

Chemical Analysis Report

WQAP-2017-03-08-03

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-2017-02-20-31**
Customer: **WQAP**
Project ID: **SMP**

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

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Certified by: Liang Lin, Environmental Administrator

Date Certified: 04-APR-2017 16:20

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: MOORE BRANCH @ CODY CHURCH ROAD

Collection Date/Time: 03/08/2017 10:25

Field ID: G1TLHR0041

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1878453	EPA 180.1 Rev. 2.0	Turbidity	1.8		NTU	P321195	
	EPA 300.0 Rev. 2.1	Chloride	5.8		mg Cl/L	P321784	
	SM 2120 B	Color (true)	70		PCU	P321189	
	SM 2320 B-97	Total Alkalinity	0.65	U	mg CaCO3/L	P321528	
	SM 2540 C-97	TDS	33		mg/L	P321887	
	SM 2540 D-97	TSS	4	I	mg/L	P321819	
	SM 4500 F-C-97	Fluoride	0.038	I	mg F/L	P321532	
1878456	EPA 350.1 Rev. 2.0	Ammonia-N	0.006		mg N/L	P321449	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.25		mg N/L	P321479	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P321591	
	EPA 365.1 Rev. 2.0	Total-P	0.052		mg P/L	P321373	
	SM 5310 B-00	Organic Carbon	6.2		mg C/L	P321335	
1878459	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.032		mg P/L	P321185	
1878471	EPA 8321B	Sucralose**	0.010	U	ug/L	P321083	
	USGS O-2060-01	2,4-D	0.0040	U	ug/L	P321159	
		Diuron	0.0040	U	ug/L	P321159	
		2,4-DB	0.010	U	ug/L	P321159	
		Fenuron	0.0080	U	ug/L	P321159	
		2,4,5-T	0.0040	U	ug/L	P321159	
		Acifluorfen	0.010	U	ug/L	P321159	RPD
		Imidacloprid	0.0040	U	ug/L	P321159	
		Bentazon	0.0040	U	ug/L	P321159	
		Linuron	0.0040	U	ug/L	P321159	
		Dicamba	0.050	U	ug/L	P321159	
		Dichlorprop	0.0040	U	ug/L	P321159	
		Dinoseb	0.020	U	ug/L	P321159	MS, RPD
		MCPA	0.0040	U	ug/L	P321159	
		Acetaminophen**	0.0040	U	ug/L	P321159	
		MCPD	0.0040	U	ug/L	P321159	
		Picloram	0.050	U	ug/L	P321159	RPD
		Carbamazepine**	4.0E-04	U	ug/L	P321159	
		Silvex	0.0040	U	ug/L	P321159	
		Triclopyr**	0.010	U	ug/L	P321159	
		Primidone**	0.0080	U	ug/L	P321159	
		Fluridone**	4.0E-04	U	ug/L	P321159	

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: SWEETWATER BRANCH @ CODY CHURCH ROAD

Collection Date/Time: 03/08/2017 10:55

Field ID: G1TLHR0040

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1878454	EPA 180.1 Rev. 2.0	Turbidity	3.7		NTU	P321195	

Field ID: G1TLHR0040

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1878454	EPA 300.0 Rev. 2.1	Chloride	6.1		mg Cl/L	P321784	
	SM 2120 B	Color (true)	90		PCU	P321189	
	SM 2320 B-97	Total Alkalinity	9.8		mg CaCO3/L	P321528	
	SM 2540 C-97	TDS	40		mg/L	P321887	
	SM 2540 D-97	TSS	3	I	mg/L	P321819	
	SM 4500 F-C-97	Fluoride	0.063	I	mg F/L	P321532	
1878457	EPA 350.1 Rev. 2.0	Ammonia-N	0.005	I	mg N/L	P321449	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.28		mg N/L	P321481	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P321592	
	EPA 365.1 Rev. 2.0	Total-P	0.064		mg P/L	P321373	
	SM 5310 B-00	Organic Carbon	6.6		mg C/L	P321335	
1878460	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.034		mg P/L	P321185	
1878472	EPA 8321B	Sucralose**	0.010	U	ug/L	P321083	
	USGS O-2060-01	2,4-D	0.0040	U	ug/L	P321159	
		Diuron	0.0040	U	ug/L	P321159	
		2,4-DB	0.010	U	ug/L	P321159	
		Fenuron	0.0080	U	ug/L	P321159	
		2,4,5-T	0.0040	U	ug/L	P321159	
		Acifluorfen	0.010	U	ug/L	P321159	RPD
		Imidacloprid	0.0040	U	ug/L	P321159	
		Bentazon	0.0040	U	ug/L	P321159	
		Linuron	0.0040	U	ug/L	P321159	
		Dicamba	0.050	U	ug/L	P321159	
		Dichlorprop	0.0040	U	ug/L	P321159	
		Dinoseb	0.020	U	ug/L	P321159	MS, RPD
		MCPA	0.0040	U	ug/L	P321159	
		Acetaminophen**	0.0040	U	ug/L	P321159	
		MCPD	0.0040	U	ug/L	P321159	
		Picloram	0.050	U	ug/L	P321159	RPD
		Carbamazepine**	4.0E-04	U	ug/L	P321159	
		Silvex	0.0040	U	ug/L	P321159	
		Triclopyr**	0.010	U	ug/L	P321159	
		Primidone**	0.0080	U	ug/L	P321159	
		Fluridone**	4.0E-04	U	ug/L	P321159	

