

DEPARTMENT OF ENVIRONMENTAL QUALITY
AIR QUALITY DIVISION

FCE Summary Report

Facility : MICHIGAN WOOD FUELS LLC	SRN : N7729
Location : 1125 INDUSTRIAL AVE	District : Kalamazoo
	County : ALLEGAN
City : HOLLAND State: MI Zip Code : 49423	Compliance Status : Non Compliance
Source Class : SM OPT OUT	Staff : Cody Yazzie
FCE Begin Date : 6/19/2018	FCE Completion Date : 6/19/2019
Comments :	

List of Partial Compliance Evaluations :

Activity Date	Activity Type	Compliance Status	Comments
05/24/2019	Scheduled Inspection	Non Compliance	Schedule Inspection

Name: Cody Yazzie Date: 6/19/19 Supervisor: RIL 6/21/19

DEPARTMENT OF ENVIRONMENTAL QUALITY
AIR QUALITY DIVISION
ACTIVITY REPORT: Scheduled Inspection

N772949179

FACILITY: MICHIGAN WOOD FUELS LLC		SRN / ID: N7729
LOCATION: 1125 INDUSTRIAL AVE, HOLLAND		DISTRICT: Kalamazoo
CITY: HOLLAND		COUNTY: ALLEGAN
CONTACT: Benjamin Rose ,		ACTIVITY DATE: 05/24/2019
STAFF: Cody Yazzie	COMPLIANCE STATUS: Non Compliance	SOURCE CLASS: SM OPT OUT
SUBJECT: Schedule Inspection		
RESOLVED COMPLAINTS:		

On May 24, 2019 Air Quality Division (AQD) staff (Cody Yazzie Chance Collins) arrived at 1125 Industrial Ave Holland, Michigan at 1:00 PM to conduct an unannounced air quality inspection of Michigan Wood Fuels (hereafter MWF). Staff made initial contact with the office receptionist and provided her with a business card and stated the purpose of the visit. John Schermer was the MWF employee that escorted the District Staff around the facility.

MWF is a wood pellet production facility. MWF was last inspected by the AQD on November 3, 2015 and was determined to be in Compliance at that time with PTI No. 354-06H. Staff asked, and Mr. Schermer stated that the facility does not have any boilers or emergency generators.

Mr. Schermer gave staff a tour of the facility. Required personal protective equipment are steel toe boots and safety glasses. Staff observations and review of records provided during and following the inspection are summarized below:

EUBURNER:

This is a 38 MMBTU/hr suspension burner that uses dry wood chips and vents through Stack S20 during start-up. EUBURNER provides the heat for the dryer. The exhaust gases from the dryer also include the products of combustion from EUBURNER. When EUBURNER is not in start-up operation the facility routes emissions through SVSTACKS21. SVSTACKS21 is controlled by a Multi-Clone for PM emissions.

The facility has a Malfunction Abatement Plan (MAP) that the most recent version was received by the District Office in June 2012. This plan includes start-up, shutdown, and malfunction procedures. This MAP identifies the Responsible Personnel being the Mill Operator as being responsible for the preventative maintenance program. The MAP also includes a troubleshooting guide that has steps or actions that should be followed if a piece of equipment is not operating properly. Preventative maintenance is also addressed in the MAP by including the PM Schedule that was provided by MWF.

The facility is required by Special Condition VI.4 to monitor and record the number of hours of startup operation of EUBURNER on a daily basis and 12-month rolling time period. The facility is currently keeping daily startup operation times on their Burning Tracking Sheets. This burning tracking sheets include the date, time fire was started, and time heat is directed to the dryer via starting the Multi-Clone Fan. Mr. Rose stated the that startup operation time has been minimized recently because MWF is not waiting to get to such a high temperature as the facility was before. The facility provided 12-month rolling Startup Operations hours. The maximum 12-month rolling Startup Operation hours since January 2018 were calculated to be 18.5 hours in February 2018. This is about 5% of the 360 hours that the permit limits.

Special Condition VI.5 requires MWF to monitor and record the CO emission from EUBURNER with a handheld CO monitor. The facility is using the data that is collected to determine proper burner operation during startup. The facility did provide the two most recent CO monitoring data sets. They occurred on July 3, 2018 and January 4, 2019.

