DEPARTMENT OF ENVIRONMENTAL QUALITY
AIR QUALITY DIVISION
ACTIVITY REPORT: On-site Inspection

N139367082

FACILITY: BESSEMER PLYWOOD CORP		**SRN / ID:** N1393
LOCATION: 1000 YALE AVE, BESSEMER		**DISTRICT:** Marquette
CITY: BESSEMER		**COUNTY:** GOGEBIC
CONTACT: Bill Thomason , PLANT MANAGER		**ACTIVITY DATE:** 03/02/2023
STAFF: Joe Scanlan	**COMPLIANCE STATUS:** Compliance	**SOURCE CLASS:** MINOR
SUBJECT: Unannounced inspection to determine compliance with PTI 35-20B		
RESOLVED COMPLAINTS:		

REGULATORY AUTHORITY

Under the Authority of Section 5526 of Part 55 of NREPA, the Department of Environment, Great Lakes, and Energy may upon the presentation of their card, and stating the authority and purpose of the investigation, enter and inspect any property at reasonable times for the purpose of investigating either an actual or suspected source of air pollution or ascertaining compliance or noncompliance with NREPA, Rules promulgated thereunder, and the federal Clean Air Act.

FACILITY DESCRIPTION

Bessemer Plywood Corporation (Bessemer Plywood) manufactures hardwood plywood in the Upper Peninsula of Michigan in the city of Bessemer, located in Gogebic County. Veneer plywood is manufactured from locally grown trees, primarily aspen. Under PTI 35-20B the facility operates two direct natural gas-fired veneer dryers (EUDRYER1 & EUDRYER4/FGDRYERS), two wood-fired boilers (EUWOODBOILER1 & EUWOODBOILER2/FGWOODBOILERS), a fuel transfer system (EUFUELSYSTEM), a surface finishing sander (EUSANDER), a vacuum lift system (EUSTACKER), and a glue spreader (EUGLUESPREADER).

PROCESS DESCRIPTION

Bessemer Plywood's operation consists of logs being debarked, conditioned with hot water, and cut on a lathe into green veneer of the desired thickness. The core of the log is used to make landscape timber. A conveyor feeds the green veneer into dryers. The veneer sheets go through a heating and cooling section of the dryers. The sheet is routed through a stacking and gluing process. The green veneer is sorted and dried prior to stacking and gluing to form plywood sheets. The surfaces of the glued sheets are repaired. The repaired sheets are cut to size, and one or both sides of the cut sheet are sanded. The facility only operates one wood boiler at a time, switching between boilers every few weeks.

EMISSIONS

On October 30, 2020, Bessemer Plywood submitted the PTI application for Dryer No. 4, Application Number 35-20A, and the final PTI approval was issued on March 17, 2021. PTI No. 35-20A included synthetic minor conditions in FGFACILITY that limits particulate matter (PM), PM10, PM2.5, and carbon monoxide (CO) to below the Title V Renewable Operating Permit (ROP) thresholds of 100 tons per year.

After issuance of PTI No. 35-20A, the vendor of Dryer No. 4 provided updated CO emission rates for the unit which were higher than the CO emission rates permitted. Therefore, Bessemer

Plywood requested modification to PTI No. 35-20A to increase EUDRYER4 CO emission limits and other revisions to maintain the facility as a ROP synthetic minor source.

EUFUELSYSTEM and EUSTACKER were recently engineered to return filtered exhaust air back into the facility. This reduction in heat loss allowed the facility to discontinue use of EUGASBOILER and decommission the unit. EUDRYER3 had also been decommissioned once EUDRYER4 became operational and EUDRYER3 was also removed from the permit. Both EUGASBOILER and EUDRYER3 are still located within the facility; however, the natural gas lines to the units have been disconnected. This was verified during a site visit by district staff on 2/17/22.

Annual emissions from FGWOODBOILERS were previously based on a material limit of 11,100 tons per year. Bessemer Plywood requested a reduction of the material limit to 7,500 tons per year, resulting in a reduction of annual emissions from FGWOODBOILERS. The basis for the lower material limit request was due to the implementation of a more accurate method of monitoring fuel feed based on rotations (RPM) of the augers providing fuel from the storage silos. Once the RPM of the auger was calibrated to the feed rate, the facility realized they had been over-reporting fuel throughput for both wood boilers, and thereby over-reporting annual emissions for the wood boilers as well.

