

Chemical Analysis Report

NW-DIST-2016-09-20-01

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-2016-09-19-15**
Customer: **NW-DIST**
Project ID: **BMAP**

Send Reports to:
FL Dept. of Environmental Protection
160 Government Center
Suite 308
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Certified by: Thekkekalathil Chandrasekhar, Chemist Administrator Date Certified: 18-OCT-2016 16:34



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: 09/19/2016 10:10

Field ID: A

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1832697	EPA 180.1 Rev. 2.0	Turbidity	1.3		NTU	P311552	
1832704	EPA 350.1 Rev. 2.0	Ammonia-N	0.021		mg N/L	P311752	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.40		mg N/L	P311841	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.015		mg N/L	P311941	
	EPA 365.1 Rev. 2.0	Total-P	0.019		mg P/L	P312142	
1832719	EPA 8321B	Sucralose**	0.062		ug/L	P311358	
	USGS O-2060-01	Diuron	0.0040	U	ug/L	P311358	
		Fenuron	0.0080	U	ug/L	P311358	
		Imidacloprid	0.0040	U	ug/L	P311358	
		Linuron	0.0040	U	ug/L	P311358	
		Acetaminophen**	0.0040	U	ug/L	P311358	
		Carbamazepine**	4.0E-04	U	ug/L	P311358	
		Primidone**	0.0080	U	ug/L	P311358	
		Fluridone**	4.0E-04	U	ug/L	P311358	

Sample Location: BAYOU CHICO @ MANDALAY PARK

Collection Date/Time: 09/19/2016 10:35

Field ID: B

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1832698	EPA 180.1 Rev. 2.0	Turbidity	4.0	A	NTU	P311552	
1832705	EPA 350.1 Rev. 2.0	Ammonia-N	0.010		mg N/L	P311752	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.83		mg N/L	P311841	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.17		mg N/L	P311941	
	EPA 365.1 Rev. 2.0	Total-P	0.048		mg P/L	P312142	
1832720	EPA 8321B	Sucralose**	0.13		ug/L	P311358	
	USGS O-2060-01	Diuron	0.0096	I	ug/L	P311358	
		Fenuron	0.0080	U	ug/L	P311358	
		Imidacloprid	0.013	I	ug/L	P311358	
		Linuron	0.0040	U	ug/L	P311358	
		Acetaminophen**	0.0040	U	ug/L	P311358	
		Carbamazepine**	0.0013	I	ug/L	P311358	
		Primidone**	0.0080	U	ug/L	P311358	
		Fluridone**	4.0E-04	U	ug/L	P311358	

Sample Location: JONES CREEK @ OLD CORY ROAD

Collection Date/Time: 09/19/2016 11:10

Field ID: C

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1832699	EPA 180.1 Rev. 2.0	Turbidity	3.4		NTU	P311552	
1832706	EPA 350.1 Rev. 2.0	Ammonia-N	0.03		mg N/L	P311750	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.72		mg N/L	P311839	MS
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.094		mg N/L	P311899	
	EPA 365.1 Rev. 2.0	Total-P	0.025		mg P/L	P312098	
1832721	EPA 8321B	Sucralose**	0.084		ug/L	P311358	

Field ID: C

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1832721	USGS O-2060-01	Diuron	0.0040	U	ug/L	P311358	
		Fenuron	0.0080	U	ug/L	P311358	
		Imidacloprid	0.010	I	ug/L	P311358	
		Linuron	0.0040	U	ug/L	P311358	
		Acetaminophen**	0.0040	U	ug/L	P311358	
		Carbamazepine**	6.7E-04	I	ug/L	P311358	
		Primidone**	0.0080	U	ug/L	P311358	
		Fluridone**	4.0E-04	U	ug/L	P311358	