The facility does have a material usage limit in Special Condition II.2 that limits the amount of tons of dry wood fuel that can be combusted in EUBURNER to less than 2.43 tons of dry wood fuel per hour. The auger feed rate of the burner is controlled by an operator that has a switch that is labeled that corresponds to a rate in tons of fuel/hour. When the operator switches the auger feed rate they record what the new setting is on the Burner

Tracking Sheets. The Burner Tracking Sheets then calculate the daily average tons of fuel per hour fed to the auger. Staff collected nine random dates spanning from January 7, 2019 in which showed the facility never operated EUBURNER with an auger feed rate of the permitted 2.43 tons/ hour. Based on the selected random dates the facility appears to operate the feed rate around 1.60 tons of fuel per hour.

EUDRYER:

After the raw wood chips are received in the yard MWF has a process to hammer-mill the wood chips to reduce the size. The smaller chips are loaded into the hopper that feeds the dryer. The Dryer at the facility is a triple pass rotary drum dryer used to dry the green wood chips. Essentially the triple pass rotary dryer has three full length interlocked cylinders that rotate together. The dryer removes moisture from the wood chips, and as the wood chips get lighter in weight from having less moisture they can graduate to the next cylinder. As stated in EUBURNER the exhaust gases from the dryer also include the products of combustion from EUBURNER.

In the same MAP that is referenced in EUBURNER a section is included for EUDRYER. The current MAP referenced appears to meet compliance for Special Condition III.1 and Special Condition III.2 for EUDRYER.

The facility is required to monitor the temperature at the inlet of EUDRYER continuously but only record the temperature hourly. Special Condition III.3 requires that the inlet temperature does not exceed 825 degrees Fahrenheit. This temperature is monitored by an operator on a digital read out. The facility uses a Type-K magnesium oxide thermocouple to monitor the dryer inlet temperature. The facility does not recalibrate the thermocouple it instead replaces them about every 12 months. Of the nine randomly collected days of Burner Tracking Sheets four of the days had an inlet temperature exceedance of the maximum 825 degrees Fahrenheit. The Burner Tracking Sheet dated 3/18/19 had a seven-hour exceedance. The exceedances ranged from 837 – 910 degrees Fahrenheit. The Burner Tracking Sheet dated 2-25-19 had an eight-hour inlet temperature exceedance. The exceedances ranged from 837 – 890 degrees Fahrenheit. The Burner Tracking Sheet dated 2-14-19 had an eight-hour inlet temperature exceedance. The exceedances ranged from 827 – 927 degrees Fahrenheit. Staff talked with Mr. Rose about the temperature exceedances to see if there is any protocol that occurs once the inlet temperature is recorded at a certain temperature. Mr. Rose state that the facility does try to reduce the temperature but believes that where the facility is recording the temperature is closer to the burner than the inlet of the dryer. Mr. Rose stated that he did have plans to reassess the location of the thermocouple to try and find a more accurate location. Staff stated to Mr. Rose that the current monitoring and recording of the Dryer inlet temperature is in violation of Special Condition III.3 of PTI No. 354-06I for the specified days above.

The moisture content of the undried green wood is measured once per shift. The facility is recording each time it takes a moisture measurement on the Moisture Balance by Weight Tracking Log. Staff looked at the most recent moisture log during the inspection and the recorded moisture content of the green wood did not exceed the permitted 55% by weight. Moisture readings are currently being conducted by using RADWAG PMX-50 moisture analyzer. The facility takes a 5-gram sample and records the reading that the analyzer gives.

The Multi-clone that controls PM emissions on SVSTACKS21 is equipped with Dwyer Magnehelics differential pressure gauges. These are simple analog devices that the facility states only require occasional cleaning and re-zeroing, which is done as needed. During the inspection the pressure gauge was reading 4.0 inches of water.

Facility is required to monitor and record the Oven-Dried Tons per hour of wood chips processed through EUDRYER. The facility monitors the Tons of fiber processed per burner hour. During 2018 the facility never processed more than 8.0 Oven-Dried Tons per hour. This is well below the permitted 12.75 Oven-Dried Tons per hour in Special Condition II.2.

The most recent stack test that was conducted on EUDRYER was on September 13, 2016. This stack test tested PM and CO emissions. As a part of a previous PTI EUDRYER had a PM-10 and PM-2.5 of 9.75 lbs/hr and 5.27 lbs/hr respectively. During the stack test the facility obtained an emissions result of around 85% of there permitted limit. Since the previous stack test the facility has obtained a permit modification, but these tested limits stayed the same.

