

Chemical Analysis Report

WQAP-2020-09-02-01

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

Event Description: **Algal Bloom Response - SWD**
Request ID: **RQ-2020-08-31-60**
Customer: **WQAP**
Project ID: **BLOOM-RESP**

Send Reports to:
FL Dept. of Environmental Protection
DEP SO ROC
2295 Victoria Ave
Fort Myers, FL 33901
Attn: Kirby Wolfe

For additional information please contact
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Phone (850) 245-8085

Certified by: Colin Wright, Program Administrator

Date Certified: 24-SEP-2020 07:53



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: Palmetto Pines Golf Course Lake

Collection Date/Time: 09/01/2020 14:41

Field ID: CC-090120-001

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2193508	EPA 8321B	2,4-D	0.0060	IY	ug/L	P386810	
		Acesulfame K**	0.10	UY	ug/L	P386879	MS
		AMPA**	0.10	UY	ug/L	P386879	
		Sucralose**	0.17	Y	ug/L	P386879	MS
		Acetaminophen**	0.0080	UY	ug/L	P386810	
		Acetamiprid**	0.0033	IY	ug/L	P386810	
		Endothall**	0.25	UY	ug/L	P386879	
		Glufosinate**	0.10	UY	ug/L	P386879	MS
		Glyphosate**	2.2	Y	ug/L	P386879	MS
		Afidopyropen**	0.0020	UY	ug/L	P386810	
		Bentazon	0.53	Y	ug/L	P386810	
		Benzovindiflupyr**	0.0020	UY	ug/L	P386810	
		Carbamazepine**	0.0013	IY	ug/L	P386810	
		Clothianidin**	0.013	Y	ug/L	P386810	
		Dinotefuran**	0.040	Y	ug/L	P386810	
		Diuron	0.0020	UY	ug/L	P386810	
		Fenuron	0.016	UY	ug/L	P386810	
		Fluridone**	8.1E-04	IY	ug/L	P386810	
		Imazapyr**	0.0063	IY	ug/L	P386810	
		Hydrocodone**	0.0020	UY	ug/L	P386810	
		Ibuprofen**	0.020	UY	ug/L	P386810	
		Imidacloprid	0.30	Y	ug/L	P386810	
		Linuron	0.0040	UY	ug/L	P386810	
		Mandestrobin**	0.0020	UY	ug/L	P386810	
		MCPP	0.0037	IY	ug/L	P386810	
		Naproxen**	0.0080	UY	ug/L	P386810	
		Primidone**	0.0040	UY	ug/L	P386810	
		Pyraclostrobin**	0.0020	UY	ug/L	P386810	
		Thiamethoxam**	0.013	Y	ug/L	P386810	
		Tolfenpyrad**	0.0020	UY	ug/L	P386810	
		Triclopyr**	0.0040	UY	ug/L	P386810	
2193512		Anatoxin-a**	0.25	UY	ug/L	P386845	
		Cylindrospermopsin**	0.25	UY	ug/L	P386845	
		Desmethyl microcystin LR**	0.25	UY	ug/L	P386845	
		Microcystin LA**	0.25	UY	ug/L	P386845	
		Microcystin LF**	0.25	UY	ug/L	P386845	
		Microcystin LR**	2.0	Y	ug/L	P386845	
		Microcystin LW**	0.25	UY	ug/L	P386845	
		Microcystin LY**	0.25	UY	ug/L	P386845	
		Microcystin RR**	0.25	UY	ug/L	P386845	
		Microcystin WR**	0.50	UY	ug/L	P386845	
		Microcystin YR**	0.25	UY	ug/L	P386845	
2193516	EPA 350.1 Rev. 2.0	Ammonia-N	0.018	Y	mg N/L	P387033	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	2.9	Y	mg N/L	P386876	

Field ID: CC-090120-001

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2193516	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	UY	mg N/L	P386884	
	EPA 365.1 Rev. 2.0	Total-P	0.21	Y	mg P/L	P386923	
2193520	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	IY	mg P/L	P386903	

Ref. Method and Comment:

EPA 8321B: MS accuracy for imazapyr could not be assessed due to high concentration of parameter in the spiked sample. Y - Sample was received with inadequate sample preservation; see NCR report.

EPA 8321B: Y - Sample was received with inadequate sample preservation; see NCR report.

EPA 350.1 Rev. 2.0: Sample temperature was outside the acceptable range when received at the laboratory.

EPA 351.2 Rev. 2.0: Batch matrix spike recoveries are unavailable because of high analyte concentration in the QC sample. Sample temperature was outside the acceptable range when received at the laboratory.

