

Chemical Analysis Report

SW-DIST-2018-06-19-02

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

Event Description: **WOLF SIMS Mckay Rice**
Request ID: **RQ-2018-06-18-02**
Customer: **SW-DIST**
Project ID: **SMP**

Send Reports to:
FL Dept. of Environmental Protection
FL Dept. of Environmental Protection
13051 N. Telecom Parkway
Temple Terrace, FL 33637-0926
Attn: Ben Paswater

For additional information please contact
Colin Wright, Ph.D.
Liang-Tsair Lin, Ph.D.
Kerry Tate, Ph.D.
Dr. rer. nat. Bettina Steinbock
Thekkekalathil Chandrasekhar, Ph.D, QA Officer
Phone (850) 245-8085

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

Date Certified: 11-JUL-2018 10:43

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.

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: SIMS BRANCH @ PORT REDWING

Collection Date/Time: 06/18/2018 10:10

Field ID: G1SW0056

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2001750	EPA 180.1 Rev. 2.0	Turbidity	2.4		NTU	P347145	
	SM 2320 B-97	Total Alkalinity	117		mg CaCO3/L	P347811	
	SM 2540 D-97	TSS	7	I	mg/L	P347507	
	SM 4500 F-C-97	Fluoride	0.97		mg F/L	P347380	
2001754	EPA 350.1 Rev. 2.0	Ammonia-N	0.075		mg N/L	P347351	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.62		mg N/L	P347818	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.005	I	mg N/L	P347452	
	EPA 365.1 Rev. 2.0	Total-P	0.23		mg P/L	P347355	
	SM 5310 B-00	Organic Carbon	5.6		mg C/L	P347700	
2001758	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.21		mg P/L	P347132	

Ref. Method and Comment:

SM 2540 D-97: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample.

Sample Location: Field Blank_06/18/2018

Collection Date/Time: 06/18/2018 10:15

Field ID: BLANK

Matrix: W-FIELD-BK

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2001751	EPA 180.1 Rev. 2.0	Turbidity	0.10	U	NTU	P347145	
	SM 2320 B-97	Total Alkalinity	0.65	U	mg CaCO3/L	P347810	
	SM 2540 D-97	TSS	2	U	mg/L	P347506	
	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P347377	
2001755	EPA 350.1 Rev. 2.0	Ammonia-N	0.002	U	mg N/L	P347385	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.080	U	mg N/L	P347821	MS
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P347368	
	EPA 365.1 Rev. 2.0	Total-P	0.002	U	mg P/L	P347322	
	SM 5310 B-00	Organic Carbon	0.50	U	mg C/L	P347412	
2001759	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P347131	

Ref. Method and Comment:

SM 2540 D-97: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample.

EPA 365.1 Rev. 2.0 dissolved: O-Phosphate-P: Batch matrix spike recoveries are unavailable because of high analyte concentration in the QC sample.

Sample Location: WOLF BRANCH CANAL @ BOATLIFT

Collection Date/Time: 06/18/2018 10:50

Field ID: G1SW0092

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2001752	EPA 180.1 Rev. 2.0	Turbidity	2.1		NTU	P347145	
	SM 2320 B-97	Total Alkalinity	122		mg CaCO3/L	P347811	
	SM 2540 D-97	TSS	5	I	mg/L	P347507	
	SM 4500 F-C-97	Fluoride	1.0		mg F/L	P347380	
2001756	EPA 350.1 Rev. 2.0	Ammonia-N	0.031		mg N/L	P347351	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.77		mg N/L	P347818	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.007	I	mg N/L	P347452	
	EPA 365.1 Rev. 2.0	Total-P	0.26		mg P/L	P347355	
	SM 5310 B-00	Organic Carbon	8.8		mg C/L	P347700	
2001760	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.22		mg P/L	P347132	

Ref. Method and Comment:

SM 2540 D-97: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample.

