



# Air Program Fact Sheet

## Grain Handling Facility Regulations and Permits

October 2017

Grain handling facilities are required to comply with several environmental requirements, which include a range of air pollution regulations. Dust and other particulate matter (PM) emissions generated by grain handling activities are regulated as air pollution. Dust and “bees wings” from grain handling and drying operations and dust from trucks on unpaved roads are common sources of air pollution.

### What rules might apply?

Certain grain elevators may be regulated by the U.S. Environmental Protection Agency (EPA) under a New Source Performance Standard (NSPS) in 40 CFR Part 60, subpart DD. Prepared feeds manufacturing facilities may be regulated by a National Emission Standard for Hazardous Air Pollutants (NESHAP) in 40 CFR Part 63, subpart DDDDDDD. Any grain handling activity will create fugitive dust, which must be controlled per state regulations in chapter NR 415, Wisconsin Administrative Code. Grain facilities may have air pollution emissions above thresholds that trigger air pollution permits as well as annual reporting requirements. These requirements are summarized below.

### Which facilities are affected?

Each regulation has different thresholds to indicate which facilities are regulated. See below for threshold information.

#### State Rules

The Wisconsin Department of Natural Resources (DNR) regulates sources of PM emissions under ch. NR 415, Wis. Adm. Code. Businesses that release PM emissions must meet applicable emission limitations. Emissions generally released from outside storage or vehicle traffic are called “fugitive emissions.” Fugitive emissions must be controlled to keep PM emissions from escaping the business property boundaries. Certain equipment may have individual emission limits in NR 415, Wis. Adm. Code. All sources of PM must also meet visible emissions (or opacity) limitations in NR 431, Wis. Adm. Code.

These state requirements do not have a threshold below which a business can be exempt; therefore, every source of PM must comply with one or more of these rules. The state requirements are described further in the “What requirements apply?” section below.

#### EPA Rules – NSPS and NESHAP

The NSPS in 40 CFR Part 60 subpart DD and NR 440.47, Wis. Adm. Code applies to grain terminal elevators or grain storage elevators constructed, modified or reconstructed after August 3, 1978. The limits in the rule apply to the following equipment at those facilities:

- truck unloading station
- truck loading station
- barge and ship unloading station
- barge and ship loading station
- railcar unloading station
- railcar loading station
- grain dryer
- all grain handling operations

If a facility does not meet the rule’s strict definitions of grain terminal or grain storage elevator, the facility is not affected by the rule. Those definitions are as follows:

- **Grain terminal elevator** means any grain elevator which has a permanent storage capacity of more than 88,100 m<sup>3</sup> (2.5 million U.S. bushels), except those located at animal food manufacturers, pet food manufacturers, cereal manufacturers, breweries, and livestock feedlots.
- **Grain storage elevator** means any grain elevator located at any wheat flour mill, wet corn mill, dry corn mill (human consumption), rice mill, or soybean oil extraction plant which has a permanent grain storage capacity of 35,200 m<sup>3</sup> (1 million bushels).

The NESHAP for prepared feeds under 40 CFR Part 63, subpart DDDDDDD (7D) applies only to businesses that are minor sources for hazardous air pollutants (HAPs), and only those that add chromium (Cr) or manganese (Mn) compounds to their product where at least 50 percent of their annual production is animal feed. The processes regulated include: mixing, storage of the meal or mash, steam conditioning, pelleting and pellet cooling, crumbling and screening.

A minor or “area” source of HAPs has potential emissions of less than 10 tons per year (TPY) of any one federal HAP and less than 25 TPY of all federal HAPs combined. The list of federal HAPs can be found on EPA’s website at <https://www3.epa.gov/ttn/atw/orig189.html>.

## What requirements apply?

### Process specific requirements

Ch. NR 415, Wis. Adm. Code cites the specific limit for grain processing or handling of 0.40 pounds of particulate matter per 1,000 pounds of gas for equipment installed on or before April 1, 1972. The “pounds of gas” is calculated based on the exhaust gas stream from each piece of grain processing or handling equipment, multiplying the volume of gas over time by the density of the gas stream. For processes installed after April 1, 1972, one of the following limits will apply:

- $E = 3.59 P^{0.62}$ , for process weight rates up to 60,000 pounds per hour
- $E = 17.31 P^{0.16}$ , for process weight rates of 60,000 pounds per hour or more

In these equations, E is the allowable emissions in pounds per hour and P is the process weight rate in tons per hour. These limits will be spelled out in site specific air pollution permits as appropriate.

In the NSPS, each loading and unloading station must meet the limit of 0.01 grain per dry standard cubic foot. Dryers have an opacity limit. For the emission limits, the measure of grain per dry standard cubic foot may be needed. A grain is measured as 7,000 grains equals 1 pound. A dry standard cubic foot is calculated as the normal volume in cubic feet at standard conditions, which DNR defines as 20°C/68°F and 1 atmosphere or 29.92 inches mercury.

