

Chemical Analysis Report

WQAP-2017-10-20-02

Florida Department of Environmental Protection
Central Laboratory
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DOH Accreditation E31780

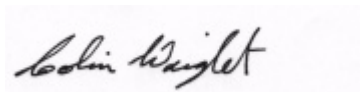
Event Description: **Pinellas LR3**
Request ID: **RQ-2017-10-16-48**
Customer: **WQAP**
Project ID: **SMP**

Send Reports to:
FL Dept. of Environmental Protection
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Certified by: Colin Wright, Program Administrator

Date Certified: 01-DEC-2017 11:13

A handwritten signature in black ink, appearing to read "Colin Wright", is placed over 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 group are included in this report: 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: Alligator Creek PC Site 14-10

Collection Date/Time: 10/19/2017 12:29

Field ID: G1SW0057

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1938977	EPA 8321B	Sucralose**	0.83		ug/L	P334010	
	USGS O-2060-01	2,4-D	0.066		ug/L	P333766	
		Diuron	0.0040		ug/L	P333766	
		Fenuron	0.0080	UJ	ug/L	P333766	LCS
		Imidacloprid	0.034	J	ug/L	P333766	MS
		Bentazon	0.0063	J	ug/L	P333766	LCS, MS
		Linuron	0.0040	U	ug/L	P333766	
		Acetaminophen**	0.0080	U	ug/L	P333766	
		MCP	0.0020	UJ	ug/L	P333766	MS
		Carbamazepine**	0.0040	J	ug/L	P333766	LCS
		Triclopyr**	0.0040	UJ	ug/L	P333766	MS
		Primidone**	0.0074	I	ug/L	P333766	
		Fluridone**	0.091		ug/L	P333766	

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. Insufficient sample was available for re-extraction and analysis. Refer to the narrative for an explanation of QC Codes.

USGS O-2060-01: MS accuracy for fluridone could not be assessed due to high concentration of parameter in the spiked sample. Insufficient sample was available for re-extraction and analysis. Refer to the narrative for an explanation of QC Codes.

Sample Location: Bishop Creek PC Site 12-04

Collection Date/Time: 10/19/2017 13:12

Field ID: G1SW0061

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1938975	EPA 8321B	Sucralose**	0.058		ug/L	P334010	
	USGS O-2060-01	2,4-D	0.0085	Q	ug/L	P335341	
		Diuron	0.0031	I	ug/L	P333714	
		Fenuron	0.0080	UQ	ug/L	P335341	
		Imidacloprid	0.053		ug/L	P333714	
		Bentazon	0.041	Q	ug/L	P335341	
		Linuron	0.0040	U	ug/L	P333714	
		Acetaminophen**	0.0080	U	ug/L	P333714	
		MCP	0.0020	UQ	ug/L	P335341	
		Carbamazepine**	4.0E-04	UQ	ug/L	P335341	
		Triclopyr**	0.0040	UQ	ug/L	P335341	
		Primidone**	0.0040	U	ug/L	P333714	
		Fluridone**	0.015		ug/L	P333714	

Ref. Method and Comment:

USGS O-2060-01: Sample required re-extraction beyond normal holding time due to reagent performance inconsistencies.

USGS O-2060-01: Carbamazepine and Fenuron: Sample required re-extraction beyond normal holding time due to reagent performance inconsistencies.

Sample Location: Bishop Creek PC Site 12-02

Collection Date/Time: 10/19/2017 11:30

Field ID: G1SW0063

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1938976	EPA 8321B	Sucralose**	0.12		ug/L	P334010	
	USGS O-2060-01	2,4-D	0.021	Q	ug/L	P335341	

Field ID: G1SW0063

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1938976	USGS O-2060-01	Diuron	0.0017	I	ug/L	P333714	
		Fenuron	0.0080	UQ	ug/L	P335341	
		Imidacloprid	0.092		ug/L	P333714	
		Bentazon	0.021	Q	ug/L	P335341	
		Linuron	0.0040	U	ug/L	P333714	
		Acetaminophen**	0.0080	U	ug/L	P333714	
		MCP	0.0020	UQ	ug/L	P335341	
		Carbamazepine**	4.0E-04	UQ	ug/L	P335341	
		Triclopyr**	0.0040	UQ	ug/L	P335341	
		Primidone**	0.0040	U	ug/L	P333714	
		Fluridone**	0.10		ug/L	P333714	

Ref. Method and Comment:

USGS O-2060-01: Sample required re-extraction beyond normal holding time due to reagent performance inconsistencies.

