ENVIRONMENTAL PROTECTION AGENCY

[40 CFR Part 60]

[FRL 661–1]

STANDARDS OF PERFORMANCE FOR NEW STATIONARY SOURCES

Grain Elevators

Notice is hereby given that under the authority of section 111 of the Clean Air Act, as amended, the Administrator is proposing standards of performance for new, modified, and reconstructed grain elevators.

PROPOSED STANDARDS

The proposed standards would limit emissions of particulate matter from eight affected facilities and the air pollution control devices on these facilities at grain elevators. The standards apply to farm elevators, country elevators, terminal elevators, and commerical rice dryers which have grain leg capacities greater than 352 cubic meters per hour (m^3/h) (ca. 10,000 bushels/hr) and to storage elevators at wheat flour mills, wet corn mills, dry corn mills (human consumption), rice mills, or soybean extraction plants. The standards are: (1) 0.023 gram per standard cubic meter dry basis (g/std. m^3 dry basis) and zero percent opacity from control devices on any affected facility except grain dryers; (2) zero percent opacity from any truck unloading station, grain handling operation, railroad hopper car loading station, or railroad boxcar loading station; (3) no visible emissions from any railroad hopper car unloading station or railroad boxcar loading station; (4) ten percent opacity from any truck loading station; (5) ten percent opacity, except that the opacity may not exceed fifteen percent during topping-off operations, from any barge or ship loading station; (6) zero percent opacity from any grain dryer (column dryers would be considered in compliance with the standard provided the diameters of all column plate perforations do not exceed 2.1 millimeters [mm] [ca. 0.084 inch], and rack dryers would be considered in compliance provided all exhaust gases pass through a 50 or finer mesh screen filter); (7) operation of a leg which is enclosed from the top (including the receiving hopper) to the center line of the bottom pulley, and ventilation of at least 32.1 actual cubic meters per cubic meter of grain handling capacity (ca. 40 ft^3/bu) to a particulate control device on both sides of the leg and the grain receiving hopper, at any barge or ship unloading station.

ENVIRONMENTAL AND ECONOMIC IMPACT

The proposed standards would reduce the uncontrolled particulate matter emissions from new grain elevators by more than 99 percent. Estimates for various model grain elevators show that the standards would reduce particulate matter emissions to a level that is 67 to 94 percent less than the level required by typical State standards. This reduction in emissions results in a significant reduction of ambient concentrations of particulate matter in the vicinity of grain elevators. The maximum 24-hour average concentration at a distance of 0.3 kilometer (km) from the model facilities would be reduced to a level that is 52 to 76 percent lower than the maximum concentration that results from control to the level of typical State standards. By 1981, the proposed standards would reduce the total amount of particulate matter emissions into the atmosphere by 21,000 megagrams per year (ca. 23,000 tons/yr).

The secondary environmental impacts of the proposed standards would be minor. There would be no impact on water pollution because only dry type collectors would be used to control particulate emissions. Minimal additional solid waste handling or disposal problems would be caused by the standard. Currently, approximately 68 percent of the grain dust collected by emission control devices at elevators is returned to the grain, 30 percent is sold for use in feed manufacturing, and 2 percent is disposed of as solid waste. The additional grain dust collected by a more efficient control device would either be sold for feed or landfilled. The proposed standards would have minimal adverse impacts on noise and land-use considerations. A relatively minor amount of particulate matter, sulfur dioxide, and nitrogen oxides would be discharged into the atmosphere from power plants supplying the additional electrical power that would be required to operate the control device needed to achieve the proposed standards.

The incremental energy required, above the typical State standard requirements, by the proposed standards to control all new, modified, or reconstructed grain elevators constructed by 1981 is equivalent to about 2700 m^3 per year (ca. 17,000 barrels per year) of Number 6 fuel oil. This indicates that the proposed standards would have a minor impact on the imbalance between national energy demand and domestic supply. The energy requirements of the proposed standards result from the use of fabric filter control instead of the existing cyclone control requirements. The total air pollution control energy that would be required to meet the proposed standards represents approximately 23 percent of the total process energy requirements of new grain elevators. This is an increase of about 5 percent above the energy presently needed to meet typical State standard requirements for new grain elevators.

The proposed standards would affect approximately 500 grain elevators in the next five years. The incremental control costs of the proposed standards over typical State control requirements is estimated to be $26 million in capital cost in this five-year period and $5.5 million in annual costs in the fifth year. The proposed standards would result in a total added production cost of 0.5 percent based on a selling price of $68.20 per m^3 (ca. $2.40 per bushel) for corn. This cost includes the cost imposed by the proposed standards on grain production from the farm to the port terminal elevator. The maximum cost added to the grain as a result of the proposed standards at an individual grain elevator would be less than one cent per bushel. The effect that the proposed standards would have on supply and demand of grain and grain products and on the future growth of the grain industry is considered negligible. In the judgment of EPA, these costs are considered reasonable for new, modified, and reconstructed sources.

EPA has determined that this document does not contain a major proposal requiring preparation of an Inflation Impact Statement under Executive Order 11821 and OMB Circular A–107.

