

Chemical Analysis Report

CEN-DIST-2021-06-25-01

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

Event Description: **Blanket Bay/Dead River**

Request ID: **RQ-2021-03-29-70**

Customer: **CEN-DIST**

Project ID: **SMP**

Send Reports to:

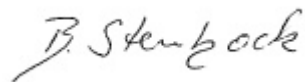
FL Dept. of Environmental Protection
FL Dept. of Environmental Protection
3319 Maguire Blvd., Suite 232
Orlando, FL 32803-3767
Attn: Kalina Warren

For additional information please contact

Colin Wright, Ph.D.
Liang-Tsair Lin, Ph.D.
Kerry Tate, Ph.D.
Dr. rer. nat. Bettina Steinbock
Thekkekalathil Chandrasekhar, Ph.D, QA Officer
Phone (850) 245-8085

Certified by: Dr. rer. nat. Bettina Steinbock, Environmental Administrator

Date Certified: 20-JUL-2021 12:56



Case Narrative

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

Results for the following analytical group are included in this report: 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 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: Roberts Branch @ Curryville Rd.

Collection Date/Time: 06/24/2021 12:30

Field ID: G3CE0011

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2257317	EPA 180.1 Rev. 2.0	Turbidity	15	A	NTU	P400254	
	EPA 300.0 Rev. 2.1	Chloride	18		mg Cl/L	P400553	
		Sulfate	19		mg SO4/L	P400558	
		Color (true)	120	J	PCU	P400249	
	SM 2320 B-2011	Total Alkalinity	8.5		mg CaCO3/L	P400617	
	SM 2540 C-2011	TDS	132		mg/L	P400606	
	SM 2540 D-2011	TSS	15		mg/L	P400609	
	SM 4500 F-C-2011	Fluoride	0.035	U	mg F/L	P400621	
2257318	EPA 350.1 Rev. 2.0	Ammonia-N	0.19		mg N/L	P400739	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.5		mg N/L	P400520	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.066		mg N/L	P400265	
	EPA 365.1 Rev. 2.0	Total-P	0.12		mg P/L	P400435	
	SM 5310 B-2011	Organic Carbon	17		mg C/L	P400534	
2257319	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.036		mg P/L	P400242	

Ref. Method and Comment:

EPA 300.0 Rev. 2.1: Chloride: Batch matrix spike recoveries for one of two spiked samples are unavailable because of high analyte concentration in the QC sample.

SM 2120 B-2011: The result may be biased high because of matrix interference.

SM 2540 D-2011: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample.

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

Quality Assurance Report

Method Blank Results

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P400254

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P400553

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P400558

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P400739

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P400520

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P400265

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P400435

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P400242

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

Reference Method: SM 2120 B-2011
Batch ID: P400249

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Quality Assurance Report

Method Blank Results

Reference Method: SM 2320 B-2011
Batch ID: P400617

Component	Result	Code	Units
Total Alkalinity	0.70	I	mg CaCO ₃ /L

Reference Method: SM 2540 C-2011
Batch ID: P400606

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-2011
Batch ID: P400609

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500 F-C-2011
Batch ID: P400621

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-2011
Batch ID: P400534

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

Quality Assurance Report

Laboratory Control Sample Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P400553

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P400558

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P400739

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Ammonia-N	96.6		P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P400520

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P400265

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P400435

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P400242

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
O-Phosphate-P	99.3		P	90 - 110

Reference Method: SM 2120 B-2011
Batch ID: P400249

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Color (true)	101		P	85 - 115

Reference Method: SM 2320 B-2011
Batch ID: P400617

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	101		P	94 - 106

Quality Assurance Report

Laboratory Control Sample Accuracy

Reference Method: SM 4500 F-C-2011
Batch ID: P400621

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	101		P	93 - 104

Reference Method: SM 5310 B-2011
Batch ID: P400534

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	95.3		P	85 - 115

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P400553

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2256981	Chloride	101		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P400558

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2256981	Sulfate	100		P	90 - 110
2257258	Sulfate	94.2		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P400739

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2257242	Ammonia-N	94.4	95.0	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P400265

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2257217	NO2NO3-N	99.1	98.6	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P400435

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2257170	Total-P	106	107	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P400242

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2257276	O-Phosphate-P	96.0	94.8	P/P	90 - 110

Reference Method: SM 4500 F-C-2011
Batch ID: P400621

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2257021	Fluoride	103	103	P/P	92 - 107

Reference Method: SM 5310 B-2011
Batch ID: P400534

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2257170	Organic Carbon	96.2	98.6	P/P	85 - 115

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P400254

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2257317	Turbidity	0.664	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P400553

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2257258	Chloride	0.503	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P400558

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2257258	Sulfate	1.23	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P400739

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2257242	Ammonia-N	0.326	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P400520

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2257318	Kjeldahl Nitrogen	2.59	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P400265

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2257217	NO2NO3-N	0.343	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P400435

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2257170	Total-P	1.24	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P400242

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2257276	O-Phosphate-P	1.12	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: SM 2120 B-2011
Batch ID: P400249

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2257099	Color (true)	1.22	Sample	P	0 - 20

Reference Method: SM 2320 B-2011
Batch ID: P400617

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2257021	Total Alkalinity	1.90	Sample	P	0 - 5.2

Reference Method: SM 2540 C-2011
Batch ID: P400606

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2257168	TDS	5.60	Sample	P	0 - 10

Reference Method: SM 4500 F-C-2011
Batch ID: P400621

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2257021	Fluoride	0.469	Spike	P	0 - 2.1

Reference Method: SM 5310 B-2011
Batch ID: P400534

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2257170	Organic Carbon	1.46	Spike	P	0 - 20

* Sample, spike and/or laboratory control sample precision (LCS) is reported.

