

Chemical Analysis Report

NW-DIST-2016-07-19-02

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-2016-06-20-10**

Customer: **NW-DIST**

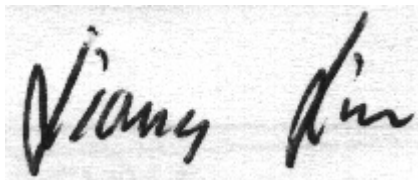
Project ID: **BMAP**

Send Reports to:
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Attn: Cheryl Bunch

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Certified by: Liang Lin, Environmental Administrator

Date Certified: 09-AUG-2016 14:54

A handwritten signature in black ink, appearing to read "Liang Lin", is shown on a light-colored 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: JACKSON CREEK AT OLD CORRY ROAD

Collection Date/Time: 07/18/2016 11:55

Field ID: A

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1816834	EPA 180.1 Rev. 2.0	Turbidity	2.0		NTU	P308229	
1816842	EPA 350.1 Rev. 2.0	Ammonia-N	0.037		mg N/L	P308435	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.33		mg N/L	P308335	
	EPA 353.2 Rev. 2.0	NO2NO3-N	2.5		mg N/L	P308816	
	EPA 365.1 Rev. 2.0	Total-P	0.029		mg P/L	P308261	
1816850	EPA 8321B	Sucralose**	1.3		ug/L	P308156	
	USGS O-2060-01	Diuron	0.023		ug/L	P308157	
		Fenuron	0.0080	U	ug/L	P308157	
		Imidacloprid	0.11		ug/L	P308157	MS
		Linuron	0.0040	U	ug/L	P308157	
		Acetaminophen**	0.0040	U	ug/L	P308157	
		Carbamazepine**	0.023		ug/L	P308157	
		Primidone**	0.0080	U	ug/L	P308157	
		Fluridone**	4.0E-04	U	ug/L	P308157	

Sample Location: BAYOU CHICO AT W STREET

Collection Date/Time: 07/18/2016 14:05

Field ID: B

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1816835	EPA 180.1 Rev. 2.0	Turbidity	3.0		NTU	P308229	
1816843	EPA 350.1 Rev. 2.0	Ammonia-N	0.11		mg N/L	P308431	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.58		mg N/L	P308337	MS
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.70		mg N/L	P308724	
	EPA 365.1 Rev. 2.0	Total-P	0.044		mg P/L	P308262	
1816851	EPA 8321B	Sucralose**	0.37		ug/L	P308156	
	USGS O-2060-01	Diuron	0.0040	U	ug/L	P308157	
		Fenuron	0.0080	U	ug/L	P308157	
		Imidacloprid	0.027		ug/L	P308157	MS
		Linuron	0.0040	U	ug/L	P308157	
		Acetaminophen**	0.0040	U	ug/L	P308157	
		Carbamazepine**	0.0054		ug/L	P308157	
		Primidone**	0.0080	U	ug/L	P308157	
		Fluridone**	4.0E-04	U	ug/L	P308157	

Ref. Method and Comment:

EPA 350.1 Rev. 2.0: Matrix spike recovery data is unavailable due to high analyte concentration in the QC sample.

Sample Location: BAYOU CHICO AT NAVY BLVD BRIDGE

Collection Date/Time: 07/18/2016 13:35

Field ID: C

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1816836	EPA 180.1 Rev. 2.0	Turbidity	2.7		NTU	P308229	
1816844	EPA 350.1 Rev. 2.0	Ammonia-N	0.009		mg N/L	P308431	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.49		mg N/L	P308337	MS
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.67		mg N/L	P308724	
	EPA 365.1 Rev. 2.0	Total-P	0.026		mg P/L	P308262	

Field ID: C

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1816852	EPA 8321B	Sucralose**	0.52		ug/L	P308156	
	USGS O-2060-01	Diuron	0.0040	U	ug/L	P308157	
		Fenuron	0.0080	U	ug/L	P308157	
		Imidacloprid	0.012	I	ug/L	P308157	MS
		Linuron	0.0040	U	ug/L	P308157	
		Acetaminophen**	0.0040	U	ug/L	P308157	
		Carbamazepine**	0.0066		ug/L	P308157	
		Primidone**	0.0080	U	ug/L	P308157	
		Fluridone**	4.0E-04	U	ug/L	P308157	

Ref. Method and Comment:

EPA 350.1 Rev. 2.0: Matrix spike recovery data is unavailable due to high analyte concentration in the QC sample.

