

Chemical Analysis Report

TLH-ROC-2018-03-22-01

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

Event Description: **kit C (WBID 3402) Econfina River**
Request ID: **RQ-2018-03-05-66**
Customer: **TLH-ROC**
Project ID: **SMP**

Send Reports to:
FL Dept. of Environmental Protection
2600 Blair Stone Rd
Tallahassee, FL 32399
Attn: Michael Eckles

For additional information please contact
Colin Wright, Ph.D.
Liang-Tsair Lin, Ph.D.
Thekkekalathil Chandrasekhar, Ph.D, QA Officer
Phone (850) 245-8085

Certified by: Thekkekalathil Chandrasekhar, Chemist Administrator

Date Certified: 26-APR-2018 15:38



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 and Nutrients.

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: ECONFINARIVER @ POWERLINE RD.

Collection Date/Time: 03/22/2018 10:10

Field ID: G1TLHR0090

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1977036	EPA 180.1 Rev. 2.0	Turbidity	3.1		NTU	P342050	
	EPA 300.0 Rev. 2.1	Chloride	4.8		mg Cl/L	P342312	
		Sulfate	1.7		mg SO4/L	P342314	
	SM 2120 B	Color (true)	370		PCU	P342055	
	SM 2320 B-97	Total Alkalinity	104		mg CaCO3/L	P342474	
	SM 2540 C-97	TDS	190	A	mg/L	P342382	
	SM 2540 D-97	TSS	2	IA	mg/L	P342224	
	SM 4500 F-C-97	Fluoride	0.11		mg F/L	P342537	
1977040	EPA 350.1 Rev. 2.0	Ammonia-N	0.018		mg N/L	P342305	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.90		mg N/L	P342170	MS
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.016		mg N/L	P342255	
	EPA 365.1 Rev. 2.0	Total-P	0.080		mg P/L	P342188	
	SM 5310 B-00	Organic Carbon	31		mg C/L	P342761	
1977044	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.047		mg P/L	P342087	
1977052	EPA 200.7 Rev. 4.4	Iron	950		ug/L	P342166	
		Zinc	5.0	U	ug/L	P342166	
	EPA 200.8 Rev. 5.4	Arsenic	0.58		ug/L	P342166	
		Cadmium	0.020	U	ug/L	P342166	
		Chromium	0.71	I	ug/L	P342166	
		Copper	0.25	I	ug/L	P342166	
		Lead	0.20		ug/L	P343020	
		Nickel	0.25	I	ug/L	P342166	
		Silver	0.010	U	ug/L	P342166	

Ref. Method and Comment:

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

EPA 365.1 Rev. 2.0 dissolved: O-Phosphate-P: Batch matrix spike recoveries are unavailable because of high analyte concentration in the QC sample.

Sample Location: ECONFINA RIVER @ CABBAGE GROVE SALT RD.

Collection Date/Time: 03/22/2018 10:45

Field ID: G1TLHR0092

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1977037	EPA 180.1 Rev. 2.0	Turbidity	3.6		NTU	P342050	
	EPA 300.0 Rev. 2.1	Chloride	5.0		mg Cl/L	P342312	
		Sulfate	1.4		mg SO4/L	P342314	
	SM 2120 B	Color (true)	460		PCU	P342055	
	SM 2320 B-97	Total Alkalinity	72		mg CaCO3/L	P342474	
	SM 2540 C-97	TDS	168		mg/L	P342382	
	SM 2540 D-97	TSS	4	I	mg/L	P342224	
	SM 4500 F-C-97	Fluoride	0.084	I	mg F/L	P342537	
1977041	EPA 350.1 Rev. 2.0	Ammonia-N	0.017		mg N/L	P342305	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.2		mg N/L	P342170	MS
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.009	I	mg N/L	P342255	
	EPA 365.1 Rev. 2.0	Total-P	0.090		mg P/L	P342216	

