

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

B250759695

FACILITY: DT Fowler Manufacturing Inc.		SRN / ID: B2507
LOCATION: 930 S SAGINAW ST, LAPEER		DISTRICT: Lansing
CITY: LAPEER		COUNTY: LAPEER
CONTACT: Brett Fowler , Owner		ACTIVITY DATE: 09/03/2021
STAFF: Daniel McGeen	COMPLIANCE STATUS: Non Compliance	SOURCE CLASS: MINOR
SUBJECT: Unannounced inspection of wood grinder at pallet rebuilding facility, in response to recent complaints.		
RESOLVED COMPLAINTS:		

On 9/3/2021, the Michigan Department of Environment, Great Lakes, and Energy (EGLE), Air Quality Division (AQD), conducted an inspection of DT Fowler Manufacturing, Inc., where a portable wood grinding process intermittently visits the site, to grind up wood residue from repairing damaged pallets. This was in response to two additional complaints received by AQD, since an 8/30/2021 complaint investigation.

Environmental contact:

Brett Fowler, Owner; 810-245-9336; brettf@dtfowler.com

Emission units:

- Portable wood grinding process; Michigan Air Pollution Control (MAPC) Rule 285(2)(gg)
- Wood working processes exhausting to the indoors plant environment; MAPC Rule 285(2)(l)(vi)(B)

Regulatory overview:

This facility is classified as a *true minor source for criteria pollutants*, that is, those pollutants for which a National Ambient Air Quality Standard exists. These include carbon monoxide, nitrogen oxides, sulfur dioxide, volatile organic compounds, lead, particulate matter smaller than 10 microns (PM-10), and particulate matter smaller than 2.5 microns (PM2.5). A *major source* has the potential to emit 100 tons per year (TPY) or more of at least one of the criteria pollutants.

The facility is not known to be a source of hazardous air pollutants (HAPs), so it is considered an *area source*, i.e. a minor source, for HAPs. A facility would be considered a *major source for HAPs* if it had either PTE of 10 TPY of a single HAP, or 25 TPY of all HAPs combined.

MAPC Rule 285(2)(gg) exempts the following from needing a permit to install (PTI):

Equipment used for chipping, flaking, or hogging wood or wood residues that are not demolition waste materials.

MAPC Rule 285(2)(l)(vi)(B) exempts the following from needing a PTI:

(l) The following equipment and any exhaust system or collector exclusively serving the equipment:

(vi) Equipment for carving, cutting, routing, turning, drilling, machining, sawing, surface grinding, sanding, planing, buffing, sand blast cleaning, shot blasting, shot peening, or polishing ceramic artwork, leather, metals, graphite, plastics, concrete, rubber, paper board, wood, wood products, stone, glass, fiberglass, or fabric which meets any of the following:

(A) Equipment used on a nonproduction basis.

(B) Equipment that has emissions that are released only into the general in-plant environment

MAPC Rule 301 limits visible emissions, or opacity, to a 6-minute average of 20%, with one 6-minute average per hour not to exceed 27% opacity.

MAPC Rule 901, sometimes referred to as AQD's "nuisance rule," states the following:

Notwithstanding the provisions of any other rule, a person shall not cause or permit the emission of an air contaminant or water vapor in quantities that cause, alone or in reaction with other air contaminants, either of the following:

(a) Injurious effects to human health or safety, animal life, plant life of significant economic value, or property.

(b) Unreasonable interference with the comfortable enjoyment of life and property.

If fallout of particulate matter from an industry is verified offsite, it is AQD's usual procedure to cite a violation of Rule 901(b) for causing unreasonable interference with the comfortable enjoyment of life and property, and to require a corrective action plan.

Location:

This facility is located at the intersection of S. Saginaw Street and DeMille Road, in the southeast corner of an industrial park. There are businesses and a house directly across the street to the south, and a community recreation center to the north.

Fee status:

This facility is not considered fee-subject, because it is not a major source of either criteria or hazardous air pollutants, and it is not subject to a federal New Source Performance Standard or a federal Maximum Achievable Control Technology Standard.

This facility is not required to report emissions annually via the Michigan Air Emissions Reporting System.