Sample Location: WOLF BRANCH CANAL @ BOATLIFT

Collection Date/Time: 06/18/2018 10:50

Field ID: G1SW0092

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2001775	EPA 8321B	2,4-D	0.021		ug/L	P346981	
		Sucralose**	0.47		ug/L	P347114	
		Bentazon	0.024		ug/L	P346981	
		MCP	0.0068	I	ug/L	P346981	
		Triclopyr**	0.0040	U	ug/L	P346981	
		Imidacloprid	0.036		ug/L	P346981	
		Diuron	0.0043	I	ug/L	P346981	
		Pyraclostrobin**	0.0020	U	ug/L	P346981	
		Primidone**	0.0043	I	ug/L	P346981	
		Linuron	0.0040	U	ug/L	P346981	
		Acetaminophen**	0.011	I	ug/L	P346981	
		Fenuron	0.016	U	ug/L	P346981	
		Imazapyr**	0.021		ug/L	P346981	
		Carbamazepine**	0.0013	I	ug/L	P346981	
		Fluridone**	0.079		ug/L	P346981	
		Hydrocodone**	8.0E-04	U	ug/L	P346981	

Ref. Method and Comment:

EPA 8321B: Insufficient sample to perform matrix spikes.

EPA 8321B: MS recoveries are not available due to high concentration in the spiked sample.

Sample Location: RICE @ BALM RVRVIEW

Collection Date/Time: 06/18/2018 11:30

Field ID: G2SW0032

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2001776	EPA 8321B	2,4-D	0.015		ug/L	P346981	
		Sucralose**	0.18		ug/L	P347114	
		Bentazon	0.058		ug/L	P346981	
		MCP	0.0032	I	ug/L	P346981	
		Triclopyr**	0.0040	U	ug/L	P346981	
		Imidacloprid	0.23		ug/L	P346981	
		Diuron	0.058		ug/L	P346981	
		Pyraclostrobin**	0.0020	U	ug/L	P346981	
		Primidone**	0.0066	I	ug/L	P346981	
		Linuron	0.0040	U	ug/L	P346981	
		Acetaminophen**	0.0080	U	ug/L	P346981	
		Fenuron	0.022	I	ug/L	P346981	
		Imazapyr**	0.26		ug/L	P346981	
		Carbamazepine**	0.0016	I	ug/L	P346981	
		Fluridone**	0.0060		ug/L	P346981	
		Hydrocodone**	8.0E-04	U	ug/L	P346981	

Ref. Method and Comment:

EPA 8321B: Insufficient sample to perform matrix spikes.

EPA 8321B: MS recoveries are not available due to high concentration in the spiked sample.

Sample Location: MCKAY BIGGEST FLOWING DITCH ON 45TH Collection Date/Time: 06/18/2018 09:40

Field ID: G1SW0093

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2001753	EPA 180.1 Rev. 2.0	Turbidity	26		NTU	P347145	
	SM 2320 B-97	Total Alkalinity	316	A	mg CaCO3/L	P347811	
	SM 2540 D-97	TSS	24		mg/L	P347507	
	SM 4500 F-C-97	Fluoride	0.36		mg F/L	P347380	
2001757	EPA 350.1 Rev. 2.0	Ammonia-N	0.58		mg N/L	P347351	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.5		mg N/L	P347818	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.66		mg N/L	P347452	
	EPA 365.1 Rev. 2.0	Total-P	0.50		mg P/L	P347355	
	SM 5310 B-00	Organic Carbon	16		mg C/L	P347412	
2001761	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.52		mg P/L	P347132	

Ref. Method and Comment:

SM 2540 D-97: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample.