Therefore, at the request of the facility, EUGASBOILER was removed from the PTI, the annual combined fuel usage limit for FGWOODBOILERS was reduced, and the potential to emit (PTE) CO emissions were corrected to reflect the removal of EUGASBOILER and the updated emissions from EUWOODBOILER1 & 2 and EUDRYER4. The facility maintains Title V opt-out limits for CO, PM, PM10, and PM2.5 with permit restrictions for the material limit of 7,500 ton/year for FGWOODBOILERS and 90,204 MSF 3/8" annual throughput limit for FGDRYERS. These modifications resulted in issuance of PTI No. 35-20B on 4/29/22.

EMISSIONS REPORTING

The facility is required to report its annual emissions to Michigan Air Emissions Reporting System (MAERS) beginning in FY24.

REGULATORY ANALYSIS

Bessemer Plywood is a synthetic minor for air emissions and has Title V opt-out limits for CO, PM, PM10, and PM2.5. These limits are enforceable with a material limit of 7,500 ton/year for FGWOODBOILERS and the 90,204 MSF 3/8" annual throughput limit for FGDRYERS.

The facility is not subject to 40 CFR 63 Subpart DDDD - NESHAP for Plywood and Composite Wood Products because they are an area source of HAPs.

COMPLIANCE HISTORY

The most recent permit compliance inspection was conducted 8/13/20. At that time the facility was found to be in compliance with all applicable air quality rules and federal regulations at that time.

On 9/06/22 the facility was issued a violation notice for excessive opacity from EUWOODBOILER1, a violation of Rule 336.1301 and General Condition 11.a of PTI No. 35-20B. On 8/15/20, district staff was on site to observe emissions testing for EUDRYER4 and noticed

excessive opacity from EUWOODBOILER1. A Method 9 visible emissions test was conducted which resulted in the violation notice. The facility provided an adequate response addressing the violation on 9/26/22. There have been no compliance issues with EUWOODBOILER1 or any other emission units at the facility since this incident.

INSPECTION

A targeted inspection was scheduled for 03/02/2023 to determine compliance with PTI No. 35-20B. The contact for the facility is Bill Thomason, Vice President. After a brief opening conference in the office to discuss the permit conditions of PTI No. 35-20B, we proceeded to tour the facility and observe each emission unit.

<u>EUWOODBOILER1 & EUWOODBOILER2</u>

EUWOODBOILER1 is a 26.8 MMBtu/hr wood fired boiler with a multiclone collector. EUWOODBOILER2 is a 21.9 MMBtu/hr wood fired boiler with a multiclone collector. Stack testing was done in 2005.

Emission Limits

	Pollutant	Limit	Time Period / Operating Scenario	2005 Stack Test	February 2023
EUWOODBOILER1	SC I.2 PM	14.7 pph	Daily	14.02 pph	4.6 pph (20 day avg)
					6.1 pph (max during 20 day operating period)
	SC I.4 PM10	14.7 pph	Daily	14.53 pph	4.2 pph (20 day avg)
					5.5 pph (max during 20 day operating period)
EUWOODBOILER2	SC I.2 PM	15.1 pph	Daily	1.96 pph	7.7 pph (9 day avg)
					9.1 pph (max during 9 day operating period)
	SC I.4 PM10	15.1 pph	Daily	2.02 pph	7.0 pph (9 day avg)
					8.3 pph (max during 9 day operating period)

Material Limits

SC II.1 The facility only burns unpainted/untreated wood in EUWOODBOILER1 & 2.

SC II.2 EUWOODBOILER1 has a daily material limit of 30 dry tons of wood fuel per calendar day. The facility tracks fuel usage via monitoring the auger feed rate from the wood fuel silos into each boiler. The facility provided records for the month of February showing that EUWOODBOILER1 operated for 20 consecutive days from 2/01/23 to 2/20/23 and used an average of 12.2 tons, with the highest daily usage of 16.3 tons occurring on 2/07/23.

