

Chemical Analysis Report

TLH-ROC-2019-03-18-01

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

Event Description: **Run 1**
Request ID: **RQ-2019-02-11-61**
Customer: **TLH-ROC**
Project ID: **SMP**

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Certified by: Thekkekalathil Chandrasekhar, Chemist Administrator

Date Certified: 04-APR-2019 14:55



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: Metals, Nutrients and Pesticides.

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

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

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

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

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

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

Precision is reported as relative percent difference unless otherwise noted.

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

QC Codes used in this report may include:

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

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

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

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

Sample Location: Sugar Creek @ Suwannee River

Collection Date/Time: 03/18/2019 11:40

Field ID: G1TLHR0047

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2070855	EPA 180.1 Rev. 2.0	Turbidity	6.4	A	NTU	P360700	
	EPA 300.0 Rev. 2.1	Chloride	8.3		mg Cl/L	P361009	
		Sulfate	8.3		mg SO4/L	P361014	
	SM 2120 B	Color (true)	100		PCU	P360743	
	SM 2320 B-97	Total Alkalinity	35		mg CaCO3/L	P361242	
	SM 2540 C-97	TDS	89		mg/L	P361035	
	SM 2540 D-97	TSS	6	I	mg/L	P361027	
	SM 4500 F-C-97	Fluoride	0.43		mg F/L	P361246	
	EPA 350.1 Rev. 2.0	Ammonia-N	0.012		mg N/L	P360676	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.51		mg N/L	P360876	
2070856	EPA 353.2 Rev. 2.0	NO2NO3-N	0.66		mg N/L	P360785	
	EPA 365.1 Rev. 2.0	Total-P	0.83		mg P/L	P360989	
	SM 5310 B-00	Organic Carbon	9.9		mg C/L	P360940	
	EPA 365.1 Rev. 2.0	O-Phosphate-P	0.69		mg P/L	P360705	
	dissolved						
2070875	EPA 8321B	2,4-D	0.0020	U	ug/L	P360626	
		Acesulfame K**	0.10	U	ug/L	P360627	MS
		AMPA**	0.10	U	ug/L	P360627	
		Acetaminophen**	0.0080	U	ug/L	P360626	
		Endothall**	0.25	U	ug/L	P360627	MS
		Glufosinate**	0.10	U	ug/L	P360627	
		Bentazon	8.0E-04	U	ug/L	P360626	
		Glyphosate**	0.10	U	ug/L	P360627	
		Carbamazepine**	8.0E-04	U	ug/L	P360626	
		Sucralose**	0.013	I	ug/L	P360627	
		Diuron	0.0020	U	ug/L	P360626	
		Fenuron	0.025	I	ug/L	P360626	
		Fluridone**	8.0E-04	U	ug/L	P360626	
		Imazapyr**	0.0057	I	ug/L	P360626	
		Hydrocodone**	0.0020	U	ug/L	P360626	
		Ibuprofen**	0.020	U	ug/L	P360626	
		Imidacloprid	0.0063	I	ug/L	P360626	
		Linuron	0.0040	U	ug/L	P360626	
		MCP	0.0020	U	ug/L	P360626	
		Naproxen**	0.0080	U	ug/L	P360626	
		Primidone**	0.0040	U	ug/L	P360626	
		Pyraclostrobin**	0.0020	U	ug/L	P360626	
		Triclopyr**	0.0040	U	ug/L	P360626	

Ref. Method and Comment:

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

EPA 8321B: MS accuracy for imidacloprid could not be assessed due to high concentration of parameter in the spiked sample.

Sample Location: LITTLE AUCILLA RVR @ US221

Collection Date/Time: 03/18/2019 13:00

Field ID: G1TLHR0099

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2070849	EPA 180.1 Rev. 2.0	Turbidity	0.80		NTU	P360700	
	EPA 300.0 Rev. 2.1	Chloride	5.5		mg Cl/L	P361009	
		Sulfate	0.20	U	mg SO4/L	P361014	
	SM 2120 B	Color (true)	360		PCU	P360743	
	SM 2320 B-97	Total Alkalinity	0.65	U	mg CaCO3/L	P360980	RPD
	SM 2540 C-97	TDS	57		mg/L	P361034	
	SM 2540 D-97	TSS	2	I	mg/L	P361026	
	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P360993	
	EPA 350.1 Rev. 2.0	Ammonia-N	0.017		mg N/L	P360676	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.1		mg N/L	P360876	
2070851	EPA 353.2 Rev. 2.0	NO2NO3-N	0.005	I	mg N/L	P360784	
	EPA 365.1 Rev. 2.0	Total-P	0.028		mg P/L	P360989	
	SM 5310 B-00	Organic Carbon	30		mg C/L	P361054	
	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	I	mg P/L	P360705	
	EPA 8321B	2,4-D	0.0020	U	ug/L	P360626	
2070853		Acesulfame K**	0.10	U	ug/L	P360627	MS
		AMPA**	0.10	U	ug/L	P360627	
		Acetaminophen**	0.0080	U	ug/L	P360626	
		Endothall**	0.25	U	ug/L	P360627	MS
		Glufosinate**	0.10	U	ug/L	P360627	
		Bentazon	8.0E-04	U	ug/L	P360626	
		Glyphosate**	0.10	U	ug/L	P360627	
		Carbamazepine**	8.0E-04	U	ug/L	P360626	
		Sucralose**	0.010	U	ug/L	P360627	
		Diuron	0.0020	U	ug/L	P360626	
		Fenuron	0.016	U	ug/L	P360626	
		Fluridone**	8.0E-04	U	ug/L	P360626	
		Imazapyr**	0.027		ug/L	P360626	
		Hydrocodone**	0.0020	U	ug/L	P360626	
		Ibuprofen**	0.020	U	ug/L	P360626	
		Imidacloprid	0.0020	U	ug/L	P360626	
		Linuron	0.0040	U	ug/L	P360626	
		MCPP	0.0020	U	ug/L	P360626	
		Naproxen**	0.0080	U	ug/L	P360626	
		Primidone**	0.0040	U	ug/L	P360626	
2070877		Pyraclostrobin**	0.0020	U	ug/L	P360626	
		Triclopyr**	0.0040	U	ug/L	P360626	
	EPA 200.7 Rev. 4.4	Barium	14.2		ug/L	P360788	
		Calcium	1.43		mg/L	P360788	
		Iron	1.20E+03		ug/L	P360788	
		Magnesium	0.89		mg/L	P360788	
		Potassium	0.52	I	mg/L	P360788	
		Sodium	2.8		mg/L	P360788	

Field ID: G1TLHR0099

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2070877	EPA 200.7 Rev. 4.4	Zinc	7.9	I	ug/L	P360788	
	EPA 200.8 Rev. 5.4	Aluminum	369		ug/L	P360788	
		Antimony	0.050	U	ug/L	P360788	
		Arsenic	0.37		ug/L	P360788	
		Boron**	12.5		ug/L	P360788	
		Cadmium	0.020	U	ug/L	P360788	
		Chromium	0.67	I	ug/L	P360788	
		Copper	0.95		ug/L	P360788	
		Lead	0.20	I	ug/L	P360788	
		Nickel	0.61	I	ug/L	P360788	
		Selenium	0.20	U	ug/L	P360788	
		Silver	0.010	U	ug/L	P360788	
		Thallium	0.10	U	ug/L	P360788	

Ref. Method and Comment:

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

EPA 8321B: MS accuracy for imidacloprid could not be assessed due to high concentration of parameter in the spiked sample.