Sample Location: MCKAY BIGGEST FLOWING DITCH ON 45TH Collection Date/Time: 06/18/2018 09:40

Field ID: G1SW0093

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2001777	EPA 8321B	2,4-D	0.0020	U	ug/L	P346981	
		Sucralose**	0.48		ug/L	P347114	
		Bentazon	0.0081		ug/L	P346981	
		MCP	0.0077	I	ug/L	P346981	
		Triclopyr**	0.0040	U	ug/L	P346981	
		Imidacloprid	0.0070	I	ug/L	P346981	
		Diuron	0.0035	I	ug/L	P346981	
		Pyraclostrobin**	0.0020	U	ug/L	P346981	
		Primidone**	0.0052	I	ug/L	P346981	
		Linuron	0.0040	U	ug/L	P346981	
		Acetaminophen**	0.011	I	ug/L	P346981	
		Fenuron	0.016	U	ug/L	P346981	
		Imazapyr**	0.037		ug/L	P346981	
		Carbamazepine**	0.0046		ug/L	P346981	
		Fluridone**	4.0E-04	U	ug/L	P346981	
		Hydrocodone**	8.0E-04	U	ug/L	P346981	

Ref. Method and Comment:

EPA 8321B: Insufficient sample to perform matrix spikes.

EPA 8321B: MS recoveries are not available due to high concentration in the spiked sample.

Sample Location: MCKAY SANDBAG DITCH

Collection Date/Time: 06/18/2018 09:30

Field ID: G1SW0094

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2001778	EPA 8321B	2,4-D	0.010		ug/L	P346981	
		Sucralose**	0.78		ug/L	P347114	
		Bentazon	0.0022	I	ug/L	P346981	
		MCP	0.0023	I	ug/L	P346981	
		Triclopyr**	0.0040	U	ug/L	P346981	
		Imidacloprid	0.0048	I	ug/L	P346981	
		Diuron	0.0075	I	ug/L	P346981	
		Pyraclostrobin**	0.0020	U	ug/L	P346981	
		Primidone**	0.015	I	ug/L	P346981	
		Linuron	0.0040	U	ug/L	P346981	
		Acetaminophen**	0.010	I	ug/L	P346981	
		Fenuron	0.016	U	ug/L	P346981	
		Imazapyr**	0.057		ug/L	P346981	
		Carbamazepine**	0.0025		ug/L	P346981	
		Fluridone**	0.0034		ug/L	P346981	
		Hydrocodone**	8.0E-04	U	ug/L	P346981	

Ref. Method and Comment:

EPA 8321B: Insufficient sample to perform matrix spikes.

EPA 8321B: MS recoveries are not available due to high concentration in the spiked sample.

Quality Assurance Report

Method Blank Results

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P347145

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P347351

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P347385

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P347818

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P347821

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P347368

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P347452

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P347322

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P347355

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

Quality Assurance Report Method Blank Results

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P347131

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P347132

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

Reference Method: EPA 8321B
Batch ID: P346981

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	4.0E-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

Reference Method: EPA 8321B
Batch ID: P347114

Component	Result	Code	Units
Sucralose	0.010	U	ug/L

Reference Method: SM 2320 B-97
Batch ID: P347810

Component	Result	Code	Units
Total Alkalinity	0.65	U	mg CaCO3/L

Reference Method: SM 2320 B-97
Batch ID: P347811

Component	Result	Code	Units
Total Alkalinity	0.65	U	mg CaCO3/L

Reference Method: SM 2540 D-97
Batch ID: P347506

Component	Result	Code	Units
TSS	2	U	mg/L

Quality Assurance Report

Method Blank Results

Reference Method: SM 2540 D-97
Batch ID: P347507

Component	Result	Code	Units
TSS	3	U	mg/L

Reference Method: SM 4500 F-C-97
Batch ID: P347377

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 4500 F-C-97
Batch ID: P347380

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-00
Batch ID: P347412

Component	Result	Code	Units
Organic Carbon	0.50	U	mg C/L

Reference Method: SM 5310 B-00
Batch ID: P347700

Component	Result	Code	Units
Organic Carbon	0.50	U	mg C/L

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P347351

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P347385

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Ammonia-N	96.3		P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P347818