History:

This industrial building was once the Lapeer Metal Stamping facility. It is my understanding that it closed in 2008, and was rebuilding used wood pallets by DT Fowler Manufacturing Inc. in 2012. Since then, they have used it for rebuilding of used wood pallets. This generates wood waste, which is piled in the parking lot on the west side of the facility, near a public sidewalk and road.

On 8/30/2021, AQD had investigated an earlier complaint of fallout from the wood grinding which had taken place earlier this year. However, I could not find any wood fibers to collect on the complainant's property. They offered to use a man-lift to raise me up to the level of their eavestroughs, where their Smartphone photos showed a large amount of wood fibers. However, I had to decline, because I accurately suspected that AQD management would have safety concerns about my lack of training to work around such equipment.

Complaints received:

1. Complaint C-21-00954; received on 9/1/2021; a voice mail of fallout of wood fibers or sawdust-like material, said to be ongoing at the time.
2. Complaint C-21-00956; an email received enroute to the site today, with 4 photos attached showing daytime and nighttime grinding operations with opacity, and resulting fallout.

Safety apparel:

I wore a hard hat, safety glasses, steel-toed boots, high visibility safety vest, and, per EGLE guidance to field staff during the COVID pandemic, a disposable paper mask.

Arrival:

I arrived at the complainant's property at 12:55 PM. Weather conditions were mostly sunny and 72 degrees F, with winds out of the southeast at 0-5 miles per hour (mph), then 10-15 mph.

I met a member of the complainant's family, who showed me a freshly washed vehicle parked on their property. They explained that the complainant had washed it the day before, and it was clean, which

they documented with a photograph, as a "before" photo. I could see what appeared to be fine wood fibers on the front hood and windshield, but especially heavy concentrations on the back of the vehicle.

I collected a sample of what appeared to numerous finely ground wood fibers, along with bits of rusting metal from the vehicle itself. These were collected with a brush and a piece of paper, which I used as a funnel, to pour the particulate into a resealable plastic bag.

After the sample collection, I left the property at 1:33 PM, and drove around the vicinity of DT Fowler Manufacturing Inc. I did not see an entrance, and parked by the SW corner of the building. I could see the tub grinder running, in the lot west of the building, but did not walk directly to the grinding operation. I entered the plant to look for a manager.

I soon met Mr. Dennis Birmingham, Floor Supervisor. I explained the reason for my visit. He accompanied me on the inspection..

Inspection:

As we walked through the plant, I saw many used wood pallets being refurbished. They do not make new wood pallets, I was told, although they did have some they received which they planned to ship out, I was told.

Wood working processes; MAPC Rule 285(2)(l)(vi)(B):

The wood working processes which were used to rebuild the pallets all appeared to exhaust into the general, in-plant environment, rather than directly to the outdoor air. This appeared as if it would meet the MAPC Rule 285(2)(l)(vi)(B) exemption from needing a permit to instal, aka an air use permit.

Tub grinder; MAPC Rule 285(2)(gg) and MAPC Rule 301.

The visiting wood grinder was a Morbark wood shredder, owned by the Bedrock company. The operator was named Rick. I was shown that were using a 1 inch or 3/4 inch water hose to apply water to the raw material, broken pallets or wood scraps, prior to grinding them. A Truck was supplying water to the hose for the raw material pile, as I understand it. A water line from the plant was supplying water to 4 injectors, or spray nozzles, in the hammermill box of the wood shredder, I was shown.

It is my understanding that they were not using water yesterday. However, the use of water day appeared effective at preventing fugitive dust from the wood shredder. The only particulate I saw initially was large splinters or fragments of wood being ejected from the shredder. There did not appear to be fine fugitive dust from the shredder.

At one point, I briefly saw opacity of about 5%, as wood particles dropped to the ground from the east side of the shredder, but they did not get entrained upwards. The underside of the conveyor belt leading from the shredder to the finished product storage pile had some large pieces of wood fall from it. I did not see any fine dust until a gust of wind caused fugitive dust of about 5% to blow off of the conveyer belt.

South of the shredder, a front end loader was taking shredded wood, and adding it to the top of a storage pile of finished material. Because of the storage pile's proximity to the public sidewalk and public road, it appeared to have the potential to be a dust source. I mentioned this to Mr. Birmingham, who said the finished product would not be left on the ground too long.