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: MT. SINAI SLOUGH @ WEEPING WILLIOW WAY

Collection Date/Time: 03/08/2017 11:25

Field ID: G1TLHR0049

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1878455	EPA 180.1 Rev. 2.0	Turbidity	1.4	A	NTU	P321196	
	EPA 300.0 Rev. 2.1	Chloride	6.3		mg Cl/L	P321784	
	SM 2120 B	Color (true)	81	A	PCU	P321190	
	SM 2320 B-97	Total Alkalinity	3.9		mg CaCO3/L	P321528	

Field ID: G1TLHR0049

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1878455	SM 2540 C-97	TDS	32		mg/L	P321887	
	SM 2540 D-97	TSS	3	I	mg/L	P321819	
	SM 4500 F-C-97	Fluoride	0.036	I	mg F/L	P321532	
1878458	EPA 350.1 Rev. 2.0	Ammonia-N	0.015		mg N/L	P321449	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.38		mg N/L	P321481	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P321592	
	EPA 365.1 Rev. 2.0	Total-P	0.048		mg P/L	P321373	
	SM 5310 B-00	Organic Carbon	7.4		mg C/L	P321335	
1878461	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.015		mg P/L	P321185	
1878473	EPA 8321B	Sucralose**	0.064		ug/L	P321083	
	USGS O-2060-01	2,4-D	0.0089	I	ug/L	P321159	
		Diuron	0.0040	U	ug/L	P321159	
		2,4-DB	0.010	U	ug/L	P321159	
		Fenuron	0.0080	U	ug/L	P321159	
		2,4,5-T	0.0040	U	ug/L	P321159	
		Acifluorfen	0.010	U	ug/L	P321159	RPD
		Imidacloprid	0.0040	U	ug/L	P321159	
		Bentazon	0.0040	U	ug/L	P321159	
		Linuron	0.0040	U	ug/L	P321159	
		Dicamba	0.050	U	ug/L	P321159	
		Dichlorprop	0.0040	U	ug/L	P321159	
		Dinoseb	0.020	U	ug/L	P321159	MS, RPD
		MCPA	0.0040	U	ug/L	P321159	
		Acetaminophen**	0.0040	U	ug/L	P321159	
		MCPP	0.0040	U	ug/L	P321159	
		Picloram	0.050	U	ug/L	P321159	RPD
		Carbamazepine**	4.0E-04	U	ug/L	P321159	
		Silvex	0.0040	U	ug/L	P321159	
		Triclopyr**	0.010	U	ug/L	P321159	
		Primidone**	0.0080	U	ug/L	P321159	
		Fluridone**	4.0E-04	U	ug/L	P321159	

Ref. Method and Comment:

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

Quality Assurance Report

Method Blank Results

Reference Method: EPA 180.1 Rev. 2.0

Batch ID: P321195

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 180.1 Rev. 2.0

Batch ID: P321196

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Quality Assurance Report Method Blank Results

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P321784

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P321449

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P321479

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P321481

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P321591

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P321592

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P321373

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P321185

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

Reference Method: EPA 8321B
Batch ID: P321083

Component	Result	Code	Units
Sucralose	0.010	U	ug/L

Quality Assurance Report Method Blank Results

Reference Method: SM 2120 B
Batch ID: P321189

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2120 B
Batch ID: P321190

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2320 B-97
Batch ID: P321528

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

Reference Method: SM 2540 C-97
Batch ID: P321887

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P321819

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500 F-C-97
Batch ID: P321532