USGS O-2060-01: Carbamazepine and Fenuron: Sample required re-extraction beyond normal holding time due to reagent performance inconsistencies.

Quality Assurance Report Method Blank Results

Reference Method: EPA 8321B

Batch ID: P334010

Component	Result	Code	Units
Sucralose	0.010	U	ug/L

Reference Method: USGS O-2060-01

Batch ID: P333714

Component	Result	Code	Units
Acetaminophen	0.0080	U	ug/L
Diuron	8.0E-04	U	ug/L
Fluridone	4.0E-04	U	ug/L
Imidacloprid	8.0E-04	U	ug/L
Linuron	0.0040	U	ug/L
Primidone	0.0040	U	ug/L

Reference Method: USGS O-2060-01

Batch ID: P333766

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

Quality Assurance Report Method Blank Results

Reference Method: USGS O-2060-01
Batch ID: P335341

Component	Result	Code	Units
2,4-D	0.0020	U	ug/L
Bentazon	8.0E-04	U	ug/L
Carbamazepine	4.0E-04	U	ug/L
Fenuron	0.0080	U	ug/L
MCP	0.0020	U	ug/L
Triclopyr	0.0040	U	ug/L

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 8321B
Batch ID: P334010

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Sucralose	88.4		P	40 - 150

Reference Method: USGS O-2060-01
Batch ID: P333714

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Acetaminophen	52.7		P	30 - 150
Diuron	55.8		P	40 - 150
Fluridone	110		P	40 - 150
Imidacloprid	107		P	40 - 160
Linuron	108		P	40 - 150
Primidone	108		P	40 - 150

Reference Method: USGS O-2060-01
Batch ID: P333766

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2,4-D	61.9		P	40 - 150
Acetaminophen	80.5		P	30 - 150
Bentazon	0.0		F	30 - 150
Carbamazepine	0.0		F	40 - 150
Diuron	57.6		P	40 - 150
Fenuron	32.0		F	40 - 150
Fluridone	103		P	40 - 150
Imidacloprid	105		P	40 - 160
Linuron	111		P	40 - 150
MCP	56.3		P	40 - 150
Primidone	102		P	40 - 150
Triclopyr	49.4		P	40 - 150

Reference Method: USGS O-2060-01
Batch ID: P335341

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2,4-D	99.8		P	40 - 150
Bentazon	115		P	30 - 150
Carbamazepine	131		P	40 - 150

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: USGS O-2060-01
 Batch ID: P335341

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fenuron	93.3		P	40 - 150
MCP	89.8		P	40 - 150
Triclopyr	92.4		P	40 - 150

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 8321B
 Batch ID: P334010

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1938845	Sucralose	56.4	54.2	P/P	40 - 150

Reference Method: USGS O-2060-01
 Batch ID: P333714

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1938791	Acetaminophen	78.4	74.1	P/P	30 - 150
1938791	Diuron	98.7	89.4	P/P	40 - 150
1938791	Fluridone	124	122	P/P	40 - 150
1938791	Imidacloprid	151	156	P/P	40 - 160
1938791	Linuron	122	123	P/P	40 - 150
1938791	Primidone	125	116	P/P	40 - 150

Reference Method: USGS O-2060-01
 Batch ID: P333766

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1938977	Acetaminophen	95.0	107	P/P	30 - 150
1938977	Bentazon	10.4	13.1	F/F	30 - 150
1938977	Carbamazepine	110	113	P/P	40 - 150
1938977	Diuron	72.4	72.9	P/P	40 - 150
1938977	Fenuron	87.1	88.4	P/P	40 - 150
1938977	Imidacloprid	225	233	F/F	40 - 160
1938977	Linuron	97.9	103	P/P	40 - 150
1938977	MCP	38.2	41.8	F/P	40 - 150
1938977	Primidone	97.8	107	P/P	40 - 150
1938977	Triclopyr	29.9	29.9	F/F	40 - 150

Reference Method: USGS O-2060-01
 Batch ID: P335341

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1938895	2,4-D	58.3	55.3	P/P	40 - 150
1938895	Bentazon	47.8	49.6	P/P	30 - 150
1938895	Carbamazepine	77.7	81.3	P/P	40 - 150
1938895	Fenuron	60.7	61.1	P/P	40 - 150
1938895	MCP	53.9	52.1	P/P	40 - 150
1938895	Triclopyr	54.1	49.3	P/P	40 - 150

