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

N215741405

FACILITY: DEVEREAUX SAWMILL		**SRN / ID:** N2157
LOCATION: 2872 N HUBBARDSTON RD, PEWAMO		**DISTRICT:** Grand Rapids
CITY: PEWAMO		**COUNTY:** IONIA
CONTACT: John Gehringer , Kiln Manager		**ACTIVITY DATE:** 08/24/2017
STAFF: Tyler Salamasick	**COMPLIANCE STATUS:** Unknown	**SOURCE CLASS:** MINOR
SUBJECT: Minor source inspection FY2017		
RESOLVED COMPLAINTS:		

Background

Devereaux Sawmill (Devereaux) SRN: N2157 is a milling facility that specializes in manufacturing kiln dried hardwood lumber. The production facility is located at 2872 N Hubbardston Road, Pewamo Michigan. Devereaux is located in a primarily rural area with the nearest residential structure approximately 415 feet south east of the facility. The facility was inspected on 8/24/2017 by Tyler Salamasick, Environmental Quality Analyst of the Michigan Department of Environmental Quality, Air Quality Division. The intent of the inspection was to determine the facility's compliance with the Federal Clean Air Act Part 55, Air Pollution Control, of the Natural Resources and Environmental Protection Act of 1994, PA 451, as amended and Michigan's Air Pollution Control Rules. AQD District staff also determined compliance with PTI No. 1-09, PTI No. 101-05 and PTI 81-02. Devereaux is a minor source for volatile organic compounds (VOCs) and particulate matter 10 microns and 2.5 microns (PM). Devereaux's main source of VOCs is from its kiln drying process. The emissions from the kilns are limited by material restrictions. Soft woods commonly have significantly higher VOC content than hardwoods and Devereaux is restricted to only drying hard woods. This restriction limits higher VOCs emissions that would be expected if Devereaux were permitted to dry softwoods. Devereaux's main source of PM emissions are from the cyclones associated with the cutting of both the dry and wet lumber/wood. The facility's particulate emissions are limited by hours of operation. The facility is limited to 4500 hours of operation per 12 month rolling time period per piece of equipment.

Inspection

Site arrival was at 7:50 am on 8/24/17. Moments after arrival, I noticed some particulate fallout on my vehicle and clothing. The fallout appeared to be a fine wood debris. Some of the material was light and feather like, approximately half of a centimeter in length or less, whereas the other material was very fine and granular. Devereaux is located in a remote area and I did not observe neighboring facilities that would likely generate a similar fallout by product. I met with the Kiln Manager, John Gehringer and the Maintenance Supervisor, Aric Pitchford. I presented my State of Michigan identification card, informed the facility representatives of the intent of my inspection and was permitted onto the site. Both John and Aric agreed to show me the facility and answer my questions about the facility's operations. Devereaux is a sawmill with kiln drying capabilities. Devereaux operated one shift, Monday through Friday from 6:00 am until 3:45 pm. The facility employs approximately 50 people.

The general operation of the facility involves taking green hard wood logs, cutting them, drying the boards, blade finishing the lumber and then storing the finished lumber. The majority of the facility's footprint is used for log handling, air drying lumber and lumber storage. John and Aric showed me the facility's operations starting at when the logs are unloaded, through to where the finished product is stored. Devereaux's primary control of particulate matter includes two centrally

located cyclones, one dry cyclone and one wet. The dry cyclone is used to control dust from cutting the dried lumber, and the wet cyclone controls dust from the green (undried) wood. Devereaux uses a series of pipes and blowers to draw dust from each cutting station to the centrally located cyclones and silos.

Process

Log handling

When the logs are first unloaded they are set out in the yard. The yard is a paved lot, approximately 400 by 500 feet in size. Workers separate the wood based on species. Once organized, the logs are cut with chainsaws to length. These logs are cut into 16ft-6ft lengths depending on what length board the facility plans on making. After being cut to size, the logs are debarked in one of two debarking machines. This machine strips the bark off of the green logs and is not ventilated to the outside air. The green logs retain a fair amount of moisture and the debarking process did not appear to generate a significant amount of dust.