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-00
Batch ID: P321335

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

Reference Method: USGS O-2060-01
Batch ID: P321159

Component	Result	Code	Units
2,4,5-T	0.0040	U	ug/L
2,4-D	0.0040	U	ug/L
2,4-DB	0.010	U	ug/L
Acetaminophen	0.0040	U	ug/L
Acifluorfen	0.010	U	ug/L
Bentazon	0.0040	U	ug/L
Carbamazepine	4.0E-04	U	ug/L
Dicamba	0.050	U	ug/L
Dichlorprop	0.0040	U	ug/L
Dinoseb	0.020	U	ug/L

Quality Assurance Report Method Blank Results

Reference Method: USGS O-2060-01
Batch ID: P321159

Component	Result	Code	Units
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
MCPA	0.0040	U	ug/L
MCPP	0.0040	U	ug/L
Picloram	0.050	U	ug/L
Primidone	0.0080	U	ug/L
Silvex	0.0040	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: P321784

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P321449

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Ammonia-N	104		P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P321479

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P321481

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P321591

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
NO2NO3-N	104		P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P321592

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
NO2NO3-N	104		P	90 - 110

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 365.1 Rev. 2.0
 Batch ID: P321373

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
 Batch ID: P321185

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

Reference Method: EPA 8321B
 Batch ID: P321083

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Sucralose	99.0		P	40 - 140

Reference Method: SM 2320 B-97
 Batch ID: P321528

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

Reference Method: SM 4500 F-C-97
 Batch ID: P321532

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	97.1		P	92 - 103

Reference Method: SM 5310 B-00
 Batch ID: P321335

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	95.5		P	85 - 115

Reference Method: USGS O-2060-01
 Batch ID: P321159

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2,4,5-T	83.2		P	40 - 140
2,4-D	96.4		P	40 - 140
2,4-DB	72.0		P	40 - 140
Acetaminophen	94.0		P	40 - 140
Acifluorfen	46.4		P	40 - 140
Bentazon	126		P	40 - 140
Carbamazepine	97.6		P	40 - 140
Dicamba	85.2		P	40 - 140
Dichlorprop	107		P	40 - 140
Dinoseb	66.8		P	40 - 140
Diuron	65.6		P	40 - 140
Fenuron	82.4		P	40 - 140
Fluridone	86.4		P	40 - 140
Imidacloprid	76.4		P	40 - 160
Linuron	67.6		P	40 - 140
MCPA	85.2		P	40 - 140

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: USGS O-2060-01
 Batch ID: P321159

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
MCP	94.8		P	40 - 140
Picloram	79.2		P	40 - 140
Primidone	62.4		P	40 - 140
Silvex	104		P	40 - 140
Triclopyr	123		P	40 - 140

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
 Batch ID: P321784

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1878351	Chloride	104		P	90 - 110
1878455	Chloride	104		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
 Batch ID: P321449

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1878456	Ammonia-N	99.8	97.8	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
 Batch ID: P321479

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1878456	Kjeldahl Nitrogen	97.5	98.5	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
 Batch ID: P321481

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1878505	Kjeldahl Nitrogen	97.6	99.6	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
 Batch ID: P321591

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1878406	NO2NO3-N	102	105	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
 Batch ID: P321592

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1878458	NO2NO3-N	104	105	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
 Batch ID: P321373

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1878634	Total-P	99.4	99.9	P/P	90 - 110

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 365.1 Rev. 2.0 dissolved
 Batch ID: P321185

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1878459	O-Phosphate-P	99.4	98.3	P/P	90 - 110

Reference Method: EPA 8321B
 Batch ID: P321083

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1878109	Sucralose	108	123	P/P	40 - 140

Reference Method: SM 4500 F-C-97
 Batch ID: P321532

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1878632	Fluoride	101	100	P/P	91 - 105

Reference Method: SM 5310 B-00
 Batch ID: P321335

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1878443	Organic Carbon	93.5	95.1	P/P	85 - 115

