

Chemical Analysis Report

SO-DIST-2017-08-08-01

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

Event Description: **SMP: Lee County Streams**

Request ID: **RQ-2017-07-24-06**

Customer: **SO-DIST**

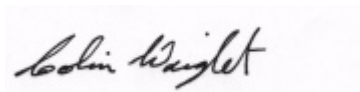
Project ID: **SMP**

Send Reports to:
FL Dept. of Environmental Protection
FLDEP South District Office
2295 Victoria Ave. Suite 364
Fort Myers, FL 33901-3381
Attn: Ben Paswater

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Certified by: Colin Wright, Program Administrator

Date Certified: 30-AUG-2017 14:38

A handwritten signature in black ink, appearing to read "Colin Wright", is displayed on a light gray rectangular background.

Case Narrative

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

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

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

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

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

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

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

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

Precision is reported as relative percent difference unless otherwise noted.

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

QC Codes used in this report may include:

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

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

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

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

Sample Location: Imperial River at Orr Rd in Bonita

Collection Date/Time: 08/07/2017 11:00

Field ID: G1SD080717-3

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1919383	EPA 180.1 Rev. 2.0	Turbidity	0.75		NTU	P329892	
	EPA 300.0 Rev. 2.1	Chloride	12		mg Cl/L	P329886	
		Sulfate	3.5		mg SO4/L	P329888	
	SM 2120 B	Color (true)	120		PCU	P329855	
	SM 2320 B-97	Total Alkalinity	79		mg CaCO3/L	P330089	
	SM 2540 C-97	TDS	145		mg/L	P330225	
	SM 2540 D-97	TSS	2	I	mg/L	P330233	
	SM 4500 F-C-97	Fluoride	0.067	I	mg F/L	P330091	
	EPA 350.1 Rev. 2.0	Ammonia-N	0.028		mg N/L	P329983	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.84		mg N/L	P330019	
1919387	EPA 353.2 Rev. 2.0	NO2NO3-N	0.008	I	mg N/L	P330010	
	EPA 365.1 Rev. 2.0	Total-P	0.027		mg P/L	P330027	
	SM 5310 B-00	Organic Carbon	17		mg C/L	P330164	
	EPA 365.1 Rev. 2.0	O-Phosphate-P	0.007	I	mg P/L	P329846	
	dissolved						

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: Imperial River at Orr Rd in Bonita

Collection Date/Time: 08/07/2017 11:00

Field ID: G1SD080717-3

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1919451	EPA 8321B	Sucralose**	0.010	U	ug/L	P329553	
	USGS O-2060-01	2,4-D	0.012		ug/L	P329841	
		Diuron	0.0019	I	ug/L	P329841	
		Fenuron	0.0080	U	ug/L	P329841	
		Imidacloprid	0.0047		ug/L	P329841	
		Bentazon	0.0071		ug/L	P329841	MS
		Linuron	0.0040	U	ug/L	P329841	
		Acetaminophen**	0.0080	U	ug/L	P329841	
		MCPD	0.0020	U	ug/L	P329841	
		Carbamazepine**	4.0E-04	U	ug/L	P329841	
		Triclopyr**	0.0040	U	ug/L	P329841	
		Primidone**	0.0040	U	ug/L	P329841	
		Fluridone**	4.0E-04	U	ug/L	P329841	

Ref. Method and Comment:

USGS O-2060-01: MS accuracy for 2,4-D could not be assessed due to high concentration of parameter in the spiked sample.

