

Chemical Analysis Report

WQAP-2017-03-28-04

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

Event Description: **SMP 2017 Freshwater Kit A with B/T/M**
Request ID: **RQ-2017-03-20-34**
Customer: **WQAP**
Project ID: **SMP**

Send Reports to:
FL Dept. of Environmental Protection
2600 Blair Stone Rd
MS #3560
Tallahassee, FL 32399-2400
Attn: Mike Eckles

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Certified by: Liang Lin, Environmental Administrator

Date Certified: 20-APR-2017 13:04

A handwritten signature in black ink, appearing to read "Liang Lin", on a light-colored background.

Case Narrative

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

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

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

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

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

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

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

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

Precision is reported as relative percent difference unless otherwise noted.

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

QC Codes used in this report may include:

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

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

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

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

Sample Location: Bear Creek @ SR 257

Collection Date/Time: 03/28/2017 10:35

Field ID: G1TLHR0052-2017-01

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1883789	EPA 180.1 Rev. 2.0	Turbidity	3.5		NTU	P322451	
	EPA 300.0 Rev. 2.1	Chloride	3.2		mg Cl/L	P322951	
	SM 2120 B	Color (true)	57		PCU	P322336	
	SM 2320 B-97	Total Alkalinity	3.1	J	mg CaCO3/L	P322915	
	SM 2540 C-97	TDS	20	I	mg/L	P322947	
	SM 2540 D-97	TSS	6	I	mg/L	P322697	
	SM 4500 F-C-97	Fluoride	0.056	I	mg F/L	P322806	
1883794	EPA 350.1 Rev. 2.0	Ammonia-N	0.014		mg N/L	P322420	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.29		mg N/L	P322454	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.060		mg N/L	P322473	
	EPA 365.1 Rev. 2.0	Total-P	0.091		mg P/L	P322553	
	SM 5310 B-00	Organic Carbon	4.3		mg C/L	P322429	
1883799	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.054		mg P/L	P322362	
1883849	EPA 8321B	Sucralose**	0.010	U	ug/L	P322291	
	USGS O-2060-01	2,4-D	0.0040	U	ug/L	P322308	
		Diuron	0.0040	U	ug/L	P322308	MS
		Fenuron	0.0080	U	ug/L	P322308	
		Imidacloprid	0.0040	U	ug/L	P322308	
		Bentazon	0.0040	U	ug/L	P322308	MS
		Linuron	0.0040	U	ug/L	P322308	
		Acetaminophen**	0.010	U	ug/L	P322308	
		MCP	0.0040	U	ug/L	P322308	
		Carbamazepine**	4.0E-04	U	ug/L	P322308	
		Triclopyr**	0.010	U	ug/L	P322308	
		Primidone**	0.0080	U	ug/L	P322308	
		Fluridone**	4.0E-04	U	ug/L	P322308	

Ref. Method and Comment:

SM 2320 B-97: The result may be biased high due to background contamination.

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

EPA 351.2 Rev. 2.0: Batch matrix spike recoveries are unavailable because of high analyte concentration in the QC sample.

Sample Location: Ocklawaha Creek @ SR 267

Collection Date/Time: 03/28/2017 11:00

Field ID: G1TLHR0053-2017-01

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1883790	EPA 180.1 Rev. 2.0	Turbidity	1.6		NTU	P322451	
	EPA 300.0 Rev. 2.1	Chloride	2.0		mg Cl/L	P322951	
	SM 2120 B	Color (true)	71		PCU	P322336	
	SM 2320 B-97	Total Alkalinity	0.83	IJ	mg CaCO3/L	P322915	
	SM 2540 C-97	TDS	15	U	mg/L	P322947	
	SM 2540 D-97	TSS	3	I	mg/L	P322697	
	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P322806	
1883795	EPA 350.1 Rev. 2.0	Ammonia-N	0.002	U	mg N/L	P322420	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.21		mg N/L	P322454	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.089		mg N/L	P322473	

