

Chemical Analysis Report

NE-DIST-2019-10-16-03

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

Event Description: **Bmap 1**
Request ID: **RQ-2019-10-14-18**
Customer: **NE-DIST**
Project ID: **SMP**

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Certified by: Dr. rer. nat. Bettina Steinbock, Environmental Administrator

Date Certified: 06-NOV-2019 17:32



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 by the Florida Department of Health Environmental Laboratory Certification Program 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: NW Tributary to open CR at Hodges

Collection Date/Time: 10/15/2019 10:15

Field ID: 20030848

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2128607	EPA 180.1 Rev. 2.0	Turbidity	3.0		NTU	P372602	
	EPA 300.0 Rev. 2.1	Chloride	38		mg Cl/L	P373556	
		Sulfate	63		mg SO4/L	P373561	
	SM 2120 B	Color (true)	39		PCU	P372615	
	SM 2320 B-97	Total Alkalinity	66		mg CaCO3/L	P372878	
	SM 2540 C-97	TDS	225		mg/L	P373303	
	SM 2540 D-97	TSS	2	I	mg/L	P373257	
	SM 4500 F-C-97	Fluoride	0.086	I	mg F/L	P372882	
	EPA 350.1 Rev. 2.0	Ammonia-N	0.11		mg N/L	P372885	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.62		mg N/L	P373237	
2128609	EPA 353.2 Rev. 2.0	NO2NO3-N	0.21		mg N/L	P372807	
	EPA 365.1 Rev. 2.0	Total-P	0.053		mg P/L	P372747	
	SM 5310 B-00	Organic Carbon	11		mg C/L	P372783	
	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.020		mg P/L	P372625	
	EPA 8321B	2,4-D	0.15		ug/L	P372556	
2128611		Acesulfame K**	0.10	U	ug/L	P372594	
		AMPA**	0.13	I	ug/L	P372594	
		Sucralose**	0.35		ug/L	P372594	
		Acetaminophen**	0.0080	U	ug/L	P372556	
		Acetamiprid**	0.0020	U	ug/L	P372556	
		Endothall**	6.7		ug/L	P372594	
		Glufosinate**	0.10	U	ug/L	P372594	
		Glyphosate**	0.44		ug/L	P372594	
		Afidopypropan**	0.0020	UJ	ug/L	P372556	
		Bentazon	0.11		ug/L	P372556	
		Benzovindiflupyr**	0.0020	UJ	ug/L	P372556	
		Carbamazepine**	8.0E-04	U	ug/L	P372556	
		Clothianidin**	0.018		ug/L	P372556	
		Dinotefuran**	0.0027	I	ug/L	P372556	
		Diuron	0.0021	I	ug/L	P372556	
		Fenuron	0.016	U	ug/L	P372556	
		Fluridone**	0.57		ug/L	P372556	
		Imazapyr**	0.79		ug/L	P372556	
		Hydrocodone**	0.0020	U	ug/L	P372556	
		Ibuprofen**	0.020	U	ug/L	P372556	
		Imidacloprid	0.045		ug/L	P372556	MS
		Linuron	0.0040	U	ug/L	P372556	
		Mandestrobin**	0.0020	UJ	ug/L	P372556	
		MCP	0.0027	I	ug/L	P372556	
		Naproxen**	0.0080	U	ug/L	P372556	
		Primidone**	0.0040	U	ug/L	P372556	
		Pyraclostrobin**	0.0020	U	ug/L	P372556	
		Thiamethoxam**	0.0020	U	ug/L	P372556	MS

Field ID: 20030848

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2128620	EPA 8321B	Tolfenpyrad**	0.0020	U	ug/L	P372556	
		Triclopyr**	0.0040	U	ug/L	P372556	

Ref. Method and Comment:

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

EPA 8321B: J - second source check standards for some analytes were not available for analysis. MS accuracy for imazapyr could not be assessed due to high concentration of parameter in the spiked sample.

Sample Location: Terrapin CR @ Faye Rd.