SELECTION OF SOURCE CATEGORY AND AFFECTED FACILITIES

Section 111 of the Clean Air Act directs the Administrator to establish standards of performance for stationary sources that may contribute significantly to air pollution which causes or contributes to the endangerment of public health or welfare. Also, under section 109 of the Act, particulate matter has been designated as a criteria pollutant, and National Ambient Air Quality Standards (NAAQS) have been set for particulate matter.

It is estimated that the grain elevator industry, which consists of about 7,900 grain elevators located nationwide, emits 550,000 megagrams per year (ca. 606,000 tons/yr) of particulate matter. In a study performed for EPA by The Research Corporation of New England,[1] significant sources of particulate matter were identified and ranked in order of total emissions. Four grain handling operations were shown to be significant sources of particulate: processing was ranked fifth, transfer was ranked seventh, cleaning and screening was ranked tenth, and drying was ranked number thirty-three among all known sources of particulate emissions. In addition, the report of the Committee on Public Works of the United States Senate[2] listed grain elevators as a source for which standards of performance should be developed.

Growth in the grain elevator and grain processing industries is expected to be slow since the per capita consumption of grain products is remaining constant or decreasing. The total number of grain elevators is expected to decrease; however, the total throughput of grain is expected to increase slightly. Of the processing plants, only soybean processors have significant incentive to invest in new storage capacity. Soybean production has increased over twenty-fold in the United States in less than 34 years. Approximately 500 new, modified, or reconstructed grain elevators are expected to be constructed by 1981. This growth rate of about 100 grain elevators per year is considered to be significant.

EPA has determined that particulate emissions from grain elevators contribute significantly to air pollution which causes or contributes to the endangerment of the public health. For this reason, the source category of grain elevators has been selected for establishing new source performance standards.

The proposed standards would apply to affected facilities that handle wheat, corn, soybeans, milo, rice, rye, oats, or barley. These grains were selected to be subject to the standards because they are the primary grains produced in the United States. There are several other grains (e.g., millet), but these crops are grown and handled in small quantities. Therefore, the handling of these grains is not considered a significant source of particulate matter at this time.

Animal, pet food, and cereal manufacturers; breweries; and feedlots also handle and process whole grain. These industries were beyond the scope of the background industry studies. Consequently, no data are available on these sources and they are not subject to the proposed standards. In addition, there are relatively few plants in these peripheral industries.

Consideration was given to classifying an entire grain elevator, including all its various functions, as the affected facility. If this were done, however, modification or reconstruction of a substantial portion of an existing grain elevator would make the entire elevator subject to the proposed standard. Since this is not considered reasonable, the operations at grain elevators were classified into eight affected facilities. The affected facilities are: Each truck unloading station, each railroad hopper car and boxcar unloading station, equipment at each barge and ship unloading station, all grain handling operations, each grain dryer, each truck loading station, each railroad hopper car and boxcar loading station, and each barge and ship loading station. There are several advantages to naming the separate operations as affected facilities. For example, unloading stations and loading stations are often physically separated from other parts of the elevator and often have separate capture systems and air pollution control devices. Modification or reconstruction of one of these facilities would make it, but not the entire elevator, subject to the proposed standards. This is desirable because there can be an increase in the unloading or loading capacities without affecting other facilities at the elevator.

Grain handling operations are grouped as one affected facility since they have similar operating capacities, and air pollution control devices frequently serve several pieces of handling equipment. Modification of one part of the grain handling system will usually require modification of other parts in the system; therefore, the whole handling system would be subject to the proposed standards.

RATIONALE

The purpose of the proposed standards is to require that best demonstrated emission control technology, considering costs, for particulate matter be installed and operated at new, modified, and reconstructed grain elevators. The proposed standards would ensure particulate containment and pickup at the locations of dust generation, as well as proper operation and maintenance of air pollution control devices. The individual emission sources covered by the proposed standards include all sources of fugitive emissions generated by process equipment, and process exhaust gas streams at grain elevators which are significant sources of particulate matter.

It should be noted that standards of performance for new sources established under section 111 of the Act reflect emission limits achievable with the best adequately demonstrated systems of emission reduction considering the cost of such systems. State implementation plans (SIP's) approved or promulgated under section 110 of the Act, on the other hand, must provide for the attainment and maintenance of National Ambient Air Quality Standards (NAAQS) designed to protect public health and welfare. For that purpose SIP's must in some cases require greater emission reductions than those required by standards of performance for new sources. In addition, States are free under section 116 of the Act to establish more stringent emission limits than those established under section 111 or those necessary to attain or maintain the NAAQS under section 110. Thus, new and existing sources may in some cases be subject to limitations more stringent than EPA's standards of performance under section 111.

The proposed standards for grain elevators are based largely on results of a previous EPA-sponsored investigation of air pollution emissions and control techniques in the grain and feed industry. This earlier study includes the responses from 509 owners or operators of elevators throughout the country to a questionnaire on the air pollution aspects of their operations. The proposed standards are also based on data concerning emission control systems and methods of process operation received through on-site observations of plant operations and control systems, consultation with industry representatives and manufacturers of control systems and devices, emission tests conducted by EPA and operators of grain elevators, and meetings with industry associations and the National Air Pollution Control Techniques Advisory Committee.