Field ID: G1TLHR0053-2017-01

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1883795	EPA 365.1 Rev. 2.0	Total-P	0.009		mg P/L	P322553	
	SM 5310 B-00	Organic Carbon	4.2		mg C/L	P322429	
1883800	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P322362	
1883850	EPA 8321B USGS O-2060-01	Sucralose**	0.010	U	ug/L	P322291	
		2,4-D	0.0040	U	ug/L	P322308	
		Diuron	0.0040	U	ug/L	P322308	MS
		Fenuron	0.0080	U	ug/L	P322308	
		Imidacloprid	0.0040	U	ug/L	P322308	
		Bentazon	0.0040	U	ug/L	P322308	MS
		Linuron	0.0040	U	ug/L	P322308	
		Acetaminophen**	0.010	U	ug/L	P322308	
		MCP	0.0040	U	ug/L	P322308	
		Carbamazepine**	4.0E-04	U	ug/L	P322308	
		Triclopyr**	0.010	U	ug/L	P322308	
		Primidone**	0.0080	U	ug/L	P322308	
		Fluridone**	4.0E-04	U	ug/L	P322308	

Ref. Method and Comment:

SM 2320 B-97: The result may be biased high due to background contamination.

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

EPA 351.2 Rev. 2.0: Batch matrix spike recoveries are unavailable because of high analyte concentration in the QC sample.

Sample Location: Big Creek @ CR 2224

Collection Date/Time: 03/28/2017 11:35

Field ID: G1TLHR0057-2017-01

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1883791	EPA 180.1 Rev. 2.0	Turbidity	2.7		NTU	P322451	
	EPA 300.0 Rev. 2.1	Chloride	2.5		mg Cl/L	P322951	
	SM 2120 B	Color (true)	130		PCU	P322336	
	SM 2320 B-97	Total Alkalinity	2.3	IJ	mg CaCO3/L	P322915	
	SM 2540 C-97	TDS	21	I	mg/L	P322947	
	SM 2540 D-97	TSS	2	I	mg/L	P322697	
	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P322806	
1883796	EPA 350.1 Rev. 2.0	Ammonia-N	0.012		mg N/L	P322420	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.30		mg N/L	P322454	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.18		mg N/L	P322473	
	EPA 365.1 Rev. 2.0	Total-P	0.016		mg P/L	P322553	
	SM 5310 B-00	Organic Carbon	7.4		mg C/L	P322429	
1883801	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.006	I	mg P/L	P322362	
1883851	EPA 8321B USGS O-2060-01	Sucralose**	0.010	U	ug/L	P322291	
		2,4-D	0.0040	U	ug/L	P322308	
		Diuron	0.0040	U	ug/L	P322308	MS
		Fenuron	0.0080	U	ug/L	P322308	
		Imidacloprid	0.0040	U	ug/L	P322308	
		Bentazon	0.0040	U	ug/L	P322308	MS
		Linuron	0.0040	U	ug/L	P322308	
		Acetaminophen**	0.010	U	ug/L	P322308	

Field ID: G1TLHR0057-2017-01

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1883851	USGS O-2060-01	MCP	0.0040	U	ug/L	P322308	
		Carbamazepine**	4.0E-04	U	ug/L	P322308	
		Triclopyr**	0.010	U	ug/L	P322308	
		Primidone**	0.0080	U	ug/L	P322308	
		Fluridone**	4.0E-04	U	ug/L	P322308	

Ref. Method and Comment:

SM 2320 B-97: The result may be biased high due to background contamination.

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

EPA 351.2 Rev. 2.0: Batch matrix spike recoveries are unavailable because of high analyte concentration in the QC sample.