Collection Date/Time: 10/15/2019 11:05

Field ID: 20030653

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2128608	EPA 180.1 Rev. 2.0	Turbidity	6.4	A	NTU	P372603	
	EPA 300.0 Rev. 2.1	Chloride	16		mg Cl/L	P373556	
		Sulfate	16		mg SO4/L	P373561	
	SM 2120 B	Color (true)	80		PCU	P372615	
	SM 2320 B-97	Total Alkalinity	30		mg CaCO3/L	P372878	
	SM 2540 C-97	TDS	98		mg/L	P373303	
	SM 2540 D-97	TSS	3	I	mg/L	P373257	
	SM 4500 F-C-97	Fluoride	0.054	I	mg F/L	P372882	
2128610	EPA 350.1 Rev. 2.0	Ammonia-N	0.041		mg N/L	P372982	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.51		mg N/L	P373237	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.018		mg N/L	P372807	
	EPA 365.1 Rev. 2.0	Total-P	0.086		mg P/L	P372747	
	SM 5310 B-00	Organic Carbon	11		mg C/L	P372783	
2128612	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.034		mg P/L	P372625	
2128621	EPA 8321B	2,4-D	2.0		ug/L	P372556	
		Acesulfame K**	0.10	U	ug/L	P372594	
		AMPA**	0.10	U	ug/L	P372594	
		Sucralose**	0.062		ug/L	P372594	
		Acetaminophen**	0.0080	U	ug/L	P372556	
		Acetamiprid**	0.0020	U	ug/L	P372556	
		Endothall**	0.25	U	ug/L	P372594	
		Glufosinate**	0.10	U	ug/L	P372594	
		Glyphosate**	0.10	U	ug/L	P372594	
		Afidopyropen**	0.0020	UJ	ug/L	P372556	
		Bentazon	8.0E-04	U	ug/L	P372556	
		Benzovindiflupyr**	0.0020	UJ	ug/L	P372556	
		Carbamazepine**	8.0E-04	U	ug/L	P372556	
		Clothianidin**	0.0020	U	ug/L	P372556	
		Dinotefuran**	0.0020	U	ug/L	P372556	
		Diuron	0.19		ug/L	P372556	
		Fenuron	0.016	U	ug/L	P372556	
		Fluridone**	0.13		ug/L	P372556	
		Imazapyr**	0.047		ug/L	P372556	
		Hydrocodone**	0.0020	U	ug/L	P372556	
		Ibuprofen**	0.020	U	ug/L	P372556	
		Imidacloprid	0.0020	U	ug/L	P372556	MS
		Linuron	0.0040	U	ug/L	P372556	
		Mandestrobin**	0.0020	UJ	ug/L	P372556	
		MCPD	0.0020	U	ug/L	P372556	
		Naproxen**	0.0080	U	ug/L	P372556	
		Primidone**	0.0040	U	ug/L	P372556	
		Pyraclostrobin**	0.0020	U	ug/L	P372556	
		Thiamethoxam**	0.0020	U	ug/L	P372556	MS

Field ID: 20030653

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2128621	EPA 8321B	Tolfenpyrad**	0.0020	U	ug/L	P372556	
		Triclopyr**	0.0040	U	ug/L	P372556	

Ref. Method and Comment:

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

EPA 8321B: J - second source check standards for some analytes were not available for analysis. MS accuracy for imazapyr could not be assessed due to high concentration of parameter in the spiked sample.

