

Grain Elevator Air Quality Permitting and Compliance Frequently Asked Questions (FAQ)

Date: December 23, 2020

PURPOSE

This question and answer document is in response to questions that the Iowa Department of Natural Resource (Iowa DNR) has received regarding the air regulations that apply to grain elevators, 567 Iowa Administrative Code (IAC) 22.10, "Permitting requirements for country grain elevators, country grain terminal elevators, grain terminal elevators, and feed mill equipment." This rule was adopted in January 2008. This document supersedes and replaces the document, "Grain Elevator Air Quality Permitting Frequently Asked Questions (FAQ)" dated December 11, 2007.

A. Grain Elevator Permitting – Applicability of 567 IAC 22.10

1. What type of grain handling facilities does this rule apply to?

The requirements of this rule apply only to country grain elevators, country grain terminal elevators, grain terminal elevators and feed mill equipment, as these terms are defined in 567 IAC 22.10(1) and summarized below.

A country grain elevator is an elevator that receives more than 50 percent of its grain from farmers in the immediate vicinity and is not located at any wheat flour mill, wet corn mill, dry corn mill (human consumption), rice mill, or soybean oil extraction plant.

A country grain terminal elevator is an elevator that receives 50 percent or less of its grain from farmers in the immediate vicinity; has a permanent storage capacity of less than or equal to 2.5 million U.S. bushels; and is not located at any wheat flour mill, wet corn mill, dry corn mill (human consumption), rice mill, or soybean oil extraction plant.

A grain terminal elevator is an elevator that receives 50 percent or less of its grain from farmers in the immediate vicinity; has a permanent storage capacity of more than 2.5 million U.S. bushels; and is not located at any wheat flour mill, wet corn mill, dry corn mill (human consumption), rice mill, or soybean oil extraction plant.

Feed mill equipment means grain processing equipment that is used to make animal feed including, but not limited to, grinders, crackers, hammermills, and pellet coolers.

2. When are farms considered to be in the "immediate vicinity" of a grain elevator?

A farm is considered to be in the immediate vicinity of a grain elevator when the grain elevator is close enough for the farmer to economically truck grain to that grain elevator.

3. What types of grain handling facilities are not included in this rule?

The requirements of this rule do not apply to equipment located at grain processing plants or grain storage elevators, as "grain processing" and "grain storage elevator" are defined in rule 567—20.2(455B) and summarized below.

Grain processing means the equipment, or the combination of different types of equipment, used in the processing of grain to produce a product primarily for wholesale or retail sale for human or animal consumption. Grain processing includes the processing of grain for production of biofuels, except for "feed mill equipment," as "feed mill equipment" is defined in 567 IAC 22.10(1).

A grain storage elevator means any plant or installation at which grain is unloaded, handled, cleaned, dried, stored, or loaded and that is 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 (grain storage capacity which is inside a building, bin, or silo) of more than 35,200 m³ (ca. 1 million U.S. bushels).

4. What are the permitting and other requirements for eligible grain elevators?

There are different requirements in 567 IAC 22.10 for permitting depending on the level of potential emissions from your facility. The Iowa DNR used the emissions thresholds typically used for permitting grain elevators in surrounding states and split the grain elevator source sector into four groups characterized by their Potential to Emit (PTE) for PM₁₀ (particulate matter with an aerodynamic diameter less than or equal to 10 microns). The PTE thresholds that trigger specific requirements are set at 15, 50, and 100 tons per year (tpy), as illustrated in the table below. The requirements for permitting, emissions control, emissions reporting, and record keeping increase for facilities with a greater PTE.

Grain Elevator Group	PM ₁₀ PTE (tons per year)	Permit Requirements	Best Management Practices?	Additional Controls or Requirements
Group 1	<15	Registration	Yes	None
Group 2	≥15 and ≤50	Group 2 Permit	Yes, as specified in permit	Oiling or equivalent
Group 3	>50 and <100	Standard Construction Permits	Yes, as specified in permits	As specified in permits
Group 4	≥100	Standard Construction Permits; Title V Operating Permit	Yes, as specified in permits	As specified in permits

5. How does an owner or operator of a grain elevator determine which permitting group is applicable?

The facility's PM₁₀ PTE must be calculated to determine the permitting group. The method for calculating the PTE is based on the facility type. The PTE calculation tool developed by the Iowa Waste Reduction Center and Iowa DNR must be used to determine the facility's PTE. The free calculation tool is available at: [GrainPTE online calculation](#). (Scroll down to Grain Facilities link.)