Particulate emissions from the affected facilities at a grain elevator, excluding emissions from air pollution control devices, are considered fugitive emissions. These emissions are discharged from an exhaust area that is usually very large. Therefore, it is difficult to apply the usual particulate source test methods designed for measuring stack emissions to affected facilities at grain elevators. In addition, numerous difficulties, such as low exit gas velocity, skewed exit velocity, variability of particulate concentration and velocity over the exit area, and the variability in the design of exhaust areas make source testing impractical. EPA has concluded that practical and feasible methods for measuring the mass of fugitive emissions from affected facilities at grain elevators are not available at this time. Therefore, neither mass nor concentration standards have been proposed for affected facilities at grain elevators. The remaining options for regulating emissions are visible emission/opacity standards and equipment standards. The proposed standards include visible emission/opacity standards for six affected facilities, an opacity standard with the alternative of using specified equipment for one affected facility, and an equipment standard for one affected facility. A concentration standard and an opacity standard are proposed for air pollution control devices.

The proposed visible emission standards include zero percent, 10 percent, and 15 percent opacity standards and a no visible emission standard. These various visible emission standards are necessary because of the different characteristics of the emissions from the affected facilities. The no visible emission limit means that an inspector viewing a source would see no visible emissions without the aid of instruments. This is achievable when an affected facility is totally enclosed with proper ventilation. With this control system, no visible emissions escape to the atmosphere. The emissions from facilities subject to the zero or greater percent opacity levels would be evaluated according to EPA Reference Method 9. Reference Method 9 specifies that 24 observations be taken at 15-second intervals and averaged over a six-minute period. The individual observations are recorded in 5 percent increments (0, 5, 10, etc.); however, averaging 24 observations may result in a six-minute average which is not a whole number. The six-minute average is to be rounded off to the nearest whole number following the standard rules of rounding (e.g. 0.49 would be rounded off to 0, 0.50 would be 1, 7.51 would be 8 etc.). This means that an affected facility subject to a zero percent opacity standard could have two of 24 observations at 5 percent opacity and the other 22 observations at 0 percent opacity and still be in compliance. The six-minute average in this case would be 0.42 percent and would be rounded off to 0 percent, the nearest whole number.

GRAIN DRYERS

The current trend in the grain elevator industry is to install column dryers instead of rack dryers at country elevators, and this trend is expected to continue. The trend has developed primarily because typical State standards require that rack dryers be operated with a 20 to 30 mesh screen for air pollution control, whereas no air pollution control device is usually required for column dryers.

[1] Hopper, T. G., and W. A. Marrone. Impact of New Source Performance Standards on 1985 National Emissions from Stationary Sources, Volume I. Environmental Protection Agency, Research Triangle Park, N.C. Contract Number 68–02–1382, October 24, 1975. pp. 52–59.

[2] *Report of the Committee on Public Works, U.S. Senate Report No. 91–1196.* September 17, 1970. pp. 15–17.

This gives a significant capital and operating cost advantage to the column dryer. EPA believes the majority of new, modified, or reconstructed dryers will be column dryers; however, new rack dryers may be installed in high throughput elevators because maintenance costs appear to be less for rack dryers in these applications.

Emissions from grain dryers are discharged from an exhaust area that is usually very large. Therefore, it is not technologically or economically feasible to apply the usual particulate source test methods designed for measuring stack emissions to this source. Several attempts to carry out source tests were made by EPA and by operators of grain elevators. The data collected, however, can only be used as a guide in developing a standard due to the numerous difficulties encountered in the measurement technique. The accuracy and precision of the technique are not sufficient for determining compliance. EPA has concluded that methods for measuring mass particlate matter emissions from grain dryers are not available at this time. The only practical and feasible method of measuring particulate matter emissions from grain dryers is visible emission determinations.

EPA considered several alternate control systems for grain dryers in developing the proposed standards. The alternatives considered for column dryers were no screen filter with a perforation size range of 1.25 to 2.1 mm (ca. 0.050 to 0.084 inch) and a vacuum-cleaned screen filter (50 mesh and 100 mesh screen size). The alternatives considered for rack dryers were a screen filter (24–30 mesh screen size) and a vacuum-cleaned screen filter (50 mesh and 100 mesh screen size). The factors evaluated in considering these alternatives included the amount of emissions (visible and mass), capital costs, annual costs, energy requirements, operating and maintenance problems, and trends in the industry to use certain types of equipment. After considering all of these factors, EPA concluded that the best system of emission reduction (considering costs) is a column dryer equipped with column plate perforation diameters of 2.1 mm (ca. 0.084 inch) or less and a rack dryer equipped with a 50 mesh screen filter. Both of these systems are considered economically reasonable and comparable in control of particulate matter emissions.

