

Chemical Analysis Report

NW-DIST-2018-04-17-02

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-2018-03-12-21**
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
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Phone (850) 245-8085

Certified by: Kerry Tate, Ph.D., Environmental Administrator

Date Certified: 07-MAY-2018 13:49

A handwritten signature in black ink that reads "Kerry Tate". The signature is written in a cursive, flowing style with a horizontal line above the first name.

NON-CONFORMANCE REPORT INCLUDED

Case Narrative

Unless otherwise noted, all samples included in this report were received in accordance with protocols referenced in Chapter 62-160, Florida Administrative Code (F.A.C.). Results published in this report pertain only to the samples as submitted to, and received by the laboratory. All times in this report are adjusted to the applicable Eastern Time Zone (EST or EDT).

Results for the following analytical groups are included in this report: Nutrients and Pesticides.

Scientific notation may be used in reporting very large or small values. Values reported using scientific notation will take the form of the following example: 1.3E+03, which is equivalent to 1.3×10^3 or 1300.

Unless otherwise noted, analytical values for soil and sediment samples are reported on a dry weight basis, and analytical values for waste and tissue samples are reported on a wet weight basis.

Results for TNI accredited tests met requirements established by The NELAC Institute. A double asterisk (**) is used to indicate an analyte/matrix/method for which the laboratory is not TNI accredited or where accreditation for that field of testing is not applicable.

Any significant anomalies or deviations from established protocols are documented in Non-Conformance Reports, which, where appropriate, are included within this analytical report. Additional comments related to specific analytical tests may be included as remarks following the analytical results for each sample. Such comments and remarks are for informational purposes only and are not intended to convey judgement about the usability of the reported data.

A quality control report on the performance of the test method for the submitted samples is included. Uncertainty associated with the analytical results contained in this report can be estimated from the reported quality assurance results and from published quality control acceptance limits for each analytical test. Matrix quality control results (matrix spike recoveries and matrix sample precision) pertain only to the matrix sample tested and do not necessarily reflect test method performance for other samples.

Typical matrix quality control (QC) measurements may include matrix spike recovery, matrix spike duplicate recovery, matrix spike precision and matrix sample precision. Not all matrix QC results may be available or reportable; where they are not an explanation is provided. Typical reasons for unavailable QC results include, but are not limited to, a) insufficient matrix sample to perform some or all QC measurements; b) analyte concentration in the sample replicated was too low for a meaningful measurement of precision and c) analyte concentration in the matrix sample spiked was too high (relative to the amount of analyte spiked) for a meaningful measurement of recovery. Where matrix QC results are unavailable, other method performance metrics (e.g., LCS recovery, LCS precision, surrogate recovery) may be used to assess performance of the method. Comments explaining any missing QC measurements are not intended to convey any adverse conclusions about the quality of the reported data.

Precision is reported as relative percent difference unless otherwise noted.

Quality Control codes as defined below may be used in this report to indicate results that are associated with one or more quality control elements which did not fall within established test method criteria. Such results may be qualified as estimates using a J qualifier as required by 62-160 F.A.C. Explanations are included in the report for any results that were reported as estimates for other reasons.

QC Codes used in this report may include:

- LCS – Recovery for the batch Laboratory Control Sample (LCS) was outside existing control limits;
- MS – Recovery for the batch matrix spike (MS) was outside existing control limits;
- CCV – Recovery for a continuing calibration verification (CCV) standard was outside existing control limits;
- SUR – Recovery of a surrogate (SUR) for associated analytes was outside existing control limits;
- RPD – The precision, measured as relative percent difference (RPD), of batch replicate measurements was outside existing control limits;
- RSD – The precision, measured as relative standard deviation (RSD), of batch replicate measurements was outside existing control limits;
- SMP – Sample - used precision derived from replicate analyses of a sample;

The following data qualifiers are used, where applicable, in this report as specified in 62-160 F.A.C.

- A - Value reported is the mean of two or more determinations.
- B - Results based on colony counts outside the acceptable range.
- I - The reported value is between the laboratory method detection limit and the laboratory practical quantitation limit.
- J - Estimated value and/or the analysis did not meet established quality control criteria.
- K - Actual value is known to be less than value given.
- L - Actual value is known to be greater than value given.
- N - Presumptive evidence of presence of material.
- O - Sampled, but analysis lost or not performed.
- Q - Sample held beyond normal holding time.
- T - Value reported is less than the criterion of detection.
- U - Material was analyzed for but not detected. The reported value is the method detection limit for the sample analyzed.
- V - Analyte was detected in both sample and method blank.
- X - Too few individuals to calculate SCI value.
- Y - The laboratory analysis was from an unpreserved or improperly preserved sample. The data may not be accurate.
- Z - Colonies were too numerous to count (TNTC).