6. What are the permitting requirements for feed mills?

The owner or operator of feed mill equipment shall obtain an air construction permit as specified under 567 IAC 22.1(1) for each piece of feed mill equipment that emits a regulated air pollutant unless the equipment meets a construction permit exemption. The equipment at a feed mill co-located at a grain elevator is not covered by the Group 1 Grain Elevator registration or a Group 2 Grain Elevator permit. For information on permitting feed mills, go to the [Prepared Feeds section](#) of Iowa DNR's website. (Scroll down to the Prepared Feeds section).

7. If I have more than one facility in the same town, should the facilities be considered one facility for purposes of calculating PTE with the PTE calculation tool?

Multiple grain elevators located in the same town or close proximity to each other may be considered as one facility if they are under common ownership or control. If in doubt about whether to treat multiple facilities as one facility for PTE calculation purposes, please contact the Iowa DNR, Air Quality Bureau's Construction Permit Helpline at 1-877-AIR-IOWA for assistance in making this determination.

8. For facilities that identify as having both a grain elevator and feed mill at the same location, is there an easy way to identify which equipment would be covered under the grain elevator and which would be covered under the feed mill?

Grain elevators by definition handle whole grain. The equipment used to unload, handle, clean, dry, store or load out whole grain at a facility should be classified and permitted or registered as a "grain elevator." The equipment used to process whole grain into animal feed (e.g. hammermills, mixers, and pellet coolers) and the equipment used to handle or store animal feed or other feed ingredients should be permitted as part of the feed mill.

For many co-located grain elevators and feed mills, there should be a clear separation of equipment. However, if a common receiving area is used for both whole grain and other bulk feed ingredients, the facility should include the amount of feed ingredients received in the GrainPTE program as part of its annual throughput for calculating the grain elevator's potential to emit. If this is done, the facility's receiving pits and loadouts, whether for whole grain or feed, will be permitted or registered only as part of the grain elevator. Other equipment at the feed mill that is

not included in the GrainPTE program will need to be evaluated separately to determine applicable permitting requirements (See FAQ #6).

Finally, a facility with a common receiving area for whole grain and feed ingredients and that has a feed mill that is subject to 40 CFR Part 63, Subpart DDDDDDD, *National Emission Standards for Hazardous Air Pollutants: Area Source Standards for Prepared Feeds Manufacturing* may be required to also have a separate permit for the bulk loadout of feed products due to the additional requirements in that standard. Contact the Construction Permit Helpline at 1-877-AIR-IOWA for additional guidance.

9. When calculating the PTE for the facility, do I have to oil 100 percent of my grain to take credit in the PTE calculation tool for grain oiling?

Owners and operators may take credit for oiling in the PTE calculation tool if at least eighty percent (80%) of the grain handled annually at the facility is oiled at receiving or loadout.

10. How are emissions from grain drying calculated in the PTE calculation tool (i.e. GrainPTE)?

The calculation of the potential to emit for different categories of grain elevators is outlined in 567 IAC 22.10(2). The potential to emit is based on the maximum throughput capacity of the elevator as defined in the subrule. Because of this, grain elevators cannot use the actual amount of grain dried for determining their status (e.g. Group 1 or Group 2). They must use the results of the GrainPTE program.

For a country grain elevator, the GrainPTE program assumes that all corn received is dried and that soybeans are not dried. This accounts for the variability in throughput in different years. In accordance with 567 IAC 20.10(2), the PTE is based on the highest grain throughput in the last 5 years multiplied by a factor of 1.2.