Sample Location: LITTLE AUCILLA RIVER

Collection Date/Time: 03/18/2019 13:30

Field ID: G1TLHR0029

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2070850	EPA 180.1 Rev. 2.0	Turbidity	0.65		NTU	P360700	
	EPA 300.0 Rev. 2.1	Chloride	5.5		mg Cl/L	P361009	
		Sulfate	0.20	U	mg SO4/L	P361014	
	SM 2120 B	Color (true)	410	A	PCU	P360751	
	SM 2320 B-97	Total Alkalinity	0.65	U	mg CaCO3/L	P361242	
	SM 2540 C-97	TDS	60		mg/L	P361035	
	SM 2540 D-97	TSS	2	U	mg/L	P361027	
	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P361246	
	EPA 350.1 Rev. 2.0	Ammonia-N	0.021		mg N/L	P360676	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.2		mg N/L	P360876	
2070852	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P360784	
	EPA 365.1 Rev. 2.0	Total-P	0.025		mg P/L	P360989	
	SM 5310 B-00	Organic Carbon	36		mg C/L	P361054	
	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	I	mg P/L	P360705	
	EPA 8321B	2,4-D	0.0020	U	ug/L	P360626	
2070874		Acesulfame K**	0.10	U	ug/L	P360627	MS
		AMPA**	0.10	U	ug/L	P360627	
		Acetaminophen**	0.0080	U	ug/L	P360626	
		Endothall**	0.25	U	ug/L	P360627	MS
		Glufosinate**	0.10	U	ug/L	P360627	
		Bentazon	8.0E-04	U	ug/L	P360626	
		Glyphosate**	0.10	U	ug/L	P360627	
		Carbamazepine**	8.0E-04	U	ug/L	P360626	
		Sucralose**	0.010	U	ug/L	P360627	
		Diuron	0.0020	U	ug/L	P360626	
		Fenuron	0.016	U	ug/L	P360626	
		Fluridone**	8.0E-04	U	ug/L	P360626	
		Imazapyr**	0.027		ug/L	P360626	
		Hydrocodone**	0.0020	U	ug/L	P360626	
		Ibuprofen**	0.020	U	ug/L	P360626	
		Imidacloprid	0.0020	U	ug/L	P360626	
		Linuron	0.0040	U	ug/L	P360626	
		MCPP	0.0020	U	ug/L	P360626	
		Naproxen**	0.0080	U	ug/L	P360626	
		Primidone**	0.0040	U	ug/L	P360626	
		Pyraclostrobin**	0.0020	U	ug/L	P360626	
		Triclopyr**	0.0040	U	ug/L	P360626	
2070878	EPA 200.7 Rev. 4.4	Barium	13.3		ug/L	P360788	
		Calcium	1.43		mg/L	P360788	
		Iron	1.05E+03		ug/L	P360788	
		Magnesium	0.83		mg/L	P360788	
		Potassium	0.34	I	mg/L	P360788	
		Sodium	2.8		mg/L	P360788	

Field ID: G1TLHR0029

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2070878	EPA 200.7 Rev. 4.4	Zinc	5.0	U	ug/L	P360788	
	EPA 200.8 Rev. 5.4	Aluminum	387		ug/L	P360788	
		Antimony	0.050	U	ug/L	P360788	
		Arsenic	0.31		ug/L	P360788	
		Boron**	12.9		ug/L	P360788	
		Cadmium	0.020	U	ug/L	P360788	
		Chromium	0.60	I	ug/L	P360788	
		Copper	0.65	I	ug/L	P360788	
		Lead	0.29	I	ug/L	P360788	
		Nickel	0.80	I	ug/L	P360788	
		Selenium	0.20	U	ug/L	P360788	
		Silver	0.010	U	ug/L	P360788	
		Thallium	0.10	U	ug/L	P360788	

Ref. Method and Comment:

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

EPA 8321B: MS accuracy for imidacloprid could not be assessed due to high concentration of parameter in the spiked sample.

Sample Location: Lexington Creek @ Timberlane Rd

Collection Date/Time: 03/18/2019 15:30

Field ID: G1TLHR0088

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2070858	EPA 180.1 Rev. 2.0	Turbidity	6.2		NTU	P360700	
	EPA 300.0 Rev. 2.1	Chloride	8.8		mg Cl/L	P361009	
		Sulfate	2.4		mg SO4/L	P361014	
	SM 2120 B	Color (true)	22	A	PCU	P360743	
	SM 2320 B-97	Total Alkalinity	22		mg CaCO3/L	P361242	
	SM 2540 C-97	TDS	47		mg/L	P361035	
	SM 2540 D-97	TSS	5	I	mg/L	P361027	
	SM 4500 F-C-97	Fluoride	0.11		mg F/L	P361246	
	EPA 350.1 Rev. 2.0	Ammonia-N	0.024		mg N/L	P360676	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.16	I	mg N/L	P360876	
2070859	EPA 353.2 Rev. 2.0	NO2NO3-N	0.15		mg N/L	P360785	
	EPA 365.1 Rev. 2.0	Total-P	0.12		mg P/L	P360989	
	SM 5310 B-00	Organic Carbon	1.8		mg C/L	P360940	
	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.068		mg P/L	P360705	
	EPA 8321B	2,4-D	0.0020	U	ug/L	P360626	
2070876		Acesulfame K**	0.19	I	ug/L	P360627	MS
		AMPA**	0.10	U	ug/L	P360627	
		Acetaminophen**	0.0080	U	ug/L	P360626	
		Endothall**	0.25	U	ug/L	P360627	MS
		Glufosinate**	0.10	U	ug/L	P360627	
		Bentazon	0.0012	I	ug/L	P360626	
		Glyphosate**	0.10	U	ug/L	P360627	
		Carbamazepine**	8.0E-04	U	ug/L	P360626	
		Sucralose**	0.37		ug/L	P360627	
		Diuron	0.0020	U	ug/L	P360626	
		Fenuron	0.016	U	ug/L	P360626	
		Fluridone**	0.0018	I	ug/L	P360626	
		Imazapyr**	0.0040	U	ug/L	P360626	
		Hydrocodone**	0.0020	U	ug/L	P360626	
		Ibuprofen**	0.020	U	ug/L	P360626	
		Imidacloprid	0.039		ug/L	P360626	
		Linuron	0.0040	U	ug/L	P360626	
		MCP	0.0020	U	ug/L	P360626	
		Naproxen**	0.0080	U	ug/L	P360626	
		Primidone**	0.0040	U	ug/L	P360626	
2070879		Pyraclostrobin**	0.0020	U	ug/L	P360626	
		Triclopyr**	0.0040	U	ug/L	P360626	
	EPA 200.7 Rev. 4.4	Barium	8.9		ug/L	P360788	
		Calcium	7.04		mg/L	P360788	
		Iron	1.02E+03		ug/L	P360788	
		Magnesium	2.45		mg/L	P360788	
		Potassium	0.44	I	mg/L	P360788	
		Sodium	4.8		mg/L	P360788	

