



Air Quality Permitting of Grain Elevators

Iowa Department of Natural Resources
Air Quality Bureau

Background

- Hundreds of grain elevators exist in the state
- Majority are country grain elevators
 - 567 IAC 20.1: ...any grain elevator that receives **more than 50%** of its grain produced by farms in the immediate vicinity
 - Is not located at any wheat flour mill, wet corn mill, dry corn mill (human consumption), rice mill, or soybean oil extraction plant
- Majority of the rest are grain terminal elevators or country grain terminal elevators

Background

- Grain terminal elevator (567 IAC 22.10)
 - 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**
 - Is not located at any wheat flour mill, wet corn mill, dry corn mill (human consumption), rice mill, or soybean oil extraction plant
- Country grain terminal elevator (567 IAC 22.10)
 - 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**
 - Is not located at any wheat flour mill, wet corn mill, dry corn mill (human consumption), rice mill, or soybean oil extraction plant

Background

- Grain is defined in 567 IAC 22.10
 - From Iowa Code section 203.1(9)
 - Any grain with established USDA standards
 - Includes, but is not limited to
 - Corn, soybeans, wheat, oats
 - Rye, barley, grain sorghum, flaxseeds, sunflower seeds, spelt (emmer), and field peas
- Immediate vicinity (not defined in rules)
 - The grain elevator that a farmer can most economically truck grain to

Background

- Permanent storage capacity (567 IAC 22.10)
 - Capacity inside of a building, bin or silo
 - Structures must have a roof
 - Ground piles of grain, with or without a perimeter wall do not meet the definition
- Temporary storage capacity
 - Included in grain handled total
 - Emissions from ground piles not calculated
 - Subject to the fugitive dust rule (567 IAC 23.3(2)“c”)

Background

- Under Iowa rules, very few have air permits necessary under the Clean Air Act
- 567 IAC 22.1(1): ...no person shall construct, install, reconstruct or alter any equipment, control equipment...without first obtaining a construction permit...
- ...A permit shall be obtained prior to the initiation of construction, installation, or alteration of any portion of the stationary source
- Applies to sources built after Sep. 23, 1970

Background

- A few of the larger facilities have applied for and received permits, but the majority of the smaller elevators are unpermitted
- Unpermitted facilities could be subject to:
 - Other regulatory programs (PSD, Title V or NSPS)
 - EPA and DNR enforcement actions (if not registered for amnesty)
 - Citizen suits