Process/Operational Restriction

SC III.1 The facility has an acceptable SSM and MAP that addresses how emissions are minimized during startups, shutdowns and malfunctions of the wood boilers.

Design/Equipment Parameter

SC IV.1 There are two multiclones that operate when the boiler system is in use. They were installed and operating properly at the time of inspection.

Testing/Sampling

SC V.1 The most recent emissions testing conducted on EUWOODBOILER1 & 2 was in 2005. No testing on these emission units has been performed by the facility or requested by the Department since then.

Monitoring/Recordkeeping

SC VI.1 Daily fuel usage is monitored and recorded for both EUWOODBOILER1 and EUWOODBOILER2 using a calibrated auger feed system with a counter.

SC VI.2 Daily average hourly PM and PM10 emission calculations using total daily wood fuel usage rate and daily hours of operation are kept on file and were provided for the month of February 2023.

SC VI.3 Daily fuel usage in pounds is recorded and kept in an acceptable manner. Records were provided for February 2023.

Stack/Vent Restriction

VIII.1 Stacks for EUWOODBOILER1 & 2 are identical. Heights were verified at approximately 125' above grade using a RangeFinder unit and a 3-point measurement from the base of the stacks to the top of the stacks (base of stack is at grade). Stack diameters appeared to be no larger than 32" at the widest part of the stack near the base.

EUFUELSYSTEM

EUFUELSYSTEM includes the Boiler House fuel transfer system including plugger, composer hogger, trim hogger, trim saw, core saw, and panel saw that vent indoors.

Emission Limits

SC I.1 No visible emissions were observed at the time of inspection and the ductwork and baghouse system showed no signs of leaking. The baghouse exhaust for EUFUELSYSTEM is vented back into the facility to conserve heat.

Process/Operation Restrictions

SC III.1 The facility has an adequate BMPP for housekeeping and prevention of fugitive particulate emissions. A copy is included with this report.

Design/Equipment Parameter

SC IV.1 The baghouse for EUFUELSYSTEM is installed and operates properly during operation of the fuel system.

Stack/Vent Restriction

SC VIII.1 The baghouse exhaust for EUFUELSYSTEM is returned to within the building.

EUSANDER

EUSANDER includes the surface finishing sander for plywood product and is controlled with two cyclone/bagfilters in parallel.

Emission Limits

SC I.1-2 This emission unit has PM and PM10 limits, however there are no testing or monitoring requirements; only recording of operating hours.

Design/Equipment Parameter

SC IV.1 The cyclone/bagfilter system was installed and operating in a satisfactory manner during the inspection. The area around the unit appeared clean with good housekeeping practices.

Monitoring/Recordkeeping

SC VI.1 Daily operating hours of EUSANDER are kept in a satisfactory manner and were provided for February 2023. The unit operated a total of 20 days during the month of February 2023, averaging 7.2 hours of operation a day with a maximum of 8.3 hours on one day (2/20/23).

Stack/Vent Restriction

SC VIII.1 The cyclone/bagfilter exhaust is returned back to within the facility.

EUSTACKER

EUSTACKER is the vacuum lift system that lifts green veneer sheets off the green chain and carries them to a stacker, where the sheets are stacked, emissions controlled by a cyclone and vented indoors.

Emission Limits

SC I.1-2 The emission unit has PM and PM10 limits, however there are no testing or monitoring requirements.

SC I.3 No visible emissions were observed from the lift system and the area around the lift system ducting was clean.

Design/Equipment Parameter

SC IV.1 The cyclone was installed and operating in a satisfactory manner and the area around the unit appeared clean with good housekeeping practices.

EUGLUESPREADER

EUGLUESPREADER consists of two 60" globe glue spreaders.

Emission Limit

SC I.1 This emission unit has a 3.0 ton per year VOC limit based on a 12-month rolling time period. The facility provided monthly records from February 2022 through February 2023. The 12-month rolling average during this time frame never exceed 1.3 tons, with an average of 1.23 tons over the dates submitted.