Sample Location: Oak Creek @ Oak Creek Preserve

Collection Date/Time: 08/07/2017 11:30

Field ID: G1SD080717-4

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1919384	EPA 180.1 Rev. 2.0	Turbidity	1.2		NTU	P329892	
	EPA 300.0 Rev. 2.1	Chloride	28		mg Cl/L	P329886	
		Sulfate	14		mg SO4/L	P329888	
	SM 2120 B	Color (true)	61	A	PCU	P329855	

Field ID: G1SD080717-4

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1919384	SM 2320 B-97	Total Alkalinity	163		mg CaCO3/L	P330089	
	SM 2540 C-97	TDS	246		mg/L	P330225	
	SM 2540 D-97	TSS	2	I	mg/L	P330233	
	SM 4500 F-C-97	Fluoride	0.076	I	mg F/L	P330091	
1919388	EPA 350.1 Rev. 2.0	Ammonia-N	0.069		mg N/L	P329983	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.81		mg N/L	P330019	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.082		mg N/L	P330011	
	EPA 365.1 Rev. 2.0	Total-P	0.045		mg P/L	P330027	
	SM 5310 B-00	Organic Carbon	11		mg C/L	P330164	
1919392	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.020		mg P/L	P329846	

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

Collection Date/Time: 08/07/2017 11:40

Field ID: G1SD080717-6

Matrix: W-FIELD-BK

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1919385	EPA 180.1 Rev. 2.0	Turbidity	0.10	U	NTU	P329892	
	EPA 300.0 Rev. 2.1	Chloride	0.20	U	mg Cl/L	P329886	
		Sulfate	0.20	U	mg SO4/L	P329888	
	SM 2120 B	Color (true)	2.5	U	PCU	P329855	
	SM 2320 B-97	Total Alkalinity	0.65	U	mg CaCO3/L	P330089	
	SM 2540 C-97	TDS	15	U	mg/L	P330221	
	SM 2540 D-97	TSS	2	U	mg/L	P330229	
	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P330091	
	EPA 350.1 Rev. 2.0	Ammonia-N	0.002	U	mg N/L	P329983	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.080	U	mg N/L	P330019	
1919389	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P330011	
	EPA 365.1 Rev. 2.0	Total-P	0.002	U	mg P/L	P330027	
	SM 5310 B-00	Organic Carbon	0.50	U	mg C/L	P330164	
	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P329846	

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: Hendry Creek @ Old Gladiolus Dr.

Collection Date/Time: 08/07/2017 09:30

Field ID: G1SD080717-1

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1919395	EPA 180.1 Rev. 2.0	Turbidity	1.4		NTU	P329892	
	SM 2320 B-97	Total Alkalinity	190		mg CaCO3/L	P330089	
	SM 2540 D-97	TSS	3	IA	mg/L	P330236	
	SM 4500 F-C-97	Fluoride	0.21		mg F/L	P330091	
1919396	EPA 350.1 Rev. 2.0	Ammonia-N	0.091		mg N/L	P329983	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.65		mg N/L	P330019	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.032		mg N/L	P330011	
	EPA 365.1 Rev. 2.0	Total-P	0.026		mg P/L	P330027	

Field ID: G1SD080717-1

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1919396	SM 5310 B-00	Organic Carbon	6.9		mg C/L	P330164	
1919397	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.005	I	mg P/L	P329846	

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: Hendry Creek @ Old Gladiolus Dr.

Collection Date/Time: 08/07/2017 09:30

Field ID: G1SD080717-1

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1919452	EPA 8321B	Sucralose**	0.13		ug/L	P330308	MS, RPD
	USGS O-2060-01	2,4-D	0.035		ug/L	P329841	
		Diuron	0.0045		ug/L	P329841	
		Fenuron	0.0080	U	ug/L	P329841	
		Imidacloprid	0.034		ug/L	P329841	
		Bentazon	0.018		ug/L	P329841	MS
		Linuron	0.0040	U	ug/L	P329841	
		Acetaminophen**	0.0080	U	ug/L	P329841	
		MCP	0.0028	I	ug/L	P329841	
		Carbamazepine**	4.0E-04	U	ug/L	P329841	
		Triclopyr**	0.0040	U	ug/L	P329841	
		Primidone**	0.0040	U	ug/L	P329841	
		Fluridone**	0.030		ug/L	P329841	

Ref. Method and Comment:

USGS O-2060-01: MS accuracy for 2,4-D could not be assessed due to high concentration of parameter in the spiked sample.