Reference Method: USGS O-2060-01
 Batch ID: P321159

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1878905	2,4,5-T	74.8	82.4	P/P	40 - 140
1878905	2,4-D	84.4	90.8	P/P	40 - 140
1878905	2,4-DB	68.0	74.8	P/P	40 - 140
1878905	Acetaminophen	92.8	89.6	P/P	40 - 140
1878905	Acifluorfen	44.8	66.8	P/P	40 - 140
1878905	Bentazon	129	137	P/P	40 - 140
1878905	Carbamazepine	86.4	87.6	P/P	40 - 140
1878905	Dicamba	68.4	89.2	P/P	40 - 140
1878905	Dichlorprop	88.0	83.6	P/P	40 - 140
1878905	Dinoseb	93.6	6.76	P/F	40 - 140
1878905	Diuron	61.6	62.0	P/P	40 - 140
1878905	Fenuron	63.2	72.4	P/P	40 - 140
1878905	Fluridone	75.6	77.6	P/P	40 - 140
1878905	Imidacloprid	83.6	74.4	P/P	40 - 160
1878905	Linuron	66.4	64.8	P/P	40 - 140
1878905	MCPA	87.2	92.4	P/P	40 - 140
1878905	MCPP	92.0	93.2	P/P	40 - 140
1878905	Picloram	49.6	106	P/P	40 - 140
1878905	Primidone	62.8	67.6	P/P	40 - 140
1878905	Silvex	108	105	P/P	40 - 140
1878905	Triclopyr	112	120	P/P	40 - 140

Quality Assurance Report Precision

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P321195

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1878414	Turbidity	0.238	Sample	P	0 - 20

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P321196

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1878455	Turbidity	4.84	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P321784

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1878351	Chloride	2.19	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P321449

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1878456	Ammonia-N	1.80	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P321479

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1878456	Kjeldahl Nitrogen	0.840	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P321481

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1878505	Kjeldahl Nitrogen	1.15	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P321591

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1878406	NO2NO3-N	2.41	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P321592

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1878458	NO2NO3-N	1.44	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 365.1 Rev. 2.0

Batch ID: P321373

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1878634	Total-P	0.421	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved

Batch ID: P321185

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1878459	O-Phosphate-P	0.843	Spike	P	0 - 20

Reference Method: EPA 8321B

Batch ID: P321083

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1878109	Sucralose	12.2	Spike	P	0 - 30

Reference Method: SM 2120 B

Batch ID: P321189

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1878412	Color (true)	1.08	Sample	P	0 - 20

Reference Method: SM 2120 B

Batch ID: P321190

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1878455	Color (true)	3.02	Sample	P	0 - 20

Reference Method: SM 2320 B-97

Batch ID: P321528

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1878632	Total Alkalinity	0.216	Sample	P	0 - 4.8

Reference Method: SM 2540 C-97

Batch ID: P321887

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1878414	TDS	8.00	Sample	P	0 - 10

Reference Method: SM 4500 F-C-97

Batch ID: P321532

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1878632	Fluoride	0.480	Spike	P	0 - 3.0

Quality Assurance Report Precision

Reference Method: SM 5310 B-00
Batch ID: P321335

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1878443	Organic Carbon	1.42	Spike	P	0 - 20

Reference Method: USGS O-2060-01
Batch ID: P321159

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1878905	2,4,5-T	9.67	Spike	P	0 - 30
1878905	2,4-D	7.31	Spike	P	0 - 30
1878905	2,4-DB	9.52	Spike	P	0 - 30
1878905	Acetaminophen	3.51	Spike	P	0 - 30
1878905	Acifluorfen	39.4	Spike	F	0 - 30
1878905	Bentazon	6.32	Spike	P	0 - 30
1878905	Carbamazepine	1.38	Spike	P	0 - 30
1878905	Dicamba	26.4	Spike	P	0 - 30
1878905	Dichlorprop	5.13	Spike	P	0 - 30
1878905	Dinoseb	173	Spike	F	0 - 30
1878905	Diuron	0.647	Spike	P	0 - 30
1878905	Fenuron	13.6	Spike	P	0 - 30
1878905	Fluridone	2.61	Spike	P	0 - 30
1878905	Imidacloprid	11.6	Spike	P	0 - 30
1878905	Linuron	2.44	Spike	P	0 - 30
1878905	MCPA	5.79	Spike	P	0 - 30
1878905	MCPP	1.30	Spike	P	0 - 30
1878905	Picloram	72.2	Spike	F	0 - 30
1878905	Primidone	7.36	Spike	P	0 - 30
1878905	Silvex	3.01	Spike	P	0 - 30
1878905	Triclopyr	6.92	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: 1878471
Field Sample ID: G1TLHR0041