FGPROCESS:

This is a flexible group that includes all equipment through the baghouse. Specifically, the emission unit includes one hammer mill, one surge silo, pellet feed hoppers, mill conditioners, material conveyance, three pellet mills, and one bagging operation.

A previous permit had EUCOOLER having its own stack controlled by a Multi-Clone. During a stack test that was conducted on September 13, 2016 showed that the facility was not able to comply with those permitted limits. As a response to the Violation Noticed that was issued to MWF the facility applied for a permit application that

routed EUCOOLER emissions to the fabric filter baghouse. The department has not requested a stack test since the issuing of PTI No. 354-06I.

In the same MAP that is referenced in EUBURNER a section is included for EUHAMMER, EUCOOLING, and EUGENERAL. The current MAP referenced appears to meet compliance for Special Condition III.1 for FGPROCESS.

MWF is required to monitor the baghouse for proper operation in two different manners. The facility is required to conduct daily visible emission test. For this stack the facility has a 5% opacity emission limit. During the inspection no visible emissions could be detected. The facility is also required to monitor and record the pressure drop across the fabric filter at least once every 12 hours. During the inspection the pressure drop was recorded at 2.0 inches of water. MWF is recording both the opacity check and pressure gauge readings on the Burner Tracking Sheets. The opacity check is a simple yes or no to seeing visible emissions. If the observer detects visible emissions the facility gets a certified reader to come make a method 9 reading on the stack. Pressure gauge readings are taken typically 1st and 3rd shifts.

The Baghouse that controls PM emissions on SVSTACKS30 is also equipped with Dwyer Magnehelics differential pressure gauges. These are simple analog devices that the facility states only require occasional cleaning and re-zeroing, which is done as needed.

FGMWF:

This is the source-wide flexible group that covers all permitted, exempt, and grand-fathered equipment. This flexible group requires the facility to follow a fugitive emission program, record the amount of Oven-Dried Tons of wood that is processed through the facility, and to conduct daily visible emission readings.

MWF has a fugitive emissions plan that was submitted to the District office January 25, 2007. This plan addresses trucks entering and exiting the facility, raw material transportation method, wood chip and saw dust contaminated areas, wood chip and saw dust heed hoppers, material movement (augers, conveyors, bucket elevators), and processing equipment. The facility appears to be following the fugitive dust program. During the inspection no excessive fugitive dust sources were observed.

The facility provided 12-month rolling calculations of the oven dried tons produced at the facility. Since November 2017 the facility has steadily gone up in the amount of Oven-Dried tons that the facility processes. The largest amount of Oven-Dried Tons that were processed since November 2017 occurred in April 2019 processing 27,936 Oven-Dried Tons. This is well below the facilities 66,427 Oven-Dried Tons per year limit.

The facility does do daily checks for visible emissions on both the Multi-Clone and the fibric filter baghouse. As stated previously these initial readings are simple yes/no visible emission checks. If visible emissions are detected the facility does have a certified reader to conduct a method 9 visible emissions observation.

At the time of the inspection and based on a review of records obtained during or following the inspection, the facility appears to be in non-compliance with PTI No. 354-06I. Staff stated to Mr. Rose that a violation notice would be sent to the facility for the inlet temperature exceedances on EUDRYER. Staff concluded the inspection at 2:00 PM.-CJY

NAME Cody Younger DATE 6/19/19 SUPERVISOR RIL 6/21/19

Burner Tracking Sheet

Date 4-8-19

Burner Readings

Time	Burner	Inlet	Tons of Fuel/Hour
6:00 am	—	0	—
7:00 am	—	0	—
8:00 am	1046	289	.49
9:00 am	1629	549	.86
10:00 am	1647	654	1.24
11:00 am	1641	693	1.24
12:00 pm	1644	670	1.40
1:00 pm	1665	775	1.57
2:00 pm	1656	749	1.35
3:00 pm	1668	710	1.40
4:00 pm	1644	761	1.46
5:00 pm	1668	751	1.40
6:00 pm	1668	780	1.51
7:00 pm	1647	756	1.40
8:00 pm	1652	694	1.30
9:00 pm	1654	703	1.40
10:00 pm	1651	728	1.40
11:00 pm	1224	392	1.40
12:00 am	1379	449	.86
1:00 am	1568	417	1.30
2:00 am	1650	572	1.30
3:00 am	1652	629	1.40
4:00 am	1647	684	1.24
5:00 am	1659	591	1.13

