ILLINOIS POLLUTION CONTROL BOARD
April 13, 1972

In the Matter of )
)
EMISSION STANDARDS )

#R 71-23

Opinion of the Board (by Mr. Currie):

New regulations for emission control of sulfur dioxide, nitrogen oxides, carbon monoxide, hydrocarbons, and particulate matter have been adopted by this Board. Highlights of the regulation are as follows:

- significantly tightens the limits on the emission of particulate matter from such operations as steel mills, oil refineries, electric power plants, cement plants and corn wet milling facilities;
- for the first time requires sophisticated new equipment to control emissions from coke ovens;
- greatly strengthens existing standards for emissions from incinerators;
- for the first time limits emissions of sulfur dioxide in the Chicago, East St. Louis and Peoria regions to the equivalent of 1% sulfur coal, and imposes a series of limitations designed to assure compliance with ambient air quality standards for sulfur dioxide elsewhere;
- requires the control of dust escaping from stockpiles;
- limits the emissions of sulfur dioxide and sulfuric acid from industrial processes;
- requires such practices as floating roof tanks, submerged loading pipes, tight seals, and waste-heat boilers to prevent offensive hydrocarbon emissions from oil refineries;
- restricts the emission of photochemically reactive organic materials from such activities as painting and printing in order to prevent Los Angeles-type smog conditions, and further limits emissions of organic materials where local nuisances would result;
- for the first time requires the control of carbon monoxide emissions from stationary sources such as incinerators, iron and steel processes, and oil refineries;

- for the first time imposes limits on the emission of nitrogen oxides from power plants in the Chicago and East St. Louis areas, and from other industrial processes throughout the State;

- adopts a statewide nondegradation standard to prevent the unnecessary deterioration of air that is now clean, and to prevent new pollution sources from being located in areas where they will do the most damage;

- prohibits any emissions that cause a violation of the air quality standards established to protect the public health and welfare;

- institutes a statewide requirement of operating permits for all pollution sources as an aid to enforcement;

- requires sources to monitor their emissions, to keep detailed records, to adequately maintain their equipment, and to make regular reports to the State.

An additional provision imposing strict limits on particulate emissions from residential and commercial coal burning has been suspended by a temporary injunction and cannot be adopted until further court order. With this exception we believe today's new package of air pollution regulations, together with the federal controls on motor vehicle emissions, will enable Illinois to achieve compliance with the federal air quality standards for these important air contaminants.

In December of 1970 this Board published its initial implementation plan containing proposed regulations for achieving compliance with air quality standards for sulfur oxides and particulate matter in the Chicago Metropolitan Interstate Air Quality Control Region (#R 70-15). Extensive hearings were held on this proposal, which was supplemented by a more stringent proposed table for particulate emissions from process sources (#R 71-4). We also published for hearing purposes a similar implementation plan for our portion of the St. Louis region (#R 71-8). Before hearings could be held, however, the federal Environmental Protection Agency, acting under authority newly granted by the Clean Air Act amendments of December 1970, adopted new air quality standards. Under the same statute, it became the responsibility of the States to devise implementation plans to meet the new federal standards. These standards apply to the entire State and cover carbon monoxide, hydrocarbons, photochemical oxidants, and nitrogen oxide, as well as sulfur and particulates. We asked the Illinois Environmental Protection Agency, with the aid of the Institute for Environmental Quality, to conduct further studies to determine what measures were necessary and reasonable in order to achieve compliance with the federal standards, and to propose and defend before us a set of new regulations that would give us a satisfactory basis for controlling air pollution. Thereafter, upon preliminary study, the Board published for hearing purposes two further proposals, one dealing with permits for air contaminant sources (#R 71-18), and the other with emission limitations for hydrocarbons and other organic substances, carbon monoxide, and nitrogen oxides from stationary sources (#R 71-17). Hearings however, awaited receipt of more definitive Agency drafts.

We received Part I of the Agency's proposal in October and Part II in November, 1971. Part I, which dealt with permits and other general provisions, was designated #R 71-18, and hearings were held on it in November. Part II, containing substantive limitations such as emission standards, was designated #R 71-23. All the above proceedings were consolidated with #R71-23, and extensive further hearings were held through December and January. Following this set of hearings the Board published a proposed final draft embodying a number of changes based upon evidence received and scheduled further hearings, which were held in March. After studying the final transcripts and other evidence submitted in written form, we have today adopted the final set of regulations. This opinion explains the basis for what we have done.

Before discussing the specific provisions in detail, a general word of appreciation is in order. In the Board's view the entire process of developing these complicated standards illustrates how the Illinois environmental program can operate successfully and in accordance with the intentions of the General Assembly. These regulations as adopted represent the best thinking and the combined, cooperative efforts of all three environmental agencies working together, each according to its special function, with a full opportunity for public participation responsibly availed of with the result of numerous improvements in the regulations in response to evidence given by persons affected. This Board can function best on the basis of concrete proposals, as in the present case, made and supported by another agency such as the EPA. The Institute's assistance was invaluable, in providing expert technical guidance for the Agency in assessing the available technology and, through the special services of Argonne National Laboratory, in furnishing impressive evaluations of the effectiveness of various possible control strategies in advance of their application. The record is as a result extremely solid in telling us what is needed to assure satisfactory air quality and what is technically and economically reasonable in terms of control technology. We trust that the numerous constructive changes made in the proposed regulations, many with the concurrence of the Agency, demonstrate that both the Agency and the Board view the public hearing process as a meaningful opportunity for the acquisition of additional relevant information and that we are more than willing to alter a proposal in the light of new information.[1]

A detailed discussion of individual provisions follows.

PART I

Rule 101: Definitions. Most of these definitions are self-explanatory. Additional definitions appear in Rule 201 since they are most directly applicable to the emission limitations of Part II, but both sets of definitions apply to both Parts.

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1. A special word of thanks is needed for Dr. Richard Wadden of the Board's staff for his tireless and expert efforts in the consideration of these regulations.

Among the more significant definitions is that distinguishing between new and existing sources, a distinction that in some cases determines which of two alternative standards must be met and which also relates to the need for a construction permit. On the basis of the testimony we have adopted the federal definition of a new source, which recognizes that once binding contracts have been entered for construction of a facility there is a significant reliance interest in treating the source as an existing one. Also of importance is the definition of "specified" air contaminant, which means that permits are required only for facilities capable of discharging certain listed contaminants for which specific standards are provided. Without this provision the broad definition of "contaminant", which is entirely appropriate for enforcement purposes, might require permits for the emission of water, for example, which would distract the Agency from its more serious concerns and impose unnecessary paperwork costs on all concerned.

Rule 102: Prohibition of Air Pollution restates the statutory prohibition against air pollution, so that all relevant prohibitions appear in a single document, and states the general statutory principle that emissions shall not violate the regulations. As we have held, the statutory prohibition is directly enforceable without regard to the regulations. It means that substances not covered by numerical standards may not be emitted so as to cause a nuisance, since no code of rules could ever provide numerical standards for all contaminants. See EPA v. City of Springfield, # 70-9 (May 12, 1971). Moreover, as the statute specifies in Section 49(e), compliance with a numerical standard constitutes only a prima facie defense to a charge of air pollution even with regard to the same contaminants. For numerical limits only state what is acceptable in ordinary situations; under special circumstances of geography, meteorology, or configuration, emissions meeting the standards may cause a nuisance, and that the statute flatly forbids. EPA v. Granite City Steel Co., #70-34 (March 17, 1971); EPA v. Southern Illinois Asphalt Co., # 71-31, (June 9, 1971).

Rule 102 also incorporates the important additional provision, inherent in the idea of air quality standards, that emissions shall not prevent the attainment or maintenance of any ambient air quality standard. Such a provision is required by federal regulations for the approval of any implementation plan, as the very purpose of the plan is to assure that the air quality standards are met. Because even the tightest emission standards cannot assure that emissions are clean enough to breathe, the unlimited proliferation of sources in a relatively small area could result in violations of the air quality standards even if each source met its emission standard. The air quality standards themselves are based on

expert assessment of health and other adverse effects of given levels of pollution and of the technology for reducing emissions, assessments that are in the present record. As we recently stressed in adopting a corresponding provision respecting water quality standards (PCB Regs, Ch. 3, Rule 402, adopted Jan. 6, 1972, sub nom. Effluent Standards, #R 70-8), compliance with the emission standards is a minimum; it is essential that whatever measures are necessary, subject to proof regarding economic reasonableness in the particular case, be taken to ensure that the air quality standards are met. Under this provision enforcement action may be undertaken against an emission source even if it is in compliance with numerical emission standards, if such compliance is insufficient to assure that the air is of satisfactory quality.

Rule 103: Permits is the heart of a comprehensive permit system both to aid in obtaining emission information necessary for an evaluation of the control program and as an effective enforcement mechanism. Existing regulations promulgated by the old Air Pollution Control Board (APCB) and preserved by section 49 of the Environmental Protection Act require permits for the construction of new equipment that would cause or control contaminant emissions, but there was no provision for operating permits. See EPA v. Southern Illinois Asphalt Co., #71-31 (June 9, 1971). This omission meant that older facilities were allowed to operate without permits, and therefore without adequate state supervision. This situation is remedied in the new regulations.