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: P347821

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Kjeldahl Nitrogen	94.9		P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P347368

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: P347452

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: P347322

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P347355

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P347131

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

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P347132

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
O-Phosphate-P	99.4		P	90 - 110

Reference Method: EPA 8321B
Batch ID: P346981

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2,4-D	76.0	87.4	P/P	40 - 150
Acetaminophen	93.2	95.3	P/P	30 - 150
Bentazon	83.3	88.9	P/P	30 - 150
Carbamazepine	90.2	93.1	P/P	40 - 150
Diuron	85.2	85.4	P/P	40 - 150
Fenuron	102	106	P/P	40 - 150
Fluridone	88.7	89.4	P/P	40 - 150
Hydrocodone	93.5	93.8	P/P	40 - 150
Imazapyr	87.9	90.6	P/P	40 - 150
Imidacloprid	98.6	101	P/P	40 - 160
Linuron	66.0	66.3	P/P	40 - 150
MCPP	101	107	P/P	40 - 150
Primidone	90.8	95.4	P/P	40 - 150
Pyraclostrobin	80.3	82.8	P/P	40 - 150
Triclopyr	95.0	101	P/P	40 - 150

Reference Method: EPA 8321B
Batch ID: P347114

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Sucralose	79.2		P	40 - 150

Reference Method: SM 2320 B-97
Batch ID: P347810

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	104		P	98 - 107

Reference Method: SM 2320 B-97
Batch ID: P347811

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	105		P	98 - 107

Reference Method: SM 4500 F-C-97
Batch ID: P347377

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	97.4		P	91 - 105

Reference Method: SM 4500 F-C-97
Batch ID: P347380

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	97.4		P	91 - 105

Quality Assurance Report

Laboratory Control Sample Accuracy

Reference Method: SM 5310 B-00
Batch ID: P347412

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	96.7		P	85 - 115

Reference Method: SM 5310 B-00
Batch ID: P347700

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	103		P	85 - 115

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P347351

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2001574	Ammonia-N	103	103	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P347385

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2001697	Ammonia-N	98.3	95.1	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P347818

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2001728	Kjeldahl Nitrogen	102	99.4	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P347821

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2001872	Kjeldahl Nitrogen	99.6	112	P/F	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P347368

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2001873	NO2NO3-N	99.4	100	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P347452

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2001728	NO2NO3-N	102	103	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P347322

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2001869	Total-P	97.6	97.8	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P347355

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2001727	Total-P	92.2	90.2	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P347132

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2001569	O-Phosphate-P	97.1	98.6	P/P	90 - 110

Quality Assurance Report Matrix Spike Accuracy

Reference Method: SM 4500 F-C-97
Batch ID: P347377

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2001980	Fluoride	94.2	94.2	P/P	91 - 105

Reference Method: SM 4500 F-C-97
Batch ID: P347380

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2001753	Fluoride	95.2	94.6	P/P	91 - 105

Reference Method: SM 5310 B-00
Batch ID: P347412

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2001636	Organic Carbon	95.8	98.4	P/P	85 - 115

Reference Method: SM 5310 B-00
Batch ID: P347700

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2001754	Organic Carbon	97.0	98.2	P/P	85 - 115

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P347145

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2001635	Turbidity	2.43	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P347351

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2001574	Ammonia-N	0.146	Spike	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P347385

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2001697	Ammonia-N	3.14	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P347818

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2001728	Kjeldahl Nitrogen	1.91	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P347821

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2001872	Kjeldahl Nitrogen	9.94	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P347368

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2001873	NO2NO3-N	0.349	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P347452

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2001728	NO2NO3-N	0.976	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P347322

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2001869	Total-P	0.273	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P347355

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2001727	Total-P	2.27	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P347131

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2001657	O-Phosphate-P	0.312	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P347132

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2001569	O-Phosphate-P	1.53	Spike	P	0 - 20