EUGLUESPREADER VOC Emissions Limit 3.0 tpy 12-month rolling	
DATE	**VOC 12-Month Rolling**
2/28/2022	**1.2**
3/31/2022	**1.1**
4/30/2022	**1.2**
5/31/2022	**1.2**
6/30/2022	**1.3**
7/31/2022	**1.2**
8/31/2022	**1.1**
9/30/2022	**1.3**
10/31/2022	**1.2**

11/30/2022	**1.3**
12/31/2022	**1.3**
1/31/2023	**1.2**
2/28/2023	**1.3**
AVERAGE	**1.23**

SC I.2 No visible emissions were observed from EUGLUESPREADER.

Material Limit

SC II.1 Based on records provided, the facility stays well below the monthly resin limit:

Monthly Resin Use Limit 500,000 lbs/month	
DATE	**Resin (lbs)**
2/28/2022	**204,932.0**
3/31/2022	**253,346.0**
4/30/2022	**240,764.0**
5/31/2022	**271,555.0**
6/30/2022	**170,987.0**
7/31/2022	**172,347.0**
8/31/2022	**214,950.0**

9/30/2022	226,421.0
10/31/2022	198,924.0
11/30/2022	196,176.0
12/31/2022	244,627.0
1/31/2023	252,550.0
2/28/2023	241,296.0
AVERAGE	222,221.2

Monitoring/Recordkeeping

SC VI.1 The facility is keeping adequate records of monthly usage for:

DATE	RESIN VOC CONTENT (lb VOC/lb resin)	Monthly VOC Emissions (tons)	SPREADER 1 USAGE (hrs/month)	SPREADER 2 USAGE (hr/month)
2/28/2022	0.001	0.1	247.0	175.0
3/31/2022	0.001	0.1	274.0	241.0
4/30/2022	0.001	0.1	276.0	252.0
5/31/2022	0.001	0.1	226.3	230.0
6/30/2022	0.001	0.1	256.0	215.0
7/31/2022	0.001	0.1	217.5	164.0
8/31/2022	0.001	0.1	268.8	209.0
9/30/2022	0.001	0.1	256.0	254.0

10/31/2022	0.001	0.1	240.0	218.0
11/30/2022	0.001	0.1	255.0	187.0
12/31/2022	0.001	0.1	242.0	260.0
1/31/2023	0.001	0.1	281.0	204.0
2/28/2023	0.001	0.1	246.0	255.0

Stack/Vent Restriction

SC VIII.1 The unit and all fugitive emissions are completely within the facility.

EUDRYER4

EUDRYER4 is a wood veneer dryer heated with a natural gas-fired 40.6 MMBTU/hr burner.

Emission Limits

SC I.1-5 & V.1 Stack testing on EUDRYER4 was conducted 8/16/22:

Pollutant	Limit	Stack Test Results 8/16/22
SC I.1 NOx	6.0 pph	1.60 pph
SC I.2 CO	9.1 pph	7.43 pph
SC I.3 PM	3.2 pph	2.61 pph
SC I.4 PM10	3.2 pph	2.61 pph
SC I.5 PM2.5	3.2 pph	2.61 pph

Material Limits

SC II.1 & VI.1-2 EUDRYER4 only operates on natural gas and has a material limit of 65,000 MSF 3/8 per year, recorded on a 12-month rolling time frame:

DATE	EUDRYER4 Monthly Natural Gas Usage (MMSCF)	EUDRYER4 12-Month Rolling Throughput (MSF 3/8)
3/31/2022	5.5	21,320.3
4/30/2022	5.3	25,423.9
5/31/2022	5.4	29,374.0
6/30/2022	3.7	32,370.6
7/31/2022	3.4	35,195.1
8/31/2022	3.7	32,625.2
9/30/2022	3.1	35,640.2
10/31/2022	3.9	36,793.3
11/30/2022	4.1	40,031.3
12/31/2022	4.2	41,311.0
1/31/2023	4.1	37,237.1
2/28/2023	3.8	39,872.0

Design/Equipment Parameter

SC IV.1 The design heat input capacity for EUDRYER4 is 40.6 MMBTU/hr, as it was when the unit was permitted.