Quality control information from overflow laboratories may not be included in this report. Please refer to the associated report from the overflow laboratory for additional information.

Sample Location: Bayou Chico at W St. Bridge

Collection Date/Time: 04/16/2018 14:50

Field ID: 33020JF1

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1984973	EPA 180.1 Rev. 2.0	Turbidity	17	A	NTU	P343609	
1984975	EPA 350.1 Rev. 2.0	Ammonia-N	0.064		mg N/L	P343776	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.37		mg N/L	P343641	
	EPA 353.2 Rev. 2.0	NO2NO3-N	1.2		mg N/L	P343746	
	EPA 365.1 Rev. 2.0	Total-P	0.053		mg P/L	P343713	
1984989	EPA 8321B	2,4-D	0.0020	U	ug/L	P343642	
		Bentazon	8.0E-04	U	ug/L	P343642	
		MCP	0.0020	U	ug/L	P343642	
		Triclopyr**	0.0040	U	ug/L	P343642	
		Imidacloprid	0.067		ug/L	P343642	
		Diuron	0.0058	I	ug/L	P343642	
		Pyraclostrobin**	0.0020	U	ug/L	P343642	
		Primidone**	0.0040	U	ug/L	P343642	
		Linuron	0.0040	U	ug/L	P343642	
		Acetaminophen**	0.0080	U	ug/L	P343642	
		Fenuron	0.016	U	ug/L	P343642	
		Imazapyr**	0.0043	I	ug/L	P343642	
		Carbamazepine**	0.0067		ug/L	P343642	
		Fluridone**	8.0E-04	U	ug/L	P343642	
		Hydrocodone**	8.0E-04	U	ug/L	P343642	
		Sucralose**	0.37	I	ug/L	P343495	

Sample Location: Bayou Chico at Navy Blvd. Bridge

Collection Date/Time: 04/16/2018 14:25

Field ID: 33020JE20

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1984974	EPA 180.1 Rev. 2.0	Turbidity	3.7		NTU	P343609	
1984976	EPA 350.1 Rev. 2.0	Ammonia-N	0.017		mg N/L	P343779	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.41		mg N/L	P343634	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.40		mg N/L	P343844	
	EPA 365.1 Rev. 2.0	Total-P	0.021		mg P/L	P343714	
1984990	EPA 8321B	2,4-D	0.0020	U	ug/L	P343642	
		Bentazon	8.0E-04	U	ug/L	P343642	
		MCP	0.0020	U	ug/L	P343642	
		Triclopyr**	0.0040	U	ug/L	P343642	
		Imidacloprid	0.010		ug/L	P343642	
		Diuron	0.021		ug/L	P343642	
		Pyraclostrobin**	0.0020	U	ug/L	P343642	
		Primidone**	0.0040	U	ug/L	P343642	
		Linuron	0.0040	U	ug/L	P343642	
		Acetaminophen**	0.0080	I	ug/L	P343642	
		Fenuron	0.016	U	ug/L	P343642	
		Imazapyr**	0.0040	U	ug/L	P343642	
		Carbamazepine**	0.0044		ug/L	P343642	

Field ID: 33020JE20

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1984990	EPA 8321B	Fluridone**	8.0E-04	U	ug/L	P343642	
		Hydrocodone**	8.0E-04	U	ug/L	P343642	
		Sucralose**	0.21	I	ug/L	P343495	

Sample Location: Jackson Creek at Old Corry Road

Collection Date/Time: 04/16/2018 11:10

Field ID: 33020221

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1984977	EPA 180.1 Rev. 2.0	Turbidity	1.8		NTU	P343609	
1984979	EPA 350.1 Rev. 2.0	Ammonia-N	0.015		mg N/L	P343776	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.21		mg N/L	P343641	
	EPA 353.2 Rev. 2.0	NO2NO3-N	2.7		mg N/L	P343746	
1984991	EPA 8321B	2,4-D	0.0020	U	ug/L	P343642	
		Bentazon	8.0E-04	U	ug/L	P343642	
		MCP	0.0020	U	ug/L	P343642	
		Triclopyr**	0.0040	U	ug/L	P343642	
		Imidacloprid	0.049		ug/L	P343642	
		Diuron	0.011		ug/L	P343642	
		Pyraclostrobin**	0.0020	U	ug/L	P343642	
		Primidone**	0.0040	U	ug/L	P343642	
		Linuron	0.0040	U	ug/L	P343642	
		Acetaminophen**	0.0080	U	ug/L	P343642	
		Fenuron	0.016	U	ug/L	P343642	
		Imazapyr**	0.0040	U	ug/L	P343642	
		Carbamazepine**	0.038		ug/L	P343642	
		Fluridone**	8.0E-04	U	ug/L	P343642	
		Hydrocodone**	8.0E-04	U	ug/L	P343642	
		Sucralose**	1.8		ug/L	P343495	