Paragraph (a) restates the existing requirement of a construction permit, which allows review of the pollution potential of a proposed installation before expensive investments are made and should result in catching many improper projects before they begin, to the benefit of all concerned. Basic outlines of the information that must be submitted in an application are provided, with the Agency given authority to be more specific in light of its familiarity with its own information needs in administering the program. The basic standard for issuance of a permit is that the installation will comply with the law and regulations, and the Agency may impose whatever conditions are necessary to assure that compliance. Compliance of course means more than meeting the numerical minimum standards; the applicant must show that his installation will cause neither statutory air pollution nor a violation of the air quality standards, and that a new facility will not cause degradation of the air in violation of Rule 303. Thus the permit requirement is the first line of defense against putting the right factory in the wrong place, such as where it might interfere with the esthetic qualities of a state park.

Paragraph (b) requires operating permits. In the case of new equipment for which a construction permit has been obtained, the basic issue with respect to an operating permit will be whether or not the terms of the construction permit have been met, since compliance with them should assure compliance with the law and regulations. Joint construction and operating permits are authorized where appropriate to reduce the paper burden. In the case of older sources, a phased schedule is set requiring operating permits by various dates beginning November 1, 1972, in order to allow the Agency to distribute its workload. In the case of an operating permit the applicant must show not only that he is presently in compliance, but also that he has an approved compliance program that will assure that he meets any applicable future compliance date, as well as an approved episode control program where applicable. In this way the permit requirement serves as a means of enforcing the requirements of episode control and of an early start toward meeting future control requirements.

Among the conditions the Agency may impose in an operating permit are that equipment be properly maintained, that a written maintenance program be developed, and that maintenance records be kept. It is not enough that good equipment be installed; it must be adequately maintained to prevent pollution. To prepare a written program assures that an operator in his own interest gives serious attention to the problem and that his employees are properly instructed. This much is merely good practice. It also gives the Agency a chance to make constructive suggestions, and the record requirement serves as both an internal and external check to assure the program has been adhered to. The further Agency proposal that EPA be empowered to pass on the adequacy of the program in a permit proceeding was omitted because the Board majority thought it unnecessary and burdensome.

Paragraph (d) authorizes the Agency to establish design criteria indicating examples of acceptable design parameters for the guidance of those wishing to know what the Agency considers adequate to meet the standards for issuance of a permit. These criteria are not binding; any applicant is free to demonstrate that alternative designs will achieve compliance with the substantive standards, which is the ultimate goal of the regulations. In order to aid the Agency in making its determination whether or not the applicant is entitled to a permit, the Agency under paragraph (e) may conduct a hearing to elicit facts beyond those presented in the application. Paragraph (l) authorizes the Agency to require the posting of a bond, as the Board requires in variance cases, as an additional inducement to assure compliance with the terms of the permit.

Permits may be revoked only upon a complaint and order by the Board as a sanction for violation, in order to assure due process to the permit holder. Permits may be revised upon any revision of the Act or regulations. Paragraph (h) states the obvious point that having a permit does not authorize a violation of the emission standards or other applicable limitations, any more than a driver's license authorizes reckless driving.

Certain classes of emission sources are exempted from the permit requirements, but not from the substantive limitations, because the burden of processing permits in these cases would not be justified by the benefits. The exempted classes are basically numerous small sources.

The permit provisions today adopted are very closely parallel to those relating to water pollution and adopted by this Board March 7, 1972 (Water Quality Standards, #R 71-14, PCB Regs., Ch. 3, Part IX).

Rule 104: Compliance Programs is a most essential provision, adapted from the Air Contaminant Emission Reduction Program section of the APCB regulations, for assuring prompt initiation of programs for achieving compliance with standards whose effective date is in the future. Many of the substantive limitations adopted today impose stringent new requirements which cannot be met immediately without closing down large numbers of existing facilities. While it is important that the new standards be met as soon as is practicable, we have no wish to obtain clean air at the cost of closing down society. It is common practice, when standards are tightened, to allow a reasonable time in which to construct the necessary equipment or take other necessary measures to meet them, except in rare cases in which the immediate public danger is so great as to require a shutdown until the problem is corrected. Consequently we have in many cases set deferred compliance dates for new standards adopted today, leaving the emergency cases for case-by-case determination under the statutory air pollution section.

At the same time, however, we cannot be content simply to set a future compliance date and to wait until then before taking any action to assure that something is being done. We need interim checkpoints at which the Agency can determine whether people are falling behind the pace that is necessary if compliance is to be achieved by the prescribed date. Therefore Rule 104 requires the timely submission of programs spelling out the steps that are to be taken, and the dates on which they are to be taken, in order to bring the facility into compliance. Agency approval of such a program will constitute a prima facie defense

to an enforcement action, since we do not wish to penalize those who are doing their best. The defense cannot be absolute because Board regulations cannot give the Agency power to allow violations of the statutory prohibition against air pollution, and because policy requires that we reserve authority to direct a shutdown in the rare case in which there is an immediate and excessive health hazard. As a corollary to the provision that following an approved program is a defense, the Rule provides that failure to submit a program, to obtain approval, or to follow an approved program constitutes a violation for which a complaint may be filed. Without such a provision the Agency could do little against a laggard until the deferred compliance date is reached. By that time it would be too late to do anything to accelerate performance short of the drastic remedy of shutdown. The regulation is designed to avoid that remedy whenever possible.

Once again the recently adopted water regulations are similar.

Rule 105: Malfunctions, Breakdowns, and Startups. No machine works perfectly all the time. Further, startup conditions may result in less than optimum emission control. The policy of this Rule is that insofar as is practicable, efforts shall be made to reduce the incidence and duration of startups and excessive emissions during startup periods; and that, except in special cases, equipment whose pollution controls are out of order should not be operated, just as an automobile should not be operated when its brakes are out of commission. Clearly the latter principle cannot be absolute, for it may not be worth blacking out the entire Midwest to prevent emissions from a partly malfunctioning boiler precipitator. We cannot resolve the myriad of individual variations in a single rule. The Agency's admirable proposal, which we have adopted, places case-by-case discretion in the Agency under its permit powers, providing that if special conditions warrant permission to operate during a malfunction, or if irreducible startup emissions will somewhat exceed the general standards, EPA may grant permission for such emissions upon application and proof.

Rule 106: Monitoring and Testing allows the Agency to require an operator to measure emissions, either continuously or periodically, in order to provide information necessary to determining compliance. The cost of acquiring such information is an appropriate cost of doing business and is placed upon the operator. In order to assure that general monitoring requirements are well-considered and reasonable, the Agency must allow time for public comment before such requirements become effective. In individual cases, however, the Agency may require monitoring as a permit condition, subject to Board review under the statute. Latitude is left to the Agency in these matters because, although the record amply supports the

desirability of monitoring, it does not tell us what devices are available at what cost to do the job. In matters of this nature the Agency's field experience will enable it to make an expert determination.

Provision is also made for allowing the Agency to conduct its own tests, or to require individual stack tests to be performed as needed by an operator. These provisions are indispensable to any enforcement program. Stack tests are the best indication of the actual performance of control equipment; without them it is often possible to demonstrate violations by calculation in the absence of adequate control equipment, but it is not so easy to prove by calculation whether or not adequate equipment is operating as it should.

Rule 107: Records and Reports implements the statutory provision authorizing the Agency to acquire information necessary to the performance of its functions.

Rule 108: Proof of Emissions restates formally the Board's holding, e.g., EPA v. Lindgren Foundry Co., # 70-1 (Sept. 25, 1970), that an expensive stack test is not necessary in all cases to demonstrate a violation of numerical emission standards. Standard emission factors have been developed on the basis of prior testing that enable one to make fairly accurate calculations as to emissions from equipment similar to that previously tested. Relevant considerations include the nature and amounts of materials processed, the size and type of process and control equipment, and the method of operation. Such calculations are of course subject to rebuttal by more direct evidence, as in EPA v. Norfolk & Western Ry., #70-41 (May 26, 1971).

Rule 109: Circumvention, as in the APCB rules, prohibits such practices as dilution, which might result in nominal compliance with certain standards without reducing the amount of contaminants emitted or their adverse effects.

Rule 110: Design of Effluent Exhaust System requires a stack or other outlet to be constructed so as to minimize adverse effects of an emission. Emissions controlled by sophisticated equipment are much better than uncontrolled emissions, but nobody should have to breathe them directly.

Rule 111: Burden of Persuasion Regarding Exceptions states the otherwise implicit rule that special exceptions must be proved applicable by the party claiming them.

Rule 112: Annual Report, as in the water regulations, requires the Agency annually to assess progress in controlling pollution and to provide the Board and the public a status report so that the actual operation of the program can be assessed.

Rule 113: Severability is a standard severability provision.

Rule 114: Repealer specifically avoids any gap in enforcement by preserving the APCB rules until the effective date of any new standard. That is, any source required to meet a new rule at a future date must continue to comply with the old standard in the meanwhile.

## PART II: EMISSION STANDARDS

Air quality standards, based upon evidence as to the harmful effects of various concentrations of air contaminants in the ambient air, are sometimes said to state the goals of an air pollution control program. More properly, they should be viewed as outer limits of tolerability. They constitute a commitment by both state and federal government that the air will not long be permitted to remain, nor ever allowed to return, to a worse condition than that prescribed in the standard.