Quality Assurance Report Method Blank Results

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P372602

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P372603

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P373556

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P373561

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P372885

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P372982

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P373237

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P372807

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P372747

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: P372625

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

Reference Method: EPA 8321B
Batch ID: P372556

Component	Result	Code	Units
2,4-D	0.0020	U	ug/L
Acetaminophen	0.0080	U	ug/L
Acetamiprid	0.0020	U	ug/L
Afidopyropen	0.0020	U	ug/L
Bentazon	8.0E-04	U	ug/L
Benzovindiflupyr	0.0020	U	ug/L
Carbamazepine	8.0E-04	U	ug/L
Clothianidin	0.0020	U	ug/L
Dinotefuran	0.0020	U	ug/L
Diuron	0.0020	U	ug/L
Fenuron	0.016	U	ug/L
Fluridone	8.0E-04	U	ug/L
Hydrocodone	0.0020	U	ug/L
Ibuprofen	0.020	U	ug/L
Imazapyr	0.0040	U	ug/L
Imidacloprid	0.0020	U	ug/L
Linuron	0.0040	U	ug/L
Mandestrobin	0.0020	U	ug/L
MCPP	0.0020	U	ug/L
Naproxen	0.0080	U	ug/L
Primidone	0.0040	U	ug/L
Pyraclostrobin	0.0020	U	ug/L
Thiamethoxam	0.0020	U	ug/L
Tolfenpyrad	0.0020	U	ug/L
Triclopyr	0.0040	U	ug/L

Reference Method: EPA 8321B
Batch ID: P372594

Component	Result	Code	Units
Acesulfame K	0.10	U	ug/L
AMPA	0.10	U	ug/L
Endothall	0.25	U	ug/L
Glufosinate	0.10	U	ug/L
Glyphosate	0.10	U	ug/L
Sucralose	0.010	U	ug/L

Reference Method: SM 2120 B
Batch ID: P372615

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Quality Assurance Report

Method Blank Results

Reference Method: SM 2320 B-97
Batch ID: P372878

Component	Result	Code	Units
Total Alkalinity	0.65	U	mg CaCO ₃ /L

Reference Method: SM 2540 C-97
Batch ID: P373303

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P373257

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500 F-C-97
Batch ID: P372882

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-00
Batch ID: P372783

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

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P373556

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P373561

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P372885

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P372982

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P373237

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Kjeldahl Nitrogen	99.6		P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P372807

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: P372747

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P372625

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

Reference Method: EPA 8321B
Batch ID: P372556

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2,4-D	140		P	40 - 160
Acetaminophen	86.5		P	30 - 160
Acetamiprid	96.1		P	40 - 160
Afidopyropen	80.9		P	40 - 160

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 8321B
Batch ID: P372556

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Bentazon	83.7		P	30 - 160
Benzovindiflupyr	91.7		P	40 - 160
Carbamazepine	101		P	40 - 160
Clothianidin	90.6		P	40 - 160
Dinotefuran	90.5		P	40 - 160
Diuron	85.2		P	40 - 160
Fenuron	100		P	40 - 160
Fluridone	91.3		P	40 - 160
Hydrocodone	97.3		P	40 - 160
Ibuprofen	92.1		P	30 - 160
Imazapyr	97.4		P	40 - 160
Imidacloprid	102		P	40 - 160
Linuron	78.5		P	40 - 160
Mandestrobin	98.1		P	40 - 160
MCPP	143		P	40 - 160
Naproxen	88.4		P	40 - 160
Primidone	92.4		P	40 - 160
Pyraclostrobin	92.8		P	30 - 160
Thiamethoxam	111		P	40 - 160
Tolfenpyrad	53.7		P	40 - 160
Triclopyr	137		P	30 - 160

Reference Method: EPA 8321B
Batch ID: P372594

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Acesulfame K	84.1		P	40 - 150
AMPA	117		P	40 - 150
Endothall	92.6		P	40 - 150
Glufosinate	82.4		P	40 - 150
Glyphosate	81.0		P	40 - 140
Sucralose	99.0		P	40 - 150

Reference Method: SM 2120 B
Batch ID: P372615

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Color (true)	101		P	85 - 115

Reference Method: SM 2320 B-97
Batch ID: P372878

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	104		P	98 - 106

Reference Method: SM 4500 F-C-97
Batch ID: P372882

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	94.8		P	92 - 103

Quality Assurance Report

Laboratory Control Sample Accuracy

Reference Method: SM 5310 B-00
Batch ID: P372783

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	94.8		P	85 - 115

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P373556

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2128687	Chloride	101		P	90 - 110
2128994	Chloride	99.9		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P373561

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2128687	Sulfate	99.6		P	90 - 110
2128994	Sulfate	99.7		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P372885

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2128475	Ammonia-N	97.7	98.9	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P372982

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2128069	Ammonia-N	102	100	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P373237

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2128513	Kjeldahl Nitrogen	99.6	107	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P372807