Field ID: G1TLHR0088

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2070879	EPA 200.7 Rev. 4.4	Zinc	5.0	U	ug/L	P360788	
	EPA 200.8 Rev. 5.4	Aluminum	237		ug/L	P360788	
		Antimony	0.050	U	ug/L	P360788	
		Arsenic	0.35		ug/L	P360788	
		Boron**	13.6		ug/L	P360788	
		Cadmium	0.020	U	ug/L	P360788	
		Chromium	0.46	I	ug/L	P360788	
		Copper	0.40	U	ug/L	P360788	
		Lead	0.21	I	ug/L	P360788	
		Nickel	0.50	U	ug/L	P360788	
		Selenium	0.20	U	ug/L	P360788	
		Silver	0.010	U	ug/L	P360788	
		Thallium	0.10	U	ug/L	P360788	

Ref. Method and Comment:

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

EPA 8321B: MS accuracy for imidacloprid could not be assessed due to high concentration of parameter in the spiked sample.

Quality Assurance Report Method Blank Results

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P360700

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P360788

Component	Result	Code	Units
Barium	1.0	U	ug/L
Calcium	0.075	U	mg/L
Iron	30	U	ug/L
Magnesium	0.040	U	mg/L
Potassium	0.30	U	mg/L
Sodium	0.50	U	mg/L
Zinc	5.0	U	ug/L

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P360788

Component	Result	Code	Units
Aluminum	5.0	U	ug/L
Antimony	0.050	U	ug/L
Arsenic	0.050	U	ug/L
Boron	2.0	U	ug/L
Cadmium	0.020	U	ug/L
Chromium	0.40	U	ug/L
Copper	0.40	U	ug/L
Lead	0.20	U	ug/L
Nickel	0.50	U	ug/L
Selenium	0.20	U	ug/L
Silver	0.010	U	ug/L
Thallium	0.10	U	ug/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P361009

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P361014

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P360676

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

Quality Assurance Report Method Blank Results

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P360876

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P360784

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P360785

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P360989

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P360705

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

Reference Method: EPA 8321B
Batch ID: P360626

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	8.0E-04	U	ug/L
Diuron	0.0020	U	ug/L
Fenuron	0.016	U	ug/L
Fluridone	8.0E-04	U	ug/L
Hydrocodone	0.0020	U	ug/L
Ibuprofen	0.020	U	ug/L
Imazapyr	0.0040	U	ug/L
Imidacloprid	0.0020	U	ug/L
Linuron	0.0040	U	ug/L
MCPP	0.0020	U	ug/L
Naproxen	0.0080	U	ug/L
Primidone	0.0040	U	ug/L
Pyraclostrobin	0.0020	U	ug/L
Triclopyr	0.0040	U	ug/L

Reference Method: EPA 8321B
Batch ID: P360627

Component	Result	Code	Units
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Quality Assurance Report Method Blank Results

Reference Method: EPA 8321B
Batch ID: P360627

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

Reference Method: SM 2120 B
Batch ID: P360743

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2120 B
Batch ID: P360751

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2320 B-97
Batch ID: P360980

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

Reference Method: SM 2320 B-97
Batch ID: P361242

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

Reference Method: SM 2540 C-97
Batch ID: P361034

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 C-97
Batch ID: P361035

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P361026

Component	Result	Code	Units
TSS	2	U	mg/L

Quality Assurance Report

Method Blank Results

Reference Method: SM 2540 D-97
Batch ID: P361027

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500 F-C-97
Batch ID: P360993

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 4500 F-C-97
Batch ID: P361246

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-00
Batch ID: P360940

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

Reference Method: SM 5310 B-00
Batch ID: P361054

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

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P360788

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Barium	98.6		P	85 - 115
Calcium	101		P	85 - 115
Iron	102		P	85 - 115
Magnesium	108		P	85 - 115
Potassium	104		P	85 - 115
Sodium	95.9		P	85 - 115
Zinc	98.7		P	85 - 115

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P360788

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Aluminum	98.8		P	85 - 115
Antimony	100		P	85 - 115
Arsenic	105		P	85 - 115
Boron	95.9		P	85 - 115
Cadmium	102		P	85 - 115
Chromium	97.1		P	85 - 115
Copper	105		P	85 - 115
Lead	97.2		P	85 - 115
Nickel	107		P	85 - 115
Selenium	104		P	85 - 115
Silver	105		P	85 - 115
Thallium	102		P	85 - 115

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P361009

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P361014

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Sulfate	108		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P360676

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P360876

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

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 353.2 Rev. 2.0
 Batch ID: P360784

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

Reference Method: EPA 353.2 Rev. 2.0
 Batch ID: P360785

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
NO2NO3-N	99.0		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
 Batch ID: P360989

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total-P	96.2		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
 Batch ID: P360705

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
O-Phosphate-P	98.7		P	90 - 110

Reference Method: EPA 8321B
 Batch ID: P360626

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2,4-D	82.3		P	40 - 150
Acetaminophen	111		P	30 - 150
Bentazon	93.5		P	30 - 150
Carbamazepine	94.1		P	40 - 150
Diuron	94.1		P	40 - 150
Fenuron	124		P	40 - 150
Fluridone	84.4		P	40 - 150
Hydrocodone	112		P	40 - 150
Ibuprofen	56.3		P	40 - 150
Imazapyr	102		P	40 - 150
Imidacloprid	111		P	40 - 150
Linuron	77.0		P	40 - 150
MCPP	92.5		P	40 - 150
Naproxen	73.4		P	40 - 150
Primidone	131		P	40 - 150
Pyraclostrobin	69.1		P	40 - 150
Triclopyr	58.4		P	40 - 150