Thus air quality standards are minimum benchmarks against which to test the success of a program of air pollution control. Moreover, since one principal goal of a control program must be to keep the standards from being exceeded, air quality standards are a valuable tool in determining the requirements of such a program and an eloquent justification for the imposition of controls.

But air quality standards are not in themselves a control program. They tell us the limits of tolerable air, but they do not tell us how we are to avoid worse. We cannot punish the air if the standard is exceeded, and in many cases we cannot without difficulty enforce the standard itself against those whose emissions--often from a great many disparate sources--may have contributed to the overall problem. Rather the heart of any control program, and thus the working part of an implementation plan, is a set of regulations more directly limiting emissions from individual and area sources. Such limitations constitute Part II of today's regulations. We find that compliance with the provisions of Part II, in combination with federal vehicle control requirements, will suffice to achieve and to maintain the air quality standards for the foreseeable future.

The record amply demonstrates that in portions of the State existing pollutant concentrations grossly exceed those prescribed by federal air-quality standards. Annual mean concentrations of particulate matter in Granite City and in Chicago Heights, for example, have recently exceeded 190 micrograms per cubic meter ($ug/m^3$), as contrasted with federal primary and secondary standards of 75 and 60 $ug/m^3$, respectively (Implementation Plan, Appendix II, p. 42). Similarly, despite the favorable effects of the sulfur limitations enacted by the City of Chicago, sulfur dioxide concentrations there and elsewhere continue to exceed the air quality standards (Ex. 82, Implementation Plan, Appendix II, PP. 50, 51, 59, 60). Moreover, expert mathematical analyses make it clear that in some areas full compliance with all existing numerical limitations will not suffice to meet the air quality standards. Clearly some tightening of those limitations is necessary, since any acceptable control strategy must at a minimum assure that the air quality standards are met.

Beyond this, however, an acceptable control strategy must protect against unnecessary degradation of areas that are now cleaner than the standards require. This is true for two reasons. The first is to make allowance for anticipated growth and development, so that the standards continue to be met in the future without forbidding desirable expansion. Where we can reasonably do so, we must provide a margin for the installation of new facilities by requiring controls that may be tighter than the minimum needed to meet the standards today. We cannot allow present emission sources to use up the entire assimilative capacity of the air without robbing the future of the opportunity for growth. Second, air quality standards are set not at the optimum level of air quality, but at the worst level we are prepared to tolerate if we must. Whenever we can reasonably make the air cleaner than that, we ought to do so. In short, to adopt regulations that barely suffice to meet air-quality standards today would be intolerably shortsighted if technology permits us to do substantially better without imposing exorbitant costs.

For these reasons, and because uniform minimum standards are of utility in preventing local nuisances and in discouraging competitive discrepancies that might tend to concentrate sources in areas now clean, we have in a number of cases imposed state-wide emission standards that must be met everywhere as a modicum of good practice. This action has precedent in the APCB's generally uniform emission standards for particulate matter, and in the uniform requirement of secondary sewage treatment adopted by our other predecessor, the Sanitary Water Board (see Rules and Regulations SWB-7 through SWB-15). We have recently followed the same philosophy in adopting state-wide minimum standards for a number of additional water contaminants (see Effluent Standards, #R 70-8, Jan. 6, 1972, now PCB Regs., Ch. 3, Part IV). This is not to say that different regional needs have been overlooked. Quite a number of today's regulations specifically impose more stringent requirements in parts of the State in which they are necessary to prevent violation of air quality standards.

Rule 201: Definitions is largely self-explanatory. References to important items are made in connection with the substantive provisions to which they refer, below.

Rule 202: Visual Emission Standards. Standards based upon the visual appearance of an emission are long-standing, familiar, and relatively unsophisticated. They were much assailed by industry during our hearings, largely because of their subjective nature. E.g., Bergren, Armour, and Quon (R 70-15, pp. 619-21, 656-57, 1128). On the other hand, pending considerable improvements in scientific monitoring practices, in many cases the appearance of an opaque plume may be the best available evidence of improper

operation. With all its drawbacks, therefore, the visual standard is an indispensable enforcement tool. Moreover, the appearance of an emission relates directly to esthetic concerns, which should not be overlooked in air pollution control. For these reasons, as well as the encouragement of citizen participation in bringing pollution cases, we have retained and broadened the APCB prohibition on excessive visible emissions.

The prohibition is broadened in that, unlike the APCB ban, it applies not only to smoke but to other particulate matter as well. Although the familiar Ringelmann chart for determining opacity was designed for gray and black emissions characteristic of smoke, there is equal need for an equivalent opacity standard for other particulate emissions. The numerical standard for opacity, 40% in the APCB regulations, has been lowered for most sources to 30% on the basis of Agency evidence (R. 30, 31, 496, 501) that this level will generally be achieved or bettered by facilities complying with the numerical standards for particulate matter in Rule 203. Since we have found compliance with the latter economically reasonable, it follows that the corresponding opacity standard is reasonable too. Paragraph (a) imposes a more restrictive 20% opacity standard for certain large new fuel combustion sources and 10% for new cement plants. These provisions are taken directly from applicable federal standards for such sources (Fed. Reg., Dec. 23, 1971, pp. 24876-95). In order to ensure the reasonableness of these limitations, paragraph (c) provides that compliance with the more specific particulate standards at the time of the alleged violation is a defense to an opacity charge. We stress that such compliance must be shown at the time of the alleged violation; it is no defense that the condition causing the opacity violation has since been corrected. This provision is protection for industries in which the emission of particles of high reflectivity, such as glass (Sharf, R. 939-41) or iron oxide (Krikau, R. 767-68), may result in relatively opaque emissions despite the use of the best available controls.

Limited exemptions from the opacity limits are provided in recognition of special conditions that will preclude compliance at certain times. The first is startup, during which the evidence (R. 2053-54, 2285) is that excessive emissions may necessarily occur. Protection against abuse of this exemption is provided by the Part I requirements, earlier discussed, that the Agency limit startup excesses to the minimum practicable in issuing permits. Considerable variations in alleged startup times preclude our setting any specific time limit in the regulations.

The APCB regulations attempted to list other specific excuses for emissions in excess of the opacity standard, but we think the danger of inadvertent omission and the rather minimal nature of the problem justify a more general allowance of not over eight minutes in any hour and not more than three times daily, with a 60% maximum opacity limit even during those periods, and with more stringent new-source limits once again derived from the federal.

Federal testimony (Walsh, R. 2697-98) indicated that the times specified for new boilers should be adequate for such activities as soot blowing and trip outs. There was a great variety of testimony as to the time required for blowing soot from existing boilers (see Geers, R. 1587; Dodge, R. 1519-20; Johaningsmeir, R. 2053). Soot blowing cannot be eliminated without jeopardizing both efficiency and safety through buildup in the boiler (Sullivan, R 70-15, R.1162-80). The allowable times we have chosen should, according to the evidence,be adequate in most cases. The time required appears to be a function of the individual equipment, and we cannot relax the rule for everyone simply because a few may have trouble meeting it. Those who have trouble and can prove it may seek a variance based on arbitrary or unreasonable hardship.

Rule 203: Particulate Standards. Statewide particulate emission limits were adopted by the APCB in 1967, and we have devoted much of our time to cases concerning their enforcement. Compliance with the APCB standards has resulted and will continue to result in considerable improvement of the air, but more recent information has shown, as the present record indicates, that in a number of respects the standards are in need of further strengthening. At the same time, as indicated below, in several instances the Agency suggested, or we have adopted on the basis of other testimony, provisions making allowances for people who have made considerable investments in reliance on the old regulations, where it appeared possible to avoid multiple expenditures without unduly jeopardizing air quality.

Paragraphs (a),(b), and (c) establish basic emission standards for particulates from a variety of industrial processes. The one hour time period is simply intended to designate the emission averaging time and not to impose stringent pleading requirements on the Agency. Incinerators and fuel-combustion units, such as furnaces for space heating and boilers for steam electric generation, are covered separately in subsequent paragraphs. The process standards are expressed in terms of pounds of particulate that may be emitted in any hour as a function of the weight of materials introduced into the process. This "process weight" approach has the advantage of relating emissions directly to the productivity of the process as well as discouraging resort to such evasive practices as dilution, which must be specially provided for if the earlier standard limiting concentration in terms of exhaust concentration is used, as suggested by U.S. Steel (Jackson, Standards requiring employment of devices with ion efficiency do not take adequate account of alls of emission reduction such as fuel or process and they too are said to be subject to circum- Argonne's document IIPP-2, p. 83 (#R 70-15, Ex. 4).

The process weight table in paragraph (b) is in its most essential feature, the allowable emission numbers for most sources, the same as that already in force under the APCB regulations. These limits are in turn derived from the long-standing Bay Area code in effect in the San Francisco area, which was based upon a study of emissions achieved in practice by industries with respectable controls. The reasonableness of requiring adherence to such a table as a minimum of good practice in most industries is amply sustained by the experience of this Board in administering the APCB standards, as evidenced in numerous Board decisions approving programs in various industries resulting in compliance, as well as by additional evidence given by the Agency and by others in the present proceeding and cited below. Our earlier decisions in these matters have been made a part of the present record.