Field ID: G1TLHR0092

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1977041	SM 5310 B-00	Organic Carbon	39		mg C/L	P342762	
1977045	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.050		mg P/L	P342087	
1977053	EPA 200.7 Rev. 4.4	Iron	980		ug/L	P342166	
		Zinc	5.0	U	ug/L	P342166	
	EPA 200.8 Rev. 5.4	Arsenic	0.45		ug/L	P342166	
		Cadmium	0.020	U	ug/L	P342166	
		Chromium	0.70	I	ug/L	P342166	
		Copper	0.24	I	ug/L	P342166	
		Lead	0.27		ug/L	P343020	
		Nickel	0.32	I	ug/L	P342166	
		Silver	0.010	U	ug/L	P342166	

Ref. Method and Comment:

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

EPA 365.1 Rev. 2.0 dissolved: O-Phosphate-P: Batch matrix spike recoveries are unavailable because of high analyte concentration in the QC sample.

Sample Location: ECONFINA RIVER @ US19/27

Collection Date/Time: 03/22/2018 12:15

Field ID: G1TLHR0089

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1977038	EPA 180.1 Rev. 2.0	Turbidity	1.7		NTU	P342050	
	EPA 300.0 Rev. 2.1	Chloride	5.1		mg Cl/L	P342312	
		Sulfate	0.54		mg SO4/L	P342314	
	SM 2120 B	Color (true)	550		PCU	P342055	
	SM 2320 B-97	Total Alkalinity	0.65	U	mg CaCO3/L	P342474	
	SM 2540 C-97	TDS	128		mg/L	P342383	
	SM 2540 D-97	TSS	2	U	mg/L	P342224	
	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P342537	
1977042	EPA 350.1 Rev. 2.0	Ammonia-N	0.005	I	mg N/L	P342305	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.2		mg N/L	P342170	MS
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P342255	
	EPA 365.1 Rev. 2.0	Total-P	0.035		mg P/L	P342216	
	SM 5310 B-00	Organic Carbon	54		mg C/L	P342762	
1977046	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.012		mg P/L	P342087	
1977054	EPA 200.7 Rev. 4.4	Iron	400		ug/L	P342166	
		Zinc	5.0	U	ug/L	P342166	
	EPA 200.8 Rev. 5.4	Arsenic	0.29		ug/L	P342166	
		Cadmium	0.020	U	ug/L	P342166	
		Chromium	0.81	I	ug/L	P342166	
		Copper	0.51	I	ug/L	P342166	
		Lead	0.43		ug/L	P343020	
		Nickel	0.80	I	ug/L	P342166	
		Silver	0.010	U	ug/L	P342166	

Ref. Method and Comment:

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

EPA 365.1 Rev. 2.0 dissolved: O-Phosphate-P: Batch matrix spike recoveries are unavailable because of high analyte concentration in the QC sample.

Sample Location: ECONFINA RIVER @ FULFORD BRIDGE RD. Collection Date/Time: 03/22/2018 12:50

Field ID: G1TLHR0093

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1977039	EPA 180.1 Rev. 2.0	Turbidity	1.8		NTU	P342050	
	EPA 300.0 Rev. 2.1	Chloride	5.0		mg Cl/L	P342312	
		Sulfate	0.67		mg SO4/L	P342314	
	SM 2120 B	Color (true)	580		PCU	P342055	
	SM 2320 B-97	Total Alkalinity	8.2		mg CaCO3/L	P342474	
	SM 2540 C-97	TDS	141		mg/L	P342383	
	SM 2540 D-97	TSS	2	U	mg/L	P342224	
	SM 4500 F-C-97	Fluoride	0.044	I	mg F/L	P342537	
1977043	EPA 350.1 Rev. 2.0	Ammonia-N	0.013		mg N/L	P342677	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.3		mg N/L	P342170	MS
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P342256	
	EPA 365.1 Rev. 2.0	Total-P	0.055		mg P/L	P342216	
	SM 5310 B-00	Organic Carbon	53		mg C/L	P342762	
1977047	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.027		mg P/L	P342087	
1977055	EPA 200.7 Rev. 4.4	Iron	560		ug/L	P342166	
		Zinc	5.0	U	ug/L	P342166	
	EPA 200.8 Rev. 5.4	Arsenic	0.33		ug/L	P342166	
		Cadmium	0.020	U	ug/L	P342166	
		Chromium	0.51	I	ug/L	P342166	
		Copper	0.57	I	ug/L	P342166	
		Lead	0.46		ug/L	P343020	
		Nickel	0.41	I	ug/L	P342166	
		Silver	0.010	U	ug/L	P342166	

Ref. Method and Comment:

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

EPA 365.1 Rev. 2.0 dissolved: O-Phosphate-P: Batch matrix spike recoveries are unavailable because of high analyte concentration in the QC sample.