Sample Location: Imperial River near US 41

Collection Date/Time: 08/07/2017 10:20

Field ID: G1SD0057

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1919386	EPA 180.1 Rev. 2.0	Turbidity	1.3		NTU	P329892	
	EPA 300.0 Rev. 2.1	Chloride	20		mg Cl/L	P329886	
		Sulfate	5.7		mg SO4/L	P329888	
	SM 2120 B	Color (true)	120		PCU	P329855	
	SM 2320 B-97	Total Alkalinity	87		mg CaCO3/L	P330089	
	SM 2540 C-97	TDS	159		mg/L	P330225	
	SM 2540 D-97	TSS	2	I	mg/L	P330233	
	SM 4500 F-C-97	Fluoride	0.067	I	mg F/L	P330091	
1919390	EPA 350.1 Rev. 2.0	Ammonia-N	0.031		mg N/L	P329983	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.84		mg N/L	P330019	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.022		mg N/L	P330011	
	EPA 365.1 Rev. 2.0	Total-P	0.038		mg P/L	P330027	
	SM 5310 B-00	Organic Carbon	16		mg C/L	P330164	
1919394	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.013		mg P/L	P329846	

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: Imperial River near US 41

Collection Date/Time: 08/07/2017 10:20

Field ID: G1SD0057

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1919453	EPA 8321B	Sucralose**	0.010	U	ug/L	P329553	
	USGS O-2060-01	2,4-D	0.0083		ug/L	P329841	
		Diuron	0.0014	I	ug/L	P329841	
		Fenuron	0.0080	U	ug/L	P329841	
		Imidacloprid	0.0091		ug/L	P329841	
		Bentazon	0.0067		ug/L	P329841	MS
		Linuron	0.0040	U	ug/L	P329841	
		Acetaminophen**	0.0080	U	ug/L	P329841	
		MCPD	0.0020	U	ug/L	P329841	
		Carbamazepine**	4.0E-04	U	ug/L	P329841	
		Triclopyr**	0.0040	U	ug/L	P329841	
		Primidone**	0.0040	U	ug/L	P329841	
		Fluridone**	0.0072		ug/L	P329841	

Ref. Method and Comment:

USGS O-2060-01: MS accuracy for 2,4-D 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: P329892

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 300.0 Rev. 2.1

Batch ID: P329886

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1

Batch ID: P329888

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 350.1 Rev. 2.0

Batch ID: P329983

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

Reference Method: EPA 351.2 Rev. 2.0

Batch ID: P330019

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

Reference Method: EPA 353.2 Rev. 2.0

Batch ID: P330010

Component	Result	Code	Units
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Quality Assurance Report Method Blank Results

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P330010

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P330011

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P330027

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P329846

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

Reference Method: EPA 8321B
Batch ID: P329553

Component	Result	Code	Units
Sucralose	0.010	U	ug/L

Reference Method: EPA 8321B
Batch ID: P330308

Component	Result	Code	Units
Sucralose	0.010	U	ug/L

Reference Method: SM 2120 B
Batch ID: P329855

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2320 B-97
Batch ID: P330089

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

Reference Method: SM 2540 C-97
Batch ID: P330221

Component	Result	Code	Units
TDS	15	U	mg/L

Quality Assurance Report Method Blank Results

Reference Method: SM 2540 C-97
Batch ID: P330225

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P330229

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P330233

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P330236

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500 F-C-97
Batch ID: P330091

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-00
Batch ID: P330164

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

Reference Method: USGS O-2060-01
Batch ID: P329841

Component	Result	Code	Units
2,4-D	0.0020	U	ug/L
2,4-D	0.0020	U	ug/L
Acetaminophen	0.0080	U	ug/L
Acetaminophen	0.0080	U	ug/L
Bentazon	8.0E-04	U	ug/L
Bentazon	8.0E-04	U	ug/L
Carbamazepine	4.0E-04	U	ug/L
Carbamazepine	4.0E-04	U	ug/L
Diuron	8.0E-04	U	ug/L
Diuron	8.0E-04	U	ug/L
Fenuron	0.0080	U	ug/L
Fenuron	0.0080	U	ug/L
Fluridone	4.0E-04	U	ug/L
Fluridone	4.0E-04	U	ug/L
Imidacloprid	8.0E-04	U	ug/L
Imidacloprid	8.0E-04	U	ug/L