Testing/Sampling

SC V.1 Emissions compliance testing for EUDRYER4 was conducted on 8/17/22 for NOx, CO, PM, PM10, and PM2.5 emissions. EUDRYER4 showed compliance with the permitted emission limits (as shown in the table above).

Monitoring/Recordkeeping

SC VI.1-2 Records of natural gas usage and wood throughput for EUDRYER4 are available on site and were provided upon request from February 2022 through February 2023.

Stack/Vent Restrictions

SC VIII.1-3 The heights of SVHEAT1, SVCOOL1, and SVCOOL2 were verified to be approximately 95', 60', and 60' above grade, respectively, using a RangeFinder and a 3-point measurement from the base of the building to the top of the stack. Due to the stacks being in the middle of the roof of the facility, staff was not able to verify the approximate maximum diameter of the stacks.

FGWOODBOILERS

FGWOODBOILERS includes EUWOODBOILER1 and EUWOODBOILER2

Emission Limits

SC I.1, I.3 & VI.1 The facility provided PM & PM10 daily emissions for the month of February 2023:

DATE	PM	PM10
	570 lb limit per calendar day (lbs)	570 lb limit per calendar day (lbs)
2/1/2023	158.3	144.1
2/2/2023	133.9	121.9
2/3/2023	82.0	74.7
2/4/2023	71.0	64.6
2/5/2023	102.3	93.1
2/6/2023	125.9	114.6
2/7/2023	145.7	132.6

DATE	PM	PM10
2/8/2023	138.8	126.3
2/9/2023	131.9	120.1
2/10/2023	86.0	78.3
2/11/2023	83.7	76.1
2/12/2023	91.2	83.0
2/13/2023	116.8	106.3
2/14/2023	118.2	107.6
2/15/2023	130.1	118.5
2/16/2023	132.6	120.7
2/17/2023	86.7	78.9
2/18/2023	80.3	73.1
2/19/2023	114.4	104.2
2/20/2023	126.1	114.7
2/21/2023	198.6	180.8
2/22/2023	209.8	191.0
2/23/2023	218.1	198.5
2/24/2023	177.7	161.8
2/25/2023	144.8	131.8

DATE	PM	PM10
2/26/2023	129.1	117.5
2/27/2023	191.2	174.0
2/28/2023	200.6	182.6
AVERAGE	133.05 lbs	121.11 lbs

SC I.2, I.4, VI.1 & VI.4 12-month rolling and monthly PM and PM10 emissions for FGWOODBOILERS provided by the facility:

DATE	PM		PM10	
	40 tpy limit 12-month rolling	Monthly PM emissions (tons)	40 tpy limit 12-month rolling	Monthly PM10 emissions (tons)
3/31/2022	30.8	2.4	28.1	2.2
4/30/2022	32.7	1.9	29.8	1.7
5/31/2022	29.2	0.9	26.6	0.8
6/30/2022	30.1	0.9	27.4	0.9
7/31/2022	27.9	0.8	25.4	0.7
8/31/2022	23.0	1.0	20.9	0.9
9/30/2022	23.9	1.0	21.8	0.9
10/31/2022	17.9	1.1	16.3	1.0
11/30/2022	19.6	1.7	17.9	1.6

DATE	PM		PM10	
12/31/2022	17.9	2.4	16.3	2.2
1/31/2023	16.6	2.4	15.1	2.2

Material Limit

SC II.1, VI.1-3 12-month rolling and monthly wood fuel throughput for FGWOODBOILERS provided by the facility:

DATE	Wood Fuel	
	7,500 tpy limit 12-month rolling (tons)	Monthly wood fuel usage (tons)
3/31/2022	6,915.8	425.3
4/30/2022	7,341.1	203.0
5/31/2022	6,547.8	212.0
6/30/2022	6,759.8	184.3
7/31/2022	6,259.8	222.6
8/31/2022	5,156.6	214.5
9/30/2022	5,371.1	252.9
10/31/2022	4,014.6	387.9
11/30/2022	4,402.5	536.9
12/31/2022	4,026.3	531.4

DATE	Wood Fuel	
1/31/2023	3,717.9	425.3

Monitoring/Recordkeeping

SC VI.1-4 See tables above. The facility has all required and necessary data on file and available by request.