Quality Assurance Report Method Blank Results

Reference Method: EPA 180.1 Rev. 2.0

Batch ID: P342050

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 200.7 Rev. 4.4

Batch ID: P342166

Component	Result	Code	Units
Iron	30	U	ug/L
Zinc	5.0	U	ug/L

Reference Method: EPA 200.8 Rev. 5.4

Batch ID: P342166

Component	Result	Code	Units
-----------	--------	------	-------

Quality Assurance Report Method Blank Results

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P342166

Component	Result	Code	Units
Arsenic	0.050	U	ug/L
Cadmium	0.020	U	ug/L
Chromium	0.40	U	ug/L
Copper	0.20	U	ug/L
Nickel	0.20	U	ug/L
Silver	0.010	U	ug/L

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P343020

Component	Result	Code	Units
Lead	0.050	U	ug/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P342312

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P342314

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P342305

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P342677

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P342170

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P342255

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

Quality Assurance Report Method Blank Results

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P342256

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P342188

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P342216

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P342087

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

Reference Method: SM 2120 B
Batch ID: P342055

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2320 B-97
Batch ID: P342474

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

Reference Method: SM 2540 C-97
Batch ID: P342382

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 C-97
Batch ID: P342383

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P342224

Component	Result	Code	Units
TSS	2	U	mg/L

Quality Assurance Report Method Blank Results

Reference Method: SM 4500 F-C-97
Batch ID: P342537

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-00
Batch ID: P342761

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

Reference Method: SM 5310 B-00
Batch ID: P342762

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: P342166

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Iron	107		P	85 - 115
Zinc	102		P	85 - 115

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P342166

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Arsenic	100		P	85 - 115
Cadmium	103		P	85 - 115
Chromium	101		P	85 - 115
Copper	101		P	85 - 115
Nickel	101		P	85 - 115
Silver	99.4		P	85 - 115

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P343020

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Lead	104		P	85 - 115

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P342312

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P342314

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
-----------	---------	---------	-----------	----------------

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 300.0 Rev. 2.1
 Batch ID: P342314

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Sulfate	97.7		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
 Batch ID: P342305

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

Reference Method: EPA 350.1 Rev. 2.0
 Batch ID: P342677

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Ammonia-N	98.6		P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
 Batch ID: P342170

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Kjeldahl Nitrogen	97.4		P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
 Batch ID: P342255

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: P342256

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

Reference Method: EPA 365.1 Rev. 2.0
 Batch ID: P342188

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

Reference Method: EPA 365.1 Rev. 2.0
 Batch ID: P342216

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
 Batch ID: P342087

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

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: SM 2320 B-97
 Batch ID: P342474

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	99.5		P	98 - 107

Reference Method: SM 4500 F-C-97
 Batch ID: P342537

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	97.9		P	91 - 105

Reference Method: SM 5310 B-00
 Batch ID: P342761

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	98.9		P	85 - 115

Reference Method: SM 5310 B-00
 Batch ID: P342762

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	99.6		P	85 - 115

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 200.7 Rev. 4.4
 Batch ID: P342166

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1976395	Iron	103	105	P/P	80 - 120
1976395	Zinc	101	102	P/P	80 - 120
1977054	Iron	106		P	80 - 120
1977054	Zinc	102		P	80 - 120

Reference Method: EPA 200.8 Rev. 5.4
 Batch ID: P342166

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1976395	Arsenic	99.7	100	P/P	75 - 125
1976395	Cadmium	102	102	P/P	75 - 125
1976395	Chromium	95.9	96.1	P/P	75 - 125
1976395	Copper	94.9	95.3	P/P	75 - 125
1976395	Nickel	94.9	95.5	P/P	75 - 125
1976395	Silver	96.7	96.0	P/P	75 - 125
1977054	Arsenic	96.6		P	80 - 120
1977054	Cadmium	104		P	80 - 120
1977054	Chromium	98.2		P	80 - 120
1977054	Copper	97.2		P	80 - 120
1977054	Nickel	95.9		P	80 - 120
1977054	Silver	96.5		P	80 - 120