Quality Assurance Report Method Blank Results

Reference Method: USGS O-2060-01
Batch ID: P329841

Component	Result	Code	Units
Linuron	0.0040	U	ug/L
Linuron	0.0040	U	ug/L
MCP	0.0020	U	ug/L
MCP	0.0020	U	ug/L
Primidone	0.0040	U	ug/L
Primidone	0.0040	U	ug/L
Triclopyr	0.0040	U	ug/L
Triclopyr	0.0040	U	ug/L

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P329886

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P329888

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P329983

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P330019

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P330010

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
NO ₂ NO ₃ -N	105		P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P330011

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
NO ₂ NO ₃ -N	106		P	90 - 110

Quality Assurance Report

Laboratory Control Sample Accuracy

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P330027

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total-P	91.0		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P329846

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

Reference Method: EPA 8321B
Batch ID: P329553

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Sucralose	70.0		P	40 - 150

Reference Method: EPA 8321B
Batch ID: P330308

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Sucralose	147		P	40 - 150

Reference Method: SM 2320 B-97
Batch ID: P330089

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	102		P	95 - 108

Reference Method: SM 4500 F-C-97
Batch ID: P330091

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	95.9		P	92 - 103

Reference Method: SM 5310 B-00
Batch ID: P330164

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	98.5		P	85 - 115

Reference Method: USGS O-2060-01
Batch ID: P329841

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2,4-D	103		P	40 - 150
Acetaminophen	76.0		P	30 - 150
Bentazon	101		P	40 - 150
Carbamazepine	88.2		P	40 - 150
Diuron	81.5		P	40 - 150
Fenuron	82.1		P	40 - 150
Fluridone	111		P	40 - 150
Imidacloprid	81.2		P	40 - 160
Linuron	83.1		P	40 - 150
MCP	91.6		P	40 - 150

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: USGS O-2060-01
Batch ID: P329841

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Primidone	84.5		P	40 - 150
Triclopyr	90.3		P	40 - 150

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P329886

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1919109	Chloride	97.8		P	90 - 110
1919208	Chloride	103		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P329888

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1919109	Sulfate	97.8		P	90 - 110
1919208	Sulfate	102		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P329983

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1919387	Ammonia-N	106	101	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P330019

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1919396	Kjeldahl Nitrogen	101	99.0	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P330010

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1919332	NO2NO3-N	103		P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P330011

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1919388	NO2NO3-N	105	105	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P330027

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1919374	Total-P	92.6	92.4	P/P	90 - 110

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 365.1 Rev. 2.0 dissolved
 Batch ID: P329846

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1919392	O-Phosphate-P	94.7	95.7	P/P	90 - 110

Reference Method: EPA 8321B
 Batch ID: P329553

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1918333	Sucralose	117	116	P/P	40 - 150

Reference Method: EPA 8321B
 Batch ID: P330308

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1919629	Sucralose	103	166	P/F	40 - 150

Reference Method: SM 4500 F-C-97
 Batch ID: P330091

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1919541	Fluoride	96.1	96.1	P/P	91 - 105

Reference Method: SM 5310 B-00
 Batch ID: P330164

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1919209	Organic Carbon	101		P	85 - 115