Sample Location: Harvey Creek @ HWY 20

Collection Date/Time: 03/28/2017 12:10

Field ID: G1TLHR0058-2017-01

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1883792	EPA 180.1 Rev. 2.0	Turbidity	1.7		NTU	P322451	
	EPA 300.0 Rev. 2.1	Chloride	3.2		mg Cl/L	P322951	
	SM 2120 B	Color (true)	35		PCU	P322336	
	SM 2320 B-97	Total Alkalinity	3.9	J	mg CaCO3/L	P322915	
	SM 2540 C-97	TDS	20	I	mg/L	P322947	
	SM 2540 D-97	TSS	2	I	mg/L	P322697	
	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P322806	
1883797	EPA 350.1 Rev. 2.0	Ammonia-N	0.006		mg N/L	P322420	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.18	I	mg N/L	P322454	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.032		mg N/L	P322474	
	EPA 365.1 Rev. 2.0	Total-P	0.006		mg P/L	P322553	
	SM 5310 B-00	Organic Carbon	3.3		mg C/L	P322429	
1883802	EPA 365.1 Rev. 2.0	O-Phosphate-P	0.004	U	mg P/L	P322362	
1883852	EPA 8321B	Sucralose**	0.010	U	ug/L	P322291	
	USGS O-2060-01	2,4-D	0.0040	U	ug/L	P322308	
		Diuron	0.0040	U	ug/L	P322308	MS
		Fenuron	0.0080	U	ug/L	P322308	
		Imidacloprid	0.0040	U	ug/L	P322308	
		Bentazon	0.0040	U	ug/L	P322308	MS
		Linuron	0.0040	U	ug/L	P322308	
		Acetaminophen**	0.010	U	ug/L	P322308	
		MCP	0.0040	U	ug/L	P322308	
		Carbamazepine**	4.0E-04	U	ug/L	P322308	
		Triclopyr**	0.010	U	ug/L	P322308	
		Primidone**	0.0080	U	ug/L	P322308	
		Fluridone**	4.0E-04	U	ug/L	P322308	

Ref. Method and Comment:

SM 2320 B-97: The result may be biased high due to background contamination.

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

EPA 351.2 Rev. 2.0: Batch matrix spike recoveries are unavailable because of high analyte concentration in the QC sample.

Sample Location: Harvey Creek @ HWY 20

Collection Date/Time: 03/28/2017 12:15

Field ID: G1TLHR0058-2017-01_dup

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1883793	EPA 180.1 Rev. 2.0	Turbidity	1.7		NTU	P322451	
	EPA 300.0 Rev. 2.1	Chloride	3.1		mg Cl/L	P322951	
	SM 2120 B	Color (true)	33		PCU	P322336	
	SM 2320 B-97	Total Alkalinity	3.9	J	mg CaCO3/L	P322915	
	SM 2540 C-97	TDS	21	I	mg/L	P322947	
	SM 2540 D-97	TSS	2	I	mg/L	P322697	
	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P322806	
1883798	EPA 350.1 Rev. 2.0	Ammonia-N	0.005	I	mg N/L	P322420	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.14	I	mg N/L	P322454	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.032		mg N/L	P322474	
	EPA 365.1 Rev. 2.0	Total-P	0.006		mg P/L	P322553	
	SM 5310 B-00	Organic Carbon	3.3		mg C/L	P322429	
1883803	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P322362	
1883853	EPA 8321B	Sucralose**	0.010	U	ug/L	P322291	
	USGS O-2060-01	2,4-D	0.0040	U	ug/L	P322308	
		Diuron	0.0040	U	ug/L	P322308	MS
		Fenuron	0.0080	U	ug/L	P322308	
		Imidacloprid	0.0040	U	ug/L	P322308	
		Bentazon	0.0040	U	ug/L	P322308	MS
		Linuron	0.0040	U	ug/L	P322308	
		Acetaminophen**	0.010	U	ug/L	P322308	
		MCPD	0.0040	U	ug/L	P322308	
		Carbamazepine**	4.0E-04	U	ug/L	P322308	
		Triclopyr**	0.010	U	ug/L	P322308	
		Primidone**	0.0080	U	ug/L	P322308	
		Fluridone**	4.0E-04	U	ug/L	P322308	

Ref. Method and Comment:
SM 2320 B-97: The result may be biased high due to background contamination.
SM 2540 D-97: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample.
EPA 351.2 Rev. 2.0: Batch matrix spike recoveries are unavailable because of high analyte concentration in the QC sample.