Sample Location: JACKSON CREEK @ OLD CORRY ROAD

Collection Date/Time: 09/19/2016 11:40

Field ID: D

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1832700	EPA 180.1 Rev. 2.0	Turbidity	3.5		NTU	P311552	
1832707	EPA 350.1 Rev. 2.0	Ammonia-N	0.029		mg N/L	P311750	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.22	J	mg N/L	P311839	MS
	EPA 353.2 Rev. 2.0	NO2NO3-N	2.1		mg N/L	P311896	
	EPA 365.1 Rev. 2.0	Total-P	0.025		mg P/L	P312098	
1832722	EPA 8321B	Sucralose**	1.1		ug/L	P311358	
	USGS O-2060-01	Diuron	0.0086	I	ug/L	P311358	
		Fenuron	0.0080	U	ug/L	P311358	
		Imidacloprid	0.047		ug/L	P311358	
		Linuron	0.0040	U	ug/L	P311358	
		Acetaminophen**	0.0040	U	ug/L	P311358	
		Carbamazepine**	0.018		ug/L	P311358	
		Primidone**	0.0080	U	ug/L	P311358	
		Fluridone**	4.0E-04	U	ug/L	P311358	

Ref. Method and Comment:
EPA 351.2 Rev. 2.0: Refer to the narrative for an explanation of QC Codes.

Sample Location: JACKSON CREEK AT NEW WARRINGTON ROAD

Collection Date/Time: 09/19/2016 12:10

Field ID: E

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1832701	EPA 180.1 Rev. 2.0	Turbidity	4.3		NTU	P311552	
1832708	EPA 350.1 Rev. 2.0	Ammonia-N	0.026		mg N/L	P311750	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.30		mg N/L	P311839	MS
	EPA 353.2 Rev. 2.0	NO2NO3-N	2.0		mg N/L	P311896	
	EPA 365.1 Rev. 2.0	Total-P	0.025		mg P/L	P312098	
1832723	EPA 8321B	Sucralose**	1.1		ug/L	P311358	
	USGS O-2060-01	Diuron	0.0076	I	ug/L	P311358	
		Fenuron	0.0080	U	ug/L	P311358	
		Imidacloprid	0.044		ug/L	P311358	
		Linuron	0.0040	U	ug/L	P311358	
		Acetaminophen**	0.0040	U	ug/L	P311358	

Field ID: E

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1832723	USGS O-2060-01	Carbamazepine**	0.017		ug/L	P311358	
		Primidone**	0.0080	U	ug/L	P311358	
		Fluridone**	4.0E-04	U	ug/L	P311358	

Sample Location: BAYOU CHICO @ NAVY BLVD BRIDGE

Collection Date/Time: 09/19/2016 13:30

Field ID: F

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1832702	EPA 180.1 Rev. 2.0	Turbidity	3.0		NTU	P311552	
1832709	EPA 350.1 Rev. 2.0	Ammonia-N	0.032		mg N/L	P311752	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.43		mg N/L	P311841	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.56		mg N/L	P312124	
	EPA 365.1 Rev. 2.0	Total-P	0.033		mg P/L	P312142	
1832724	EPA 8321B	Sucralose**	0.34		ug/L	P311358	
	USGS O-2060-01	Diuron	0.021		ug/L	P311358	
		Fenuron	0.0080	U	ug/L	P311358	
		Imidacloprid	0.0074	I	ug/L	P311358	
		Linuron	0.0040	U	ug/L	P311358	
		Acetaminophen**	0.0040	U	ug/L	P311358	
		Carbamazepine**	0.0046		ug/L	P311358	
		Primidone**	0.0080	U	ug/L	P311358	
		Fluridone**	4.0E-04	U	ug/L	P311358	

Sample Location: BAYOU CHICO @ W STREET

Collection Date/Time: 09/19/2016 13:50

Field ID: G

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1832703	EPA 180.1 Rev. 2.0	Turbidity	4.3		NTU	P311552	
1832710	EPA 350.1 Rev. 2.0	Ammonia-N	0.079		mg N/L	P311752	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.51		mg N/L	P311841	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.97		mg N/L	P312124	
	EPA 365.1 Rev. 2.0	Total-P	0.057		mg P/L	P312142	
1832725	EPA 8321B	Sucralose**	0.38		ug/L	P311358	
	USGS O-2060-01	Diuron	0.0044	I	ug/L	P311358	
		Fenuron	0.0080	U	ug/L	P311358	
		Imidacloprid	0.020		ug/L	P311358	
		Linuron	0.0040	U	ug/L	P311358	
		Acetaminophen**	0.0040	U	ug/L	P311358	
		Carbamazepine**	0.0048		ug/L	P311358	
		Primidone**	0.0080	U	ug/L	P311358	
		Fluridone**	4.0E-04	U	ug/L	P311358	