Sample Location: Jones Creek Upstream of New Warrington Rd

Collection Date/Time: 04/16/2018 12:20

Field ID: 33020117

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1984978	EPA 180.1 Rev. 2.0	Turbidity	5.7		NTU	P343609	
1984980	EPA 350.1 Rev. 2.0	Ammonia-N	0.01		mg N/L	P343776	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.51		mg N/L	P343641	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.061		mg N/L	P343746	
1984992	EPA 8321B	2,4-D	0.0020	U	ug/L	P343642	
		Bentazon	8.0E-04	U	ug/L	P343642	
		MCP	0.0024	I	ug/L	P343642	
		Triclopyr**	0.0040	U	ug/L	P343642	
		Imidacloprid	0.0022	I	ug/L	P343642	
		Diuron	0.0020	U	ug/L	P343642	
		Pyraclostrobin**	0.0020	U	ug/L	P343642	
		Primidone**	0.0040	U	ug/L	P343642	

Field ID: 33020117

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1984992	EPA 8321B	Linuron	0.0040	U	ug/L	P343642	
		Acetaminophen**	0.0080	U	ug/L	P343642	
		Fenuron	0.016	U	ug/L	P343642	
		Imazapyr**	0.0050	I	ug/L	P343642	
		Carbamazepine**	4.0E-04	U	ug/L	P343642	
		Fluridone**	8.0E-04	U	ug/L	P343642	
		Hydrocodone**	8.0E-04	U	ug/L	P343642	
		Sucralose**	0.12	I	ug/L	P343548	

Sample Location: Pensacola Bay at Sanders Beach

Collection Date/Time: 04/16/2018 09:50

Field ID: 33020J10

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1984981	EPA 180.1 Rev. 2.0	Turbidity	1.1		NTU	P343609	
1984982	EPA 350.1 Rev. 2.0	Ammonia-N	0.016		mg N/L	P343779	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.30	I	mg N/L	P343634	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.048		mg N/L	P343844	
	EPA 365.1 Rev. 2.0	Total-P	0.013		mg P/L	P343714	

Sample Location: Jones Creek at Old Corry Road

Collection Date/Time: 04/16/2018 10:45

Field ID: 33020118

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1984983	EPA 180.1 Rev. 2.0	Turbidity	4.4		NTU	P343609	
1984985	EPA 350.1 Rev. 2.0	Ammonia-N	0.016		mg N/L	P343776	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.49		mg N/L	P343641	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.087		mg N/L	P343746	
	EPA 365.1 Rev. 2.0	Total-P	0.025		mg P/L	P343713	

Sample Location: Bayou Chico at Mandalay Drive

Collection Date/Time: 04/16/2018 10:15

Field ID: 33020JD4

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1984984	EPA 180.1 Rev. 2.0	Turbidity	2.3		NTU	P343609	
1984986	EPA 350.1 Rev. 2.0	Ammonia-N	0.010		mg N/L	P343779	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.44		mg N/L	P343634	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.14		mg N/L	P343844	
	EPA 365.1 Rev. 2.0	Total-P	0.019		mg P/L	P343714	

Sample Location: Jackson Creek at New Warrington Rd

Collection Date/Time: 04/16/2018 12:00

Field ID: 33020222

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1984987	EPA 180.1 Rev. 2.0	Turbidity	2.4	A	NTU	P343610	
1984988	EPA 350.1 Rev. 2.0	Ammonia-N	0.012		mg N/L	P343776	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.23		mg N/L	P343641	

Field ID: 33020222

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1984988	EPA 353.2 Rev. 2.0	NO2NO3-N	2.8		mg N/L	P343746	
	EPA 365.1 Rev. 2.0	Total-P	0.019		mg P/L	P343828	

Non-Conformance Report

NCR ID: 6995

<u>Event(s)</u>	<u>Job(s)</u>	<u>Sample(s)</u>	<u>Test(s)</u>
NW-DIST-2018-04-17-02	TLH-2018-04-17-52	1984961	
NW-DIST-2018-04-17-02	TLH-2018-04-17-52	1984962	

NCR Type: ANALYSIS

NCR Category: Analytical Measurement

Observation: Samples for Test ID ENT-24-QT were not sealed properly due to a sealer malfunction.