The first change in the APCB table as it appears in paragraph (b) of the Rule is to eliminate certain exemptions for [illegible] that appeared in the old regulations. No one opposed the elimination of several exceptions for meat smokehouses, fermenting plants, or fruit and tree manufacturing, and therefore there is no evidence to justify making any special exceptions for them at this time. The wood and cement plant exceptions, as well as those for corn milling and catalytic cracking, are discussed below.

The second change is to provide explicitly, as the old table did not, that similar sources are to be aggregated for purposes of determining the applicable process weight. The significance of this provision is that more effective controls are required on larger units, both because of their greater potential for harm and because of well recognized efficiencies of scale in control equipment. This graduated control requirement was a feature of the original Bay Area table. It is important, therefore, to treat multiple units of the same kind on the same premises as if they were one, both to prevent circumvention by building several small units instead of one large one and because of the practicality of applying a single large control device to a number of small like sources. Because these latter policies do not apply to sources of different kind, it is not necessary to aggregate a basic oxygen furnace with an asphalt saturator, or even with a sintering plant, for purposes of this Rule.

The Agency asked us to enact an absolute upper limit of 70 pounds per hour regardless of the size of the process, in a commendable effort to avoid an undue concentration of emissions that might lead to a violation of air quality standards. We agree with the goal, but the remedy is not tailored to the need. Emissions of over 70 pounds per hour will not necessarily cause violations of the air quality standards; if they do, they can be prevented or abated

under other provisions of the regulations. The principal effect of the absolute limit would be to encourage the proliferation of small sources, rather than to reduce emissions. The Agency's latest data show that the 70-pound limit is not necessary to meet the air-quality standards (Ex. 113-H), and we have rejected it.

Not only is it reasonable to expect compliance with the APCB process weight table as revised in paragraph (b); the evidence is convincing that that table is a good deal more lax than necessary in the middle size ranges in terms of what can reasonably be expected by the application of readily available technology. Professor Babcock, who made a preliminary study of technical and economic feasibility of process particulate controls (Exs. 28, 29, 30; R 70-15, R. 574-608), pointed out that control devices, including electrostatic precipitators, scrubbers, and baghouse filters are readily available and in common use with removal efficiencies of over 99%, and that small open hearth furnaces, for example, could comply with the APCB table with as little as 90% control. At our request he drafted a more stringent table, achievable by standard technology, which in essence the Agency proposed as paragraph (a), applicable to new sources and to those not yet engaged in a program to meet the more relaxed paragraph (b). The Agency corroborated Babcock's conclusions in Gaddam Reddy's extensive analysis of twelve different industrial processes (Ex. 11), demonstrating the degree of control, and the ready availability of control devices, to achieve compliance with a table more stringent in some size ranges than that of the APCB. Except for a few industries discussed specifically below, there was virtually no argument that the stricter table was technologically feasible. The practicability of meeting such a table is further confirmed by our own cases, noted above, in many of which devices installed under the old regulations proved more than adequate to achieve compliance with the more stringent requirement. Industry testimony, too, for the most part, confirms the achievability of the more stringent rule. Salvage, for example, testified that an actual 45-ton-per-hour foundry cupola with a 98% scrubber now installed in Illinois would comply with the Babcock table at a point where the latter cuts allowable emissions to half those permitted under the old table (R 70-15, R. 82-83, 90); Feeley (id., R. 1243-45) testified that Olin's phosphoric acid plant would have no difficulty in complying because of its existing scrubber. On the basis of overwhelming testimony as to common practice in industry even in the face of less stringent standards, we conclude that it is feasible and reasonable to impose the more stringent process weight table of paragraph (a) as a minimum state-wide standard of good practice in limiting particulate emissions in the general case.

This analysis has led us to adopt the more stringent paragraph (a) for new sources, wherever located, and also for existing sources that have not yet taken steps toward compliance with the more lenient APCB regulation, which is largely retained as paragraph (b). The more stringent table is necessary, according to modeling information, in order to maintain compliance with the air quality standards in the Chicago region in the face of continued growth (Implementation Plan, pp. 6-1-10, 6-1-22, 6-1-23). In other parts of the State we think it desirable that people who must now undertake to construct controls provide the reasonably efficient ones required by paragraph (a) in order to reduce local problems, to avoid unnecessary degradation of air that can be clean, and to leave maximum room for future development. When starting from scratch, there appears no reason to allow forty pounds of particulate emission per hour when a little effort can reduce the emission to fifteen, to give one example from the two tables.

On the other hand, in accordance with policies expressed earlier in this opinion, we have retained the less demanding paragraph (b) for those sources which have made significant expenditures to meet the more lenient standard, in order that such expenditures not be wasted. To do otherwise might in many cases require scrapping of expensive new equipment to achieve a marginal improvement in emissions that we do not think would be worth the cost. Table (b) applies if the source is now in compliance with its provisions; or if the owner has entered into contracts pursuant to a variance embodying a program that will achieve such compliance; or if he has commenced construction of facilities to achieve such compliance and obtains a variance to that effect in the immediate future. The Agency is confident that this relatively small concession to those who have built in good faith will not jeopardize the air quality standards.

Paragraph (d)(1) makes separate provision for catalyst regenerators for petroleum cracking facilities. These units have enormous process weights, up to 3500 tons per hour, and would be greatly hampered by the absolute 70 pounds per hour limit initially proposed by Babcock. The rule as adopted subjects all such units, old or new, to the same limitation as in paragraph (b), specifying that process weight is the weight of catalyst recirculated, and repeals the more lenient provision of 99.7% recovery efficiency on the basis of testimony that the more stringent requirement was already met by several Illinois installations employing electrostatic precipitators (Mowers, # 70-15, R. 1017-19, 1032-34, 1042-44). The high degree of control required is justified in our opinion by the value of the recovered catalyst and by the considerable quantities of particulate matter emitted by units complying with the old rule. See the testimony of Lopez, R. 3156-57, 3170-71, that Shell's regenerator emits two tons of particulates per day. To relax the new standard for existing sources of this kind, therefore, would permit very considerable

emissions that can be avoided, according to the evidence, by adding an additional control device at the end of the existing system, without wasting investments already made. We decline to do this.

The APCB regulations made special and more lenient provisions for a number of processes in the steel industry, allowing very substantial quantities of emission in excess of those that would have been permitted by the general process weight table. Blast furnaces were required to control to 0.05 grains per standard cubic foot (APCB Rule 3-3.210); open hearths, basic oxygen furnaces, electric furnaces, and sinter plants to 0.1 gr/scf (id, Rule 3-3.2130). Coke ovens were given a still more sweeping exemption discussed below. Viewing the steel plant exceptions as major sources of unnecessary emissions, the Agency proposed eliminating the special provisions for blast furnaces, open hearths, basic oxygen furnaces, and electric furnaces, as well as significantly stricter new provisions for sinter plants and coke ovens. We have adopted the Agency's proposals.

No one disputed the elimination of special provisions for open hearths or for blast furnaces. As indicated above, Babcock testified without contradiction that the former could readily be brought into compliance with paragraph (b). Reddy of EPA testified that an open hearth of 500 tons per hour capacity would require only 97.9% control to meet paragraph (a) and that smaller furnaces would require still less efficient control (Ex. 11, pp. 23-24). As he observed, the required efficiencies are low in comparison to those required by other processes, and compliance should be no problem. Consulting engineer William F. Blank, testifying for the EPA after considerable experience in the steel industry and in building control equipment, estimated the required efficiency for the 500-ton furnace at 99.29% and said equipment to do the job and more could be obtained without difficulty (R. 458). As for blast furnaces, very efficient gas cleaning is practiced to enable the steel companies to utilize the valuable gas, which contains much carbon monoxide, for heating purposes. As Reddy testified, "blast furnace gas cleaning systems normally reduce particulate loading to less than 0.01 grain per standard cubic foot to prevent fouling of the stoves where the gas is burned." Such a grain loading, he concluded, would suffice to bring emissions from blast furnaces with process rates from 5 to 500 tons per hour into compliance with Rule 203(a) (R. 271-72; Ex. 11, pp. 19-21).

Steel industry witnesses, following the lead of U.S. Steel (Jackson, R. 3230-31) asked that an allowance of 0.03 gr/scf be made for basic oxygen furnaces and for electric furnaces, a standard making no provision for tighter control of larger units and in general more lax even than paragraph (b). Significantly, although Armour of Interlake ultimately supported U.S. Steel's

position (Ex. 114, No. 170), he responded to our subsequent inquiry by reaffirming his earlier flat testimony that Interlake's BOF, with a 99.7% precipitator, already complied with paragraph (b) (R 70-15, R. 665-76; Ex. 114, No. 165). Reddy's calculations confirmed that Interlake would have no difficulty with its basic oxygen furnace even if it were required to meet paragraph (a) (Ex. 11. p. 25). So did Blank, testifying that for a 500-ton-per hour BOF 99.66% control would be needed for paragraph (a) and that "there would be no difficulty from my experience in obtaining 99.7, 99.8 percent efficiency from precipitators and to maintain this efficiency if the equipment is well maintained and operated" (R. 458). In terms of grain loadings, the evidence is equally clear that the 0.03 standard proposed by U.S. Steel is far more lenient than existing emissions from several Illinois installations. EPA information is that Interlake's present grain loading is 0.008 gr/scf and Wisconsin Steel's as low as 0.003 to 0.007 (Ex. 113-0). Thus U.S. Steel is asking to be excused from applying the degree of control already practiced by its competitors as a matter of good practice or good citizenship. It is abundantly clear that U.S. Steel can meet the stricter standard. It is equally clear that the difference between the standard we adopt and that proposed by U. S. Steel is too significant to justify any exception for sources now meeting the APCB standard. Depending upon the effluent gas volume, which under a grain loading regulation could be increased without limit, with consequent increases in particulate emissions, U.S. Steel's basic oxygen shop would emit anywhere from one half ton to 1.1 tons per day more than allowed by 203(b) if the 0.03 gr/scf standard were adopted. Moreover, Illinois principal steel-making operations are located either on Chicago's far South Side or in the Granite City area. The evidence is striking that these areas are among the dirtiest we have in terms of particulate concentrations. Annual mean concentrations near the steel mills in 1970 were as follows (Implementation Plan, Appendix II, pp. 30, 33, 34):

| Location | Particulate Concentration ($ug/m^3$) |
|---|---|
| Granite City (# 03) | 194 |
| Washington | 189 |
| Granite City (# 1) | 134 |
| Carver | 120 |
| Clay | 110 |
| Calumet | 103 |
| C.V.S. | 105 |
| Fenger | 96 |

