



## **Carbon Monoxide Compliance Test Report**

**Billerud Escanaba, LLC  
Escanaba Mill  
Recovery Furnace Stack (EURF15)  
Escanaba, Michigan  
July 26 and 27, 2023**

**Report Submittal Date  
September 8, 2023**

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**Project No. M231813B**



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## 1.0 EXECUTIVE SUMMARY

Mostardi Platt conducted a particulate and gaseous test program for Billerud Escanaba, LLC at the Escanaba Mill on the Recovery Furnace Stack (EURF15) on July 26 and 27, 2023. This report summarizes the results of the test program and test methods used.

Test location, test dates, and test parameters are summarized below.

TEST INFORMATION		
Test Locations	Test Date	Test Parameters
Recovery Furnace Stack (EURF15)	July 26 and 27, 2023	Carbon Monoxide (CO)

Test Location	Test Parameter	Emission Limit*	Emission Rate
Recovery Furnace Stack (EURF15)	CO	800 ppmv	293.0 ppmv
		570 lb/hr	267.8 lb/hr

\*Emissions are based on a 4-hour average

Plant operating data as provided by Billerud Escanaba, LLC is included in Appendix A.

The identifications of individuals associated with the test program are summarized below.

TEST PERSONNEL INFORMATION		
Location	Address	Contact
Test Facility	Billerud Escanaba, LLC Escanaba Mill 7100 County Road 426 M.5 Rd Escanaba, MI 49829	Amanda Freele Environmental Engineer (906) 233-2603 (phone) Amanda.Freele@Billerud.com
Testing Company Representative	Mostardi Platt 888 Industrial Drive Elmhurst, Illinois 60126	Christopher Jensen Senior Project Manager (630) 993-2100 (phone) cjensen@mp-mail.com

The test crew consisted of D. Jackson, J. Carsello, and C. Jensen of Mostardi Platt.

The first run which started at 9:12 AM on 7/26/2023 was aborted due to original linearity having calibration gases being less than the CO being read. Once the boiler reached steady state, CO started to drop to a measurable range and then the actual run 1 was started at 9:45. Unfortunately, the minute data for CO and O<sub>2</sub> during this time period was not saved and was not able to be included in the report. Operational minute data is included in Appendix A.



## 2.0 TEST METHODOLOGY

Emissions testing was conducted following the methods specified in 40 CFR, Part 60, Appendix A. Schematics of the test section diagrams and sampling trains used are found in Appendix B and C, respectively. Calculation nomenclature and sample calculations are found in Appendix D. Sample analysis data are found in Appendix E. Copies of reference method data and field data sheets for each test run are included in Appendix E and G, respectively.

The following methodologies were used during the test program:

### Method 1 Traverse Point Determination

Test measurement points were selected in accordance with Method 1. The characteristics of the measurement location are summarized below.

Location	Stack Diameter (Feet)	Stack Area (Square Feet)	Upstream Diameters	Downstream Diameters	Test Parameter	Number of Sampling Points
Recovery Furnace Stack (EURF15)	13.0	132.732	>0.5	>2.0	Volumetric Flow Rate CO <sub>2</sub> , O <sub>2</sub> , CO	16 12

### Method 2 Volumetric Flowrate Determination

Gas velocity was measured following USEPA Method 2, 40CFR60, Appendix A, for purposes of calculating stack gas volumetric flow rate. An S-type Pitot tube, 0-10 inch differential pressure gauge, and K-type thermocouple and temperature readout were used to determine gas velocity at each sample point.

All of the equipment used was calibrated in accordance with the specifications of the Method. Calibration data are presented in Appendix G.

### Method 3A Oxygen (O<sub>2</sub>)/Carbon Dioxide (CO<sub>2</sub>) Determination

Stack gas molecular weight was determined in accordance with Method 3A, 40 CFR, Part 60, Appendix A. A Servomex analyzer was used to determine stack gas oxygen and carbon dioxide content and, by difference, nitrogen content. All of the equipment used was calibrated in accordance with the specifications of the Method. Calibration data are presented in Appendix F and gas cylinder certifications are presented in Appendix G.

### Method 4 Moisture (H<sub>2</sub>O) Determination

Determining the moisture content in the gas stream is necessary to calculate the stack gas volumetric air flow on a dry basis and the emission rate in lbs/hr. For this purpose, Mostardi Platt used Reference Method 4.

Approximately 100 mls of water are added to each of the first two impingers and the third is left empty. An impinger containing approximately 250 grams of silica gel and a glass-wool-packed outlet is attached following the third impinger. The entire impinger train, excluding the inlet and outlet connectors, is weighed to the nearest 0.05 gram. The impingers are placed in an ice bath to maintain the sampled gas passed through the silica gel impinger outlet below 68°F in order to increase the accuracy of the sampled dry gas volume measurement. Each sample is extracted through a stainless-steel probe at a constant sample rate of 0.75 cubic feet per minute, which is maintained during the course of the other simultaneous reference method sampling. After each

run, a leak check of the sampling train is performed at a vacuum greater than the sampling vacuum to determine if any leakage had occurred during sampling. Following the leak check, the impingers are removed from the ice bath and allowed to warm. Any condensed moisture on the exterior is removed and the train reweighed.

All of the equipment used is calibrated in accordance with the specifications of the Method. Copies of field data sheets are included and calibration data is presented in the Appendix of the final report. This testing meets the performance specifications as outlined in the Method.

### **Method 10 Carbon Monoxide (CO) Determination**

Stack gas CO concentrations and emission rates were determined in accordance with USEPA Method 10, 40CFR60, Appendix A. A Thermo Scientific 48i Carbon Monoxide analyzer was used to determine carbon monoxide concentrations, in the manner specified in the Method.

Stack gas was delivered to the analyzer via a Teflon® sampling line, heated to a minimum temperature of 250°F. Excess moisture in the stack gas was removed using a refrigerated condenser. The entire system was calibrated in accordance with the Method, using certified calibration gases introduced at the probe, before and after each test run.

### 3.0 TEST RESULTS SUMMARIES

Billerud Escanaba, LLC Escanaba Mill Recovery Furnace Stack Gaseous Summary								
Test No.	Date	Start Time	End Time	CO ppmvd	CO <sub>2</sub> % (dry)	O <sub>2</sub> % (dry)	Flowrate, DSCFM	CO lb/hr
1	07/26/23	09:45	14:06	279.2	13.0	6.1	208,916	254.3
2	07/26/23	14:20	18:32	350.5	14.0	5.2	209,199	319.7
3	07/27/23	08:00	12:13	249.3	13.9	5.3	211,085	229.4
<b>Average</b>				293.0	13.6	5.5	209,733	267.8

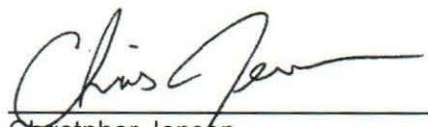


## 4.0 CERTIFICATION

Mostardi Platt is pleased to have been of service to Billerud Escanaba, LLC. If you have any questions regarding this test report, please do not hesitate to contact us at 630-993-2100.

As project manager, I hereby certify that this test report represents a true and accurate summary of emissions test results and the methodologies employed to obtain those results, and the test program was performed in accordance with the methods specified in this test report.

MOSTARDI PLATT



Christopher Jensen

Program Manager



Scott W. Banach

Quality Assurance



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APPENDICES

## Appendix A - Plant Operating Data

No. 10 Recovery Furnace Operating Parameters																		
CO Testing																		
Run No.	Date & Time	BLS Production Rate MMlbs/day	Hourly Heat Input <sup>a</sup> MMBTU/hr	Steam Flow KPPH	Opacity %	East SIR #1 KV	East SIR #2 KV	East T/R #3 KV	East T/R #4 KV	East T/R #5 KV	East T/R #6 KV	West SIR #1 KV	West SIR #2 KV	West T/R #3 KV	West T/R #4 KV	West T/R #5 KV	West T/R #6 KV	Secondary Fan Horsepower hp
Run 1	Start 7/26/2023 9:45 Stop 7/26/2023 14:06	3.80	1025	522	2	63	58	57	59	58	58	61	59	52	57	62	51	607
Run 2	Start 7/26/2023 14:20 Stop 7/26/2023 18:32	3.80	1025	522	2	62	57	55	58	58	58	61	59	57	56	61	51	606
Run 3	Start 7/27/2023 8:00 Stop 7/27/2023 12:13	3.80	1025	529	3	62	57	27	57	60	58	61	58	53	56	62	51	613

<sup>a</sup> Heat input calculated from quarterly BLS sample and BLS Production Rate. Heating value moisture free is 6,475 BTU/lb.

No. 10 Recovery Furnace Fuel Composition				
CO Testing				
Run No.	Date & Time	Black Liquor Solids GPM	Natural Gas cfm	No. 6 Fuel Oil GPM
Run 1	Start 7/26/2023 9:45 Stop 7/26/2023 14:06	343	0*	0
Run 2	Start 7/26/2023 14:20 Stop 7/26/2023 18:32	338	0*	0
Run 3	Start 7/27/2023 8:00 Stop 7/27/2023 12:13	334	0*	0

\*Natural gas was only used to for fueling the ignitors, not for fuel composition in the boiler.

