

Chemical Analysis Report

CEN-DIST-2020-03-26-01

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

Event Description: **Lk Weohyakapa**
Request ID: **RQ-2020-03-30-07**
Customer: **CEN-DIST**
Project ID: **SMP**

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Date Certified: 17-APR-2020 10:25



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: Lake Weohyakapka

Collection Date/Time: 03/25/2020 12:45

Field ID: G4CE0171

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2168135	EPA 300.0 Rev. 2.1	Chloride	15		mg Cl/L	P381945	
		Sulfate	17		mg SO4/L	P381949	
	SM 2320 B-2011	Total Alkalinity	11		mg CaCO3/L	P381658	
	SM 2540 C-2011	TDS	89		mg/L	P381718	
	SM 2540 D-2011	TSS	14		mg/L	P381711	
	SM 4500 F-C-2011	Fluoride	0.067	I	mg F/L	P381822	RPD
2168136	EPA 350.1 Rev. 2.0	Ammonia-N	0.002	I	mg N/L	P381443	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.67		mg N/L	P381566	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P381691	
	EPA 365.1 Rev. 2.0	Total-P	0.036		mg P/L	P381539	
	SM 5310 B-2011	Organic Carbon	8.9		mg C/L	P381644	
2168137	EPA 8321B	2,4-D	0.0020	U	ug/L	P381314	
		Acesulfame K**	0.10	U	ug/L	P381438	
		AMPA**	0.10	U	ug/L	P381438	
		Sucralose**	0.040	I	ug/L	P381438	
		Acetaminophen**	0.0080	U	ug/L	P381314	
		Acetamiprid**	0.0020	U	ug/L	P381314	
		Endothall**	0.25	U	ug/L	P381438	
		Glufosinate**	0.10	U	ug/L	P381438	
		Glyphosate**	0.10	U	ug/L	P381438	
		Afidopyropen**	0.0020	UJ	ug/L	P381314	
		Bentazon	8.0E-04	U	ug/L	P381314	
		Benzovindiflupyr**	0.0020	UJ	ug/L	P381314	
		Carbamazepine**	8.0E-04	U	ug/L	P381314	
		Clothianidin**	0.0020	U	ug/L	P381314	
		Dinotefuran**	0.0020	U	ug/L	P381314	
		Diuron	0.0020	U	ug/L	P381314	
		Fenuron	0.016	U	ug/L	P381314	
		Fluridone**	0.020		ug/L	P381314	
		Imazapyr**	0.0040	U	ug/L	P381314	
		Hydrocodone**	0.0020	U	ug/L	P381314	
		Ibuprofen**	0.020	U	ug/L	P381314	
		Imidacloprid	0.0020	U	ug/L	P381314	
		Linuron	0.0040	U	ug/L	P381314	
		Mandestrobin**	0.0020	UJ	ug/L	P381314	
		MCPP	0.0020	U	ug/L	P381314	
		Naproxen**	0.0080	U	ug/L	P381314	
		Primidone**	0.0040	U	ug/L	P381314	
		Pyraclostrobin**	0.0020	U	ug/L	P381314	
		Thiamethoxam**	0.0020	U	ug/L	P381314	
		Tolfenpyrad**	0.0020	U	ug/L	P381314	
		Triclopyr**	0.0040	U	ug/L	P381314	

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: J - second source check standards for some analytes were not available for analysis.

