

Chemical Analysis Report

WQAP-2019-10-08-03

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

Event Description: **Algal Bloom Response - Bayou Chico**
Request ID: **RQ-2019-10-07-87**
Customer: **WQAP**
Project ID: **BLOOM-RESP**

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Date Certified: 25-OCT-2019 14:18



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: Bayou Chico West of W Street

Collection Date/Time: 10/07/2019 11:20

Field ID: HABNW846C01

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2125714	EPA 8321B	2,4-D	0.0020	U	ug/L	P371946	
		Acesulfame K**	0.10	U	ug/L	P372142	
		AMPA**	1.0	U	ug/L	P372142	MS
		Sucralose**	0.70		ug/L	P372142	
		Acetaminophen**	0.0080	U	ug/L	P371946	
		Acetamiprid**	0.0020	U	ug/L	P371946	
		Endothall**	0.25	U	ug/L	P372142	MS
		Glufosinate**	1.0	U	ug/L	P372142	
		Glyphosate**	1.0	U	ug/L	P372142	MS
		Afidopyropen**	0.0020	UJ	ug/L	P371946	
		Bentazon	8.0E-04	U	ug/L	P371946	
		Benzovindiflupyr**	0.0020	UJ	ug/L	P371946	
		Carbamazepine**	0.0056		ug/L	P371946	
		Clothianidin**	0.0020	U	ug/L	P371946	
		Dinotefuran**	0.0020	U	ug/L	P371946	
		Diuron	0.0020	U	ug/L	P371946	
		Fenuron	0.016	U	ug/L	P371946	
		Fluridone**	8.0E-04	U	ug/L	P371946	
		Imazapyr**	0.0057	I	ug/L	P371946	
		Hydrocodone**	0.0020	U	ug/L	P371946	
		Ibuprofen**	0.020	U	ug/L	P371946	
		Imidacloprid	0.040		ug/L	P371946	MS
		Linuron	0.0040	U	ug/L	P371946	
		Mandestrobin**	0.0020	UJ	ug/L	P371946	
		MCPP	0.0020	U	ug/L	P371946	
		Naproxen**	0.0080	U	ug/L	P371946	
		Primidone**	0.0040	U	ug/L	P371946	
		Pyraclostrobin**	0.0020	U	ug/L	P371946	
		Thiamethoxam**	0.0020	U	ug/L	P371946	MS
		Tolfenpyrad**	0.0020	U	ug/L	P371946	
		Triclopyr**	0.0040	U	ug/L	P371946	
2125716		Anatoxin-a**	0.25	U	ug/L	P372077	
		Cylindrospermopsin**	0.25	U	ug/L	P372077	
		Microcystin LA**	0.25	U	ug/L	P372077	
		Microcystin LF**	0.25	U	ug/L	P372077	
		Microcystin LR**	0.25	U	ug/L	P372077	
		Microcystin LY**	0.25	U	ug/L	P372077	
		Microcystin RR**	0.25	U	ug/L	P372077	
		Microcystin YR**	0.25	U	ug/L	P372077	
2125729	EPA 350.1 Rev. 2.0	Ammonia-N	0.22		mg N/L	P372300	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.61		mg N/L	P372193	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.48		mg N/L	P372355	
	EPA 365.1 Rev. 2.0	Total-P	0.059		mg P/L	P372183	

Field ID: HABNW846C01

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2125731	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.005	I	mg P/L	P372121	

Ref. Method and Comment:

EPA 8321B: J - second source check standards for some analytes were not available for analysis.

EPA 8321B: MDL elevated for some parameters due to matrix interference.