Head Saw

Once debarked, the conveyor system feeds the logs to the head saw. The head saw uses a series of guides, measuring devices and a large bandsaw to square the log. A board is cut off of the log and the remaining wood is cycled through again. The process is repeated until the log is completely divided into boards. The band saw portion of the blade is controlled by the wet silo cyclone. The particulate is drawn away from the blade through a ventilation system. I did not observe dust at the blade and I did not observe any escaping the ventilation system. This is relevant due to the fact that the facility has bay doors that are kept open during operations. Even with the doors open, I did not observe fugitive dust leaving the area.

Linebar

After the head saw the lumber is conveyed to the linebar. This process cuts the wood into 8-inch-thick boards. The cut can vary in thickness depending on what type of board is being produced. Particulate from this blade is also controlled by a cyclone with the assistance of ventilation. Any scrap wood that is trimmed from the board in this process is sent to be chipped. Devereaux has a chipper station at one side of the room which sprays wood chips outside into a large pile. The chipper is equipped with ventilation pipes that draw off some of the finer particles as the chips exit the building. This process may generate some larger particles in addition to chips, though it was difficult to observe if the process had opacity. It was difficult to distinguish opacity because I could not delineate chips from dust as they exited the chipper.

Grader Station (2) and End Trimmer

Devereaux also has a grading station. This process involves visually inspecting the lumber as it passes by an operator. Some of the lumber may be rejected and recut if it has imperfections. The grader then selects the best cut for the lumber as it passes into the end trimmer. This process is vented to the wet silo. Just after the end trimmer, the ends of the lumber are sealed with a hot melt wax. This hot melt wax seals the end of the lumber which deters cracks during the drying process. The wax process is not covered by Devereaux's permit but appears to be permit exempt pursuant to R 336.1284(2)(a) which in part states…

(2) The requirement of R 336.1201(1) to obtain a permit to install does not apply to containers, reservoirs, or tanks used exclusively for any of the following: (a) Dipping or storage operations for

coating objects with oils, waxes, greases, or natural or synthetic resins containing no organic solvents.

Drying

Once the boards are sealed, they are stacked and allowed to air dry. The air-drying process may take several months, depending on the type of wood and board thickness. After the boards have dried they are moved to the kilns. Devereaux has 15 kilns permitted by PTI no. 1-09. The kilns were installed and replaced between the years of 1999 and 2006. The kiln drying process can take between 5 and 70 days. The length of kiln drying also depends on the wood type and board thickness. During the process, the kilns are slowly heated from 100 F to approximately 140F. The kilns have a maximum temperate of 165F. Devereaux uses a wood fire boiler and one small natural gas back up boiler to generate steam for the kilns. The small natural gas boiler appears to meet the permit exemption R 336.1282(2)(b)(i). When the wood is heated it releases both VOCs and HAPs. The facility calculates their emissions based on known emission rates for individual species of lumber. This calculation requires that Devereaux tracks their board foot production of each species of lumber.

Finishing

After the boards are dry they are cut into finished lumber. The cutting includes a planar, which planes both sides followed by an end trimmer which cuts the ends to a square. If any of the boards have an uneven edge they can also be send to a straight-line rip saw that retrims the board. The dust produced by the cutting is controlled by the dry silo cyclone. Each of the blades have a ventilation point that draws the particles away from the blade and vents them to the dry silo. The dry silo is also centrally located next to the wet silo.