Run 1	3.80	321.66	1.87	61.26	57.77	57.04	58.89	58.08	57.77	61.27	58.84	51.74	56.36	61.63	50.98	606.93	341.25	0.00
7/26/2023 9:45	BLS Production Rate	Steam Flow	Opacity	East SR #3RV	East SR #2RV	East YR #3RV	East YR #4RV	East YR #5RV	East YR #6RV	West SR #3RV	West SR #2RV	West YR #3RV	West YR #4RV	West YR #5RV	West YR #6RV	Secondary Fan	Black Liquor Solids	No. of Fuel Oil
7/26/2023 14:06	Mt/Day	MPPH	%	51-620200_3E.4	51-620200_2E.4	51-620200_3E.4	51-620200_4E.4	51-620200_3E.4	51-620200_4E.4	51-620200_3W.4	51-620200_2W.4	51-620200_3W.4	51-620200_4W.4	51-620200_3W.4	51-620200_4W.4	HP	GPM	GPM
Time	15-70116	15-10000.4	15-40050.4													15-10116.6K1	15-70407.4	
7/26/2023 9:45	3.80	312.94	1.34	64.43	50.23	60.00	60.00	58.00	58.00	61.33	60.00	57.38	56.33	62.00	51.00	607.93	343.18	0.00
7/26/2023 9:46	3.80	303.54	1.01	61.54	60.54	60.00	60.00	58.00	58.00	60.75	59.75	57.72	56.33	62.00	51.00	608.00	343.26	0.00
7/26/2023 9:47	3.80	309.20	1.15	64.38	60.58	60.00	60.00	58.00	58.00	61.15	60.15	57.72	56.33	62.00	51.00	608.02	343.25	0.00
7/26/2023 9:48	3.80	309.20	1.15	64.38	60.58	60.00	60.00	58.00	58.00	61.15	60.15	57.72	56.33	62.00	51.00	608.02	343.25	0.00
7/26/2023 9:49	3.80	313.48	1.39	65.00	61.21	60.00	60.00	58.00	58.00	62.28	61.28	54.87	56.33	62.00	51.00	608.57	343.48	0.00
7/26/2023 9:50	3.80	306.99	1.31	63.75	61.97	60.00	60.00	58.00	58.00	60.00	60.43	55.92	56.33	62.00	51.00	608.57	343.50	0.00
7/26/2023 9:51	3.80	310.99	1.28	64.15	61.22	60.00	60.00	58.00	58.00	61.00	60.43	55.92	56.42	61.97	51.00	607.66	343.46	0.00
7/26/2023 9:52	3.80	320.36	1.46	65.00	62.22	60.00	60.00	58.00	58.00	61.58	60.58	56.89	56.42	62.00	51.00	608.42	343.61	0.00
7/26/2023 9:53	3.80	327.65	1.38	63.20	60.24	60.00	60.00	58.00	58.00	61.83	60.83	58.92	56.42	62.00	51.00	608.52	343.56	0.00
7/26/2023 9:54	3.80	328.50	1.64	65.00	62.22	60.00	60.00	58.00	58.00	61.83	60.83	58.92	56.42	62.00	51.00	608.52	343.56	0.00
7/26/2023 9:55	3.80	316.55	1.02	62.96	63.17	60.00	60.00	58.00	58.00	61.00	60.43	55.92	56.42	62.00	51.00	608.16	343.65	0.00
7/26/2023 9:56	3.80	316.48	1.40	63.24	62.92	60.00	60.00	58.00	58.00	62.14	61.14	56.60	56.42	62.00	51.00	608.19	343.64	0.00
7/26/2023 9:57	3.80	316.04	1.51	64.00	61.11	60.00	60.00	58.00	58.00	61.76	60.76	56.62	56.42	62.00	51.00	609.19	343.77	0.00
7/26/2023 9:58	3.80	313.35	1.46	63.50	63.57	60.00	60.00	58.00	58.00	60.91	60.91	56.33	56.42	62.00	51.00	607.06	343.59	0.00
7/26/2023 9:59	3.80	328.07	1.58	65.00	63.62	60.00	60.00	58.00	58.00	61.37	60.37	56.26	56.42	62.00	51.00	606.92	343.53	0.00
7/26/2023 10:00	3.80	328.07	1.58	65.00	63.62	60.00	60.00	58.00	58.00	61.37	60.37	56.26	56.42	62.00	51.00	606.92	343.53	0.00
7/26/2023 10:01	3.80	318.85	1.40	64.31	60.58	60.00	60.00	58.00	58.00	62.10	61.10	56.42	56.42	62.00	51.00	607.40	343.72	0.00
7/26/2023 10:02	3.80	318.85	1.40	64.31	60.58	60.00	60.00	58.00	58.00	62.10	61.10	56.42	56.42	62.00	51.00	607.40	343.72	0.00
7/26/2023 10:03	3.80	318.85	1.40	64.31	60.58	60.00	60.00	58.00	58.00	62.10	61.10	56.42	56.42	62.00	51.00	607.40	343.72	0.00
7/26/2023 10:04	3.80	322.06	1.42	65.00	63.03	60.00	60.00	58.00	58.00	60.43	60.43	55.92	56.42	62.00	51.00	607.47	343.76	0.00
7/26/2023 10:05	3.80	324.28	1.49	62.76	60.91	60.00	60.00	58.00	58.00	61.64	60.64	56.63	56.42	62.00	51.00	608.53	343.87	0.00
7/26/2023 10:06	3.80	316.27	1.45	62.50	61.41	60.00	60.00	58.00	58.00	61.64	60.64	56.63	56.42	62.00	51.00	608.53	343.87	0.00
7/26/2023 10:07	3.80	308.78	1.46	64.74	61.36	60.00	60.00	58.00	58.00	64.41	63.41	40.62	56.42	62.00	51.00	606.37	343.64	0.00
7/26/2023 10:08	3.80	303.43	1.15	65.00	62.71	60.00	60.00	58.00	58.00	62.65	61.65	54.37	56.42	62.00	51.00	606.05	343.97	0.00
7/26/2023 10:09	3.80	309.70	1.44	65.00	63.93	60.00	60.00	58.00	58.00	61.92	60.92	55.81	56.42	62.00	51.00	607.07	344.06	0.00
7/26/2023 10:10	3.80	315.97	1.31	65.00	63.93	60.00	60.00	58.00	58.00	61.92	60.92	55.81	56.42	62.00	51.00	606.41	343.91	0.00
7/26/2023 10:11	3.80	319.35	1.08	65.00	63.93	60.00	60.00	58.00	58.00	62.78	61.78	50.72	56.42	62.00	51.00	608.03	344.00	0.00
7/26/2023 10:12	3.80	322.47	1.57	63.75	62.92	60.00	60.00	58.00	58.00	60.28	60.28	56.62	56.42	62.00	51.00	607.78	343.77	0.00
7/26/2023 10:13	3.80	324.66	1.60	63.83	62.92	60.00	60.00	58.00	58.00	62.79	61.79	56.35	56.42	62.00	51.00	608.82	344.09	0.00
7/26/2023 10:14	3.80	324.66	1.60	63.83	62.92	60.00	60.00	58.00	58.00	62.79	61.79	56.35	56.42	62.00	51.00	608.82	344.09	0.00
7/26/2023 10:15	3.80	325.51	2.09	63.35	62.50	60.00	60.00	58.00	58.00	61.37	60.37	56.42	56.42	62.00	51.00	606.94	343.61	0.00
7/26/2023 10:16	3.80	316.82	1.66	63.85	62.50	60.00	60.00	58.00	58.00	61.37	60.37	56.42	56.42	62.00	51.00	606.94	343.61	0.00
7/26/2023 10:17	3.80	318.09	1.27	63.81	62.99	60.00	60.00	58.00	58.00	61.99	60.99	55.81	56.42	62.00	51.00	609.59	343.86	0.00
7/26/2023 10:18	3.80	318.28	1.53	64.95	61.27	60.00	60.00	58.00	58.00	61.99	60.99	55.81	56.42	62.00	51.00	607.66	343.54	0.00
7/26/2023 10:19	3.80	313.57	1.69	63.72	61.98	60.00	60.00	58.00	58.00	61.77	60.77	56.78	56.42	62.00	51.00	608.21	343.68	0.00
7/26/2023 10:20	3.80	321.08	1.36	63.16	61.34	60.00	60.00	58.00	58.00	58.35	57.35	55.71	56.42	62.00	51.00	607.60	343.61	0.00
7/26/2023 10:21	3.80	327.89	1.53	65.00	63.15	60.00	60.00	58.00	58.00	58.71	57.71	52.29	56.42	62.00	51.00	606.21	343.49	0.00
7/26/2023 10:22	3.80	313.86	1.64	64.57	62.57	60.00	60.00	58.00	58.00	62.00	61.00	51.31	56.42	62.00	51.00	606.04	343.47	0.00
7/26/2023 10:23	3.80	313.86	1.64	64.57	62.57	60.00	60.00	58.00	58.00	62.00	61.00	51.31	56.42	62.00	51.00	606.04	343.47	0.00
7/26/2023 10:24	3.80	318.33	1.75	64.15	63.90	60.00	60.00	58.00	58.00	60.55	59.55	50.72	56.42	62.00	51.00	606.86	343.42	0.00
7/26/2023 10:25	3.80	313.34	1.68	61.29	60.87	60.00	60.00	58.00	58.00	61.48	60.48	51.65	56.42	62.00	51.00	607.43	343.55	0.00
7/26/2023 10:26	3.80	315.15	1.35	63.75	60.87	60.00	60.00	58.00	58.00	61.48	60.48	51.65	56.42	62.00	51.00	607.43	343.55	0.00
7/26/2023 10:27	3.80	315.15	1.35	63.75	60.87	60.00	60.00	58.00	58.00	61.48	60.48	51.65	56.42	62.00	51.00	607.43	343.55	0.00
7/26/2023 10:28	3.80	315.89	1.11	64.60	63.26	60.00	60.00	58.00	58.00	62.78	61.78	50.72	56.42	62.00	51.00	607.08	343.40	0.00
7/26/2023 10:29	3.80	322.23	1.71	63.92	63.25	60.00	60.00	58.00	58.00	62.78	61.78	50.72	56.42	62.00	51.00	607.08	343.40	0.00
7/26/2023 10:30	3.80	325.54	1.85	64.91	63.92	60.00	60.00	58.00	58.00	62.78	61.78	50.72	56.42	62.00	51.00	607.08	343.40	0.00
7/26/2023 10:31	3.80	323.50	1.84	62.85	64.07	60.00	60.00	58.00	58.00	60.68	60.68	41.96	56.42	62.00	51.00	608.71	343.39	0.00
7/26/2023 10:32	3.80	325.83	1.73	62.85	64.07	60.00	60.00	58.00	58.00	60.68	60.68	41.96	56.42	62.00	51.00	608.71	343.39	0.00
7/26/2023 10:33	3.80	324.15	1.74	64.15	63.52	60.00	60.00	58.00	58.00	61.08	60.08	50.33	56.42	62.00	51.00	608.71	343.39	0.00
7/26/2023 10:34	3.80	321.41	1.43	65.00	61.93	60.00	60.00	58.00	58.00	60.38	59.38	49.00	56.42	62.00	51.00	606.21	343.41	0.00
7/26/2023 10:35	3.80	325.39	1.46	63.15	62.75	60.00	60.00	58.00	58.00	61.43	60.43	51.89	56.42	62.00	51.00	608.30	34	



7/16/2023 11:07	3.80	520.65	2.46	62.79	57.71	56.43	59.49	58.00	57.02	61.05	57.41	44.26	55.84	61.92	51.00	609.73	342.59
7/16/2023 11:08	3.80	517.71	1.85	61.28	60.77	55.39	59.11	58.11	57.58	60.34	56.67	55.98	56.77	62.29	51.00	608.14	342.70
7/16/2023 11:09	3.80	514.69	1.85	61.72	59.80	50.78	60.51	58.59	57.50	58.41	58.31	51.27	58.30	61.71	51.00	608.00	342.56
7/16/2023 11:10	3.80	517.61	2.72	62.60	60.03	59.58	59.17	57.08	57.00	59.78	57.27	51.22	59.78	52.68	51.00	607.34	342.38
7/16/2023 11:11	3.80	523.90	1.17	63.83	60.92	56.50	59.00	57.70	57.00	60.93	60.10	54.68	61.98	61.49	51.00	607.58	342.57
7/16/2023 11:12	3.80	527.03	1.39	61.84	61.92	59.00	59.00	57.72	57.00	59.52	58.02	59.36	54.81	61.42	51.00	606.17	342.60
7/16/2023 11:13	3.80	522.75	1.64	64.66	57.28	57.00	59.00	57.31	57.00	61.43	58.09	50.60	56.41	61.58	51.00	607.34	342.30
7/16/2023 11:14	3.80	518.49	1.73	62.85	60.50	59.72	59.00	57.40	57.00	59.85	56.75	50.74	56.75	62.22	51.00	606.40	342.23
7/16/2023 11:15	3.80	519.89	1.96	62.07	61.98	59.98	59.02	57.99	57.00	60.58	58.33	54.75	58.76	61.92	51.00	606.78	342.42
7/16/2023 11:16	3.80	515.34	1.92	64.36	59.32	55.31	59.99	57.38	57.00	57.75	58.32	51.07	58.36	61.48	51.00	607.42	342.40
7/16/2023 11:17	3.80	518.49	1.73	62.85	60.50	59.72	59.00	57.40	57.00	61.43	58.09	50.60	56.41	61.58	51.00	606.40	342.42
7/16/2023 11:18	3.80	524.12	2.04	64.67	59.92	56.47	60.00	57.00	57.00	55.50	58.72	52.55	57.95	61.52	51.00	607.62	342.36
7/16/2023 11:19	3.80	522.29	2.25	62.00	60.22	56.26	60.22	58.00	57.48	61.03	58.17	52.28	57.40	62.00	51.00	606.69	342.15
7/16/2023 11:20	3.80	519.44	2.15	62.33	55.28	48.36	58.57	57.48	57.48	60.89	56.06	48.85	57.83	61.50	51.00	605.70	342.10
7/16/2023 11:21	3.80	521.88	1.89	63.64	53.23	54.72	57.70	57.51	57.00	60.51	58.46	50.48	55.59	62.00	51.00	606.56	342.09
7/16/2023 11:22	3.80	528.57	1.93	63.07	29.64	60.90	59.50	57.99	57.52	61.91	55.42	50.09	59.14	61.78	51.00	608.52	341.84
7/16/2023 11:23	3.80	524.95	1.98	61.45	60.74	58.57	59.01	58.00	57.08	60.00	58.33	45.33	58.42	62.22	51.00	608.52	341.90
7/16/2023 11:24	3.80	520.08	1.98	60.63	60.63	60.83	57.00	57.08	57.00	61.07	58.78	49.26	57.84	61.38	51.00	607.24	341.90
7/16/2023 11:25	3.80	518.88	1.86	61.10	58.17	59.67	59.00	57.22	57.00	60.43	60.41	41.49	50.48	61.64	51.00	606.92	341.88
7/16/2023 11:26	3.80	519.58	2.38	63.67	61.51	61.62	60.65	58.22	57.72	62.00	58.33	48.13	54.57	62.38	51.00	608.27	341.64
7/16/2023 11:27	3.80	524.73	2.21	64.32	33.32	54.50	61.07	58.48	58.00	62.97	58.01	52.75	55.50	62.00	51.00	607.40	341.69
7/16/2023 11:28	3.80	524.71	1.94	64.43	34.40	56.10	60.00	58.00	58.00	61.02	59.10	48.84	44.38	62.50	51.00	605.07	341.59
7/16/2023 11:29	3.80	519.49	2.00	62.55	53.98	53.98	60.50	58.12	58.00	62.00	61.74	49.74	48.84	62.50	51.00	606.74	341.62
7/16/2023 11:30	3.80	511.95	1.86	62.35	60.52	58.12	60.52	58.12	58.00	62.00	61.74	49.74	48.84	62.50	51.00	606.74	341.62
7/16/2023 11:31	3.80	511.52	2.11	62.78	62.78	57.92	60.92	58.00	58.00	61.21	58.59	53.31	58.59	62.00	51.00	606.73	341.74
7/16/2023 11:32	3.80	511.72	2.46	60.91	63.40	60.40	60.17	58.00	58.00	59.86	56.51	45.19	53.69	62.00	51.00	606.58	341.56
7/16/2023 11:33	3.80	503.81	2.46	60.91	63.40	60.40	60.17	58.00	58.00	59.86	56.51	45.19	53.69	62.00	51.00	606.58	341.56
7/16/2023 11:34	3.80	503.81	2.46	60.91	63.40	60.40	60.17	58.00	58.00	59.86	56.51	45.19	53.69	62.00	51.00	606.58	341.56
7/16/2023 11:35	3.80	501.49	2.19	65.00	60.35	57.26	61.83	58.50	58.00	59.85	59.72	53.19	58.86	62.01	51.00	606.91	341.26
7/16/2023 11:36	3.80	506.54	2.99	63.50	60.35	55.58	60.52	58.00	57.98	61.54	59.36	51.86	60.72	62.00	51.00	606.98	341.36
7/16/2023 11:37	3.80	514.32	2.74	63.50	60.28	56.77	48.13	58.00	57.03	58.91	56.78	40.47	56.67	62.42	51.00	608.23	341.32
7/16/2023 11:38	3.80	519.65	2.35	62.85	60.01	58.91	60.84	58.00	57.91	60.58	60.25	53.88	60.25	62.59	51.00	608.38	341.25
7/16/2023 11:39	3.80	522.21	2.58	62.80	60.64	58.12	54.61	58.00	57.00	59.58	58.85	48.19	38.06	62.71	51.00	607.06	341.24
7/16/2023 11:40	3.80	524.55	3.21	62.00	60.75	58.00	58.98	57.58	57.00	59.72	56.14	48.19	48.74	62.88	51.00	607.71	341.12
7/16/2023 11:41	3.80	525.52	2.32	63.42	52.16	57.17	60.35	57.93	57.22	60.22	56.14	34.67	56.35	61.60	51.00	606.38	341.10
7/16/2023 11:42	3.80	527.79	2.38	61.58	58.26	60.43	60.57	58.28	57.98	61.04	57.27	48.84	55.80	62.00	51.00	606.64	341.19
7/16/2023 11:43	3.80	524.14	2.53	62.00	48.02	55.20	59.43	58.04	57.92	60.33	57.50	50.79	55.27	62.50	51.00	607.21	341.26
7/16/2023 11:44	3.80	524.14	2.53	62.00	48.02	55.20	59.43	58.04	57.92	60.33	57.50	50.79	55.27	62.50	51.00	607.21	341.26
7/16/2023 11:45	3.80	506.81	2.63	63.41	60.81	58.12	58.12	58.12	58.12	60.62	58.59	51.76	60.72	61.50	51.00	607.10	341.05
7/16/2023 11:46	3.80	503.26	1.76	64.49	60.31	59.23	56.36	58.99	57.99	58.38	59.21	51.14	58.86	62.69	51.01	608.62	340.91
7/16/2023 11:47	3.80	499.17	1.38	62.97	29.45	50.00	55.50	58.00	57.00	58.73	59.28	54.56	62.51	61.98	51.00	606.90	341.28
7/16/2023 11:48	3.80	498.85	1.91	61.58	56.07	58.34	59.50	57.40	57.32	61.42	58.00	52.19	57.32	61.52	51.00	605.34	340.93
7/16/2023 11:49	3.80	502.02	1.77	62.68	62.50	59.66	59.22	58.00	57.00	61.32	57.88	40.12	52.52	61.58	51.00	606.74	340.89
7/16/2023 11:50	3.80	510.80	1.68	64.50	49.27	57.34	59.41	58.07	57.52	64.00	58.83	44.24	58.66	61.82	51.00	606.76	340.85
7/16/2023 11:51	3.80	517.62	2.49	63.22	62.31	54.69	57.60	59.44	58.00	62.17	60.33	57.16	56.76	62.00	51.00	604.35	340.87
7/16/2023 11:52	3.80	517.08	1.94	64.93	61.04	60.48	60.00	59.44	58.00	62.92	60.33	57.17	55.60	61.50	51.00	606.49	340.98
7/16/2023 11:53	3.80	513.55	2.02	63.84	63.88	59.58	59.58	58.00	58.00	62.92	58.25	52.84	58.01	61.31	51.00	605.44	340.77
7/16/2023 11:54	3.80	509.77	2.50	60.33	59.19	49.43	60.75	58.00	58.00	60.95	59.57	50.36	60.70	61.31	51.00	605.44	340.88
7/16/2023 11:55	3.80	508.66	2.48	60.83	60.83	61.37	60.83	58.00	57.30	59.78	57.50	49.87	55.07	61.99	51.02	605.52	340.96
7/16/2023 11:56	3.80	508.66	2.48	60.83	60.83	61.37	60.83	58.00	57.30	59.78	57.50	49.87	55.07	61.99	51.02	605.52	340.96
7/16/2023 11:57	3.80	503.24	2.00	63.93	61.28	59.59	60.72	58.00	57.50	61.51	59.14	51.59	59.01	62.50	51.00	607.18	340.92
7/16/2023 11:58	3.80	498.40	2.20	60.92	62.05	44.23	60.48	58.00	58.00	61.42	54.58	55.99	54.19	62.00	51.00	606.85	340.74
7/16/2023 11:59	3.80	499.45	2.34	60.61	62.02	60.85	60.00	58.00	57.08	61.42	59.75	53.09	49.02	62.00	51.02	606.52	340.63
7/16/2023 12:00	3.80	502.19	2.78	62.96	62.01	57.05	60.92	58.50	57.92	60.78	57.57	50.78	45.72	62.00	51.48	608.56	340.44
7/16/2023 12:01	3.80	507.17	2.51	62.16	61.58	48.53	50.11	58.43	58.00	61.65	58.72	46.85	60.57	62.00	51.48	607.42	340.74
7/16/2023 12:02	3.80	512.73	2.22	60.92	42.87	53.09	53.18	58.57	57.78	60.14	60.12	59.50	59.39	62.62	51.00	605.52	340.62
7/16/2023 12:03	3.80	518.35	2.44	59.67	58.81	57.78	57.00	58.00	57.59	59.66	56.09	49.29	58.07	62.08	51.00	611.10	340.66
7/16/2023 12:04	3.80	524.20	2.17	63.58	55.04	55.99	60.49	58.00	57.50	61.99	57.74	50.91	58.42	61.92	51.00	605.34	340.65
7/16/2023 12:05	3.80	531.05	2.22	63.85	55.39	55.14	60.49	58.00	57.52	62.08	57.58	49.00	58.43	63.00	51.00	606.92	340.45
7/16/2023 12:06	3.80	531.29	2.29	63.20	58.04	55.13	60.01	58.42	58.00	62.33	60.52	55.09	45.14	60.81	51.00	608.10	340.62
7/16/2023 12:07	3.80	532.33	2.54	63.43	56.31	55.74	60.00	58.50	58.00	62.33	58.72	55.35	52.14	62.78	51.00	608.16	340.89
7/16/2023 12:08	3.80	530.53	2.44	60.95	58.50	58.50	60.00	58.08	57.28	62.15	59.15	50.28	52.72	62.00	51.00	607.45	340.89
7/16/2023 12:09	3.80	527.46	2.44	64.43	60.43	58.50	60.00	58.00	57.50	61.51	59.14	51.59	59.01	62.50	51.00	607.18	340.92