Reference Method: EPA 8321B
 Batch ID: P360627

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Acesulfame K	98.1		P	40 - 150
AMPA	98.7		P	40 - 150
Endothall	112		P	40 - 150
Glufosinate	104		P	40 - 150
Glyphosate	108		P	40 - 140
Sucralose	57.2		P	40 - 150

Quality Assurance Report

Laboratory Control Sample Accuracy

Reference Method: SM 2120 B
Batch ID: P360743

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Color (true)	99.9		P	85 - 115

Reference Method: SM 2120 B
Batch ID: P360751

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Color (true)	103		P	85 - 115

Reference Method: SM 2320 B-97
Batch ID: P360980

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	101		P	98 - 107

Reference Method: SM 2320 B-97
Batch ID: P361242

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	104		P	98 - 107

Reference Method: SM 4500 F-C-97
Batch ID: P360993

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	98.2		P	91 - 105

Reference Method: SM 4500 F-C-97
Batch ID: P361246

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

Reference Method: SM 5310 B-00
Batch ID: P360940

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	97.5		P	85 - 115

Reference Method: SM 5310 B-00
Batch ID: P361054

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	99.8		P	85 - 115

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P360788

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2070879	Barium	97.8	98.3	P/P	80 - 120
2070879	Calcium	103		P	80 - 120
2070879	Iron	102	103	P/P	80 - 120
2070879	Magnesium	105	109	P/P	80 - 120
2070879	Potassium	101	102	P/P	80 - 120
2070879	Sodium	99.7		P	80 - 120
2070879	Zinc	98.0	99.2	P/P	80 - 120
2070990	Barium	100		P	80 - 120
2070990	Calcium	102		P	80 - 120
2070990	Iron	104		P	80 - 120
2070990	Magnesium	108		P	80 - 120
2070990	Potassium	102		P	80 - 120
2070990	Sodium	99.3		P	80 - 120
2070990	Zinc	100		P	80 - 120

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P360788

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2070879	Aluminum	104	101	P/P	80 - 120
2070879	Antimony	98.9	100	P/P	80 - 120
2070879	Arsenic	101	102	P/P	80 - 120
2070879	Boron	98.3	98.9	P/P	80 - 120
2070879	Cadmium	103	101	P/P	80 - 120
2070879	Chromium	95.3	96.4	P/P	80 - 120
2070879	Copper	107	103	P/P	80 - 120
2070879	Lead	98.0	98.0	P/P	80 - 120
2070879	Nickel	103	104	P/P	80 - 120
2070879	Selenium	98.6	98.9	P/P	80 - 120
2070879	Silver	106	105	P/P	80 - 120
2070879	Thallium	103	107	P/P	80 - 120
2070990	Aluminum	99.9		P	80 - 120
2070990	Antimony	99.6		P	80 - 120
2070990	Arsenic	101		P	80 - 120
2070990	Boron	99.5		P	80 - 120
2070990	Cadmium	101		P	80 - 120
2070990	Chromium	95.6		P	80 - 120
2070990	Copper	103		P	80 - 120
2070990	Lead	98.7		P	80 - 120
2070990	Nickel	104		P	80 - 120
2070990	Selenium	101		P	80 - 120
2070990	Silver	106		P	80 - 120
2070990	Thallium	104		P	80 - 120

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P361009

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2070482	Chloride	104		P	90 - 110
2070850	Chloride	105		P	90 - 110

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P361014

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2070482	Sulfate	105		P	90 - 110
2070850	Sulfate	107		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P360676

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2070856	Ammonia-N	102	101	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P360876

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2070674	Kjeldahl Nitrogen	92.3	95.3	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P360784

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2070671	NO2NO3-N	98.0	100	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P360785

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2070859	NO2NO3-N	99.5	100	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P360989

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2070859	Total-P	95.4	100	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P360705

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2071019	O-Phosphate-P	94.4	95.8	P/P	90 - 110

Reference Method: EPA 8321B
Batch ID: P360626

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2071084	2,4-D	70.9	82.2	P/P	40 - 150
2071084	Acetaminophen	88.8	88.3	P/P	30 - 150
2071084	Bentazon	66.3	66.2	P/P	30 - 150
2071084	Carbamazepine	84.1	88.2	P/P	40 - 150
2071084	Diuron	81.7	77.6	P/P	40 - 150
2071084	Fenuron	132	123	P/P	40 - 150
2071084	Fluridone	103	110	P/P	40 - 150
2071084	Hydrocodone	112	109	P/P	40 - 150
2071084	Ibuprofen	55.8	57.4	P/P	40 - 150

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 8321B
Batch ID: P360626

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2071084	Imazapyr	71.3	69.3	P/P	40 - 150
2071084	Linuron	65.7	72.6	P/P	40 - 150
2071084	MCP	114	119	P/P	40 - 150
2071084	Naproxen	78.5	74.0	P/P	40 - 150
2071084	Primidone	80.5	71.4	P/P	40 - 150
2071084	Pyraclostrobin	86.5	96.7	P/P	40 - 150
2071084	Triclopyr	58.0	65.6	P/P	40 - 150

Reference Method: EPA 8321B
Batch ID: P360627

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2070585	Acesulfame K	191	196	F/F	40 - 150
2070585	AMPA	92.5	90.7	P/P	40 - 150
2070585	Endothall	147	150	P/F	40 - 150
2070585	Glufosinate	65.9	65.0	P/P	40 - 150
2070585	Glyphosate	84.2	86.3	P/P	40 - 140
2070585	Sucralose	63.3	58.7	P/P	40 - 150

Reference Method: SM 4500 F-C-97
Batch ID: P360993

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2070482	Fluoride	96.6	96.0	P/P	91 - 105

Reference Method: SM 4500 F-C-97
Batch ID: P361246

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2071123	Fluoride	100	99.2	P/P	91 - 105

Reference Method: SM 5310 B-00
Batch ID: P360940

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2070856	Organic Carbon	93.9	98.1	P/P	85 - 115

Reference Method: SM 5310 B-00
Batch ID: P361054

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2070675	Organic Carbon	99.9	101	P/P	85 - 115

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P360700

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2070855	Turbidity	2.67	Sample	P	0 - 20