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2128609	NO2NO3-N	97.5		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P372747

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2128568	Total-P	98.1	99.7	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P372625

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2128531	O-Phosphate-P	94.6	96.3	P/P	90 - 110

Reference Method: EPA 8321B
Batch ID: P372556

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2128290	2,4-D	129	124	P/P	40 - 160
2128290	Acetaminophen	84.7	78.0	P/P	30 - 160

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 8321B
Batch ID: P372556

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2128290	Acetamiprid	96.6	101	P/P	40 - 160
2128290	Afidopyropen	85.3	104	P/P	40 - 160
2128290	Bentazon	53.1	59.5	P/P	30 - 160
2128290	Benzovindiflupyr	98.8	91.2	P/P	40 - 160
2128290	Carbamazepine	97.3	100	P/P	40 - 160
2128290	Clothianidin	104	99.6	P/P	40 - 160
2128290	Dinotefuran	106	107	P/P	40 - 160
2128290	Diuron	70.8	77.3	P/P	40 - 160
2128290	Fenuron	89.2	91.6	P/P	40 - 160
2128290	Fluridone	87.3	89.4	P/P	40 - 160
2128290	Hydrocodone	110	112	P/P	40 - 160
2128290	Ibuprofen	72.7	79.2	P/P	30 - 160
2128290	Imidacloprid	193	179	F/F	40 - 160
2128290	Linuron	71.9	70.6	P/P	40 - 160
2128290	Mandestrobin	88.4	92.0	P/P	40 - 160
2128290	MCCP	125	140	P/P	40 - 160
2128290	Naproxen	91.4	89.1	P/P	40 - 160
2128290	Primidone	103	97.4	P/P	40 - 160
2128290	Pyraclostrobin	89.6	88.4	P/P	30 - 160
2128290	Thiamethoxam	179	169	F/F	40 - 160
2128290	Tolfenpyrad	58.0	58.0	P/P	40 - 160
2128290	Triclopyr	122	103	P/P	30 - 160

Reference Method: EPA 8321B
Batch ID: P372594

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2128620	Acesulfame K	50.6	61.0	P/P	40 - 150
2128620	AMPA	61.1	63.7	P/P	40 - 150
2128620	Endothall	58.1	63.1	P/P	40 - 150
2128620	Glufosinate	80.6	76.7	P/P	40 - 150
2128620	Glyphosate	82.8	79.0	P/P	40 - 140
2128620	Sucralose	114	104	P/P	40 - 150

Reference Method: SM 4500 F-C-97
Batch ID: P372882

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2128512	Fluoride	97.3	95.9	P/P	89 - 106

Reference Method: SM 5310 B-00
Batch ID: P372783

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2128556	Organic Carbon	97.8	93.1	P/P	85 - 115

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P372602

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2128553	Turbidity	1.43	Sample	P	0 - 20

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P372603

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2128608	Turbidity	8.12	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P373556

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2128687	Chloride	0.164	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P373561

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2128687	Sulfate	0.522	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P372885

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2128475	Ammonia-N	0.664	Spike	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P372982

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2128069	Ammonia-N	1.15	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P373237

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2128513	Kjeldahl Nitrogen	4.75	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P372807

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2128609	NO2NO3-N	0.0	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P372747

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2128568	Total-P	1.04	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P372625

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2128531	O-Phosphate-P	1.78	Spike	P	0 - 20