Resolution: The data will be reported with a J qualifier as a precautionary measure due to possible contamination. The customer, Stephanie Sunderman-Barnes has been contacted.

Authorized by/Date: Cheryl A. Swanson 5/1/2018

NCR ID: 6999

<u>Event(s)</u>	<u>Job(s)</u>	<u>Sample(s)</u>	<u>Test(s)</u>
NW-DIST-2018-04-17-02	TLH-2018-04-17-52	1984963	

NCR Type: ANALYSIS

NCR Category: Analytical Measurement

Observation: The sample for Test ID ENT-24-QT was not sealed properly due to a sealer malfunction. Some of the sample was lost.

Resolution: The data will be reported as No Result with an O qualifier. The customer, Stephanie Sunderman-Barnes, has been contacted.

Authorized by/Date: Cheryl A. Swanson 5/1/2018

The Non-Conformance Report details exceptions or problems encountered with the events/jobs/samples/test.
 Please address questions to:

Chemistry	Colin Wright	(850) 245-8085
Biology	Cheryl Swanson	(850) 245-8177

Quality Assurance Report Method Blank Results

Reference Method: EPA 180.1 Rev. 2.0
 Batch ID: P343609

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 180.1 Rev. 2.0
 Batch ID: P343610

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 350.1 Rev. 2.0
 Batch ID: P343776

Component	Result	Code	Units
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Quality Assurance Report

Method Blank Results

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P343776

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P343779

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P343634

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P343641

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P343746

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P343844

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P343713

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P343714

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P343828

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

Quality Assurance Report Method Blank Results

Reference Method: EPA 8321B
Batch ID: P343495

Component	Result	Code	Units
Sucralose	0.10	U	ug/L

Reference Method: EPA 8321B
Batch ID: P343548

Component	Result	Code	Units
Sucralose	0.10	U	ug/L

Reference Method: EPA 8321B
Batch ID: P343642

Component	Result	Code	Units
2,4-D	0.0020	U	ug/L
Acetaminophen	0.0080	U	ug/L
Bentazon	8.0E-04	U	ug/L
Carbamazepine	4.0E-04	U	ug/L
Diuron	0.0020	U	ug/L
Fenuron	0.016	U	ug/L
Fluridone	8.0E-04	U	ug/L
Hydrocodone	8.0E-04	U	ug/L
Imazapyr	0.0040	U	ug/L
Imidacloprid	0.0020	U	ug/L
Linuron	0.0040	U	ug/L
MCPP	0.0020	U	ug/L
Primidone	0.0040	U	ug/L
Pyraclostrobin	0.0020	U	ug/L
Triclopyr	0.0040	U	ug/L

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P343776

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P343779

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Ammonia-N	98.9		P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P343634

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

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P343641

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P343746

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P343844

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P343713

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P343714

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total-P	106		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P343828

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total-P	105		P	90 - 110

Reference Method: EPA 8321B
Batch ID: P343495

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Sucralose	97.6		P	40 - 150

Reference Method: EPA 8321B
Batch ID: P343548

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Sucralose	118		P	40 - 150

Reference Method: EPA 8321B
Batch ID: P343642

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2,4-D	111		P	40 - 150
Acetaminophen	122		P	30 - 150
Bentazon	134		P	30 - 150
Carbamazepine	116		P	40 - 150

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 8321B
Batch ID: P343642

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Diuron	80.7		P	40 - 150
Fenuron	134		P	40 - 150
Fluridone	58.8		P	40 - 150
Hydrocodone	115		P	40 - 150
Imazapyr	107		P	40 - 150
Imidacloprid	129		P	40 - 160
Linuron	81.4		P	40 - 150
MCP	105		P	40 - 150
Primidone	139		P	40 - 150
Pyraclostrobin	59.7		P	40 - 150
Triclopyr	105		P	40 - 150

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P343776

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1984929	Ammonia-N	95.5	96.5	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P343779

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1984976	Ammonia-N	97.5	98.9	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P343634

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1983940	Kjeldahl Nitrogen	98.5	104	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P343641

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1984928	Kjeldahl Nitrogen	99.8	105	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P343746

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1984929	NO2NO3-N	103		P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P343844

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1984411	NO2NO3-N	102		P	90 - 110