The federal primary standard, essential for health reasons, is 75 ug/$m^3$. The secondary standard, which we must meet under federal law to assure adequate protection of all interests from air pollution, is 60. In areas so grossly exceeding the air quality standards we cannot afford to allow an unnecessary emission of an additional half ton or more of particulates per day from a single plant. We adopt the Agency's proposal and eliminate any exception for basic oxygen furnaces.

With regard to electric furnaces, Armour testified that Interlake elsewhere was building a 98%-plus baghouse that would bring an electric furnace into compliance with the process weight table (R 70-15, R. 665-76). Laclede Steel, with the same size electric furnace shop as U.S. Steel (2 furnaces each rated at 85 tons per hour), points out that the pollution control equipment it is now installing will meet Rule 203(b) (Ex. 114, No. 139). U.S. Steel's own evidence is that its electric furnaces will operate between 0.02 and 0.03 gr/scf and will at least sometimes meet Rule 203(b), which, for this plant size, corresponds to a grain loading of 0.022 gr/scf. Thus U.S. Steel is already operating within the range contemplated by the Agency's proposal. Moreover, emissions from electric furnaces are highly variable according to the method of operation. Exhibit 33 (pp. 570-71) lists an uncontrolled emission range of from 4.5 to 75 pounds per ton of steel depending upon the condition of the material charged, and exhibits 31 (p. 96) and 85A (Reference to Varga Report on Integrated Iron and Steel Industry, p. v-14) note greatly increased emissions when oxygen lancing is used. By proper operation, therefore, U.S. Steel may well be able to meet the stricter standard even with its present equipment, while the company's proposed grain loading standard would permit practices increasing the flow of effluent gas and therefore the quantity of contaminants emitted. We have adopted the Agency's proposal.

For the main windbox of sinter plants the Agency recognized a special control problem and proposed a standard of 1.2 times the emission allowed by paragraph (a). This standard was explicitly based upon the program of Granite City Steel Co., which testified it would meet the standard (Ex. 114, No. 166; R. 3651, 3668). U. S. Steel, once again, took the lead in arguing for more emissions, urging a standard of 0.05 gr/scf (Jackson, R. 3230-31). Interlake in its original testimony (Armour, R 70-15, R. 665-76) evinced no problem in meeting a process weight limitation such as that the Agency proposed, stating that a 99% multiclone already in operation should suffice. Later, however, Interlake stated that its grain loading was 0.05 and that 0.03 would be required to meet the Agency's standard for its size plant (Ex. 114, No. 165). Granite City's expected grain loading, which will meet the stricter standard, is .027 (Ex. 114, No. 166). U. S. Steel specified that its sinter

plant would require an 0.0169 gr/SCF outlet loading to meet the regulations. An electrostatic precipitator, presently in operation in the plant "has been improved to the maximum performance for this device", and further control would be required to comply even with 0.05 gr/scf. U.S.S.admitted that technology was available to reach lower grain loadings, which could be done with high energy scrubbers, but questioned the expense of installing such equipment (Ex. 114, No. 133). It is thus clear that the technology exists, and is in some plants already employed, to reduce sinter plant emissions to the levels required by the Agency's proposal. U.S. Steel can be expected to do as well, especially since, as its own evidence makes clear, that company must install additional control equipment even to meet its own proposed standard of 0.05 gr/scf. See Ex. 114, Nos. 133, 164, indicating current emissions from 0.07 to 0.1, and Ex. 113-0, pp. 15-19, in which EPA placed U. S. Steel's present emissions even higher. The undesirability of a grain loading regulation for sinter plants is highlighted by the fact that major increases in effluent volume, which could cause greatly increased mass emissions, are not unusual for sinter plants (Ex. 33, p. 490). Finally, the difference in emissions between the EPA's proposal and that of U.S. Steel is 1.23 tons per day for the U.S.S. plant. The more restrictive regulation thus results in a highly significant emission reduction that cannot be ignored in the highly polluted areas in which sinter plants are located. We have incorporated the Agency's more restrictive standard in Rule 203(d)(2).

Paragraph (d)(3) makes special provision for cement plants, which are large sources with high inlet grain loadings requiring a high degree of control.

APCB Rule 3-3.220 required that cement plants control to an efficiency of 99.7%, and not exceed an exit grain loading of 0.1 gr/scf. The PCB regulation requires that existing plants comply with Rule 203(b), and that new plants follow the Federal New Source Standards as stated in Rule 203(d)(3). There are three cement plants presently existing in Illinois. Both Kester of Missouri Portland Cement (R. 1648-73, Exhibit 114, No. 167, 169) and Line of Marquette Portland Cement (R. 3871-84) objected to the need to comply with 203(b), maintaining that their companies are in the process of installing controls which will meet the APCB Rule but not 203(b). However, Howlett of Medusa Portland Cement stated:

> "I should also point out that our Dixon kilns currently meet not only the existing Illinois standard (but also) the proposed standard, as well as the federal proposed standard for mixed sources" (R.1096).

At the PCB's request, both Marquette and Missouri submitted more detailed information on their individual processes (Ex. 114 - No. 167 and 168). This data revealed that the design value for uncontrolled emissions from the major kiln was 51.5 and 32 gr/SCF for Marquette and Missouri, respectively. Neither firm maintained that these values were based on actual test information. The highest test grain loading for dry portland cement plants reported in the Federal document "Atmospheric Emissions from the Manufacture of Portland Cement", (Ex. 18) is 17.8 gr/SCF. With this grain loading and the reported design efficiencies, both of the plants in question will meet, or come very close to meeting, Rule 203(b). Since compliance with 203(b) is not required until 1975, and startup of control equipment for these two plants is planned for late 1972-early 1973, some actual operating information should become available before the 1975 date. If uncontrolled grain loadings at that time are inordinately high, these facts should be brought to the PCB's attention. On the other hand, there is a strong possibility that no further controls will be required to meet Rule 203(b). Consequently, at the present time, the PCB cannot justify easing the regulation on the basis of the above cited design grain loadings.

The limitations of Rule 203(d)(3)(B) apply to new portland cement plants and are the same as the Federal New Source Standards. Kester questioned whether such standards could actually be met, on a continuous basis although the Federal New Source backup document (Ex. 115) cited tests of one plant which did meet these control requirements.

Paragraph (d)(4) provides a special rule for certain corn milling processes. The APCB regulations contained an extremely lax provision (Rule 3-3.2511) excepting altogether any wet corn milling process on the basis of individual proof of hardship, provided that new processes not exceed a grain loading of 0.75 gr/scf. The industry testified that there was still need for a lenient standard limited to feed and gluten dryers, because high humidity, low specific gravity, and small particle size made scrubbers, precipitators, and baghouses so far unacceptable, but that existing improvements in cyclone technology made it possible to lower the permissible loading to 0.3 (Commerford, R. 70-15, R. 779-99). We have accepted this suggestion for immediate application since it represents current practice. We have at the Agency's suggestion added a provision removing this special exception in 1975, on the basis of the need and promise of better controls. The 0.3 standard is looser by a factor of ten than that we have rejected as too lax for steel plants, and we view it as an interim measure tolerable only because of the limits of present technology. The comments of the industry as to future control technology developments were generally optimistic (Velguth, Ex. 114, No. 87, pp. 2,3; Kessler, R. 1694-95; Commerford, supra). If these developments prove slow in coming, the burden will be on the industry to justify any extension of the present lax standard.

Rule 203(d)(5) emphasizes that grinding, woodworking, sandblasting, and shotblasting are covered under the fugitive particulate rule (203(f)) and not by the process weight tables. Rule 203(d)(8) does the same for stock piles. These provisions are based on the fact that emissions from these sources are not likely to be exhausted, collected, or measured in such a way as to make application of the process weight tables feasible. On the other hand, the definition of fugitive dust in Rule 201, as well as the circumvention provision of Rule 109 and the exhaust system requirement in Rule 110, is meant to make clear that processes otherwise subject to the process weight rule cannot be exempted simply by leaving off the stack.