Reference Method: EPA 8321B
Batch ID: P372556

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2128290	2,4-D	4.07	Spike	P	0 - 30
2128290	Acetaminophen	8.26	Spike	P	0 - 30
2128290	Acetamiprid	4.45	Spike	P	0 - 30
2128290	Afidopyropen	20.1	Spike	P	0 - 30
2128290	Bentazon	9.69	Spike	P	0 - 30
2128290	Benzovindiflupyr	7.98	Spike	P	0 - 30
2128290	Carbamazepine	2.70	Spike	P	0 - 30
2128290	Clothianidin	4.61	Spike	P	0 - 30
2128290	Dinotefuran	0.913	Spike	P	0 - 30
2128290	Diuron	6.77	Spike	P	0 - 30
2128290	Fenuron	2.68	Spike	P	0 - 30
2128290	Fluridone	2.31	Spike	P	0 - 30
2128290	Hydrocodone	1.99	Spike	P	0 - 30
2128290	Ibuprofen	8.62	Spike	P	0 - 30
2128290	Imazapyr	15.3	Spike	P	0 - 30
2128290	Imidacloprid	7.34	Spike	P	0 - 30
2128290	Linuron	1.81	Spike	P	0 - 30
2128290	Mandestrobin	3.94	Spike	P	0 - 30
2128290	MCP	11.2	Spike	P	0 - 30
2128290	Naproxen	2.52	Spike	P	0 - 30
2128290	Primidone	5.67	Spike	P	0 - 30
2128290	Pyraclostrobin	1.32	Spike	P	0 - 30
2128290	Thiamethoxam	5.33	Spike	P	0 - 30
2128290	Tolfenpyrad	0.128	Spike	P	0 - 30
2128290	Triclopyr	16.6	Spike	P	0 - 30

Reference Method: EPA 8321B
Batch ID: P372594

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2128620	Acesulfame K	18.5	Spike	P	0 - 30
2128620	AMPA	3.37	Spike	P	0 - 30
2128620	Endothall	1.53	Spike	P	0 - 30
2128620	Glufosinate	4.95	Spike	P	0 - 30
2128620	Glyphosate	3.02	Spike	P	0 - 30
2128620	Sucralose	8.16	Spike	P	0 - 30

Quality Assurance Report Precision

Reference Method: SM 2120 B
 Batch ID: P372615

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2128527	Color (true)	0.681	Sample	P	0 - 20

Reference Method: SM 2320 B-97
 Batch ID: P372878

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2128512	Total Alkalinity	0.554	Sample	P	0 - 2.8

Reference Method: SM 2540 C-97
 Batch ID: P373303

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2128528	TDS	1.49	Sample	P	0 - 10

Reference Method: SM 4500 F-C-97
 Batch ID: P372882

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2128512	Fluoride	0.960	Spike	P	0 - 2.5

Reference Method: SM 5310 B-00
 Batch ID: P372783

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2128556	Organic Carbon	2.44	Spike	P	0 - 20

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

Quality Assurance Report Surrogates

Lab Sample ID: 2128620
Field Sample ID: 20030848

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	2,4-D-d3	132	P	30 - 160
EPA 8321B	Acetaminophen-d4	82.9	P	30 - 160
EPA 8321B	Bentazon-d7	51.2	P	30 - 160
EPA 8321B	Carbamazepine-d10	94.5	P	30 - 160
EPA 8321B	Diuron-d6	76.2	P	30 - 160
EPA 8321B	Endothall-d6	85.0	P	30 - 160
EPA 8321B	Endothall-d6	85.0	P	30 - 160
EPA 8321B	Glyphosate 13C 15N	71.6	P	30 - 160
EPA 8321B	Glyphosate 13C 15N	71.6	P	30 - 160
EPA 8321B	Ibuprofen-d3	88.7	P	30 - 160
EPA 8321B	Primidone-d5	107	P	30 - 160
EPA 8321B	Sucralose-d6	95.3	P	30 - 160
EPA 8321B	Sucralose-d6	95.3	P	30 - 160

Lab Sample ID: 2128621
Field Sample ID: 20030653

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	2,4-D-d3	149	P	30 - 160
EPA 8321B	Acetaminophen-d4	77.5	P	30 - 160
EPA 8321B	Bentazon-d7	65.1	P	30 - 160
EPA 8321B	Carbamazepine-d10	96.0	P	30 - 160
EPA 8321B	Diuron-d6	80.3	P	30 - 160
EPA 8321B	Endothall-d6	92.4	P	30 - 160
EPA 8321B	Endothall-d6	92.4	P	30 - 160
EPA 8321B	Glyphosate 13C 15N	71.3	P	30 - 160
EPA 8321B	Glyphosate 13C 15N	71.3	P	30 - 160
EPA 8321B	Ibuprofen-d3	90.2	P	30 - 160
EPA 8321B	Primidone-d5	96.7	P	30 - 160
EPA 8321B	Sucralose-d6	104	P	30 - 160
EPA 8321B	Sucralose-d6	104	P	30 - 160