Opacity Check

Pressure Gauge Reading

	1st Shift	1st Shift	3rd Shift
Multi-Clone	Pass Fail	2.5	3.6
Bag House	Pass Fail	2.5	2.5
DHM Pull Fan		4.5	4.4

Shut Down	Time Down	Time Up
Time Burner is shut down (Fuel Feed To Burner)	6:00	7:10
<i>START - UP</i> Convert minutes to Decimal (Minutes/60)	Total Time Down	1.17

Start Up	Time
Time Fire is started in burner	7:06
Time Heat is directed to dryer (Multi-Clone Fan is Started)	7:10

Shut Down	Time Down	Time Up
Time Burner is shut down (Fuel Feed To Burner)	10:45	10:56
<i>Dryer Drum issue</i> Convert minutes to Decimal (Minutes/60)	Total Time Down	.18

Start Up	Time
Time Fire is started in burner	10:56
Time Heat is directed to dryer (Multi-Clone Fan is Started)	10:56

Shut Down	Time Down	Time Up
Time Burner is shut down (Fuel Feed To Burner)	12:20	12:31
<i>Dryer Drum issue</i> Convert minutes to Decimal (Minutes/60)	Total Time Down	.18

Start Up	Time
Time Fire is started in burner	12:31
Time Heat is directed to dryer (Multi-Clone Fan is Started)	12:31

22.47	1.53	1.23	27.64
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Burner Up Time Burner Down Time Avg Tons Fuel Per Hour Total Tons Fuel Used

Burner Tracking Sheet

Date 4-1-19

Time	Burner Readings		
	Burner	Inlet	Tons of Fuel/Hour
6:00 am	—	—	—
7:00 am	923	314	.97
8:00 am	1570	530	.86
9:00 am	1653	621	1.40
10:00 am	1651	726	1.68
11:00 am	1665	801	1.80
12:00 pm	1650	721	1.51
1:00 pm	1656	706	1.46
2:00 pm	1641	591	1.24
3:00 pm	1636	627	1.13
4:00 pm	1620	628	1.19
5:00 pm	1657	670	1.40
6:00 pm	1645	709	1.40
7:00 pm	1654	695	1.40
8:00 pm	1588	591	1.08
9:00 pm	1650	628	1.30
10:00 pm	1650	646	1.30
11:00 pm	1655	685	1.35
12:00 am	1644	701	1.40
1:00 am	1658	651	1.35
2:00 am	1653	634	1.35
3:00 am	1620	619	1.30
4:00 am	1648	683	1.35
5:00 am	1662	694	1.30

	Opacity Check		Pressure Gauge Reading	
	1st Shift	1st Shift	1st Shift	3rd Shift
Multi-Clone	Pass	Fail	3.6	2.8
Bag House	Pass	Fail	1.5	1.75
DHM Pull Fan			4.7	4.9

Shut Down	Time Down	Time Up
Time Burner is shut down (Fuel Feed To Burner)	6:00	6:25
Start-up Convert minutes to Decimal (Minutes/60)	Total Time Down	.42

Start Up	Time
Time Fire is started in burner	6:21
Time Heat is directed to dryer (Multi-Clone Fan is Started)	6:25

Shut Down	Time Down	Time Up
Time Burner is shut down (Fuel Feed To Burner)		
Convert minutes to Decimal (Minutes/60)	Total Time Down	

Start Up	Time
Time Fire is started in burner	
Time Heat is directed to dryer (Multi-Clone Fan is Started)	

Shut Down	Time Down	Time Up
Time Burner is shut down (Fuel Feed To Burner)		
Convert minutes to Decimal (Minutes/60)	Total Time Down	

Start Up	Time
Time Fire is started in burner	
Time Heat is directed to dryer (Multi-Clone Fan is Started)	

23.58	.42	1.33	31.36
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Burner Up Time Burner Down Time Avg Tons Fuel Per Hour Total Tons Fuel Used