EPA 353.2 Rev. 2.0: Sample temperature was outside the acceptable range when received at the laboratory.

EPA 365.1 Rev. 2.0: Total-P: Batch matrix spike recoveries are unavailable because of high analyte concentration in the QC sample. Sample temperature was outside the acceptable range when received at the laboratory.

EPA 365.1 Rev. 2.0 dissolved: O-Phosphate-P: Sample temperature was outside the acceptable range when received at the laboratory.

Sample Location: GC, upstream of Weir

Collection Date/Time: 09/01/2020 14:30

Field ID: CC-090120-003

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2193514	EPA 8321B	Anatoxin-a**	0.25	UY	ug/L	P386845	
		Cylindrospermopsin**	0.25	UY	ug/L	P386845	
		Desmethyl microcystin LR**	0.25	UY	ug/L	P386845	
		Microcystin LA**	0.25	UY	ug/L	P386845	
		Microcystin LF**	0.25	UY	ug/L	P386845	
		Microcystin LR**	1.5	Y	ug/L	P386845	
		Microcystin LW**	0.25	UY	ug/L	P386845	
		Microcystin LY**	0.25	UY	ug/L	P386845	
		Microcystin RR**	0.25	UY	ug/L	P386845	
		Microcystin WR**	0.50	UY	ug/L	P386845	
		Microcystin YR**	0.25	UY	ug/L	P386845	

Ref. Method and Comment:

EPA 8321B: Y - Sample was received with inadequate sample preservation; see NCR report.

Sample Location: Makai Canal 2

Collection Date/Time: 09/01/2020 13:58

Field ID: cc-090120-004

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2193515	EPA 8321B	Anatoxin-a**	0.25	UY	ug/L	P386845	
		Cylindrospermopsin**	0.25	UY	ug/L	P386845	
		Desmethyl microcystin LR**	0.25	UY	ug/L	P386845	
		Microcystin LA**	0.25	UY	ug/L	P386845	
		Microcystin LF**	0.25	UY	ug/L	P386845	
		Microcystin LR**	0.48	IY	ug/L	P386845	
		Microcystin LW**	0.25	UY	ug/L	P386845	
		Microcystin LY**	0.25	UY	ug/L	P386845	
		Microcystin RR**	0.25	UY	ug/L	P386845	
		Microcystin WR**	0.50	UY	ug/L	P386845	
		Microcystin YR**	0.25	UY	ug/L	P386845	

Ref. Method and Comment:

EPA 8321B: Y - Sample was received with inadequate sample preservation; see NCR report.

Sample Location: Makai Canal 1

Collection Date/Time: 09/01/2020 13:40

Field ID: CC-090120-002

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2193509	EPA 8321B	2,4-D	0.0041	IY	ug/L	P386810	
		Acesulfame K**	0.10	UY	ug/L	P386879	MS
		AMPA**	0.10	UY	ug/L	P386879	
		Sucralose**	0.58	Y	ug/L	P386879	MS
		Acetaminophen**	0.0080	UY	ug/L	P386810	
		Acetamiprid**	0.0020	UY	ug/L	P386810	
		Endothall**	0.25	UY	ug/L	P386879	
		Glufosinate**	0.10	UY	ug/L	P386879	MS
		Glyphosate**	0.33	IY	ug/L	P386879	MS
		Afidopyropen**	0.0020	UY	ug/L	P386810	
		Bentazon	0.26	Y	ug/L	P386810	
		Benzovindiflupyr**	0.0020	UY	ug/L	P386810	
		Carbamazepine**	0.0033	Y	ug/L	P386810	
		Clothianidin**	0.016	Y	ug/L	P386810	
		Dinotefuran**	0.024	Y	ug/L	P386810	
		Diuron	0.0020	UY	ug/L	P386810	
		Fenuron	0.016	UY	ug/L	P386810	
		Fluridone**	0.0024	IY	ug/L	P386810	
		Imazapyr**	0.0097	IY	ug/L	P386810	
		Hydrocodone**	0.0020	UY	ug/L	P386810	
		Ibuprofen**	0.020	UY	ug/L	P386810	
		Imidacloprid	0.22	Y	ug/L	P386810	
		Linuron	0.0040	UY	ug/L	P386810	
		Mandestrobin**	0.0020	UY	ug/L	P386810	
		MCPP	0.0020	UY	ug/L	P386810	
		Naproxen**	0.0080	UY	ug/L	P386810	
		Primidone**	0.0040	UY	ug/L	P386810	
		Pyraclostrobin**	0.0020	UY	ug/L	P386810	
		Thiamethoxam**	0.019	Y	ug/L	P386810	
		Tolfenpyrad**	0.0020	UY	ug/L	P386810	
		Triclopyr**	0.0040	UY	ug/L	P386810	
2193513		Anatoxin-a**	0.25	UY	ug/L	P386845	
		Cylindrospermopsin**	0.25	UY	ug/L	P386845	
		Desmethyl microcystin LR**	0.25	UY	ug/L	P386845	
		Microcystin LA**	0.25	UY	ug/L	P386845	
		Microcystin LF**	0.25	UY	ug/L	P386845	
		Microcystin LR**	2.0	Y	ug/L	P386845	
		Microcystin LW**	0.25	UY	ug/L	P386845	
		Microcystin LY**	0.25	UY	ug/L	P386845	
		Microcystin RR**	0.25	UY	ug/L	P386845	
		Microcystin WR**	0.50	UY	ug/L	P386845	
		Microcystin YR**	0.25	UY	ug/L	P386845	
2193517	EPA 350.1 Rev. 2.0	Ammonia-N	0.009	Y	mg N/L	P387033	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	2.3	Y	mg N/L	P386876	