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	Sucralose-d6	112	P	40 - 150
USGS O-2060-01	2,4-D-d3	102	P	40 - 150
USGS O-2060-01	Acetaminophen-d4	80.6	P	30 - 150
USGS O-2060-01	Carbamazepine-d10	87.4	P	40 - 160
USGS O-2060-01	Diuron-d6	68.8	P	40 - 150
USGS O-2060-01	Primidone-d5	86.2	P	40 - 150

Lab Sample ID: 1878472
Field Sample ID: G1TLHR0040

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

Lab Sample ID: 1878472

Field Sample ID: G1TLHR0040

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	Sucralose-d6	70.5	P	40 - 150
USGS O-2060-01	2,4-D-d3	104	P	40 - 150
USGS O-2060-01	Acetaminophen-d4	70.2	P	30 - 150
USGS O-2060-01	Carbamazepine-d10	72.2	P	40 - 160
USGS O-2060-01	Diuron-d6	68.6	P	40 - 150
USGS O-2060-01	Primidone-d5	67.0	P	40 - 150

Lab Sample ID: 1878473

Field Sample ID: G1TLHR0049

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	Sucralose-d6	57.0	P	40 - 150
USGS O-2060-01	2,4-D-d3	103	P	40 - 150
USGS O-2060-01	Acetaminophen-d4	66.2	P	30 - 150
USGS O-2060-01	Carbamazepine-d10	65.6	P	40 - 160
USGS O-2060-01	Diuron-d6	53.6	P	40 - 150
USGS O-2060-01	Primidone-d5	69.4	P	40 - 150

Quality Assurance Report Calibration Verification

Reference Method: EPA 365.1 Rev. 2.0 dissolved

Run ID: A74969

Included Lab Sample IDs: 1878459, 1878460, 1878461

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	100	102	P/P	90 - 110
O-Phosphate-P	99.6	99.9	P/P	90 - 110

Reference Method: SM 2120 B

Run ID: A74970

Included Lab Sample IDs: 1878453, 1878454, 1878455

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	97.9	95.7	P/P	85 - 115
Color (true)	98.6	97.9	P/P	85 - 115

Reference Method: EPA 180.1 Rev. 2.0

Run ID: A74972

Included Lab Sample IDs: 1878453, 1878454, 1878455

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Turbidity	100	101	P/P	95 - 105
Turbidity	101	100	P/P	95 - 105

Reference Method: EPA 8321B

Run ID: A75006

Included Lab Sample IDs: 1878471

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Sucralose	112	102	P/P	60 - 150

Quality Assurance Report Calibration Verification

Reference Method: SM 5310 B-00

Run ID: A75011

Included Lab Sample IDs: 1878456, 1878457, 1878458

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	97.2	96.3	P/P	90 - 110

Reference Method: EPA 8321B

Run ID: A75044

Included Lab Sample IDs: 1878472, 1878473

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Sucralose	103	135	P/P	60 - 150

Reference Method: USGS O-2060-01

Run ID: A75047

Included Lab Sample IDs: 1878471, 1878472, 1878473

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
2,4,5-T	91.8	93.6	P/P	50 - 150
2,4,5-T	93.6	100	P/P	50 - 150
2,4-D	106	112	P/P	50 - 150
2,4-D	111	106	P/P	50 - 150
2,4-DB	80.0	89.8	P/P	50 - 150
2,4-DB	89.8	89.6	P/P	50 - 150
Acifluorfen	80.6	87.0	P/P	50 - 150
Acifluorfen	84.6	80.6	P/P	50 - 150
Bentazon	102	102	P/P	50 - 150
Bentazon	94.2	102	P/P	50 - 150
Dicamba	105	113	P/P	50 - 150
Dicamba	113	117	P/P	50 - 150
Dichlorprop	109	110	P/P	50 - 150
Dichlorprop	110	113	P/P	50 - 150
Dinoseb	115	109	P/P	50 - 150
Dinoseb	99.2	115	P/P	50 - 150
MCPA	108	107	P/P	50 - 150
MCPA	99.8	108	P/P	50 - 150
MCPP	114	111	P/P	50 - 150
MCPP	99.4	114	P/P	50 - 150
Picloram	109	123	P/P	50 - 150
Picloram	120	109	P/P	50 - 150
Silvex	94.2	97.2	P/P	50 - 150
Silvex	97.2	92.4	P/P	50 - 150
Triclopyr	104	111	P/P	50 - 150
Triclopyr	111	114	P/P	50 - 150

