

Chemical Analysis Report

NW-DIST-2016-08-16-01

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

Event Description: **Bayou Chico BMAP**

Request ID: **RQ-2016-08-15-12**

Customer: **NW-DIST**

Project ID: **BMAP**

Send Reports to:
FL Dept. of Environmental Protection
160 Government Center
Suite 308
Pensacola, FL 32502-5794
Attn: Cheryl Bunch

For additional information please contact
Timothy W. Fitzpatrick
Liang-Tsair Lin, Ph.D.
Colin Wright, Ph.D.
Thekkekalathil Chandrasekhar, PhD, QA Officer
Phone (850) 245-8085

Certified by: Liang Lin, Environmental Administrator

Date Certified: 30-AUG-2016 15:27

A handwritten signature in black ink, appearing to read "Liang Lin", is written on a light-colored, textured background.

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 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: PENSACOLA BAY AT SANDERS BEACH

Collection Date/Time: 08/15/2016 10:20

Field ID: A

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1823653	EPA 180.1 Rev. 2.0	Turbidity	6.8	A	NTU	P309831	
1823660	EPA 350.1 Rev. 2.0	Ammonia-N	0.034		mg N/L	P309896	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.54		mg N/L	P309865	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.061		mg N/L	P309920	
	EPA 365.1 Rev. 2.0	Total-P	0.034		mg P/L	P309883	
1823667	EPA 8321B	Sucralose**	0.085		ug/L	P309703	MS
	USGS O-2060-01	Diuron	0.0040	U	ug/L	P309703	
		Fenuron	0.0080	U	ug/L	P309703	
		Imidacloprid	0.016	I	ug/L	P309703	MS
		Linuron	0.0040	U	ug/L	P309703	
		Acetaminophen**	0.0040	U	ug/L	P309703	
		Carbamazepine**	9.5E-04	I	ug/L	P309703	
		Primidone**	0.0080	U	ug/L	P309703	
		Fluridone**	4.0E-04	U	ug/L	P309703	

Sample Location: BAYOU CHICO AT MANDALAY PARK

Collection Date/Time: 08/15/2016 10:45

Field ID: B

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1823654	EPA 180.1 Rev. 2.0	Turbidity	3.7		NTU	P309831	
1823661	EPA 350.1 Rev. 2.0	Ammonia-N	0.060		mg N/L	P310052	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.66		mg N/L	P309864	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.22		mg N/L	P310021	
	EPA 365.1 Rev. 2.0	Total-P	0.036		mg P/L	P309882	
1823668	EPA 8321B	Sucralose**	0.024	IJ	ug/L	P309703	MS, SUR
	USGS O-2060-01	Diuron	0.0040	U	ug/L	P309703	
		Fenuron	0.0080	U	ug/L	P309703	
		Imidacloprid	0.015	I	ug/L	P309703	MS
		Linuron	0.0040	U	ug/L	P309703	
		Acetaminophen**	0.0088	I	ug/L	P309703	
		Carbamazepine**	0.0027		ug/L	P309703	
		Primidone**	0.0080	U	ug/L	P309703	
		Fluridone**	4.0E-04	U	ug/L	P309703	

Ref. Method and Comment:

EPA 350.1 Rev. 2.0: Batch matrix spike recoveries are unavailable because of high analyte concentration in the QC sample.

EPA 8321B: Refer to the narrative for an explanation of QC Codes. Sucralose-d6 surrogate spike recovery exceeding the control limits due to matrix interference.