Field ID: CC-090120-002

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2193517	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	UY	mg N/L	P386884	
	EPA 365.1 Rev. 2.0	Total-P	0.14	Y	mg P/L	P386923	
2193521	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	UY	mg P/L	P386903	

Ref. Method and Comment:

EPA 8321B: MS accuracy for imazapyr could not be assessed due to high concentration of parameter in the spiked sample. Y - Sample was received with inadequate sample preservation; see NCR report.

EPA 8321B: Y - Sample was received with inadequate sample preservation; see NCR report.

EPA 350.1 Rev. 2.0: Sample temperature was outside the acceptable range when received at the laboratory.

EPA 351.2 Rev. 2.0: Batch matrix spike recoveries are unavailable because of high analyte concentration in the QC sample. Sample temperature was outside the acceptable range when received at the laboratory.

EPA 353.2 Rev. 2.0: Sample temperature was outside the acceptable range when received at the laboratory.

EPA 365.1 Rev. 2.0: Total-P: Batch matrix spike recoveries are unavailable because of high analyte concentration in the QC sample. Sample temperature was outside the acceptable range when received at the laboratory.

EPA 365.1 Rev. 2.0 dissolved: O-Phosphate-P: Sample temperature was outside the acceptable range when received at the laboratory.

Non-Conformance Report

NCR ID: 8406

Event(s)

WQAP-2020-09-02-01

Job(s)

Sample(s)

Test(s)

NCR Type: SHIPPING/RECEIVING

NCR Category: Preservation Not Intact

Observation: Samples received outside the acceptable temperature range.

Resolution: Data will be qualified as appropriate.

Customer notified.

Supervisor notified. Analyst determined that the algae sample had not degraded and could be analyzed without a qualifier.-AGR

Authorized by/Date: Joshua Ayres 9/8/2020

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: P387033

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

Reference Method: EPA 351.2 Rev. 2.0
 Batch ID: P386876

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

Reference Method: EPA 353.2 Rev. 2.0
 Batch ID: P386884

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

Reference Method: EPA 365.1 Rev. 2.0
 Batch ID: P386923

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
 Batch ID: P386903

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

Reference Method: EPA 8321B
 Batch ID: P386810

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

Quality Assurance Report

Method Blank Results

Reference Method: EPA 8321B
Batch ID: P386810

Component	Result	Code	Units
Thiamethoxam	0.0020	U	ug/L
Tolfenpyrad	0.0020	U	ug/L
Triclopyr	0.0040	U	ug/L

Reference Method: EPA 8321B
Batch ID: P386845

Component	Result	Code	Units
Anatoxin-a	0.25	U	ug/L
Cylindrospermopsin	0.25	U	ug/L
Desmethyl microcystin LR	0.25	U	ug/L
Microcystin LA	0.25	U	ug/L
Microcystin LF	0.25	U	ug/L
Microcystin LR	0.25	U	ug/L
Microcystin LW	0.25	U	ug/L
Microcystin LY	0.25	U	ug/L
Microcystin RR	0.25	U	ug/L
Microcystin WR	0.50	U	ug/L
Microcystin YR	0.25	U	ug/L

Reference Method: EPA 8321B
Batch ID: P386879

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

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 350.1 Rev. 2.0
 Batch ID: P387033

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: P386876

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: P386884

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

Reference Method: EPA 365.1 Rev. 2.0
 Batch ID: P386923

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
 Batch ID: P386903

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
O-Phosphate-P	99.4		P	90 - 110