Quality Assurance Report

Method Blank Results

Reference Method: EPA 300.0 Rev. 2.1
 Batch ID: P381945

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
 Batch ID: P381949

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 350.1 Rev. 2.0
 Batch ID: P381443

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

Reference Method: EPA 351.2 Rev. 2.0
 Batch ID: P381566

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

Reference Method: EPA 353.2 Rev. 2.0
 Batch ID: P381691

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

Reference Method: EPA 365.1 Rev. 2.0
 Batch ID: P381539

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

Reference Method: EPA 8321B
 Batch ID: P381314

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

Quality Assurance Report

Method Blank Results

Reference Method: EPA 8321B
Batch ID: P381314

Component	Result	Code	Units
Linuron	0.0040	U	ug/L
Mandestrobin	0.0020	U	ug/L
MCPP	0.0020	U	ug/L
Naproxen	0.0080	U	ug/L
Primidone	0.0040	U	ug/L
Pyraclostrobin	0.0020	U	ug/L
Thiamethoxam	0.0020	U	ug/L
Tolfenpyrad	0.0020	U	ug/L
Triclopyr	0.0040	U	ug/L

Reference Method: EPA 8321B
Batch ID: P381438

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 2320 B-2011
Batch ID: P381658

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

Reference Method: SM 2540 C-2011
Batch ID: P381718

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-2011
Batch ID: P381711

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500 F-C-2011
Batch ID: P381822

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-2011
Batch ID: P381644

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

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P381945

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P381949

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P381443

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: P381566

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P381691

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P381539

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

Reference Method: EPA 8321B
Batch ID: P381314

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2,4-D	111		P	30 - 160
Acetaminophen	75.1		P	30 - 160
Acetamiprid	98.8		P	30 - 160
Afidopyropen	98.3		P	30 - 160
Bentazon	59.2		P	30 - 160
Benzovindiflupyr	80.5		P	30 - 160
Carbamazepine	117		P	30 - 160
Clothianidin	94.6		P	30 - 160
Dinotefuran	87.2		P	30 - 160
Diuron	105		P	30 - 160
Fenuron	102		P	30 - 160
Fluridone	84.6		P	30 - 160
Hydrocodone	87.4		P	30 - 160
Ibuprofen	73.2		P	30 - 160
Imazapyr	91.8		P	30 - 160
Imidacloprid	121		P	30 - 160

Quality Assurance Report

Laboratory Control Sample Accuracy

Reference Method: EPA 8321B

Batch ID: P381314

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Linuron	69.9		P	30 - 160
Mandestrobin	86.7		P	30 - 160
MCP	119		P	30 - 160
Naproxen	68.8		P	30 - 160
Primidone	102		P	30 - 160
Pyraclostrobin	78.8		P	30 - 160
Thiamethoxam	101		P	30 - 160
Tolfenpyrad	51.4		P	30 - 160
Triclopyr	93.9		P	30 - 160

Reference Method: EPA 8321B

Batch ID: P381438

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Acesulfame K	138		P	40 - 150
AMPA	98.4		P	40 - 150
Endothall	82.7		P	40 - 150
Glufosinate	121		P	40 - 150
Glyphosate	125		P	40 - 140
Sucralose	99.6		P	40 - 150

Reference Method: SM 2320 B-2011

Batch ID: P381658

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	99.9		P	98 - 107

Reference Method: SM 4500 F-C-2011

Batch ID: P381822

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	97.5		P	92 - 104

Reference Method: SM 5310 B-2011

Batch ID: P381644

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	99.9		P	85 - 115

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P381945

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2168057	Chloride	99.3		P	90 - 110
2168135	Chloride	100		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P381949

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2168057	Sulfate	98.8		P	90 - 110
2168135	Sulfate	99.5		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P381443

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2168176	Ammonia-N	102	102	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P381566

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2168149	Kjeldahl Nitrogen	101	104	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P381691

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2167946	NO2NO3-N	95.5	96.5	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P381539

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2168087	Total-P	107	108	P/P	90 - 110