Sample Location: JONES CREK AT OLD CORRY ROAD

Collection Date/Time: 08/15/2016 11:25

Field ID: C

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1823655	EPA 180.1 Rev. 2.0	Turbidity	3.2		NTU	P309831	
1823662	EPA 350.1 Rev. 2.0	Ammonia-N	0.059		mg N/L	P310052	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.79		mg N/L	P309949	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.077		mg N/L	P310021	

Field ID: C

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1823662	EPA 365.1 Rev. 2.0	Total-P	0.027		mg P/L	P309882	
1823669	EPA 8321B	Sucralose**	0.025	IJ	ug/L	P309703	MS, SUR
	USGS O-2060-01	Diuron	0.0040	U	ug/L	P309703	
		Fenuron	0.0080	U	ug/L	P309703	
		Imidacloprid	0.0077	I	ug/L	P309703	MS
		Linuron	0.0040	U	ug/L	P309703	
		Acetaminophen**	0.0040	U	ug/L	P309703	
		Carbamazepine**	0.0018		ug/L	P309703	
		Primidone**	0.0080	U	ug/L	P309703	
		Fluridone**	4.0E-04	U	ug/L	P309703	

Ref. Method and Comment:

EPA 350.1 Rev. 2.0: Batch matrix spike recoveries are unavailable because of high analyte concentration in the QC sample.

EPA 8321B: Refer to the narrative for an explanation of QC Codes. Sucralose-d6 surrogate spike recovery exceeding the control limits due to matrix interference.

Sample Location: JACKSON CREEK AT OLD CORRY ROAD

Collection Date/Time: 08/15/2016 11:50

Field ID: D

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1823656	EPA 180.1 Rev. 2.0	Turbidity	4.8		NTU	P309831	
1823663	EPA 350.1 Rev. 2.0	Ammonia-N	0.032		mg N/L	P310052	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.25		mg N/L	P309949	
	EPA 353.2 Rev. 2.0	NO2NO3-N	2.3		mg N/L	P310021	
	EPA 365.1 Rev. 2.0	Total-P	0.029		mg P/L	P309882	
1823670	EPA 8321B	Sucralose**	1.2		ug/L	P309703	MS
	USGS O-2060-01	Diuron	0.0057	I	ug/L	P309703	
		Fenuron	0.0080	U	ug/L	P309703	
		Imidacloprid	0.082		ug/L	P309703	MS
		Linuron	0.0040	U	ug/L	P309703	
		Acetaminophen**	0.0040	U	ug/L	P309703	
		Carbamazepine**	0.027		ug/L	P309703	
		Primidone**	0.0080	U	ug/L	P309703	
		Fluridone**	4.0E-04	U	ug/L	P309703	

Ref. Method and Comment:

EPA 350.1 Rev. 2.0: Batch matrix spike recoveries are unavailable because of high analyte concentration in the QC sample.

Sample Location: JACKSON CREEK AT NEW WARRINGTON ROAD

Collection Date/Time: 08/15/2016 12:10

Field ID: E

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1823657	EPA 180.1 Rev. 2.0	Turbidity	5.4		NTU	P309831	
1823664	EPA 350.1 Rev. 2.0	Ammonia-N	0.030		mg N/L	P310052	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.29		mg N/L	P309949	
	EPA 353.2 Rev. 2.0	NO2NO3-N	2.2		mg N/L	P310022	MS
	EPA 365.1 Rev. 2.0	Total-P	0.029		mg P/L	P309882	
1823671	EPA 8321B	Sucralose**	0.91		ug/L	P309703	MS
	USGS O-2060-01	Diuron	0.0058	I	ug/L	P309703	

Field ID: E

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1823671	USGS O-2060-01	Fenuron	0.0080	U	ug/L	P309703	
		Imidacloprid	0.065		ug/L	P309703	MS
		Linuron	0.0040	U	ug/L	P309703	
		Acetaminophen**	0.0040	U	ug/L	P309703	
		Carbamazepine**	0.020		ug/L	P309703	
		Primidone**	0.0080	U	ug/L	P309703	
		Fluridone**	4.0E-04	U	ug/L	P309703	

Ref. Method and Comment:

EPA 350.1 Rev. 2.0: Batch matrix spike recoveries are unavailable because of high analyte concentration in the QC sample.