Reference Method: EPA 8321B
Batch ID: P346981

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
LFB	2,4-D	14.0	LCS	P	0 - 30
LFB	Acetaminophen	2.14	LCS	P	0 - 30
LFB	Bentazon	6.49	LCS	P	0 - 30
LFB	Carbamazepine	3.18	LCS	P	0 - 30
LFB	Diuron	0.178	LCS	P	0 - 30
LFB	Fenuron	3.12	LCS	P	0 - 30
LFB	Fluridone	0.762	LCS	P	0 - 30
LFB	Hydrocodone	0.316	LCS	P	0 - 30
LFB	Imazapyr	3.12	LCS	P	0 - 30
LFB	Imidacloprid	1.94	LCS	P	0 - 30
LFB	Linuron	0.344	LCS	P	0 - 30
LFB	MCP	5.82	LCS	P	0 - 30
LFB	Primidone	4.95	LCS	P	0 - 30
LFB	Pyraclostrobin	3.03	LCS	P	0 - 30
LFB	Triclopyr	5.70	LCS	P	0 - 30

Reference Method: EPA 8321B
Batch ID: P347114

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2001676	Sucralose	19.8	Spike	P	0 - 30

Reference Method: SM 2320 B-97
Batch ID: P347810

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2001980	Total Alkalinity	0.416	Sample	P	0 - 1.6

Quality Assurance Report Precision

Reference Method: SM 2320 B-97
 Batch ID: P347811

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2001753	Total Alkalinity	0.293	Sample	P	0 - 1.6

Reference Method: SM 4500 F-C-97
 Batch ID: P347377

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2001980	Fluoride	0.0	Spike	P	0 - 3.5

Reference Method: SM 4500 F-C-97
 Batch ID: P347380

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2001753	Fluoride	0.470	Spike	P	0 - 3.5

Reference Method: SM 5310 B-00
 Batch ID: P347412

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2001636	Organic Carbon	1.45	Spike	P	0 - 20

Reference Method: SM 5310 B-00
 Batch ID: P347700

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2001754	Organic Carbon	1.12	Spike	P	0 - 20

* 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: 2001775

Field Sample ID: G1SW0092

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	2,4-D-d3	123	P	30 - 160
EPA 8321B	Acetaminophen-d4	77.4	P	30 - 160
EPA 8321B	Carbamazepine-d10	74.0	P	30 - 160
EPA 8321B	Diuron-d6	66.4	P	30 - 160
EPA 8321B	Primidone-d5	83.1	P	30 - 160
EPA 8321B	Sucralose-d6	67.2	P	40 - 160

Lab Sample ID: 2001776

Field Sample ID: G2SW0032

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	2,4-D-d3	108	P	30 - 160
EPA 8321B	Acetaminophen-d4	76.5	P	30 - 160
EPA 8321B	Carbamazepine-d10	68.4	P	30 - 160
EPA 8321B	Diuron-d6	60.2	P	30 - 160
EPA 8321B	Primidone-d5	76.9	P	30 - 160
EPA 8321B	Sucralose-d6	58.0	P	40 - 160

Lab Sample ID: 2001777

Field Sample ID: G1SW0093

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	2,4-D-d3	96.1	P	30 - 160
EPA 8321B	Acetaminophen-d4	81.1	P	30 - 160
EPA 8321B	Carbamazepine-d10	60.6	P	30 - 160
EPA 8321B	Diuron-d6	47.4	P	30 - 160
EPA 8321B	Primidone-d5	74.8	P	30 - 160
EPA 8321B	Sucralose-d6	73.9	P	40 - 160

Lab Sample ID: 2001778

Field Sample ID: G1SW0094

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	2,4-D-d3	109	P	30 - 160
EPA 8321B	Acetaminophen-d4	66.6	P	30 - 160
EPA 8321B	Carbamazepine-d10	59.7	P	30 - 160
EPA 8321B	Diuron-d6	51.2	P	30 - 160
EPA 8321B	Primidone-d5	72.6	P	30 - 160
EPA 8321B	Sucralose-d6	66.0	P	40 - 160