Burner Tracking Sheet

Date 3-18-19

Burner Readings			
Time	Burner	Inlet	Tons of Fuel/Hour
6:00 am	—	0	—
7:00 am	—	0	—
8:00 am	—	0	—
9:00 am	—	0	—
10:00 am	1485	547	1.30
11:00 am	1640	570	1.46
12:00 pm	1645	605	1.57
1:00 pm	1652	642	1.24
2:00 pm	1671	685	1.74
3:00 pm	1648	742	1.62
4:00 pm	1649	727	1.68
5:00 pm	1650	766	1.74
6:00 pm	1653	734	1.74
7:00 pm	1651	726	1.68
8:00 pm	1648	724	1.68
9:00 pm	1651	739	1.74
10:00 pm	1654	784	1.92
11:00 pm	1667	837	2.10
12:00 am	1645	910	2.16
1:00 am	1636	854	1.92
2:00 am	1640	897	2.04
3:00 am	1650	866	1.98
4:00 am	1649	844	1.68
5:00 am	1653	888	1.98

Opacity Check

Pressure Gauge Reading

	1st Shift	1st Shift	3rd Shift
Multi-Clone	Pass Fail	3.8	4.2
Bag House	Pass Fail	3.75	3.75
DHM Pull Fan		4.8	4.8

Shut Down	Time Down	Time Up
Time Burner is shut down (Fuel Feed To Burner)	6:00	9:10
Maintenance Down-Time Convert minutes to Decimal (Minutes/60)	Total Time Down	3.17

Start Up	Time
Time Fire is started in burner	9:03
Time Heat is directed to dryer (Multi-Clone Fan is Started)	9:10

Shut Down	Time Down	Time Up
Time Burner is shut down (Fuel Feed To Burner)		
Convert minutes to Decimal (Minutes/60)	Total Time Down	

Start Up	Time
Time Fire is started in burner	
Time Heat is directed to dryer (Multi-Clone Fan is Started)	

Shut Down	Time Down	Time Up
Time Burner is shut down (Fuel Feed To Burner)		
Convert minutes to Decimal (Minutes/60)	Total Time Down	

Start Up	Time
Time Fire is started in burner	
Time Heat is directed to dryer (Multi-Clone Fan is Started)	

20.83	3.17	1.75	36.45
Burner Up Time	Burner Down Time	Avg Tons Fuel Per Hour	Total Tons Fuel Used

Burner Tracking Sheet

Date 2-25-19

Burner Readings

Time	Burner	Inlet	Tons of Fuel/Hour
6:00 am	—	—	—
7:00 am	—	—	—
8:00 am	—	—	—
9:00 am	1443	502	1.35
10:00 am	1639	590	1.68
11:00 am	1655	696	1.74
12:00 pm	1648	725	1.68
1:00 pm	1639	822	1.62
2:00 pm	1659	861	1.68
3:00 pm	1636	664	1.19
4:00 pm	1649	596	1.62
5:00 pm	1645	799	1.92
6:00 pm	1648	803	1.62
7:00 pm	1636	868*	1.74
8:00 pm	1644	874*	1.62
9:00 pm	1670	854*	1.80
10:00 pm	1650	856*	1.74
11:00 pm	1651	879*	1.86
12:00 am	1653	890*	1.98
1:00 am	1654	797	1.68
2:00 am	1646	837*	1.80
3:00 am	1650	799	1.80
4:00 am	1655	822	1.80
5:00 am	1656	815	1.57

Opacity Check

Pressure Gauge Reading

	1st Shift		1st Shift	3rd Shift
	Multi-Clone	Pass	Fail	3.2
Bag House	Pass	Fail	6.25	4.0
DHM Pull Fan			4.8	4.6

Shut Down	Time Down	Time Up
Time Burner is shut down (Fuel Feed To Burner)	6:00	8:27
<i>Maintenance</i>		
Convert minutes to Decimal (Minutes/60)	Total Time Down	2.45

Start Up	Time
Time Fire is started in burner	8:20
Time Heat is directed to dryer (Multi-Clone Fan is Started)	8:27

Shut Down	Time Down	Time Up
Time Burner is shut down (Fuel Feed To Burner)		
Convert minutes to Decimal (Minutes/60)	Total Time Down	

Start Up	Time
Time Fire is started in burner	
Time Heat is directed to dryer (Multi-Clone Fan is Started)	

Shut Down	Time Down	Time Up
Time Burner is shut down (Fuel Feed To Burner)		
Convert minutes to Decimal (Minutes/60)	Total Time Down	