Sample Location: BAYOU CHICO AT NAVY BLVD. BRIDGE

Collection Date/Time: 08/15/2016 13:40

Field ID: F

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1823658	EPA 180.1 Rev. 2.0	Turbidity	5.4		NTU	P309831	
1823665	EPA 350.1 Rev. 2.0	Ammonia-N	0.004	I	mg N/L	P310052	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.67		mg N/L	P309949	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.61		mg N/L	P310022	MS
	EPA 365.1 Rev. 2.0	Total-P	0.037		mg P/L	P309882	
1823672	EPA 8321B	Sucralose**	0.26		ug/L	P309703	MS
	USGS O-2060-01	Diuron	0.0054	I	ug/L	P309703	
		Fenuron	0.0080	U	ug/L	P309703	
		Imidacloprid	0.029		ug/L	P309703	MS
		Linuron	0.0040	U	ug/L	P309703	
		Acetaminophen**	0.011	I	ug/L	P309703	
		Carbamazepine**	0.0073		ug/L	P309703	
		Primidone**	0.0080	U	ug/L	P309703	
		Fluridone**	4.0E-04	U	ug/L	P309703	

Ref. Method and Comment:

EPA 350.1 Rev. 2.0: Batch matrix spike recoveries are unavailable because of high analyte concentration in the QC sample.

Sample Location: BAYOU CHICO AT W STREET

Collection Date/Time: 08/15/2016 14:10

Field ID: G

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1823659	EPA 180.1 Rev. 2.0	Turbidity	3.5		NTU	P309831	
1823666	EPA 350.1 Rev. 2.0	Ammonia-N	0.10		mg N/L	P310052	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.37		mg N/L	P309949	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.96		mg N/L	P310022	MS
	EPA 365.1 Rev. 2.0	Total-P	0.044		mg P/L	P309882	
1823673	EPA 8321B	Sucralose**	0.29		ug/L	P309703	MS
	USGS O-2060-01	Diuron	0.0040	U	ug/L	P309703	
		Fenuron	0.0080	U	ug/L	P309703	
		Imidacloprid	0.024		ug/L	P309703	MS
		Linuron	0.0040	U	ug/L	P309703	
		Acetaminophen**	0.0040	U	ug/L	P309703	
		Carbamazepine**	0.0066		ug/L	P309703	

Field ID: G

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1823673	USGS O-2060-01	Primidone**	0.0080	U	ug/L	P309703	
		Fluridone**	4.0E-04	U	ug/L	P309703	

Ref. Method and Comment:

EPA 350.1 Rev. 2.0: Batch matrix spike recoveries are unavailable because of high analyte concentration in the QC sample.

Quality Assurance Report

Method Blank Results

Reference Method: EPA 180.1 Rev. 2.0

Batch ID: P309831

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 350.1 Rev. 2.0

Batch ID: P309896

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

Reference Method: EPA 350.1 Rev. 2.0

Batch ID: P310052

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

Reference Method: EPA 351.2 Rev. 2.0

Batch ID: P309864

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

Reference Method: EPA 351.2 Rev. 2.0

Batch ID: P309865

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

Reference Method: EPA 351.2 Rev. 2.0

Batch ID: P309949

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

Reference Method: EPA 353.2 Rev. 2.0

Batch ID: P309920

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

Reference Method: EPA 353.2 Rev. 2.0

Batch ID: P310021

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

Quality Assurance Report Method Blank Results

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P310022

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P309882

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P309883

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

Reference Method: EPA 8321B
Batch ID: P309703

Component	Result	Code	Units
Sucralose	0.010	U	ug/L

Reference Method: USGS O-2060-01
Batch ID: P309703

Component	Result	Code	Units
Acetaminophen	0.0040	U	ug/L
Carbamazepine	4.0E-04	U	ug/L
Diuron	0.0040	U	ug/L
Fenuron	0.0080	U	ug/L
Fluridone	4.0E-04	U	ug/L
Imidacloprid	0.0040	U	ug/L
Linuron	0.0040	U	ug/L
Primidone	0.0080	U	ug/L

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P309896

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P310052

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Ammonia-N	97.1		P	90 - 110

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P309864

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Kjeldahl Nitrogen	96.8		P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P309865

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Kjeldahl Nitrogen	99.9		P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P309949