Reference Method: EPA 8321B
Batch ID: P381314

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2167754	2,4-D	115	114	P/P	30 - 160
2167754	Acetaminophen	102	101	P/P	30 - 160
2167754	Acetamiprid	98.0	89.3	P/P	30 - 160
2167754	Afidopyropen	84.5	90.8	P/P	30 - 160
2167754	Bentazon	39.9	42.2	P/P	30 - 160
2167754	Benzovindiflupyr	82.9	74.8	P/P	30 - 160
2167754	Carbamazepine	89.3	89.0	P/P	30 - 160
2167754	Clothianidin	91.0	87.7	P/P	30 - 160
2167754	Dinotefuran	117	114	P/P	30 - 160
2167754	Diuron	89.0	85.9	P/P	30 - 160
2167754	Fenuron	67.0	65.3	P/P	30 - 160
2167754	Fluridone	82.2	81.6	P/P	30 - 160
2167754	Hydrocodone	89.8	87.2	P/P	30 - 160
2167754	Ibuprofen	74.2	67.1	P/P	30 - 160

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 8321B
 Batch ID: P381314

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2167754	Imazapyr	112	113	P/P	30 - 160
2167754	Imidacloprid	140	138	P/P	30 - 160
2167754	Linuron	60.8	62.5	P/P	30 - 160
2167754	Mandestrobin	87.2	80.8	P/P	30 - 160
2167754	MCPP	115	112	P/P	30 - 160
2167754	Naproxen	85.0	86.8	P/P	30 - 160
2167754	Primidone	85.6	78.5	P/P	30 - 160
2167754	Pyraclostrobin	85.2	81.2	P/P	30 - 160
2167754	Thiamethoxam	126	120	P/P	30 - 160
2167754	Tolfenpyrad	59.3	53.7	P/P	30 - 160
2167754	Triclopyr	103	104	P/P	30 - 160

Reference Method: EPA 8321B
 Batch ID: P381438

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2168137	Acesulfame K	118	119	P/P	40 - 150
2168137	AMPA	119	117	P/P	40 - 150
2168137	Endothall	76.9	77.6	P/P	40 - 150
2168137	Glufosinate	104	108	P/P	40 - 150
2168137	Glyphosate	124	136	P/P	40 - 140
2168137	Sucralose	94.4	99.0	P/P	40 - 150

Reference Method: SM 4500 F-C-2011
 Batch ID: P381822

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2168117	Fluoride	98.6	95.2	P/P	91 - 105

Reference Method: SM 5310 B-2011
 Batch ID: P381644

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2168029	Organic Carbon	98.9	97.7	P/P	85 - 115

Quality Assurance Report Precision

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P381945

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2168057	Chloride	1.61	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P381949

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2168057	Sulfate	0.454	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P381443

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2168176	Ammonia-N	0.202	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P381566

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2168149	Kjeldahl Nitrogen	2.70	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P381691

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2167946	NO2NO3-N	0.515	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P381539

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2168087	Total-P	1.15	Spike	P	0 - 20

Reference Method: EPA 8321B
Batch ID: P381314

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2167754	2,4-D	0.926	Spike	P	0 - 30
2167754	Acetaminophen	1.01	Spike	P	0 - 30
2167754	Acetamiprid	9.26	Spike	P	0 - 30
2167754	Afidopyropen	7.14	Spike	P	0 - 30
2167754	Bentazon	5.67	Spike	P	0 - 30
2167754	Benzovindiflupyr	10.2	Spike	P	0 - 30
2167754	Carbamazepine	0.342	Spike	P	0 - 30
2167754	Clothianidin	3.73	Spike	P	0 - 30
2167754	Dinotefuran	2.79	Spike	P	0 - 30