Start Up	Time
Time Fire is started in burner	
Time Heat is directed to dryer (Multi-Clone Fan is Started)	

21.55	2.45	1.69	36.42
Burner Up Time	Burner Down Time	Avg Tons Fuel Per Hour	Total Tons Fuel Used

Burner Tracking Sheet

Date 2-14-19

Burner Readings

Time	Burner	Inlet	Tons of Fuel/Hour
6:00 am	1657 ⁰	827 ^{*0}	1.86
7:00 am	1650 ⁰	836 ^{*0}	1.80
8:00 am	1645 ⁰	811 ⁰	1.74
9:00 am	1650 ⁰	787 ⁰	1.74
10:00 am	1650 ⁰	863 ^{*0}	1.86
11:00 am	1642 ⁰	913 ^{*0}	1.92
12:00 pm	1623 ⁰	927 ^{*0}	1.92
1:00 pm	1655 ⁰	815 ⁰	1.80
2:00 pm	1647 ⁰	895 ^{*0}	1.98
3:00 pm	1654 ⁰	839 ^{*0}	1.86
4:00 pm	1646 ⁰	876 ^{*0}	1.68
5:00 pm	1653 ⁰	794 ⁰	1.74
6:00 pm	1644 ⁰	813 ⁰	1.51
7:00 pm	1654 ⁰	801 ⁰	1.80
8:00 pm	1649 ⁰	732 ⁰	1.68
9:00 pm	1648 ⁰	736 ⁰	1.74
10:00 pm	1643 ⁰	755 ⁰	1.74
11:00 pm	1645 ⁰	730 ⁰	1.74
12:00 am	1648 ⁰	727 ⁰	1.80
1:00 am	1655 ⁰	733 ⁰	1.80
2:00 am	1615 ⁰	755 ⁰	1.86
3:00 am	1660 ⁰	740 ⁰	1.92
4:00 am	1654 ⁰	750 ⁰	1.86
5:00 am	1658 ⁰	820 ⁰	1.80

Opacity Check

Pressure Gauge Reading

	1st Shift	1st Shift	3rd Shift
Multi-Clone	Pass Fail	4.0	4.0
Bag House	Pass Fail	4.0	4.0
DHM Pull Fan		4.5	4.4

Shut Down

Time Down

Time Up

Time Burner is shut down (Fuel Feed To Burner)		
Convert minutes to Decimal (Minutes/60)	Total Time Down	

Start Up

Time

Time Fire is started in burner	
Time Heat is directed to dryer (Multi-Clone Fan is Started)	

Shut Down

Time Down

Time Up

Time Burner is shut down (Fuel Feed To Burner)		
Convert minutes to Decimal (Minutes/60)	Total Time Down	

Start Up

Time

Time Fire is started in burner	
Time Heat is directed to dryer (Multi-Clone Fan is Started)	

Shut Down

Time Down

Time Up

Time Burner is shut down (Fuel Feed To Burner)		
Convert minutes to Decimal (Minutes/60)	Total Time Down	

Start Up

Time

Time Fire is started in burner	
Time Heat is directed to dryer (Multi-Clone Fan is Started)	

24	∅	1.80	43.20
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Burner Up Time

Burner Down Time

Avg Tons Fuel Per Hour

Total Tons Fuel Used

Burner Tracking Sheet

Date 2-11-19

Burner Readings

Time	Burner	Inlet	Tons of Fuel/Hour
6:00 am	0	0	0
7:00 am	0	0	0
8:00 am	0	0	0
9:00 am	344	86	81
10:00 am	1473	476	1.19
11:00 am	1645	624	1.74
12:00 pm	1630	757	1.62
1:00 pm	1655	733	1.74
2:00 pm	1651	737	1.74
3:00 pm	1650	727	1.68
4:00 pm	1655	698	1.68
5:00 pm	1650	755	1.74
6:00 pm	1635	718	1.74
7:00 pm	1638	735	1.74
8:00 pm	0	0	0
9:00 pm	0	0	0
10:00 pm	0	0	0
11:00 pm	0	0	0
12:00 am	0	0	0
1:00 am	0	0	0
2:00 am	0	0	0
3:00 am	0	0	0
4:00 am	0	0	0
5:00 am	0	0	0