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Kjeldahl Nitrogen	97.8		P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P309920

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
NO2NO3-N	103		P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P310021

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
NO2NO3-N	102		P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P310022

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
NO2NO3-N	102		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P309882

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P309883

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

Reference Method: EPA 8321B
Batch ID: P309703

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Sucralose	96.4		P	40 - 140

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: USGS O-2060-01
Batch ID: P309703

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Acetaminophen	110		P	40 - 140
Carbamazepine	127		P	40 - 140
Diuron	53.2		P	40 - 140
Fenuron	108		P	40 - 140
Fluridone	97.6		P	40 - 140
Imidacloprid	106		P	40 - 160
Linuron	106		P	40 - 140
Primidone	101		P	40 - 140

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P309896

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1823660	Ammonia-N	105	103	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P309864

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1823474	Kjeldahl Nitrogen	101	101	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P309865

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1823385	Kjeldahl Nitrogen	96.1	105	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P309949

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1823446	Kjeldahl Nitrogen	96.1	99.8	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P309920

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1823286	NO2NO3-N	94.9	95.4	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P310021

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1823662	NO2NO3-N	92.6	93.6	P/P	90 - 110

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P310022

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1823805	NO2NO3-N	86.4	86.8	F/F	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P309882

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1823664	Total-P	97.6	101	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P309883

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1823386	Total-P	99.6	107	P/P	90 - 110

Reference Method: EPA 8321B
Batch ID: P309703

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1823456	Sucralose	27.6	23.4	F/F	40 - 140

Reference Method: USGS O-2060-01
Batch ID: P309703

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1823456	Acetaminophen	92.4	90.0	P/P	40 - 140
1823456	Carbamazepine	124	126	P/P	40 - 140
1823456	Diuron	60.0	68.4	P/P	40 - 140
1823456	Fenuron	92.0	92.4	P/P	40 - 140
1823456	Fluridone	83.6	83.6	P/P	40 - 140
1823456	Imidacloprid	269	280	F/F	40 - 160
1823456	Linuron	93.2	97.2	P/P	40 - 140
1823456	Primidone	107	112	P/P	40 - 140

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P309831

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1823653	Turbidity	0.292	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P309896

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1823660	Ammonia-N	1.27	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P310052

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1823661	Ammonia-N	1.18	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P309864

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1823474	Kjeldahl Nitrogen	0.294	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P309865

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1823385	Kjeldahl Nitrogen	6.38	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P309949

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1823446	Kjeldahl Nitrogen	2.84	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P309920

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1823286	NO2NO3-N	0.513	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P310021

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1823662	NO2NO3-N	0.760	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P310022

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1823805	NO2NO3-N	0.536	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P309882

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1823664	Total-P	2.80	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 365.1 Rev. 2.0

Batch ID: P309883

Replicated

Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1823386	Total-P	6.45	Spike	P	0 - 20

Reference Method: EPA 8321B

Batch ID: P309703

Replicated

Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1823456	Sucralose	16.5	Spike	P	0 - 30

Reference Method: USGS O-2060-01

Batch ID: P309703

Replicated

Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1823456	Acetaminophen	2.63	Spike	P	0 - 30
1823456	Carbamazepine	1.28	Spike	P	0 - 30
1823456	Diuron	13.1	Spike	P	0 - 30
1823456	Fenuron	0.434	Spike	P	0 - 30
1823456	Fluridone	0.0	Spike	P	0 - 30
1823456	Imidacloprid	4.22	Spike	P	0 - 30
1823456	Linuron	4.20	Spike	P	0 - 30
1823456	Primidone	5.11	Spike	P	0 - 30

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

Replicate spike precision may be reported when sample results are below quantifiable levels.