Sample Location: Center Bayou Chico north of Barrancas Ave

Collection Date/Time: 10/07/2019 12:15

Field ID: HABNW84601

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2125715	EPA 8321B	2,4-D	0.0033	I	ug/L	P371946	
		Acesulfame K**	0.10	U	ug/L	P372142	
		AMPA**	1.0	U	ug/L	P372142	MS
		Sucralose**	0.28		ug/L	P372142	
		Acetaminophen**	0.0080	U	ug/L	P371946	
		Acetamiprid**	0.0020	U	ug/L	P371946	
		Endothall**	0.25	U	ug/L	P372142	MS
		Glufosinate**	1.0	U	ug/L	P372142	
		Glyphosate**	1.0	U	ug/L	P372142	MS
		Afidopyropen**	0.0020	UJ	ug/L	P371946	
		Bentazon	8.0E-04	U	ug/L	P371946	
		Benzovindiflupyr**	0.0020	UJ	ug/L	P371946	
		Carbamazepine**	0.0017	I	ug/L	P371946	
		Clothianidin**	0.0020	U	ug/L	P371946	
		Dinotefuran**	0.0020	U	ug/L	P371946	
		Diuron	0.0020	U	ug/L	P371946	
		Fenuron	0.016	U	ug/L	P371946	
		Fluridone**	8.0E-04	U	ug/L	P371946	
		Imazapyr**	0.0040	U	ug/L	P371946	
		Hydrocodone**	0.0020	U	ug/L	P371946	
		Ibuprofen**	0.020	U	ug/L	P371946	
		Imidacloprid	0.0031	I	ug/L	P371946	MS
		Linuron	0.0040	U	ug/L	P371946	
		Mandestrobin**	0.0020	UJ	ug/L	P371946	
		MCPP	0.0020	U	ug/L	P371946	
		Naproxen**	0.0080	U	ug/L	P371946	
		Primidone**	0.0040	U	ug/L	P371946	
		Pyraclostrobin**	0.0020	U	ug/L	P371946	
		Thiamethoxam**	0.0020	U	ug/L	P371946	MS
		Tolfenpyrad**	0.0020	U	ug/L	P371946	
		Triclopyr**	0.0040	U	ug/L	P371946	
2125717		Anatoxin-a**	0.25	U	ug/L	P372077	
		Cylindrospermopsin**	0.25	U	ug/L	P372077	
		Microcystin LA**	0.25	U	ug/L	P372077	
		Microcystin LF**	0.25	U	ug/L	P372077	
		Microcystin LR**	0.25	U	ug/L	P372077	
		Microcystin LY**	0.25	U	ug/L	P372077	
		Microcystin RR**	0.25	U	ug/L	P372077	
		Microcystin YR**	0.25	U	ug/L	P372077	
2125730	EPA 350.1 Rev. 2.0	Ammonia-N	0.067		mg N/L	P372300	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.91		mg N/L	P372193	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.011		mg N/L	P372355	
	EPA 365.1 Rev. 2.0	Total-P	0.055		mg P/L	P372183	

Field ID: HABNW84601

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2125732	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.007	I	mg P/L	P372121	

Ref. Method and Comment:

EPA 8321B: J - second source check standards for some analytes were not available for analysis.

EPA 8321B: MDL elevated for some parameters due to matrix interference.

Quality Assurance Report Method Blank Results

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P372300

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P372193

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P372355

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P372183

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P372121

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

Reference Method: EPA 8321B
Batch ID: P371946

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
MCP	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: P371946

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: P372077

Component	Result	Code	Units
Anatoxin-a	0.25	U	ug/L
Cylindrospermopsin	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 LY	0.25	U	ug/L
Microcystin RR	0.25	U	ug/L
Microcystin YR	0.25	U	ug/L

Reference Method: EPA 8321B
Batch ID: P372142

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: P372300

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Ammonia-N	97.9		P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P372193

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Kjeldahl Nitrogen	95.2		P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P372355

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: P372183

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P372121

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
O-Phosphate-P	97.6		P	90 - 110