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P360788

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2070879	Barium	0.513	Spike	P	0 - 20
2070879	Calcium	1.69	Spike	P	0 - 20
2070879	Iron	1.23	Spike	P	0 - 20
2070879	Magnesium	2.49	Spike	P	0 - 20
2070879	Potassium	0.428	Spike	P	0 - 20
2070879	Sodium	2.29	Spike	P	0 - 20
2070879	Zinc	1.19	Spike	P	0 - 20

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P360788

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2070879	Aluminum	2.00	Spike	P	0 - 20
2070879	Antimony	1.43	Spike	P	0 - 20
2070879	Arsenic	1.29	Spike	P	0 - 20
2070879	Boron	0.519	Spike	P	0 - 20
2070879	Cadmium	1.39	Spike	P	0 - 20
2070879	Chromium	1.05	Spike	P	0 - 20
2070879	Copper	3.47	Spike	P	0 - 20
2070879	Lead	0.0299	Spike	P	0 - 20
2070879	Nickel	1.01	Spike	P	0 - 20
2070879	Selenium	0.286	Spike	P	0 - 20
2070879	Silver	1.57	Spike	P	0 - 20
2070879	Thallium	3.46	Spike	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P361009

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2070482	Chloride	0.291	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P361014

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2070482	Sulfate	0.229	Sample	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 350.1 Rev. 2.0
 Batch ID: P360676

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2070856	Ammonia-N	0.777	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
 Batch ID: P360876

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2070674	Kjeldahl Nitrogen	1.65	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
 Batch ID: P360784

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2070671	NO2NO3-N	1.23	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
 Batch ID: P360785

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2070859	NO2NO3-N	0.570	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
 Batch ID: P360989

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2070859	Total-P	3.78	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
 Batch ID: P360705

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2071019	O-Phosphate-P	1.17	Spike	P	0 - 20

Reference Method: EPA 8321B
 Batch ID: P360626

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2071084	2,4-D	14.2	Spike	P	0 - 30
2071084	Acetaminophen	0.646	Spike	P	0 - 30
2071084	Bentazon	0.0887	Spike	P	0 - 30
2071084	Carbamazepine	3.49	Spike	P	0 - 30
2071084	Diuron	4.76	Spike	P	0 - 30
2071084	Fenuron	7.26	Spike	P	0 - 30
2071084	Fluridone	6.64	Spike	P	0 - 30
2071084	Hydrocodone	2.30	Spike	P	0 - 30
2071084	Ibuprofen	2.78	Spike	P	0 - 30

Quality Assurance Report Precision

Reference Method: EPA 8321B
Batch ID: P360626

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2071084	Imazapyr	2.60	Spike	P	0 - 30
2071084	Imidacloprid	3.12	Spike	P	0 - 30
2071084	Linuron	9.95	Spike	P	0 - 30
2071084	MCP	4.10	Spike	P	0 - 30
2071084	Naproxen	5.88	Spike	P	0 - 30
2071084	Primidone	10.9	Spike	P	0 - 30
2071084	Pyraclostrobin	11.2	Spike	P	0 - 30
2071084	Triclopyr	12.3	Spike	P	0 - 30

Reference Method: EPA 8321B
Batch ID: P360627

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2070585	Acesulfame K	2.22	Spike	P	0 - 30
2070585	AMPA	1.95	Spike	P	0 - 30
2070585	Endothall	2.28	Spike	P	0 - 30
2070585	Glufosinate	1.42	Spike	P	0 - 30
2070585	Glyphosate	2.48	Spike	P	0 - 30
2070585	Sucralose	7.04	Spike	P	0 - 30

Reference Method: SM 2120 B
Batch ID: P360743

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2070858	Color (true)	3.62	Sample	P	0 - 20

Reference Method: SM 2120 B
Batch ID: P360751

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2070850	Color (true)	2.64	Sample	P	0 - 20

Reference Method: SM 2320 B-97
Batch ID: P360980

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2070482	Total Alkalinity	3.01	Sample	F	0 - 1.6

Reference Method: SM 2320 B-97
Batch ID: P361242

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2071123	Total Alkalinity	0.972	Sample	P	0 - 1.6

Quality Assurance Report Precision

Reference Method: SM 2540 C-97
 Batch ID: P361034

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2070407	TDS	4.06	Sample	P	0 - 10

Reference Method: SM 2540 C-97
 Batch ID: P361035

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2071014	TDS	6.55	Sample	P	0 - 10

Reference Method: SM 4500 F-C-97
 Batch ID: P360993

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2070482	Fluoride	0.514	Spike	P	0 - 3.5

Reference Method: SM 4500 F-C-97
 Batch ID: P361246

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2071123	Fluoride	0.993	Spike	P	0 - 3.5

Reference Method: SM 5310 B-00
 Batch ID: P360940

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2070856	Organic Carbon	2.88	Spike	P	0 - 20

Reference Method: SM 5310 B-00
 Batch ID: P361054

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2070675	Organic Carbon	0.863	Spike	P	0 - 20

* 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: 2070873
Field Sample ID: G1TLHR0099

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	2,4-D-d3	70.5	P	30 - 160
EPA 8321B	Acetaminophen-d4	88.0	P	30 - 160
EPA 8321B	Carbamazepine-d10	73.6	P	30 - 160
EPA 8321B	Diuron-d6	75.5	P	30 - 160
EPA 8321B	Endothall-d6	159	P	30 - 160
EPA 8321B	Glyphosate 13C 15N	67.7	P	30 - 160
EPA 8321B	Ibuprofen-d3	56.7	P	30 - 160
EPA 8321B	Primidone-d5	66.5	P	30 - 160
EPA 8321B	Sucralose-d6	75.1	P	30 - 160

Lab Sample ID: 2070874
Field Sample ID: G1TLHR0029

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	2,4-D-d3	76.4	P	30 - 160
EPA 8321B	Acetaminophen-d4	78.7	P	30 - 160
EPA 8321B	Carbamazepine-d10	78.2	P	30 - 160
EPA 8321B	Diuron-d6	66.4	P	30 - 160
EPA 8321B	Endothall-d6	160	P	30 - 160
EPA 8321B	Glyphosate 13C 15N	103	P	30 - 160
EPA 8321B	Ibuprofen-d3	73.9	P	30 - 160
EPA 8321B	Primidone-d5	66.5	P	30 - 160
EPA 8321B	Sucralose-d6	82.0	P	30 - 160