Coating and storage

Prior to storing the lumber, the ends are marked and the stacks of lumber are painted with Devereaux's logo. Devereaux has one paint booth, that is not externally vented. They provided me with a SDS that indicated the coating was water based. I informed the facility that the process appears to be exempt from permitting pursuant to R 336.1287(2)(c) which in part states:

...(2) The requirement of R 336.1201(1) to obtain a permit to install does not apply to any of the following:... ...(c) A surface coating line if all of the following conditions are met: (i) The coating use rate is not more than 200 gallons, as applied, minus water, per month. (ii) Any exhaust system that serves only coating spray equipment is supplied with a dry filter control or water wash control which is installed, maintained, and operated in accordance with the manufacturer's specifications, or the owner or operator develops a plan which provides to the extent practicable for the maintenance and operation of the equipment in a manner consistent with good air pollution control practices for minimizing emissions.

Since the material is water based, it can be reasonable to assume that the actual usage (minus water) would be very minimal. Though, Devereaux will need to track their monthly usage of the coating to determine if they can meet the exemption. It should also be noted that I did not observe any solvent like odors in the coating area. If Devereaux was using any VOC based coatings it would be likely that the odors would still be present.

Permit Conditions and Regulatory Determination

PTI 1-09 -Kilns

Emission limits

PTI No 1-09 limits Devereaux's VOC emissions from EU-KILN 1 through 15 to 52.9 tons per 12 month rolling time period. Devereaux's records account for a monthly total and a yearly total, but they do not include a 12-month rolling. This record keeping deficiency will need to be corrected and it appears that Devereaux has the required information to correct the records. The total VOC emissions calculated for the year of 2015 totaled 26.43 tons of the 52.9 ton limit.

Material Limits

The emissions from Devereaux's EU-KILN 1 through 15 are limited by the facility's material usage. Devereaux is restricted to only processing hardwood in FG-KILNS. During my inspection, I was informed that the facility only process hardwood. I did not see any softwood during my inspection. PTI No1-09 also limits the facility's production rate. Devereaux is limited to 24,600 MBF per 12 month rolling time period. Devereaux's reports their board feet production per month, but does not total the board feet in a 12-month rolling time period. For the year of 2015 and 2016 the facility produced a total of 13,704.7 MBF and 14,129 MBF respectively, of the permitted 24,600 MBF. The 2016 value was calculated by the MDEQ AQD due to errors in the provided spreadsheet. Devereaux appears to comply with the material limits, but will need to correct their record keeping.

PTI 101-05 -Sawmill cutting, collection and storage

PTI 101-05 permits EU-HeadSaw, EU-EndTrimmer, EU-WetSilo, EU-DrySilo and EU-CementSilo. These emission units are all components of the milling process. Each of the emission units have separate permit conditions, but they all share the same requirements for having a cyclone as control equipment along with a 4500 hour operational limit. The difference between the emission units are the restrictions on the emission rates. The emission limits appear to be determine based on the design of the equipment. The MDEQ is not currently requiring the facility to test the exhaust points, but does retain the ability to require testing. Based upon the permit calculation, the total emissions of Devereaux is limited 49.82 tons of particulate matter per 12 months. Devereaux's records indicate that in 2016 the facility operated 2,269 hours of the permitted 4500 hours. Devereaux is keeping track of the hours operated per month but the permit requires a 12-month rolling time period. Based on AQD calculations and the assumption that the facility emits based on a production rate and hours of operation, the sawmilling and cutting would have emitted 25.12 tons of particulate in 2016. Devereaux will need to correct their record keeping.

EU-HeadSaw

I observed the emission from EU-HeadSaw and I did not observe significant visible emissions for the exhaust stack. I did observe that the stack has a rain cap that may not meet the stack restrictions. The stack requirement states that the stack must exhaust vertically and unobstructed. The rain cap appeared to obstruct the emissions and I observed some particulate material deposition on the outside, top portion of the exhaust stack.