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A75054

Included Lab Sample IDs: 1878456, 1878457, 1878458

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	101	101	P/P	90 - 110
Ammonia-N	99.7	101	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: USGS O-2060-01

Run ID: A75078

Included Lab Sample IDs: 1878471, 1878472, 1878473

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Acetaminophen	96.4	99.6	P/P	60 - 150
Acetaminophen	99.6	88.8	P/P	60 - 150
Carbamazepine	113	120	P/P	60 - 150
Carbamazepine	120	124	P/P	60 - 150
Diuron	84.0	93.6	P/P	60 - 150
Diuron	93.6	88.8	P/P	60 - 150
Fenuron	96.0	100	P/P	60 - 150
Fenuron	96.4	96.0	P/P	60 - 150
Fluridone	104	98.0	P/P	60 - 150
Fluridone	96.8	104	P/P	60 - 150
Imidacloprid	85.6	96.8	P/P	60 - 150
Imidacloprid	96.8	94.0	P/P	60 - 150
Linuron	110	97.2	P/P	60 - 150
Linuron	97.2	113	P/P	60 - 150
Primidone	80.4	94.8	P/P	60 - 150
Primidone	88.4	80.4	P/P	60 - 150

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A75079

Included Lab Sample IDs: 1878457

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	97.0	98.9	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A75081

Included Lab Sample IDs: 1878456, 1878458

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	98.8	99.2	P/P	90 - 110

Reference Method: SM 2320 B-97

Run ID: A75091

Included Lab Sample IDs: 1878453, 1878454, 1878455

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	105	103	P/P	90 - 110

Reference Method: SM 4500 F-C-97

Run ID: A75091

Included Lab Sample IDs: 1878453, 1878454, 1878455

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	100	98.5	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A75112

Included Lab Sample IDs: 1878456, 1878457, 1878458

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO2NO3-N	100	101	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A75112

Included Lab Sample IDs: 1878456, 1878457, 1878458

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

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A75117

Included Lab Sample IDs: 1878456, 1878457, 1878458

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	101	100	P/P	90 - 110
Kjeldahl Nitrogen	97.5	98.3	P/P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1

Run ID: A75123

Included Lab Sample IDs: 1878453, 1878454, 1878455

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

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

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

Where they are different, both control limits are provided.

Quality Assurance Report Summary

Ref. Method	Analyte	LCS % Recovery	MS % Recovery		LCS	Precision SMP	MS
EPA 180.1 Rev. 2.0	Turbidity					0.238	
	Turbidity					4.84	
EPA 300.0 Rev. 2.1	Chloride	103	104	104		2.19	
EPA 350.1 Rev. 2.0	Ammonia-N	104	99.8	97.8			1.80
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	102	97.5	98.5			0.840
	Kjeldahl Nitrogen	101	97.6	99.6			1.15
EPA 353.2 Rev. 2.0	NO2NO3-N	104	102	105			2.41
	NO2NO3-N	104	104	105			1.44
EPA 365.1 Rev. 2.0	Total-P	99.8	99.4	99.9			0.421
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	102	99.4	98.3			0.843
EPA 8321B	Sucralose	99.0	108	123			12.2
SM 2120 B	Color (true)					1.08	
	Color (true)					3.02	
SM 2320 B-97	Total Alkalinity	104				0.216	
SM 2540 C-97	TDS					8.00	
SM 4500 F-C-97	Fluoride	97.1	101	100			0.480
SM 5310 B-00	Organic Carbon	95.5	93.5	95.1			1.42
USGS O-2060-01	2,4,5-T	83.2	74.8	82.4			9.67
	2,4-D	96.4	84.4	90.8			7.31
	2,4-DB	72.0	68.0	74.8			9.52
	Acetaminophen	94.0	92.8	89.6			3.51
	Acifluorfen	46.4	44.8	66.8			39.4
	Bentazon	126	129	137			6.32