7/16/2023 12:34	3.80	533.47	2.29	62.04	63.28	60.00	58.00	58.00	61.55	57.10	54.67	60.51	59.42	51.00	607.32	340.10	0.00
7/16/2023 12:35	3.80	535.17	1.74	62.79	62.78	55.60	58.80	58.80	59.57	57.50	55.91	59.50	62.41	51.00	606.78	340.10	0.00
7/16/2023 12:36	3.80	531.03	2.01	63.57	60.89	60.00	58.00	58.00	59.66	60.83	51.43	37.61	60.71	51.00	605.92	340.10	0.00
7/16/2023 12:37	3.80	533.45	1.58	63.03	62.52	49.71	58.00	58.00	61.67	58.47	55.40	58.29	62.29	51.00	605.01	339.95	0.00
7/16/2023 12:38	3.80	533.80	2.03	64.98	62.95	61.74	58.31	58.00	62.53	59.93	50.79	60.00	62.00	51.00	605.03	340.08	0.00
7/16/2023 12:39	3.80	535.55	1.77	65.00	46.65	61.33	60.00	58.00	62.50	60.64	57.29	61.70	61.41	51.00	606.99	340.08	0.00
7/16/2023 12:40	3.80	530.21	1.81	65.00	57.14	59.50	58.00	58.00	63.39	61.04	60.39	60.39	61.04	51.00	606.99	340.08	0.00
7/16/2023 12:41	3.80	535.78	1.84	65.00	62.62	60.00	58.00	58.00	63.39	61.04	60.39	60.39	61.04	51.00	606.99	340.08	0.00
7/16/2023 12:42	3.80	532.17	1.64	62.50	59.08	60.00	58.00	58.00	62.54	52.78	42.02	59.83	62.92	51.00	606.44	339.91	0.00
7/16/2023 12:43	3.80	531.36	1.44	62.50	59.08	60.00	58.00	58.00	63.58	58.81	63.09	63.09	62.08	51.00	607.34	340.12	0.00
7/16/2023 12:44	3.80	531.36	1.44	64.40	60.29	60.12	58.00	58.00	63.92	62.25	59.74	62.00	61.78	51.00	605.17	339.93	0.00
7/16/2023 12:45	3.80	501.78	1.70	64.20	48.25	58.01	58.00	58.00	61.58	58.15	53.28	60.00	61.60	51.00	605.21	339.89	0.00
7/16/2023 12:46	3.80	498.11	1.61	65.00	64.00	60.58	59.58	58.00	62.21	60.29	57.51	61.50	61.02	51.00	604.61	339.76	0.00
7/16/2023 12:47	3.80	510.39	1.68	64.59	62.09	55.52	58.91	58.00	61.93	58.79	60.28	61.53	62.01	51.00	606.19	339.73	0.00
7/16/2023 12:48	3.80	524.38	1.70	64.91	61.76	49.38	59.11	59.00	62.21	60.39	55.78	62.47	62.48	51.00	606.76	339.71	0.00
7/16/2023 12:49	3.80	522.67	1.66	62.32	57.87	60.28	59.78	58.00	61.07	60.95	59.34	59.42	62.00	51.00	605.98	339.87	0.00
7/16/2023 12:50	3.80	517.86	1.96	63.50	49.35	55.50	58.42	58.00	60.85	61.22	50.12	53.61	62.41	51.00	604.96	339.70	0.00
7/16/2023 12:51	3.80	517.74	2.23	64.57	60.12	59.58	58.00	58.00	60.85	58.51	52.66	52.66	57.29	50.79	605.32	339.70	0.00
7/16/2023 12:52	3.80	518.66	1.69	63.02	61.53	46.64	60.00	58.00	61.25	60.66	55.49	46.21	62.00	50.79	605.32	339.70	0.00
7/16/2023 12:53	3.80	520.51	1.96	61.48	62.03	60.00	58.00	58.00	59.42	59.07	60.51	46.21	62.00	50.79	605.38	339.77	0.00
7/16/2023 12:54	3.80	514.84	1.96	61.47	62.58	61.11	59.50	58.00	62.54	59.07	60.51	46.21	62.00	50.79	605.38	339.77	0.00
7/16/2023 12:55	3.80	514.84	1.96	61.47	62.58	61.11	59.50	58.00	62.54	59.07	60.51	46.21	62.00	50.79	605.38	339.77	0.00
7/16/2023 12:56	3.80	520.01	2.05	63.75	62.05	61.30	59.50	58.00	63.28	61.54	49.67	61.49	62.42	51.00	607.05	339.72	0.00
7/16/2023 12:57	3.80	518.45	1.88	63.75	54.99	61.28	59.50	58.00	63.28	61.54	49.67	61.49	62.42	51.00	607.05	339.72	0.00
7/16/2023 12:58	3.80	518.45	1.88	63.75	54.99	61.28	59.50	58.00	63.28	61.54	49.67	61.49	62.42	51.00	607.05	339.72	0.00
7/16/2023 12:59	3.80	505.48	1.94	63.05	54.99	61.28	59.50	58.00	63.28	61.54	49.67	61.49	62.42	51.00	607.05	339.72	0.00
7/16/2023 13:00	3.80	496.80	2.05	62.92	48.88	61.44	58.48	58.00	62.02	61.00	55.41	60.42	62.08	51.00	606.64	339.70	0.00
7/16/2023 13:01	3.80	504.01	2.03	63.20	62.24	60.59	58.00	58.00	60.33	58.34	38.48	56.57	52.00	51.00	607.00	339.49	0.00
7/16/2023 13:02	3.80	514.83	1.87	63.75	49.42	61.50	58.50	58.00	60.33	56.59	38.48	56.57	52.00	51.00	607.00	339.49	0.00
7/16/2023 13:03	3.80	518.23	1.87	64.83	61.17	59.91	60.00	58.00	62.43	58.14	53.08	59.00	52.00	51.00	604.47	339.67	0.00
7/16/2023 13:04	3.80	519.82	2.03	60.50	59.42	60.00	58.00	58.00	62.43	57.35	52.35	57.64	61.39	51.00	605.19	339.81	0.00
7/16/2023 13:05	3.80	523.13	1.59	64.35	60.98	53.78	60.43	58.21	61.57	58.51	52.09	50.17	45.61	51.58	607.13	339.73	0.00
7/16/2023 13:06	3.80	523.14	1.42	61.65	46.96	60.21	58.28	58.00	60.43	60.02	55.13	52.09	62.08	51.00	605.01	339.60	0.00
7/16/2023 13:07	3.80	514.12	1.72	61.78	62.00	59.88	58.00	58.00	61.80	61.41	52.53	58.77	62.00	51.00	606.73	339.63	0.00
7/16/2023 13:08	3.80	514.07	1.83	62.57	60.03	60.00	58.00	58.00	63.42	58.84	50.65	49.75	62.22	51.00	607.32	339.63	0.00
7/16/2023 13:09	3.80	517.59	1.36	64.06	59.03	60.00	58.00	58.00	63.42	58.84	50.65	49.75	62.22	51.00	607.32	339.63	0.00
7/16/2023 13:10	3.80	517.59	1.36	64.06	59.03	60.00	58.00	58.00	63.42	58.84	50.65	49.75	62.22	51.00	607.32	339.63	0.00
7/16/2023 13:11	3.80	533.07	2.30	61.44	59.88	60.50	58.92	58.00	61.22	56.00	45.10	62.29	61.08	51.00	607.23	339.40	0.00
7/16/2023 13:12	3.80	531.42	1.72	61.24	46.35	44.71	59.00	58.00	62.93	59.37	42.55	56.84	62.62	51.00	606.56	339.57	0.00
7/16/2023 13:13	3.80	522.79	2.11	63.71	30.49	51.21	38.36	59.01	63.18	61.68	54.96	56.83	62.09	51.00	607.97	339.67	0.00
7/16/2023 13:14	3.80	519.21	2.21	63.86	61.48	60.34	59.47	58.00	62.48	57.50	53.47	58.73	62.62	51.28	608.98	339.60	0.00
7/16/2023 13:15	3.80	515.48	2.03	64.49	58.35	60.12	58.00	58.00	62.92	57.83	53.82	48.26	62.62	51.00	608.54	339.41	0.00
7/16/2023 13:16	3.80	517.07	1.97	63.94	62.03	61.32	60.59	58.00	60.50	60.25	54.77	58.00	62.00	51.00	608.46	339.62	0.00
7/16/2023 13:17	3.80	525.25	1.79	61.43	49.74	60.70	58.00	58.00	60.14	61.43	54.57	52.93	62.49	51.00	607.63	339.54	0.00
7/16/2023 13:18	3.80	529.65	3.21	64.74	58.87	58.92	60.00	58.00	61.99	59.70	56.92	62.42	62.48	51.00	607.09	339.68	0.00
7/16/2023 13:19	3.80	530.94	2.02	64.14	61.71	58.80	60.00	58.00	61.99	60.39	56.09	62.23	61.43	51.00	606.07	339.57	0.00
7/16/2023 13:20	3.80	535.25	2.05	62.36	62.85	59.87	60.00	58.00	61.62	60.00	39.70	54.84	62.42	51.00	607.90	339.54	0.00
7/16/2023 13:21	3.80	534.29	1.97	65.00	62.45	60.00	58.00	58.00	61.23	58.00	39.70	54.84	62.42	51.00	607.90	339.54	0.00
7/16/2023 13:22	3.80	528.88	1.93	63.80	58.38	60.00	58.00	58.00	61.23	58.00	39.70	54.84	62.42	51.00	607.90	339.54	0.00
7/16/2023 13:23	3.80	531.07	2.30	61.44	59.88	60.50	58.92	58.00	61.22	56.00	45.10	62.29	61.08	51.00	607.23	339.40	0.00
7/16/2023 13:24	3.80	531.42	1.72	61.24	46.35	44.71	59.00	58.00	62.93	59.37	42.55	56.84	62.62	51.00	606.56	339.57	0.00
7/16/2023 13:25	3.80	533.99	1.88	63.75	62.58	61.33	59.92	57.78	63.18	61.68	54.96	56.83	62.09	51.00	607.97	339.67	0.00
7/16/2023 13:26	3.80	531.52	1.74	63.92	62.58	61.33	59.92	57.78	63.18	61.68	54.96	56.83	62.09	51.00	607.97	339.67	0.00
7/16/2023 13:27	3.80	530.76	1.72	64.13	62.58	61.33	59.92	57.78	63.18	61.68	54.96	56.83	62.09	51.00	607.97	339.67	0.00
7/16/2023 13:28	3.80	527.25	1.74	62.86	62.14	59.64	59.84	58.00	62.03	58.51	49.31	58.81	62.03	51.00	605.25	339.40	0.00
7/16/2023 13:29	3.80	524.91	1.98	64.01	54.24	59.63	58.48	58.00	62.03	58.51	49.31	58.81	62.03	51.00	605.25	339.40	0.00
7/16/2023 13:30	3.80	518.82	1.83	60.95	61.44	61.36	59.93	58.00	62.84	59.50	52.24	52.16	62.00	51.00	607.05	339.41	0.00
7/16/2023 13:31	3.80	512.04	2.10	62.41	61.44	61.38	59.00	58.00	60.76	60.92	53.87	58.26	62.00	51.00	605.96	339.42	0.00
7/16/2023 13:32	3.80	514.40	1.91	64.16	60.88	61.00	59.58	58.00	61.83	58.85	55.27	56.69	62.02	51.59	607.56	339.46	0.00
7/16/2023 13:33	3.80	519.75	1.85	63.42	62.50	59.51	58.00	58.00	62.07	58.85	55.27	56.69	62.02	51.01	606.59	339.39	0.00
7/16/2023 13:34	3.80	520.57	1.64	63.00	56.64	60.00	58.00	58.00	60.48	58.45	38.85	58.48	61.52	51.00	605.53	339.08	0.00
7/16/2023 13:35	3.80	524.96	2.04	63.50	55.76	60.22	58.00	58.00	61.32	58.98	57.00	61.97	62.00	51.00	605.75	339.51	0.00
7/16/2023 13:36	3.80	527.07	1.92	62.68	54.88	60.48	58.02	58.00	61.32	58.98	57.00	61.97	62.00	51.00	605.75	339.51	0.00
7/16/2023 13:37	3.80	527.07	1.92	62.68													