Quality Assurance Report Calibration Verification

Reference Method: EPA 365.1 Rev. 2.0 dissolved

Run ID: A84681

Included Lab Sample IDs: 2001758, 2001759, 2001760, 2001761

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	100	99.6	P/P	90 - 110
O-Phosphate-P	98.0	98.7	P/P	90 - 110

Reference Method: EPA 180.1 Rev. 2.0

Run ID: A84684

Included Lab Sample IDs: 2001750, 2001751, 2001752, 2001753

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

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A84777

Included Lab Sample IDs: 2001754, 2001756, 2001757

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

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A84781

Included Lab Sample IDs: 2001755

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

Reference Method: SM 4500 F-C-97

Run ID: A84785

Included Lab Sample IDs: 2001750, 2001751, 2001752, 2001753

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	101	102	P/P	90 - 110
Fluoride	103	102	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A84788

Included Lab Sample IDs: 2001755

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

Reference Method: SM 5310 B-00

Run ID: A84794

Included Lab Sample IDs: 2001755, 2001757

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	95.4	97.0	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A84811

Included Lab Sample IDs: 2001754, 2001756, 2001757

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

Reference Method: EPA 8321B

Run ID: A84826

Included Lab Sample IDs: 2001775, 2001776, 2001777, 2001778

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Sucralose	113	74.0	P/P	60 - 160
Sucralose	74.0	68.3	P/P	60 - 160

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A84885

Included Lab Sample IDs: 2001754, 2001756, 2001757

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	100	98.4	P/P	90 - 110

Reference Method: SM 5310 B-00

Run ID: A84915

Included Lab Sample IDs: 2001754, 2001756

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	98.4	98.0	P/P	90 - 110
Organic Carbon	99.2	98.4	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A84929

Included Lab Sample IDs: 2001755

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	99.8	99.8	P/P	90 - 110

Reference Method: SM 2320 B-97

Run ID: A84959

Included Lab Sample IDs: 2001750, 2001751, 2001752, 2001753

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	101	103	P/P	90 - 110
Total Alkalinity	103	101	P/P	90 - 110

Reference Method: EPA 8321B

Run ID: A84988

Included Lab Sample IDs: 2001775, 2001776, 2001777, 2001778

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
2,4-D	108	102	P/P	50 - 150
Acetaminophen	122	122	P/P	60 - 160
Bentazon	142	134	P/P	50 - 150
Carbamazepine	106	110	P/P	60 - 160
Diuron	112	113	P/P	60 - 150
Fenuron	105	106	P/P	60 - 150

Quality Assurance Report Calibration Verification

Reference Method: EPA 8321B

Run ID: A84988

Included Lab Sample IDs: 2001775, 2001776, 2001777, 2001778

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluridone	107	105	P/P	60 - 160
Hydrocodone	106	105	P/P	60 - 150
Imazapyr	93.7	100	P/P	50 - 150
Imidacloprid	95.9	98.4	P/P	60 - 150
Linuron	98.9	104	P/P	60 - 150
MCPP	116	122	P/P	50 - 150
Primidone	87.7	80.1	P/P	60 - 150
Pyraclostrobin	109	109	P/P	60 - 150
Triclopyr	117	111	P/P	50 - 160