A zero percent opacity standard (based on six-minute averages) is proposed for all grain dryers. The owner or operator of any column dryer would be considered in compliance with the standard provided the diameters of all column plate perforations do not exceed 2.1 mm (ca. 0.084 inch) and the owner or operator of any rack dryer would be considered in compliance provided all exhaust gases pass through a 50 or finer mesh screen filter. EPA observed five column dryers, of two different designs, with perforation plate diameters ranging from 1.25 to 2.1 mm (ca. 0.050 to 0.084 inch). A total of 126 six-minute opacity averages were obtained. EPA observed two rack dryers, one equipped with a 50 mesh vacuum-cleaned screen filter and the other with no screen filter. A total of 5 six-minute opacity averages were obtained at the dryer equipped with the 50 mesh screen. Based on the available data, EPA concluded that a standard of zero percent opacity can be achieved by the best system of emission reduction (considering costs) for grain dryers.

Air Pollution Control Devices

EPA separately considered the capture systems at various grain operations and the air pollution control devices used to remove the captured particulate matter from the gas stream before discharge to the atmosphere. The proposed standards would require air pollution control devices on all affected facilities at a grain elevator, except grain dryers and some types of dust-tight grain handling operations. EPA measured particulate matter emissions according to Reference Method 5, except that the probe was not heated, from eleven grain processes controlled with fabric filters. EPA did not measure emissions from cyclones, but estimates that emissions from grain operations controlled by cyclones average a factor of 10 times those from fabric filter control devices. Based on these data, EPA has determined that the best demonstrated air pollution control device (considering costs) for grain operations is a fabric filter.

EPA considered both mass and concentration units for the proposed standards. The basic difference is that a standard which restricts the mass rate of emissions would limit the total mass emitted, whereas a standard with concentration units would allow the mass rate to inerease in direct proportion to the volume of gas exhausted through the control device. This is an advantage for concentration units for grain elevators since a standard with concentration units does not discourage use of large volumes of ventilation air. As one might surmize, adequate capture velocity at the collection hood is necessary for complete capture of the particulate matter generated by the process. Another advantage of concentration units is that the emission test provides all information necessary for enforcement (determination of mass emissions per volume of gas discharged through the control device). Mass standards, however, are usually based on a unit of product or raw material to the process. They require an accurate determination of both mass emissions and product or raw material weight. Product and raw material weight are obtainable only from an operator and are often difficult parameters to measure. This is particularly true for grain elevator operations for the following reasons.

1. The weight of grain handled on conveyor belts, legs, or cleaners is generally not measured.

2. If more than one process is controlled by a single collector (i.e., headhouse filter), it may be impossible to determine the process weight during performance testing. When a standard with concentration units is applicable to each process, compliance for any number processes can be determined only measuring the concentration from control device.

The average concentration of particulate matter emissions from all the gr processes tested, excluding one wh had high emissions due to process irr ularities, was 0.007 g/std. m³ dry bas Most of the individual test results we below 0.023 g/std. m³ dry basis. Ther fore, EPA selected 0.023 g/std. m³ d basis as the emission limit for the pr posed standards. To meet this emissio limit, it would be necessary for gra operations to install and properly ope ate fabric filter control systems rath than less effective control systems su as high efficiency cyelones.

A zero percent opacity standard (base on six-minute averages) is also propos for air pollution control devices. EPA o served two fabric filter systems on gra processes, and all of the individual rea ings, a total of 56 six-minute averag were no visible emissions. EPA believ that the proposed standard of zero pe cent opacity would ensure the prop operation and maintenance of the a pollution control device.

Truck and Railcar Unloading Stations

The demonstrated methods for controlling particulate matter emission from truck and railcar unloading operations include a collection hood in the receiving hopper ventilated to an air pollution control device and a protective enclosure around the facility to reduce the interfering effect of winds. Generally, enclosures or sheds are used to protect the grain and workers from inclement weather. In some locations, however, where the weather is consistently dry, unloading stations do not have sheds. In developing the proposed standards, EPA determined that a protective enclosure is required to prevent wind from interfering with the effectiveness of particulate capture by the hopper ventilation system. Three alternatives were evaluated by EPA concerning protective enclosures of the unloading station: (1) a shed with two open ends, (2) a shed with one open end, and (3) a totally enclosed shed. A shed with two open ends was determined to be least effective because it allows the wind to blow directly through and over the receiving hopper. A shed with one open end and a totally enclosed shed were found to diminish the effects of wind upon the ventilation system.

The totally enclosed shed has been demonstrated in railcar (hopper and boxcar) unloading operations, where the two ends of the shed are equipped with quick-operating doors. However, all of the truck unloading facilities inspected by EPA were designed so that the front end of the truck extends out from the open end of the shed. Some reduction in particulate emissions could be achieved by totally enclosing the truck unloading operation; however, EPA knows of no elevators that use this method. In order to totally enclose the operation, the shed would have to be increased in both length and height because the front ends of the trucks are raised considerably to allow the grain to flow out the rear of the truck. This would increase the cost of the shed substantially. In addition, truck unloading operations are located at all small country elevators. Greatly increased costs would be incurred, especially at small elevators, from the use of a completely enclosed shed on truck unloading operations. Therefore, EPA has concluded that the best demonstrated system of emission reduction (considering costs) for truck unloading stations is a shed with one open end and for railcar unloading stations it is a totally enclosed shed.