FGDRYERS

FGDRYERS is EUDRYER1 and EUDRYER4

Emission Limit

SC I.1, VI.1-2:

DATE	FGDRYER CO Emissions		
	FGDRYER 53 tpy limit 12-month rolling (tons)	EUDRYER1 12-month rolling (tons)	EUDRYER4 12-month rolling (tons)
3/31/2022	2.2	0.9	1.3
4/30/2022	2.4	0.9	1.5
5/31/2022	2.2	0.5	1.7
6/30/2022	2.4	0.6	1.9
7/31/2022	2.4	0.4	2.0
8/31/2022	2.2	0.3	1.9
9/30/2022	2.4	0.3	2.0
10/31/2022	2.2	0.2	1.9

DATE	FGDRYER CO Emissions		
11/30/2022	2.4	0.2	2.1
12/31/2022	2.4	0.2	2.2
1/31/2023	2.2	0.3	1.9
2/28/2023	2.5	0.4	2.1

Material Limit

SC II.1, VI.1 & VI.3

DATE	FGDRYER wood veneer or non-resinous wood throughput		
	90,204 MSF 3/8 per year limit 12-month rolling (MSF)	EUDRYER1 12-month rolling (MSF)	EUDRYER4 12-month rolling (MSF)
3/31/2022	37,250.1	15,929.7	21,320.3
4/30/2022	41,353.7	15,929.7	25,423.9
5/31/2022	38,107.3	8,733.3	29,374.0
6/30/2022	41,609.5	9,238.8	32,370.6
7/31/2022	41,463.1	6,267.9	35,195.1
8/31/2022	36,902.7	4,277.6	32,625.2
9/30/2022	40,692.8	5,052.6	35,640.2
10/31/2022	41,106.8	4,313.5	36,793.3

DATE	FGDRYER wood veneer or non-resinous wood throughput		
11/30/2022	44,681.2	4,649.9	40,031.3
12/31/2022	45,294.5	3,983.5	41,311.0
1/31/2023	42,254.8	5,017.7	37,237.1
2/28/2023	46,670.8	6,798.8	39,872.0

SC II.2, VI.1 & VI.3 FGDRYERS only burn pipeline quality natural gas:

DATE	FGDRYER natural gas usage		
	FGDRYER 12-month rolling (MMscf)	EUDRYER1 12-month rolling (MMscf)	EUDRYER4 12-month rolling (MMscf)
3/31/2022	52.6	22.5	30.1
4/30/2022	57.9	22.5	35.4
5/31/2022	53.4	12.6	40.8
6/30/2022	57.7	13.3	44.4
7/31/2022	57.3	9.5	47.8
8/31/2022	52.8	7.2	45.6
9/30/2022	56.7	8.0	48.7
10/31/2022	51.6	5.5	46.2
11/30/2022	56.2	5.9	50.3

DATE	FGDRYER natural gas usage		
12/31/2022	56.5	5.0	51.4
1/31/2023	53.0	6.6	46.3
2/28/2023	59.4	9.2	50.2

Monitoring/Recordkeeping

SC VI.1-3 See tables above. The facility has all required and necessary data on file and available by request.

FGFACILITY

FGFACILITY includes all process equipment including equipment covered by other permits, grand-fathered equipment, and exempt equipment.

Emission Limits

SC I.1-4, VI.1-2

DATE	FGFACILITY Emissions			
	PM 89.4 tpy limit 12-month rolling (tons)	PM10 89 tpy limit 12-month rolling (tons)	PM2.5 89 tpy 12-month rolling (tons)	CO 89.3 tpy limit 12-month rolling (tons)
2/28/2023	31.6	29.9	23.3	22.3

Monitoring/Recordkeeping

SC VI.1-2 See tables above. The facility has all required and necessary data on file and available by request.

CONCLUSION

Based on the inspection performed and the records reviewed, Bessemer Plywood Corporation is currently in compliance with PTI No. 35-20B.

NAME  DATE ***6/13/2023*** SUPERVISOR