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P343020

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1975197	Lead	103		P	80 - 120
1977231	Lead	104	102	P/P	80 - 120

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P342312

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1976970	Chloride	100		P	90 - 110
1977112	Chloride	96.6		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P342314

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1976970	Sulfate	103		P	90 - 110
1977112	Sulfate	98.2		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P342305

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1976975	Ammonia-N	98.4	100	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P342677

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1976844	Ammonia-N	101	99.6	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P342170

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1977079	Kjeldahl Nitrogen	89.5	86.1	F/F	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P342255

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1976975	NO2NO3-N	105	106	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P342256

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1977043	NO2NO3-N	100	99.5	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P342188

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1976979	Total-P	96.4	101	P/P	90 - 110

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 365.1 Rev. 2.0
 Batch ID: P342216

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1977078	Total-P	96.8	101	P/P	90 - 110

Reference Method: SM 4500 F-C-97
 Batch ID: P342537

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1976973	Fluoride	95.2	94.7	P/P	91 - 105

Reference Method: SM 5310 B-00
 Batch ID: P342761

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1976534	Organic Carbon	102	103	P/P	85 - 115

Reference Method: SM 5310 B-00
 Batch ID: P342762

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1977041	Organic Carbon	105		P	85 - 115

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
 Batch ID: P342050

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1976970	Turbidity	0.717	Sample	P	0 - 20

Reference Method: EPA 200.7 Rev. 4.4
 Batch ID: P342166

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1976395	Iron	1.48	Spike	P	0 - 20
1976395	Zinc	0.0347	Spike	P	0 - 20

Reference Method: EPA 200.8 Rev. 5.4
 Batch ID: P342166

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1976395	Arsenic	0.312	Spike	P	0 - 20
1976395	Cadmium	0.552	Spike	P	0 - 20
1976395	Chromium	0.158	Spike	P	0 - 20
1976395	Copper	0.403	Spike	P	0 - 20
1976395	Nickel	0.614	Spike	P	0 - 20
1976395	Silver	0.702	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 200.8 Rev. 5.4
 Batch ID: P343020

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1977231	Lead	1.07	Spike	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
 Batch ID: P342312

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1976970	Chloride	1.89	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
 Batch ID: P342314

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1976970	Sulfate	2.53	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
 Batch ID: P342305

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1976975	Ammonia-N	1.67	Spike	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
 Batch ID: P342677

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1976844	Ammonia-N	0.924	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
 Batch ID: P342170

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1977079	Kjeldahl Nitrogen	2.63	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
 Batch ID: P342255

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1976975	NO2NO3-N	1.42	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
 Batch ID: P342256

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1977043	NO2NO3-N	0.501	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P342188

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1976979	Total-P	3.05	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P342216

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1977078	Total-P	3.39	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P342087

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1976984	O-Phosphate-P	0.841	Spike	P	0 - 20

Reference Method: SM 2120 B
Batch ID: P342055

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1976970	Color (true)	2.33	Sample	P	0 - 20

Reference Method: SM 2320 B-97
Batch ID: P342474

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1976973	Total Alkalinity	0.0630	Sample	P	0 - 1.6

Reference Method: SM 2540 C-97
Batch ID: P342382

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1977036	TDS	1.05	Sample	P	0 - 10

Reference Method: SM 2540 C-97
Batch ID: P342383

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1977074	TDS	0.922	Sample	P	0 - 10

Reference Method: SM 4500 F-C-97
Batch ID: P342537

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1976973	Fluoride	0.467	Spike	P	0 - 3.5

Quality Assurance Report Precision

Reference Method: SM 5310 B-00
Batch ID: P342761

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1976534	Organic Carbon	0.655	Spike	P	0 - 20

Reference Method: SM 5310 B-00
Batch ID: P342762

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1977041	Organic Carbon	0.432	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 Calibration Verification

Reference Method: EPA 180.1 Rev. 2.0
Run ID: A82792
Included Lab Sample IDs: 1977036, 1977037, 1977038, 1977039