Opacity Check

Pressure Gauge Reading

	1st Shift	1st Shift	3rd Shift
Multi-Clone	Pass Fail	3.20	4.0
Bag House	Pass Fail	3.25	4.0
DHM Pull Fan		4.5	4.40

Shut Down	Time Down	Time Up
Time Burner is shut down (Fuel Feed To Burner)	6:00	8:55
WHM - Change Bar & chains		
Convert minutes to Decimal (Minutes/60)	Total Time Down	2.92

Start Up	Time
Time Fire is started in burner	8:48
Time Heat is directed to dryer (Multi-Clone Fan is Started)	8:55

Shut Down	Time Down	Time Up
Time Burner is shut down (Fuel Feed To Burner)	7:15	6:00
Fuel bin cyclone Plugged Buckhouse clean out		
Convert minutes to Decimal (Minutes/60)	Total Time Down	10.75

Start Up	Time
Time Fire is started in burner	
Time Heat is directed to dryer (Multi-Clone Fan is Started)	

Shut Down	Time Down	Time Up
Time Burner is shut down (Fuel Feed To Burner)		
Convert minutes to Decimal (Minutes/60)	Total Time Down	

Start Up	Time
Time Fire is started in burner	
Time Heat is directed to dryer (Multi-Clone Fan is Started)	

10.33	13.67	1.58	16.32
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Burner Up Time Burner Down Time Avg Tons Fuel Per Hour Total Tons Fuel Used

Burner Tracking Sheet

Date 1-23-19

Time	Burner Readings			Tons of Fuel/Hour
	Burner	Inlet		
6:00 am	1653	821	0	1.68
7:00 am	1645	834	0*	1.68
8:00 am	1637	804	0	1.62
9:00 am	1642	731	0	1.46
10:00 am	1647	661	0	1.30
11:00 am	1662	673	0	1.40
12:00 pm	1654	671	0	1.30
1:00 pm	1649	682	0	1.46
2:00 pm	1654	665	0	1.35
3:00 pm	1661	667	0	1.40
4:00 pm	1651	706	0	1.62
5:00 pm	1649	674	0	1.51
6:00 pm	1664	728	0	1.68
7:00 pm	1649	721	0	1.68
8:00 pm	1661	641	0	1.62
9:00 pm	1645	679	0	1.62
10:00 pm	1646	703	0	1.62
11:00 pm	1653	770	0	1.80
12:00 am	1653	759	0	1.74
1:00 am	1648	804	0	1.86
2:00 am	1649	762	0	1.80
3:00 am	1644	800	0	1.68
4:00 am	1654	743	0	1.51
5:00 am	1651	788	0	1.57

Opacity Check Pressure Gauge Reading
 1st Shift 1st Shift 3rd Shift

Multi-Clone	Pass Fail	3.0	3.8
Bag House	Pass Fail	3.25	3.5
DHM Pull Fan		4.50	4.40

Shut Down	Time Down	Time Up
Time Burner is shut down (Fuel Feed To Burner)		
Convert minutes to Decimal (Minutes/60)	Total Time Down	

Start Up	Time
Time Fire is started in burner	
Time Heat is directed to dryer (Multi-Clone Fan is Started)	

Shut Down	Time Down	Time Up
Time Burner is shut down (Fuel Feed To Burner)		
Convert minutes to Decimal (Minutes/60)	Total Time Down	

Start Up	Time
Time Fire is started in burner	
Time Heat is directed to dryer (Multi-Clone Fan is Started)	

Shut Down	Time Down	Time Up
Time Burner is shut down (Fuel Feed To Burner)		
Convert minutes to Decimal (Minutes/60)	Total Time Down	

Start Up	Time
Time Fire is started in burner	
Time Heat is directed to dryer (Multi-Clone Fan is Started)	

24	∅	1.58	37.92
Burner Up Time	Burner Down Time	Avg Tons Fuel Per Hour	Total Tons Fuel Used

Burner Tracking Sheet

Date 1-21-19

Burner Readings			
Time	Burner	Inlet	Tons of Fuel/Hour
6:00 am	—	—	—
7:00 am	—	—	—
8:00 am	—	—	—
9:00 am	—	—	—
10:00 am	1021	340	0.81
11:00 am	1553	513	1.51
12:00 pm	1557	594	1.35
1:00 pm	1663	571	1.40
2:00 pm	1641	604	1.40
3:00 pm	1649	607	1.46
4:00 pm	1646	605	1.40
5:00 pm	1645	569	1.35
6:00 pm			
7:00 pm			
8:00 pm			
9:00 pm			
10:00 pm			
11:00 pm			
12:00 am			
1:00 am			
2:00 am			
3:00 am			
4:00 am			
5:00 am			