Quality Assurance Report Summary

Ref. Method	Analyte	LCS % Recovery	MS % Recovery		Precision LCS	SMP	MS
USGS O-2060-01	Carbamazepine	97.6	86.4	87.6			1.38
	Dicamba	85.2	68.4	89.2			26.4
	Dichlorprop	107	88.0	83.6			5.13
	Dinoseb	66.8	93.6	6.76			173
	Diuron	65.6	61.6	62.0			0.647
	Fenuron	82.4	63.2	72.4			13.6
	Fluridone	86.4	75.6	77.6			2.61
	Imidacloprid	76.4	83.6	74.4			11.6
	Linuron	67.6	66.4	64.8			2.44
	MCPA	85.2	87.2	92.4			5.79
	MCPP	94.8	92.0	93.2			1.30
	Picloram	79.2	49.6	106			72.2
	Primidone	62.4	62.8	67.6			7.36
	Silvex	104	108	105			3.01
	Triclopyr	123	112	120			6.92

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	1878453, 1878454, 1878455
EPA 300.0 Rev. 2.1 / E31780	Chloride in aqueous matrices	1878453, 1878454, 1878455
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	1878456, 1878457, 1878458
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	1878456, 1878457, 1878458
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	1878456, 1878457, 1878458
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	1878456, 1878457, 1878458
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	1878459, 1878460, 1878461
EPA 8321B / E31780	Water soluble organic compounds by HPLC/MS/MS	1878471, 1878472, 1878473
SM 2120 B / E31780	True Color measured at 450 nm	1878453, 1878454, 1878455
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO3/L	1878453, 1878454, 1878455
SM 2540 C-97 / E31780	Total Dissolved Solids in aqueous matrices	1878453, 1878454, 1878455
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices	1878453, 1878454, 1878455
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	1878453, 1878454, 1878455
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	1878456, 1878457, 1878458
USGS O-2060-01 / E31780	Chlorinated (phenoxy acid) herbicides in water matrices by HPLC/MS/MS	1878471, 1878472, 1878473
USGS O-2060-01 / E31780	Urea herbicides and other chemicals in water matrices by HPLC/MS/MS	1878471, 1878472, 1878473

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	03/08/2017			03/08/2017 16:09	Sima Feizi	1878453, 1878454, 1878455
EPA 300.0 Rev. 2.1	03/08/2017			03/17/2017	Elisa J Lutz	1878453, 1878454, 1878455
EPA 350.1 Rev. 2.0	03/08/2017			03/10/2017	Julie Michelle Frank	1878456, 1878457, 1878458
EPA 351.2 Rev. 2.0	03/08/2017	03/14/2017	Adrian Shelby	03/15/2017	Joseph Suarez	1878456, 1878457, 1878458
EPA 353.2 Rev. 2.0	03/08/2017			03/15/2017	Beverly Y. Sanders	1878456, 1878457, 1878458
EPA 365.1 Rev. 2.0	03/08/2017	03/10/2017	Vijayalakshmi Reddy	03/13/2017	Lipi Saha	1878456, 1878457, 1878458
EPA 365.1 Rev. 2.0 dissolved	03/08/2017			03/08/2017 14:53	Lipi Saha	1878459
	03/08/2017			03/08/2017 15:30	Lipi Saha	1878460
	03/08/2017			03/08/2017 15:31	Lipi Saha	1878461
	03/08/2017			03/08/2017 15:31	Lipi Saha	1878461
EPA 8321B	03/08/2017	03/09/2017	Mohammad Ghaffari	03/09/2017	Mohammad Ghaffari	1878471
	03/08/2017	03/09/2017	Mohammad Ghaffari	03/10/2017	Mohammad Ghaffari	1878472, 1878473
SM 2120 B	03/08/2017			03/08/2017 15:53	Julie Michelle Frank	1878453
	03/08/2017			03/08/2017 15:54	Julie Michelle Frank	1878454
	03/08/2017			03/08/2017 15:58	Julie Michelle Frank	1878455
SM 2320 B-97	03/08/2017			03/14/2017	Dale L. Simmons	1878453, 1878454, 1878455
SM 2540 C-97	03/08/2017			03/10/2017	Yijie Li	1878453, 1878454, 1878455
SM 2540 D-97	03/08/2017			03/10/2017	Yijie Li	1878453, 1878454, 1878455
SM 4500 F-C-97	03/08/2017			03/14/2017	Dale L. Simmons	1878453, 1878454, 1878455
SM 5310 B-00	03/08/2017			03/09/2017	Julie Michelle Frank	1878456, 1878457, 1878458
USGS O-2060-01	03/08/2017	03/10/2017	Hoor Shaik	03/11/2017	Juyoung Kim	1878471, 1878472, 1878473