

Grain Handling Operations and Dust Control Information



Overview

Dust, or fugitive particulate matter (PM) emissions, is regulated by the Illinois Environmental Protection Agency (Illinois EPA). Owners and operators of grain handling operations are required by state rules to control the emissions of fugitive particulate matter from operations and equipment. **Owners and Operators are prohibited from allowing fugitive dust to leave the property.**

Dust can cause problems for a facility and its neighbors. For example, excessive dust can cause damage to plant vegetation and reduce crop and livestock yields through contamination due to its chemical composition. It can lead to adverse effects on property and land values. It can adversely impact human health.

Some Methods to Control Fugitive Dust

- Operate and maintain dust control equipment in a manner consistent with good practice for minimizing emissions
- Apply mineral oil or other suppressants to grain piles
- Use windbreaks and barriers
- Frequently apply water or other surfactant to roadways and yard
- Pave driveways and yard
- Post and enforce speed limits
- Control vehicle access
- Keep the yard and surrounding open area, including ditches and curbs, clean to prevent the accumulation of rotting grain or windblown grain dust and chaff
- Wash equipment at the end of the day or prior to site removal
- Wet sweep public and private thoroughfares
- Cover open trucks

Dust and “bees wings” from grain handling and drying operations and dust from trucks on unpaved roads are common sources of air pollution complaints. Particular care should be taken to minimize dust emissions from these sources.

Grain Unloading and Loading

- One of the main ways dust is generated is when a falling stream of grain hits the receiving pit. Allow the grain to form a cone around the receiving grate (known as “choke unloading”) to decrease the distance the grain falls.

Grain Unloading and Loading continued:

- Enclose the receiving area as much as possible. Aim for a receiving shed with closed doors at both ends. A receiving shed with no doors (or doors always open) may create a “wind tunnel” effect that is worse than no shed at all. Alternately, consider curtains or a shroud around the receiving pit.

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- Prevent grain from falling as much as possible at loadout. Use dead boxes, socks, or drop-down spouts or sleeves that extend at least six inches below the sides of the receiving container to minimize grain free-fall distance.
- Restrict the flow of the grain when the receiving container is empty or only partly full.
- Consider wind speed and direction. Limit grain handling when the wind will cause neighbors to receive excessive amounts of dust or chaff. Winds are stronger and windy days are more common in the spring and fall – the same time of year more grain is handled.
- Conduct grain oiling at the dump pit before transferring to bin storage. Check that the oil is dispersed well. As little as ½ gallon of oil per thousand bushels of grain can reduce dust by up to 80%.
- If storing grain in outdoor piles, store for the shortest amount of time possible and keep piles tarped.

Develop a Housekeeping Check List

- Identify all potential fugitive dust emission sources.
- Develop a facility site-plan map and record all paved and unpaved haul roads, stockpiles, material transfer points, parking lots, staging areas and any other areas subject to wind erosion. Study daily traffic volumes and determine whether roads and open areas are used frequently or occasionally.
- Check air pollution control devices daily and clean as necessary to insure proper operation.
- Record all dust control activities on a checklist, along with the daily weather information, such as wind speed and direction and temperature and rainfall.
- Monitor dust control efforts on a regular basis to ensure that the measures taken are adequately controlling fugitive dust.
- Use a self-inspection checklist. Doing this will help incorporate the routine tasks of fugitive dust control into your schedule. The checklist will also serve as a daily reminder and a record of efforts to keep dust problems to a minimum.
- Enclose storage and handling areas if dusty materials are frequently loaded and unloaded.
- Prevent transport of dusty material offsite by rinsing vehicles before they leave the property and tightly covering loaded trucks.
- Water and/or sweep often enough to ensure that vehicle traffic is not picking up dust to be blown and/or carried offsite. Fewer treatments are necessary in cool, wet weather.
- Apply chemical surfactants to yard and roadways for a more permanent dust control.
- When feasible, pave driveways and yard.

Grain Handling Equipment Considerations

Equipment such as bucket elevators or legs, scale hoppers, conveyors, turn heads, scalpers, cleaners, trippers, and headhouse and other structures can also be a source of dust or particulate emissions:

- Keep grain handling equipment clean and in good condition.
- Enclose or seal grain handling equipment.
- Control the speed of grain handling equipment. Keep conveyor belts at the minimum speed necessary.

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- Use aeration fans as little as possible when loading grain into storage bins.
- Locate and configure equipment so the building helps block windblown dust.
- When you buy new cleaning and processing equipment, choose dust-tight equipment, lip-type shaft seals for bearings on conveyors and other equipment housings, and flanged inlets and outlets for spouting, transitions, and miscellaneous hoppers.

Applicable Rules for Grain Handling

All emission sources in Illinois must comply with applicable state rules and regulations. The Illinois Pollution Control Board has emission standards for sources of particulate matter from grain handling facilities. These include 35 Ill. Adm. Code 212.123, 212.301, 212.461, 212.462, and 212.463. **NOTE: Portable grain-handling equipment and one turn storage is exempt from air permit requirements (35 Ill. Adm. Code 201.146(u)).**

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The full text of these rules can be found at:

<http://www.ipcb.state.il.us/SLR/PCBandIEPAEnvironmentalRegulations-Title35.aspx>

The United States Environmental Protection Agency (USEPA) has also adopted standards for grain elevators, for which construction was commenced after August 3, 1978, called the New Source Performance Standards (NSPS), 40 CFR Part 60 Subpart DD, Standards of Performance for Grain Elevators. The Illinois EPA is administering the NSPS in Illinois on behalf of the USEPA under a delegation agreement.

The full text of the federal rules on grain elevators can be found at: <http://www.gpo.gov/fdsys/pkg/CFR-2011-title40-vol6/pdf/CFR-2011-title40-vol6-part60-subpartDD.pdf>

The Illinois Department of Agriculture also has requirements for emergency and temporary grain storage.

The full text of the requirements for these types of storage can be found at:

<http://www.ilga.gov/commission/jcar/admincode/008/00800281sections.html>

For more information you can contact the Department of Agriculture at: 217/782-2895 or go to their website at: www.agr.state.il.us

If you have additional questions about the requirements for your facility you can contact the **Illinois Small Business Environmental Assistance Program at the Department of Commerce and Economic Opportunity at 800-252-3998.**



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