Quality Assurance Report Calibration Verification

Reference Method: EPA 365.1 Rev. 2.0 dissolved

Run ID: A106298

Included Lab Sample IDs: 2257319

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	95.5	96.1	P/P	90 - 110

Reference Method: SM 2120 B-2011

Run ID: A106303

Included Lab Sample IDs: 2257317

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	101	101	P/P	90 - 115

Reference Method: EPA 180.1 Rev. 2.0

Run ID: A106305

Included Lab Sample IDs: 2257317

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Turbidity	98.5	99.5	P/P	95 - 105

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A106314

Included Lab Sample IDs: 2257318

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

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A106405

Included Lab Sample IDs: 2257318

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

Reference Method: EPA 300.0 Rev. 2.1

Run ID: A106423

Included Lab Sample IDs: 2257317

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

Reference Method: SM 5310 B-2011

Run ID: A106432

Included Lab Sample IDs: 2257318

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

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A106466

Included Lab Sample IDs: 2257318

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	95.4	94.2	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: SM 2320 B-2011

Run ID: A106477

Included Lab Sample IDs: 2257317

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	99.3	100	P/P	90 - 110

Reference Method: SM 4500 F-C-2011

Run ID: A106477

Included Lab Sample IDs: 2257317

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

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A106531

Included Lab Sample IDs: 2257318

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	96.2	96.8	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	
					LCS	MS
EPA 180.1 Rev. 2.0	Turbidity				0.664	
EPA 300.0 Rev. 2.1	Chloride	103	101		0.503	
	Sulfate	102	94.2	100	1.23	
EPA 350.1 Rev. 2.0	Ammonia-N	96.6	94.4	95.0		0.326
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	100				2.59
EPA 353.2 Rev. 2.0	NO ₂ NO ₃ -N	99.5	99.1	98.6		0.343
EPA 365.1 Rev. 2.0	Total-P	107	106	107		1.24
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	99.3	96.0	94.8		1.12
SM 2120 B-2011	Color (true)	101			1.22	
SM 2320 B-2011	Total Alkalinity	101			1.90	
SM 2540 C-2011	TDS				5.60	
SM 4500 F-C-2011	Fluoride	101	103	103		0.469
SM 5310 B-2011	Organic Carbon	95.3	96.2	98.6		1.46

Reference Method Descriptions

Method	Description	Associated Samples
EPA 180.1 Rev. 2.0	Turbidity in aqueous matrices	2257317
EPA 300.0 Rev. 2.1	Chloride in aqueous matrices	2257317
EPA 300.0 Rev. 2.1	Sulfate in aqueous matrices	2257317
EPA 350.1 Rev. 2.0	Ammonia in aqueous matrices as mg N/L	2257318
EPA 351.2 Rev. 2.0	Total Kjeldahl Nitrogen in aqueous matrices	2257318
EPA 353.2 Rev. 2.0	Nitrite/Nitrate in aqueous matrices as mg N/L	2257318
EPA 365.1 Rev. 2.0	Total Phosphorus in aqueous matrices as mg P/L	2257318
EPA 365.1 Rev. 2.0 dissolved	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	2257319
SM 2120 B-2011	True Color measured at 450 nm (not valid for NPDES monitoring)	2257317
SM 2320 B-2011	Alkalinity in aqueous matrices as mg CaCO ₃ /L	2257317
SM 2540 C-2011	Total Dissolved Solids in aqueous matrices	2257317
SM 2540 D-2011	Total Suspended Solids in aqueous matrices using a maximum of 250 mL of sample	2257317
SM 4500 F-C-2011	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	2257317
SM 5310 B-2011	Nonpurgeable Organic Carbon in aqueous matrices	2257318

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	06/25/2021			06/25/2021 15:13	Sarah A Nixon	2257317
EPA 300.0 Rev. 2.1	06/25/2021			07/03/2021 06:05	Lipi Saha	2257317
EPA 350.1 Rev. 2.0	06/25/2021			07/09/2021 13:24	Roberta Tatti	2257318
EPA 351.2 Rev. 2.0	06/25/2021	07/02/2021 12:58	Benjamin T. Nordmann	07/06/2021 14:06	Letuzia M De Oliveira	2257318
EPA 353.2 Rev. 2.0	06/25/2021			06/28/2021 09:57	Beverly Y. Sanders	2257318
EPA 365.1 Rev. 2.0	06/25/2021	07/01/2021 10:00	Shengyu Ding	07/01/2021 13:01	Shengyu Ding	2257318
EPA 365.1 Rev. 2.0 dissolved	06/25/2021			06/25/2021 14:18	Lipi Saha	2257319
SM 2120 B-2011	06/25/2021			06/25/2021 16:18	Benjamin T. Nordmann	2257317
SM 2320 B-2011	06/25/2021			07/07/2021 05:47	Patrick M. Roche	2257317
SM 2540 C-2011	06/25/2021			06/28/2021 14:25	Yijie Li	2257317
SM 2540 D-2011	06/25/2021			06/28/2021 14:25	Yijie Li	2257317
SM 4500 F-C-2011	06/25/2021			07/07/2021 05:47	Patrick M. Roche	2257317
SM 5310 B-2011	06/25/2021			07/01/2021 15:49	Madeline Gruver	2257318