Sample Location: JONES CREEK AT OLD CORRY ROAD

Collection Date/Time: 07/18/2016 11:30

Field ID: D

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1816837	EPA 180.1 Rev. 2.0	Turbidity	3.1		NTU	P308229	
1816845	EPA 350.1 Rev. 2.0	Ammonia-N	0.11		mg N/L	P308431	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.51		mg N/L	P308337	MS
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.10		mg N/L	P308724	
	EPA 365.1 Rev. 2.0	Total-P	0.048		mg P/L	P308262	
1816853	EPA 8321B	Sucralose**	0.17		ug/L	P308156	
	USGS O-2060-01	Diuron	0.0040	U	ug/L	P308157	
		Fenuron	0.0080	U	ug/L	P308157	
		Imidacloprid	0.010	I	ug/L	P308157	MS
		Linuron	0.0040	U	ug/L	P308157	
		Acetaminophen**	0.0040	U	ug/L	P308157	
		Carbamazepine**	9.6E-04	I	ug/L	P308157	
		Primidone**	0.0080	U	ug/L	P308157	
		Fluridone**	4.0E-04	U	ug/L	P308157	

Ref. Method and Comment:

EPA 350.1 Rev. 2.0: Matrix spike recovery data is unavailable due to high analyte concentration in the QC sample.

Sample Location: BAYOU CHICO AT MANDALAY PARK

Collection Date/Time: 07/18/2016 10:50

Field ID: E

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1816838	EPA 180.1 Rev. 2.0	Turbidity	2.6	A	NTU	P308230	
1816846	EPA 350.1 Rev. 2.0	Ammonia-N	0.004	I	mg N/L	P308431	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.53		mg N/L	P308337	MS
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.057		mg N/L	P308724	
	EPA 365.1 Rev. 2.0	Total-P	0.022		mg P/L	P308262	
1816854	EPA 8321B	Sucralose**	0.23		ug/L	P308156	
	USGS O-2060-01	Diuron	0.0040	U	ug/L	P308157	
		Fenuron	0.0080	U	ug/L	P308157	
		Imidacloprid	0.0048	I	ug/L	P308157	MS
		Linuron	0.0040	U	ug/L	P308157	

Field ID: E

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1816854	USGS O-2060-01	Acetaminophen**	0.0040	U	ug/L	P308157	
		Carbamazepine**	0.0028		ug/L	P308157	
		Primidone**	0.0080	U	ug/L	P308157	
		Fluridone**	4.0E-04	U	ug/L	P308157	

Ref. Method and Comment:

EPA 350.1 Rev. 2.0: Matrix spike recovery data is unavailable due to high analyte concentration in the QC sample.

Sample Location: PENSACOLA BAY AT SANDERS BEACH

Collection Date/Time: 07/18/2016 10:20

Field ID: F

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1816839	EPA 180.1 Rev. 2.0	Turbidity	1.6		NTU	P308230	
1816847	EPA 350.1 Rev. 2.0	Ammonia-N	0.005	I	mg N/L	P308431	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.38	I	mg N/L	P308337	MS
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.007	I	mg N/L	P308724	
	EPA 365.1 Rev. 2.0	Total-P	0.017		mg P/L	P308262	
1816855	EPA 8321B	Sucralose**	0.073		ug/L	P308156	
	USGS O-2060-01	Diuron	0.0040	U	ug/L	P308157	
		Fenuron	0.0080	U	ug/L	P308157	
		Imidacloprid	0.0040	U	ug/L	P308157	MS
		Linuron	0.0040	U	ug/L	P308157	
		Acetaminophen**	0.0040	U	ug/L	P308157	
		Carbamazepine**	4.7E-04	I	ug/L	P308157	
		Primidone**	0.0080	U	ug/L	P308157	
		Fluridone**	4.0E-04	U	ug/L	P308157	

Ref. Method and Comment:

EPA 350.1 Rev. 2.0: Matrix spike recovery data is unavailable due to high analyte concentration in the QC sample.