Lab Sample ID: 2070875
Field Sample ID: G1TLHR0047

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	2,4-D-d3	78.0	P	30 - 160
EPA 8321B	Acetaminophen-d4	112	P	30 - 160
EPA 8321B	Carbamazepine-d10	92.4	P	30 - 160
EPA 8321B	Diuron-d6	89.5	P	30 - 160
EPA 8321B	Endothall-d6	126	P	30 - 160
EPA 8321B	Glyphosate 13C 15N	106	P	30 - 160
EPA 8321B	Ibuprofen-d3	71.7	P	30 - 160
EPA 8321B	Primidone-d5	93.8	P	30 - 160
EPA 8321B	Sucralose-d6	83.1	P	30 - 160

Lab Sample ID: 2070876
Field Sample ID: G1TLHR0088

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	2,4-D-d3	66.4	P	30 - 160
EPA 8321B	Acetaminophen-d4	119	P	30 - 160
EPA 8321B	Carbamazepine-d10	86.1	P	30 - 160
EPA 8321B	Diuron-d6	84.2	P	30 - 160
EPA 8321B	Endothall-d6	114	P	30 - 160
EPA 8321B	Glyphosate 13C 15N	96.7	P	30 - 160
EPA 8321B	Ibuprofen-d3	52.8	P	30 - 160
EPA 8321B	Primidone-d5	95.2	P	30 - 160
EPA 8321B	Sucralose-d6	77.8	P	30 - 160

Quality Assurance Report Calibration Verification

Reference Method: EPA 300.0 Rev. 2.1

Run ID: A90071

Included Lab Sample IDs: 2070849, 2070850, 2070855, 2070858

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	103	99.6	P/P	90 - 110
Chloride	99.6	99.7	P/P	90 - 110
Sulfate	100	100	P/P	90 - 110
Sulfate	104	100	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A90097

Included Lab Sample IDs: 2070851, 2070852, 2070856, 2070859

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	102	103	P/P	90 - 110
Ammonia-N	103	101	P/P	90 - 110

Reference Method: EPA 180.1 Rev. 2.0

Run ID: A90100

Included Lab Sample IDs: 2070849, 2070850, 2070855, 2070858

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Turbidity	99.5	100	P/P	95 - 105

Reference Method: EPA 365.1 Rev. 2.0 dissolved

Run ID: A90101

Included Lab Sample IDs: 2070853, 2070854, 2070857, 2070860

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	99.4	98.7	P/P	90 - 110

Reference Method: SM 2120 B

Run ID: A90117

Included Lab Sample IDs: 2070850

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	103		P	90 - 115

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A90128

Included Lab Sample IDs: 2070851, 2070852, 2070856, 2070859

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO2NO3-N	100	99.5	P/P	90 - 110
NO2NO3-N	99.5	99.0	P/P	90 - 110

Reference Method: EPA 8321B

Run ID: A90161

Included Lab Sample IDs: 2070873, 2070874, 2070875, 2070876

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
AMPA	95.1	116	P/P	60 - 160
Glufosinate	92.6	90.8	P/P	60 - 160
Glyphosate	80.1	78.6	P/P	60 - 160

Quality Assurance Report Calibration Verification

Reference Method: EPA 200.7 Rev. 4.4

Run ID: A90166

Included Lab Sample IDs: 2070877, 2070878, 2070879

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Barium	100	100	P/P	90 - 110
Calcium	101	100	P/P	90 - 110
Iron	100	99.6	P/P	90 - 110
Magnesium	101	101	P/P	90 - 110
Potassium	99.0	99.0	P/P	90 - 110
Sodium	97.9	100	P/P	90 - 110
Zinc	101	101	P/P	90 - 110

Reference Method: EPA 8321B

Run ID: A90203

Included Lab Sample IDs: 2070873, 2070874, 2070875, 2070876

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Acesulfame K	117	120	P/P	60 - 160
Endothall	107	122	P/P	60 - 160
Sucralose	97.6	91.5	P/P	60 - 160

Reference Method: SM 5310 B-00

Run ID: A90206

Included Lab Sample IDs: 2070856, 2070859

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	94.4	95.4	P/P	90 - 110

Reference Method: SM 2320 B-97

Run ID: A90218

Included Lab Sample IDs: 2070849

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	99.7	103	P/P	90 - 110

Reference Method: SM 4500 F-C-97

Run ID: A90218

Included Lab Sample IDs: 2070849

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

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A90221

Included Lab Sample IDs: 2070851, 2070852, 2070856, 2070859

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	97.7	98.3	P/P	90 - 110

Reference Method: EPA 200.8 Rev. 5.4

Run ID: A90230

Included Lab Sample IDs: 2070877, 2070878, 2070879

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Aluminum	99.0	99.2	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: EPA 200.8 Rev. 5.4

Run ID: A90230

Included Lab Sample IDs: 2070877, 2070878, 2070879

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Antimony	99.2	98.9	P/P	90 - 110
Arsenic	103	100	P/P	90 - 110
Boron	92.9	98.5	P/P	90 - 110
Cadmium	98.7	100	P/P	90 - 110
Chromium	101	99.7	P/P	90 - 110
Copper	104	102	P/P	90 - 110
Lead	97.3	95.9	P/P	90 - 110
Nickel	102	100	P/P	90 - 110
Selenium	100	101	P/P	90 - 110
Silver	105	104	P/P	90 - 110
Thallium	95.2	95.0	P/P	90 - 110

Reference Method: SM 5310 B-00

Run ID: A90237

Included Lab Sample IDs: 2070851, 2070852

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	96.7	97.3	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A90256

Included Lab Sample IDs: 2070856, 2070859

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

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A90273

Included Lab Sample IDs: 2070851, 2070852

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	100	98.8	P/P	90 - 110

Reference Method: EPA 8321B

Run ID: A90274

Included Lab Sample IDs: 2070873, 2070874, 2070875, 2070876

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
2,4-D	102	85.3	P/P	50 - 150
2,4-D	81.6	102	P/P	50 - 150
Acetaminophen	107	129	P/P	60 - 160
Acetaminophen	129	117	P/P	60 - 160
Bentazon	87.0	91.2	P/P	50 - 160
Bentazon	91.2	88.8	P/P	50 - 160
Carbamazepine	109	105	P/P	60 - 150
Carbamazepine	88.4	109	P/P	60 - 150
Diuron	113	115	P/P	60 - 150
Diuron	115	107	P/P	60 - 150
Fenuron	106	109	P/P	60 - 150
Fenuron	109	110	P/P	60 - 150
Fluridone	110	106	P/P	60 - 160

