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

N772967794

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| FACILITY: MICHIGAN WOOD FUELS LLC | | SRN / ID: N7729 |
| LOCATION: 1125 INDUSTRIAL AVE, HOLLAND | | DISTRICT: Kalamazoo |
| CITY: HOLLAND | | COUNTY: ALLEGAN |
| CONTACT: Benjamin Rose , CEO | | ACTIVITY DATE: 01/11/2023 |
| STAFF: Cody Yazzie | COMPLIANCE STATUS: Compliance | SOURCE CLASS: SM OPT OUT |
| SUBJECT: Scheduled Inspection | | |
| RESOLVED COMPLAINTS: | | |

**On January 11, 2023 Air Quality Division (AQD) staff (Cody Yazzie) arrived at 1125 Industrial Ave, Holland Michigan at 2:15 PM to conduct an unannounced air quality inspection of Michigan Wood Fuels (hereafter MWF) SRN (N7729). Staff made initial contact with the office receptionist and stated the purpose of the visit. Benjamin Rose, MWF, CEO, is the environmental contact and arrived shortly thereafter and took staff to his office for further discussions.**

**MWF is a wood pellet production facility. The wood pellets are typically used as fuel to heat customers homes. MWF was last inspected by the AQD on May 24, 2019 and appeared to be in Non-compliance at that time with PTI No. 354-06I Staff asked, and Mr. Rose stated that the facility does not have boilers or emergency generators.**

**Mr. Rose gave staff a tour of the facility. Required personal protective equipment are steel toe boots, hearing protection, 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 Michigan Wood Fuels.**

**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. The facility provided 12-month rolling Startup Operations hours. The maximum 12-month rolling Startup Operation hours since July 2021 were calculated to be 15.5 hours in December 2022. This is about 4.3% 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 most recent CO monitoring data sets. They occurred on August 2022, January 2022, July 2021 and January 2021.These show that the facility is conducting the CO test every 6 months as required.

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 11 random Burner Tracking Sheets for the dates of 2/24/22, 2/25/22, 3/16/22, 5/10/2022, 6/23/22, 7/27/22, 8/2/22, 8/18/22, 9/20/22, 11/15/22, 12/21/22 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 be in compliance with this condition. Showing compliance with the 2.43 tons/hour also demonstrates compliance with the 81 pph limit as they are a daily average they convert when extrapolated.

Special Condition VIII.1 requires the facility discharge the exhaust of EUBURNER (SVSTACKS20) at a minimum height of 36 feet above ground level. During the inspection Staff used a range finder to measure the height of the exhaust stack. The ranger finder measures a distance from the height of use to the height of the point of interest. This means roughly the height of the user must be added to find the total height above ground level. Staff measured a height of 23.1 yards during the inspection. This height converts to 69.3 feet. The total height above ground level measures to be around 75 ft which is above the required minimum height.

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 continuously monitored by an operator on a digital read out.

The facility conducts maintenance on the thermocouple every 6 months to make sure the thermocouples are calibrated properly. The maintenance was done on 5/16/22 and 10/17/22. The facility appears to be conducting the necessary maintenance needed for accurate data.

Staff collected 11 random Burner Tracking Sheets for the dates of 2/24/22, 2/25/22, 3/16/22, 5/10/2022, 6/23/22, 7/27/22, 8/2/22, 8/18/22, 9/20/22, 11/15/22, 12/21/22 in which showed the facility never recorded a dryer inlet temperature above the maximum 825 degrees Fahrenheit. The facility previously had exceedances during the last inspection, but have since made changes to provide a more accurate dryer inlet temperature. The changes appear to have addressed the previous exceedance issue and remain resolved.

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 and then records on the Moisture Balance By Weight Tracking Log. The undried saw does are noted as US in the records and typically between 40-50% moisture. Staff looked through the records on site and collected 14 random dates. In the review and collection of data the facility did not appear to have a moisture content above the 55% by weight. The facility appears to be in compliance with the special condition.

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. The facility records the pressure drop across the multiclone on the Burning Tracking Sheets. During the inspection the pressure gauge was reading 4.5 inches of water.

Facility is required to monitor and record the Oven-Dried Tons per hour of wood chips processed through EUDRYER. The facility does this by the recording the number of burner hours and the amount of oven dried tons (ODT) produced. From the records reviewed the facility never processed more than 9.0 Oven-Dried Tons per hour. This is 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.

The facility has 8 emission limits that can only have compliance determined through a stack test. These emission limits are for PM, PM10, PM2.5, NOx, CO, VOC, formaldehyde, and acrolein. The NOx, VOC, formaldehyde, and acrolein are all may test conditions which do not appear to have been requested by the AQD yet. The PM's and CO emissions have been conducted as previously stated.

**Special Condition VIII.1 requires the facility discharge the exhaust of EUDRYER (SVSTACKS21) at a minimum height of 62 feet above ground level. During the inspection Staff used a range finder to measure the height of the exhaust stack. The ranger finder measures a distance from the height of use to the height of the point of interest. This means roughly the height of the user must be added to find the total height above ground level. Staff measured a height of 29.2 yards during the inspection. This height converts to 87.6 feet. The total height above ground level measures to be around 93 ft which is above the required minimum height.**

**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.**

**Visible emission readings are recorded on the Burner Tracking Sheets. These are simple pass fails indicicating only if visible emissions were observed or not. During the inspection Staff did notice that there was steam coming from the stack of the dryer exhaust but no visible emissions. Staff did not observe any visible emissions on the burner stack during the inspection.**

**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 for the time period of July 2021 through December 2022. Since July 2021 the facility has steadily gone down in the amount of Oven-Dried tons that the facility processes. The largest amount of Oven-Dried Tons that were processed since July 2021 occurred in August 2021 processing 39,414 Oven-Dried Tons. This is well below the facilities 66,427 Oven-Dried Tons per year limit.**

**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 compliance with PTI No. 354-06I. Staff stated to Mr. Rose that a report of the inspection would be sent to the facility for their records. Staff concluded the inspection at 3:30 PM.-CJY**

NAME Cody Yaggi DATE 6/22/23 SUPERVISOR RJL 6/30/23