Rule 203(d)(6) contains strict new regulations for emissions from coke ovens. The development many years ago of by-product coke ovens utilizing the gases that otherwise would have been emitted to the atmosphere greatly reduced the air pollution potential of coke ovens. But conventional byproduct ovens are opened to the atmosphere both for the charging of coal at the start of the cycle and for the pushing of the finished coke at the end. At both these times severe particulate and gaseous emissions occur. Moreover, additional emissions occur when the hot coke is quenched with water after pushing. See Ex. 111; R. 733-734. The APCB regulations, based upon the then state of technology, despaired of controlling these emissions, allowing up to twenty minutes per hour of opaque emissions during charging and as many again during pushing (Rule 3-3.2121). These exceptions, as shown by the transcript in EPA v. Granite City Steel Co., # 70-34, represented a major gap in particulate control.

The record is clear that the steel industry recognizes the need for controlling coke oven emissions and that the technology for doing so is rapidly advancing. The Agency proposed a regulation based on anticipated performance of the new charging car (AISI car) developed by the Iron and Steel Institute and scheduled for immediate construction by Granite City Steel (R. 3666-67). Interlake agreed that it was reasonable to require now that some considerable controls be placed on charging in the next few years but objected that the numerical parameters proposed by EPA would confine the choice to a single type of control device (R. 736). In response to this testimony we rewrote the provision to specify, in substance, that either the AISI car (which employs negative pressure to keep emissions inside the oven, together with mechanical lid lifters to minimize the time the oven is open) or some equivalent control system (such as a scrubber on the charging car, or pipeline charging that would keep the oven entirely closed during charging) be utilized by no later than the end of 1973. We believe the evidence, not least the commitment of Granite City Steel, amply demonstrates that the time has come to require correction of the charging problem.

With regard to the pushing and quenching end of the coke cycle, the Agency initially made no proposal pending further information. Such information was forthcoming during the hearings. Hanley testified to the development of a largely enclosed quench car into which the coke could be pushed, with potential emissions captured and treated by a control device mounted on the car itself (R. 2798-2805). Interlake testified that it had contracted for the construction of such a car, which should be in operation by the end of 1972 (R. 2797). We believe it reasonable, based upon the timetable, to allow others to await the outcome of Interlake's demonstration, recognizing that pushing control technology is somewhat behind that for charging, and still to install the Allen car or an alternative of equivalent effectiveness by the end of 1974. Performance standards for such installations, as well as more specific ones for charging controls, will have to await testing results. For now the important thing is to get the control equipment installed and in operation.

Until this technology is installed, emissions from coke ovens can be minimized by encouraging good work rules and operating procedures. Hence 203(d)(6)(B)(i)(aa) limits the time allowed for replacing charging port lids to 20 seconds (Armour, R. 757); 203(d)(6)(B)(ii)(aa) specifies 30 per cent opacity from quench towers as long as water is not included in the observation (a standard achievable by using baffles)(Hanley, R. 569-574); 203(d)(6)(B)(iv) requires that leakage from coke oven doors must not exceed 30 per cent opacity (Cairns, R. 2012) and must not last longer than 10 minutes (Armour, R. 735 and Ex. 111, p. III-48) and that a supply of spare doors must be available (Armour, R. 738); and 203(d)(6)(B)(iii) requires work rules to bring about the above control techniques. The prohibition of beehive ovens in Rule 203(d)(6)(A) is merely a recognition that such devices emit all of the gaseous products of coke production to the atmosphere. None presently exists in Illinois.

Rule 203(d)(7) incorporates a rather specific exemption for small foundries which already have control equipment meeting the requirements of APCB Regulation 2-2.54. Biss (R. 2997-3015), Blank (R. 460-464) and Vanderwalker (R. 2854-2864) testified that technology for control of foundries was available to meet either Table 2.1 or 2.2, although Blank admitted that control to the more restrictive standard would probably require switching to an induction furnace for economic reasons. Huelson (R. 200-214) representing the American Foundrymen's Society testified to the general economic hardship which would be incurred by small foundries in conforming to Rule 203(b) but did not specify any economic figures. The Board in setting this regulation took note of the fact that Table 2.3 for small foundries differs, at most, by 6 pounds per hour from Table 2.2. On the other hand, those foundries which have not installed control equipment to meet the special standard must comply with 203(a).

Rule 203(e) covers the emissions from incinerators. Vanderwalker's testimony (R. 2864-2866) that his company had guaranteed a grain loading of 0.05 gr/scf on a very large incinerator is the basis for Rule 203(e)(1),controlling incinerators with refuse loadings greater than 60,000 lb/hr. These large sources should be controlled as tightly as is practicable, and the old standard (.2 gr/scf) was so loose that no exception can be made for those now in compliance. The value of 0.08 gr/scf for incinerators processing more than 2000 lb/hr tracks the Federal New Source Standards (supra) and was supported by Goder (986-1000) and Reed of the Incinerator Institute (Ex. 114, No. 105). The cutoff value of 2000 lb/hr and the 0.2 gr/scf limit for small existing incinerators were based on Goder's suggestion (R. 1004). The testimony of Cook (R. 3823-26), Basic (3827-29) and Chiagouris (Ex. 102) indicated that 0.1 gr/scf was reasonable for small new incinerators. A more lenient standard is included for rural wood waste incinerators based on PCB experience with the difficulties of finding alternate disposal methods for such materials. (PCB cases - 71-17, 71-27, 71-63, 71-56, 71-65, 71-73, 71-84, 71-121, 71-128, 71-135, 71-144, 71-220, 71-304, and Exhibit 114 - No. 146). Industry testimony was that this standard could be practicably met (R. 3132 - 3141), and this is far preferable to the open burning that might otherwise result.

Most of the testimony on fugitive particulate matter (203(f)) emphasized the difficulty of controlling emissions from stockpiles in high winds, e.g. Howlett, cement plants (R. 1107-1109, 1114-1116); Cairns, coal stockpiles (R. 2009); Thomas, sand, rock and gravel for asphalt paving (R. 1916-1917); Smith, grain storage (R. 2934). Krikau (R. 746) and Cairns suggested 35 mph as a cut off point, while Schermerhorn (R. 2968) pointed out that wind speeds in excess of 20 mph will raise dust in open corn fields. Roberts (R. 3314) noted that with a 25 mph limit, fugitive particulates will be regulated for 99% of the time per year, and this is the value which has been specified.

Rule 203(g) contains the all-important limitations on particulate emissions from fuel combustion sources, which emission inventories show constitute a very substantial percentage of total particulates. (Implementation Plan,Appendix I). The APCB regulations, basically allowing up to 0.6 pounds of emission per million btu of heat input within metropolitan areas and 0.8 for existing sources elsewhere (Rules 3-3.112, 2-2.53), were quite lax for large sources. Commonwealth Edison Co. conceded that 99.5% collection efficiency was feasible, that it had ordered a 99.5% precipitator for its new Powerton 5 plant, and that it could meet the present regulations with only 90% control (R 70-15, R. 941). Reddy testified for the Agency that to meet a standard of 0.1 lb/MBtu equipment of 98.5% or greater efficiency was required (Ex. 11. pp. 44-50).

Edison is already required by the Illinois Commerce Commission to control to 98% everywhere and had no objection to our tightening the regulation to that level (R70-15, R.902-950). A number of existing plants throughout the State have been or are in the process of being controlled to levels far beyond the requirements of present regulations. See, e.g., in addition to the Edison testimony, that of Central Illinois Public Service Co. (Ex. 114, No.49, Table I).

The need for a significantly tightened fuel particulate standard in certain areas of the State is shown by the results of diffusion modeling. 1970 calculations showed that even the New York City standard, which declines to 0.1 pounds per million btu at the upper ranges, would be insufficient to achieve compliance with the secondary air quality standard in the Chicago area, even on the assumption that small fuel emission sources would be eliminated by another provision discussed below (See Argonne's document IIPP-4, Ex. 6, isopleths utilizing strategies 22-7-23 with London Law Phase II and with Citywide Ban on R/C Coal and Oil). More recently, the Agency's modeling showed that in Peoria, whose particulate problems are less acute than those of either Chicago or St. Louis, a standard of 0.3 lb/MBtu, half that now applicable, would probably not suffice to meet the secondary air quality standard (Ex. 113-H).

On the basis of the foregoing evidence, we conclude that many fuel-burning sources throughout the State are presently being controlled to emission levels far below those in the APCB regulations, and therefore that a substantial tightening of the limits is desirable throughout the State to reflect an improved level of standard practice. Moreover, the evidence establishes the practicability of compliance with an 0.1 lb/MBtu standard for coal-burning units, which are the most in need of control, as well as the need for a standard in that range in order to meet the air quality standards in the more polluted regions. In other regions we believe 0.1 represents a desirable standard of achievement to prevent degradation or local nuisances and to leave room for new development, in light of the clear availability of controls to achieve this level of emission. The basic standard we adopt today for larger sources, therefore, is 0.1 lb/MBtu, which is also the federal standard for large new sources.

For oil-burning units the evidence is that the 0.1 standard can be met in most cases without the need for controls. See Lopez, R. 1858, and Mowers, R. 3398-3402, both testifying for the oil industry. The Agency had asked that we impose a stricter standard for oil than for coal because it could clearly be achieved by utilizing relatively inefficient control technology. Ultimately, however, EPA modified its position to request an oil standard of 0.08, which is not significantly different from the coal standard.