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 365.1 Rev. 2.0
 Batch ID: P343713

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1984975	Total-P	107	102	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
 Batch ID: P343714

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1984976	Total-P	104	102	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
 Batch ID: P343828

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1984988	Total-P	97.3	103	P/P	90 - 110

Reference Method: EPA 8321B
 Batch ID: P343495

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1984479	Sucralose	57.0	51.4	P/P	40 - 150

Reference Method: EPA 8321B
 Batch ID: P343548

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1984992	Sucralose	51.9	48.9	P/P	40 - 150

Reference Method: EPA 8321B
 Batch ID: P343642

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1985615	2,4-D	68.9	71.4	P/P	40 - 150
1985615	Acetaminophen	116	120	P/P	30 - 150
1985615	Bentazon	70.5	89.7	P/P	30 - 150
1985615	Carbamazepine	106	110	P/P	40 - 150
1985615	Diuron	73.3	71.4	P/P	40 - 150
1985615	Fenuron	116	125	P/P	40 - 150
1985615	Fluridone	47.0	47.4	P/P	40 - 150
1985615	Hydrocodone	118	115	P/P	40 - 150
1985615	Imazapyr	78.0	82.2	P/P	40 - 150
1985615	Imidacloprid	128	136	P/P	40 - 160
1985615	Linuron	67.8	71.1	P/P	40 - 150
1985615	MCPP	74.6	66.9	P/P	40 - 150
1985615	Primidone	112	122	P/P	40 - 150
1985615	Pyraclostrobin	60.3	53.3	P/P	40 - 150
1985615	Triclopyr	70.9	70.3	P/P	40 - 150

Quality Assurance Report Precision

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P343609

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1984973	Turbidity	3.59	Sample	P	0 - 20

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P343610

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1984987	Turbidity	4.96	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P343776

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1984929	Ammonia-N	0.870	Spike	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P343779

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1984976	Ammonia-N	1.01	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P343634

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1983940	Kjeldahl Nitrogen	3.87	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P343641

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1984928	Kjeldahl Nitrogen	3.12	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P343746

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1984929	NO2NO3-N	0.491	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P343844

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1984411	NO2NO3-N	0.206	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P343713

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1984975	Total-P	4.92	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P343714

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1984976	Total-P	2.36	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P343828

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1984988	Total-P	5.71	Spike	P	0 - 20

Reference Method: EPA 8321B
Batch ID: P343495

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1984479	Sucralose	10.4	Spike	P	0 - 30

Reference Method: EPA 8321B
Batch ID: P343548

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1984992	Sucralose	5.19	Spike	P	0 - 30

Reference Method: EPA 8321B
Batch ID: P343642

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1985615	2,4-D	3.61	Spike	P	0 - 30
1985615	Acetaminophen	3.23	Spike	P	0 - 30
1985615	Bentazon	24.0	Spike	P	0 - 30
1985615	Carbamazepine	3.79	Spike	P	0 - 30
1985615	Diuron	2.69	Spike	P	0 - 30
1985615	Fenuron	7.51	Spike	P	0 - 30
1985615	Fluridone	0.994	Spike	P	0 - 30
1985615	Hydrocodone	2.47	Spike	P	0 - 30
1985615	Imazapyr	5.21	Spike	P	0 - 30
1985615	Imidacloprid	5.51	Spike	P	0 - 30
1985615	Linuron	4.75	Spike	P	0 - 30
1985615	MCPP	10.8	Spike	P	0 - 30
1985615	Primidone	9.12	Spike	P	0 - 30
1985615	Pyraclostrobin	12.3	Spike	P	0 - 30
1985615	Triclopyr	0.844	Spike	P	0 - 30

Quality Assurance Report Precision

* 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: 1984989
Field Sample ID: 33020JF1

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	2,4-D-d3	64.7	P	30 - 160
EPA 8321B	2,4-D-d3	64.7	P	30 - 160
EPA 8321B	Acetaminophen-d4	114	P	30 - 160
EPA 8321B	Acetaminophen-d4	114	P	30 - 160
EPA 8321B	Carbamazepine-d10	120	P	30 - 160
EPA 8321B	Carbamazepine-d10	120	P	30 - 160
EPA 8321B	Diuron-d6	74.3	P	30 - 160
EPA 8321B	Diuron-d6	74.3	P	30 - 160
EPA 8321B	Primidone-d5	120	P	30 - 160
EPA 8321B	Primidone-d5	120	P	30 - 160
EPA 8321B	Sucralose-d6	80.0	P	40 - 160
EPA 8321B	Sucralose-d6	80.0	P	40 - 160