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A85016

Included Lab Sample IDs: 2001754, 2001755, 2001756, 2001757

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	101	98.0	P/P	90 - 110
Kjeldahl Nitrogen	96.7	101	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		Precision	
						LCS	MS
EPA 180.1 Rev. 2.0	Turbidity					2.43	
EPA 350.1 Rev. 2.0	Ammonia-N	101		103	103		0.146
	Ammonia-N	96.3		98.3	95.1		3.14
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	103		102	99.4		1.91
	Kjeldahl Nitrogen	94.9		99.6	112		9.94
EPA 353.2 Rev. 2.0	NO2NO3-N	100		99.4	100		0.349
	NO2NO3-N	102		102	103		0.976
EPA 365.1 Rev. 2.0	Total-P	96.4		97.6	97.8		0.273
	Total-P	98.2		92.2	90.2		2.27
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	101					0.312
	O-Phosphate-P	99.4		97.1	98.6		1.53
EPA 8321B	2,4-D	76.0	87.4			14.0	
	Acetaminophen	95.3	93.2			2.14	
	Bentazon	83.3	88.9			6.49	
	Carbamazepine	93.1	90.2			3.18	
	Diuron	85.2	85.4			0.178	
	Fenuron	106	102			3.12	
	Fluridone	88.7	89.4			0.762	
	Hydrocodone	93.8	93.5			0.316	
	Imazapyr	87.9	90.6			3.12	
	Imidacloprid	101	98.6			1.94	
	Linuron	66.0	66.3			0.344	
	MCP	101	107			5.82	
	Primidone	95.4	90.8			4.95	
	Pyraclostrobin	80.3	82.8			3.03	
	Sucralose	79.2					19.8
	Triclopyr	95.0	101			5.70	
SM 2320 B-97	Total Alkalinity	104				0.416	
	Total Alkalinity	105				0.293	
SM 4500 F-C-97	Fluoride	97.4		94.2	94.2		0.0
	Fluoride	97.4		95.2	94.6		0.470
SM 5310 B-00	Organic Carbon	96.7		95.8	98.4		1.45
	Organic Carbon	103		97.0	98.2		1.12

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	2001750, 2001751, 2001752, 2001753
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	2001754, 2001755, 2001756, 2001757
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	2001754, 2001755, 2001756, 2001757
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	2001754, 2001755, 2001756, 2001757
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	2001754, 2001755, 2001756, 2001757
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	2001758, 2001759, 2001760, 2001761
EPA 8321B / E31780	Pesticides, herbicides, and other chemicals in water matrices by HPLC/MS/MS	2001775, 2001776, 2001777, 2001778
EPA 8321B / E31780	Water soluble organic compounds by HPLC/MS/MS	2001775, 2001776, 2001777, 2001778
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO3/L	2001750, 2001751, 2001752, 2001753
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices using a maximum of 250 mL of sample	2001750, 2001751, 2001752, 2001753
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	2001750, 2001751, 2001752, 2001753

Reference Method Descriptions

Method / DoH Cert #	Description	<u>Associated Samples</u>
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	2001754, 2001755, 2001756, 2001757