7/26/2023 14:01	3.80	507.67	1.79	63.92	61.75	60.50	60.00	58.00	58.00	58.00	59.00	50.06	62.49	61.42	51.00	604.90	338.83	0.00
7/26/2023 14:02	3.80	508.72	1.89	60.85	62.57	60.78	57.50	58.00	58.00	57.54	57.54	52.41	59.08	61.58	51.00	603.48	338.97	0.00
7/26/2023 14:03	3.80	517.86	2.22	62.00	61.72	57.11	60.00	58.00	58.00	57.58	57.58	53.56	54.60	61.97	51.00	604.04	338.84	0.00
7/26/2023 14:04	3.80	524.38	2.86	59.98	56.53	61.02	60.00	57.59	57.59	58.24	58.24	52.80	56.79	62.50	51.00	604.35	338.79	0.00
7/26/2023 14:05	3.80	533.63	2.53	64.96	37.31	41.25	59.17	58.83	57.91	61.00	61.00	54.21	62.50	61.98	51.00	608.00	338.64	0.00
7/26/2023 14:06	3.80	538.49	2.22	62.94	63.28	56.00	59.83	58.17	58.00	64.00	60.29	56.59	62.49	61.52	51.00	601.95	338.99	0.00





7/26/2023 15:44	3.80	531.72	1.91	63.56	48.15	59.42	59.92	58.00	58.00	59.64	57.86	55.99	63.46	62.00	51.00	607.23	336.96	0.00
7/26/2023 15:45	3.80	534.58	2.29	63.75	62.42	34.01	61.35	59.22	58.50	61.22	61.22	48.98	50.24	62.00	51.00	605.43	337.01	0.00
7/26/2023 15:46	3.80	529.69	1.10	63.50	63.79	57.72	61.07	58.50	58.00	61.01	55.60	52.48	52.06	61.00	51.00	605.25	336.92	0.00
7/26/2023 15:47	3.80	525.09	1.80	61.50	61.50	61.50	61.50	58.48	58.00	61.52	60.39	52.42	54.67	61.00	51.00	606.19	336.90	0.00
7/26/2023 15:48	3.80	522.78	2.03	62.00	47.00	45.14	59.52	58.00	58.00	62.83	58.08	43.58	59.66	63.00	51.00	605.88	336.96	0.00
7/26/2023 15:49	3.80	525.43	1.68	62.00	61.99	59.86	59.99	58.00	58.00	61.25	57.08	55.75	56.46	61.72	51.00	605.83	336.96	0.00
7/26/2023 15:50	3.80	525.31	1.74	61.98	61.38	59.70	60.00	58.00	58.00	62.75	60.40	50.21	54.26	61.28	51.00	606.74	337.19	0.00
7/26/2023 15:51	3.80	524.10	2.18	61.01	60.21	59.71	60.00	58.00	58.00	60.77	56.28	52.56	47.42	62.39	51.00	605.43	336.95	0.00
7/26/2023 15:52	3.80	516.36	2.00	62.05	56.20	58.08	60.00	58.00	58.00	58.72	58.93	45.92	57.53	61.53	51.00	606.01	336.95	0.00
7/26/2023 15:53	3.80	511.73	1.81	63.16	61.58	60.08	60.78	58.00	58.00	62.96	58.48	39.85	60.53	62.00	51.00	606.36	336.94	0.00
7/26/2023 15:54	3.80	521.68	1.97	62.00	61.43	40.92	56.22	58.00	58.00	61.24	57.42	56.00	61.17	61.08	51.42	607.44	337.08	0.00
7/26/2023 15:55	3.80	525.48	1.99	62.28	62.07	56.64	60.00	58.00	58.00	61.97	60.00	60.42	52.16	61.92	51.00	605.86	336.97	0.00
7/26/2023 15:56	3.80	528.45	1.65	63.36	61.70	56.55	60.00	58.00	58.00	60.17	59.50	51.18	61.45	61.28	51.00	606.94	337.03	0.00
7/26/2023 15:57	3.80	531.90	2.02	61.97	36.06	45.19	60.00	58.00	58.00	60.08	58.65	49.61	61.93	61.22	51.00	607.72	336.96	0.00
7/26/2023 15:58	3.80	532.80	1.83	63.47	59.86	54.66	60.50	58.00	58.00	59.36	58.00	54.63	62.44	61.51	51.00	606.37	337.07	0.00
7/26/2023 15:59	3.80	530.39	1.93	62.02	61.91	57.25	59.50	58.00	57.50	60.85	58.22	54.04	61.40	61.00	51.00	606.33	337.09	0.00
7/26/2023 16:00	3.80	523.60	2.19	63.25	60.25	60.33	60.93	58.22	58.00	61.15	56.28	52.72	54.80	61.99	51.00	607.03	337.09	0.00
7/26/2023 16:01	3.80	517.13	2.26	62.25	62.96	59.34	59.92	58.28	58.00	61.01	56.98	49.27	60.57	62.00	51.00	607.29	336.96	0.00
7/26/2023 16:02	3.80	505.26	1.87	63.65	56.13	49.27	59.15	58.00	58.00	61.99	60.63	55.67	61.75	61.50	51.00	607.06	336.94	0.00
7/26/2023 16:03	3.80	494.70	1.69	62.85	62.06	44.55	60.00	58.00	58.00	60.17	54.84	53.75	60.93	61.72	51.00	606.92	337.00	0.00
7/26/2023 16:04	3.80	499.82	2.09	61.65	60.57	54.90	59.49	58.00	58.00	60.33	59.08	48.49	41.58	62.28	51.00	607.70	336.74	0.00
7/26/2023 16:05	3.80	508.79	2.11	60.61	60.97	58.34	59.92	58.42	58.00	60.12	58.22	47.51	58.00	62.49	51.00	606.00	336.81	0.00
7/26/2023 16:06	3.80	518.90	2.07	64.98	42.91	54.27	59.50	58.09	58.00	60.57	61.06	54.57	56.82	61.00	51.00	605.57	337.13	0.00
7/26/2023 16:07	3.80	529.69	2.27	61.75	56.45	57.01	60.43	58.22	58.00	59.59	58.52	52.52	53.69	61.58	51.00	606.26	337.22	0.00
7/26/2023 16:08	3.80	538.70	2.47	61.51	60.57	48.09	58.28	57.31	57.31	60.02	54.19	60.02	62.42	61.00	51.00	606.00	337.26	0.00
7/26/2023 16:09	3.80	540.83	2.22	60.85	61.50	51.48	55.38	58.00	58.00	57.97	58.53	55.82	41.58	62.00	51.00	605.34	336.90	0.00
7/26/2023 16:10	3.80	531.31	2.91	59.29	60.66	55.76	59.98	58.00	57.42	55.83	54.67	53.17	53.70	62.21	51.00	605.86	337.11	0.00
7/26/2023 16:11	3.80	520.95	3.39	60.11	60.99	56.52	60.04	58.00	58.00	60.00	58.50	53.57	54.15	62.36	47.53	604.94	336.91	0.00
7/26/2023 16:12	3.80	519.04	2.18	63.43	60.95	61.36	60.09	58.41	58.00	61.10	57.86	51.36	60.72	61.05	50.97	604.31	336.85	0.00
7/26/2023 16:13	3.80	511.75	2.30	63.24	61.41	42.44	60.50	58.09	58.00	61.64	59.21	55.20	60.48	61.96	51.00	606.02	336.86	0.00
7/26/2023 16:14	3.80	504.45	2.36	63.50	60.75	54.88	60.00	58.00	57.88	61.17	58.00	54.76	57.87	61.52	51.00	605.78	336.80	0.00
7/26/2023 16:15	3.80	500.24	2.43	60.67	53.05	58.29	59.71	58.00	58.00	60.42	60.41	58.68	56.58	62.42	51.42	605.17	336.81	0.00
7/26/2023 16:16	3.80	511.00	2.34	61.64	32.14	54.73	56.08	58.49	57.99	61.99	57.28	47.00	58.50	62.08	51.08	606.13	336.66	0.00
7/26/2023 16:17	3.80	513.66	2.17	61.14	50.45	51.35	61.38	58.05	58.00	60.91	59.00	54.43	51.00	61.00	51.00	605.42	336.63	0.00
7/26/2023 16:18	3.80	504.13	2.65	60.59	59.50	56.07	59.53	59.16	57.58	58.51	57.39	48.22	50.68	61.78	51.00	606.86	336.86	0.00
7/26/2023 16:19	3.80	507.49	2.31	62.78	59.07	51.80	50.02	58.42	57.42	61.85	56.78	51.85	58.01	61.02	51.00	606.60	336.72	0.00
7/26/2023 16:20	3.80	515.15	3.07	62.26	51.73	51.56	58.38	58.08	58.00	60.00	56.50	57.85	61.99	61.00	51.00	606.19	336.70	0.00
7/26/2023 16:21	3.80	518.04	2.69	62.67	61.08	48.20	56.63	58.00	58.00	60.50	56.01	52.98	52.38	62.00	51.00	607.05	336.64	0.00
7/26/2023 16:22	3.80	524.14	2.78	64.74	63.23	52.15	54.00	58.00	58.00	61.01	58.92	54.04	53.84	62.00	51.00	606.67	336.69	0.00
7/26/2023 16:23	3.80	528.04	2.75	62.90	40.50	52.23	57.88	58.52	58.00	60.02	55.04	57.08	44.28	62.00	51.22	606.79	336.89	0.00
7/26/2023 16:24	3.80	530.96	2.50	64.07	61.17	58.20	55.86	58.48	58.00	61.40	56.00	53.67	57.74	61.30	51.28	605.84	336.47	0.00
7/26/2023 16:25	3.79	518.50	2.77	59.42	54.75	58.23	40.85	58.00	57.50	59.34	54.83	53.35	59.29	61.28	51.50	606.19	336.16	0.00
7/26/2023 16:26	3.80	519.45	3.09	60.00	37.29	46.27	61.58	58.00	60.33	58.40	50.35	56.00	62.22	51.00	607.83	336.59	0.00	
7/26/2023 16:27	3.80	512.94	2.94	59.53	62.58	60.49	60.08	58.17	58.00	59.93	58.43	26.99	62.01	62.99	51.00	606.24	336.77	0.00
7/26/2023 16:28	3.80	499.41	2.54	60.59	61.59	60.50	59.30	58.00	58.00	61.79	59.86	53.85	58.54	61.99	51.00	609.33	336.82	0.00
7/26/2023 16:29	3.80	498.69	2.31	59.75	38.71	48.00	58.00	57.98	58.00	60.89	54.32	52.88	60.48	61.01	51.42	605.01	336.85	0.00
7/26/2023 16:30	3.80	506.12	3.39	60.60	59.07	53.71	58.69	57.03	58.56	58.22	50.67	51.60	51.53	62.00	51.00	606.58	336.62	0.00
7/26/2023 16:31	3.80	512.58	2.67	60.78	61.78	60.16	59.49	58.03	57.50	60.41	57.76	53.59	54.65	59.88	61.50	606.22	336.52	0.00
7/26/2023 16:32	3.80	526.96	2.59	61.02	62.02	55.45	58.37	58.48	57.99	61.24	58.16	50.50	55.87	62.00	51.29	607.66	336.52	0.00
7/26/2023 16:33	3.80	535.78	2.47	60.56	45.70	48.97	42.65	58.00	58.00	60.73	59.28	51.92	44.77	59.00	51.00	606.77	336.56	0.00
7/26/2023 16:34	3.80	531.50	2.65	59.48	37.93	49.74	60.00	58.00	57.78	61.14	58.78	59.23	58.95	62.00	51.12	606.52	336.50	0.00
7/26/2023 16:35	3.80	532.32	3.30	62.83	57.63	45.57	62.75	58.43	57.93	60.22	52.71	52.02	62.00	61.58	51.58	605.48	336.58	0.00
7/26/2023 16:36	3.80	521.18	3.22	62.59	63.13	60.50	61.57	58.59	58.28	60.49	59.49	50.18	50.41	62.00	51.00	606.55	336.41	0.00
7/26/2023 16:37	3.80	502.55	2.57	61.43	55.80	49.03	61.69	58.48	58.00	59.56	57.98	56.00	61.98	61.58	51.00	606.80	336.45	0.00
7/26/2023 16:38	3.80	495.38	2.97	62.22	61.78	60.28	59.35	58.08	58.00	61.15	57.42	48.92	56.11	61.92	51.00	607.04	336.45	0.00
7/26/2023 16:39	3.80	499.86	3.62	64.37	62.55	41.46	53.82	59.52	58.00	58.67	55.59	49.34	54.69	51.22	51.00	607.24	336.48	0.00
7/26/2023 16:40	3.80	516.27	2.75	61.55	54.11	42.07	45.44	58.83	57.42	59.75	56.44	44.92	53.09	52.09	51.29	608.14	336.34	0.00
7/26/2023 16:41	3.80	527.70	2.82	62.47	60.41	55.78	57.48	58.58	58.00	61.50	59.57	39.91	58.63	61.56	51.00	608.79	336.30	0.00
7/26/2023 16:42	3.80	532.64	2.56	62.42	59.92	58.84	60.08	57.65	58.00	60.14	59.45	36.37	44.64	62.96	51.00	607.12	336.36	0.00
7/26/2023 16:43	3.80	529.90	2.88	60.34	47.53	57.64	59.14	57.43	57.28	56.86	54.55	51.93	55.73	62.00	51.00	608.44	336.07	0.00
7/26/2023 16:44	3.80	528.09	2.55	6														