Quality Assurance Report Calibration Verification

Reference Method: EPA 8321B

Run ID: A90274

Included Lab Sample IDs: 2070873, 2070874, 2070875, 2070876

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluridone	112	110	P/P	60 - 160
Hydrocodone	104	101	P/P	60 - 150
Hydrocodone	93.7	104	P/P	60 - 150
Ibuprofen	111	103	P/P	50 - 160
Ibuprofen	113	111	P/P	50 - 160
Imazapyr	95.1	98.4	P/P	50 - 150
Imazapyr	98.4	105	P/P	50 - 150
Imidacloprid	102	80.4	P/P	60 - 150
Imidacloprid	80.4	101	P/P	60 - 150
Linuron	96.0	92.9	P/P	60 - 150
Linuron	97.6	96.0	P/P	60 - 150
MCP	89.1	94.2	P/P	50 - 150
MCP	94.2	81.8	P/P	50 - 150
Naproxen	116	119	P/P	50 - 160
Naproxen	119	103	P/P	50 - 160
Primidone	108	82.8	P/P	60 - 150
Primidone	120	108	P/P	60 - 150
Pyraclostrobin	115	130	P/P	60 - 150
Pyraclostrobin	130	121	P/P	60 - 150
Triclopyr	102	103	P/P	50 - 150
Triclopyr	100	102	P/P	50 - 150

Reference Method: SM 2320 B-97

Run ID: A90311

Included Lab Sample IDs: 2070850, 2070855, 2070858

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

Reference Method: SM 4500 F-C-97

Run ID: A90311

Included Lab Sample IDs: 2070850, 2070855, 2070858

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	101	105	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						2.67	
EPA 200.7 Rev. 4.4	Barium	98.6	97.8	98.3	100			0.513
	Calcium	101	103	102				1.69
	Iron	102	102	103	104			1.23
	Magnesium	108	105	109	108			2.49
	Potassium	104	101	102	102			0.428
	Sodium	95.9	99.7	99.3				2.29
	Zinc	98.7	98.0	99.2	100			1.19
EPA 200.8 Rev. 5.4	Aluminum	98.8	104	101	99.9			2.00
	Antimony	100	98.9	100	99.6			1.43
	Arsenic	105	101	102	101			1.29
	Boron	95.9	98.3	98.9	99.5			0.519
	Cadmium	102	103	101	101			1.39
	Chromium	97.1	95.3	96.4	95.6			1.05
	Copper	105	107	103	103			3.47
	Lead	97.2	98.0	98.0	98.7			0.0299
	Nickel	107	103	104	104			1.01
	Selenium	104	98.6	98.9	101			0.286
	Silver	105	106	105	106			1.57
	Thallium	102	103	107	104			3.46
EPA 300.0 Rev. 2.1	Chloride	107	104	105			0.291	
	Sulfate	108	105	107			0.229	
EPA 350.1 Rev. 2.0	Ammonia-N	101	102	101				0.777
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	105	92.3	95.3				1.65
EPA 353.2 Rev. 2.0	NO2NO3-N	100	98.0	100				1.23
	NO2NO3-N	99.0	99.5	100				0.570
EPA 365.1 Rev. 2.0	Total-P	96.2	95.4	100				3.78
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	98.7	94.4	95.8				1.17
EPA 8321B	2,4-D	82.3	70.9	82.2				14.2
	Acesulfame K	98.1	191	196				2.22
	Acetaminophen	111	88.8	88.3				0.646
	AMPA	98.7	92.5	90.7				1.95
	Bentazon	93.5	66.3	66.2				0.0887
	Carbamazepine	94.1	84.1	88.2				3.49
	Diuron	94.1	81.7	77.6				4.76
	Endothall	112	147	150				2.28
	Fenuron	124	132	123				7.26
	Fluridone	84.4	103	110				6.64
	Glufosinate	104	65.9	65.0				1.42
	Glyphosate	108	84.2	86.3				2.48
	Hydrocodone	112	112	109				2.30
	Ibuprofen	56.3	55.8	57.4				2.78
	Imazapyr	102	71.3	69.3				2.60
	Imidacloprid	111						3.12
	Linuron	77.0	65.7	72.6				9.95
	MCPP	92.5	114	119				4.10
	Naproxen	73.4	78.5	74.0				5.88
	Primidone	131	80.5	71.4				10.9
	Pyraclostrobin	69.1	86.5	96.7				11.2
	Sucralose	57.2	63.3	58.7				7.04
	Triclopyr	58.4	58.0	65.6				12.3
SM 2120 B	Color (true)	99.9					3.62	
	Color (true)	103					2.64	
SM 2320 B-97	Total Alkalinity	101					3.01	

Quality Assurance Report Summary

Ref. Method	Analyte	LCS % Recovery	MS % Recovery		LCS	Precision SMP	MS
SM 2320 B-97	Total Alkalinity	104				0.972	
SM 2540 C-97	TDS					4.06	
	TDS					6.55	
SM 4500 F-C-97	Fluoride	98.2	96.6	96.0			0.514
	Fluoride	101	100	99.2			0.993
SM 5310 B-00	Organic Carbon	97.5	93.9	98.1			2.88
	Organic Carbon	99.8	99.9	101			0.863

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	2070849, 2070850, 2070855, 2070858
EPA 200.7 Rev. 4.4 / E31780	Total Recoverable Metals analysis using ICP emission spectroscopy for aqueous samples supporting Clean Water Act Projects	2070877, 2070878, 2070879
EPA 200.8 Rev. 5.4 / E31780	Total Recoverable Metals analysis using ICP-MS for aqueous samples supporting Clean Water Act Projects	2070877, 2070878, 2070879
EPA 300.0 Rev. 2.1 / E31780	Chloride in aqueous matrices	2070849, 2070850, 2070855, 2070858
EPA 300.0 Rev. 2.1 / E31780	Sulfate in aqueous matrices	2070849, 2070850, 2070855, 2070858
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	2070851, 2070852, 2070856, 2070859
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	2070851, 2070852, 2070856, 2070859
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	2070851, 2070852, 2070856, 2070859
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	2070851, 2070852, 2070856, 2070859
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	2070853, 2070854, 2070857, 2070860
EPA 8321B / E31780	Pesticides, herbicides, and other chemicals in water matrices by HPLC/MS/MS	2070873, 2070874, 2070875, 2070876
SM 2120 B / E31780	True Color measured at 450 nm	2070849, 2070850, 2070855, 2070858
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO ₃ /L	2070849, 2070850, 2070855, 2070858
SM 2540 C-97 / E31780	Total Dissolved Solids in aqueous matrices	2070849, 2070850, 2070855, 2070858
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices using a maximum of 250 mL of sample	2070849, 2070850, 2070855, 2070858
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	2070849, 2070850, 2070855, 2070858
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	2070851, 2070852, 2070856, 2070859