For a country grain terminal elevator or a grain terminal elevator, the GrainPTE program determines PTE from a dryer based on the maximum hourly capacity of the dryer and continuous operation of the dryer (i.e. 8760 hours per year). However, the terminal elevator has the option of requesting a limit on the maximum amount of corn that would be dried in a year in order to reduce its potential to emit. Using this option would require annual records be kept on the amount of corn dried each year.

11. We have two truck loadout spouts. One of the loadouts is controlled by a baghouse; the other loadout is not controlled. Can we take credit for controls in the PTE calculation tool?

That depends on how your grain elevator is classified. For a country grain elevator, in order to take credit for controls, it must be present on each process. If there are two truck loadouts and only one is controlled by a baghouse, credit cannot be taken for that control in the GrainPTE program. However, if the grain elevator is a country grain terminal elevator or a grain terminal elevator, control credit can be applied for the specific controlled loadout when the calculations are done in the GrainPTE program.

12. What conversion factors are used to convert bushels to tons?

Based on accepted industry values, corn is 56 lbs/bushel and soybeans are 60 lbs/bushel.

13. What grain cleaning equipment should be included in the PTE calculations?

Only grain cleaners with mechanical or pneumatic input must be included in the PTE calculations. Passive systems such as stationary screens or grates are not included.

14. Do emission from outside temporary grain storage piles count toward the annual PTE?

Emissions from outside grain storage piles do not need to be estimated in the GrainPTE program. However, if that grain is handled by the grain elevator itself, it would be included in the annual grain throughput for the elevator.

15. What types of storage capacity are considered to be “permanent storage capacity?”

Permanent storage capacity is capacity that is inside of a building, bin or silo. This is based on the definition in the federal New Source Performance Standard (NSPS) for grain elevators – Subpart DD. These structures must also have a roof. Ground piles of grain, either with or without a perimeter wall do not meet the definition of a “building,

bin, or silo.” It is important to know the permanent storage capacity of the grain elevator because a grain elevator with the capacity of more than 2.5 million bushels is subject to Subpart DD and may have additional requirements.

16. I have completed the PTE calculations. How do I apply for a Group 1 registration or a Group 2 permit?

There are two ways to apply:

1. Use Iowa EASY Air, a web-based electronic application system or
2. Use paper application forms.

Both can be accessed from [Construction Permitting Materials](#) page of the Iowa DNR website.

For a Group 1 registration, in addition to a complete registration form, facilities should submit a copy of the PM₁₀ PTE calculations from the GrainPTE program. For a Group 2 permit application, in addition to a complete application form, facilities should submit a copy of the PM₁₀ PTE calculations from the GrainPTE program, a site map, and a list of all the equipment covered by the permit. The equipment list can be prepared and printed from the GrainPTE program.

17. Our grain facility recently changed ownership, what do we need to do?

Group 1 registrations and Group 2 permits should be transferred to the new owner. If you are the seller of a grain elevator, there are no requirements. However, it would be ideal to share the throughput for the last 5 years with the buyer so they can accurately calculate PTE. As a buyer of a grain elevator, contact the Construction Permit Supervisor of the Iowa DNR Air Quality Bureau to change ownership and transfer a registration or a permit. Refer to Iowa DNR’s [Change of Ownership FAQ](#) for more information.

18. Does Iowa DNR issue new registrations for facilities when they change names?

No. However, please send a letter to the Construction Permit Supervisor with the new information for the grain elevator so that our records can be updated.

19. We recently purchased a grain elevator. How do we know if it has a Group 1 registration or a permit?

A list of registered Group 1 grain elevators can be found at the Iowa DNR’s website at: [List of Group 1 Registrations](#). You should search by the facility’s address.

Contact the Air Quality Bureau’s Construction Permit Help Line at 1-877-AIR-IOWA (1-877-247-4692) for questions on a Group 2 Grain Elevator permit. You may be able to find it on Iowa DNR’s website [here](#).