Quality Assurance Report

Method Blank Results

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P322451

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P322951

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Quality Assurance Report Method Blank Results

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P322420

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P322454

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P322473

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P322474

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P322553

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P322362

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

Reference Method: EPA 8321B
Batch ID: P322291

Component	Result	Code	Units
Sucralose	0.010	U	ug/L

Reference Method: SM 2120 B
Batch ID: P322336

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2320 B-97
Batch ID: P322915

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

Quality Assurance Report Method Blank Results

Reference Method: SM 2540 C-97
Batch ID: P322947

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P322697

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500 F-C-97
Batch ID: P322806

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-00
Batch ID: P322429

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

Reference Method: USGS O-2060-01
Batch ID: P322308

Component	Result	Code	Units
2,4-D	0.0040	U	ug/L
Acetaminophen	0.010	U	ug/L
Bentazon	0.0040	U	ug/L
Carbamazepine	4.0E-04	U	ug/L
Diuron	0.0040	U	ug/L
Fenuron	0.0080	U	ug/L
Fluridone	4.0E-04	U	ug/L
Imidacloprid	0.0040	U	ug/L
Linuron	0.0040	U	ug/L
MCPP	0.0040	U	ug/L
Primidone	0.0080	U	ug/L
Triclopyr	0.010	U	ug/L

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P322951

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P322420

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Ammonia-N	96.9		P	90 - 110

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P322454

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P322473

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P322474

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: P322553

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P322362

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

Reference Method: EPA 8321B
Batch ID: P322291

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Sucralose	94.3		P	40 - 140

Reference Method: SM 2320 B-97
Batch ID: P322915

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	104		P	95 - 108

Reference Method: SM 4500 F-C-97
Batch ID: P322806

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	100		P	92 - 103

Reference Method: SM 5310 B-00
Batch ID: P322429

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	97.4		P	85 - 115

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: USGS O-2060-01
 Batch ID: P322308

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2,4-D	110		P	40 - 140
Acetaminophen	94.4		P	40 - 140
Bentazon	52.4		P	40 - 140
Carbamazepine	98.0		P	40 - 140
Diuron	63.6		P	40 - 140
Fenuron	92.8		P	40 - 140
Fluridone	104		P	40 - 140
Imidacloprid	66.0		P	40 - 160
Linuron	88.8		P	40 - 140
MCPP	106		P	40 - 140
Primidone	79.6		P	40 - 140
Triclopyr	86.4		P	40 - 140

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
 Batch ID: P322951

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1883759	Chloride	99.8		P	90 - 110
1884006	Chloride	100		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
 Batch ID: P322420

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1883794	Ammonia-N	97.1	99.2	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
 Batch ID: P322473

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1883698	NO2NO3-N	100	100	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
 Batch ID: P322474

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1883916	NO2NO3-N	100	99.5	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
 Batch ID: P322553

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1883798	Total-P	105	103	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
 Batch ID: P322362

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
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Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 365.1 Rev. 2.0 dissolved
 Batch ID: P322362

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1883799	O-Phosphate-P	98.1	98.1	P/P	90 - 110

Reference Method: EPA 8321B
 Batch ID: P322291

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1883597	Sucralose	100	107	P/P	40 - 140

Reference Method: SM 4500 F-C-97
 Batch ID: P322806

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1883911	Fluoride	102	103	P/P	91 - 105

Reference Method: SM 5310 B-00
 Batch ID: P322429

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1883465	Organic Carbon	97.4	96.4	P/P	85 - 115

Reference Method: USGS O-2060-01
 Batch ID: P322308

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1883897	2,4-D	130	128	P/P	40 - 140
1883897	Acetaminophen	52.8	49.2	P/P	40 - 140
1883897	Bentazon	153	175	F/F	40 - 140
1883897	Carbamazepine	49.6	45.2	P/P	40 - 140
1883897	Diuron	40.8	37.6	P/F	40 - 140
1883897	Fenuron	48.8	42.8	P/P	40 - 140
1883897	Fluridone	59.9	47.9	P/P	40 - 140
1883897	Imidacloprid	96.4	79.2	P/P	40 - 160
1883897	Linuron	52.4	60.0	P/P	40 - 140
1883897	MCP	126	113	P/P	40 - 140
1883897	Primidone	43.2	40.4	P/P	40 - 140
1883897	Triclopyr	78.0	82.0	P/P	40 - 140