Reference Method: EPA 8321B
 Batch ID: P386810

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2,4-D	89.1		P	30 - 160
Acetaminophen	92.7		P	30 - 160
Acetamiprid	75.6		P	30 - 160
Afidopyropen	56.9		P	30 - 160
Bentazon	75.0		P	30 - 160
Benzovindiflupyr	71.8		P	30 - 160
Carbamazepine	64.1		P	30 - 160
Clothianidin	89.3		P	30 - 160
Dinotefuran	100		P	30 - 160
Diuron	66.9		P	30 - 160
Fenuron	105		P	30 - 160
Fluridone	77.3		P	30 - 160
Hydrocodone	93.4		P	30 - 160
Ibuprofen	77.7		P	30 - 160
Imazapyr	80.5		P	30 - 160
Imidacloprid	105		P	30 - 160
Linuron	75.9		P	30 - 160
Mandestrobin	77.5		P	30 - 160
MCPP	101		P	30 - 160
Naproxen	47.6		P	30 - 160
Primidone	87.0		P	30 - 160
Pyraclostrobin	57.6		P	30 - 160

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 8321B
Batch ID: P386810

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Thiamethoxam	90.6		P	30 - 160
Tolfenpyrad	44.7		P	30 - 160
Triclopyr	63.1		P	30 - 160

Reference Method: EPA 8321B
Batch ID: P386845

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Anatoxin-a	109		P	40 - 140
Cylindrospermopsin	112		P	40 - 140
Desmethyl microcystin LR	106		P	40 - 140
Microcystin LA	115		P	40 - 140
Microcystin LF	94.6		P	40 - 140
Microcystin LR	105		P	40 - 140
Microcystin LW	109		P	40 - 140
Microcystin LY	109		P	40 - 140
Microcystin RR	115		P	40 - 140
Microcystin WR	106		P	40 - 140
Microcystin YR	105		P	40 - 140

Reference Method: EPA 8321B
Batch ID: P386879

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Acesulfame K	72.7		P	40 - 150
AMPA	84.7		P	40 - 150
Endothall	107		P	40 - 150
Glufosinate	100		P	40 - 150
Glyphosate	108		P	40 - 140
Sucralose	104		P	40 - 150

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 350.1 Rev. 2.0
 Batch ID: P387033

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2193516	Ammonia-N	99.7	102	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
 Batch ID: P386884

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2193516	NO2NO3-N	99.5	99.0	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
 Batch ID: P386903

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2193521	O-Phosphate-P	97.8	98.0	P/P	90 - 110

Reference Method: EPA 8321B
 Batch ID: P386810

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2193354	2,4-D	91.3	88.1	P/P	30 - 160
2193354	Acetaminophen	77.5	81.7	P/P	30 - 160
2193354	Acetamiprid	67.1	68.2	P/P	30 - 160
2193354	Afidopyropen	53.5	53.1	P/P	30 - 160
2193354	Bentazon	39.6	46.3	P/P	30 - 160
2193354	Benzovindiflupyr	64.8	63.2	P/P	30 - 160
2193354	Carbamazepine	53.9	56.6	P/P	30 - 160
2193354	Clothianidin	59.9	61.4	P/P	30 - 160
2193354	Dinotefuran	78.8	83.2	P/P	30 - 160
2193354	Diuron	54.1	52.8	P/P	30 - 160
2193354	Fenuron	68.2	72.4	P/P	30 - 160
2193354	Fluridone	75.4	94.7	P/P	30 - 160
2193354	Hydrocodone	64.7	70.3	P/P	30 - 160
2193354	Ibuprofen	83.5	71.2	P/P	30 - 160
2193354	Imidacloprid	109	118	P/P	30 - 160
2193354	Linuron	67.1	68.9	P/P	30 - 160
2193354	Mandestrobin	70.5	75.6	P/P	30 - 160
2193354	MCP	111	110	P/P	30 - 160
2193354	Naproxen	49.2	63.2	P/P	30 - 160
2193354	Primidone	76.8	79.3	P/P	30 - 160
2193354	Pyraclostrobin	59.1	60.2	P/P	30 - 160
2193354	Thiamethoxam	72.7	71.8	P/P	30 - 160
2193354	Tolfenpyrad	51.7	48.2	P/P	30 - 160
2193354	Triclopyr	87.5	87.4	P/P	30 - 160

Reference Method: EPA 8321B
 Batch ID: P386845

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2192967	Anatoxin-a	114	115	P/P	40 - 140
2192967	Cylindrospermopsin	111	108	P/P	40 - 140
2192967	Desmethyl microcystin LR	123	119	P/P	40 - 140
2192967	Microcystin LA	117	113	P/P	40 - 140
2192967	Microcystin LF	90.4	110	P/P	40 - 140