Background

Chronology

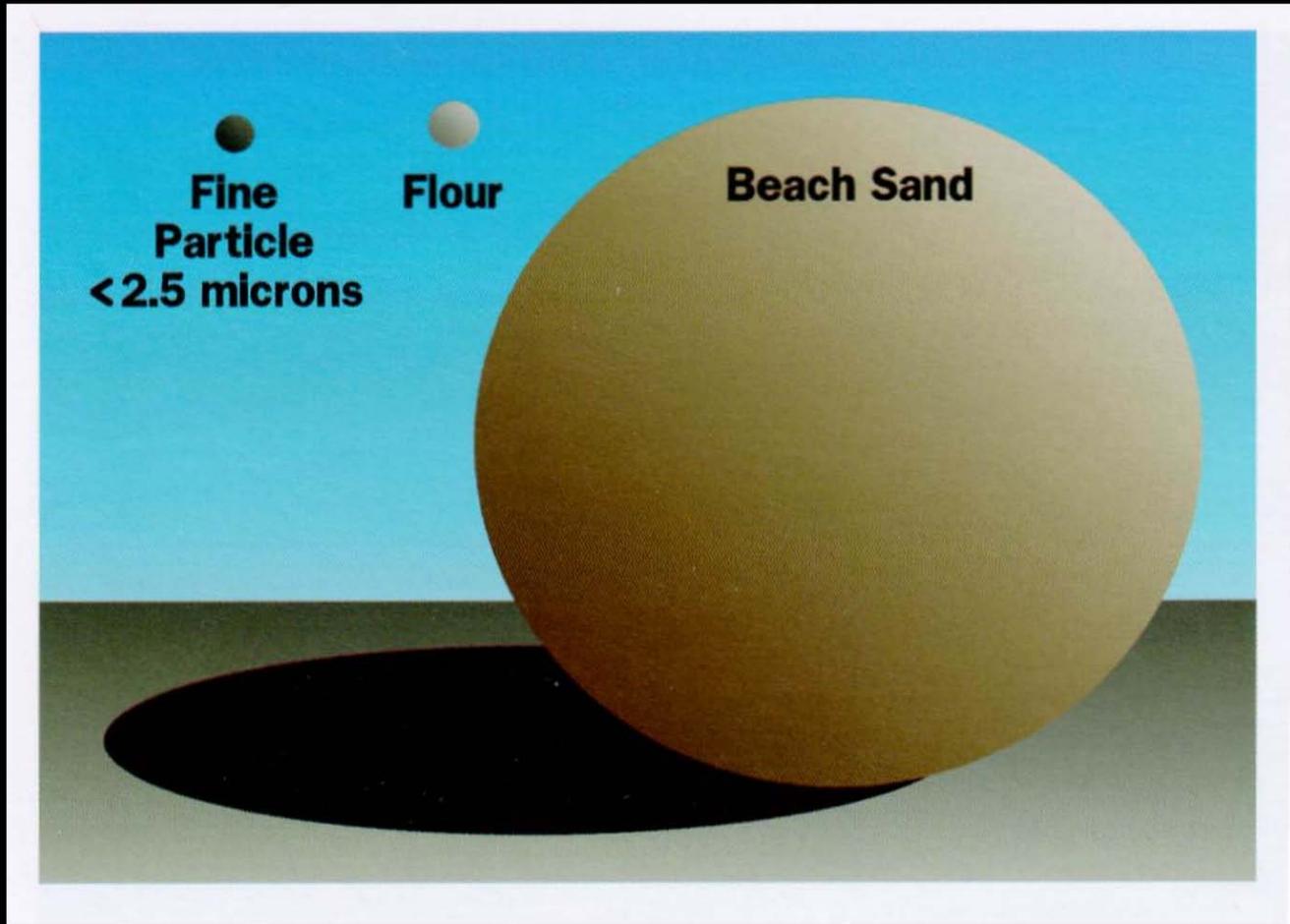
- **1978-** Sixty-Seventh Iowa General Assembly limited the Department's ability to regulate country grain elevators [1978 Iowa Acts, Chapter 1004, Section 17]
- **1995:** Iowa General Assembly removed regulatory restrictions [1995 Iowa Acts, Chapter 2, Section 2]
 - Re: Condition of EPA delegation of Title V operating permit program
- **1995-Present:** DNR works with Agribusiness Association of Iowa (AAI) to address the permitting issues

Background

Pollutant of Concern

- Particulate Matter (PM):
 - Coarse (PM-10)
 - Fine (PM_{2.5})
- State and federal emission standards for PM
- PM-10 and PM_{2.5} National Ambient Air Quality Standards
- Special concern: Many grain elevators are located in middle of small towns with little separation from residences and businesses

Background



The Idea...The Rule...The Implementation

The Idea...The Rule...The Implementation

- Find balance between reduced regulatory burden and air quality protection and compliance
- Obtained and evaluated information on how surrounding states regulate grain elevators
- Used data from amnesty registrations to estimate potential to emit (PTE) of PM-10 from registered grain elevators
- Placed grain elevators in groups based on PTE PM-10 thresholds used in surrounding states

The Idea...The Rule...The Implementation

Grain Elevator PTE Groups

Grain Elevator Group	PM10 PTE (tons per year)	Percentage of elevators
Group 1	<15	90.5
Group 2	≥ 15 and ≤ 50	7.6
Group 3	> 50 and < 100	1.6
Group 4	≥ 100	0.30

The Idea...The Rule...The Implementation

PTE Calculation Tool

- Must be used to determine PTE group
- Free for download at (<http://www.iwrc.org>)
- Tool will also:
 - Produce printable PTE calculations
 - Facilitate completion of Group 1 registration and Group 2 Grain Elevator permit application