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

Reference Method: SM 2120 B
Run ID: A82793
Included Lab Sample IDs: 1977036, 1977037, 1977038, 1977039

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Run ID: A82801
Included Lab Sample IDs: 1977044, 1977045, 1977046, 1977047

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

Reference Method: EPA 365.1 Rev. 2.0
Run ID: A82862
Included Lab Sample IDs: 1977040

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

Reference Method: EPA 353.2 Rev. 2.0
Run ID: A82873
Included Lab Sample IDs: 1977040, 1977041, 1977042, 1977043

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

Quality Assurance Report Calibration Verification

Reference Method: EPA 200.7 Rev. 4.4

Run ID: A82881

Included Lab Sample IDs: 1977052, 1977053, 1977054, 1977055

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Iron	101	101	P/P	90 - 110
Zinc	102	104	P/P	90 - 110

Reference Method: EPA 200.8 Rev. 5.4

Run ID: A82886

Included Lab Sample IDs: 1977052, 1977053, 1977054, 1977055

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Arsenic	96.8	94.6	P/P	90 - 110
Cadmium	97.5	97.1	P/P	90 - 110
Chromium	94.8	94.9	P/P	90 - 110
Copper	96.5	94.4	P/P	90 - 110
Nickel	96.9	94.9	P/P	90 - 110
Silver	101	100	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A82889

Included Lab Sample IDs: 1977040, 1977041, 1977042

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

Reference Method: EPA 300.0 Rev. 2.1

Run ID: A82892

Included Lab Sample IDs: 1977036, 1977037, 1977038, 1977039

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	101	99.2	P/P	90 - 110
Chloride	102	101	P/P	90 - 110
Sulfate	103	99.4	P/P	90 - 110
Sulfate	99.4	99.2	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A82902

Included Lab Sample IDs: 1977041, 1977043

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

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A82912

Included Lab Sample IDs: 1977040, 1977041, 1977042, 1977043

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	93.8	107	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A82948

Included Lab Sample IDs: 1977042

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
-----------	---------	---------	------------	----------------

Quality Assurance Report Calibration Verification

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A82948

Included Lab Sample IDs: 1977042

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	98.2	99.2	P/P	90 - 110

Reference Method: SM 2320 B-97

Run ID: A82950

Included Lab Sample IDs: 1977036, 1977037, 1977038, 1977039

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	96.4	100	P/P	90 - 110

Reference Method: SM 4500 F-C-97

Run ID: A82967

Included Lab Sample IDs: 1977036, 1977037, 1977038, 1977039

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

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A83017

Included Lab Sample IDs: 1977043

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

Reference Method: SM 5310 B-00

Run ID: A83038

Included Lab Sample IDs: 1977040, 1977041, 1977042, 1977043

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	96.4	98.2	P/P	90 - 110
Organic Carbon	98.2	97.6	P/P	90 - 110

Reference Method: EPA 200.8 Rev. 5.4

Run ID: A83172

Included Lab Sample IDs: 1977052, 1977053, 1977054, 1977055

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Lead	98.0	97.1	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			Precision SMP	MS
			LCS				
EPA 180.1 Rev. 2.0	Turbidity					0.717	
EPA 200.7 Rev. 4.4	Iron	107	106	103	105		1.48
	Zinc	102	102	101	102		0.0347