Quality Assurance Report Precision

Reference Method: EPA 8321B
Batch ID: P381314

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2167754	Diuron	3.57	Spike	P	0 - 30
2167754	Fenuron	2.66	Spike	P	0 - 30
2167754	Fluridone	0.734	Spike	P	0 - 30
2167754	Hydrocodone	2.95	Spike	P	0 - 30
2167754	Ibuprofen	10.1	Spike	P	0 - 30
2167754	Imazapyr	0.307	Spike	P	0 - 30
2167754	Imidacloprid	1.01	Spike	P	0 - 30
2167754	Linuron	2.75	Spike	P	0 - 30
2167754	Mandestrobin	7.65	Spike	P	0 - 30
2167754	MCPP	2.67	Spike	P	0 - 30
2167754	Naproxen	2.10	Spike	P	0 - 30
2167754	Primidone	8.67	Spike	P	0 - 30
2167754	Pyraclostrobin	4.81	Spike	P	0 - 30
2167754	Thiamethoxam	4.76	Spike	P	0 - 30
2167754	Tolfenpyrad	9.91	Spike	P	0 - 30
2167754	Triclopyr	0.577	Spike	P	0 - 30

Reference Method: EPA 8321B
Batch ID: P381438

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2168137	Acesulfame K	0.862	Spike	P	0 - 30
2168137	AMPA	2.24	Spike	P	0 - 30
2168137	Endothall	0.974	Spike	P	0 - 30
2168137	Glufosinate	3.69	Spike	P	0 - 30
2168137	Glyphosate	9.17	Spike	P	0 - 30
2168137	Sucralose	4.66	Spike	P	0 - 30

Reference Method: SM 2320 B-2011
Batch ID: P381658

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2168101	Total Alkalinity	0.0219	Sample	P	0 - 3.3

Reference Method: SM 2540 C-2011
Batch ID: P381718

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2168058	TDS	1.87	Sample	P	0 - 10

Reference Method: SM 4500 F-C-2011
Batch ID: P381822

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2168117	Fluoride	2.98	Spike	F	0 - 2.0

Quality Assurance Report Precision

Reference Method: SM 5310 B-2011
Batch ID: P381644

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2168029	Organic Carbon	1.12	Spike	P	0 - 20

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

Quality Assurance Report Surrogates

Lab Sample ID: 2168137
Field Sample ID: G4CE0171

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	2,4-D-d3	108	P	30 - 160
EPA 8321B	Acetaminophen-d4	98.7	P	30 - 160
EPA 8321B	Carbamazepine-d10	109	P	30 - 160
EPA 8321B	Diuron-d6	115	P	30 - 160
EPA 8321B	Endothall-d6	74.1	P	30 - 160
EPA 8321B	Endothall-d6	74.1	P	30 - 160
EPA 8321B	Glyphosate 13C 15N	132	P	30 - 160
EPA 8321B	Glyphosate 13C 15N	132	P	30 - 160
EPA 8321B	Ibuprofen-d3	92.7	P	30 - 160
EPA 8321B	Primidone-d5	96.1	P	30 - 160
EPA 8321B	Sucralose-d6	97.6	P	30 - 160
EPA 8321B	Sucralose-d6	97.6	P	30 - 160

Quality Assurance Report Calibration Verification

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A98492

Included Lab Sample IDs: 2168136

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

Reference Method: EPA 8321B

Run ID: A98535

Included Lab Sample IDs: 2168137

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Acesulfame K	159	148	P/P	60 - 160
Endothall	77.4	75.0	P/P	60 - 160

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A98548

Included Lab Sample IDs: 2168136

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	97.5	98.8	P/P	90 - 110

Reference Method: EPA 8321B

Run ID: A98552

Included Lab Sample IDs: 2168137

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
AMPA	114	108	P/P	40 - 200
Glufosinate	125	108	P/P	40 - 200
Glyphosate	126	115	P/P	40 - 200

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A98569

Included Lab Sample IDs: 2168136

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	95.0	100	P/P	90 - 110

Reference Method: SM 5310 B-2011

Run ID: A98574

Included Lab Sample IDs: 2168136

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	99.6	100	P/P	90 - 110

Reference Method: SM 2320 B-2011

Run ID: A98581

Included Lab Sample IDs: 2168135

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	98.6	99.8	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A98590

Included Lab Sample IDs: 2168136

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO2NO3-N	99.5	99.0	P/P	90 - 110