Quality Assurance Report Precision

Reference Method: EPA 8321B
Batch ID: P334010

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1938845	Sucralose	1.95	Spike	P	0 - 30

Reference Method: USGS O-2060-01
Batch ID: P333714

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1938791	Acetaminophen	5.64	Spike	P	0 - 30
1938791	Diuron	9.85	Spike	P	0 - 30
1938791	Fluridone	1.49	Spike	P	0 - 30
1938791	Imidacloprid	3.28	Spike	P	0 - 30
1938791	Linuron	0.586	Spike	P	0 - 30
1938791	Primidone	7.54	Spike	P	0 - 30

Reference Method: USGS O-2060-01
Batch ID: P333766

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1938977	2,4-D	8.16	Spike	P	0 - 30
1938977	Acetaminophen	11.5	Spike	P	0 - 30
1938977	Bentazon	9.57	Spike	P	0 - 30
1938977	Carbamazepine	2.05	Spike	P	0 - 30
1938977	Diuron	0.533	Spike	P	0 - 30
1938977	Fenuron	1.48	Spike	P	0 - 30
1938977	Fluridone	7.15	Spike	P	0 - 30
1938977	Imidacloprid	2.69	Spike	P	0 - 30
1938977	Linuron	5.06	Spike	P	0 - 30
1938977	MCPP	9.00	Spike	P	0 - 30
1938977	Primidone	7.79	Spike	P	0 - 30
1938977	Triclopyr	0.201	Spike	P	0 - 30

Reference Method: USGS O-2060-01
Batch ID: P335341

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1938895	2,4-D	5.35	Spike	P	0 - 30
1938895	Bentazon	3.22	Spike	P	0 - 30
1938895	Carbamazepine	4.22	Spike	P	0 - 30
1938895	Fenuron	0.719	Spike	P	0 - 30
1938895	MCPP	3.35	Spike	P	0 - 30
1938895	Triclopyr	9.33	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

Quality Assurance Report Surrogates

Lab Sample ID: 1938975
Field Sample ID: G1SW0061

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	Acetaminophen-d4	123	P	30 - 160
EPA 8321B	Carbamazepine-d10	76.3	P	30 - 160
EPA 8321B	Diuron-d6	83.6	P	30 - 160
EPA 8321B	Primidone-d5	108	P	30 - 160
EPA 8321B	Sucralose-d6	56.6	P	40 - 160
USGS O-2060-01	2,4-D-d3	48.1	P	30 - 160
USGS O-2060-01	Acetaminophen-d4	123	P	30 - 160
USGS O-2060-01	Carbamazepine-d10	76.3	P	30 - 160
USGS O-2060-01	Diuron-d6	83.6	P	30 - 160
USGS O-2060-01	Primidone-d5	108	P	30 - 160
USGS O-2060-01	Sucralose-d6	56.6	P	40 - 160

Lab Sample ID: 1938976
Field Sample ID: G1SW0063

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	Acetaminophen-d4	89.0	P	30 - 160
EPA 8321B	Carbamazepine-d10	86.5	P	30 - 160
EPA 8321B	Diuron-d6	77.6	P	30 - 160
EPA 8321B	Primidone-d5	116	P	30 - 160
EPA 8321B	Sucralose-d6	56.9	P	40 - 160
USGS O-2060-01	2,4-D-d3	53.1	P	30 - 160
USGS O-2060-01	Acetaminophen-d4	89.0	P	30 - 160
USGS O-2060-01	Carbamazepine-d10	86.5	P	30 - 160
USGS O-2060-01	Diuron-d6	77.6	P	30 - 160
USGS O-2060-01	Primidone-d5	116	P	30 - 160
USGS O-2060-01	Sucralose-d6	56.9	P	40 - 160