We decline to impose a tighter oil standard in this situation because the 0.1 standard is tight enough to protect air quality in all present cases, and because we see no reason to discourage conversion from coal to oil, which can result in significant reductions in sulfur dioxide and nitrogen oxide emissions as well as compliance with the particulate standard. Rule 203(g)(2) applies to the 0.1 rule to all oil-burning sources.

Two exceptions from the 0.1 rule, however, have been made in the case of coal burning in response to legitimate claims of hardship. The first, in Rule 203(g)(1)(C), recognizes the equities in favor of those who have recently made substantial expenditures in order to bring their emissions close to but not quite within those permitted by the new general rule. The analogy is to the somewhat relaxed process weight table in Rule 203(b) for sources already meeting it. In the case of fuel combustion the old rule is so much more lax than the new that we cannot allow an exception for all those meeting the former. A number of facilities, however, have been brought within the range of 0.2 lb/MBtu in reliance on the old regulation (See, e.g., Fancher, R. 2077-80; Ex.114, No. 49, Table I), and the Agency tells us that the standard may make allowance for them without jeopardizing the air quality standards (R. 2642-4). Accordingly, Rule 203(g)(1)(C) allows up to 0.2 lb/MBtu from fuel combustion sources presently meeting or engaged in a program to meet that standard, provided their equipment is maintained so as to avoid excessive deterioration of present emission rates.

The second exception from the 0.1 lb/MBtu rule relates to smaller coal-burning sources outside the Chicago region. In older cities such as Chicago and East St. Louis there remain a considerable number of small sources burning coal for heating purposes, especially in small apartment buildings. The Agency tells us that particulate emissions from such sources, which are commonly uncontrolled, are as high as 1.0 lb/MBtu (Ex. 113-H). Not only do these emissions grossly exceed what is allowed from other sources, but Argonne's diffusion studies show that because small domestic and commercial sources emit generally at low altitudes from poorly designed stacks or vents, their effect on air quality is disproportionally large in respect to absolute quantities of emissions (R. 45-48, 162-3). In the Chicago area the evidence is absolutely indisputable that control of small coal-burning sources is essential. Regardless of what other feasible controls are imposed, not even the primary federal standard of 75 ug/$m^3$, much less the secondary standard of 60, can be met in most of the City without control of domestic and commercial coal burning. See generally the two Argonne documents IIPP-2 and IIPP-4, as well as the final implementation plan's figures 6.3.2 and 6.3.4, which constitute a direct comparison of air quality with and without that control, and which are appended to this opinion. If uncontrolled domestic and commercial coal burning continues, there will continue to be bad air in Chicago beyond any shadow of doubt.

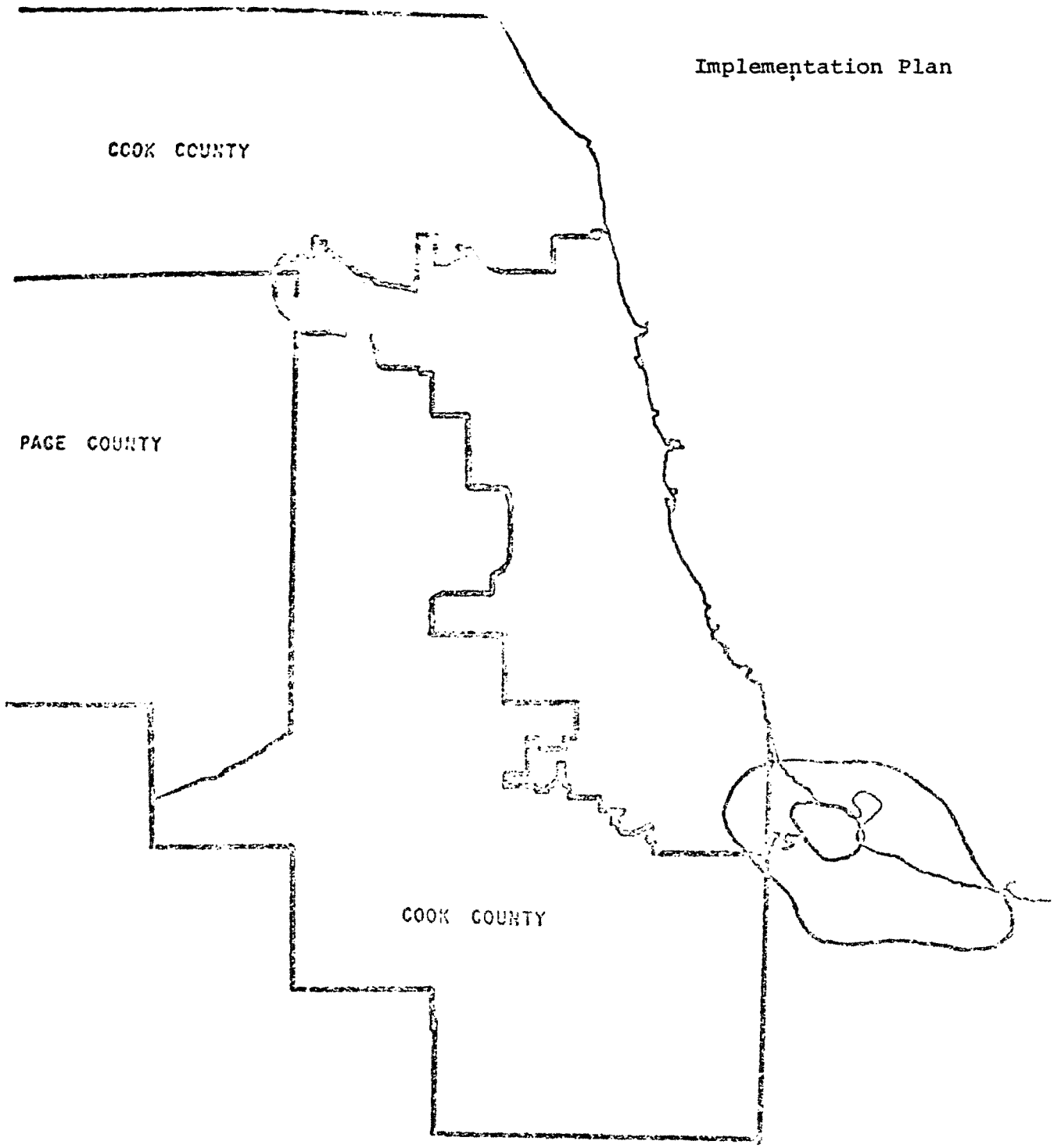



Figure 6.3.2 CMAQCR Particulate Levels with R/C Regulation. Rule 203(b) limit for process particulates.
(Annual Geometric Mean $\mu g/m^3$)

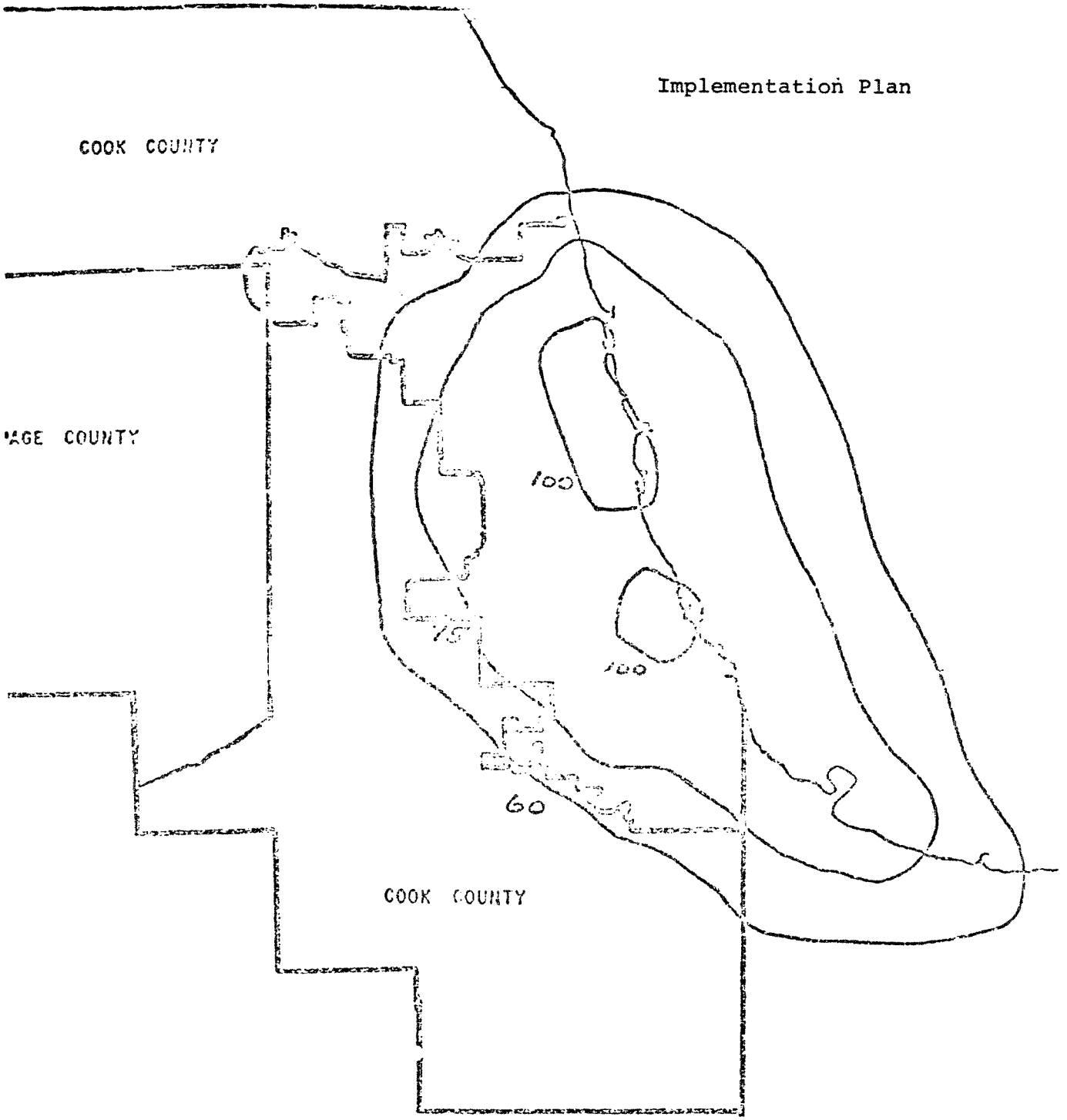



Figure 6.3.4 CMAQCR Particulate Levels with 1% Sulfur Coal, i.e., no particulate controls for R/C fuel combustion. Rule 203(b) limit for process particulates.
(Annual Geometric Mean, $\mu g/m^3$)