Reference Method: SM 4500 F-C-2011

Run ID: A98655

Included Lab Sample IDs: 2168135

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	99.1	96.6	P/P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1

Run ID: A98686

Included Lab Sample IDs: 2168135

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	97.5	98.6	P/P	90 - 110
Sulfate	98.6	99.6	P/P	90 - 110

Reference Method: EPA 8321B

Run ID: A98689

Included Lab Sample IDs: 2168137

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
2,4-D	93.5	100	P/P	50 - 150
Acetaminophen	93.2	90.3	P/P	60 - 160
Acetamiprid	98.7	97.1	P/P	50 - 150
Afidopyropen	98.6	115	P/P	50 - 150
Bentazon	81.1	90.9	P/P	50 - 160
Benzovindiflupyr	105	106	P/P	50 - 150
Carbamazepine	103	96.0	P/P	60 - 150
Clothianidin	98.1	85.6	P/P	60 - 150
Dinotefuran	97.9	80.0	P/P	50 - 150
Diuron	102	100	P/P	60 - 160
Fenuron	91.4	89.9	P/P	60 - 150
Fluridone	102	105	P/P	60 - 160
Hydrocodone	102	99.6	P/P	60 - 150
Ibuprofen	96.4	110	P/P	50 - 160
Imazapyr	91.6	105	P/P	50 - 150
Imidacloprid	95.0	94.9	P/P	60 - 150
Linuron	94.4	91.0	P/P	60 - 150
Mandestrobin	106	105	P/P	50 - 150
MCP	93.9	93.4	P/P	50 - 150
Naproxen	84.9	130	P/P	50 - 160
Primidone	96.9	95.9	P/P	60 - 150
Pyraclostrobin	104	109	P/P	60 - 150
Thiamethoxam	94.9	101	P/P	50 - 150
Tolfenpyrad	102	112	P/P	60 - 150
Triclopyr	90.9	94.5	P/P	50 - 150

Quality Assurance Report Calibration Verification

Reference Method: EPA 8321B

Run ID: A98790

Included Lab Sample IDs: 2168137

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Sucralose	99.1	109	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
EPA 300.0 Rev. 2.1	Chloride	99.5	99.3	100		1.61
	Sulfate	100	98.8	99.5		0.454
EPA 350.1 Rev. 2.0	Ammonia-N	101	102	102		
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	106	101	104		0.202
EPA 353.2 Rev. 2.0	NO ₂ NO ₃ -N	99.5	95.5	96.5		2.70
EPA 365.1 Rev. 2.0	Total-P	107	107	108		0.515
EPA 8321B	2,4-D	111	115	114		1.15
	Acesulfame K	138	118	119		0.926
	Acetaminophen	75.1	102	101		0.862
	Acetamiprid	98.8	98.0	89.3		1.01
	Afidopyropen	98.3	84.5	90.8		9.26
	AMPA	98.4	119	117		7.14
	Bentazon	59.2	39.9	42.2		2.24
	Benzovindiflupyr	80.5	82.9	74.8		5.67
	Carbamazepine	117	89.3	89.0		10.2
	Clothianidin	94.6	91.0	87.7		0.342
	Dinotefuran	87.2	117	114		3.73
	Diuron	105	89.0	85.9		2.79
	Endothall	82.7	76.9	77.6		3.57
	Fenuron	102	67.0	65.3		0.974
	Fluridone	84.6	82.2	81.6		2.66
	Glufosinate	121	104	108		0.734
	Glyphosate	125	124	136		3.69
	Hydrocodone	87.4	89.8	87.2		9.17
	Ibuprofen	73.2	74.2	67.1		2.95
	Imazapyr	91.8	112	113		10.1
	Imidacloprid	121	140	138		0.307
	Linuron	69.9	60.8	62.5		1.01
	Mandestrobin	86.7	87.2	80.8		2.75
	MCPP	119	115	112		7.65
	Naproxen	68.8	85.0	86.8		2.67
	Primidone	102	85.6	78.5		2.10
	Pyraclostrobin	78.8	85.2	81.2		8.67
	Sucralose	99.6	94.4	99.0		4.81
	Thiamethoxam	101	126	120		4.66
	Tolfenpyrad	51.4	59.3	53.7		4.76
	Triclopyr	93.9	103	104		9.91
SM 2320 B-2011	Total Alkalinity	99.9				0.577
SM 2540 C-2011	TDS					0.0219
SM 4500 F-C-2011	Fluoride	97.5	98.6	95.2		1.87
SM 5310 B-2011	Organic Carbon	99.9	98.9	97.7		2.98