The system for railcar unloading would include a receiving hopper equipped with baffles and ventilated at a rate of approximately 420 to 710 actual cubic meters per minute (act m³/min) (ca. 15,000 to 25,000 cfm) depending on the size of the facility. The system for truck unloading would include a receiving hopper equipped with baffles and ventilated at a rate of approximately 340 act m³/min (ca. 12,000 cfm).

An emission standard of zero percent opacity (six-minute average) is proposed for truck unloading operations at grain elevators. A total of 138 six-minute opacity averages were gathered by EPA. The range for these six-minute averages is no visible emissions to one percent. A total of 120 six-minute averages were no visible emissions and 17 six-minute averages were zero percent opacity. Based on the available data, EPA concluded that a standard of zero percent opacity can be achieved by the best demonstrated system of emission reduction (considering costs) for truck unloading.

The proposed standard for railcar unloading (boxcars and hopper cars) is no visible emissions. A total of two hours of visible emission/opacity data were gathered by EPA on a boxcar unloading operation. Every data point, taken at 15-second intervals, indicated no visible emissions. Data to substantiate the proposed standard were not collected for hopper car unloading operations. However, EPA has observed that unloading of boxcars is a dustier operation than unloading of hopper cars. Therefore, the proposed standard applies to both hopper cars and boxcars. Based on the available data, EPA concluded that a standard of no visible emissions can be achieved by the best system of emission reduction (considering costs) for railcar unloading.

Barge and Ship Unloading Stations

An equipment standard is proposed for barge and ship unloading operations. EPA observed the levels of visible emissions at a barge unloading station. The resulting data showed an extremely wide range of visible emissions, with some six-minute averages above 65 percent opacity. EPA concluded that an opacity standard could not be established that would ensure the installation of the best system of emission reduction (considering costs) because of this wide range of visible emissions.

All of the bucket elevators (legs) observed by EPA at barge and ship unloading stations during the development of the proposed standards had various types of enclosures and were ventilated. A facility with the leg enclosed from the top (including the receiving hopper) to the center line of the bottom pulley appeared to perform with the least emissions. This facility was observed in operation with and without the ventilation system in operation. Visible emissions were observed to be significantly lower when the ventilation system was operating than when it was not. EPA concluded that this system represents the best demonstrated system of emission reduction (considering costs) and proposes an equipment standard based on the design of this system.

Grain Handling Operations

Particulate matter emissions from grain handling operations can be minimized through the use of totally enclosed equipment, by handling the grain at a slower rate, or by using ventilated hooding systems designed to capture emissions.

Separate data were not obtained on each item of grain handling equipment included under grain handling operations. However, during observation of the headhouse, the items included under this affected facility were in operation. An exterior conveyor and a headhouse were observed and all data recorded were no visible emissions. A zero percent opacity standard has been proposed instead of no visible emissions because zero percent opacity (six-minute average) allows the possibility of slight emissions from the headhouse. EPA has concluded that the best demonstrated systems of emission reduction (considering costs) for grain handling operations are totally enclosed equipment or hooding systems ventilated to air pollution control devices.

Truck and Railcar Loading Stations

During the development of the proposed standards, EPA could not locate a truck loading operation in the grain industry that used what was considered to be the best system of emission reduction that could be applied. Therefore, other industries such as lime, and flour and grain processing were studied in an attempt to find well-controlled truck loading operations in these industries. EPA located and observed a soybean meal truck loading operation. This operation is well controlled; however, it does not have what is considered to be the best system of emission reduction. Loading soybean meal into trucks was determined by EPA to be as dusty an operation as loading grain into trucks; therefore, a direct transfer of technology to grain loading operations is possible. The ten percent opacity limit is based on data gathered at this facility. EPA believes that a better control system can be designed than the one observed; however, this is the best system that has been demonstrated for truck loading operations which are very similar to grain loading operations. EPA has concluded that the best system of emission reduction (considering costs) for truck loading stations is a shed with one open end, equipped with a loading spout with a canvas sleeve and a hooding system ventilated at a rate of about 280 to 350 act m³/min (ca. 10,000 to 12,250 cfm).

Particulate matter emissions which result from the loading of grain into hopper cars is controlled in the grain industry by a hooding system, ventilated to an air pollution control device, located at the end of the loading spout. The loading operation is usually enclosed in a shed with two open ends. This control method is the only effective demonstrated particulate control system used for loading grain into hopper cars. The type of hooding and the ventilation rates are the only variables. Several hopper car grain loading systems were studied by EPA by reviewing the manufacturer's designs of the systems and through communications with grain elevator operators and plant engineers. EPA gathered data from the operation which was determined to be the most effective system. The individual 15-second opacity data collected were all zero percent opacity or no visible emissions. There was no appreciable wind during this observation period. Therefore, EPA was proposed a zero percent opacity limit to allow for possible slight particulate emissions during other than ideal conditions. EPA has concluded that the best system of emission reduction (considering costs) for railroad hopper car loading stations is a shed with two open ends, and a hooding system located next to the loading spout which is ventilated at a rate of about 280 act m³/min (ca. 10,000 cfm).