**Quality Assurance Report
 Method Blank Results**

Quality Assurance Report Method Blank Results

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P311552

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P311750

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P311752

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P311839

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P311841

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P311896

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P311899

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P311941

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P312124

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

Quality Assurance Report Method Blank Results

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P312098

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P312142

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

Reference Method: EPA 8321B
Batch ID: P311358

Component	Result	Code	Units
Sucralose	0.010	U	ug/L

Reference Method: USGS O-2060-01
Batch ID: P311358

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: P311750

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P311752

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P311839

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

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 351.2 Rev. 2.0
 Batch ID: P311841

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

Reference Method: EPA 353.2 Rev. 2.0
 Batch ID: P311896

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

Reference Method: EPA 353.2 Rev. 2.0
 Batch ID: P311899

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
NO2NO3-N	96.0		P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
 Batch ID: P311941

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

Reference Method: EPA 353.2 Rev. 2.0
 Batch ID: P312124

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

Reference Method: EPA 365.1 Rev. 2.0
 Batch ID: P312098

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total-P	98.4		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
 Batch ID: P312142

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total-P	94.6		P	90 - 110

Reference Method: EPA 8321B
 Batch ID: P311358

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Sucralose	88.1		P	40 - 140

Reference Method: USGS O-2060-01
 Batch ID: P311358

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Acetaminophen	103		P	40 - 140
Carbamazepine	85.2		P	40 - 140
Diuron	61.2		P	40 - 140
Fenuron	85.6		P	40 - 140

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: USGS O-2060-01
 Batch ID: P311358

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluridone	92.8		P	40 - 140
Imidacloprid	92.0		P	40 - 160
Linuron	82.4		P	40 - 140
Primidone	90.8		P	40 - 140

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 350.1 Rev. 2.0
 Batch ID: P311750

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1832561	Ammonia-N	97.6	98.3	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
 Batch ID: P311752

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1832704	Ammonia-N	104	104	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
 Batch ID: P311839

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1832707	Kjeldahl Nitrogen	88.1	90.5	F/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
 Batch ID: P311841

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1832710	Kjeldahl Nitrogen	94.7	108	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
 Batch ID: P311896

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1832579	NO2NO3-N	94.5	97.0	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
 Batch ID: P311899

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1833162	NO2NO3-N	90.6	93.2	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
 Batch ID: P311941

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1832648	NO2NO3-N	106	106	P/P	90 - 110

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P312124

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1832311	NO2NO3-N	104	104	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P312098

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1832598	Total-P	96.0	98.4	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P312142

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1832652	Total-P	95.0	95.6	P/P	90 - 110

Reference Method: EPA 8321B
Batch ID: P311358

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1831908	Sucralose	49.3	50.5	P/P	40 - 140

Reference Method: USGS O-2060-01
Batch ID: P311358

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1831908	Acetaminophen	60.0	56.4	P/P	40 - 140
1831908	Carbamazepine	62.0	60.4	P/P	40 - 140
1831908	Diuron	56.0	52.0	P/P	40 - 140
1831908	Fenuron	65.5	62.3	P/P	40 - 140
1831908	Fluridone	67.6	64.4	P/P	40 - 140
1831908	Imidacloprid	132	132	P/P	40 - 160
1831908	Linuron	66.4	56.0	P/P	40 - 140
1831908	Primidone	106	90.8	P/P	40 - 140

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P311552

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1832698	Turbidity	3.03	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P311750

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1832561	Ammonia-N	0.682	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P311752

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1832704	Ammonia-N	0.0578	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P311839

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1832707	Kjeldahl Nitrogen	2.23	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P311841

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1832710	Kjeldahl Nitrogen	10.6	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P311896

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1832579	NO2NO3-N	1.53	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P311899

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1833162	NO2NO3-N	2.54	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P311941

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1832648	NO2NO3-N	0.471	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P312124

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1832311	NO2NO3-N	0.0	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P312098

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1832598	Total-P	2.23	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 365.1 Rev. 2.0

Batch ID: P312142

Replicated

Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1832652	Total-P	0.718	Spike	P	0 - 20

Reference Method: EPA 8321B

Batch ID: P311358

Replicated

Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1831908	Sucralose	2.09	Spike	P	0 - 30