Quality Assurance Report Surrogates

Lab Sample ID: 1823667

Field Sample ID: A

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	Acetaminophen-d4	75.0	P	30 - 150
EPA 8321B	Carbamazepine-d10	126	P	40 - 160
EPA 8321B	Diuron-d6	68.2	P	40 - 150
EPA 8321B	Primidone-d5	112	P	40 - 150
EPA 8321B	Sucralose-d6	68.0	P	40 - 150
USGS O-2060-01	Acetaminophen-d4	75.0	P	30 - 150
USGS O-2060-01	Carbamazepine-d10	126	P	40 - 160
USGS O-2060-01	Diuron-d6	68.2	P	40 - 150
USGS O-2060-01	Primidone-d5	112	P	40 - 150
USGS O-2060-01	Sucralose-d6	68.0	P	40 - 150

Lab Sample ID: 1823668

Field Sample ID: B

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	Acetaminophen-d4	88.4	P	30 - 150
EPA 8321B	Carbamazepine-d10	90.8	P	40 - 160

Quality Assurance Report Surrogates

Lab Sample ID: 1823668

Field Sample ID: B

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	Diuron-d6	63.2	P	40 - 150
EPA 8321B	Primidone-d5	105	P	40 - 150
EPA 8321B	Sucralose-d6	13.1	F	40 - 150
USGS O-2060-01	Acetaminophen-d4	88.4	P	30 - 150
USGS O-2060-01	Carbamazepine-d10	90.8	P	40 - 160
USGS O-2060-01	Diuron-d6	63.2	P	40 - 150
USGS O-2060-01	Primidone-d5	105	P	40 - 150
USGS O-2060-01	Sucralose-d6	13.1	F	40 - 150

Lab Sample ID: 1823669

Field Sample ID: C

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	Acetaminophen-d4	98.6	P	30 - 150
EPA 8321B	Carbamazepine-d10	91.8	P	40 - 160
EPA 8321B	Diuron-d6	59.4	P	40 - 150
EPA 8321B	Primidone-d5	94.2	P	40 - 150
EPA 8321B	Sucralose-d6	11.5	F	40 - 150
USGS O-2060-01	Acetaminophen-d4	98.6	P	30 - 150
USGS O-2060-01	Carbamazepine-d10	91.8	P	40 - 160
USGS O-2060-01	Diuron-d6	59.4	P	40 - 150
USGS O-2060-01	Primidone-d5	94.2	P	40 - 150
USGS O-2060-01	Sucralose-d6	11.5	F	40 - 150

Lab Sample ID: 1823670

Field Sample ID: D

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	Acetaminophen-d4	110	P	30 - 150
EPA 8321B	Carbamazepine-d10	147	P	40 - 160
EPA 8321B	Diuron-d6	71.2	P	40 - 150
EPA 8321B	Primidone-d5	118	P	40 - 150
EPA 8321B	Sucralose-d6	63.5	P	40 - 150
USGS O-2060-01	Acetaminophen-d4	110	P	30 - 150
USGS O-2060-01	Carbamazepine-d10	147	P	40 - 160
USGS O-2060-01	Diuron-d6	71.2	P	40 - 150
USGS O-2060-01	Primidone-d5	118	P	40 - 150
USGS O-2060-01	Sucralose-d6	63.5	P	40 - 150

Lab Sample ID: 1823671

Field Sample ID: E

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	Acetaminophen-d4	99.6	P	30 - 150
EPA 8321B	Carbamazepine-d10	135	P	40 - 160
EPA 8321B	Diuron-d6	63.4	P	40 - 150
EPA 8321B	Primidone-d5	109	P	40 - 150
EPA 8321B	Sucralose-d6	68.0	P	40 - 150
USGS O-2060-01	Acetaminophen-d4	99.6	P	30 - 150
USGS O-2060-01	Carbamazepine-d10	135	P	40 - 160
USGS O-2060-01	Diuron-d6	63.4	P	40 - 150
USGS O-2060-01	Primidone-d5	109	P	40 - 150

Quality Assurance Report Surrogates

Lab Sample ID: 1823671

Field Sample ID: E

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
USGS O-2060-01	Sucralose-d6	68.0	P	40 - 150