Reference Method: USGS O-2060-01
 Batch ID: P329841

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1919076	Acetaminophen	98.2	96.7	P/P	30 - 150
1919076	Bentazon	38.2	38.8	F/F	40 - 150
1919076	Carbamazepine	83.9	72.7	P/P	40 - 150
1919076	Diuron	48.5	53.8	P/P	40 - 150
1919076	Fenuron	73.4	64.3	P/P	40 - 150
1919076	Fluridone	67.7	55.6	P/P	40 - 150
1919076	Imidacloprid	139	123	P/P	40 - 160
1919076	Linuron	62.3	65.5	P/P	40 - 150
1919076	MCPP	121	111	P/P	40 - 150
1919076	Primidone	102	80.3	P/P	40 - 150
1919076	Triclopyr	112	123	P/P	40 - 150

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
 Batch ID: P329892

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1919371	Turbidity	3.50	Sample	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P329886

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1919109	Chloride	1.50	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P329888

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1919109	Sulfate	1.64	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P329983

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1919387	Ammonia-N	3.02	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P330019

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1919396	Kjeldahl Nitrogen	1.09	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P330010

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1919332	NO2NO3-N	0.0	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P330011

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1919388	NO2NO3-N	0.0	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P330027

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1919374	Total-P	0.166	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P329846

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1919392	O-Phosphate-P	0.870	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 8321B
Batch ID: P329553

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1918333	Sucralose	1.08	Spike	P	0 - 30

Reference Method: EPA 8321B
Batch ID: P330308

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1919629	Sucralose	41.8	Spike	F	0 - 30

Reference Method: SM 2120 B
Batch ID: P329855

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1919384	Color (true)	2.32	Sample	P	0 - 20

Reference Method: SM 2320 B-97
Batch ID: P330089

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1919541	Total Alkalinity	0.350	Sample	P	0 - 4.8

Reference Method: SM 2540 C-97
Batch ID: P330221

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1918929	TDS	1.79	Sample	P	0 - 10

Reference Method: SM 2540 C-97
Batch ID: P330225

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1919372	TDS	3.42	Sample	P	0 - 10

Reference Method: SM 4500 F-C-97
Batch ID: P330091

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1919541	Fluoride	0.0	Spike	P	0 - 3.0

Reference Method: SM 5310 B-00
Batch ID: P330164

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1919209	Organic Carbon	0.721	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: USGS O-2060-01
Batch ID: P329841

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1919076	2,4-D	0.984	Spike	P	0 - 30
1919076	Acetaminophen	1.46	Spike	P	0 - 30
1919076	Bentazon	0.907	Spike	P	0 - 30
1919076	Carbamazepine	13.8	Spike	P	0 - 30
1919076	Diuron	7.89	Spike	P	0 - 30
1919076	Fenuron	13.2	Spike	P	0 - 30
1919076	Fluridone	11.9	Spike	P	0 - 30
1919076	Imidacloprid	9.50	Spike	P	0 - 30
1919076	Linuron	4.98	Spike	P	0 - 30
1919076	MCP	9.09	Spike	P	0 - 30
1919076	Primidone	24.0	Spike	P	0 - 30
1919076	Triclopyr	8.97	Spike	P	0 - 30

* Sample, spike and/or laboratory control sample precision (LCS) is reported.
Replicate spike precision may be reported when sample results are below quantifiable levels.

Quality Assurance Report Surrogates

Lab Sample ID: 1919451
Field Sample ID: G1SD080717-3

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	Sucralose-d6	89.6	P	40 - 160
USGS O-2060-01	2,4-D-d3	106	P	40 - 160
USGS O-2060-01	Acetaminophen-d4	95.4	P	30 - 160
USGS O-2060-01	Carbamazepine-d10	74.0	P	30 - 160
USGS O-2060-01	Diuron-d6	56.5	P	30 - 160
USGS O-2060-01	Primidone-d5	70.5	P	30 - 160