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 8321B
Batch ID: P386845

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2192967	Microcystin LR	126	121	P/P	40 - 140
2192967	Microcystin LW	127	116	P/P	40 - 140
2192967	Microcystin LY	112	106	P/P	40 - 140
2192967	Microcystin RR	123	122	P/P	40 - 140
2192967	Microcystin WR	119	120	P/P	40 - 140
2192967	Microcystin YR	118	120	P/P	40 - 140

Reference Method: EPA 8321B
Batch ID: P386879

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2193353	Acesulfame K	29.8	29.0	F/F	40 - 150
2193353	AMPA	48.6	42.7	P/P	40 - 150
2193353	Endothall	90.2	106	P/P	40 - 150
2193353	Glufosinate	182	152	F/F	40 - 150
2193353	Glyphosate	510	446	F/F	40 - 140
2193353	Sucralose	22.1	19.2	F/F	40 - 150

Quality Assurance Report Precision

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P387033

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2193516	Ammonia-N	1.44	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P386876

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2193334	Kjeldahl Nitrogen	0.258	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P386884

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2193516	NO2NO3-N	0.504	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P386923

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2193380	Total-P	0.154	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P386903

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2193521	O-Phosphate-P	0.204	Spike	P	0 - 20

Reference Method: EPA 8321B
Batch ID: P386810

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2193354	2,4-D	3.11	Spike	P	0 - 30
2193354	Acetaminophen	5.28	Spike	P	0 - 30
2193354	Acetamiprid	1.62	Spike	P	0 - 30
2193354	Afidopyropen	0.775	Spike	P	0 - 30
2193354	Bentazon	4.84	Spike	P	0 - 30
2193354	Benzovindiflupyr	2.40	Spike	P	0 - 30
2193354	Carbamazepine	4.85	Spike	P	0 - 30
2193354	Clothianidin	2.53	Spike	P	0 - 30
2193354	Dinotefuran	4.79	Spike	P	0 - 30
2193354	Diuron	2.22	Spike	P	0 - 30
2193354	Fenuron	5.91	Spike	P	0 - 30
2193354	Fluridone	17.2	Spike	P	0 - 30
2193354	Hydrocodone	8.37	Spike	P	0 - 30
2193354	Ibuprofen	15.8	Spike	P	0 - 30
2193354	Imazapyr	7.74	Spike	P	0 - 30
2193354	Imidacloprid	6.78	Spike	P	0 - 30

Quality Assurance Report Precision

Reference Method: EPA 8321B
 Batch ID: P386810

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2193354	Linuron	2.58	Spike	P	0 - 30
2193354	Mandestrobin	7.03	Spike	P	0 - 30
2193354	MCP	0.860	Spike	P	0 - 30
2193354	Naproxen	24.9	Spike	P	0 - 30
2193354	Primidone	3.13	Spike	P	0 - 30
2193354	Pyraclostrobin	1.77	Spike	P	0 - 30
2193354	Thiamethoxam	1.14	Spike	P	0 - 30
2193354	Tolfenpyrad	6.96	Spike	P	0 - 30
2193354	Triclopyr	0.124	Spike	P	0 - 30

Reference Method: EPA 8321B
 Batch ID: P386845

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2192967	Anatoxin-a	0.721	Spike	P	0 - 30
2192967	Cylindrospermopsin	2.53	Spike	P	0 - 30
2192967	Desmethyl microcystin LR	3.06	Spike	P	0 - 30
2192967	Microcystin LA	2.72	Spike	P	0 - 30
2192967	Microcystin LF	19.5	Spike	P	0 - 30
2192967	Microcystin LR	4.41	Spike	P	0 - 30
2192967	Microcystin LW	8.61	Spike	P	0 - 30
2192967	Microcystin LY	5.42	Spike	P	0 - 30
2192967	Microcystin RR	0.694	Spike	P	0 - 30
2192967	Microcystin WR	0.832	Spike	P	0 - 30
2192967	Microcystin YR	1.51	Spike	P	0 - 30

Reference Method: EPA 8321B
 Batch ID: P386879

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2193353	Acesulfame K	2.76	Spike	P	0 - 30
2193353	AMPA	5.28	Spike	P	0 - 30
2193353	Endothall	16.4	Spike	P	0 - 30
2193353	Glufosinate	17.7	Spike	P	0 - 30
2193353	Glyphosate	6.17	Spike	P	0 - 30
2193353	Sucralose	8.16	Spike	P	0 - 30