Reference Method: EPA 8321B
Batch ID: P371946

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2,4-D	110		P	40 - 160
Acetaminophen	75.0		P	30 - 160
Acetamiprid	91.1		P	40 - 160
Afidopyropen	72.7		P	40 - 160
Bentazon	99.7		P	30 - 160
Benzovindiflupyr	83.5		P	40 - 160
Carbamazepine	94.2		P	40 - 160
Clothianidin	83.5		P	40 - 160
Dinotefuran	88.0		P	40 - 160
Diuron	87.2		P	40 - 160
Fenuron	98.4		P	40 - 160
Fluridone	85.5		P	40 - 160
Hydrocodone	93.4		P	40 - 160
Ibuprofen	78.8		P	30 - 160
Imazapyr	116		P	40 - 160
Imidacloprid	96.0		P	40 - 160
Linuron	71.3		P	40 - 160
Mandestrobin	79.8		P	40 - 160
MCPP	115		P	40 - 160
Naproxen	82.8		P	40 - 160
Primidone	96.0		P	40 - 160
Pyraclostrobin	73.4		P	30 - 160

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 8321B
Batch ID: P371946

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Thiamethoxam	91.2		P	40 - 160
Tolfenpyrad	50.7		P	40 - 160
Triclopyr	80.7		P	30 - 160

Reference Method: EPA 8321B
Batch ID: P372077

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Anatoxin-a	119		P	40 - 140
Cylindrospermopsin	93.4		P	40 - 140
Microcystin LA	98.3		P	40 - 140
Microcystin LF	91.3		P	40 - 140
Microcystin LR	90.4		P	40 - 140
Microcystin LY	93.5		P	40 - 140
Microcystin RR	108		P	40 - 140
Microcystin YR	86.6		P	40 - 140

Reference Method: EPA 8321B
Batch ID: P372142

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Acesulfame K	75.8		P	40 - 150
AMPA	128		P	40 - 150
Endothall	94.9		P	40 - 150
Glufosinate	82.2		P	40 - 150
Glyphosate	96.3		P	40 - 140
Sucralose	78.2		P	40 - 150

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 350.1 Rev. 2.0
 Batch ID: P372300

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2125023	Ammonia-N	106	106	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
 Batch ID: P372193

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2125856	Kjeldahl Nitrogen	92.5	97.3	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
 Batch ID: P372355

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2125809	NO2NO3-N	104	104	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
 Batch ID: P372183

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2125811	Total-P	101	97.6	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
 Batch ID: P372121

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2125731	O-Phosphate-P	90.7	91.0	P/P	90 - 110

Reference Method: EPA 8321B
 Batch ID: P371946

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2124717	2,4-D	135	122	P/P	40 - 160
2124717	Acetaminophen	75.3	71.7	P/P	30 - 160
2124717	Acetamiprid	117	107	P/P	40 - 160
2124717	Afidopyropen	72.7	63.3	P/P	40 - 160
2124717	Bentazon	68.9	66.8	P/P	30 - 160
2124717	Benzovindiflupyr	91.5	78.7	P/P	40 - 160
2124717	Carbamazepine	104	96.6	P/P	40 - 160
2124717	Clothianidin	109	97.7	P/P	40 - 160
2124717	Dinotefuran	118	109	P/P	40 - 160
2124717	Diuron	85.7	83.0	P/P	40 - 160
2124717	Fenuron	91.4	86.1	P/P	40 - 160
2124717	Fluridone	91.1	88.1	P/P	40 - 160
2124717	Hydrocodone	99.9	91.2	P/P	40 - 160
2124717	Ibuprofen	84.6	77.3	P/P	30 - 160
2124717	Imazapyr	101	106	P/P	40 - 160
2124717	Imidacloprid	205	186	F/F	40 - 160
2124717	Linuron	81.3	80.0	P/P	40 - 160
2124717	Mandestrobin	88.1	78.9	P/P	40 - 160
2124717	MCP	147	137	P/P	40 - 160
2124717	Naproxen	103	105	P/P	40 - 160
2124717	Primidone	116	105	P/P	40 - 160
2124717	Pyraclostrobin	83.0	75.8	P/P	30 - 160

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 8321B
Batch ID: P371946

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2124717	Thiamethoxam	167	152	F/P	40 - 160
2124717	Tolfenpyrad	66.5	58.4	P/P	40 - 160
2124717	Triclopyr	118	90.5	P/P	30 - 160