Lab Sample ID: 1919452
Field Sample ID: G1SD080717-1

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	Acetaminophen-d4	98.4	P	30 - 160
EPA 8321B	Carbamazepine-d10	101	P	30 - 160
EPA 8321B	Diuron-d6	88.0	P	30 - 160
EPA 8321B	Primidone-d5	86.6	P	30 - 160
EPA 8321B	Sucralose-d6	97.5	P	40 - 160
USGS O-2060-01	2,4-D-d3	121	P	40 - 160
USGS O-2060-01	Acetaminophen-d4	98.4	P	30 - 160
USGS O-2060-01	Carbamazepine-d10	101	P	30 - 160
USGS O-2060-01	Diuron-d6	88.0	P	30 - 160
USGS O-2060-01	Primidone-d5	86.6	P	30 - 160
USGS O-2060-01	Sucralose-d6	97.5	P	40 - 160

Lab Sample ID: 1919453
Field Sample ID: G1SD0057

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
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Quality Assurance Report Surrogates

Lab Sample ID: 1919453
 Field Sample ID: G1SD0057

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	Sucralose-d6	77.8	P	40 - 160
USGS O-2060-01	2,4-D-d3	106	P	40 - 160
USGS O-2060-01	Acetaminophen-d4	79.4	P	30 - 160
USGS O-2060-01	Carbamazepine-d10	58.7	P	30 - 160
USGS O-2060-01	Diuron-d6	48.8	P	30 - 160
USGS O-2060-01	Primidone-d5	64.7	P	30 - 160

Quality Assurance Report Calibration Verification

Reference Method: EPA 365.1 Rev. 2.0 dissolved
 Run ID: A78260
 Included Lab Sample IDs: 1919391, 1919392, 1919393, 1919394, 1919397

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	98.5	98.8	P/P	90 - 110
O-Phosphate-P	98.8	99.2	P/P	90 - 110
O-Phosphate-P	99.3	98.8	P/P	90 - 110

Reference Method: SM 2120 B
 Run ID: A78262
 Included Lab Sample IDs: 1919383, 1919384, 1919385, 1919386

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	97.9	101	P/P	85 - 115

Reference Method: EPA 300.0 Rev. 2.1
 Run ID: A78270
 Included Lab Sample IDs: 1919383, 1919384, 1919385, 1919386

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	106	101	P/P	90 - 110
Sulfate	103	100	P/P	90 - 110

Reference Method: EPA 180.1 Rev. 2.0
 Run ID: A78275
 Included Lab Sample IDs: 1919383, 1919384, 1919385, 1919386, 1919395

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

Reference Method: EPA 350.1 Rev. 2.0
 Run ID: A78309
 Included Lab Sample IDs: 1919387, 1919388, 1919389, 1919390, 1919396

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	99.4	100	P/P	90 - 110
Ammonia-N	100	99.7	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A78317

Included Lab Sample IDs: 1919387, 1919388, 1919389, 1919390, 1919396

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

Reference Method: SM 2320 B-97

Run ID: A78343

Included Lab Sample IDs: 1919383, 1919384, 1919385, 1919386, 1919395

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

Reference Method: SM 4500 F-C-97

Run ID: A78343

Included Lab Sample IDs: 1919383, 1919384, 1919385, 1919386, 1919395

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	98.0	99.1	P/P	90 - 110

Reference Method: EPA 8321B

Run ID: A78344

Included Lab Sample IDs: 1919451, 1919453

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Sucralose	116	63.4	P/P	60 - 160
Sucralose	77.0	137	P/P	60 - 160

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A78348

Included Lab Sample IDs: 1919387, 1919388, 1919389, 1919390, 1919396

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	100	99.8	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A78361

Included Lab Sample IDs: 1919387, 1919388, 1919389, 1919390, 1919396

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	103	104	P/P	90 - 110
Kjeldahl Nitrogen	105	103	P/P	90 - 110