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

Quality Assurance Report Surrogates

Lab Sample ID: 2193508
Field Sample ID: CC-090120-001

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	2,4-D-d3	78.9	P	30 - 160
EPA 8321B	Acetaminophen-d4	71.7	P	30 - 160
EPA 8321B	Carbamazepine-d10	54.2	P	30 - 160
EPA 8321B	Diuron-d6	58.0	P	30 - 160
EPA 8321B	Endothall-d6	129	P	30 - 160
EPA 8321B	Endothall-d6	129	P	30 - 160
EPA 8321B	Glyphosate 13C 15N	90.9	P	30 - 160
EPA 8321B	Glyphosate 13C 15N	90.9	P	30 - 160
EPA 8321B	Ibuprofen-d3	82.8	P	30 - 160
EPA 8321B	Primidone-d5	78.1	P	30 - 160
EPA 8321B	Sucralose-d6	41.0	P	30 - 160
EPA 8321B	Sucralose-d6	41.0	P	30 - 160

Lab Sample ID: 2193509
Field Sample ID: CC-090120-002

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	2,4-D-d3	76.0	P	30 - 160
EPA 8321B	Acetaminophen-d4	78.5	P	30 - 160
EPA 8321B	Carbamazepine-d10	53.7	P	30 - 160
EPA 8321B	Diuron-d6	59.4	P	30 - 160
EPA 8321B	Endothall-d6	128	P	30 - 160
EPA 8321B	Endothall-d6	128	P	30 - 160
EPA 8321B	Glyphosate 13C 15N	82.1	P	30 - 160
EPA 8321B	Glyphosate 13C 15N	82.1	P	30 - 160
EPA 8321B	Ibuprofen-d3	69.7	P	30 - 160
EPA 8321B	Primidone-d5	79.7	P	30 - 160
EPA 8321B	Sucralose-d6	103	P	30 - 160
EPA 8321B	Sucralose-d6	103	P	30 - 160

Lab Sample ID: 2193512
Field Sample ID: CC-090120-001

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	Microcystin LR-d7	130	P	30 - 160
EPA 8321B	Microcystin LR ethyl-d5	101	P	30 - 160

Lab Sample ID: 2193513
Field Sample ID: CC-090120-002

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	Microcystin LR-d7	112	P	30 - 160
EPA 8321B	Microcystin LR ethyl-d5	88.6	P	30 - 160

Lab Sample ID: 2193514
Field Sample ID: CC-090120-003

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	Microcystin LR-d7	115	P	30 - 160
EPA 8321B	Microcystin LR ethyl-d5	91.7	P	30 - 160

Quality Assurance Report Surrogates

Lab Sample ID: 2193515
Field Sample ID: cc-090120-004

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	Microcystin LR-d7	104	P	30 - 160
EPA 8321B	Microcystin LR ethyl-d5	77.1	P	30 - 160

Quality Assurance Report Calibration Verification

Reference Method: EPA 8321B

Run ID: A100781

Included Lab Sample IDs: 2193508, 2193509

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
2,4-D	109	104	P/P	50 - 150
Acetaminophen	142	128	P/P	60 - 160
Acetamiprid	142	138	P/P	50 - 150
Afidopyropen	123	109	P/P	50 - 150
Benzovindiflupyr	116	133	P/P	50 - 150
Carbamazepine	135	131	P/P	60 - 150
Clothianidin	134	114	P/P	60 - 150
Dinotefuran	124	112	P/P	50 - 150
Diuron	137	142	P/P	60 - 160
Fenuron	127	128	P/P	60 - 150
Fluridone	110	118	P/P	60 - 160
Hydrocodone	132	121	P/P	60 - 150
Ibuprofen	103	63.9	P/P	50 - 160
Imazapyr	102	119	P/P	50 - 160
Imidacloprid	138	106	P/P	60 - 150
Linuron	131	138	P/P	60 - 150
Mandestrobin	128	137	P/P	50 - 150
MCPPP	123	112	P/P	50 - 150
Naproxen	80.8	112	P/P	50 - 160
Primidone	135	117	P/P	60 - 150
Pyraclostrobin	117	106	P/P	60 - 150
Thiamethoxam	137	123	P/P	50 - 150
Tolfenpyrad	117	105	P/P	60 - 150
Triclopyr	111	111	P/P	50 - 150