Reference Method: USGS O-2060-01

Batch ID: P311358

Replicated

Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1831908	Acetaminophen	6.19	Spike	P	0 - 30
1831908	Carbamazepine	2.61	Spike	P	0 - 30
1831908	Diuron	6.45	Spike	P	0 - 30
1831908	Fenuron	4.26	Spike	P	0 - 30
1831908	Fluridone	3.04	Spike	P	0 - 30
1831908	Imidacloprid	0.0	Spike	P	0 - 30
1831908	Linuron	17.0	Spike	P	0 - 30
1831908	Primidone	15.8	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: 1832719

Field Sample ID: A

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	Acetaminophen-d4	70.2	P	30 - 150
EPA 8321B	Carbamazepine-d10	96.8	P	40 - 160
EPA 8321B	Diuron-d6	74.8	P	40 - 150
EPA 8321B	Primidone-d5	113	P	40 - 150
EPA 8321B	Sucralose-d6	86.5	P	40 - 150
USGS O-2060-01	Acetaminophen-d4	70.2	P	30 - 150
USGS O-2060-01	Carbamazepine-d10	96.8	P	40 - 160
USGS O-2060-01	Diuron-d6	74.8	P	40 - 150
USGS O-2060-01	Primidone-d5	113	P	40 - 150
USGS O-2060-01	Sucralose-d6	86.5	P	40 - 150

Lab Sample ID: 1832720

Field Sample ID: B

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	Acetaminophen-d4	58.0	P	30 - 150
EPA 8321B	Carbamazepine-d10	74.0	P	40 - 160

Quality Assurance Report Surrogates

Lab Sample ID: 1832720

Field Sample ID: B

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	Diuron-d6	61.6	P	40 - 150
EPA 8321B	Primidone-d5	96.8	P	40 - 150
EPA 8321B	Sucralose-d6	58.5	P	40 - 150
USGS O-2060-01	Acetaminophen-d4	58.0	P	30 - 150
USGS O-2060-01	Carbamazepine-d10	74.0	P	40 - 160
USGS O-2060-01	Diuron-d6	61.6	P	40 - 150
USGS O-2060-01	Primidone-d5	96.8	P	40 - 150
USGS O-2060-01	Sucralose-d6	58.5	P	40 - 150

Lab Sample ID: 1832721

Field Sample ID: C

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	Acetaminophen-d4	80.6	P	30 - 150
EPA 8321B	Carbamazepine-d10	81.6	P	40 - 160
EPA 8321B	Diuron-d6	59.0	P	40 - 150
EPA 8321B	Primidone-d5	97.2	P	40 - 150
EPA 8321B	Sucralose-d6	53.0	P	40 - 150
USGS O-2060-01	Acetaminophen-d4	80.6	P	30 - 150
USGS O-2060-01	Carbamazepine-d10	81.6	P	40 - 160
USGS O-2060-01	Diuron-d6	59.0	P	40 - 150
USGS O-2060-01	Primidone-d5	97.2	P	40 - 150
USGS O-2060-01	Sucralose-d6	53.0	P	40 - 150

Lab Sample ID: 1832722

Field Sample ID: D

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	Acetaminophen-d4	72.0	P	30 - 150
EPA 8321B	Carbamazepine-d10	100	P	40 - 160
EPA 8321B	Diuron-d6	72.6	P	40 - 150
EPA 8321B	Primidone-d5	100	P	40 - 150
EPA 8321B	Sucralose-d6	84.0	P	40 - 150
USGS O-2060-01	Acetaminophen-d4	72.0	P	30 - 150
USGS O-2060-01	Carbamazepine-d10	100	P	40 - 160
USGS O-2060-01	Diuron-d6	72.6	P	40 - 150
USGS O-2060-01	Primidone-d5	100	P	40 - 150
USGS O-2060-01	Sucralose-d6	84.0	P	40 - 150

Lab Sample ID: 1832723

Field Sample ID: E

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	Acetaminophen-d4	71.2	P	30 - 150
EPA 8321B	Carbamazepine-d10	109	P	40 - 160
EPA 8321B	Diuron-d6	82.6	P	40 - 150
EPA 8321B	Primidone-d5	109	P	40 - 150
EPA 8321B	Sucralose-d6	95.0	P	40 - 150
USGS O-2060-01	Acetaminophen-d4	71.2	P	30 - 150
USGS O-2060-01	Carbamazepine-d10	109	P	40 - 160
USGS O-2060-01	Diuron-d6	82.6	P	40 - 150
USGS O-2060-01	Primidone-d5	109	P	40 - 150