Reference Method: SM 5310 B-00

Run ID: A78375

Included Lab Sample IDs: 1919387, 1919388, 1919389, 1919390, 1919396

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

Quality Assurance Report Calibration Verification

Reference Method: USGS O-2060-01

Run ID: A78403

Included Lab Sample IDs: 1919451, 1919452, 1919453

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
2,4-D	112	112	P/P	50 - 150
2,4-D	131	112	P/P	50 - 150
Acetaminophen	79.4	77.7	P/P	60 - 150
Acetaminophen	83.6	79.4	P/P	60 - 150
Bentazon	102	110	P/P	50 - 150
Bentazon	111	102	P/P	50 - 150
Carbamazepine	82.0	86.8	P/P	60 - 150
Carbamazepine	86.8	81.9	P/P	60 - 150
Diuron	79.9	86.2	P/P	60 - 150
Diuron	80.7	79.9	P/P	60 - 150
Fenuron	79.9	85.4	P/P	60 - 150
Fenuron	82.5	79.9	P/P	60 - 150
Fluridone	110	120	P/P	60 - 160
Fluridone	114	110	P/P	60 - 160
Imidacloprid	81.1	90.9	P/P	60 - 150
Imidacloprid	90.9	82.5	P/P	60 - 150
Linuron	84.1	117	P/P	60 - 150
Linuron	93.8	84.1	P/P	60 - 150
MCPP	101	99.9	P/P	50 - 150
MCPP	99.9	93.0	P/P	50 - 150
Primidone	91.7	92.6	P/P	60 - 150
Primidone	92.6	100	P/P	60 - 150
Triclopyr	130	96.4	P/P	50 - 150
Triclopyr	96.4	151	P/P	50 - 150

Reference Method: EPA 8321B

Run ID: A78449

Included Lab Sample IDs: 1919452

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Sucralose	116	106	P/P	60 - 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				3.50	
EPA 300.0 Rev. 2.1	Chloride	101	97.8 103		1.50	
	Sulfate	101	97.8 102		1.64	
EPA 350.1 Rev. 2.0	Ammonia-N	102	106 101			3.02
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	107	101 99.0			1.09
EPA 353.2 Rev. 2.0	NO2NO3-N	105	103			0.0
	NO2NO3-N	106	105 105			0.0
EPA 365.1 Rev. 2.0	Total-P	91.0	92.6 92.4			0.166
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	98.4	94.7 95.7			0.870

Quality Assurance Report Summary

Ref. Method	Analyte	LCS % Recovery	MS % Recovery		Precision	
					LCS	MS
EPA 8321B	Sucralose	70.0	117	116		1.08
	Sucralose	147	103	166		41.8
SM 2120 B	Color (true)				2.32	
SM 2320 B-97	Total Alkalinity	102			0.350	
SM 2540 C-97	TDS				1.79	
	TDS				3.42	
SM 4500 F-C-97	Fluoride	95.9	96.1	96.1		0.0
SM 5310 B-00	Organic Carbon	98.5	101			0.721
USGS O-2060-01	2,4-D	103				0.984
	Acetaminophen	76.0	96.7	98.2		1.46
	Bentazon	101	38.2	38.8		0.907
	Carbamazepine	88.2	83.9	72.7		13.8
	Diuron	81.5	48.5	53.8		7.89
	Fenuron	82.1	64.3	73.4		13.2
	Fluridone	111	67.7	55.6		11.9
	Imidacloprid	81.2	123	139		9.50
	Linuron	83.1	62.3	65.5		4.98
	MCPP	91.6	121	111		9.09
	Primidone	84.5	80.3	102		24.0
	Triclopyr	90.3	112	123		8.97