Opacity Check

Pressure Gauge Reading

	1st Shift		1st Shift	3rd Shift
	Pass	Fail		
Multi-Clone	Pass	Fail	3.2	
Bag House	Pass	Fail	4.5	
DHM Pull Fan			4.8	

Shut Down	Time Down	Time Up
Time Burner is shut down (Fuel Feed To Burner)	6:00	9:25
Cold weather Start-up Motors Frozen Convert minutes to Decimal (Minutes/60)	Total Time Down	3.42

Start Up	Time
Time Fire is started in burner	9:20
Time Heat is directed to dryer (Multi-Clone Fan is Started)	9:25

Shut Down	Time Down	Time Up
Time Burner is shut down (Fuel Feed To Burner)	5:40	6:00
3rd Shift Staffing Convert minutes to Decimal (Minutes/60)	Total Time Down	12.33

Start Up	Time
Time Fire is started in burner	
Time Heat is directed to dryer (Multi-Clone Fan is Started)	

Shut Down	Time Down	Time Up
Time Burner is shut down (Fuel Feed To Burner)		
Convert minutes to Decimal (Minutes/60)	Total Time Down	

Start Up	Time
Time Fire is started in burner	
Time Heat is directed to dryer (Multi-Clone Fan is Started)	

8.25	15.75	1.34	11.01
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Burner Up Time Burner Down Time Avg Tons Fuel Per Hour Total Tons Fuel Used

11 min

Burner Tracking Sheet

Date 1-7-19

Time	Burner Readings		
	Burner	Inlet	Tons of Fuel/Hour
6:00 am	—	—	—
7:00 am	—	—	—
8:00 am	—	—	—
9:00 am	—	—	—
10:00 am	—	—	—
11:00 am	1305	486	.86
12:00 pm	1396	508	1.13
1:00 pm	—	—	—
2:00 pm	—	—	—
3:00 pm	—	—	—
4:00 pm	1369	504	1.19
5:00 pm	—	—	—
6:00 pm	—	—	—
7:00 pm	—	—	—
8:00 pm	—	—	—
9:00 pm	1683	572	1.13
10:00 pm	1650	576	1.51
11:00 pm	1647	607	1.68
12:00 am	1678	613	1.68
1:00 am	1650	619	1.74
2:00 am	1654	644	1.74
3:00 am	1664	598	1.51
4:00 am	1669	581	1.51
5:00 am	1648	575	1.40

Opacity Check

Pressure Gauge Reading

	1st Shift		1st Shift	3rd Shift
	Pass	Fail		
Multi-Clone	Pass	Fail	1.0	3.6
Bag House	Pass	Fail	3.0	3.25
DHM Pull Fan			4.6	4.5

Shut Down

Time Down

Time Up

Time Burner is shut down (Fuel Feed To Burner)	6:00	10:30
Change DHM Hammers Replace Fuel Feed Blade Convert minutes to Decimal (Minutes/60) 1.25	3.25	Total Time Down 4.50

Start Up

Time

Time Fire is started in burner	10:26
Time Heat is directed to dryer (Multi-Clone Fan is Started)	10:30

4

Shut Down

Time Down

Time Up

Time Burner is shut down (Fuel Feed To Burner)	12:48	3:30
44' Incline Auger Stopped Convert minutes to Decimal (Minutes/60)	3.25	Total Time Down 2.70

Start Up

Time

Time Fire is started in burner	3:30
Time Heat is directed to dryer (Multi-Clone Fan is Started)	3:28

2

Shut Down

Time Down

Time Up

Time Burner is shut down (Fuel Feed To Burner)	5:00	8:15
Motor 31B Bad changed out Convert minutes to Decimal (Minutes/60)	3.25	Total Time Down 3.25

Start Up

Time

Time Fire is started in burner	8:10
Time Heat is directed to dryer (Multi-Clone Fan is Started)	8:15

5

13.55	10.45	1.42	19.24
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Burner Up Time Burner Down Time Avg Tons Fuel Per Hour Total Tons Fuel Used