Quality Assurance Report Calibration Verification

Reference Method: EPA 365.1 Rev. 2.0 dissolved

Run ID: A95007

Included Lab Sample IDs: 2128611, 2128612

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

Reference Method: EPA 180.1 Rev. 2.0

Run ID: A95009

Included Lab Sample IDs: 2128607, 2128608

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

Reference Method: SM 2120 B

Run ID: A95014

Included Lab Sample IDs: 2128607, 2128608

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	102	101	P/P	90 - 115

Reference Method: EPA 8321B

Run ID: A95044

Included Lab Sample IDs: 2128620, 2128621

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
AMPA	119	92.7	P/P	60 - 160
AMPA	79.6	94.5	P/P	60 - 160
Glufosinate	75.7	72.4	P/P	60 - 160
Glufosinate	77.5	101	P/P	60 - 160
Glyphosate	87.8	105	P/P	60 - 160
Glyphosate	88.6	98.3	P/P	60 - 160

Reference Method: EPA 8321B

Run ID: A95073

Included Lab Sample IDs: 2128620, 2128621

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Acesulfame K	139	95.3	P/P	60 - 160
Acesulfame K	97.6	128	P/P	60 - 160
Endothall	82.5	88.7	P/P	60 - 160
Endothall	98.6	91.0	P/P	60 - 160

Reference Method: EPA 8321B

Run ID: A95074

Included Lab Sample IDs: 2128620, 2128621

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Sucralose	101	98.8	P/P	60 - 160
Sucralose	95.4	106	P/P	60 - 160

Quality Assurance Report Calibration Verification

Reference Method: SM 5310 B-00

Run ID: A95085

Included Lab Sample IDs: 2128609, 2128610

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	99.2	106	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A95097

Included Lab Sample IDs: 2128609, 2128610

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

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A95099

Included Lab Sample IDs: 2128610

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

Reference Method: EPA 8321B

Run ID: A95110

Included Lab Sample IDs: 2128620, 2128621

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
2,4-D	101	110	P/P	50 - 150
2,4-D	105	96.0	P/P	50 - 150
Acetaminophen	106	104	P/P	60 - 160
Acetamiprid	109	108	P/P	50 - 150
Afidopyropen	89.6	104	P/P	50 - 150
Bentazon	101	102	P/P	50 - 160
Bentazon	93.4	97.1	P/P	50 - 160
Benzovindiflupyr	103	104	P/P	50 - 150
Carbamazepine	108	103	P/P	60 - 150
Clothianidin	93.7	98.3	P/P	60 - 150
Dinotefuran	89.7	101	P/P	50 - 150
Diuron	108	105	P/P	60 - 150
Fenuron	100	109	P/P	60 - 150
Fluridone	107	107	P/P	60 - 160
Fluridone	108	105	P/P	60 - 160
Hydrocodone	105	110	P/P	60 - 150
Ibuprofen	96.7	93.4	P/P	50 - 160
Imazapyr	92.0	95.7	P/P	50 - 150
Imidacloprid	106	102	P/P	60 - 150
Linuron	97.0	94.2	P/P	60 - 150
Mandestrobin	104	104	P/P	50 - 150
MCPP	98.4	95.1	P/P	50 - 150
Naproxen	106	82.8	P/P	50 - 160
Primidone	108	94.1	P/P	60 - 150
Pyraclostrobin	95.8	98.8	P/P	60 - 150
Thiamethoxam	114	116	P/P	50 - 150
Tolfenpyrad	97.3	97.0	P/P	60 - 150
Triclopyr	85.7	96.7	P/P	50 - 150

Quality Assurance Report Calibration Verification

Reference Method: SM 2320 B-97

Run ID: A95130

Included Lab Sample IDs: 2128607, 2128608

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	104	103	P/P	90 - 110

Reference Method: SM 4500 F-C-97

Run ID: A95130

Included Lab Sample IDs: 2128607, 2128608

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	98.5	98.6	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A95132