Quality Assurance Report Summary

Ref. Method	Analyte	LCS % Recovery	MS % Recovery			Precision SMP	MS
			LCS				
EPA 200.8 Rev. 5.4	Arsenic	100	99.7	100	96.6		0.312
	Cadmium	103	102	102	104		0.552
	Chromium	101	95.9	96.1	98.2		0.158
	Copper	101	94.9	95.3	97.2		0.403
	Lead	104	103	104	102		1.07
	Nickel	101	94.9	95.5	95.9		0.614
	Silver	99.4	96.7	96.0	96.5		0.702
EPA 300.0 Rev. 2.1	Chloride	99.1	100	96.6		1.89	
	Sulfate	97.7	103	98.2		2.53	
EPA 350.1 Rev. 2.0	Ammonia-N	98.0	98.4	100			1.67
	Ammonia-N	98.6	101	99.6			0.924
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	97.4	89.5	86.1			2.63
EPA 353.2 Rev. 2.0	NO ₂ NO ₃ -N	104	105	106			1.42
	NO ₂ NO ₃ -N	104	100	99.5			0.501
EPA 365.1 Rev. 2.0	Total-P	97.0	96.4	101			3.05
	Total-P	100	96.8	101			3.39
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	100					0.841
SM 2120 B	Color (true)					2.33	
SM 2320 B-97	Total Alkalinity	99.5				0.0630	
SM 2540 C-97	TDS					1.05	
	TDS					0.922	
SM 4500 F-C-97	Fluoride	97.9	95.2	94.7			0.467
SM 5310 B-00	Organic Carbon	98.9	102	103			0.655
	Organic Carbon	99.6	105				0.432

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	1977036, 1977037, 1977038, 1977039
EPA 200.7 Rev. 4.4 / E31780	Total Recoverable Metals analysis using ICP emission spectroscopy for aqueous samples supporting Clean Water Act Projects	1977052, 1977053, 1977054, 1977055
EPA 200.8 Rev. 5.4 / E31780	Total Recoverable Metals analysis using ICP-MS for aqueous samples supporting Clean Water Act Projects	1977052, 1977053, 1977054, 1977055
EPA 300.0 Rev. 2.1 / E31780	Chloride in aqueous matrices	1977036, 1977037, 1977038, 1977039
EPA 300.0 Rev. 2.1 / E31780	Sulfate in aqueous matrices	1977036, 1977037, 1977038, 1977039
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	1977040, 1977041, 1977042, 1977043
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	1977040, 1977041, 1977042, 1977043
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	1977040, 1977041, 1977042, 1977043
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	1977040, 1977041, 1977042, 1977043
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	1977044, 1977045, 1977046, 1977047
SM 2120 B / E31780	True Color measured at 450 nm	1977036, 1977037, 1977038, 1977039
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO ₃ /L	1977036, 1977037, 1977038, 1977039
SM 2540 C-97 / E31780	Total Dissolved Solids in aqueous matrices	1977036, 1977037, 1977038, 1977039
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices	1977036, 1977037, 1977038, 1977039
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	1977036, 1977037, 1977038, 1977039
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	1977040, 1977041, 1977042, 1977043