Quality Assurance Report Surrogates

Lab Sample ID: 1832723

Field Sample ID: E

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
USGS O-2060-01	Sucralose-d6	95.0	P	40 - 150

Lab Sample ID: 1832724

Field Sample ID: F

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	Acetaminophen-d4	52.8	P	30 - 150
EPA 8321B	Carbamazepine-d10	87.2	P	40 - 160
EPA 8321B	Diuron-d6	57.0	P	40 - 150
EPA 8321B	Primidone-d5	79.8	P	40 - 150
EPA 8321B	Sucralose-d6	72.0	P	40 - 150
USGS O-2060-01	Acetaminophen-d4	52.8	P	30 - 150
USGS O-2060-01	Carbamazepine-d10	87.2	P	40 - 160
USGS O-2060-01	Diuron-d6	57.0	P	40 - 150
USGS O-2060-01	Primidone-d5	79.8	P	40 - 150
USGS O-2060-01	Sucralose-d6	72.0	P	40 - 150

Lab Sample ID: 1832725

Field Sample ID: G

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	Acetaminophen-d4	66.6	P	30 - 150
EPA 8321B	Carbamazepine-d10	86.4	P	40 - 160
EPA 8321B	Diuron-d6	63.8	P	40 - 150
EPA 8321B	Primidone-d5	95.6	P	40 - 150
EPA 8321B	Sucralose-d6	77.5	P	40 - 150
USGS O-2060-01	Acetaminophen-d4	66.6	P	30 - 150
USGS O-2060-01	Carbamazepine-d10	86.4	P	40 - 160
USGS O-2060-01	Diuron-d6	63.8	P	40 - 150
USGS O-2060-01	Primidone-d5	95.6	P	40 - 150
USGS O-2060-01	Sucralose-d6	77.5	P	40 - 150

Quality Assurance Report Calibration Verification

Reference Method: EPA 180.1 Rev. 2.0

Run ID: A71745

Included Lab Sample IDs: 1832697, 1832698, 1832699, 1832700, 1832701, 1832702, 1832703

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Turbidity	100	100	P/P	95 - 105

Reference Method: EPA 8321B

Run ID: A71761

Included Lab Sample IDs: 1832719, 1832720, 1832721, 1832722, 1832723, 1832724, 1832725

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Sucralose	112	99.3	P/P	70 - 150
Sucralose	99.3	104	P/P	70 - 150

Quality Assurance Report Calibration Verification

Reference Method: USGS O-2060-01

Run ID: A71763

Included Lab Sample IDs: 1832719, 1832720, 1832721, 1832722, 1832723, 1832724, 1832725

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Acetaminophen	82.4	86.0	P/P	60 - 150
Acetaminophen	86.0	77.6	P/P	60 - 150
Carbamazepine	105	111	P/P	60 - 150
Carbamazepine	111	93.2	P/P	60 - 150
Diuron	88.4	96.4	P/P	60 - 150
Diuron	95.2	88.4	P/P	60 - 150
Fenuron	95.6	98.4	P/P	60 - 150
Fenuron	98.4	95.6	P/P	60 - 150
Fluridone	100	106	P/P	60 - 150
Fluridone	106	100	P/P	60 - 150
Imidacloprid	81.2	80.8	P/P	60 - 150
Imidacloprid	88.4	81.2	P/P	60 - 150
Linuron	94.8	103	P/P	60 - 150
Linuron	99.6	94.8	P/P	60 - 150
Primidone	80.8	72.8	P/P	60 - 150
Primidone	88.4	80.8	P/P	60 - 150

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A71807

Included Lab Sample IDs: 1832704, 1832705, 1832706, 1832707, 1832708, 1832709, 1832710

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	101	99.9	P/P	90 - 110
Ammonia-N	102	101	P/P	90 - 110
Ammonia-N	99.8	99.8	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A71833

Included Lab Sample IDs: 1832704, 1832705

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

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A71854

Included Lab Sample IDs: 1832706, 1832707, 1832708

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO2NO3-N	93.0	92.0	P/P	90 - 110
NO2NO3-N	95.5	93.5	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A71889

Included Lab Sample IDs: 1832704, 1832705, 1832706, 1832707, 1832708, 1832709, 1832710