Included Lab Sample IDs: 2128609

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

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A95146

Included Lab Sample IDs: 2128609

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	99.0	100	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A95172

Included Lab Sample IDs: 2128610

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

Reference Method: EPA 300.0 Rev. 2.1

Run ID: A95307

Included Lab Sample IDs: 2128607, 2128608

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	100	101	P/P	90 - 110
Sulfate	99.7	101	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A95324

Included Lab Sample IDs: 2128609, 2128610

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	105	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		Precision	
						LCS	MS
EPA 180.1 Rev. 2.0	Turbidity					1.43	
	Turbidity					8.12	
EPA 300.0 Rev. 2.1	Chloride	101		101	99.9	0.164	
	Sulfate	99.8		99.6	99.7	0.522	
EPA 350.1 Rev. 2.0	Ammonia-N	99.0		97.7	98.9		0.664
	Ammonia-N	99.5		102	100		1.15
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	99.6		99.6	107		4.75
EPA 353.2 Rev. 2.0	NO2NO3-N	100		97.5			0.0
EPA 365.1 Rev. 2.0	Total-P	97.3		98.1	99.7		1.04
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	98.4		94.6	96.3		1.78
EPA 8321B	2,4-D	140		129	124		4.07
	Acesulfame K	84.1		50.6	61.0		18.5
	Acetaminophen	86.5		84.7	78.0		8.26
	Acetamiprid	96.1		96.6	101		4.45
	Afidopyropen	80.9		85.3	104		20.1
	AMPA	117		61.1	63.7		3.37
	Bentazon	83.7		53.1	59.5		9.69
	Benzovindiflupyr	91.7		98.8	91.2		7.98
	Carbamazepine	101		97.3	100		2.70
	Clothianidin	90.6		104	99.6		4.61
	Dinotefuran	90.5		106	107		0.913
	Diuron	85.2		70.8	77.3		6.77
	Endothall	92.6		58.1	63.1		1.53
	Fenuron	100		89.2	91.6		2.68
	Fluridone	91.3		87.3	89.4		2.31
	Glufosinate	82.4		80.6	76.7		4.95
	Glyphosate	81.0		82.8	79.0		3.02
	Hydrocodone	97.3		110	112		1.99
	Ibuprofen	92.1		72.7	79.2		8.62
	Imazapyr	97.4					15.3
	Imidacloprid	102		193	179		7.34
	Linuron	78.5		71.9	70.6		1.81
	Mandestrobin	98.1		88.4	92.0		3.94
	MCPP	143		125	140		11.2
	Naproxen	88.4		91.4	89.1		2.52
	Primidone	92.4		103	97.4		5.67
	Pyraclostrobin	92.8		89.6	88.4		1.32
	Sucralose	99.0		114	104		8.16
	Thiamethoxam	111		179	169		5.33
	Tolfenpyrad	53.7		58.0	58.0		0.128
	Triclopyr	137		122	103		16.6
SM 2120 B	Color (true)	101				0.681	
SM 2320 B-97	Total Alkalinity	104				0.554	
SM 2540 C-97	TDS					1.49	
SM 4500 F-C-97	Fluoride	94.8		97.3	95.9		0.960
SM 5310 B-00	Organic Carbon	94.8		97.8	93.1		2.44

Reference Method Descriptions

Method / DoH Cert #
EPA 180.1 Rev. 2.0 /
E31780

Description
Turbidity in aqueous matrices

Associated Samples
2128607, 2128608

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 300.0 Rev. 2.1 / E31780	Chloride in aqueous matrices	2128607, 2128608
EPA 300.0 Rev. 2.1 / E31780	Sulfate in aqueous matrices	2128607, 2128608
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	2128609, 2128610
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	2128609, 2128610
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	2128609, 2128610
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	2128609, 2128610
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	2128611, 2128612
EPA 8321B / E31780	Pesticides, herbicides, and other chemicals in water matrices by HPLC/MS/MS	2128620, 2128621
EPA 8321B / E31780	Water soluble organic compounds by HPLC/MS/MS	2128620, 2128621
SM 2120 B / E31780	True Color measured at 450 nm	2128607, 2128608
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO ₃ /L	2128607, 2128608
SM 2540 C-97 / E31780	Total Dissolved Solids in aqueous matrices	2128607, 2128608
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices using a maximum of 250 mL of sample	2128607, 2128608
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	2128607, 2128608
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	2128609, 2128610