Sample Location: JACKSON CREEK AT NEW WARRINGTON ROAD

Collection Date/Time: 07/18/2016 12:20

Field ID: G

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1816840	EPA 180.1 Rev. 2.0	Turbidity	2.0		NTU	P308230	
1816848	EPA 350.1 Rev. 2.0	Ammonia-N	0.042		mg N/L	P308435	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.33		mg N/L	P308335	
	EPA 353.2 Rev. 2.0	NO2NO3-N	2.4		mg N/L	P308816	
	EPA 365.1 Rev. 2.0	Total-P	0.030		mg P/L	P308261	
1816856	EPA 8321B	Sucralose**	1.3		ug/L	P308156	
	USGS O-2060-01	Diuron	0.021		ug/L	P308157	
		Fenuron	0.0080	U	ug/L	P308157	
		Imidacloprid	0.069		ug/L	P308157	MS
		Linuron	0.0040	U	ug/L	P308157	
		Acetaminophen**	0.0040	U	ug/L	P308157	
		Carbamazepine**	0.023		ug/L	P308157	
		Primidone**	0.0080	U	ug/L	P308157	
		Fluridone**	4.0E-04	U	ug/L	P308157	

Sample Location: CLEAN EQUIPMENT BLANK

Collection Date/Time: 07/18/2016 10:10

Field ID: FIELD BLANK

Matrix: W-FIELD-BK

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1816841	EPA 180.1 Rev. 2.0	Turbidity	0.10	U	NTU	P308230	
1816849	EPA 350.1 Rev. 2.0	Ammonia-N	0.002	U	mg N/L	P308435	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.080	U	mg N/L	P308335	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P308816	
	EPA 365.1 Rev. 2.0	Total-P	0.004	I	mg P/L	P308261	

Ref. Method and Comment:

EPA 365.1 Rev. 2.0: Total-P: The result was confirmed on 08/04/2016.

Quality Assurance Report Method Blank Results

Reference Method: EPA 180.1 Rev. 2.0

Batch ID: P308229

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 180.1 Rev. 2.0

Batch ID: P308230

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 350.1 Rev. 2.0

Batch ID: P308431

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

Reference Method: EPA 350.1 Rev. 2.0

Batch ID: P308435

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

Reference Method: EPA 351.2 Rev. 2.0

Batch ID: P308335

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

Reference Method: EPA 351.2 Rev. 2.0

Batch ID: P308337

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

Reference Method: EPA 353.2 Rev. 2.0

Batch ID: P308724

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: P308816

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P308261

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P308262

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

Reference Method: EPA 8321B
Batch ID: P308156

Component	Result	Code	Units
Sucralose	0.010	U	ug/L

Reference Method: USGS O-2060-01
Batch ID: P308157

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: P308431

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P308435

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Ammonia-N	96.4		P	90 - 110

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P308335

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P308337

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P308724

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: P308816

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: P308261

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total-P	96.1		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P308262

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total-P	97.0		P	90 - 110

Reference Method: EPA 8321B
Batch ID: P308156

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Sucralose	115		P	40 - 140

Reference Method: USGS O-2060-01
Batch ID: P308157

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Acetaminophen	97.6		P	40 - 140
Carbamazepine	110		P	40 - 140
Diuron	44.0		P	40 - 140
Fenuron	98.4		P	40 - 140
Fluridone	102		P	40 - 140
Imidacloprid	99.6		P	40 - 160
Linuron	104		P	40 - 140
Primidone	108		P	40 - 140

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P308435

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1816769	Ammonia-N	95.5	97.9	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P308335

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1816768	Kjeldahl Nitrogen	100	109	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P308337

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1817114	Kjeldahl Nitrogen	93.7	88.9	P/F	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P308724

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1816846	NO2NO3-N	103	105	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P308816

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1816865	NO2NO3-N	98.7	100	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P308261

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1816767	Total-P	96.0	97.6	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P308262

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1816843	Total-P	99.5	98.6	P/P	90 - 110

Reference Method: EPA 8321B
Batch ID: P308156

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1816802	Sucralose	94.7	70.2	P/P	40 - 140

Reference Method: USGS O-2060-01
Batch ID: P308157

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1816802	Acetaminophen	48.4	63.6	P/P	40 - 140
1816802	Carbamazepine	60.0	70.0	P/P	40 - 140
1816802	Diuron	42.4	45.2	P/P	40 - 140
1816802	Fenuron	70.8	75.2	P/P	40 - 140

Quality Assurance Report Matrix Spike Accuracy

Reference Method: USGS O-2060-01
 Batch ID: P308157

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1816802	Fluridone	62.6	71.0	P/P	40 - 140
1816802	Imidacloprid	156	166	P/F	40 - 160
1816802	Linuron	64.8	87.6	P/P	40 - 140
1816802	Primidone	86.8	75.2	P/P	40 - 140

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
 Batch ID: P308229

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1816944	Turbidity	0.0	Sample	P	0 - 20

Reference Method: EPA 180.1 Rev. 2.0
 Batch ID: P308230

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1816838	Turbidity	0.388	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
 Batch ID: P308431