Reference Method: EPA 8321B

Run ID: A100788

Included Lab Sample IDs: 2193512, 2193513, 2193514, 2193515

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Anatoxin-a	98.3	90.0	P/P	50 - 160
Cylindrospermopsin	111	107	P/P	60 - 160
Desmethyl microcystin LR	97.3	88.6	P/P	60 - 160
Microcystin LA	98.8	91.4	P/P	50 - 160
Microcystin LF	69.9	50.5	P/P	50 - 160
Microcystin LR	102	94.6	P/P	60 - 160
Microcystin LW	96.2	80.5	P/P	60 - 160
Microcystin LY	94.8	83.7	P/P	60 - 160
Microcystin RR	97.5	97.2	P/P	60 - 160
Microcystin WR	103	92.2	P/P	60 - 160
Microcystin YR	89.7	83.1	P/P	60 - 160

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A100792

Included Lab Sample IDs: 2193516, 2193517

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO2NO3-N	101	99.0	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: EPA 365.1 Rev. 2.0 dissolved

Run ID: A100802

Included Lab Sample IDs: 2193520, 2193521

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	99.7	99.6	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A100820

Included Lab Sample IDs: 2193516, 2193517

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	96.6	102	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A100834

Included Lab Sample IDs: 2193516, 2193517

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	102	99.9	P/P	90 - 110
Ammonia-N	99.9	102	P/P	90 - 110

Reference Method: EPA 8321B

Run ID: A100901

Included Lab Sample IDs: 2193508, 2193509

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Acesulfame K	65.6	62.4	P/P	60 - 160
Endothall	118	122	P/P	60 - 160

Reference Method: EPA 8321B

Run ID: A100903

Included Lab Sample IDs: 2193508, 2193509

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
AMPA	81.3	82.6	P/P	60 - 160
Glufosinate	97.2	92.1	P/P	60 - 160
Glyphosate	110	112	P/P	60 - 160

Reference Method: EPA 8321B

Run ID: A100936

Included Lab Sample IDs: 2193508, 2193509

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Bentazon	94.7	85.2	P/P	50 - 160

Reference Method: EPA 8321B

Run ID: A100956

Included Lab Sample IDs: 2193508, 2193509

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Sucralose	105	106	P/P	60 - 160

Quality Assurance Report Calibration Verification

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A101032

Included Lab Sample IDs: 2193516, 2193517

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	105	106	P/P	85 - 115

* Pass/Fail determinations are made for each bracketing calibration verification check.

Control limits for initial calibration checks may be different from those for continuing checks, depending on method requirements.

Where they are different, both control limits are provided.

Quality Assurance Report Summary

Ref. Method	Analyte	LCS % Recovery	MS % Recovery		LCS	Precision	MS
						SMP	
EPA 350.1 Rev. 2.0	Ammonia-N	102	99.7	102			1.44
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	106					0.258
EPA 353.2 Rev. 2.0	NO2NO3-N	100	99.5	99.0			0.504
EPA 365.1 Rev. 2.0	Total-P	109					0.154
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	99.4	97.8	98.0			0.204
EPA 8321B	2,4-D	89.1	88.1	91.3			3.11
	Acesulfame K	72.7	29.8	29.0			2.76
	Acetaminophen	92.7	77.5	81.7			5.28
	Acetamiprid	75.6	67.1	68.2			1.62
	Afidopyropen	56.9	53.5	53.1			0.775
	AMPA	84.7	48.6	42.7			5.28
	Anatoxin-a	109	114	115			0.721
	Bentazon	75.0	46.3	39.6			4.84
	Benzovindiflupyr	71.8	64.8	63.2			2.40
	Carbamazepine	64.1	53.9	56.6			4.85
	Clothianidin	89.3	59.9	61.4			2.53
	Cylindrospermopsin	112	111	108			2.53
	Desmethyl microcystin LR	106	123	119			3.06
	Dinotefuran	100	78.8	83.2			4.79
	Diuron	66.9	54.1	52.8			2.22
	Endothall	107	90.2	106			16.4
	Fenuron	105	68.2	72.4			5.91
	Fluridone	77.3	75.4	94.7			17.2
	Glufosinate	100	182	152			17.7
	Glyphosate	108	510	446			6.17
	Hydrocodone	93.4	64.7	70.3			8.37
	Ibuprofen	77.7	71.2	83.5			15.8
	Imazapyr	80.5					7.74
	Imidacloprid	105	109	118			6.78
	Linuron	75.9	67.1	68.9			2.58
	Mandestrobin	77.5	70.5	75.6			7.03
	MCPP	101	110	111			0.860
	Microcystin LA	115	117	113			2.72
	Microcystin LF	94.6	90.4	110			19.5
	Microcystin LR	105	126	121			4.41
	Microcystin LW	109	127	116			8.61
	Microcystin LY	109	112	106			5.42
	Microcystin RR	115	123	122			0.694
	Microcystin WR	106	119	120			0.832
	Microcystin YR	105	118	120			1.51
	Naproxen	47.6	63.2	49.2			24.9
	Primidone	87.0	76.8	79.3			3.13
	Pyraclostrobin	57.6	60.2	59.1			1.77
	Sucralose	104	22.1	19.2			8.16
	Thiamethoxam	90.6	72.7	71.8			1.14
	Tolfenpyrad	44.7	48.2	51.7			6.96
	Triclopyr	63.1	87.4	87.5			0.124