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	1919383, 1919384, 1919385, 1919386, 1919395
EPA 300.0 Rev. 2.1 / E31780	Chloride in aqueous matrices	1919383, 1919384, 1919385, 1919386
EPA 300.0 Rev. 2.1 / E31780	Sulfate in aqueous matrices	1919383, 1919384, 1919385, 1919386
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	1919387, 1919388, 1919389, 1919390, 1919396
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	1919387, 1919388, 1919389, 1919390, 1919396
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	1919387, 1919388, 1919389, 1919390, 1919396
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	1919387, 1919388, 1919389, 1919390, 1919396
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	1919391, 1919392, 1919393, 1919394, 1919397
EPA 8321B / E31780	Analysis of sucralose in water matrices by HPLC/MS/MS	1919452
EPA 8321B / E31780	Water soluble organic compounds by HPLC/MS/MS	1919451, 1919453
SM 2120 B / E31780	True Color measured at 450 nm	1919383, 1919384, 1919385, 1919386
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO3/L	1919383, 1919384, 1919385, 1919386, 1919395
SM 2540 C-97 / E31780	Total Dissolved Solids in aqueous matrices	1919383, 1919384, 1919385, 1919386
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices	1919383, 1919384, 1919385, 1919386, 1919395
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	1919383, 1919384, 1919385, 1919386, 1919395
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	1919387, 1919388, 1919389, 1919390, 1919396
USGS O-2060-01 / E31780	Chlorinated (phenoxy acid) herbicides in water matrices by HPLC/MS/MS	1919451, 1919452, 1919453
USGS O-2060-01 / E31780	Urea herbicides and other chemicals in water matrices by HPLC/MS/MS	1919451, 1919452, 1919453

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	08/08/2017			08/08/2017 17:09	DeAsia Armster	1919383, 1919384, 1919385, 1919386, 1919395
EPA 300.0 Rev. 2.1	08/08/2017			08/09/2017	Julia Storbeck	1919383, 1919384, 1919385, 1919386
EPA 350.1 Rev. 2.0	08/08/2017			08/09/2017	Sofia Elnemr	1919387, 1919388, 1919389, 1919390, 1919396
EPA 351.2 Rev. 2.0	08/08/2017	08/10/2017	Adrian Shelby	08/11/2017	Joseph Suarez	1919387, 1919388, 1919389, 1919390, 1919396
EPA 353.2 Rev. 2.0	08/08/2017			08/10/2017	Beverly Y. Sanders	1919387, 1919388, 1919389, 1919390, 1919396
EPA 365.1 Rev. 2.0	08/08/2017	08/10/2017	Sima Feizi	08/11/2017	Lipi Saha	1919387, 1919388, 1919389, 1919390, 1919396
EPA 365.1 Rev. 2.0 dissolved	08/08/2017			08/08/2017 14:41	Ping Hua	1919392
	08/08/2017			08/08/2017 14:56	Ping Hua	1919391
	08/08/2017			08/08/2017 14:57	Ping Hua	1919393
	08/08/2017			08/08/2017 14:58	Ping Hua	1919394
	08/08/2017			08/08/2017 15:22	Ping Hua	1919397
EPA 8321B	08/08/2017	08/08/2017	Julie Michelle Frank	08/10/2017	Mohammad Ghaffari	1919453
	08/08/2017	08/08/2017	Julie Michelle Frank	08/11/2017	Mohammad Ghaffari	1919451
	08/08/2017	08/16/2017	Mohammad Ghaffari	08/16/2017	Julie Michelle Frank	1919452
SM 2120 B	08/08/2017			08/08/2017 14:18	Tanya Welborn	1919383
	08/08/2017			08/08/2017 14:19	Tanya Welborn	1919384
	08/08/2017			08/08/2017 14:20	Tanya Welborn	1919385
	08/08/2017			08/08/2017 14:21	Tanya Welborn	1919386
SM 2320 B-97	08/08/2017			08/10/2017	Dale L. Simmons	1919383, 1919384, 1919385, 1919386, 1919395
SM 2540 C-97	08/08/2017			08/09/2017	Yijie Li	1919383, 1919384, 1919385, 1919386
SM 2540 D-97	08/08/2017			08/09/2017	Yijie Li	1919383, 1919384, 1919385, 1919386, 1919395
SM 4500 F-C-97	08/08/2017			08/10/2017	Dale L. Simmons	1919383, 1919384, 1919385, 1919386, 1919395
SM 5310 B-00	08/08/2017			08/11/2017	Sofia Elnemr	1919387, 1919388, 1919389, 1919390, 1919396
USGS O-2060-01	08/08/2017	08/10/2017	Hoor Shaik	08/11/2017	Juyoung Kim	1919451, 1919452, 1919453