Lab Sample ID: 1984990
Field Sample ID: 33020JE20

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	2,4-D-d3	55.5	P	30 - 160
EPA 8321B	2,4-D-d3	55.5	P	30 - 160
EPA 8321B	Acetaminophen-d4	123	P	30 - 160
EPA 8321B	Acetaminophen-d4	123	P	30 - 160
EPA 8321B	Carbamazepine-d10	114	P	30 - 160
EPA 8321B	Carbamazepine-d10	114	P	30 - 160
EPA 8321B	Diuron-d6	79.2	P	30 - 160
EPA 8321B	Diuron-d6	79.2	P	30 - 160
EPA 8321B	Primidone-d5	142	P	30 - 160
EPA 8321B	Primidone-d5	142	P	30 - 160
EPA 8321B	Sucralose-d6	60.2	P	40 - 160
EPA 8321B	Sucralose-d6	60.2	P	40 - 160

Lab Sample ID: 1984991
Field Sample ID: 33020221

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	2,4-D-d3	70.7	P	30 - 160
EPA 8321B	2,4-D-d3	70.7	P	30 - 160
EPA 8321B	Acetaminophen-d4	107	P	30 - 160
EPA 8321B	Acetaminophen-d4	107	P	30 - 160
EPA 8321B	Carbamazepine-d10	131	P	30 - 160
EPA 8321B	Carbamazepine-d10	131	P	30 - 160
EPA 8321B	Diuron-d6	96.4	P	30 - 160
EPA 8321B	Diuron-d6	96.4	P	30 - 160
EPA 8321B	Primidone-d5	132	P	30 - 160
EPA 8321B	Primidone-d5	132	P	30 - 160
EPA 8321B	Sucralose-d6	89.2	P	40 - 160

Quality Assurance Report Surrogates

Lab Sample ID: 1984991
Field Sample ID: 33020221

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	Sucralose-d6	89.2	P	40 - 160

Lab Sample ID: 1984992
Field Sample ID: 33020117

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	2,4-D-d3	125	P	30 - 160
EPA 8321B	2,4-D-d3	125	P	30 - 160
EPA 8321B	Acetaminophen-d4	128	P	30 - 160
EPA 8321B	Acetaminophen-d4	128	P	30 - 160
EPA 8321B	Carbamazepine-d10	126	P	30 - 160
EPA 8321B	Carbamazepine-d10	126	P	30 - 160
EPA 8321B	Diuron-d6	81.8	P	30 - 160
EPA 8321B	Diuron-d6	81.8	P	30 - 160
EPA 8321B	Primidone-d5	126	P	30 - 160
EPA 8321B	Primidone-d5	126	P	30 - 160
EPA 8321B	Sucralose-d6	50.4	P	40 - 160
EPA 8321B	Sucralose-d6	50.4	P	40 - 160

Quality Assurance Report Calibration Verification

Reference Method: EPA 180.1 Rev. 2.0
Run ID: A83304
Included Lab Sample IDs: 1984973, 1984974, 1984977, 1984978, 1984981, 1984983, 1984984, 1984987

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Turbidity	98.5	99.5	P/P	95 - 105
Turbidity	99.0	98.5	P/P	95 - 105

Reference Method: EPA 8321B
Run ID: A83332
Included Lab Sample IDs: 1984989, 1984990, 1984991

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Sucralose	92.2	95.6	P/P	60 - 150

Reference Method: EPA 8321B
Run ID: A83333
Included Lab Sample IDs: 1984992

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Sucralose	139	103	P/P	60 - 150

Reference Method: EPA 351.2 Rev. 2.0
Run ID: A83334
Included Lab Sample IDs: 1984976, 1984982, 1984986

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	99.5	102	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A83339

Included Lab Sample IDs: 1984975, 1984979, 1984980, 1984985, 1984988

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	102	103	P/P	90 - 110
Kjeldahl Nitrogen	103	107	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A83348

Included Lab Sample IDs: 1984975, 1984979, 1984980, 1984985, 1984988

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO2NO3-N	102	102	P/P	90 - 110
NO2NO3-N	103	104	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A83354

Included Lab Sample IDs: 1984975, 1984976, 1984979, 1984980, 1984982, 1984985, 1984986, 1984988

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	100	101	P/P	90 - 110
Ammonia-N	101	102	P/P	90 - 110
Ammonia-N	101	99.5	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A83382