Reference Method: EPA 8321B
Batch ID: P372077

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2125639	Anatoxin-a	134	131	P/P	40 - 140
2125639	Cylindrospermopsin	89.6	85.2	P/P	40 - 140
2125639	Microcystin LA	100	103	P/P	40 - 140
2125639	Microcystin LF	92.4	103	P/P	40 - 140
2125639	Microcystin LR	98.1	101	P/P	40 - 140
2125639	Microcystin LY	93.0	96.9	P/P	40 - 140
2125639	Microcystin RR	104	116	P/P	40 - 140
2125639	Microcystin YR	89.8	95.6	P/P	40 - 140

Reference Method: EPA 8321B
Batch ID: P372142

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2125877	Acesulfame K	44.3	44.6	P/P	40 - 150
2125877	AMPA	8.69	8.13	F/F	40 - 150
2125877	Endothall	174	188	F/F	40 - 150
2125877	Glufosinate	49.0	47.7	P/P	40 - 150
2125877	Glyphosate	40.7	38.0	P/F	40 - 140
2125877	Sucralose	101	108	P/P	40 - 150

Quality Assurance Report Precision

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P372300

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2125023	Ammonia-N	0.535	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P372193

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2125856	Kjeldahl Nitrogen	4.32	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P372355

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2125809	NO2NO3-N	0.0	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P372183

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2125811	Total-P	2.81	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P372121

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2125731	O-Phosphate-P	0.312	Spike	P	0 - 20

Reference Method: EPA 8321B
Batch ID: P371946

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2124717	2,4-D	9.54	Spike	P	0 - 30
2124717	Acetaminophen	4.93	Spike	P	0 - 30
2124717	Acetamiprid	8.65	Spike	P	0 - 30
2124717	Afidopyropen	13.8	Spike	P	0 - 30
2124717	Bentazon	3.04	Spike	P	0 - 30
2124717	Benzovindiflupyr	15.1	Spike	P	0 - 30
2124717	Carbamazepine	7.56	Spike	P	0 - 30
2124717	Clothianidin	10.9	Spike	P	0 - 30
2124717	Dinotefuran	8.14	Spike	P	0 - 30
2124717	Diuron	3.11	Spike	P	0 - 30
2124717	Fenuron	5.99	Spike	P	0 - 30
2124717	Fluridone	3.37	Spike	P	0 - 30
2124717	Hydrocodone	9.06	Spike	P	0 - 30
2124717	Ibuprofen	9.06	Spike	P	0 - 30
2124717	Imazapyr	4.96	Spike	P	0 - 30
2124717	Imidacloprid	10.0	Spike	P	0 - 30

Quality Assurance Report Precision

Reference Method: EPA 8321B
Batch ID: P371946

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2124717	Linuron	1.65	Spike	P	0 - 30
2124717	Mandestrobin	11.1	Spike	P	0 - 30
2124717	MCP	6.80	Spike	P	0 - 30
2124717	Naproxen	1.95	Spike	P	0 - 30
2124717	Primidone	9.76	Spike	P	0 - 30
2124717	Pyraclostrobin	9.05	Spike	P	0 - 30
2124717	Thiamethoxam	9.65	Spike	P	0 - 30
2124717	Tolfenpyrad	13.0	Spike	P	0 - 30
2124717	Triclopyr	26.8	Spike	P	0 - 30

Reference Method: EPA 8321B
Batch ID: P372077

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2125639	Anatoxin-a	2.21	Spike	P	0 - 30
2125639	Cylindrospermopsin	4.97	Spike	P	0 - 30
2125639	Microcystin LA	2.54	Spike	P	0 - 30
2125639	Microcystin LF	10.4	Spike	P	0 - 30
2125639	Microcystin LR	3.15	Spike	P	0 - 30
2125639	Microcystin LY	4.09	Spike	P	0 - 30
2125639	Microcystin RR	10.9	Spike	P	0 - 30
2125639	Microcystin YR	6.21	Spike	P	0 - 30