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
 Batch ID: P322451

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1883714	Turbidity	0.0	Sample	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P322951

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1883759	Chloride	0.00432	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P322420

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1883794	Ammonia-N	1.73	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P322454

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1883867	Kjeldahl Nitrogen	0.556	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P322473

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1883698	NO2NO3-N	0.0	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P322474

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1883916	NO2NO3-N	0.501	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P322553

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1883798	Total-P	1.51	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P322362

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1883799	O-Phosphate-P	0.0	Spike	P	0 - 20

Reference Method: EPA 8321B
Batch ID: P322291

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1883597	Sucralose	6.76	Spike	P	0 - 30

Quality Assurance Report Precision

Reference Method: SM 2120 B
 Batch ID: P322336

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1883866	Color (true)	1.76	Sample	P	0 - 20

Reference Method: SM 2320 B-97
 Batch ID: P322915

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1884162	Total Alkalinity	0.905	Sample	P	0 - 4.8

Reference Method: SM 2540 C-97
 Batch ID: P322947

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1883854	TDS	0.601	Sample	P	0 - 10

Reference Method: SM 4500 F-C-97
 Batch ID: P322806

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1883911	Fluoride	0.477	Spike	P	0 - 3.0

Reference Method: SM 5310 B-00
 Batch ID: P322429

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1883465	Organic Carbon	0.686	Spike	P	0 - 20

Reference Method: USGS O-2060-01
 Batch ID: P322308

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1883897	2,4-D	1.86	Spike	P	0 - 30
1883897	Acetaminophen	7.06	Spike	P	0 - 30
1883897	Bentazon	10.1	Spike	P	0 - 30
1883897	Carbamazepine	9.28	Spike	P	0 - 30
1883897	Diuron	8.16	Spike	P	0 - 30
1883897	Fenuron	13.1	Spike	P	0 - 30
1883897	Fluridone	22.1	Spike	P	0 - 30
1883897	Imidacloprid	19.6	Spike	P	0 - 30
1883897	Linuron	13.5	Spike	P	0 - 30
1883897	MCP	9.83	Spike	P	0 - 30
1883897	Primidone	6.70	Spike	P	0 - 30
1883897	Triclopyr	2.58	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: 1883849

Field Sample ID: G1TLHR0052-2017-01

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	Sucralose-d6	80.0	P	40 - 150
USGS O-2060-01	2,4-D-d3	109	P	40 - 150
USGS O-2060-01	Acetaminophen-d4	75.6	P	30 - 150
USGS O-2060-01	Carbamazepine-d10	90.4	P	40 - 160
USGS O-2060-01	Diuron-d6	92.2	P	40 - 150
USGS O-2060-01	Primidone-d5	106	P	40 - 150

Lab Sample ID: 1883850

Field Sample ID: G1TLHR0053-2017-01

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	Sucralose-d6	82.0	P	40 - 150
USGS O-2060-01	2,4-D-d3	91.8	P	40 - 150
USGS O-2060-01	Acetaminophen-d4	80.2	P	30 - 150
USGS O-2060-01	Carbamazepine-d10	80.4	P	40 - 160
USGS O-2060-01	Diuron-d6	83.8	P	40 - 150
USGS O-2060-01	Primidone-d5	91.6	P	40 - 150

Lab Sample ID: 1883851

Field Sample ID: G1TLHR0057-2017-01

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	Sucralose-d6	81.0	P	40 - 150
USGS O-2060-01	2,4-D-d3	104	P	40 - 150
USGS O-2060-01	Acetaminophen-d4	72.8	P	30 - 150
USGS O-2060-01	Carbamazepine-d10	68.4	P	40 - 160
USGS O-2060-01	Diuron-d6	72.4	P	40 - 150
USGS O-2060-01	Primidone-d5	76.8	P	40 - 150

