02/13/2020 19:14	Lauren Lees	2156214