7/26/2023 1713	3.80	520.80	2.52	61.59	59.53	36.20	59.43	58.50	58.00	61.50	56.54	51.51	51.82	61.08	51.00	604.87	335.89	0.00
7/26/2023 1714	3.80	515.34	2.75	61.93	59.63	52.97	59.63	58.00	57.48	61.49	58.98	51.32	49.98	61.50	51.22	606.67	335.81	0.00
7/26/2023 1715	3.80	517.61	2.60	62.65	59.94	26.98	60.93	58.00	58.00	61.16	58.42	56.90	54.15	61.50	51.78	607.13	336.08	0.00
7/26/2023 1716	3.80	526.00	2.29	62.83	43.65	55.21	59.01	58.00	58.00	60.92	58.58	59.34	52.63	61.00	51.00	605.70	336.14	0.00
7/26/2023 1717	3.80	526.55	2.53	61.35	54.09	52.86	54.91	58.50	57.58	60.08	57.50	41.64	46.99	59.92	51.02	605.03	335.83	0.00
7/26/2023 1718	3.80	527.86	2.10	63.53	48.38	48.68	48.71	57.52	57.22	60.05	56.64	50.77	58.06	60.98	51.48	605.44	335.77	0.00
7/26/2023 1719	3.80	531.00	2.59	63.00	59.41	46.07	48.71	58.00	58.00	60.55	56.12	56.77	58.06	61.52	51.48	605.44	335.77	0.00
7/26/2023 1720	3.80	529.50	2.40	62.50	59.41	46.07	48.71	58.00	58.00	60.55	56.12	56.77	58.06	61.52	51.48	605.44	335.77	0.00
7/26/2023 1721	3.80	514.34	2.80	64.86	56.90	52.07	60.00	58.00	58.00	59.03	59.03	52.25	62.16	61.00	51.00	604.38	335.96	0.00
7/26/2023 1722	3.80	507.29	2.06	63.21	56.03	57.08	60.00	58.00	58.00	61.92	59.25	55.74	62.16	61.00	51.00	604.38	335.96	0.00
7/26/2023 1723	3.80	509.31	2.12	63.95	52.30	57.25	51.82	58.48	58.00	61.00	58.42	46.21	59.92	61.22	51.00	604.53	335.97	0.00
7/26/2023 1724	3.80	510.01	2.06	63.53	55.15	46.06	57.75	58.00	57.50	61.27	57.07	51.76	59.92	61.22	51.00	605.46	335.74	0.00
7/26/2023 1725	3.80	515.86	1.68	61.37	60.69	53.40	58.83	57.78	57.50	59.86	56.00	60.91	54.21	61.50	51.00	603.91	335.94	0.00
7/26/2023 1726	3.80	524.65	2.31	63.33	59.84	53.42	59.00	57.72	58.00	60.63	59.63	52.83	55.51	61.62	51.41	606.29	335.88	0.00
7/26/2023 1727	3.80	525.68	2.05	59.83	61.33	57.92	59.43	58.00	60.63	60.63	59.51	42.67	54.15	61.58	51.08	606.06	335.90	0.00
7/26/2023 1728	3.80	526.37	2.21	58.64	60.86	57.94	60.78	57.58	57.48	60.48	57.51	53.42	45.31	61.92	51.22	605.86	335.76	0.00
7/26/2023 1729	3.80	533.73	2.45	60.29	60.87	55.99	60.66	58.00	57.50	60.29	58.29	46.95	57.16	62.00	51.78	605.89	335.95	0.00
7/26/2023 1730	3.80	529.50	2.40	62.50	59.41	46.07	48.71	58.00	58.00	60.55	56.12	56.77	58.06	61.52	51.48	605.44	335.77	0.00
7/26/2023 1731	3.80	529.50	2.40	62.50	59.41	46.07	48.71	58.00	58.00	60.55	56.12	56.77	58.06	61.52	51.48	605.44	335.77	0.00
7/26/2023 1732	3.80	529.50	2.40	62.50	59.41	46.07	48.71	58.00	58.00	60.55	56.12	56.77	58.06	61.52	51.48	605.44	335.77	0.00
7/26/2023 1733	3.80	511.11	1.54	63.45	61.58	53.25	59.00	58.00	57.50	61.07	60.36	54.31	61.98	61.00	51.00	605.48	335.98	0.00
7/26/2023 1734	3.80	501.87	1.64	61.00	50.87	49.36	52.11	58.00	58.00	58.92	60.41	46.43	61.52	61.00	51.00	605.48	335.98	0.00
7/26/2023 1735	3.80	498.91	1.40	62.50	59.92	49.72	56.49	58.00	60.96	62.96	60.96	57.06	61.59	61.00	51.09	604.74	335.99	0.00
7/26/2023 1736	3.80	505.55	1.89	62.43	62.79	51.22	56.01	58.00	58.00	61.76	58.98	51.80	49.45	61.91	51.70	608.36	335.68	0.00
7/26/2023 1737	3.80	512.43	1.77	61.57	62.21	59.91	59.39	58.00	60.84	62.42	57.17	47.21	53.49	62.49	51.00	604.32	335.79	0.00
7/26/2023 1738	3.80	518.26	2.01	59.46	62.49	58.63	59.52	58.00	58.00	61.67	60.08	59.27	61.35	61.00	51.22	604.32	335.91	0.00
7/26/2023 1739	3.80	527.45	2.37	60.47	63.02	60.96	60.00	58.00	60.92	60.92	56.70	50.55	59.43	61.52	51.48	606.61	335.76	0.00
7/26/2023 1740	3.80	531.34	2.27	60.05	62.59	60.50	55.84	58.50	58.00	61.78	59.36	50.55	58.51	61.51	51.49	606.30	335.82	0.00
7/26/2023 1741	3.80	530.22	1.93	62.66	62.42	60.58	58.46	58.00	57.50	61.22	58.53	45.18	54.40	61.59	51.01	606.31	335.82	0.00
7/26/2023 1742	3.80	525.44	1.91	62.50	60.78	58.00	58.00	58.00	60.48	60.48	58.00	58.00	58.00	61.52	51.48	606.31	335.82	0.00
7/26/2023 1743	3.80	531.72	1.99	61.25	60.09	58.71	59.00	57.98	57.98	58.03	58.03	53.03	54.75	61.42	60.54	605.54	335.68	0.00
7/26/2023 1744	3.80	511.98	1.72	62.64	60.72	53.57	59.00	57.52	57.52	61.01	59.42	54.17	58.83	61.17	51.09	605.60	335.71	0.00
7/26/2023 1745	3.80	515.80	1.53	62.86	61.07	59.51	59.00	58.00	62.41	62.41	58.91	53.83	58.50	61.21	51.00	607.70	335.72	0.00
7/26/2023 1746	3.80	514.47	2.00	64.08	60.71	59.84	56.65	58.00	58.00	61.76	58.67	54.22	54.22	61.50	51.00	606.58	335.74	0.00
7/26/2023 1747	3.80	516.57	1.94	63.87	61.18	58.98	59.55	58.00	62.33	62.33	57.00	56.58	53.80	61.38	51.38	605.44	335.70	0.00
7/26/2023 1748	3.80	518.77	1.90	61.91	57.87	53.60	59.42	58.00	60.22	62.50	60.22	62.20	61.77	61.01	51.00	605.72	335.67	0.00
7/26/2023 1749	3.80	516.48	1.79	62.42	61.32	52.39	61.19	58.00	57.79	62.00	56.99	52.54	54.20	61.51	51.00	605.50	335.77	0.00
7/26/2023 1750	3.80	524.93	2.23	62.72	61.14	46.73	53.05	58.43	61.89	61.89	55.91	54.61	58.99	61.59	51.00	607.00	335.66	0.00
7/26/2023 1751	3.80	535.45	2.19	60.40	60.40	59.20	60.71	58.00	61.00	61.00	58.00	48.89	54.59	61.00	51.00	604.49	335.70	0.00
7/26/2023 1752	3.80	535.45	2.19	60.40	60.40	59.20	60.71	58.00	61.00	61.00	58.00	48.89	54.59	61.00	51.00	604.49	335.70	0.00
7/26/2023 1753	3.80	535.45	2.19	60.40	60.40	59.20	60.71	58.00	61.00	61.00	58.00	48.89	54.59	61.00	51.00	604.49	335.70	0.00
7/26/2023 1754	3.80	535.45	2.19	60.40	60.40	59.20	60.71	58.00	61.00	61.00	58.00	48.89	54.59	61.00	51.00	604.49	335.70	0.00
7/26/2023 1755	3.80	531.03	2.16	63.47	62.00	56.35	57.01	58.00	57.79	61.44	59.00	55.06	55.04	61.00	51.00	606.28	335.76	0.00
7/26/2023 1756	3.80	535.18	1.81	63.76	48.06	57.07	55.77	59.00	59.17	63.59	59.17	57.60	55.67	61.01	51.00	606.48	335.76	0.00
7/26/2023 1757	3.80	538.06	1.74	63.24	59.86	48.41	60.64	61.09	61.09	61.09	61.99	57.05	61.99	61.41	51.00	605.41	335.55	0.00
7/26/2023 1758	3.80	529.31	1.74	63.60	59.00	49.16	60.57	58.40	58.40	62.01	60.53	62.94	61.09	61.09	51.00	606.01	335.81	0.00
7/26/2023 1759	3.80	518.71	1.71	62.64	48.79	61.33	56.80	58.40	58.40	61.59	60.50	60.93	60.39	61.91	51.00	606.95	335.50	0.00
7/26/2023 1760	3.80	511.77	1.95	63.17	61.65	59.22	57.66	58.00	61.00	61.00	60.59	56.57	58.51	61.21	51.00	606.50	335.77	0.00
7/26/2023 1761	3.80	511.87	1.79	62.09	60.32	54.78	58.74	58.00	61.59	61.59	58.57	54.27	54.55	61.21	51.00	606.50	335.82	0.00
7/26/2023 1762	3.80	524.93	2.23	62.72	61.14	46.73	53.05	58.43	61.89	61.89	55.91	54.61	58.99	61.59	51.00	607.00	335.66	0.00
7/26/2023 1763	3.80	535.45	2.19	60.40	60.40	59.20	60.71	58.00	61.00	61.00	58.00	48.89	54.59	61.00	51.00	604.49	335.70	0.00
7/26/2023 1764	3.80	535.45	2.19	60.40	60.40	59.20	60.71	58.00	61.00	61.00	58.00	48.89	54.59	61.00	51.00	604.49	335.70	0.00
7/26/2023 1765	3.80	531.03	2.16	63.47	62.00	56.35	57.01	58.00	57.79	61.44	59.00	55.06	55.04	61.00	51.00	606.28	335.76	0.00
7/26/2023 1766	3.80	535.18	1.81	63.76	48.06	57.07	55.77	59.00	59.17	63.59	59.17	57.60	55.67	61.01	51.00	606.48	335.76	0.00
7/26/2023 1767	3.80	540.75	1.72	62.50	54.86	60.50	59.59	58.00	58.00	62.91	59.99	51.09	59.39	61.00	51.00	606.20	335.72	0.00
7/26/2023 1768	3.80	543.58	1.56	63.50	58.04	60.98	60.98	58.00	60.24	60.24	57.25	45.21	55.67	61.50	51.00	605.88	335.62	0.00
7/26/2023 1769	3.80	547.28	1.70	61.08	61.49	60.52	60.04	58.00	61.83	60.49	60.49	58.70	56.66	61.50	51.00	605.88	335.86	0.00
7/26/2023 1770	3.80	516.56	1.50	64.97	61.38	61.32	58.92	58.00	61.52	58.42	60.93	60.93	56.56	62.00	51.00	605.31	335.89	0.00
7/26/2023 1771	3.80	516.56	1.49	64.49	59.43	60.17	59.67	58.30	55.93	58.79	58.79	57.07	59.23	61.49	51.00	604.45	335.86	0.00
7/26/2023 1772	3.80	506.94	1.23	64.92	62.00	44.48	60.62	58.29	61.86	61.86	58.86	59.40	60.99	61.11	51.00	605.53	335.86	0.00
7/26/2023 1773	3.80	512.84	1.47	62.26	61.86	59.14	59.79	58.00	63.09									