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1816843	Ammonia-N	0.733	Spike	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
 Batch ID: P308435

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1816769	Ammonia-N	1.58	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
 Batch ID: P308335

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1816768	Kjeldahl Nitrogen	6.48	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
 Batch ID: P308337

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1817114	Kjeldahl Nitrogen	4.46	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P308724

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1816846	NO2NO3-N	1.13	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P308816

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1816865	NO2NO3-N	1.20	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P308261

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1816767	Total-P	1.61	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P308262

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1816843	Total-P	0.888	Spike	P	0 - 20

Reference Method: EPA 8321B
Batch ID: P308156

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1816802	Sucralose	27.3	Spike	P	0 - 30

Reference Method: USGS O-2060-01
Batch ID: P308157

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1816802	Acetaminophen	27.1	Spike	P	0 - 30
1816802	Carbamazepine	15.4	Spike	P	0 - 30
1816802	Diuron	6.39	Spike	P	0 - 30
1816802	Fenuron	6.03	Spike	P	0 - 30
1816802	Fluridone	12.5	Spike	P	0 - 30
1816802	Imidacloprid	5.71	Spike	P	0 - 30
1816802	Linuron	29.9	Spike	P	0 - 30
1816802	Primidone	14.3	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

Quality Assurance Report Surrogates

Lab Sample ID: 1816850

Field Sample ID: A

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	Acetaminophen-d4	58.2	P	30 - 150
EPA 8321B	Carbamazepine-d10	118	P	40 - 160
EPA 8321B	Diuron-d6	57.8	P	40 - 150
EPA 8321B	Primidone-d5	98.4	P	40 - 150
EPA 8321B	Sucralose-d6	68.0	P	40 - 150
USGS O-2060-01	Acetaminophen-d4	58.2	P	30 - 150
USGS O-2060-01	Carbamazepine-d10	118	P	40 - 160
USGS O-2060-01	Diuron-d6	57.8	P	40 - 150
USGS O-2060-01	Primidone-d5	98.4	P	40 - 150
USGS O-2060-01	Sucralose-d6	68.0	P	40 - 150

Lab Sample ID: 1816851

Field Sample ID: B

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	Acetaminophen-d4	64.2	P	30 - 150
EPA 8321B	Carbamazepine-d10	114	P	40 - 160
EPA 8321B	Diuron-d6	67.4	P	40 - 150
EPA 8321B	Primidone-d5	93.4	P	40 - 150
EPA 8321B	Sucralose-d6	70.5	P	40 - 150
USGS O-2060-01	Acetaminophen-d4	64.2	P	30 - 150
USGS O-2060-01	Carbamazepine-d10	114	P	40 - 160
USGS O-2060-01	Diuron-d6	67.4	P	40 - 150
USGS O-2060-01	Primidone-d5	93.4	P	40 - 150
USGS O-2060-01	Sucralose-d6	70.5	P	40 - 150

Lab Sample ID: 1816852

Field Sample ID: C

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	Acetaminophen-d4	56.2	P	30 - 150
EPA 8321B	Carbamazepine-d10	115	P	40 - 160
EPA 8321B	Diuron-d6	63.6	P	40 - 150
EPA 8321B	Primidone-d5	103	P	40 - 150
EPA 8321B	Sucralose-d6	73.0	P	40 - 150
USGS O-2060-01	Acetaminophen-d4	56.2	P	30 - 150
USGS O-2060-01	Carbamazepine-d10	115	P	40 - 160
USGS O-2060-01	Diuron-d6	63.6	P	40 - 150
USGS O-2060-01	Primidone-d5	103	P	40 - 150
USGS O-2060-01	Sucralose-d6	73.0	P	40 - 150

Lab Sample ID: 1816853

Field Sample ID: D

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	Acetaminophen-d4	59.0	P	30 - 150
EPA 8321B	Carbamazepine-d10	111	P	40 - 160
EPA 8321B	Diuron-d6	58.2	P	40 - 150
EPA 8321B	Primidone-d5	75.2	P	40 - 150
EPA 8321B	Sucralose-d6	66.5	P	40 - 150
USGS O-2060-01	Acetaminophen-d4	59.0	P	30 - 150
USGS O-2060-01	Carbamazepine-d10	111	P	40 - 160

Quality Assurance Report Surrogates

Lab Sample ID: 1816853

Field Sample ID: D

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
USGS O-2060-01	Diuron-d6	58.2	P	40 - 150
USGS O-2060-01	Primidone-d5	75.2	P	40 - 150
USGS O-2060-01	Sucralose-d6	66.5	P	40 - 150