Reference Method: EPA 8321B
Batch ID: P372142

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2125877	Acesulfame K	0.656	Spike	P	0 - 30
2125877	AMPA	6.61	Spike	P	0 - 30
2125877	Endothall	8.06	Spike	P	0 - 30
2125877	Glufosinate	2.58	Spike	P	0 - 30
2125877	Glyphosate	4.04	Spike	P	0 - 30
2125877	Sucralose	5.81	Spike	P	0 - 30

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

Quality Assurance Report Surrogates

Lab Sample ID: 2125714
Field Sample ID: HABNW846C01

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	2,4-D-d3	120	P	30 - 160
EPA 8321B	Acetaminophen-d4	72.5	P	30 - 160
EPA 8321B	Bentazon-d7	87.9	P	30 - 160
EPA 8321B	Carbamazepine-d10	94.8	P	30 - 160
EPA 8321B	Diuron-d6	85.8	P	30 - 160
EPA 8321B	Endothall-d6	60.5	P	30 - 160
EPA 8321B	Endothall-d6	60.5	P	30 - 160
EPA 8321B	Glyphosate 13C 15N	112	P	30 - 160
EPA 8321B	Glyphosate 13C 15N	112	P	30 - 160
EPA 8321B	Ibuprofen-d3	85.7	P	30 - 160
EPA 8321B	Primidone-d5	101	P	30 - 160
EPA 8321B	Sucralose-d6	110	P	30 - 160
EPA 8321B	Sucralose-d6	110	P	30 - 160

Lab Sample ID: 2125715
Field Sample ID: HABNW84601

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	2,4-D-d3	127	P	30 - 160
EPA 8321B	Acetaminophen-d4	69.1	P	30 - 160
EPA 8321B	Bentazon-d7	88.6	P	30 - 160
EPA 8321B	Carbamazepine-d10	95.9	P	30 - 160
EPA 8321B	Diuron-d6	88.4	P	30 - 160
EPA 8321B	Endothall-d6	55.9	P	30 - 160
EPA 8321B	Endothall-d6	55.9	P	30 - 160
EPA 8321B	Glyphosate 13C 15N	59.2	P	30 - 160
EPA 8321B	Glyphosate 13C 15N	59.2	P	30 - 160
EPA 8321B	Ibuprofen-d3	81.7	P	30 - 160
EPA 8321B	Primidone-d5	100	P	30 - 160
EPA 8321B	Sucralose-d6	108	P	30 - 160
EPA 8321B	Sucralose-d6	108	P	30 - 160

Lab Sample ID: 2125716
Field Sample ID: HABNW846C01

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	Carbamazepine-d10	93.4	P	30 - 165

Lab Sample ID: 2125717
Field Sample ID: HABNW84601

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	Carbamazepine-d10	90.9	P	30 - 165

Quality Assurance Report Calibration Verification

Reference Method: EPA 8321B

Run ID: A94794

Included Lab Sample IDs: 2125716, 2125717

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Anatoxin-a	112	110	P/P	50 - 160
Cylindrospermopsin	102	101	P/P	60 - 160
Microcystin LA	104	102	P/P	50 - 160
Microcystin LF	93.1	99.7	P/P	60 - 160
Microcystin LR	87.5	99.5	P/P	60 - 160
Microcystin LY	90.5	98.6	P/P	60 - 160
Microcystin RR	114	109	P/P	60 - 160
Microcystin YR	86.2	90.3	P/P	60 - 160

Reference Method: EPA 365.1 Rev. 2.0 dissolved

Run ID: A94801

Included Lab Sample IDs: 2125731, 2125732

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	98.0	98.4	P/P	90 - 110
O-Phosphate-P	98.5	97.0	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A94822

Included Lab Sample IDs: 2125729, 2125730

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

Reference Method: EPA 8321B

Run ID: A94848

Included Lab Sample IDs: 2125714, 2125715

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Sucralose	78.2	73.3	P/P	60 - 160

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A94865

Included Lab Sample IDs: 2125729, 2125730

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	98.0	101	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A94868