7/27/2023 9:24	3.80	543.25	3.00	59.47	61.03	26.40	57.31	59.78	58.50	59.43	59.28	61.89	45.14	62.00	51.00	612.30	333.81	0.00
7/27/2023 9:25	3.80	543.68	2.81	62.91	62.00	26.42	46.98	60.22	58.50	61.50	59.98	52.62	59.00	61.48	51.00	612.62	333.62	0.00
7/27/2023 9:26	3.80	549.67	3.12	61.42	56.69	27.50	59.62	59.78	58.00	60.45	58.49	59.64	60.92	61.00	51.00	612.16	333.68	0.00
7/27/2023 9:27	3.80	552.37	3.33	61.62	59.37	26.72	42.24	59.54	58.02	60.50	58.00	54.71	57.18	61.92	51.00	612.37	333.72	0.00
7/27/2023 9:28	3.80	546.22	3.17	62.57	60.78	26.61	57.43	60.48	58.48	60.64	59.23	54.88	62.97	62.00	51.00	613.15	334.42	0.00
7/27/2023 9:29	3.80	536.87	3.00	58.29	58.29	27.85	62.01	59.48	58.00	60.77	60.57	54.31	55.96	61.50	51.00	612.72	333.90	0.00
7/27/2023 9:30	3.80	538.81	3.29	62.42	61.32	26.54	58.45	60.42	58.00	62.33	59.92	38.61	48.02	62.00	51.00	613.45	333.85	0.00
7/27/2023 9:31	3.80	542.34	3.41	61.01	27.83	27.58	58.90	60.00	58.40	58.52	58.72	44.69	57.60	62.00	51.00	615.00	333.75	0.00
7/27/2023 9:32	3.80	534.37	3.52	59.97	61.28	27.80	60.72	60.00	58.50	60.65	60.07	51.87	56.51	62.00	51.00	613.27	333.77	0.00
7/27/2023 9:33	3.80	524.11	4.03	59.03	63.77	27.39	55.63	60.50	58.50	60.00	59.01	49.04	60.44	62.00	51.00	613.37	333.48	0.00
7/27/2023 9:34	3.80	513.45	3.62	62.08	62.09	27.15	59.22	60.00	58.49	61.03	59.01	50.59	53.60	62.00	51.00	613.21	333.83	0.00
7/27/2023 9:35	3.80	512.93	3.33	61.65	59.63	27.07	58.45	60.49	58.52	62.99	59.00	53.25	57.07	62.00	51.00	613.66	333.67	0.00
7/27/2023 9:36	3.80	515.00	3.61	61.78	56.81	26.53	61.15	60.01	59.00	62.01	58.05	57.43	56.09	62.22	51.00	614.86	333.86	0.00
7/27/2023 9:37	3.80	508.87	3.69	62.04	62.48	27.97	64.71	60.00	58.08	61.37	59.06	52.47	51.18	62.72	51.00	615.18	333.90	0.00
7/27/2023 9:38	3.80	511.07	3.60	64.37	62.01	27.03	58.77	60.60	58.00	60.92	59.52	45.36	59.57	62.57	51.00	612.59	333.73	0.00
7/27/2023 9:39	3.80	518.66	3.14	59.10	60.47	27.58	61.80	60.42	58.50	61.48	59.85	49.65	60.20	61.53	51.00	613.76	333.71	0.00
7/27/2023 9:40	3.80	526.59	3.83	61.47	61.81	27.40	58.60	59.97	58.00	61.36	54.57	54.58	62.73	62.47	51.00	613.26	333.71	0.00
7/27/2023 9:41	3.80	536.56	3.56	62.65	61.74	27.00	61.79	59.93	58.22	62.85	58.84	53.93	63.38	62.00	51.00	613.70	333.55	0.00
7/27/2023 9:42	3.80	548.08	4.41	62.41	61.86	27.00	53.20	61.22	59.00	59.95	59.95	47.67	62.52	62.00	51.00	614.05	333.60	0.00
7/27/2023 9:43	3.80	550.09	4.38	62.12	61.57	26.72	54.83	61.26	59.00	61.04	57.54	55.10	52.16	62.40	51.00	613.30	333.59	0.00
7/27/2023 9:44	3.80	542.46	3.60	61.43	62.65	26.59	61.11	59.49	58.98	58.96	57.17	59.25	57.42	62.00	51.00	612.35	333.66	0.00
7/27/2023 9:45	3.80	536.28	3.55	61.07	61.98	26.99	61.40	59.00	58.01	59.74	59.59	58.83	59.07	62.00	51.00	612.56	333.69	0.00
7/27/2023 9:46	3.80	529.59	4.22	59.48	61.49	26.48	62.09	60.52	58.92	61.20	58.32	56.43	62.22	62.00	51.00	613.49	333.64	0.00
7/27/2023 9:47	3.80	525.43	3.79	62.01	61.42	26.83	43.85	62.25	59.00	61.22	58.00	49.43	58.29	61.59	51.48	613.17	333.57	0.00
7/27/2023 9:48	3.80	519.30	3.43	60.62	47.20	26.17	41.77	60.75	58.78	61.00	57.57	48.80	53.51	62.02	51.00	613.44	333.53	0.00
7/27/2023 9:49	3.80	513.81	4.45	63.72	56.10	27.22	59.80	59.71	58.22	60.21	55.93	52.10	48.62	62.97	51.00	613.84	333.64	0.00
7/27/2023 9:50	3.80	510.33	3.78	62.63	61.83	26.50	57.78	62.00	58.28	62.72	58.43	54.59	62.00	61.53	51.00	613.36	333.62	0.00
7/27/2023 9:51	3.80	496.38	3.92	62.37	60.14	26.72	62.79	59.50	58.00	60.96	58.53	45.86	55.04	61.60	48.60	613.49	333.50	0.00
7/27/2023 9:52	3.80	500.34	3.81	60.50	53.43	26.57	59.37	59.53	58.49	62.06	59.83	49.03	54.57	62.00	51.00	612.28	333.59	0.00
7/27/2023 9:53	3.80	514.30	4.21	60.50	53.37	26.52	60.45	58.01	61.25	56.01	53.65	58.40	62.00	51.00	614.06	333.61	0.00	
7/27/2023 9:54	3.80	522.51	3.95	61.48	59.97	26.98	58.77	59.32	58.00	60.72	57.15	53.43	60.45	62.00	51.00	612.56	333.41	0.00
7/27/2023 9:55	3.80	524.90	4.44	60.59	59.34	26.32	55.00	60.32	58.32	61.07	56.57	54.14	60.99	60.99	51.00	612.90	333.36	0.00
7/27/2023 9:56	3.80	529.36	4.04	61.88	56.23	26.68	53.87	60.37	58.78	60.00	57.37	51.37	53.06	61.53	51.00	614.25	333.66	0.00
7/27/2023 9:57	3.80	534.72	4.13	61.50	61.58	26.92	59.65	59.93	58.72	59.72	58.43	55.45	57.07	62.50	51.00	611.28	333.43	0.00
7/27/2023 9:58	3.80	529.66	4.47	60.26	59.00	26.78	57.78	60.28	58.28	59.97	55.51	51.24	58.36	62.58	51.00	612.40	333.35	0.00
7/27/2023 9:59	3.80	504.07	4.63	62.00	60.43	27.43	55.51	60.00	58.00	59.99	56.51	55.70	50.21	62.00	51.40	611.92	333.55	0.00
7/27/2023 10:00	3.80	490.06	4.69	61.28	57.57	26.59	57.49	60.00	58.00	59.43	57.82	47.40	46.38	62.40	51.22	612.34	333.46	0.00
7/27/2023 10:01	3.80	489.13	4.66	60.28	48.93	26.58	60.28	60.00	58.34	57.20	58.34	51.28	62.50	62.00	51.00	612.28	333.59	0.00
7/27/2023 10:02	3.80	503.26	4.75	61.10	61.52	27.49	44.70	60.50	58.00	58.16	58.32	50.64	56.42	62.00	51.02	612.13	333.31	0.00
7/27/2023 10:03	3.80	517.65	4.59	62.44	61.93	26.33	58.25	60.60	58.00	60.92	52.93	46.48	53.58	62.69	51.50	613.02	333.52	0.00
7/27/2023 10:04	3.80	525.04	4.51	60.44	59.33	27.32	54.69	59.42	58.00	60.78	55.87	55.29	62.48	62.48	51.48	613.54	333.70	0.00
7/27/2023 10:05	3.80	527.50	5.11	61.75	31.51	27.08	54.47	60.07	58.00	56.43	55.97	51.07	49.63	61.53	51.00	612.30	333.34	0.00
7/27/2023 10:06	3.80	530.12	4.69	59.29	25.83	27.50	57.06	59.72	58.00	60.92	55.45	57.63	43.01	62.00	51.00	612.47	333.70	0.00
7/27/2023 10:07	3.80	531.85	4.97	60.57	60.15	27.28	62.34	60.00	58.02	59.56	55.08	51.59	60.83	62.42	51.42	611.95	333.88	0.00
7/27/2023 10:08	3.80	538.94	5.34	59.36	61.14	26.74	60.52	60.00	58.48	60.17	58.00	40.81	57.84	62.78	61.78	611.68	333.74	0.00
7/27/2023 10:09	3.80	540.58	4.10	61.78	59.54	27.95	62.41	60.00	58.92	60.75	58.75	49.48	55.25	62.50	51.00	611.82	333.82	0.00
7/27/2023 10:10	3.80	536.16	4.07	61.98	61.45	26.53	58.71	59.58	58.58	59.97	58.14	57.62	53.35	62.00	51.00	611.06	333.53	0.00
7/27/2023 10:11	3.80	524.96	4.65	63.07	58.60	26.58	57.72	60.23	58.00	60.72	55.43	49.87	52.31	62.00	51.52	610.54	333.67	0.00
7/27/2023 10:12	3.80	528.36	4.24	61.35	59.22	26.40	57.34	60.07	58.00	55.99	55.92	54.14	56.51	62.49	52.00	610.29	333.74	0.00
7/27/2023 10:13	3.80	527.87	4.18	64.33	50.69	26.70	58.63	59.50	58.00	61.49	57.47	54.23	46.81	62.01	51.08	610.78	333.66	0.00
7/27/2023 10:14	3.80	520.92	4.30	61.92	54.53	26.50	56.91	59.49	58.49	60.47	56.17	46.37	54.50	62.00	51.00	611.96	333.45	0.00
7/27/2023 10:15	3.80	518.19	4.04	60.64	59.79	27.41	55.93	59.50	58.01	59.95	56.23	54.95	55.75	62.00	51.21	611.62	333.63	0.00
7/27/2023 10:16	3.80	522.78	4.34	61.31	58.55	26.99	54.05	59.32	58.31	60.49	56.74	51.61	52.21	62.50	51.00	612.69	333.46	0.00
7/27/2023 10:17	3.80	529.09	3.90	61.39	58.41	26.50	55.76	59.88	58.09	59.87	59.29	48.56	56.55	61.50	51.29	611.16	333.62	0.00
7/27/2023 10:18	3.80	526.56	4.19	59.02	59.09	26.01	56.31	59.50	58.00	58.50	57.57	53.92	51.23	62.00	51.49	610.58	333.55	0.00
7/27/2023 10:19	3.80	521.59	4.47	59.68	44.67	27.33	59.63	59.21	58.00	58.21	55.55	51.55	58.96	62.00	51.52	612.66	333.50	0.00
7/27/2023 10:20	3.80	519.60	4.66	61.60	41.17	27.79	54.72	60.00	58.00	58.48	55.65	40.83	57.10	58.27	51.60	612.33	333.58	0.00
7/27/2023 10:21	3.80	522.80	3.73	61.20	61.20	27.21	59.29	59.28	58.00	59.54	59.41	54.27	44.45	60.74	51.18	611.69	333.49	0.00
7/27/2023 10:22	3.80	527.47	4.03	60.43	54.86	26.79	57.20	59.02	58.00	60.49	57.99	46.01	58.38	61.59	51.00	610.61	333.67	0.00
7/27/2023 10:23	3.80	532.14	5.05	61.43	52.86	26.49	54.00	59.48	58.00	59.59	55.97	33.00	51.87	63.80	51.71	612.02	333.59	0.00
7/27/2023 10:24	3.80	532.39	3.56	60.65	61.43	26.00	54.69											