Lab Sample ID: 1816854

Field Sample ID: E

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	Acetaminophen-d4	61.0	P	30 - 150
EPA 8321B	Carbamazepine-d10	119	P	40 - 160
EPA 8321B	Diuron-d6	70.6	P	40 - 150
EPA 8321B	Primidone-d5	85.8	P	40 - 150
EPA 8321B	Sucralose-d6	68.5	P	40 - 150
USGS O-2060-01	Acetaminophen-d4	61.0	P	30 - 150
USGS O-2060-01	Carbamazepine-d10	119	P	40 - 160
USGS O-2060-01	Diuron-d6	70.6	P	40 - 150
USGS O-2060-01	Primidone-d5	85.8	P	40 - 150
USGS O-2060-01	Sucralose-d6	68.5	P	40 - 150

Lab Sample ID: 1816855

Field Sample ID: F

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	Acetaminophen-d4	67.8	P	30 - 150
EPA 8321B	Carbamazepine-d10	139	P	40 - 160
EPA 8321B	Diuron-d6	83.4	P	40 - 150
EPA 8321B	Primidone-d5	107	P	40 - 150
EPA 8321B	Sucralose-d6	80.5	P	40 - 150
USGS O-2060-01	Acetaminophen-d4	67.8	P	30 - 150
USGS O-2060-01	Carbamazepine-d10	139	P	40 - 160
USGS O-2060-01	Diuron-d6	83.4	P	40 - 150
USGS O-2060-01	Primidone-d5	107	P	40 - 150
USGS O-2060-01	Sucralose-d6	80.5	P	40 - 150

Lab Sample ID: 1816856

Field Sample ID: G

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	Acetaminophen-d4	69.8	P	30 - 150
EPA 8321B	Carbamazepine-d10	121	P	40 - 160
EPA 8321B	Diuron-d6	65.4	P	40 - 150
EPA 8321B	Primidone-d5	91.6	P	40 - 150
EPA 8321B	Sucralose-d6	69.0	P	40 - 150
USGS O-2060-01	Acetaminophen-d4	69.8	P	30 - 150
USGS O-2060-01	Carbamazepine-d10	121	P	40 - 160
USGS O-2060-01	Diuron-d6	65.4	P	40 - 150
USGS O-2060-01	Primidone-d5	91.6	P	40 - 150
USGS O-2060-01	Sucralose-d6	69.0	P	40 - 150

Quality Assurance Report Calibration Verification

Quality Assurance Report Calibration Verification

Reference Method: EPA 180.1 Rev. 2.0

Run ID: A70633

Included Lab Sample IDs: 1816834, 1816835, 1816836, 1816837, 1816838, 1816839, 1816840, 1816841

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Turbidity	100	99.0	P/P	95 - 105
Turbidity	99.0	99.5	P/P	95 - 105

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A70676

Included Lab Sample IDs: 1816842, 1816843, 1816844, 1816845, 1816846, 1816847, 1816848, 1816849

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	97.2	98.2	P/P	90 - 110
Total-P	97.5	98.2	P/P	90 - 110
Total-P	98.5	97.5	P/P	90 - 110

Reference Method: EPA 8321B

Run ID: A70689

Included Lab Sample IDs: 1816850, 1816851, 1816852, 1816853, 1816854, 1816855, 1816856

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Sucralose	100	89.1	P/P	70 - 150
Sucralose	96.4	100	P/P	70 - 150

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A70695

Included Lab Sample IDs: 1816842, 1816843, 1816844, 1816845, 1816846, 1816847, 1816848, 1816849

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	100	99.6	P/P	90 - 110
Ammonia-N	101	100	P/P	90 - 110
Ammonia-N	97.1	96.9	P/P	90 - 110

Reference Method: USGS O-2060-01

Run ID: A70719

Included Lab Sample IDs: 1816850, 1816851, 1816852, 1816853, 1816854, 1816855, 1816856

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Acetaminophen	84.8	73.6	P/P	60 - 150
Acetaminophen	84.8	84.8	P/P	60 - 150
Carbamazepine	118	120	P/P	60 - 150
Carbamazepine	124	118	P/P	60 - 150
Diuron	80.4	92.4	P/P	60 - 150
Diuron	92.4	98.4	P/P	60 - 150
Fenuron	112	115	P/P	60 - 150
Fenuron	115	112	P/P	60 - 150
Fluridone	101	93.2	P/P	60 - 150
Fluridone	93.2	102	P/P	60 - 150
Imidacloprid	102	107	P/P	60 - 150
Imidacloprid	115	102	P/P	60 - 150
Linuron	134	150	P/P	60 - 150
Linuron	140	134	P/P	60 - 150
Primidone	102	97.6	P/P	60 - 150
Primidone	114	102	P/P	60 - 150