Lab Sample ID: 1883852

Field Sample ID: G1TLHR0058-2017-01

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	Sucralose-d6	82.5	P	40 - 150
USGS O-2060-01	2,4-D-d3	118	P	40 - 150
USGS O-2060-01	Acetaminophen-d4	76.2	P	30 - 150
USGS O-2060-01	Carbamazepine-d10	81.8	P	40 - 160
USGS O-2060-01	Diuron-d6	108	P	40 - 150
USGS O-2060-01	Primidone-d5	102	P	40 - 150

Lab Sample ID: 1883853

Field Sample ID: G1TLHR0058-2017-01_dup

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	Sucralose-d6	85.0	P	40 - 150
USGS O-2060-01	2,4-D-d3	101	P	40 - 150
USGS O-2060-01	Acetaminophen-d4	90.0	P	30 - 150
USGS O-2060-01	Carbamazepine-d10	74.6	P	40 - 160
USGS O-2060-01	Diuron-d6	94.2	P	40 - 150
USGS O-2060-01	Primidone-d5	86.0	P	40 - 150

Quality Assurance Report Calibration Verification

Reference Method: SM 2120 B

Run ID: A75415

Included Lab Sample IDs: 1883789, 1883790, 1883791, 1883792, 1883793

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	102	102	P/P	85 - 115

Reference Method: EPA 365.1 Rev. 2.0 dissolved

Run ID: A75426

Included Lab Sample IDs: 1883799, 1883800, 1883801, 1883802, 1883803

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	98.4	99.0	P/P	90 - 110
O-Phosphate-P	98.5	97.3	P/P	90 - 110
O-Phosphate-P	99.0	98.5	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A75437

Included Lab Sample IDs: 1883794, 1883795, 1883796, 1883797, 1883798

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

Reference Method: SM 5310 B-00

Run ID: A75441

Included Lab Sample IDs: 1883794, 1883795, 1883796, 1883797, 1883798

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	95.8	95.2	P/P	90 - 110

Reference Method: EPA 180.1 Rev. 2.0

Run ID: A75454

Included Lab Sample IDs: 1883789, 1883790, 1883791, 1883792, 1883793

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

Reference Method: EPA 8321B

Run ID: A75457

Included Lab Sample IDs: 1883849, 1883850, 1883851, 1883852, 1883853

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Sucralose	102	88.2	P/P	60 - 150

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A75463

Included Lab Sample IDs: 1883794, 1883795, 1883796, 1883797, 1883798

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO2NO3-N	97.5	97.5	P/P	90 - 110
NO2NO3-N	98.0	97.5	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A75489

Included Lab Sample IDs: 1883794, 1883795, 1883796, 1883797, 1883798

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	100	98.0	P/P	90 - 110
Kjeldahl Nitrogen	101	100	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A75523

Included Lab Sample IDs: 1883794

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	105	107	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A75528

Included Lab Sample IDs: 1883795, 1883796, 1883797, 1883798

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

Reference Method: SM 4500 F-C-97

Run ID: A75578

Included Lab Sample IDs: 1883789, 1883790, 1883791, 1883792, 1883793

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

Reference Method: SM 2320 B-97

Run ID: A75625

Included Lab Sample IDs: 1883789, 1883790, 1883791, 1883792, 1883793

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	101	105	P/P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1

Run ID: A75640

Included Lab Sample IDs: 1883789, 1883790, 1883791, 1883792, 1883793

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	100	101	P/P	90 - 110
Chloride	101	99.2	P/P	90 - 110

Reference Method: USGS O-2060-01

Run ID: A75654

Included Lab Sample IDs: 1883849, 1883850, 1883851, 1883852, 1883853

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Acetaminophen	123	111	P/P	60 - 150
Acetaminophen	129	123	P/P	60 - 150
Carbamazepine	121	120	P/P	60 - 150
Carbamazepine	98.8	121	P/P	60 - 150
Diuron	81.2	92.8	P/P	60 - 150
Diuron	97.2	81.2	P/P	60 - 150
Fenuron	113	114	P/P	60 - 150