Lab Sample ID: 1823672

Field Sample ID: F

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	Acetaminophen-d4	85.6	P	30 - 150
EPA 8321B	Carbamazepine-d10	116	P	40 - 160
EPA 8321B	Diuron-d6	67.6	P	40 - 150
EPA 8321B	Primidone-d5	127	P	40 - 150
EPA 8321B	Sucralose-d6	42.8	P	40 - 150
USGS O-2060-01	Acetaminophen-d4	85.6	P	30 - 150
USGS O-2060-01	Carbamazepine-d10	116	P	40 - 160
USGS O-2060-01	Diuron-d6	67.6	P	40 - 150
USGS O-2060-01	Primidone-d5	127	P	40 - 150
USGS O-2060-01	Sucralose-d6	42.8	P	40 - 150

Lab Sample ID: 1823673

Field Sample ID: G

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	Acetaminophen-d4	86.2	P	30 - 150
EPA 8321B	Carbamazepine-d10	121	P	40 - 160
EPA 8321B	Diuron-d6	61.0	P	40 - 150
EPA 8321B	Primidone-d5	132	P	40 - 150
EPA 8321B	Sucralose-d6	61.5	P	40 - 150
USGS O-2060-01	Acetaminophen-d4	86.2	P	30 - 150
USGS O-2060-01	Carbamazepine-d10	121	P	40 - 160
USGS O-2060-01	Diuron-d6	61.0	P	40 - 150
USGS O-2060-01	Primidone-d5	132	P	40 - 150
USGS O-2060-01	Sucralose-d6	61.5	P	40 - 150

Quality Assurance Report Calibration Verification

Reference Method: EPA 180.1 Rev. 2.0

Run ID: A71160

Included Lab Sample IDs: 1823653, 1823654, 1823655, 1823656, 1823657, 1823658, 1823659

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Turbidity	99.0	99.5	P/P	95 - 105

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A71183

Included Lab Sample IDs: 1823660

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

Quality Assurance Report Calibration Verification

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A71195

Included Lab Sample IDs: 1823660

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO2NO3-N	102	101	P/P	90 - 110

Reference Method: EPA 8321B

Run ID: A71198

Included Lab Sample IDs: 1823667, 1823668, 1823669, 1823670, 1823671, 1823672, 1823673

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Sucralose	114	114	P/P	70 - 150
Sucralose	114	115	P/P	70 - 150

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A71200

Included Lab Sample IDs: 1823660, 1823661

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

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A71224

Included Lab Sample IDs: 1823662, 1823663, 1823664, 1823665, 1823666

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	93.8	98.8	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A71229

Included Lab Sample IDs: 1823661, 1823662, 1823663, 1823664, 1823665, 1823666

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO2NO3-N	100	100	P/P	90 - 110
NO2NO3-N	100	101	P/P	90 - 110
NO2NO3-N	101	101	P/P	90 - 110
NO2NO3-N	99.5	100	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A71238

Included Lab Sample IDs: 1823661, 1823662, 1823663, 1823664, 1823665, 1823666

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

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A71244

Included Lab Sample IDs: 1823660, 1823661, 1823662, 1823663, 1823664, 1823665, 1823666

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	96.8	98.2	P/P	90 - 110
Total-P	98.2	97.8	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: USGS O-2060-01

Run ID: A71255

Included Lab Sample IDs: 1823667, 1823668, 1823669, 1823670, 1823671, 1823672, 1823673

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Acetaminophen	84.4	90.4	P/P	60 - 150
Acetaminophen	86.8	84.4	P/P	60 - 150
Carbamazepine	134	139	P/P	60 - 150
Carbamazepine	139	133	P/P	60 - 150
Diuron	80.8	86.8	P/P	60 - 150
Diuron	86.8	93.2	P/P	60 - 150
Fenuron	116	114	P/P	60 - 150
Fenuron	116	116	P/P	60 - 150
Fluridone	108	105	P/P	60 - 150
Fluridone	96.0	108	P/P	60 - 150
Imidacloprid	110	109	P/P	60 - 150
Imidacloprid	112	110	P/P	60 - 150
Linuron	122	115	P/P	60 - 150
Linuron	125	122	P/P	60 - 150
Primidone	91.2	104	P/P	60 - 150
Primidone	96.0	91.2	P/P	60 - 150