Reference Method Descriptions

Method	Description	Associated Samples
EPA 350.1 Rev. 2.0	Ammonia in aqueous matrices as mg N/L	2193516, 2193517
EPA 351.2 Rev. 2.0	Total Kjeldahl Nitrogen in aqueous matrices	2193516, 2193517

Reference Method Descriptions

Method	Description	<u>Associated Samples</u>
EPA 353.2 Rev. 2.0	Nitrite/Nitrate in aqueous matrices as mg N/L	2193516, 2193517
EPA 365.1 Rev. 2.0	Total Phosphorus in aqueous matrices as mg P/L	2193516, 2193517
EPA 365.1 Rev. 2.0 dissolved	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	2193520, 2193521
EPA 8321B	Microcystins in water matrices by HPLC/MS/MS	2193512, 2193513, 2193514, 2193515
EPA 8321B	Pesticides, herbicides, and other chemicals in water matrices by HPLC/MS/MS	2193508, 2193509
EPA 8321B	Water soluble organic compounds by HPLC/MS/MS	2193508, 2193509

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	09/02/2020			09/06/2020 14:32	Ping Hua	2193516
	09/02/2020			09/06/2020 14:43	Ping Hua	2193517
EPA 351.2 Rev. 2.0	09/02/2020	09/03/2020 09:45	Sima Feizi	09/04/2020 10:05	Elliott Rodriguez	2193516
	09/02/2020	09/03/2020 09:45	Sima Feizi	09/04/2020 10:07	Elliott Rodriguez	2193517
EPA 353.2 Rev. 2.0	09/02/2020			09/03/2020 09:41	Beverly Y. Sanders	2193516
	09/02/2020			09/03/2020 09:46	Beverly Y. Sanders	2193517
EPA 365.1 Rev. 2.0	09/02/2020	09/03/2020 15:02	Lipi Saha	09/16/2020 19:04	Benjamin T. Nordmann	2193516
	09/02/2020	09/03/2020 15:02	Lipi Saha	09/16/2020 19:05	Benjamin T. Nordmann	2193517
EPA 365.1 Rev. 2.0 dissolved	09/02/2020			09/02/2020 18:53	Virginia P. Brown	2193521
	09/02/2020			09/02/2020 18:58	Virginia P. Brown	2193520
EPA 8321B	09/02/2020	09/02/2020 14:00	Mohammad Ghaffari	09/02/2020 18:47	Pramila Ghimire	2193512
	09/02/2020	09/02/2020 14:00	Mohammad Ghaffari	09/02/2020 19:03	Pramila Ghimire	2193513
	09/02/2020	09/02/2020 14:00	Mohammad Ghaffari	09/02/2020 19:20	Pramila Ghimire	2193514
	09/02/2020	09/02/2020 14:00	Mohammad Ghaffari	09/02/2020 19:37	Pramila Ghimire	2193515
	09/02/2020	09/02/2020 14:30	Hoor Shaik	09/03/2020 05:07	Mohammad Ghaffari	2193508
	09/02/2020	09/02/2020 14:30	Hoor Shaik	09/03/2020 05:41	Mohammad Ghaffari	2193509
	09/02/2020	09/02/2020 14:30	Hoor Shaik	09/09/2020 12:38	Juyoung Kim	2193508
	09/02/2020	09/02/2020 14:30	Hoor Shaik	09/09/2020 13:13	Juyoung Kim	2193509
	09/02/2020	09/03/2020 10:00	Rebecca Ware	09/03/2020 13:02	Rebecca Ware	2193508
	09/02/2020	09/03/2020 10:00	Rebecca Ware	09/03/2020 13:13	Rebecca Ware	2193509
	09/02/2020	09/03/2020 10:00	Rebecca Ware	09/04/2020 14:17	Rebecca Ware	2193508
	09/02/2020	09/03/2020 10:00	Rebecca Ware	09/04/2020 14:31	Rebecca Ware	2193509
	09/02/2020	09/03/2020 10:00	Rebecca Ware	09/10/2020 14:03	Rebecca Ware	2193508
	09/02/2020	09/03/2020 10:00	Rebecca Ware	09/10/2020 14:15	Rebecca Ware	2193509