The grain industry has essentially only one demonstrated particulate control system for loading boxcars. The entire operation is usually enclosed in a shed with two open ends. EPA took opacity observations on the best controlled facility which was found. The data ranged from three to five percent opacity. The operation observed, however, was not considered to employ the best control technology that could be applied. The facility could have been maintained in better condition and higher ventilation rates could have been used.

Hopper car loading and boxcar loading operations are similar and best technology requires a shed with two open ends and a hooded loading spout ventilated to an air pollution control device on both facilities. The grain flows through a loading spout and is deposited in a receiving vessel (the railcar) at each facility. Fugitive particulate matter emissions are also generated in a similar manner. The stream of grain and induced air flowing into the railcar disturbs and displaces the air in the railcar. Also, when the grain impacts against the receiving vessel, turbulence is created in the surrounding air. Particulate matter can be entrained in the turbulent air currents and flow out of the railcar with the displaced air. EPA is proposing a zero percent opacity standard on boxcar loading stations based on a transfer of

technology from hopper car loading stations.

EPA has concluded that the best system of emission reduction (considering costs) for railroad boxcar loading stations is a shed with two open ends. A loading spout enclosed by a small building-like structure which extends to within 150 mm (ca. 6 inches) of the side of the boxcar and hinged doors about 200 mm (ca. 8 inches) wide, equipped with rubber flaps, which seal the sides of the enclosure to the boxcar are part of this best control system. This building-like structure is ventilated at a rate of about 280 m^3/min (ca. 10,000 cfm).

BARGE AND SHIP LOADING STATIONS

EPA considered two systems for controlling particulate matter emissions from barge and ship loading. The first consists of a telescoping loading spout that is adjusted to the elevation of the grain surface as loading proceeds. Ventilation is applied at the end of the spout and then vented to a fabric filter. Two variations of this system were observed by EPA. The second system considered was to cover the hold with canvas or plastic sheeting except where the loading spout enters. However, no system of this type was observed in operation. EPA believes both control systems can achieve the proposed opacity standards.

Data were gathered from a ship loading operation employing the first control approach mentioned. These data revealed that during topping-off operations, recorded opacities were greater than during general loading operations. EPA, therefore, has proposed a two-level opacity standard for barge and ship loading operations. General loading operations have a ten percent opacity limit and topping-off operations have a fifteen percent opacity limit.

EPA has no data on loading grain into barges. However, EPA has visited barge loading operations and believes the operations to be similar to ship loading operations; therefore, the proposed standards apply to barge loading as well as to ship loading.

TESTING AND RECORDKEEPING

Under the proposed standards, performance tests for particulate matter emissions would be required for air pollution control devices on all affected facilities. Particulate matter would be measured by Reference Methods 1 through 5 and 17. EPA Reference Method 17 was proposed in the Standards of Performance for Kraft Pulp Mills on September 24, 1976 (41 FR 42012).

The definition of particulate matter has been revised to allow measurement by the reference method specified under each applicable subpart. This definition has been revised because Method 17 has been proposed as a reference method for particulate matter.

Records of performance testing measurements would have to be maintained and retained for at least two years following the date of the measurements by owners or operators subject to the proposed regulations. This requirement is included under section 60.7(d) of the regulations.

PUBLIC PARTICIPATION

As prescribed by section 111, this proposal of standards of performance has been preceded by the Administrator's determination that grain elevators contribute significantly to air pollution which causes or contributes to the endangerment of public health or welfare and by his publication of this determination in this issue of the FEDERAL REGISTER. In accordance with section 117 of the Act, publication of these proposed standards was preceded by consultation with appropriate advisory committees, independent experts, and Federal departments and agencies.

Interested persons may participate in this rulemaking by submitting comments (in triplicate) to the Emission Standards and Engineering Division, U.S. Environmental Protection Agency, Research Triangle Park, North Carolina 27711, Attention: Mr. Don R. Goodwin. The Administrator will welcome comments on all aspects of the proposed regulations, including the designation of grain elevators as a significant contributor to air pollution which causes or contributes to the endangerment of public health or welfare, economic and technological issues, and on the proposed test methods.

Comments are invited speeifically on the proposed standard for railcar unloading stations and its effect on the unloading of unit trains. A number of interested parties have expressed concern that the uncoupling of railcars, which would be required when operating a totally enclosed unloading shed would have an adverse economic impact. Comments on this issue should contain specific information and data pertinent to an evaluation of the magnitude of this impact and its severity.

In addition, EPA is interested in receiving comments on the selection of the best system of emission reduction, considering costs, for grain dryers. The comments should address the factors EPA used in evaluating the alternative emission control systems.