Included Lab Sample IDs: 1984976, 1984982, 1984986

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

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A83407

Included Lab Sample IDs: 1984975, 1984976, 1984982, 1984985, 1984986

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	98.8	99.0	P/P	90 - 110
Total-P	99.5	98.8	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A83416

Included Lab Sample IDs: 1984988

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

Reference Method: EPA 8321B

Run ID: A83600

Included Lab Sample IDs: 1984989, 1984990, 1984991, 1984992

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
2,4-D	119	123	P/P	50 - 150
2,4-D	123	119	P/P	50 - 150
Acetaminophen	124	137	P/P	60 - 150
Bentazon	142	141	P/P	50 - 150

Quality Assurance Report Calibration Verification

Reference Method: EPA 8321B

Run ID: A83600

Included Lab Sample IDs: 1984989, 1984990, 1984991, 1984992

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Bentazon	144	142	P/P	50 - 150
Carbamazepine	136	127	P/P	60 - 150
Diuron	133	127	P/P	60 - 150
Fenuron	131	126	P/P	60 - 150
Fluridone	111	112	P/P	60 - 160
Hydrocodone	118	120	P/P	60 - 150
Imazapyr	96.8	109	P/P	50 - 150
Imidacloprid	126	122	P/P	60 - 150
Linuron	125	129	P/P	60 - 150
MCP	127	128	P/P	50 - 150
MCP	128	124	P/P	50 - 150
Primidone	110	135	P/P	60 - 150
Pyraclostrobin	95.1	106	P/P	60 - 150
Triclopyr	131	127	P/P	50 - 150
Triclopyr	136	131	P/P	50 - 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				3.59	
	Turbidity				4.96	
EPA 350.1 Rev. 2.0	Ammonia-N	97.6	95.5 96.5			0.870
	Ammonia-N	98.9	97.5 98.9			1.01
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	103	98.5 104			3.87
	Kjeldahl Nitrogen	106	99.8 105			3.12
EPA 353.2 Rev. 2.0	NO ₂ NO ₃ -N	100	103			0.491
	NO ₂ NO ₃ -N	100	102			0.206
EPA 365.1 Rev. 2.0	Total-P	107	107 102			4.92
	Total-P	106	104 102			2.36
	Total-P	105	97.3 103			5.71
EPA 8321B	2,4-D	111	68.9 71.4			3.61
	Acetaminophen	122	116 120			3.23
	Bentazon	134	70.5 89.7			24.0
	Carbamazepine	116	106 110			3.79
	Diuron	80.7	73.3 71.4			2.69
	Fenuron	134	116 125			7.51
	Fluridone	58.8	47.0 47.4			0.994
	Hydrocodone	115	118 115			2.47
	Imazapyr	107	78.0 82.2			5.21
	Imidacloprid	129	128 136			5.51
	Linuron	81.4	67.8 71.1			4.75
	MCP	105	74.6 66.9			10.8
	Primidone	139	112 122			9.12
	Pyraclostrobin	59.7	60.3 53.3			12.3

Quality Assurance Report Summary

Ref. Method	Analyte	LCS % Recovery	MS % Recovery		Precision	
					LCS	MS
EPA 8321B	Sucralose	97.6	57.0	51.4		10.4
	Sucralose	118	51.9	48.9		5.19
	Triclopyr	105	70.9	70.3		0.844

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	1984973, 1984974, 1984977, 1984978, 1984981, 1984983, 1984984, 1984987
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	1984975, 1984976, 1984979, 1984980, 1984982, 1984985, 1984986, 1984988
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	1984975, 1984976, 1984979, 1984980, 1984982, 1984985, 1984986, 1984988
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	1984975, 1984976, 1984979, 1984980, 1984982, 1984985, 1984986, 1984988
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	1984975, 1984976, 1984982, 1984985, 1984986, 1984988
EPA 8321B / E31780	Pesticides, herbicides, and other chemicals in water matrices by HPLC/MS/MS	1984989, 1984990, 1984991, 1984992