Quality Assurance Report Calibration Verification

Reference Method: USGS O-2060-01

Run ID: A75654

Included Lab Sample IDs: 1883849, 1883850, 1883851, 1883852, 1883853

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fenuron	114	111	P/P	60 - 150
Fluridone	108	105	P/P	60 - 150
Fluridone	130	108	P/P	60 - 150
Imidacloprid	98.8	99.2	P/P	60 - 150
Imidacloprid	99.2	96.8	P/P	60 - 150
Linuron	120	98.8	P/P	60 - 150
Linuron	96.0	120	P/P	60 - 150
Primidone	102	150	P/P	60 - 150
Primidone	150	135	P/P	60 - 150

Reference Method: USGS O-2060-01

Run ID: A75705

Included Lab Sample IDs: 1883849, 1883850, 1883851, 1883852, 1883853

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
2,4-D	120	126	P/P	50 - 150
2,4-D	126	132	P/P	50 - 150
Bentazon	91.4	92.6	P/P	50 - 150
Bentazon	92.6	89.8	P/P	50 - 150
MCP	133	134	P/P	50 - 150
MCP	134	138	P/P	50 - 150
Triclopyr	103	103	P/P	50 - 150
Triclopyr	103	98.2	P/P	50 - 150

* Pass/Fail determinations are made for each bracketing calibration verification check.

Control limits for initial calibration checks may be different from those for continuing checks, depending on method requirements.

Where they are different, both control limits are provided.

Quality Assurance Report Summary

Ref. Method	Analyte	LCS % Recovery	MS % Recovery	LCS	Precision SMP	MS
EPA 180.1 Rev. 2.0	Turbidity				0.0	
EPA 300.0 Rev. 2.1	Chloride	102	99.8 100		0.0043	
EPA 350.1 Rev. 2.0	Ammonia-N	96.9	97.1 99.2			1.73
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	102				0.556
EPA 353.2 Rev. 2.0	NO ₂ NO ₃ -N	101	100 100			0.0
	NO ₂ NO ₃ -N	100	100 99.5			0.501
EPA 365.1 Rev. 2.0	Total-P	106	105 103			1.51
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	98.5	98.1 98.1			0.0
EPA 8321B	Sucralose	94.3	100 107			6.76
SM 2120 B	Color (true)				1.76	
SM 2320 B-97	Total Alkalinity	104			0.905	
SM 2540 C-97	TDS				0.601	
SM 4500 F-C-97	Fluoride	100	102 103			0.477
SM 5310 B-00	Organic Carbon	97.4	97.4 96.4			0.686
USGS O-2060-01	2,4-D	110	130 128			1.86
	Acetaminophen	94.4	52.8 49.2			7.06
	Bentazon	52.4	153 175			10.1

Quality Assurance Report Summary

Ref. Method	Analyte	LCS % Recovery	MS % Recovery		Precision	
					LCS	MS
USGS O-2060-01	Carbamazepine	98.0	49.6	45.2		9.28
	Diuron	63.6	40.8	37.6		8.16
	Fenuron	92.8	48.8	42.8		13.1
	Fluridone	104	59.9	47.9		22.1
	Imidacloprid	66.0	96.4	79.2		19.6
	Linuron	88.8	52.4	60.0		13.5
	MCP	106	126	113		9.83
	Primidone	79.6	43.2	40.4		6.70
	Triclopyr	86.4	78.0	82.0		2.58