20. Do we need to renew or update our Group 1 registration or Group 2 permit periodically?

Owners of Group 1 and Group 2 grain elevators are not required to renew the registration or permit. The facility is allowed to add, remove, or modify equipment at the grain elevator without submitting a new registration provided that the potential to emit is calculated using the GrainPTE program prior to the changes and the facility continues to meet all emission limits and operating limits in its Group 1 registration or Group 2 permit.

21. We plan to make changes to our Group 1 grain elevator and we believe that the potential to emit for PM₁₀ will increase. What do we need to do?

Prior to making changes to the elevator that will increase emissions, a Group 1 grain elevator is required by 567 IAC 22.10(3) to evaluate its potential to emit using the GrainPTE program. If the elevator’s potential to emit for PM₁₀ will be equal to or greater than 15 tons per year because of the changes, the facility is required by the rule to apply for a Group 2 permit and to comply with its requirements prior to making the changes. If the elevator’s PTE for PM₁₀ after the changes remains below 15 tons per year, no further action is required.

B. Grain Elevator Compliance with 567 IAC 22.10

22. What are the on-going requirements for a Group 1 Grain Elevator?

Group 1 Grain Elevators must do the following:

- 1.) Comply with all applicable Iowa Administrative Code (IAC) rules and federal air rules for grain elevators.

- 2.) Implement best management practices (BMP) for controlling air pollution at the facility and for limiting fugitive dust at the facility from crossing the property line. [Current BMP](#) are available on the Iowa DNR's website.
- 3.) Maintain records on annual grain throughput for the elevator. These records must be maintained on-site for a minimum of 5 years.
- 4.) By no later than January 31 of each year, calculate the elevator's potential to emit (PTE) for PM₁₀ using the GrainPTE program for the previous calendar year. If the elevator's PTE is equal to or greater than 15 tons per year, the facility is required to apply for a Group 2 permit.
- 5.) Maintain an up-to-date list of all equipment at the grain elevator that is covered by the Group 1 registration.

23. What are the on-going requirements for a Group 2 Grain Elevator?

Group 2 Grain Elevators must do the following:

- 1.) Comply with all applicable Iowa Administrative Code (IAC) rules and federal air rules for grain elevators.
- 2.) Follow all requirements in the issued Group 2 permit. This includes oiling the grain either at grain receiving or loadout. At least 80% of the grain must be oiled. Air pollution control equipment can be installed if it would provide equivalent control to oiling.
- 3.) Implement BMP for controlling air pollution at the facility and for limiting fugitive dust at the facility from crossing the property line. [Current BMP](#) are available on the Iowa DNR's website.
- 4.) Maintain records on annual grain throughput for the elevator. These records must be maintained on-site for a minimum of 5 years.
- 5.) By no later than January 31 of each year, calculate the elevator's potential to emit (PTE) for PM₁₀ using the GrainPTE program for the previous calendar year. If the elevator's PTE is greater than 50 tons per year, the facility is required to apply for standard air construction permits.
- 6.) Maintain an up-to-date list of all equipment at the grain elevator that is covered by the Group 2 permit.
- 7.) Submit an emissions inventory to the Iowa DNR, Air Quality Bureau on the grain elevator's actual emission once every three years.

24. What records are required to be kept by grain elevators? How long do the records need to be kept? Where should they be kept?

Group 1 grain elevators are required to retain a record of total grain throughput for the elevator for the previous five calendar years, along with the PTE calculations. These records shall be kept on site for a minimum of 5 years. Country Grain Terminal Elevators and Terminal Grain Elevators that took operating throughput limits in the GrainPTE program to limit their potential to emit must also keep records on those specific operations.

Group 2 grain elevators are required to retain a record of total grain throughput for the elevator for the previous five calendar years, along with the PTE calculations. These records shall be kept on site for a minimum of 5 years. Country Grain Terminal Elevators and Terminal Grain Elevators that took operating throughput limits in the GrainPTE program to limit their potential to emit must also keep records on those specific operations. Group 2 grain elevators are also required to keep the applicable records as indicated in the Group 2 permit itself. These can be found in Permit Condition 15 (for permits issued prior to 01/01/20) or in Permit Condition 5 (for permits issued after 01/01/20).