7/27/2023 10:53	3.80	529.61	4.32	61.07	41.87	27.00	53.25	60.47	58.00	59.49	58.52	49.71	57.29	62.29	49.71	612.18	333.39	0.00
7/27/2023 10:54	3.80	530.02	3.71	62.08	52.46	26.64	59.29	59.01	58.00	59.14	56.25	57.52	58.43	61.50	49.71	612.42	333.38	0.00
7/27/2023 10:55	3.80	530.12	3.31	61.97	59.03	26.47	61.06	59.01	58.00	61.23	56.25	57.71	57.43	61.02	51.02	612.42	333.50	0.00
7/27/2023 10:56	3.80	544.24	3.64	63.48	32.43	26.77	51.99	60.60	58.70	60.50	57.43	57.43	56.56	61.99	51.48	611.76	333.49	0.00
7/27/2023 10:57	3.80	551.08	3.85	62.60	60.50	26.50	58.40	60.00	58.72	61.28	57.36	57.36	57.36	62.00	51.42	611.04	333.38	0.00
7/27/2023 10:58	3.80	544.58	3.71	62.02	60.50	26.50	61.15	59.29	58.40	61.48	57.36	57.36	57.36	61.40	51.59	611.37	333.41	0.00
7/27/2023 10:59	3.80	544.58	3.71	62.02	60.50	26.50	61.15	59.29	58.40	61.48	57.36	57.36	57.36	61.40	51.59	611.37	333.41	0.00
7/27/2023 11:00	3.80	511.24	4.16	59.94	46.99	27.28	59.07	59.69	58.48	59.52	57.94	57.94	47.90	62.42	51.40	611.47	333.36	0.00
7/27/2023 11:01	3.80	502.29	3.94	60.72	60.72	26.50	46.72	59.52	58.00	59.91	57.63	57.63	49.38	62.58	51.72	611.13	333.59	0.00
7/27/2023 11:02	3.80	510.42	3.75	62.15	61.45	26.49	57.51	59.00	58.00	59.91	57.63	57.63	43.78	61.75	51.00	610.75	333.51	0.00
7/27/2023 11:03	3.80	527.21	3.62	61.44	51.62	26.03	57.51	59.00	58.00	61.52	59.20	59.20	57.28	61.21	51.00	611.46	333.39	0.00
7/27/2023 11:04	3.80	534.77	3.93	61.00	58.37	26.99	58.36	59.91	58.00	58.32	57.21	57.21	51.92	61.78	51.49	611.53	333.51	0.00
7/27/2023 11:05	3.80	536.87	3.89	62.54	52.33	27.31	55.28	60.92	58.00	61.07	57.78	57.78	58.43	61.02	51.52	611.81	333.37	0.00
7/27/2023 11:06	3.80	534.17	3.30	62.64	46.65	27.09	58.43	60.57	58.50	61.07	58.64	58.64	56.24	61.97	51.49	612.22	333.51	0.00
7/27/2023 11:07	3.80	529.09	3.22	61.67	61.75	26.08	61.64	59.43	58.00	60.84	59.91	59.91	58.94	61.01	51.00	611.46	333.45	0.00
7/27/2023 11:08	3.80	521.43	3.58	60.67	62.53	27.00	53.07	60.29	58.00	60.84	59.91	59.91	58.94	61.01	51.00	611.46	333.45	0.00
7/27/2023 11:09	3.80	521.43	3.58	60.67	62.53	27.00	53.07	60.29	58.00	60.84	59.91	59.91	58.94	61.01	51.00	611.46	333.45	0.00
7/27/2023 11:10	3.80	518.92	3.31	63.92	34.44	26.98	57.40	60.02	58.00	60.34	58.43	58.43	59.77	61.82	51.40	612.16	333.40	0.00
7/27/2023 11:11	3.80	513.75	3.83	59.28	57.45	26.95	57.40	60.02	58.00	60.34	58.43	58.43	59.77	61.82	51.40	612.16	333.40	0.00
7/27/2023 11:12	3.80	509.77	3.75	59.04	61.02	26.98	57.45	60.48	58.00	59.42	57.92	57.92	50.91	62.00	51.00	610.94	333.32	0.00
7/27/2023 11:13	3.80	513.06	3.09	61.44	61.02	26.98	54.13	60.60	58.00	60.35	56.59	56.59	52.37	62.00	51.00	611.86	333.45	0.00
7/27/2023 11:14	3.80	516.20	3.44	58.70	62.98	26.68	57.04	60.60	58.00	61.00	60.86	60.86	60.29	62.00	51.00	611.18	333.44	0.00
7/27/2023 11:15	3.80	525.88	3.67	60.83	61.74	26.91	52.59	60.00	58.00	63.07	56.29	56.29	61.39	61.40	51.02	609.99	333.50	0.00
7/27/2023 11:16	3.80	535.04	2.47	62.06	53.90	26.21	60.07	60.02	59.00	62.51	59.07	59.07	45.48	61.52	51.00	613.97	333.57	0.00
7/27/2023 11:17	3.80	532.36	3.09	64.71	53.49	26.98	56.70	60.48	59.00	62.46	59.74	59.74	58.06	61.82	51.00	610.97	333.66	0.00
7/27/2023 11:18	3.80	537.98	2.83	64.78	46.83	26.52	61.53	59.98	59.00	61.83	59.63	59.63	61.78	62.00	51.00	611.66	333.58	0.00
7/27/2023 11:19	3.80	539.07	2.97	64.45	49.09	27.00	64.96	59.01	59.00	62.91	59.74	59.74	61.81	62.00	51.00	611.47	333.51	0.00
7/27/2023 11:20	3.80	537.99	3.37	61.52	62.01	27.00	57.80	60.52	58.00	62.42	60.15	60.15	59.49	61.71	51.00	611.47	333.51	0.00
7/27/2023 11:21	3.80	535.46	3.14	62.44	55.44	26.98	58.43	60.34	58.78	60.91	58.45	58.45	59.66	61.82	51.00	612.30	333.56	0.00
7/27/2023 11:22	3.80	535.46	2.68	62.84	60.42	26.90	56.37	59.50	58.22	60.63	59.54	59.54	60.43	61.98	51.00	612.30	333.56	0.00
7/27/2023 11:23	3.80	538.58	2.74	63.17	61.58	26.72	46.63	60.50	59.00	61.38	61.44	61.44	46.85	61.42	51.00	612.24	333.72	0.00
7/27/2023 11:24	3.80	542.11	3.15	62.08	61.14	26.28	63.01	60.50	59.00	61.52	58.53	58.53	48.80	62.00	51.00	612.00	333.59	0.00
7/27/2023 11:25	3.80	547.69	3.12	60.50	39.76	27.72	55.95	59.49	58.57	61.05	59.74	59.74	59.31	62.00	51.00	616.63	333.55	0.00
7/27/2023 11:26	3.80	548.76	2.87	63.36	63.35	27.07	64.24	59.54	58.52	62.01	59.23	59.23	59.60	62.00	51.00	617.21	333.54	0.00
7/27/2023 11:27	3.80	542.71	2.95	64.94	60.93	27.94	60.63	59.96	58.58	62.02	59.97	59.97	46.86	61.50	51.00	611.68	333.46	0.00
7/27/2023 11:28	3.80	535.57	2.94	61.57	37.62	26.48	59.44	59.50	58.00	60.58	60.05	60.05	47.56	61.79	51.00	611.94	333.59	0.00
7/27/2023 11:29	3.80	531.00	2.90	62.99	63.47	26.48	61.13	59.63	58.32	61.22	60.43	60.43	47.56	61.79	51.00	611.94	333.59	0.00
7/27/2023 11:30	3.80	526.24	2.65	63.36	48.00	27.23	63.41	59.87	59.00	62.38	59.42	59.42	45.72	61.00	51.00	611.50	333.59	0.00
7/27/2023 11:31	3.80	524.87	2.43	60.48	59.81	26.98	58.43	60.52	58.00	61.53	59.68	59.68	58.06	61.32	51.00	612.30	333.59	0.00
7/27/2023 11:32	3.80	532.21	2.36	64.57	64.57	26.98	58.43	59.50	58.49	61.53	59.68	59.68	58.06	61.32	51.00	612.30	333.59	0.00
7/27/2023 11:33	3.80	538.58	2.74	63.17	61.58	26.72	46.63	60.50	59.00	61.38	61.44	61.44	46.85	61.42	51.00	612.24	333.72	0.00
7/27/2023 11:34	3.80	542.11	3.15	62.08	61.14	26.28	63.01	60.50	59.00	61.52	58.53	58.53	48.80	62.00	51.00	612.00	333.59	0.00
7/27/2023 11:35	3.80	547.69	3.12	60.50	39.76	27.72	55.95	59.49	58.57	61.05	59.74	59.74	59.31	62.00	51.00	616.63	333.55	0.00
7/27/2023 11:36	3.80	548.76	2.87	63.36	63.35	27.07	64.24	59.54	58.52	62.01	59.23	59.23	59.60	62.00	51.00	617.21	333.54	0.00
7/27/2023 11:37	3.80	542.71	2.95	64.94	60.93	27.94	60.63	59.96	58.58	62.02	59.97	59.97	46.86	61.50	51.00	611.68	333.46	0.00
7/27/2023 11:38	3.80	535.57	2.94	61.57	37.62	26.48	59.44	59.50	58.00	60.58	60.05	60.05	47.56	61.79	51.00	611.94	333.59	0.00
7/27/2023 11:39	3.80	531.00	2.90	62.99	63.47	26.48	61.13	59.63	58.32	61.22	60.43	60.43	47.56	61.79	51.00	611.94	333.59	0.00
7/27/2023 11:40	3.80	526.24	2.65	63.36	48.00	27.23	63.41	59.87	59.00	62.38	59.42	59.42	45.72	61.00	51.00	611.50	333.59	0.00
7/27/2023 11:41	3.80	524.87	2.43	60.48	59.81	26.98	58.43	60.52	58.00	61.53	59.68	59.68	58.06	61.32	51.00	612.30	333.59	0.00
7/27/2023 11:42	3.80	532.21	2.36	64.57	64.57	26.98	58.43	59.50	58.49	61.53	59.68	59.68	58.06	61.32	51.00	612.30	333.59	0.00
7/27/2023 11:43	3.80	538.58	2.74	63.17	61.58	26.72	46.63	60.50	59.00	61.38	61.44	61.44	46.85	61.42	51.00	612.24	333.72	0.00
7/27/2023 11:44	3.80	542.11	3.15	62.08	61.14	26.28	63.01	60.50	59.00	61.52	58.53	58.53	48.80	62.00	51.00	612.00	333.59	0.00
7/27/2023 11:45	3.80	547.69	3.12	60.50	39.76	27.72	55.95	59.49	58.57	61.05	59.74	59.74	59.31	62.00	51.00	616.63	333.55	0.00
7/27/2023 11:46	3.80	548.76	2.87	63.36	63.35	27.07	64.24	59.54	58.52	62.01	59.23	59.23	59.60	62.00	51.00	617.21	333.54	0.00
7/27/2023 11:47	3.80	542.71	2.95	64.94	60.93	27.94	60.63	59.96	58.58	62.02	59.97	59.97	46.86	61.50	51.00	611.68	333.46	0.00
7/27/2023 11:48	3.80	535.57	2.94	61.57	37.62	26.48	59.44	59.50	58.00	60.58	60.05	60.05	47.56	61.79	51.00	611.94	333.59	0.00
7/27/2023 11:49	3.80	531.00	2.90	62.99	63.47	26.48	61.13	59.63	58.32	61.22	60.43	60.43	47.56	61.79	51.00	611.94	333.59	0.00
7/27/2023 11:50	3.80	526.24	2.65	63.36	48.00	27.23	63.41	59.87	59.00	62.38	59.42	59.42	45.72	61.00	51.00	611.50	333.59	0.00
7/27/2023 11:51	3.80	524.87	2.43	60.48	59.81	26.98	58.43	60.52	58.00	61.53	59.68	59.68	58.06	61.32	51.00	612.30	333.59	0.00
7/27/2023 11:52	3.80	532.21	2.36	64.57	64.57	26.98	58.43	59.50	58.49	61.53	59.68	59.68	58.06	61.32	51.00	612.30	333.59	0.00
7/27/2023 11:53	3.80	538.58	2.7															

No. 10 Recovery Furnace Operating Parameters																		
CO Testing																		
Run No.	Date & Time	BLS Production Rate MMlbs/day	Hourly Heat Input <sup>a</sup> MMBTU/hr	Steam Flow KPPH	Opacity %	East SIR #1 KV	East SIR #2 KV	East T/R #3 KV	East T/R #4 KV	East T/R #5 KV	East T/R #6 KV	West SIR #1 KV	West SIR #2 KV	West T/R #3 KV	West T/R #4 KV	West T/R #5 KV	West T/R #6 KV	Secondary Fan Horsepower hp
Aborted Run 1	Start 7/26/2023 9:12 Stop 7/26/2023 9:38	3.80	1025	517	1	65	60	59	60	58	58	62	61	57	60	62	51	609

<sup>a</sup> Heat input calculated from quarterly BLS sample and BLS Production Rate. Heating value moisture free is 6,475 BTU/lb.

No. 10 Recovery Furnace Fuel Composition				
Run No.	Date & Time	Black Liquor Solids GPM	Natural Gas cfm	No. 6 Fuel Oil GPM
Aborted Run 1	Start 7/26/2023 9:12 Stop 7/26/2023 9:38	342	0*	0

\*Natural gas was only used to for fueling the ignitors, not for fuel composition in the boiler.

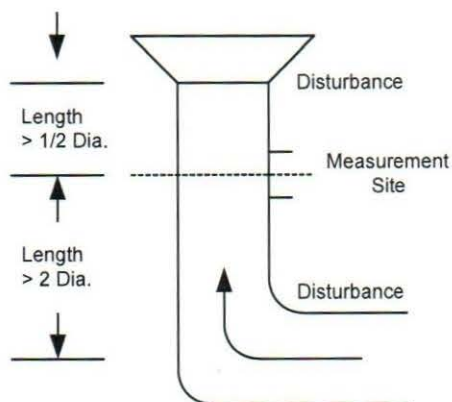
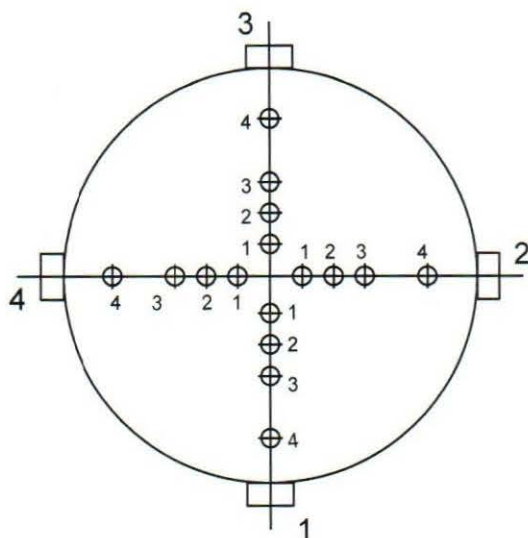
Aborted Run 1  
 7/26/2023 9:12  
 7/26/2023 9:38