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	1883789, 1883790, 1883791, 1883792, 1883793
EPA 300.0 Rev. 2.1 / E31780	Chloride in aqueous matrices	1883789, 1883790, 1883791, 1883792, 1883793
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	1883794, 1883795, 1883796, 1883797, 1883798
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	1883794, 1883795, 1883796, 1883797, 1883798
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	1883794, 1883795, 1883796, 1883797, 1883798
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	1883794, 1883795, 1883796, 1883797, 1883798
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	1883799, 1883800, 1883801, 1883802, 1883803
EPA 8321B / E31780	Water soluble organic compounds by HPLC/MS/MS	1883849, 1883850, 1883851, 1883852, 1883853
SM 2120 B / E31780	True Color measured at 450 nm	1883789, 1883790, 1883791, 1883792, 1883793
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO ₃ /L	1883789, 1883790, 1883791, 1883792, 1883793
SM 2540 C-97 / E31780	Total Dissolved Solids in aqueous matrices	1883789, 1883790, 1883791, 1883792, 1883793
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices	1883789, 1883790, 1883791, 1883792, 1883793
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	1883789, 1883790, 1883791, 1883792, 1883793
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	1883794, 1883795, 1883796, 1883797, 1883798
USGS O-2060-01 / E31780	Chlorinated (phenoxy acid) herbicides in water matrices by HPLC/MS/MS	1883849, 1883850, 1883851, 1883852, 1883853
USGS O-2060-01 / E31780	Urea herbicides and other chemicals in water matrices by HPLC/MS/MS	1883849, 1883850, 1883851, 1883852, 1883853

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	03/28/2017			03/28/2017 16:08	Blanca Fach	1883789, 1883790, 1883791, 1883792, 1883793
EPA 300.0 Rev. 2.1	03/28/2017			04/07/2017	Ping Hua	1883789, 1883790, 1883791, 1883792, 1883793
EPA 350.1 Rev. 2.0	03/28/2017			03/29/2017	Julie Michelle Frank	1883794, 1883795, 1883796, 1883797, 1883798
EPA 351.2 Rev. 2.0	03/28/2017	03/30/2017	Adrian Shelby	03/31/2017	Joseph Suarez	1883794, 1883795, 1883796, 1883797, 1883798
EPA 353.2 Rev. 2.0	03/28/2017			03/30/2017	Beverly Y. Sanders	1883794, 1883795, 1883796, 1883797, 1883798
EPA 365.1 Rev. 2.0	03/28/2017	03/31/2017	Adrian Shelby	04/03/2017	Lipi Saha	1883794, 1883795, 1883796, 1883797, 1883798
EPA 365.1 Rev. 2.0 dissolved	03/28/2017			03/28/2017 16:06	Virginia P. Brown	1883799
	03/28/2017			03/28/2017 16:21	Virginia P. Brown	1883800
	03/28/2017			03/28/2017 16:22	Virginia P. Brown	1883801
	03/28/2017			03/28/2017 16:23	Virginia P. Brown	1883802
	03/28/2017			03/28/2017 16:36	Virginia P. Brown	1883803
EPA 8321B	03/28/2017	03/29/2017	Mohammad Ghaffari	03/30/2017	Mohammad Ghaffari	1883849, 1883850, 1883851, 1883852, 1883853
SM 2120 B	03/28/2017			03/28/2017 15:48	Julie Michelle Frank	1883789
	03/28/2017			03/28/2017 15:49	Julie Michelle Frank	1883790, 1883791
	03/28/2017			03/28/2017 15:50	Julie Michelle Frank	1883792
	03/28/2017			03/28/2017 15:51	Julie Michelle Frank	1883793
SM 2320 B-97	03/28/2017			04/05/2017	Dale L. Simmons	1883789, 1883790, 1883791, 1883792, 1883793
SM 2540 C-97	03/28/2017			03/30/2017	Sima Feizi	1883789, 1883790, 1883791, 1883792, 1883793
SM 2540 D-97	03/28/2017			03/30/2017	Sima Feizi	1883789, 1883790, 1883791, 1883792, 1883793
SM 4500 F-C-97	03/28/2017			04/05/2017	Dale L. Simmons	1883789, 1883790, 1883791, 1883792, 1883793
SM 5310 B-00	03/28/2017			03/29/2017	Julie Michelle Frank	1883794, 1883795, 1883796, 1883797, 1883798
USGS O-2060-01	03/28/2017	03/30/2017	Hoor Shaik	04/06/2017	Juyoung Kim	1883849, 1883850, 1883851, 1883852, 1883853
	03/28/2017	03/30/2017	Hoor Shaik	04/10/2017	Juyoung Kim	1883849, 1883850, 1883851, 1883852
	03/28/2017	03/30/2017	Hoor Shaik	04/11/2017	Juyoung Kim	1883853