The Idea... **The Rule**... The Implementation
(567 IAC 22.10)

Applies to country grain elevators, grain terminal elevators,
and country grain terminal elevators

The Idea... **The Rule**... The Implementation

- Requires feed mill equipment that is located at a grain elevator to be permitted
 - Permit applications for unpermitted feed mill equipment must be submitted on or before March 31, 2008
 - Permit applications may be downloaded at www.iowadnr.gov/air/prof/const/const.html
 - May also use small unit exemption (567 IAC 22.1(2)“w”)

The Idea... **The Rule** ...The Implementation

- Does **not** apply to grain processors and grain storage elevators
 - Grain storage elevators: any elevator 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 of more than 1 million U.S. bushels

The Idea... **The Rule**... The Implementation

- **Applies to both existing and new** country grain elevators, grain terminal elevators, and country grain terminal elevators
- Existing:
 - Commenced construction or reconstruction before February 6, 2008
 - Registration or permit application due by March 31, 2008
- New:
 - Commenced construction or reconstruction on or after February 6, 2008
 - Registration or permit application due before start of construction or modification

The Idea... **The Rule**... The Implementation
Best Management Practices (BMP)

- Practices designed to reduce emissions, especially fugitive emissions, at all grain elevators
- Facility-wide and equipment specific
 - General maintenance, upkeep, repair
 - Grain handling equipment
 - Grain loading and unloading equipment
 - Grain dryer
- Applies to existing and new equipment
- BMP + additional controls and practices required for elevators with $PTE \geq 15$ tpy

The Idea... **The Rule** ...The Implementation

Requirements by Group

Group	Construction Permit Type?	Operating Permit?	EIQ Frequency?	BMP?	Additional Controls or Restrictions?
1	Registration	No	None	Yes	No
2	Group 2 Permit	No	Once every 3 years	Yes	Oiling or equivalent
3	Standard Construction Permit	No	Once every 3 years	Yes	As specified in permit
4	Standard Construction Permit	Yes	Annually	Yes	As specified in permit

The Idea... **The Rule**... The Implementation
Bin Vent PM Emissions Standard
(567 IAC 23.4(7))

- Country Grain Elevators:
 - 1.0 gr./dscf of exhaust gas
- Grain Terminals and Country Grain Terminals:
 - Existing before March 31, 2008: 1.0 gr./dscf of exhaust gas
 - On or after March 31, 2008: 0.1 gr./dscf of exhaust gas
- Retrofitting of controls on existing bin vents is impractical due to safety and cost concerns

The Idea... **The Rule** ...The Implementation
Bin Vent PM Emissions Standard
(567 IAC 23.4(7))

- New bins at grain terminals and country grain terminals can be reasonably controlled to meet the existing 0.1 gr./dscf of exhaust gas emission limit
 - Re: Most grain processors and ethanol plants already control to this level or better

The Idea...The Rule... **The Implementation**

The Idea...The Rule... **The Implementation**
Rulemaking & Permitting Timeline

Date	Action
August 2007	Rules to EPC for NOIA
September/October 2007	Public comment & hearings
November 2007 – January 2008	Education and Outreach
December 4, 2007	Registration & application period starts
January 15, 2008	Final rule adoption by EPC
March 31, 2008	Deadline for registrations and permit applications
April 2008 – March 2009	Control installation as applicable (Group 1 and 2)
March 31, 2009	Controls operating (Group 1 and 2)

The Idea...The Rule... The Implementation

Removal from Amnesty

- Group 1: When the registration becomes effective
 - Later of March 19, 2008 or receipt of signed registration and PTE calculations
 - Written notification of registration receipt by DNR will be made within 2 weeks of receipt
- Groups 2-4: Date of permit issuance
- If registration or permit application not submitted on or before March 31, 2008, amnesty will end on March 31, 2008

Permitting Assistance

- DNR
 - Permitting help line: 1-877-AIR-IOWA
 - General Number: 515-242-5100
- UNI Iowa Air Emissions Assistance Program
 - 1-800-422-3109 or 319-273-8905
- Consultants
 - www.iowadnr.com/db/consultant/index.html

Questions/Comments?