I gave Mr. Birmingham my contact information, and was given the phone number for Mr. Fowler. I explained to Mr. Birmingham that I had collected a fallout sample offsite for microscopic analysis, and fallout confirmed offsite is typically cited as a nuisance, for causing unreasonable interference with the comfortable enjoyment of life and property. However, I felt the use of water for the shredder and the raw material storage pile was a very positive step.

Post-inspection follow up:

On a subsequent date, at my remote work station, I later transferred the material from the plastic bag to a small plastic Petri-dish like container which had been provided to AQD by Merit Labs, for fallout collection.

The fallout sample was prepared for mailing on 9/8/2021, by myself, in Constitution Hall. The sample form scanned by AQD LDO Secretary Kelly DeWitt, and mailed on 9/9/2021.

Fallout sample results:

The sample results, received on 9/23/2021 by AQD from Merit Labs stated the following:

Conclusion

Stereomicroscopy and Polarized Light Microscopy (PLM) showed that this sample contains ragged fiber clusters that match sawdust and have the optical characteristics of soft wood. The sample also contained black, opaque particles, many of which respond to a magnet. Microchemical analysis on the yellow, fibrous clusters was positive for lignan, a significant component of wood. Microchemical analysis of the black magnetic particles was positive for iron. The yellow clusters are likely due to grinding wood into sawdust. The black particles could be from the grinding apparatus or another source.

Discussion

The wood particles are clusters of fibers which match the optical properties of mechanically ground wood, likely soft wood, since rows of "bordered pits" and "Maltese crosses" were observed. The particles turned ruby, red with phloroglucinol followed by concentrated HCl. This is a positive test for lignin, a significant component of wood. The black particles are opaque. Many respond to a magnet. Some can be broken into smaller particles with a stainless-steel probe. Many have sharp-edged, irregular shapes. Some larger ones have rounded, bulbous protrusions. These particles at least partially dissolve in 3 M HCl with a few gas bubbles being generated (likely Hydrogen), suggesting that some metallic iron is present. The dissolved portion of these black particles turned deep red with the addition of KSCN. This is a positive test for iron.

The above results indicate what appears to be noncompliance, as wood fibers were clearly identified. However, because the fallout sample was collected from a parked vehicle, AQD's policy on chain of custody is that such results cannot be verified as legitimate. This is because a vehicle could potentially travel to other locations, and be exposed to air contaminants elsewhere. The sample results, though, can be shared with the complainant and the company, and demonstrate a definite likelihood that they resulted from pallet grinding operations at DT Fowler Manufacturing Inc.

Future fallout results could potentially be used to cite a Rule 901(b) violation, as long as a sample was collected from a stationary object, like a window sill or a sidewalk, parking lot, etc.

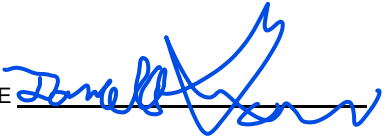
The owner, Mr. Brett Fowler, called me the next work day, 9/7/2021. He appeared to also be willing to consider having the grinding operation moved further northward on their property, away from the public road and sidewalk. He indicated it would likely be 2 months before the tub grinder returns to the site. He added that over they ground material over the Labor Day weekend, when they suspected neighbors would be out of town, rather than do it on a work day when they might feel more impacted. I also recommended moving the finished product storage pile further from the street and sidewalk, at least after the current finished product pile is depleted. Distance may help reduce fallout offsite, in addition to the water sprays.

Conclusion:

Although fallout results indicated that the particles I collected on the complainant's previously clean vehicle included wood fibers, the fact that I collected the sample from a vehicle did not meet AQD's chain of custody requirements. This is because a vehicle can travel to different locations, and I could not verify its whereabouts at all times, even with the owner said to have a "before" photograph of the vehicle after it was washed, the day before. Therefore, a Violation Notice for causing a nuisance

cannot be sent. However, the sample results can still be used to illustrate the impacts offsite are likely due to wood grinding operations.

The company was using water sprays on the shredder, and applying water to the raw material on 9/3/2021. This, and the owner's stated intent to move the visiting wood shredder further north on the site in the future may reduce the chances of fugitive dust and fallout. If there are future instances of fallout, AQD can collect particulate matter from non-mobile objects, such as a window sill or sidewalk.

NAME  DATE 9/30/2021 SUPERVISOR B.M.