All relevant comments received on or before March 14, 1977 will be considered. Comments received will be available for public inspection and copying at the Public Information Reference Unit, Room 2922 (EPA Library), 401 M Street, S.W., Washington, D.C. 20460.

Background information on these proposed standards of performance has been published in a document "Standards Support and Environmental Impact Statement, Volume 1: Proposed Standards of Performance for the Grain Elevator Industry." This report presents the factors considered in the development of the proposed standards, including alternative emission control systems, emission test data, environmental impact, costs, and economic considerations. Copies of this document may be obtained by writing to the Public Information Center (PM-215), Environmental Protection Agency, Washington, D.C. 20460.

AUTHORITY

(Sec. 111, 114, and 301(a) of the Clean Air Act, as amended by sec. 4(a) of Pub. L. 91-604, 84 Stat. 1678 and by sec. 15(c)(2) of Pub. L. 91-604, 84 Stat. 1713 (42 U.S.C. 1857c-6, 1857c-9, and 1857g(a)).

Dated: January 4, 1977.

JOHN QUARLES,
Acting Administrator.

REFERENCES

1. Hopper, T. G., and W. A. Marrone. Impact of New Source Performance Standards on 1985 National Emissions from Stationary Sources, Volume I. Environmental Protection Agency, Research Triangle Park, N.C. Contract Number 68-02-1382, October 24, 1975. pp. 52-59.

2. *Report of the Committee on Public Works*, U.S. Senate Report No. 91-1196. September 17, 1970. pp. 15-17.

PART 60—STANDARDS OF PERFORMANCE FOR NEW STATIONARY SOURCES

It is proposed to amend Part 60 of Chapter I of Title 40 of the Code of Federal Regulations as follows:

Subpart A—General Provisions

1. Section 60.2 is amended by revising paragraph (v). The revised paragraph reads as follows:

§ 60.2 Definitions.

* * * * *

(v) "Particulate matter" means any finely divided solid or liquid material, other than uncombined water, as measured by the reference methods specified under each applicable subpart, or an equivalent or alternative method.

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2. Part 60 is amended by adding subpart DD as follows:

Subpart DD—Standards of Performance for Grain Elevators

Sec.

60.300 Aplicability and designation of affected facility.
60.301 Definitions.
60.302 Standard for particulate matter.
60.303 Test methods and procedures.

AUTHORITY: Secs. 111, 114, and 301(a) of the Clean Air Act, as amended by sec. 4(a) of Pub. L. 91-604, 84 Stat. 1678 and sec. 15(c)(2) of Pub. L. 91-604.

Subpart DD—Standards of Performance for Grain Elevators

§ 60.300 Applicability and designation of affected facility.

The provisions of this subpart apply to the following affected facilities at any grain elevator except at farm elevators, country elevators, terminal elevators, and commercial rice dryers having a total leg capacity of less than 352 m^3/h (ca. 10,000 bushels/hr) and at animal pet food, and cereal manufacturers, breweries, and feedlots each truck unloading station, each railroad hopper car and boxcar unloading station, equipment at each barge and ship unloading station, all grain handling operations, each grain dryer, each truck loading station, each railroad hopper car and boxcar loading station, and each barge and ship loading station.

§ 60.301 Definitions.

As used in this subpart, all terms not defined herein shall have the meaning given them in the Act and in subpart A of this part.

(a) "Grain" includes corn, wheat, milo, rice, rye, oats, barley and soybeans.

(b) "Grain elevator" means any operation at which grain is unloaded, handled, loaded, dried or stored at any farm elevator, country elevator, terminal elevator, commercial rice dryer or storage elevator at wheat flour mills, wet corn mills, dry corn mills (human consumption), rice mills, or soybean oil extraction plants.

(c) "Control device" means the air pollution control equipment used to remove particulate matter generated by an affected facility at a grain elevator.

(d) "Capture system" means the equipment including sheds, hoods, ducts, fans, dampers, etc. used to capture or transport particulate matter generated by an affected facility at a grain elevator to the control device.

(e) "Fugitive emission" means the particulate matter generated by an affected facility at a grain elevator which is not collected by a capture system and is discharged to the atmosphere.

(f) "Grain unloading station" means that portion of a grain elevator where the grain is transferred from a truck, railcar, barge or ship to a receiving hopper.

(g) "Grain loading station" means that portion of a grain elevator where the grain is transferred from the elevator to a truck, railcar, barge or ship.

(h) "Grain handling operations" include bucket elevators or legs (excluding legs used to unload barges or ships), scale hoppers and surge bins (garners), turn heads, scalpers, cleaners, tripers, and the headhouse and other such structures.

(i) "Grain dryer" includes any equipment used to reduce the moisture content of grain.

(j) "Column dryer" means a grain dryer in which the grain flows from the top to the bottom in one or more continuous packed columns between two perforated metal sheets.

(k) "Rack dryer" means a grain dryer in which the grain flows from the top to the bottom in a cascading flow around rows of baffles (racks).

(l) "Topping off" means that portion of a barge or ship loading operation which occurs within 1.2 meters (ca. 4 feet) of the top of the hold.