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	03/22/2018			03/22/2018 16:28	DeAsia Armster	1977036, 1977037, 1977038, 1977039
EPA 200.7 Rev. 4.4	03/22/2018	03/26/2018 12:20	Elliott D. Healy	03/27/2018 17:04	Betina Topolski	1977052
	03/22/2018	03/26/2018 12:20	Elliott D. Healy	03/27/2018 17:11	Betina Topolski	1977053
	03/22/2018	03/26/2018 12:20	Elliott D. Healy	03/27/2018 17:19	Betina Topolski	1977054
	03/22/2018	03/26/2018 12:20	Elliott D. Healy	03/27/2018 17:39	Betina Topolski	1977055
EPA 200.8 Rev. 5.4	03/22/2018	03/26/2018 12:20	Elliott D. Healy	03/27/2018 17:57	Nadine Brooks	1977054
	03/22/2018	03/26/2018 12:20	Elliott D. Healy	03/27/2018 18:17	Nadine Brooks	1977052
	03/22/2018	03/26/2018 12:20	Elliott D. Healy	03/27/2018 18:26	Nadine Brooks	1977053
	03/22/2018	03/26/2018 12:20	Elliott D. Healy	03/27/2018 18:36	Nadine Brooks	1977055
	03/22/2018	04/09/2018 13:15	Elliott D. Healy	04/12/2018 01:34	Nadine Brooks	1977052
	03/22/2018	04/09/2018 13:15	Elliott D. Healy	04/12/2018 01:41	Nadine Brooks	1977053
	03/22/2018	04/09/2018 13:15	Elliott D. Healy	04/12/2018 01:47	Nadine Brooks	1977054
	03/22/2018	04/09/2018 13:15	Elliott D. Healy	04/12/2018 01:54	Nadine Brooks	1977055
EPA 300.0 Rev. 2.1	03/22/2018			03/27/2018 01:54	Lipi Saha	1977036
	03/22/2018			03/27/2018 02:30	Lipi Saha	1977037
	03/22/2018			03/27/2018 02:42	Lipi Saha	1977038
	03/22/2018			03/27/2018 02:54	Lipi Saha	1977039
EPA 350.1 Rev. 2.0	03/22/2018			03/27/2018 14:45	Ping Hua	1977040
	03/22/2018			03/27/2018 14:46	Ping Hua	1977041
	03/22/2018			03/27/2018 14:48	Ping Hua	1977042
	03/22/2018			04/03/2018 13:19	Ping Hua	1977043
EPA 351.2 Rev. 2.0	03/22/2018	03/26/2018 11:30	Adrian Shelby	03/28/2018 08:23	Joseph Suarez	1977040
	03/22/2018	03/26/2018 11:30	Adrian Shelby	03/28/2018 08:24	Joseph Suarez	1977041
	03/22/2018	03/26/2018 11:30	Adrian Shelby	03/28/2018 08:26	Joseph Suarez	1977042
	03/22/2018	03/26/2018 11:30	Adrian Shelby	03/28/2018 08:27	Joseph Suarez	1977043
EPA 353.2 Rev. 2.0	03/22/2018			03/27/2018 11:50	Lauren Bottorf	1977040
	03/22/2018			03/27/2018 11:51	Lauren Bottorf	1977041
	03/22/2018			03/27/2018 11:52	Lauren Bottorf	1977042
	03/22/2018			03/27/2018 12:00	Lauren Bottorf	1977043
EPA 365.1 Rev. 2.0	03/22/2018	03/26/2018 11:40	Sima Feizi	03/27/2018 09:02	Beverly Y. Sanders	1977040
	03/22/2018	03/27/2018 13:10	Sima Feizi	03/28/2018 09:18	Beverly Y. Sanders	1977041
	03/22/2018	03/27/2018 13:10	Sima Feizi	03/28/2018 09:20	Beverly Y. Sanders	1977043
	03/22/2018	03/27/2018 13:10	Sima Feizi	03/29/2018 12:52	Beverly Y. Sanders	1977042
EPA 365.1 Rev. 2.0 dissolved	03/22/2018			03/22/2018 16:24	Megan Treadwell	1977044
	03/22/2018			03/22/2018 16:25	Megan Treadwell	1977045
	03/22/2018			03/22/2018 16:26	Megan Treadwell	1977046
	03/22/2018			03/22/2018 16:27	Megan Treadwell	1977047
SM 2120 B	03/22/2018			03/22/2018 17:44	Tanya Welborn	1977036
	03/22/2018			03/22/2018 17:45	Tanya Welborn	1977037
	03/22/2018			03/22/2018 17:46	Tanya Welborn	1977038, 1977039

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
SM 2320 B-97	03/22/2018			03/29/2018 21:45	Dale L. Simmons	1977036
	03/22/2018			03/29/2018 21:56	Dale L. Simmons	1977037
	03/22/2018			03/29/2018 22:06	Dale L. Simmons	1977038
	03/22/2018			03/29/2018 22:16	Dale L. Simmons	1977039
SM 2540 C-97	03/22/2018			03/23/2018 15:30	DeAsia Armster	1977036, 1977037, 1977038, 1977039
SM 2540 D-97	03/22/2018			03/23/2018 15:30	DeAsia Armster	1977036, 1977037, 1977038, 1977039
SM 4500 F-C-97	03/22/2018			03/31/2018 09:42	Lauren Bottorf	1977036
	03/22/2018			03/31/2018 09:46	Lauren Bottorf	1977037
	03/22/2018			03/31/2018 09:52	Lauren Bottorf	1977038
	03/22/2018			03/31/2018 09:55	Lauren Bottorf	1977039
SM 5310 B-00	03/22/2018			04/03/2018 23:47	Megan Treadwell	1977040
	03/22/2018			04/04/2018 00:35	Megan Treadwell	1977041
	03/22/2018			04/04/2018 02:05	Megan Treadwell	1977042
	03/22/2018			04/04/2018 02:20	Megan Treadwell	1977043