Averages:		3.80	521.66	1.87	63.26	57.77	57.04	58.89	58.08	57.77	61.27	58.84	51.74	56.86	61.63	50.98	606.93	341.25	0.00
Time Step	1 min	BLS Production Rate MMBtu/day	Steam Flow KPPH	Opacity %	East SIR #1KV KV	East SIR #2KV KV	East T/R #3KV KV	East T/R #4KV KV	East T/R #5KV KV	East T/R #6KV KV	West SIR #1KV KV	West SIR #2KV KV	West T/R #3KV KV	West T/R #4KV KV	West T/R #5KV KV	West T/R #6KV KV	Secondary Fan HP	Black Liquor Solids GPM	No. 6 Fuel Oil GPM
Time		15-F0116	15-F0100a.4	15-A0850.4	51-E0200_1E.4	51-E0200_2E.4	51-E0200_3E.4	51-E0200_4E.4	51-E0200_5E.4	51-E0200_6E.4	51-E0201_1W.4	51-E0201_2W.4	51-E0201_3W.4	51-E0201_4W.4	51-E0201_5W.4	51-E0201_6W.4	15-J0504.4	15-F0116.K1	15-F04007.4
7/26/2023 9:12	3.80	510.94	1.05	63.87	60.07	58.75	54.19	58.00	58.00	62.01	61.25	58.25	62.33	62.00	51.00	608.25	608.25	342.05	0.00
7/26/2023 9:13	3.80	513.73	0.89	65.00	61.74	58.12	59.99	58.00	58.00	63.33	61.08	54.17	62.08	62.00	51.00	609.64	609.64	342.28	0.00
7/26/2023 9:14	3.80	517.61	0.87	65.00	43.24	60.97	60.00	58.00	58.00	57.92	60.25	55.70	59.22	62.00	51.00	609.71	609.71	342.18	0.00
7/26/2023 9:15	3.80	516.65	0.82	65.00	62.29	60.01	60.00	58.00	58.00	54.03	59.43	57.15	54.78	62.00	51.00	610.80	610.80	342.08	0.00
7/26/2023 9:16	3.80	516.68	0.93	65.00	63.98	55.83	60.00	58.00	58.00	61.28	59.00	50.63	53.55	62.00	51.00	610.42	610.42	342.16	0.00
7/26/2023 9:17	3.80	524.02	0.72	65.00	62.08	59.17	59.50	58.00	58.00	61.58	61.02	51.43	60.73	62.00	51.00	608.21	608.21	342.18	0.00
7/26/2023 9:18	3.80	525.25	0.87	64.50	63.92	60.00	59.78	58.00	58.00	64.46	60.98	53.68	57.22	62.00	51.00	608.21	608.21	342.25	0.00
7/26/2023 9:19	3.80	522.14	0.84	62.68	63.35	60.00	59.72	58.00	58.00	62.49	60.93	58.42	44.58	62.00	51.00	608.53	608.53	342.35	0.00
7/26/2023 9:20	3.80	517.44	0.71	64.50	62.21	60.00	59.41	58.00	58.00	63.23	58.43	58.08	61.92	62.00	51.00	608.00	608.00	342.39	0.00
7/26/2023 9:21	3.80	512.43	0.71	64.21	62.69	59.98	59.48	58.00	58.00	62.67	61.83	60.66	60.01	62.00	51.00	608.05	608.05	342.19	0.00
7/26/2023 9:22	3.80	515.03	0.68	65.00	62.24	59.51	58.00	58.00	58.00	62.09	61.70	55.35	60.79	62.21	51.00	608.55	608.55	342.35	0.00
7/26/2023 9:23	3.80	516.17	0.77	65.00	63.43	60.00	59.50	58.00	58.00	59.87	60.93	54.65	61.29	62.49	51.00	609.93	609.93	342.36	0.00
7/26/2023 9:24	3.80	521.53	0.97	65.00	61.07	57.60	60.00	58.41	58.00	60.57	61.28	61.21	61.63	62.40	51.00	610.30	610.30	342.45	0.00
7/26/2023 9:25	3.80	520.75	0.79	65.00	63.09	59.90	60.00	58.29	58.00	61.00	61.96	59.09	62.49	62.00	51.00	610.15	610.15	342.39	0.00
7/26/2023 9:26	3.80	511.50	0.75	63.50	63.09	59.14	59.29	58.00	58.00	62.99	61.04	59.06	61.49	61.59	51.00	610.70	610.70	342.68	0.00
7/26/2023 9:27	3.80	515.60	0.86	65.00	59.43	59.14	60.14	58.21	58.00	63.47	61.53	62.44	61.50	61.91	51.00	609.46	609.46	342.60	0.00
7/26/2023 9:28	3.80	518.93	1.04	65.00	48.00	55.71	60.57	58.98	58.00	62.65	59.91	53.93	62.33	62.00	51.00	611.78	611.78	342.65	0.00
7/26/2023 9:29	3.80	522.62	0.77	65.00	63.79	59.33	59.43	58.03	58.00	62.75	61.66	59.41	61.59	62.00	51.00	608.29	608.29	342.54	0.00
7/26/2023 9:30	3.80	523.25	0.90	65.00	61.22	60.99	60.37	58.38	58.00	63.66	62.42	58.59	62.22	62.00	51.00	608.74	608.74	342.77	0.00
7/26/2023 9:31	3.80	516.25	0.76	65.00	63.46	57.90	60.00	58.00	58.00	61.92	60.74	56.41	63.28	62.00	51.00	607.51	607.51	342.60	0.00
7/26/2023 9:32	3.80	505.57	0.82	65.00	63.04	56.66	59.58	58.00	58.00	62.75	60.72	58.87	61.28	61.88	51.00	609.13	609.13	342.84	0.00
7/26/2023 9:33	3.80	504.12	0.88	65.00	53.00	60.92	59.92	58.00	58.00	61.22	59.35	58.54	61.52	61.52	51.00	608.90	608.90	342.79	0.00
7/26/2023 9:34	3.80	509.68	0.70	65.00	64.00	60.50	60.00	58.00	58.00	64.22	60.33	58.79	61.72	62.00	51.00	608.09	608.09	342.67	0.00
7/26/2023 9:35	3.80	510.48	0.55	65.00	52.18	60.50	60.28	57.78	58.00	62.96	61.35	56.67	62.17	62.00	51.00	607.10	607.10	342.99	0.00
7/26/2023 9:36	3.80	514.14	0.50	64.78	58.81	59.28	59.00	57.02	57.51	62.49	58.03	54.42	61.00	61.08	51.00	608.94	608.94	342.93	0.00
7/26/2023 9:37	3.80	521.87	0.57	63.22	61.78	59.72	59.00	57.99	57.99	62.01	57.60	43.02	47.25	61.50	51.00	608.65	608.65	342.87	0.00
7/26/2023 9:38	3.80	523.07	0.51	65.00	61.41	60.00	59.00	58.00	58.00	62.83	61.49	59.56	60.75	61.00	51.00	609.04	609.04	342.83	0.00



## Appendix B - Test Section Diagrams

## EQUAL AREA TRAVERSE FOR ROUND DUCTS



Job: Billerud Escanaba LLC  
Escanaba Mill  
Escanaba, Michigan

Date: July 26 and 27, 2023

Test Location: Recovery Furnace Stack (EURF15)

Stack Diameter: 13.0 Feet

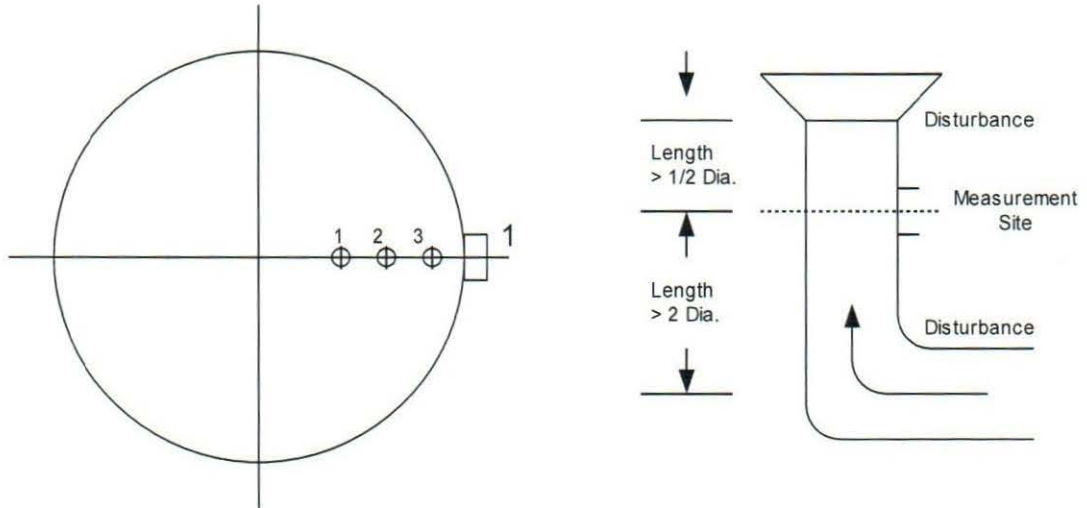
Stack Area: 132.732 Square Feet

No. Points Across Diameter: 8

No. of Ports: 4

Port Length: 19.0 Inches

## GASEOUS TRAVERSE FOR ROUND DUCTS



Job: Billerud Escanaba, LLC  
Escanaba Mill  
Escanaba, Michigan

Date: July 26 and 27, 2023

Test Location: Recovery Furnace Stack (EURF15)

Duct Diameter: 13.0 feet

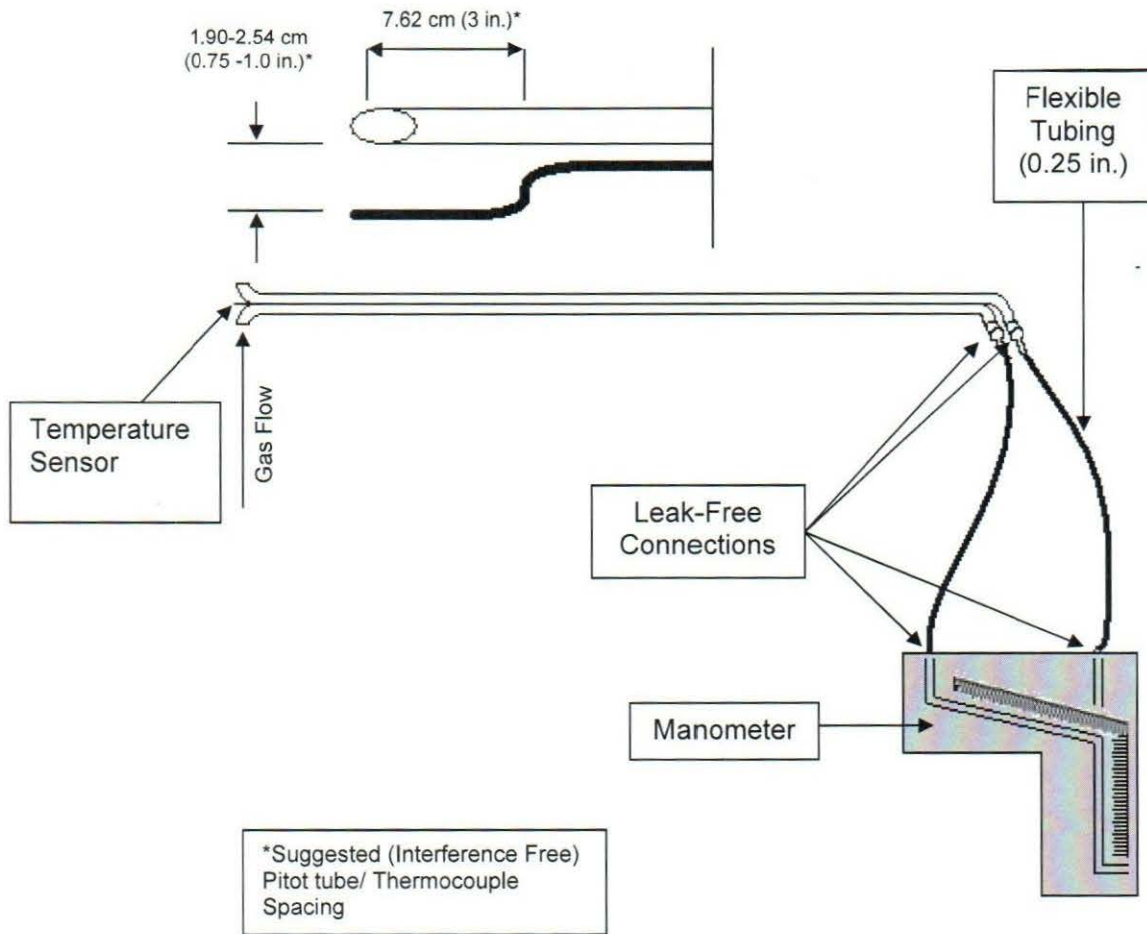
Duct Area: 132.73 square feet

No. Sample Points: 3

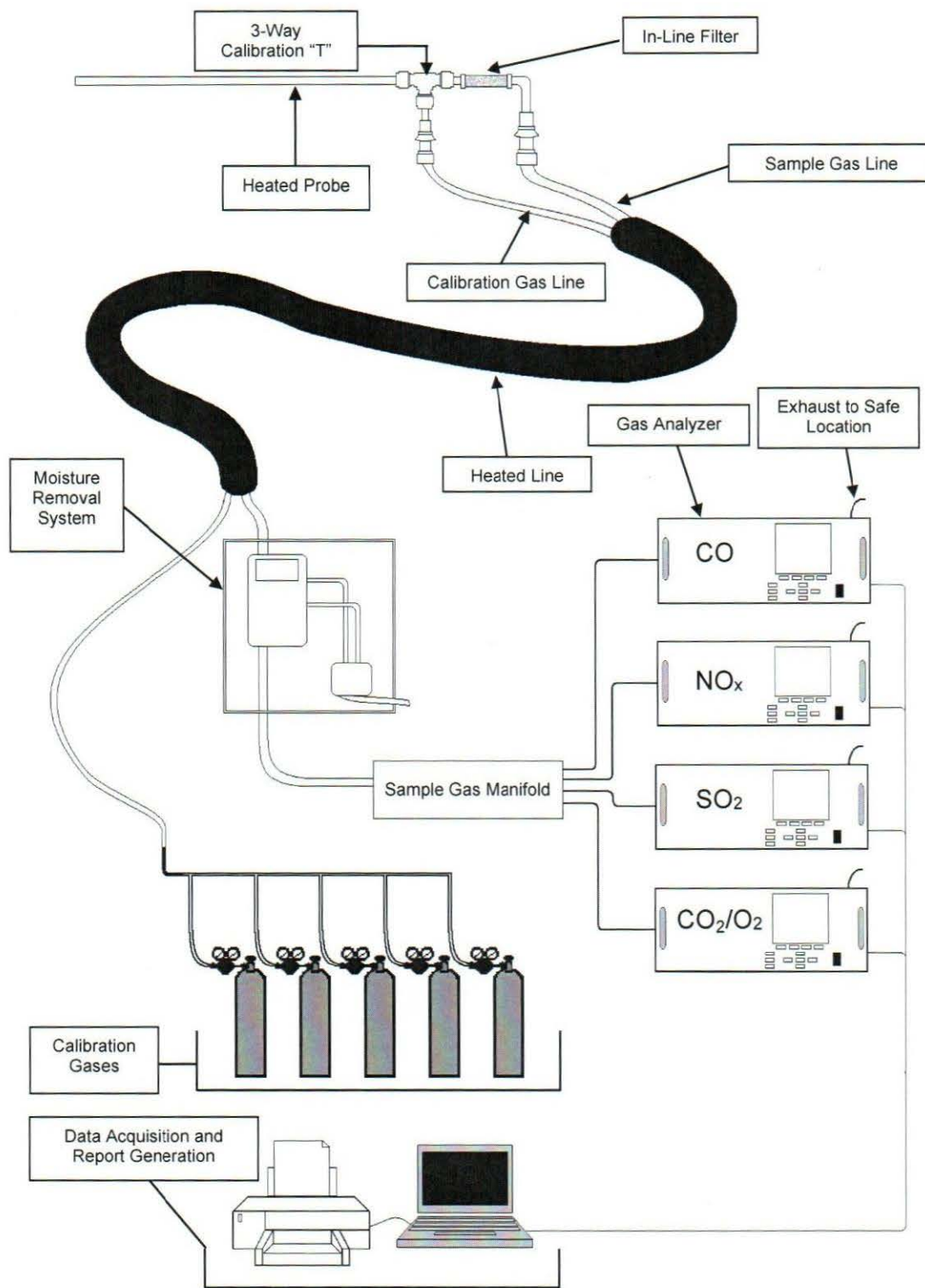


**Appendix C - Sample Train Diagrams**

# USEPA Method 2 – Type S Pitot Tube Manometer Assembly



# USEPA Methods 3A and 10 Extractive Gaseous Sampling Diagram





## Appendix D - Calculation Nomenclature and Formulas