Lab Sample ID: 1938977
Field Sample ID: G1SW0057

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	Acetaminophen-d4	95.1	P	30 - 160
EPA 8321B	Carbamazepine-d10	114	P	30 - 160
EPA 8321B	Diuron-d6	78.9	P	30 - 160
EPA 8321B	Primidone-d5	113	P	30 - 160
EPA 8321B	Sucralose-d6	55.8	P	40 - 160
USGS O-2060-01	2,4-D-d3	50.1	P	40 - 160
USGS O-2060-01	Acetaminophen-d4	95.1	P	30 - 160
USGS O-2060-01	Carbamazepine-d10	114	P	30 - 160
USGS O-2060-01	Diuron-d6	78.9	P	30 - 160
USGS O-2060-01	Primidone-d5	113	P	30 - 160
USGS O-2060-01	Sucralose-d6	55.8	P	40 - 160

Quality Assurance Report Calibration Verification

Quality Assurance Report Calibration Verification

Reference Method: USGS O-2060-01

Run ID: A79905

Included Lab Sample IDs: 1938977

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
2,4-D	103	105	P/P	50 - 150
Acetaminophen	113	117	P/P	60 - 150
Bentazon	98.8	98.2	P/P	50 - 150
Carbamazepine	122	122	P/P	60 - 150
Diuron	113	113	P/P	60 - 150
Fenuron	112	113	P/P	60 - 150
Fluridone	118	124	P/P	60 - 160
Imidacloprid	115	114	P/P	60 - 150
Linuron	118	119	P/P	60 - 150
MCP	102	102	P/P	50 - 150
Primidone	114	111	P/P	60 - 150
Triclopyr	94.1	105	P/P	50 - 150

Reference Method: EPA 8321B

Run ID: A79950

Included Lab Sample IDs: 1938975, 1938976, 1938977

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Sucralose	85.3	90.8	P/P	60 - 150
Sucralose	90.8	87.6	P/P	60 - 150

Reference Method: USGS O-2060-01

Run ID: A80422

Included Lab Sample IDs: 1938975, 1938976

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
2,4-D	101	107	P/P	50 - 150
Bentazon	140	133	P/P	50 - 150
Carbamazepine	130	124	P/P	60 - 150
Fenuron	97.1	99.4	P/P	60 - 150
MCP	102	104	P/P	50 - 150
Triclopyr	103	103	P/P	50 - 160

* 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 8321B	Sucralose	88.4	56.4 54.2			1.95
USGS O-2060-01	2,4-D	61.9				8.16
	2,4-D	99.8	58.3 55.3			5.35
	Acetaminophen	52.7	78.4 74.1			5.64
	Acetaminophen	80.5	95.0 107			11.5
	Bentazon	0.0	10.4 13.1			9.57
	Bentazon	115	47.8 49.6			3.22
	Carbamazepine	0.0	110 113			2.05

Quality Assurance Report Summary

Ref. Method	Analyte	LCS % Recovery	MS % Recovery		LCS	Precision SMP	MS
USGS O-2060-01	Carbamazepine	131	77.7	81.3			4.22
	Diuron	55.8	98.7	89.4			9.85
	Diuron	57.6	72.4	72.9			0.533
	Fenuron	32.0	87.1	88.4			1.48
	Fenuron	93.3	60.7	61.1			0.719
	Fluridone	110	124	122			1.49
	Fluridone	103					7.15
	Imidacloprid	107	151	156			3.28
	Imidacloprid	105	225	233			2.69
	Linuron	108	122	123			0.586
	Linuron	111	97.9	103			5.06
	MCP	56.3	38.2	41.8			9.00
	MCP	89.8	53.9	52.1			3.35
	Primidone	108	125	116			7.54
	Primidone	102	97.8	107			7.79
	Triclopyr	49.4	29.9	29.9			0.201
	Triclopyr	92.4	54.1	49.3			9.33

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 8321B / E31780	Analysis of sucralose in water matrices by HPLC/MS/MS	1938975, 1938976, 1938977
USGS O-2060-01 / E31780	Chlorinated (phenoxy acid) herbicides in water matrices by HPLC/MS/MS	1938975, 1938976, 1938977
USGS O-2060-01 / E31780	Urea herbicides and other chemicals in water matrices by HPLC/MS/MS	1938975, 1938976, 1938977

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
EPA 8321B	10/20/2017	10/27/2017	Julie Michelle Frank	10/28/2017	Juyoung Kim	1938975, 1938976, 1938977
USGS O-2060-01	10/20/2017	10/25/2017	Hoor Shaik	10/30/2017	Julie Michelle Frank	1938977
	10/20/2017	11/15/2017	Hoor Shaik	11/17/2017	Juyoung Kim	1938975, 1938976