Reference Method Descriptions

Method	Description	Associated Samples
EPA 300.0 Rev. 2.1	Chloride in aqueous matrices	2168135
EPA 300.0 Rev. 2.1	Sulfate in aqueous matrices	2168135
EPA 350.1 Rev. 2.0	Ammonia in aqueous matrices as mg N/L	2168136
EPA 351.2 Rev. 2.0	Total Kjeldahl Nitrogen in aqueous matrices	2168136
EPA 353.2 Rev. 2.0	Nitrite/Nitrate in aqueous matrices as mg N/L	2168136
EPA 365.1 Rev. 2.0	Total Phosphorus in aqueous matrices as mg P/L	2168136
EPA 8321B	Pesticides, herbicides, and other chemicals in water matrices by HPLC/MS/MS	2168137
EPA 8321B	Water soluble organic compounds by HPLC/MS/MS	2168137

Reference Method Descriptions

Method	Description	<u>Associated Samples</u>
SM 2320 B-2011	Alkalinity in aqueous matrices as mg CaCO ₃ /L	2168135
SM 2540 C-2011	Total Dissolved Solids in aqueous matrices	2168135
SM 2540 D-2011	Total Suspended Solids in aqueous matrices using a maximum of 250 mL of sample	2168135
SM 4500 F-C-2011	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	2168135
SM 5310 B-2011	Nonpurgeable Organic Carbon in aqueous matrices	2168136

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
EPA 300.0 Rev. 2.1	03/26/2020			04/07/2020 19:59	Jhamieka S. Greenwood	2168135
EPA 350.1 Rev. 2.0	03/26/2020			03/29/2020 12:32	Ping Hua	2168136
EPA 351.2 Rev. 2.0	03/26/2020	03/31/2020 10:05	Sima Feizi	04/01/2020 09:20	Jhamieka S. Greenwood	2168136
EPA 353.2 Rev. 2.0	03/26/2020			04/02/2020 08:43	Beverly Y. Sanders	2168136
EPA 365.1 Rev. 2.0	03/26/2020	03/30/2020 17:07	Yen Ta	03/31/2020 13:05	Lipi Saha	2168136
EPA 8321B	03/26/2020	03/30/2020 10:00	Hoor Shaik	04/07/2020 08:48	Juyoung Kim	2168137
	03/26/2020	03/31/2020 08:30	Mohammad Ghaffari	03/31/2020 09:36	Mohammad Ghaffari	2168137
	03/26/2020	03/31/2020 08:30	Mohammad Ghaffari	03/31/2020 12:20	Mohammad Ghaffari	2168137
	03/26/2020	03/31/2020 08:30	Mohammad Ghaffari	04/14/2020 13:27	Rebecca Ware	2168137
SM 2320 B-2011	03/26/2020			04/01/2020 08:44	Dale L. Simmons	2168135
SM 2540 C-2011	03/26/2020			03/27/2020 15:36	Yijie Li	2168135
SM 2540 D-2011	03/26/2020			03/27/2020 15:32	Yijie Li	2168135
SM 4500 F-C-2011	03/26/2020			04/03/2020 19:09	Samantha Davila	2168135
SM 5310 B-2011	03/26/2020			04/01/2020 09:32	Madeline Gruver	2168136