### Visible emissions requirements

Visible emissions are limited based on the opacity of the plume. Opacity means the degree to which emissions reduce the transmission of light and obscure the view of an object in the background.

In ch. NR 431, Wis. Adm. Code, the following limits are set for direct sources of visible emissions:

- no more than 40 percent opacity for a source constructed or modified on or before April 1, 1972, or
- no more than 20 percent opacity for a source constructed or modified after April 1, 1972

In the NSPS, the processes or fugitive sources must meet the following opacity limits:

Affected Operation	Emission Limit
Column dryer with column plate perforation exceeding 2.4 mm diameter	not greater than 0% opacity
Rack dryer in which exhaust gases pass through a screen filter coarser than 50 mesh	not greater than 0% opacity

Affected Operation	Fugitive Emissions	Process Emissions
Truck unloading station	not greater than 5% opacity	not greater than 0% opacity
Truck loading station	not greater than 10% opacity	not greater than 0% opacity
Railcar unloading station	not greater than 5% opacity	not greater than 0% opacity
Railcar loading station	not greater than 5% opacity	not greater than 0% opacity
Barge or ship loading station	not greater than 20% opacity	not greater than 0% opacity
Grain handling operation	not greater than 0% opacity	not greater than 0% opacity

### Fugitive emissions requirements

Emission requirements for fugitive emission sources are based on good housekeeping and best management practices. Refer to a separate fact sheet (AM-556) on Fugitive Dust Emissions Management for details.

### Does a grain facility need to apply for permits?

Yes, if the facility is above the exemption thresholds. While the specific rules always apply, a grain facility may be exempt from permitting if it meets one of the following thresholds:

- maximum theoretical emissions
  - less than 5.7 pounds of PM emitted per hour, under the general exemption
  - less than 100 TPY of PM<sub>10</sub> emitted, under the natural minor exemption (construction permits may still be needed)
- grain storage facilities with an average of less than 5500 tons grain received per month, or grain processing facilities with an average of less than 4500 tons per month, under the specific exemption
- facilities not subject to the NSPS that emit less than 10 TPY of actual emissions of PM<sub>10</sub> from the whole facility, under the actual emissions operation permit exemption

For more details on the exemptions, review the Exemption webpage:

<http://dnr.wi.gov/topic/SmallBusiness/Exemptions.html>

There are multiple air permit options available for grain facilities that are not exempt from permitting. One option for smaller emitting facilities is a Registration Operation Permit or ROP. There are two sizes of ROP available to grain facilities:

- ROP Type A = less than 25 TPY of PM<sub>10</sub>
- ROP Type B = less than 50 TPY of PM<sub>10</sub>

While some NSPS and NESHAP can exclude companies from using the ROP, facilities affected by the NSPS for grain elevators or the NESHAP for prepared feeds manufacturing are eligible. If a facility is not eligible for a ROP for another reason, such as actual emissions above the thresholds, then a site-specific permit may be required. More information on the permit options is available here:

<http://dnr.wi.gov/topic/AirPermits/Options.html>.

Only PM<sub>10</sub> emissions are mentioned here as the primary pollutant expected from grain handling facilities. A facility may be required to meet other criteria pollutant thresholds, such as if the facility has fuel burning equipment like grain dryers, boilers, or generator engines for heating or running equipment. Contact the Small Business Environmental Assistance Program at [DNRsmallbusiness@wisconsin.gov](mailto:DNRsmallbusiness@wisconsin.gov) or 1-855-889-3021 for information on requirements for other operations.

### What are the next steps?

To determine whether a facility needs to apply for a permit or is eligible for an exemption, first calculate the actual emissions and maximum theoretical emissions of PM. Spreadsheets are available on the Exemptions webpage previously linked that can help with both types of emissions calculations. Review the emissions calculated for the whole facility and decide if a permit or exemption applies. Use the appropriate forms on DNR's Air permit and compliance forms webpage to apply for a permit or exemption:

<http://dnr.wi.gov/topic/AirPermits/Forms.html>. Some permit applications can be completed online.

Using the actual emissions calculation, determine whether the facility is required to report the total annual emissions for DNR's Annual Emissions Inventory. Information is available on reporting thresholds and how to report emissions if required on the Air emissions inventory and reporting webpage: <http://dnr.wi.gov/topic/AirEmissions/>.

## For more information

- <https://dnr.wi.gov/topic/smallbusiness/resources/grainhandling.html>
- Contact the Small Business Environmental Assistance Program at 855-889-3021 or [DNRsmallbusiness@wisconsin.gov](mailto:DNRsmallbusiness@wisconsin.gov).
- Contact the Registration Permit Coordinator at [DNRAMROPSAIRPERMIT@wisconsin.gov](mailto:DNRAMROPSAIRPERMIT@wisconsin.gov).

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Wisconsin Department of Natural Resources  
Bureau of Air Management  
Box 7921- AM/7  
Madison, WI 53707  
PHONE 608-266-7718 • FAX 608-267-0560  
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