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	04/17/2018			04/17/2018 17:41	William L. Brown IV	1984973, 1984974, 1984977, 1984978, 1984981, 1984983, 1984984, 1984987
EPA 350.1 Rev. 2.0	04/17/2018			04/18/2018 13:00	Ping Hua	1984975
	04/17/2018			04/18/2018 13:02	Ping Hua	1984979
	04/17/2018			04/18/2018 13:03	Ping Hua	1984980
	04/17/2018			04/18/2018 13:12	Ping Hua	1984985
	04/17/2018			04/18/2018 13:14	Ping Hua	1984988
	04/17/2018			04/18/2018 14:33	Ping Hua	1984976
	04/17/2018			04/18/2018 14:35	Ping Hua	1984982
	04/17/2018			04/18/2018 14:36	Ping Hua	1984986
EPA 351.2 Rev. 2.0	04/17/2018	04/18/2018 10:10	Adrian Shelby	04/19/2018 09:00	Joseph Suarez	1984976
	04/17/2018	04/18/2018 10:10	Adrian Shelby	04/19/2018 09:02	Joseph Suarez	1984982
	04/17/2018	04/18/2018 10:10	Adrian Shelby	04/19/2018 09:03	Joseph Suarez	1984986
	04/17/2018	04/18/2018 11:00	Adrian Shelby	04/19/2018 13:16	Joseph Suarez	1984975
	04/17/2018	04/18/2018 11:00	Adrian Shelby	04/19/2018 13:17	Joseph Suarez	1984979
	04/17/2018	04/18/2018 11:00	Adrian Shelby	04/19/2018 13:19	Joseph Suarez	1984980
	04/17/2018	04/18/2018 11:00	Adrian Shelby	04/19/2018 13:24	Joseph Suarez	1984985
	04/17/2018	04/18/2018 11:00	Adrian Shelby	04/19/2018 13:25	Joseph Suarez	1984988
EPA 353.2 Rev. 2.0	04/17/2018			04/19/2018 11:54	Lauren Bottorf	1984985
	04/17/2018			04/19/2018 13:56	Lauren Bottorf	1984975
	04/17/2018			04/19/2018 13:57	Lauren Bottorf	1984979
	04/17/2018			04/19/2018 13:58	Lauren Bottorf	1984980
	04/17/2018			04/19/2018 13:59	Lauren Bottorf	1984988
	04/17/2018			04/20/2018 10:31	Lauren Bottorf	1984976
	04/17/2018			04/20/2018 10:32	Lauren Bottorf	1984982
	04/17/2018			04/20/2018 10:33	Lauren Bottorf	1984986
EPA 365.1 Rev. 2.0	04/17/2018	04/18/2018 14:25	Sima Feizi	04/23/2018 18:22	Beverly Y. Sanders	1984975
	04/17/2018	04/18/2018 14:25	Sima Feizi	04/23/2018 18:23	Beverly Y. Sanders	1984985
	04/17/2018	04/18/2018 14:25	Sima Feizi	04/23/2018 18:31	Beverly Y. Sanders	1984976
	04/17/2018	04/18/2018 14:25	Sima Feizi	04/23/2018 18:32	Beverly Y. Sanders	1984982
	04/17/2018	04/18/2018 14:25	Sima Feizi	04/23/2018 18:33	Beverly Y. Sanders	1984986
	04/17/2018	04/20/2018 12:57	Sima Feizi	04/24/2018 11:06	Beverly Y. Sanders	1984988
EPA 8321B	04/17/2018	04/17/2018 14:00	Hoor Shaik	04/17/2018 19:46	S. M. Reddy	1984989
	04/17/2018	04/17/2018 14:00	Hoor Shaik	04/17/2018 20:01	S. M. Reddy	1984990
	04/17/2018	04/17/2018 14:00	Hoor Shaik	04/17/2018 20:17	S. M. Reddy	1984991
	04/17/2018	04/18/2018 12:00	Hoor Shaik	04/18/2018 13:03	S. M. Reddy	1984992
	04/17/2018	04/20/2018 10:00	Hoor Shaik	04/22/2018 07:57	Julie Michelle Frank	1984989
	04/17/2018	04/20/2018 10:00	Hoor Shaik	04/22/2018 08:32	Julie Michelle Frank	1984990
	04/17/2018	04/20/2018 10:00	Hoor Shaik	04/22/2018 09:41	Julie Michelle Frank	1984991
	04/17/2018	04/20/2018 10:00	Hoor Shaik	04/22/2018 10:16	Julie Michelle Frank	1984992

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
EPA 8321B	04/17/2018	04/20/2018 10:00	Hoor Shaik	04/22/2018 23:32	Julie Michelle Frank	1984989
	04/17/2018	04/20/2018 10:00	Hoor Shaik	04/23/2018 00:07	Julie Michelle Frank	1984990
	04/17/2018	04/20/2018 10:00	Hoor Shaik	04/23/2018 00:42	Julie Michelle Frank	1984991
	04/17/2018	04/20/2018 10:00	Hoor Shaik	04/23/2018 01:16	Julie Michelle Frank	1984992