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	101	106	P/P	90 - 110
Kjeldahl Nitrogen	106	103	P/P	90 - 110
Kjeldahl Nitrogen	98.9	101	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: EPA 353.2 Rev. 2.0
 Run ID: A71894
 Included Lab Sample IDs: 1832709, 1832710

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

Reference Method: EPA 365.1 Rev. 2.0
 Run ID: A71979
 Included Lab Sample IDs: 1832704, 1832705, 1832706, 1832707, 1832708, 1832709, 1832710

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	100	102	P/P	90 - 110
Total-P	99.2	100	P/P	90 - 110

* 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				3.03	
EPA 350.1 Rev. 2.0	Ammonia-N	102	97.6 98.3			0.682
	Ammonia-N	104	104 104			0.0578
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	101	88.1 90.5			2.23
	Kjeldahl Nitrogen	101	94.7 108			10.6
EPA 353.2 Rev. 2.0	NO2NO3-N	99.0	94.5 97.0			1.53
	NO2NO3-N	96.0	90.6 93.2			2.54
	NO2NO3-N	104	106 106			0.471
	NO2NO3-N	101	104 104			0.0
EPA 365.1 Rev. 2.0	Total-P	98.4	96.0 98.4			2.23
	Total-P	94.6	95.0 95.6			0.718
EPA 8321B	Sucralose	88.1	49.3 50.5			2.09
USGS O-2060-01	Acetaminophen	103	60.0 56.4			6.19
	Carbamazepine	85.2	62.0 60.4			2.61
	Diuron	61.2	56.0 52.0			6.45
	Fenuron	85.6	65.5 62.3			4.26
	Fluridone	92.8	67.6 64.4			3.04
	Imidacloprid	92.0	132 132			0.0
	Linuron	82.4	66.4 56.0			17.0
	Primidone	90.8	106 90.8			15.8

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	1832697, 1832698, 1832699, 1832700, 1832701, 1832702, 1832703
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	1832704, 1832705, 1832706, 1832707, 1832708, 1832709, 1832710
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	1832704, 1832705, 1832706, 1832707, 1832708, 1832709, 1832710

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	1832704, 1832705, 1832706, 1832707, 1832708, 1832709, 1832710
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	1832704, 1832705, 1832706, 1832707, 1832708, 1832709, 1832710
EPA 8321B / E31780	Analysis of sucralose in water matrices by HPLC/MS/MS	1832719, 1832720, 1832721, 1832722, 1832723, 1832724, 1832725
USGS O-2060-01 / E31780	Urea herbicides and other chemicals in water matrices by HPLC/MS/MS	1832719, 1832720, 1832721, 1832722, 1832723, 1832724, 1832725

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	09/20/2016			09/20/2016 17:03	Blanca Fach	1832697, 1832698, 1832699, 1832700, 1832701, 1832702, 1832703
EPA 350.1 Rev. 2.0	09/20/2016			09/22/2016	Sofia Elnemr	1832704, 1832705, 1832706, 1832707, 1832708, 1832709, 1832710
EPA 351.2 Rev. 2.0	09/20/2016	09/26/2016	Adrian Shelby	09/27/2016	Christopher Armour	1832704, 1832705, 1832706, 1832707, 1832708, 1832709, 1832710
EPA 353.2 Rev. 2.0	09/20/2016			09/26/2016	Beverly Y. Sanders	1832704, 1832705
	09/20/2016			09/27/2016	Peter D. Kaus	1832706, 1832707, 1832708
	09/20/2016			09/28/2016	Beverly Y. Sanders	1832709, 1832710
EPA 365.1 Rev. 2.0	09/20/2016	09/29/2016	Vijayalakshmi Reddy	10/03/2016	Lipi Saha	1832704, 1832705, 1832706, 1832707, 1832708, 1832709, 1832710
EPA 8321B	09/20/2016	09/20/2016	Hoor Shaik	09/21/2016	Mohammad Ghaffari	1832719, 1832720, 1832721, 1832722, 1832723, 1832724, 1832725
USGS O-2060-01	09/20/2016	09/20/2016	Hoor Shaik	09/21/2016	Juyoung Kim	1832719, 1832720, 1832721, 1832722, 1832723, 1832724
	09/20/2016	09/20/2016	Hoor Shaik	09/22/2016	Juyoung Kim	1832725