EU-Dry Silo

I observed the emissions from EU-DrySilo and notice some opacity from the exhaust point. I also observed that the stack is not vertically emitted as required by the permit. I was informed that Devereaux had a fire in the dry silo recently, which caused damage to the top of the silo. It did not appear that this damaged the cyclone, but it did prevent Devereaux from storing dry sawdust directly in the silo. Instead of storing the sawdust, Devereaux was allowing the material to fall through the silo and load into a truck at the base of the structure. Though this handling of the saw dust may have been a response to equipment malfunction, it may be causing particulate issues and should not be a long-term solution. I spoke with John and asked him to provide updates on when the silo would be replaced or repaired. I may need to conduct a follow up inspection, once the project is complete. This inspection

would be useful in assessing if the observed fallout is due to the silo. If the silo is not the source of the fallout Devereaux will need to determine if the cyclones are designed to properly handle the current production rate.

PTI 81-02 -Wood fired boiler

Devereaux's PTI 81-02 covers the facilities 17.21 million BTU/Hour wood fired boiler. The permit limits the boiler to 6.02 pph of particulate matter. The permit does not have an hour of operation limit or a ton per year limit. Based on the hourly rate the permit would limit the emissions from EU-Boiler1 to 26.4 tons of PM per year. John informed me that they operate the boiler nearly 24 hours a day 365 days a year.

Devereaux is required to perform quarterly visible emissions readings for opacity from the EU-BOILER1 stack. The boiler is limited to a maximum of 10% opacity during a 6 minute average. Devereaux provided copies of VE readings performed by David Shepard. David takes the readings more frequently than required by the permit. The readings did not exceed the permit limits established by the permit. The records indicate that Devereaux is complying with this condition of PTI 81-02.

EU-BOILER1 is only permitted to burn green hardwood. The facility only uses green hardwood to fuel the boiler. Staff indicated that the boiler has the ability to burn dry sawdust from the dry silo, but they do not use it. They explained that if they were to try to use the dry sawdust it could damage, or dirty the boiler. It appears that Devereaux is complying with this condition of the permit.

EU-BOILER1 is subject to 40 CFR Part 60 Standards of Performance for New Sources NSPS Subpart Dc Standards of Performance for Small Industrial-Commercial-Institutional Steam Generating Units. Subpart Dc covers boilers with a British thermal units (Btu) range between 10 MMBtu/h and 100 MMBtu/h. The NSPS requires that Devereaux maintains records of the amount of each fuel burned per calendar month. Devereaux is currently maintaining records of material used as required by the NSPS. Devereaux meets the sulfur emission condition of the NSPS by only burning wood in the boiler. The boiler is also subject the Area Source NESHAP Subpart JJJJJJ. The MDEQ does not have delegated authority for 6(J) and the requirements of the NESHAP were not assessed during the inspection.

Devereaux is required by PTI 81-02 to maintain records of hourly PM emission from EU-BOILER1. The facility's records appear to indicate that the facility has variable lbs per hour around 1400 lb/hr. This value greatly exceeds the 6.02 lb PM emission per hour as limited by the permit. The records do not clearly identify if the value is an emission rate, or a material usage rate. In addition, some of the rates are negative values. This does not appear to be a correct calculation for either material used per hour or emitted per hour. Devereaux will need to correct the emission data in order to comply with the permit. MDEQ AQD inspector Eric Grinstern cited the facility with a violation for the same record keeping deficiency in 2008. Devereaux will need to submit the corrected records and AQD staff will assess compliance with this condition during a follow up inspection.

Conclusion

Devereaux needs to correct multiple records required by PTI 81-02, PTI 101-05 and PTI 1-09 in order to demonstrate compliance with the Federal Clean Air Act Part 55, Air Pollution Control, of the Natural Resources and Environmental Protection Act of 1994, PA 451, as amended, Michigan's Air Pollution Control Rules. AQD staff may conduct a follow up inspection once Devereaux has replaced

the dry silo. This follow up inspection would include assessing potential fallout from the facility's storage as well as the cutting processes.

NAME _____ DATE 9/14/17 SUPERVISOR _____