25. Is the Minor Source Emission Inventory the same as the annual PTE calculation?

No. The Minor Source Emission Inventory (MSEI) is only required for Group 2 grain elevators. It is a report submitted to the Iowa DNR once every three years. It can be done using paper forms (downloaded from the [Emission Inventory Forms](#) page of the DNR website), using the Iowa DNR's [Group 2 Grain Elevator Calculator](#) or electronically using [SLEIS](#) (State & Local Emissions Inventory System). Do not use the GrainPTE program for the MSEI. Check the [Minor Source Emissions Inventory](#) page for information on this required report.

All Group 1 and Group 2 grain elevators are required to calculate their PM₁₀ PTE annually by no later than January 31 for the previous calendar year. This should be done using the GrainPTE program. The results do not have to be submitted to the Iowa DNR but should be kept on-site for five years and made available to the DNR upon request.

26. Which elevators are required to follow Best Management Practices (BMP)?

Iowa Administrative Code (567 IAC 22.10(3)) requires all Group 1 and Group 2 grain elevators to follow BMP. [Current BMP](#) are available on the Iowa DNR's website. The BMP for Group 2 grain elevators are specified in the permit. Note that the BMP were last modified in 2014 to include best management practices for grain vacuuming operations.

27. We installed some additional grain bins and our facility storage capacity is now greater than 2.5 million bushels. Is the grain elevator still eligible to use a Group 1 registration or Group 2 permit?

Yes. Eligibility of Group 1 registration and Group 2 permit is based on the grain elevator's potential to emit for PM₁₀ and not its permanent storage capacity.

28. We saw mention in the GrainPTE program that our grain elevator may be subject to New Source Performance Standard (NSPS) Subpart DD. What is this standard and does it only apply to Group 2 grain elevators?

NSPS Subpart DD is a federal air regulation (40 Code of Federal Regulations (CFR) Part 60) that applies to grain storage elevators that have a permanent storage capacity of more than 2.5 million bushels. Except for grain elevators located at animal food manufacturers, the rule could apply to any Group 1 or Group 2 elevator if it has a permanent storage capacity greater than 2.5 million bushels. The regulation has emission standards and test requirements for any truck, railcar, or barge unloading station; any truck, rail, or barge loading station; grain dryers; and grain handling operations. For additional information on this standard go to [Subpart DD](#).

29. I calculated my Group 1 grain elevator's potential to emit, and due to a grain throughput increase in the last calendar year, it now has the potential to emit of more than 15 tons PM₁₀ per year. What I am required to do?

You are required to apply for a Group 2 permit by no later than 60 days after your determination that the grain elevator's potential to emit for PM₁₀ is 15 or more tons per year.

There are two ways to apply:

1. Use Iowa EASY Air, a web-based electronic application system or
2. Use paper application forms.

Both can be accessed from [Construction Permitting Materials](#) page of the Iowa DNR website.

30. My Group 2 grain elevator now has the potential to emit of less than 15 tons PM₁₀ per year. What I am required to do?

No action is required. However, Group 2 facilities that have the potential to emit of less than 15 tons PM₁₀ per year for the last 5 calendar years have the option of applying for a Group 1 Grain Elevator registration provided the emission reductions for PM₁₀ are due to physical changes and are not due to operational changes. Physical changes include replacement of equipment with new equipment with lower emissions (e.g. column dryer for a rack dryer) and the installation of air pollution control equipment (e.g. baghouses, cyclones). Operational changes would be changes in grain throughput and the use of oiling. If the application for the Group 1 registration is approved by Iowa DNR, the facility will then be directed to rescind the Group 2 permit.

31. A Group 2 elevator wants to switch from oiling to other controls. Is it allowed to do this?

By the requirements of the Group 2 permit, all Group 2 elevators are required to oil either after receipt of grain at the receiving pits or at loadout. A Group 2 elevator may install and operate other control measures instead of oiling provided that the facility-wide reductions in PM₁₀ are equivalent to what is achieved through oiling. Calculations must be done using the GrainPTE program to demonstrate the equivalent emission reductions for the proposed controls and submitted to the Iowa DNR for approval.