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	10/16/2019			10/16/2019 16:27	Samantha Davila	2128607, 2128608
EPA 300.0 Rev. 2.1	10/16/2019			10/31/2019 00:32	Julia Storbeck	2128607
	10/16/2019			10/31/2019 00:44	Julia Storbeck	2128608
EPA 350.1 Rev. 2.0	10/16/2019			10/21/2019 13:06	Ping Hua	2128609
	10/16/2019			10/22/2019 12:00	Ping Hua	2128610
EPA 351.2 Rev. 2.0	10/16/2019	10/28/2019 13:12	Sima Feizi	10/29/2019 17:50	Jhamieka S. Greenwood	2128609
	10/16/2019	10/28/2019 13:12	Sima Feizi	10/29/2019 17:52	Jhamieka S. Greenwood	2128610
EPA 353.2 Rev. 2.0	10/16/2019			10/21/2019 09:43	Lauren Lees	2128609
	10/16/2019			10/21/2019 09:52	Lauren Lees	2128610
EPA 365.1 Rev. 2.0	10/16/2019	10/18/2019 15:10	Lipi Saha	10/21/2019 13:35	Beverly Y. Sanders	2128610
	10/16/2019	10/18/2019 15:10	Lipi Saha	10/22/2019 14:32	Beverly Y. Sanders	2128609
EPA 365.1 Rev. 2.0 dissolved	10/16/2019			10/16/2019 13:24	Virginia P. Brown	2128611, 2128612
EPA 8321B	10/16/2019	10/17/2019 11:00	Mohammad Ghaffari	10/17/2019 12:15	Mohammad Ghaffari	2128620
	10/16/2019	10/17/2019 11:00	Mohammad Ghaffari	10/17/2019 14:46	Mohammad Ghaffari	2128621
	10/16/2019	10/17/2019 11:00	Mohammad Ghaffari	10/18/2019 14:21	Mohammad Ghaffari	2128620
	10/16/2019	10/17/2019 11:00	Mohammad Ghaffari	10/18/2019 17:34	Mohammad Ghaffari	2128621
	10/16/2019	10/17/2019 11:00	Mohammad Ghaffari	10/19/2019 16:43	Mohammad Ghaffari	2128620
	10/16/2019	10/17/2019 11:00	Mohammad Ghaffari	10/19/2019 19:59	Mohammad Ghaffari	2128621
	10/16/2019	10/18/2019 09:00	Hoor Shaik	10/19/2019 10:46	Juyoung Kim	2128620
	10/16/2019	10/18/2019 09:00	Hoor Shaik	10/19/2019 11:20	Juyoung Kim	2128621
	10/16/2019	10/18/2019 09:00	Hoor Shaik	10/21/2019 10:14	Juyoung Kim	2128620
	10/16/2019	10/18/2019 09:00	Hoor Shaik	10/21/2019 10:48	Juyoung Kim	2128621
SM 2120 B	10/16/2019			10/16/2019 17:37	Madeline Funaro	2128607
	10/16/2019			10/16/2019 17:38	Madeline Funaro	2128608
SM 2320 B-97	10/16/2019			10/19/2019 15:34	Dale L. Simmons	2128607
	10/16/2019			10/19/2019 15:46	Dale L. Simmons	2128608
SM 2540 C-97	10/16/2019			10/18/2019 15:45	Yijie Li	2128607, 2128608
SM 2540 D-97	10/16/2019			10/18/2019 15:45	Yijie Li	2128607, 2128608
SM 4500 F-C-97	10/16/2019			10/19/2019 15:34	Dale L. Simmons	2128607
	10/16/2019			10/19/2019 15:46	Dale L. Simmons	2128608
SM 5310 B-00	10/16/2019			10/19/2019 06:31	Madeline Funaro	2128609
	10/16/2019			10/19/2019 06:48	Madeline Funaro	2128610