Included Lab Sample IDs: 2125729, 2125730

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

Reference Method: EPA 8321B

Run ID: A94876

Included Lab Sample IDs: 2125714, 2125715

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
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Quality Assurance Report Calibration Verification

Reference Method: EPA 8321B

Run ID: A94876

Included Lab Sample IDs: 2125714, 2125715

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
2,4-D	82.7	93.3	P/P	50 - 150
Acetaminophen	94.7	88.6	P/P	60 - 160
Acetamiprid	107	104	P/P	50 - 150
Afidopyropen	84.2	90.3	P/P	50 - 150
Bentazon	101	102	P/P	50 - 160
Benzovindiflupyr	90.1	96.3	P/P	50 - 150
Carbamazepine	105	104	P/P	60 - 150
Clothianidin	92.9	97.5	P/P	60 - 150
Dinotefuran	99.5	97.9	P/P	50 - 150
Diuron	103	105	P/P	60 - 150
Fenuron	94.6	107	P/P	60 - 150
Fluridone	96.8	102	P/P	60 - 160
Hydrocodone	100	99.4	P/P	60 - 150
Ibuprofen	83.0	78.4	P/P	50 - 160
Imazapyr	108	106	P/P	50 - 150
Imidacloprid	93.8	97.5	P/P	60 - 150
Linuron	100	99.8	P/P	60 - 150
Mandestrobin	84.5	85.0	P/P	50 - 150
MCPP	77.2	77.3	P/P	50 - 150
Naproxen	74.5	90.3	P/P	50 - 160
Primidone	79.8	106	P/P	60 - 150
Pyraclostrobin	89.8	93.3	P/P	60 - 150
Thiamethoxam	103	95.6	P/P	50 - 150
Tolfenpyrad	102	104	P/P	60 - 150
Triclopyr	69.9	84.2	P/P	50 - 150

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A94898

Included Lab Sample IDs: 2125729, 2125730

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

Reference Method: EPA 8321B

Run ID: A94917

Included Lab Sample IDs: 2125714, 2125715

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
AMPA	100	124	P/P	60 - 160
Glufosinate	82.5	103	P/P	60 - 160
Glyphosate	91.6	97.1	P/P	60 - 160

Reference Method: EPA 8321B

Run ID: A95215

Included Lab Sample IDs: 2125714, 2125715

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Acesulfame K	153	76.3	P/P	60 - 160
Endothall	78.0	88.7	P/P	60 - 160

Quality Assurance Report

Calibration Verification

* 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	97.9	106	106			0.535
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	95.2	92.5	97.3			4.32
EPA 353.2 Rev. 2.0	NO ₂ NO ₃ -N	100	104	104			0.0
EPA 365.1 Rev. 2.0	Total-P	103	101	97.6			2.81
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	97.6	90.7	91.0			0.312
EPA 8321B	2,4-D	110	135	122			9.54
	Acesulfame K	75.8	44.3	44.6			0.656
	Acetaminophen	75.0	75.3	71.7			4.93
	Acetamiprid	91.1	117	107			8.65
	Afidopyropen	72.7	72.7	63.3			13.8
	AMPA	128	8.69	8.13			6.61
	Anatoxin-a	119	134	131			2.21
	Bentazon	99.7	68.9	66.8			3.04
	Benzovindiflupyr	83.5	91.5	78.7			15.1
	Carbamazepine	94.2	104	96.6			7.56
	Clothianidin	83.5	109	97.7			10.9
	Cylindrospermopsin	93.4	89.6	85.2			4.97
	Dinotefuran	88.0	118	109			8.14
	Diuron	87.2	85.7	83.0			3.11
	Endothall	94.9	174	188			8.06
	Fenuron	98.4	91.4	86.1			5.99
	Fluridone	85.5	91.1	88.1			3.37
	Glufosinate	82.2	49.0	47.7			2.58
	Glyphosate	96.3	40.7	38.0			4.04
	Hydrocodone	93.4	99.9	91.2			9.06
	Ibuprofen	78.8	84.6	77.3			9.06
	Imazapyr	116	101	106			4.96
	Imidacloprid	96.0	205	186			10.0
	Linuron	71.3	81.3	80.0			1.65
	Mandestrobin	79.8	88.1	78.9			11.1
	MCPP	115	147	137			6.80
	Microcystin LA	98.3	103	100			2.54
	Microcystin LF	91.3	103	92.4			10.4
	Microcystin LR	90.4	101	98.1			3.15
	Microcystin LY	93.5	96.9	93.0			4.09
	Microcystin RR	108	104	116			10.9
	Microcystin YR	86.6	95.6	89.8			6.21
	Naproxen	82.8	103	105			1.95
	Primidone	96.0	116	105			9.76
	Pyraclostrobin	73.4	83.0	75.8			9.05
	Sucralose	78.2	101	108			5.81
	Thiamethoxam	91.2	167	152			9.65
	Tolfenpyrad	50.7	66.5	58.4			13.0
	Triclopyr	80.7	118	90.5			26.8