Quality Assurance Report Calibration Verification

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A70734

Included Lab Sample IDs: 1816842, 1816843, 1816844, 1816845, 1816846, 1816847, 1816848, 1816849

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	101	108	P/P	90 - 110
Kjeldahl Nitrogen	103	107	P/P	90 - 110
Kjeldahl Nitrogen	107	103	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A70792

Included Lab Sample IDs: 1816843, 1816844, 1816845, 1816846, 1816847

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

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A70814

Included Lab Sample IDs: 1816842, 1816848, 1816849

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO2NO3-N	102	102	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				0.0	
	Turbidity				0.388	
EPA 350.1 Rev. 2.0	Ammonia-N	100				0.733
	Ammonia-N	96.4	95.5 97.9			1.58
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	103	100 109			6.48
	Kjeldahl Nitrogen	102	93.7 88.9			4.46
EPA 353.2 Rev. 2.0	NO2NO3-N	104	103 105			1.13
	NO2NO3-N	102	98.7 100			1.20
EPA 365.1 Rev. 2.0	Total-P	96.1	96.0 97.6			1.61
	Total-P	97.0	99.5 98.6			0.888
EPA 8321B	Sucralose	115	94.7 70.2			27.3
USGS O-2060-01	Acetaminophen	97.6	48.4 63.6			27.1
	Carbamazepine	110	60.0 70.0			15.4
	Diuron	44.0	42.4 45.2			6.39
	Fenuron	98.4	70.8 75.2			6.03
	Fluridone	102	62.6 71.0			12.5
	Imidacloprid	99.6	156 166			5.71
	Linuron	104	64.8 87.6			29.9
	Primidone	108	86.8 75.2			14.3

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	1816834, 1816835, 1816836, 1816837, 1816838, 1816839, 1816840, 1816841
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	1816842, 1816843, 1816844, 1816845, 1816846, 1816847, 1816848, 1816849
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	1816842, 1816843, 1816844, 1816845, 1816846, 1816847, 1816848, 1816849
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	1816842, 1816843, 1816844, 1816845, 1816846, 1816847, 1816848, 1816849
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	1816842, 1816843, 1816844, 1816845, 1816846, 1816847, 1816848, 1816849
EPA 8321B / E31780	Analysis of sucralose in water matrices by HPLC/MS/MS	1816850, 1816851, 1816852, 1816853, 1816854, 1816855, 1816856
USGS O-2060-01 / E31780	Urea herbicides and other chemicals in water matrices by HPLC/MS/MS	1816850, 1816851, 1816852, 1816853, 1816854, 1816855, 1816856

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	07/19/2016			07/19/2016 15:19	Rochelle Y Jackson	1816834, 1816835, 1816836, 1816837, 1816838, 1816839, 1816840, 1816841
EPA 350.1 Rev. 2.0	07/19/2016			07/21/2016	Diana M. Turner	1816842, 1816843, 1816844, 1816845, 1816846, 1816847, 1816848, 1816849
EPA 351.2 Rev. 2.0	07/19/2016	07/21/2016	Sofia Elnemr	07/22/2016	Christopher Armour	1816842, 1816843, 1816844, 1816845, 1816846, 1816847, 1816848, 1816849
EPA 353.2 Rev. 2.0	07/19/2016			07/27/2016	Peter D. Kaus	1816843, 1816844, 1816845, 1816846, 1816847
	07/19/2016			07/28/2016	Peter D. Kaus	1816842, 1816848, 1816849
EPA 365.1 Rev. 2.0	07/19/2016	07/20/2016	Vijayalakshmi Reddy	07/21/2016	Lipi Saha	1816842, 1816843, 1816844, 1816845, 1816846, 1816847, 1816848, 1816849
EPA 8321B	07/19/2016	07/21/2016	Hoor Shaik	07/21/2016	Mohammad Ghaffari	1816850, 1816851, 1816852, 1816853, 1816854, 1816855, 1816856
USGS O-2060-01	07/19/2016	07/21/2016	Hoor Shaik	07/23/2016	Juyoung Kim	1816850, 1816851, 1816852, 1816853, 1816854, 1816855, 1816856