§ 60.302 Standard for particulate matter.

(a) On and after the sixtieth day of operating at the maximum production rate at which the affected facility will be operated, but no later than 180 days after initial start-up, no owner or operator subject to the provisions of this subpart shall cause to be discharged into the atmosphere from any grain dryer any gases which exhibit greater than zero percent opacity (column dryers would be considered in compliance with the standard provided the diameters of all column plate perforations do not exceed 2.1 mm (ca. 0.084 inch), and rack dryers would be considered in compliance provided all exhaust gases pass through a 50 or finer mesh screen filter).

(b) On and after the date on which the performance test required to be conducted by § 60.8 is completed, no owner or operator subject to the provisions of this subpart shall cause to be discharged into the atmosphere from any affected facility except a grain dryer any gases which:

(1) Exit from a control device and contain particulate matter in excess of 0.023 g/std. m^3 dry basis (ca. 0.01 gr/dscf).

(2) Exist from a control device and exhibit greater than zero percent opacity.

(c) On and after the sixtieth day of operating at the maximum production rate at which the affected facility will be operated, but no later than 180 days after initial start-up, no owner or operator subject to the provisions of this subpart shall cause to be discharged into the atmosphere any fugitive emission from:

(1) Any truck unloading station, railroad hopper car loading station, railroad boxcar loading station, or grain handling operation which exhibits greater than zero percent opacity.

(2) Any railroad hopper car unloading station or railroad boxcar unloading station which is visible without the aid of instruments.

(3) Any truck loading station which exhibits greater than ten percent opacity.

(4) Any barge or ship loading station which exhibits greater than ten perment opacity, except that the opacity may not exceed fifteen percent during topping-off operations.

(d) The owner or operator of any barge or ship unloading station shall operate as follows:

(1) The leg shall be enclosed from the top (including the receiving hopper) to the center line of the bottom pulley and ventilation to a control device shall be maintained on both sides of the leg and the grain receiving hopper.

(2) The total rate of air ventilated shall be at least 32.1 actual cubic meters per cubic meter of grain handling capacity (ca. 40 ft^3/bu).

(3) Rather than meet the requirements of subparagraphs (1) and (2), the owner or operator may use other methods of control if demonstrated to the Administrator's satisfaction that there would be less than or equivalent amounts of particulate matter emissions by using the alternative methods.

§ 60.303 Test methods and procedures.

(a) Reference methods in Appendix A of this part, except as provided under § 60.8(b), shall be used to determine compliance with the standards prescribed under § 60.302 as follows:

(1) Method 5 or Method 17 for concentration of particulate matter and associated moisture content;

(2) Method 1 for sample and velocity traverses;

(3) Method 2 for velocity and volumetric flow rate;

(4) Method 3 for gas analysis; and

(5) Method 9 for visible emissions.

(b) For Method 5, the sampling probe and filter holder shall be operated without heaters. The sampling time for each run, using Method 5 or Method 17, shall be at least 60 minutes. The minimum sample volume shall be 1.7 std. m^3 dry basis (ca. 60 dscf).

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ENVIRONMENTAL PROTECTION AGENCY

[FRL 660-8]

AIR POLLUTION PREVENTION AND CONTROL

Addition to the List of Categories of Stationary Sources

Section 111 of the Clean Air Act (42 U.S.C. 1857c-6) directs the Administrator of the Environmental Protection Agency to publish, and from time to time revise, a list of categories of stationary sources which he determines may contribute significantly to air pollution which causes or contributes to the endangerment of public health or welfare. Within 120 days after the inclusion of a category of stationary sources in such list, the Administrator is required to propose regulations establishing standards of performance for new and modified sources within such category. At present, standards of performance for 24 categories of sources have been promulgated.

The Administrator, after evaluating available information, has determined that grain elevators are an additional category of stationary sources meeting the above requirements. The basis for this determination is discussed in the preamble to the proposed regulation that is published elsewhere in this issue of the FEDERAL REGISTER. Evalution of other stationary source categories is in progress, and the list will be revised from time to time as the Administrator deems appropriate. Accordingly, notice is given that the Administrator, pursuant to section 111(b)(1)(A) of the Act and after consultation with appropriate advisory committees, experts, and Federal departments and agencies in accordance with section 117(f) of the Act, effective January 13, 1977, amends the list of categories of stationary sources to read as follows:

LIST OF CATEGORIES OF STATIONARY SOURCES AND CORRESPONDING AFFECTED FACILITIES

Source category	*Affected facilities*
* * *	* * *
27. Grain elevators	Truck unloading stations. Railroad hopper car and boxcar unloading stations. Equipment at barge and ship unloading stations. Grain handling operations. Grain dryers. Truck loading stations. Railroad hopper car and boxcar loading stations. Barge and ship loading stations.

NOTE.—Proposed standards of performance applicable to the above source category appear elsewhere in this issue of the FEDERAL REGISTER.

Dated: January 4, 1977.

JOHN QUARLES,
Acting Administrator.

[FR Doc.77-1101 Filed 1-12-77;8:45 am]