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	2125729, 2125730
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	2125729, 2125730

Reference Method Descriptions

Method / DoH Cert #	Description	<u>Associated Samples</u>
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	2125729, 2125730
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	2125729, 2125730
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	2125731, 2125732
EPA 8321B / E31780	Microcystins in water matrices by HPLC/MS/MS	2125716, 2125717
EPA 8321B / E31780	Pesticides, herbicides, and other chemicals in water matrices by HPLC/MS/MS	2125714, 2125715
EPA 8321B / E31780	Water soluble organic compounds by HPLC/MS/MS	2125714, 2125715

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	10/08/2019			10/10/2019 12:07	Ping Hua	2125730
	10/08/2019			10/10/2019 15:00	Ping Hua	2125729
EPA 351.2 Rev. 2.0	10/08/2019	10/09/2019 12:05	Sima Feizi	10/10/2019 15:13	Julia Storbeck	2125729
	10/08/2019	10/09/2019 12:05	Sima Feizi	10/10/2019 15:14	Julia Storbeck	2125730
EPA 353.2 Rev. 2.0	10/08/2019			10/09/2019 09:42	Beverly Y. Sanders	2125729
	10/08/2019			10/09/2019 09:50	Beverly Y. Sanders	2125730
EPA 365.1 Rev. 2.0	10/08/2019	10/09/2019 14:19	Vijayalakshmi Reddy	10/11/2019 13:17	Lipi Saha	2125729
	10/08/2019	10/09/2019 14:19	Vijayalakshmi Reddy	10/11/2019 13:18	Lipi Saha	2125730
EPA 365.1 Rev. 2.0 dissolved	10/08/2019			10/08/2019 15:38	Julia Storbeck	2125731
	10/08/2019			10/08/2019 16:05	Julia Storbeck	2125732
EPA 8321B	10/08/2019	10/08/2019 12:40	Juyoung Kim	10/08/2019 12:58	Juyoung Kim	2125716
	10/08/2019	10/08/2019 12:40	Juyoung Kim	10/08/2019 13:15	Juyoung Kim	2125717
	10/08/2019	10/09/2019 09:00	Hoor Shaik	10/10/2019 01:49	Juyoung Kim	2125714
	10/08/2019	10/09/2019 09:00	Hoor Shaik	10/10/2019 02:24	Juyoung Kim	2125715
	10/08/2019	10/09/2019 09:45	Rebecca Ware	10/10/2019 01:38	Rebecca Ware	2125714
	10/08/2019	10/09/2019 09:45	Rebecca Ware	10/10/2019 01:50	Rebecca Ware	2125715
	10/08/2019	10/09/2019 09:45	Rebecca Ware	10/10/2019 11:22	Rebecca Ware	2125714
	10/08/2019	10/09/2019 09:45	Rebecca Ware	10/10/2019 11:36	Rebecca Ware	2125715
	10/08/2019	10/09/2019 09:45	Rebecca Ware	10/10/2019 18:43	Mohammad Ghaffari	2125714
	10/08/2019	10/09/2019 09:45	Rebecca Ware	10/10/2019 18:54	Mohammad Ghaffari	2125715