C. Background of 567 IAC 22.10 and Other Grain Elevator Issues

32. What is the history of grain elevator permitting in Iowa?

Owners and operators of air pollution sources, including owners and operators of grain elevators, are required to obtain permits and meet applicable air pollution standards. However, in 1978 the Sixty-Seventh Iowa General

Assembly limited the Iowa DNR's ability to regulate country grain elevators (1978 Iowa Acts, chapter 1004, section 17). For a period of time, the Iowa DNR did not enforce the requirement that the owner or operator of a country grain elevator obtain air construction permits. However, the passage of the 1990 amendments to the federal Clean Air Act (CAA) created a new operating permit program for major sources of regulated air pollutants. As a result, the U.S. Environmental Protection Agency (EPA) required that the restrictions limiting the regulation of country grain elevators be removed to allow Iowa to have a federally approved operating permit program. In 1995, the Iowa General Assembly subsequently removed these restrictions (1995 Iowa Acts, chapter 2, section 2), and EPA granted federal approval of Iowa's operating permit program in 1995. Removal of the restrictions necessitated that the Iowa DNR review and permit air emissions at hundreds of country grain elevators and other similar facilities to bring them into compliance with the air construction permitting requirements of rule 567—22.1(455B). In 2003 Iowa DNR began a program for existing grain elevators that provided a temporary amnesty from permit requirements while it developed a new rule for grain elevators. In 2008, the Iowa DNR developed the new permit rules for grain elevators (567 IAC 22.10), which included the development of the four permit group concept. The temporary amnesty for existing grain elevators from permitting requirements then ended on March 31, 2008. The vast majority of grain elevators in Iowa are now registered Group 1 grain elevators. Any new grain elevator is required to obtain Group 1 registration or Group 2 permit or standard construction permits prior to starting construction.

33. What is the particulate matter standard that applies to grain bin vents at Group 1 and Group 2 grain elevators?

The particulate matter standard for bin vents is 1.0 grain per dry standard cubic foot (gr/dscf) of exhaust gas for grain bin vents located at country grain elevators.

The particulate matter standard for bin vents is 1.0 grain per dry standard cubic foot (gr/dscf) of exhaust gas for grain bin vents installed before March 31, 2008 and located at country grain terminal elevators and grain terminal elevators.

The particulate matter standard for bin vents is 0.1 grain per dry standard cubic foot (gr/dscf) of exhaust gas for grain bin vents installed on or after March 31, 2008 and located at country grain terminal elevators and grain terminal elevators.

The Iowa DNR has determined that the emission rate of 1.0 gr/dscf of exhaust gas is representative of emissions from an uncontrolled existing grain bin vent and that new grain bins (i.e. constructed after March 31, 2008) at terminal elevators can be controlled to meet the emission rate of 0.1 gr/dscf of exhaust gas.

34. Are PM₁₀ emissions from haul roads covered by registration or permit?

At most sites, Group 1 and Group 2 grain elevators will not be required to estimate particulate matter emissions from haul roads. However, in accordance with 567 IAC 23.3(1)“c”, the operator should take all reasonable precautions to prevent the discharge of visible emissions of fugitive dust from haul roads beyond the lot line of property on which the plant is located.

Disclaimer

This document, entitled “Grain Elevator Air Quality Permitting and Compliance Frequently Asked Questions (FAQ),” is intended to serve as guidance only and may not be used as a substitute for reading and complying with all applicable statutes and rules or to legally bind the Iowa DNR. The information included in this document has been compiled in an effort to simplify the permitting process for parties unfamiliar with Iowa DNR's rules. A complete version of 567 IAC 22.10, *Permitting requirements for country grain elevators, country grain terminal elevators, grain terminal elevators and feed mill equipment*, can be found at the [Iowa Legislature's](#) web site. (Scroll down to 567 Environmental Protection Commission.) Questions about the FAQ can be directed to the Air Quality Bureau's Construction Permit Helpline at 1-877-AIR-IOWA (1-877-247-4692).