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	06/19/2018			06/19/2018 16:44	William L. Brown IV	2001750, 2001751, 2001752, 2001753
EPA 350.1 Rev. 2.0	06/19/2018			06/22/2018 11:32	Ping Hua	2001754
	06/19/2018			06/22/2018 11:40	Ping Hua	2001756
	06/19/2018			06/22/2018 12:00	Ping Hua	2001757
	06/19/2018			06/22/2018 12:57	Julia Storbeck	2001755
EPA 351.2 Rev. 2.0	06/19/2018	07/02/2018 09:30	Adrian Shelby	07/03/2018 20:00	Virginia P. Brown	2001754
	06/19/2018	07/02/2018 09:30	Adrian Shelby	07/03/2018 20:02	Virginia P. Brown	2001756
	06/19/2018	07/02/2018 09:30	Adrian Shelby	07/03/2018 20:03	Virginia P. Brown	2001757
	06/19/2018	07/02/2018 09:30	Adrian Shelby	07/03/2018 20:30	Virginia P. Brown	2001755
EPA 353.2 Rev. 2.0	06/19/2018			06/22/2018 14:00	Lauren Bottorf	2001755
	06/19/2018			06/25/2018 12:12	Lauren Bottorf	2001754
	06/19/2018			06/25/2018 12:13	Lauren Bottorf	2001756
	06/19/2018			06/25/2018 12:14	Lauren Bottorf	2001757
EPA 365.1 Rev. 2.0	06/19/2018	06/22/2018 12:15	Sima Feizi	06/27/2018 14:03	Beverly Y. Sanders	2001754
	06/19/2018	06/22/2018 12:15	Sima Feizi	06/27/2018 14:04	Beverly Y. Sanders	2001756
	06/19/2018	06/22/2018 12:15	Sima Feizi	06/27/2018 14:05	Beverly Y. Sanders	2001757
	06/19/2018	06/22/2018 12:15	Sima Feizi	06/29/2018 10:53	Beverly Y. Sanders	2001755
EPA 365.1 Rev. 2.0 dissolved	06/19/2018			06/19/2018 15:04	Megan Treadwell	2001759
	06/19/2018			06/19/2018 15:30	Megan Treadwell	2001758
	06/19/2018			06/19/2018 15:31	Megan Treadwell	2001760
	06/19/2018			06/19/2018 15:32	Megan Treadwell	2001761
EPA 8321B	06/19/2018	06/21/2018 10:00	Hoor Shaik	07/01/2018 21:44	Juyoung Kim	2001775
	06/19/2018	06/21/2018 10:00	Hoor Shaik	07/01/2018 22:18	Juyoung Kim	2001776
	06/19/2018	06/21/2018 10:00	Hoor Shaik	07/01/2018 22:53	Juyoung Kim	2001777
	06/19/2018	06/21/2018 10:00	Hoor Shaik	07/01/2018 23:27	Juyoung Kim	2001778
	06/19/2018	06/21/2018 10:00	Hoor Shaik	07/03/2018 09:33	Juyoung Kim	2001775
	06/19/2018	06/21/2018 10:00	Hoor Shaik	07/03/2018 10:08	Juyoung Kim	2001776
	06/19/2018	06/21/2018 10:00	Hoor Shaik	07/03/2018 10:42	Juyoung Kim	2001777
	06/19/2018	06/21/2018 10:00	Hoor Shaik	07/03/2018 11:17	Juyoung Kim	2001778
	06/19/2018	06/25/2018 10:30	Juyoung Kim	06/25/2018 18:01	Mohammad Ghaffari	2001775
	06/19/2018	06/25/2018 10:30	Juyoung Kim	06/25/2018 18:19	Mohammad Ghaffari	2001776
	06/19/2018	06/25/2018 10:30	Juyoung Kim	06/25/2018 18:57	Mohammad Ghaffari	2001777
	06/19/2018	06/25/2018 10:30	Juyoung Kim	06/25/2018 19:15	Mohammad Ghaffari	2001778
SM 2320 B-97	06/19/2018			07/01/2018 09:16	Dale L. Simmons	2001751
	06/19/2018			07/01/2018 11:49	Dale L. Simmons	2001753
	06/19/2018			07/01/2018 12:30	Dale L. Simmons	2001750
	06/19/2018			07/01/2018 12:38	Dale L. Simmons	2001752
SM 2540 D-97	06/19/2018			06/20/2018 15:01	Yijie Li	2001750, 2001751, 2001752, 2001753
SM 4500 F-C-97	06/19/2018			06/22/2018 01:39	Lauren Bottorf	2001751
	06/19/2018			06/22/2018 11:26	Lauren Bottorf	2001753

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
SM 4500 F-C-97	06/19/2018			06/22/2018 11:48	Lauren Bottorf	2001750
	06/19/2018			06/22/2018 11:59	Lauren Bottorf	2001752
SM 5310 B-00	06/19/2018			06/22/2018 21:32	Blanca Fach	2001755
	06/19/2018			06/22/2018 21:45	Blanca Fach	2001757
	06/19/2018			06/28/2018 08:18	Julia Storbeck	2001754
	06/19/2018			06/28/2018 12:30	Julia Storbeck	2001756