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	03/18/2019			03/19/2019 15:54	Adrian Shelby	2070849, 2070850, 2070855, 2070858
EPA 200.7 Rev. 4.4	03/18/2019	03/20/2019 16:30	Elliott D. Healy	03/21/2019 14:32	Betina Topolski	2070877
	03/18/2019	03/20/2019 16:30	Elliott D. Healy	03/21/2019 14:35	Betina Topolski	2070878
	03/18/2019	03/20/2019 16:30	Elliott D. Healy	03/21/2019 14:38	Betina Topolski	2070879
EPA 200.8 Rev. 5.4	03/18/2019	03/20/2019 16:30	Elliott D. Healy	03/26/2019 02:44	Robert K Palmer	2070877
	03/18/2019	03/20/2019 16:30	Elliott D. Healy	03/26/2019 02:54	Robert K Palmer	2070878
	03/18/2019	03/20/2019 16:30	Elliott D. Healy	03/26/2019 03:04	Robert K Palmer	2070879
EPA 300.0 Rev. 2.1	03/18/2019			03/22/2019 12:11	Lipi Saha	2070850
	03/18/2019			03/22/2019 14:36	Lipi Saha	2070849
	03/18/2019			03/22/2019 14:48	Lipi Saha	2070855
	03/18/2019			03/22/2019 15:00	Lipi Saha	2070858
EPA 350.1 Rev. 2.0	03/18/2019			03/19/2019 13:21	Ping Hua	2070856
	03/18/2019			03/19/2019 13:38	Ping Hua	2070852
	03/18/2019			03/19/2019 13:39	Ping Hua	2070859
	03/18/2019			03/19/2019 13:44	Ping Hua	2070851
EPA 351.2 Rev. 2.0	03/18/2019	03/21/2019 16:30	Adrian Shelby	03/22/2019 15:03	Joseph Suarez	2070851
	03/18/2019	03/21/2019 16:30	Adrian Shelby	03/22/2019 15:05	Joseph Suarez	2070852
	03/18/2019	03/21/2019 16:30	Adrian Shelby	03/22/2019 15:06	Joseph Suarez	2070856
	03/18/2019	03/21/2019 16:30	Adrian Shelby	03/22/2019 15:08	Joseph Suarez	2070859
EPA 353.2 Rev. 2.0	03/18/2019			03/20/2019 13:38	Lauren Lees	2070851
	03/18/2019			03/20/2019 13:40	Lauren Lees	2070852
	03/18/2019			03/20/2019 13:47	Lauren Lees	2070856
	03/18/2019			03/20/2019 13:53	Lauren Lees	2070859
EPA 365.1 Rev. 2.0	03/18/2019	03/25/2019 14:50	Adrian Shelby	03/26/2019 12:00	Beverly Y. Sanders	2070859
	03/18/2019	03/25/2019 14:50	Adrian Shelby	03/26/2019 12:08	Beverly Y. Sanders	2070856
	03/18/2019	03/25/2019 14:50	Adrian Shelby	03/27/2019 11:57	Rosalyn Ballman	2070851
	03/18/2019	03/25/2019 14:50	Adrian Shelby	03/27/2019 11:58	Rosalyn Ballman	2070852
EPA 365.1 Rev. 2.0 dissolved	03/18/2019			03/19/2019 15:35	Julia Storbeck	2070857
	03/18/2019			03/19/2019 15:37	Julia Storbeck	2070860
	03/18/2019			03/19/2019 15:38	Julia Storbeck	2070853
	03/18/2019			03/19/2019 15:39	Julia Storbeck	2070854
EPA 8321B	03/18/2019	03/20/2019 12:00	Hoor Shaik	03/20/2019 14:05	Juyoung Kim	2070873
	03/18/2019	03/20/2019 12:00	Hoor Shaik	03/20/2019 14:16	Juyoung Kim	2070874
	03/18/2019	03/20/2019 12:00	Hoor Shaik	03/20/2019 14:26	Juyoung Kim	2070875
	03/18/2019	03/20/2019 12:00	Hoor Shaik	03/20/2019 14:37	Juyoung Kim	2070876
	03/18/2019	03/20/2019 12:00	Hoor Shaik	03/21/2019 02:47	Juyoung Kim	2070873
	03/18/2019	03/20/2019 12:00	Hoor Shaik	03/21/2019 03:00	Juyoung Kim	2070874
	03/18/2019	03/20/2019 12:00	Hoor Shaik	03/21/2019 03:14	Juyoung Kim	2070875
	03/18/2019	03/20/2019 12:00	Hoor Shaik	03/21/2019 03:28	Juyoung Kim	2070876
	03/18/2019	03/20/2019 14:00	Hoor Shaik	03/27/2019 04:03	Juyoung Kim	2070873

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
EPA 8321B	03/18/2019	03/20/2019 14:00	Hoor Shaik	03/27/2019 04:38	Juyoung Kim	2070874
	03/18/2019	03/20/2019 14:00	Hoor Shaik	03/27/2019 05:13	Juyoung Kim	2070875
	03/18/2019	03/20/2019 14:00	Hoor Shaik	03/27/2019 06:22	Juyoung Kim	2070876
SM 2120 B	03/18/2019			03/19/2019 15:20	Mariam Hanna	2070855
	03/18/2019			03/19/2019 15:21	Mariam Hanna	2070858
	03/18/2019			03/19/2019 15:59	Mariam Hanna	2070849
	03/18/2019			03/20/2019 10:30	Mariam Hanna	2070850
SM 2320 B-97	03/18/2019			03/25/2019 10:54	Dale L. Simmons	2070849
	03/18/2019			03/28/2019 07:44	Dale L. Simmons	2070850
	03/18/2019			03/28/2019 07:56	Dale L. Simmons	2070855
	03/18/2019			03/28/2019 08:07	Dale L. Simmons	2070858
SM 2540 C-97	03/18/2019			03/20/2019 15:26	Yijie Li	2070849, 2070850, 2070855, 2070858
SM 2540 D-97	03/18/2019			03/20/2019 15:26	Yijie Li	2070849, 2070850, 2070855, 2070858
SM 4500 F-C-97	03/18/2019			03/25/2019 10:54	Dale L. Simmons	2070849
	03/18/2019			03/28/2019 07:44	Dale L. Simmons	2070850
	03/18/2019			03/28/2019 07:56	Dale L. Simmons	2070855
	03/18/2019			03/28/2019 08:07	Dale L. Simmons	2070858
SM 5310 B-00	03/18/2019			03/22/2019 05:03	Lauren Lees	2070856
	03/18/2019			03/22/2019 06:05	Lauren Lees	2070859
	03/18/2019			03/25/2019 18:21	Julia Storbeck	2070851
	03/18/2019			03/25/2019 18:33	Julia Storbeck	2070852