* 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 SMP	MS
EPA 180.1 Rev. 2.0	Turbidity				0.292	
EPA 350.1 Rev. 2.0	Ammonia-N	99.9	105 103			1.27
	Ammonia-N	97.1				1.18
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	96.8	101 101			0.294
	Kjeldahl Nitrogen	99.9	96.1 105			6.38
	Kjeldahl Nitrogen	97.8	96.1 99.8			2.84
EPA 353.2 Rev. 2.0	NO2NO3-N	103	94.9 95.4			0.513
	NO2NO3-N	102	92.6 93.6			0.760
	NO2NO3-N	102	86.4 86.8			0.536
EPA 365.1 Rev. 2.0	Total-P	102	97.6 101			2.80
	Total-P	97.9	99.6 107			6.45
EPA 8321B	Sucralose	96.4	27.6 23.4			16.5
USGS O-2060-01	Acetaminophen	110	92.4 90.0			2.63
	Carbamazepine	127	124 126			1.28
	Diuron	53.2	60.0 68.4			13.1
	Fenuron	108	92.0 92.4			0.434
	Fluridone	97.6	83.6 83.6			0.0
	Imidacloprid	106	269 280			4.22
	Linuron	106	93.2 97.2			4.20
	Primidone	101	107 112			5.11

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	1823653, 1823654, 1823655, 1823656, 1823657, 1823658, 1823659
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	1823660, 1823661, 1823662, 1823663, 1823664, 1823665, 1823666
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	1823660, 1823661, 1823662, 1823663, 1823664, 1823665, 1823666
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	1823660, 1823661, 1823662, 1823663, 1823664, 1823665, 1823666
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	1823660, 1823661, 1823662, 1823663, 1823664, 1823665, 1823666
EPA 8321B / E31780	Analysis of sucralose in water matrices by HPLC/MS/MS	1823667, 1823668, 1823669, 1823670, 1823671, 1823672, 1823673
USGS O-2060-01 / E31780	Urea herbicides and other chemicals in water matrices by HPLC/MS/MS	1823667, 1823668, 1823669, 1823670, 1823671, 1823672, 1823673

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
EPA 180.1 Rev. 2.0	08/16/2016			08/16/2016 16:27	Sima Feizi	1823653, 1823654, 1823655, 1823656, 1823657, 1823658, 1823659
EPA 350.1 Rev. 2.0	08/16/2016			08/17/2016	Julie Michelle Frank	1823660
	08/16/2016			08/21/2016	Julie Michelle Frank	1823661, 1823662, 1823663, 1823664, 1823665, 1823666
EPA 351.2 Rev. 2.0	08/16/2016	08/17/2016	Sofia Elnemr	08/18/2016	Christopher Armour	1823660, 1823661
	08/16/2016	08/18/2016	Martin Acosta	08/19/2016	Christopher Armour	1823662, 1823663, 1823664, 1823665, 1823666
EPA 353.2 Rev. 2.0	08/16/2016			08/17/2016	Beverly Y. Sanders	1823660
	08/16/2016			08/19/2016	Beverly Y. Sanders	1823661, 1823662, 1823663, 1823664, 1823665, 1823666
EPA 365.1 Rev. 2.0	08/16/2016	08/17/2016	Vijayalakshmi Reddy	08/22/2016	Lipi Saha	1823660, 1823661, 1823662, 1823663, 1823664, 1823665, 1823666
EPA 8321B	08/16/2016	08/16/2016	Hoor Shaik	08/17/2016	Mohammad Ghaffari	1823667, 1823668, 1823669, 1823670, 1823671, 1823672, 1823673
USGS O-2060-01	08/16/2016	08/16/2016	Hoor Shaik	08/20/2016	Juyoung Kim	1823667, 1823668, 1823669, 1823670, 1823671, 1823672, 1823673