The practicability of eliminating these principal sources of Chicago's remaining pollution problem is amply sustained by the record. No one suggested that the answer was to install control equipment; apparently the small size of the individual offending units makes the solution economically less attractive than the alternative. The alternative is to convert to the use of cleaner fuels such as gas or oil. Such conversions are proceeding for reasons independent of air pollution control; in 1970, according to the Peoples Gas Co., some 84,000 dwelling units were converted to gas heating in Chicago alone (R 70-15, R. 426). An extensive Argonne study revealed that, because of the lower price of gas to the small consumer, the cost of conversion could be recouped within a very few years even apart from the increased convenience of gas heating (IIPP-4, Ex. 6). Early doubts as to the availability of natural gas to fuel the necessary conversions (R 70-15, R. 419-436) were resolved by the later explicit testimony of Peoples Gas in December, 1971, that the gas is now available:

> "Peoples Gas is confident that it will be able to convert all present residential and commercial coal users in Chicago to natural gas within the next three years"(R. 1135).

Moreover, both Argonne (IIPP-4, supra) and the oil industry (R 70-15 R. 1292-94) testified that enough distillate fuel oil would be available to do the job even in the absence of natural gas.

The cost of conversion, while it may be recoverable in lower fuel costs, is nevertheless a significant one ($300-$700 per dwelling unit according to Argonne, IIPP-4, Ex. 6) for individuals of modest means, many of whom will be affected by the conversion requirement. We think in the Chicago area these costs simply must be borne if we are to have clean air. The federal criteria showing the adverse effects of high particulate concentrations such as would continue to be experienced without such a requirement suggest that the cost would be easily made up for in savings to the entire community from reduced pollution (R 70-15, Ex. 8). We are quite aware that the limitation will have adverse effects on those who now supply coal to the dwindling retail market. But to refuse to adopt needed control measures for the sake of the coal merchants would be akin to fighting a war to keep the soldiers employed. We cannot preserve retail coal sellers at the expense of the public health. As urged by citizen witnesses testifying in favor of a limitation on domestic and commercial coal-burning (e.g., R 70-15, R. 842-44), we think local and state lawmakers should give serious consideration to some form of government assistance for all those adversely affected.

Both the limitation itself and government assistance have precedent in the action taken to combat a similar problem in London, where the use of coal for heating was forbidden in designated areas high in pollution and a subsidy provided for conversion. The remedy is not without its hardships, but we are convinced that

in no other way can we obtain such a great improvement in air quality at a comparable cost, and that in no other way can we obtain acceptable air in the Chicago area. Rule 203(g)(1)(A) accordingly would have imposed a "London Law" or ban on residential and commercial use of coal in the Chicago area by limiting emissions from those sources, as well as from larger fuel-burning units more susceptible to emission control, to 0.1 pounds of particulate matter per million btu. Rule 203(g)(1)(D) would have made the same rule applicable state-wide to new sources, on the ground that there is no excuse at this late date to begin creating new Londons or Chicagos in light of the obvious advantages even apart from pollution control in burning cleaner fuels. We cannot make these provisions applicable today because of a temporary injunction issued by the Circuit Court of Cook County in No. 72 CH 1482, Roth-Adam Fuel Co. v. Pollution Control Board. Accordingly we have added a proviso that nothing in Rule 203(g) shall be construed as inconsistent with the court's order so long as it remains in effect.

The Agency initially proposed that we make the London law state-wide with respect to existing sources too and later narrowed its request to the Chicago and St. Louis regions because it was unable to establish, despite probable local nuisance problems (See Roberts, R.46-48, Ex. 113-B), that significant violations of the air quality standards would occur as a result of domestic or small commercial coal-burning in less built-up areas (Ex. 113-H ). Because the London medicine is relatively drastic, and because we do not wish to create unnecessary pressures on the limited natural gas supply, we do not at this time impose the residential-commercial coal ban on a state-wide basis, although we encourage efforts to phase out such coal burning and may reexamine the desirability of a wider ban in the future.

With regard to St. Louis the question is a close one. The Agency's most recent information, based on a revised emission inventory and additional Argonne modeling, is that without the London law the federal primary standard of 75 ug/$m^3$ can be met throughout the area and the secondary standard of 60 can be met everywhere except in the vicinity of East St. Louis. The highest predicted concentration in that city without the ban is about 65 ug/$m^3$; with , about 56 (Ex. 113-P). The area affected is relatively small as contrasted with the Chicago situation; the predicted levels are only slightly above the secondary level, not within the health-danger range as in Chicago; the predicted excess is so small, especially in light of a just previous Agency estimate that the London law would make only 1 ug/$m^3$ difference (Ex. 113-H), that we cannot say with confidence that the secondary standard will be violated in the absence of a London law in the St. Louis area. In light of these factors, the depressed financial condition of the East St. Louis area (Ex. 114, No. 141), the lack of evidence as to the availability of gas in that region, the desire not to divert gas from the Chicago region where we know it is needed, and the hardships of the London law on persons with little money, we decline at this time to extend the London law to the St. Louis region. We shall reassess the situation after sufficient time has passed to permit a more accurate determination as to the adequacy of the other new regulations adopted today to achieve compliance with the secondary standard.

Our decision to limit the London Law to Chicago, where it is most urgently needed, is reflected in the graduated emission curve prescribed by Rule 203(g)(1)(B), which begins at 1.0 lb/MBtu to avoid requiring small sources outside Chicago to convert, and which descends to require control to 0.1 lb/MBtu, subject of course to the special provision for certain existing sources in sub-paragraph (C), for larger sources more readily controlled.

The combination of fuels Rule 203(g)(3) is consistent with the particulate allowances for users of only one type of fuel. However, 203(g)(4) takes into account venting of several small boilers to a common stack where this arrangement already exists. The allowable emission limit is then based on the aggregate heat input for all the boilers. Because of averaging, this procedure slightly relaxes the limit for individual boilers, and allows some flexibility for those who use several types of fuel to reduce emissions.

Use of ASME Power test Code 27 for particulate measurement was generally supported by industry, e.g., Goder (R. 990).

Under Rule 203(i) new sources must comply at once with all particulate limitations; the definition of new sources is phrased so as to avoid any undue hardship on sources on which work has begun. The basic date for compliance by existing sources, except for fuel-burning sources, is December 1973. Fuel-burning sources are given until May 30, 1975, in recognition of the fact that the installation of sulfur removal equipment may take until that time, as discussed in connection with Rule 204, and that it makes sense to provide the same date for all controls on the same units. A 1975 date is also provided for certain sources meeting APCB standards which are not stringent enough to qualify for a permanent exemption from paragraph (a)'s process weight table, again in reliance on good faith expenditures.

Rule 204: Sulfur Oxides. Illinois is long overdue in regulating the emission of sulfur oxides, which constitute a major pollution problem in certain parts of the State. Emitted principally as a result of coal combustion and to a lesser extent from certain industrial processes, sulfur dioxide is the gas which, together with particulate matter, has been responsible for such catastrophes as the London killer smogs. The federal government has determined, on the basis of abundant scientific evidence, that $SO_2$ concentrations exceeding an annual arithmetic mean of 80 micrograms per cubic meter (equivalent to about 70 ug/$m^3$ on a geometric mean) can be harmful to human health, and that concentrations exceeding 60 ug/$m^3$ on the same basis (52 geometric) can have adverse effects on public welfare, as for example by accelerating the corrosion of materials.

See 26 C.F.R. sections 50.4, 50.5, reprinted in 36 Fed. Reg. 22384 (Nov. 25, 1971), setting those levels, along with short-term concentrations, as air quality standards that it is the States' obligation to achieve, and the document Air Quality Criteria for Sulfur Oxides (R 70-15, Ex. 7). Apart from adopting its own air quality standards for the two most polluted regions (APCB Rules and Regs., Ch. V) and special provisions to control emissions during emergency conditions (now PCB Regs., Ch. III. Part IV), the Air Pollution Control Board had not taken action against sulfur dioxide when replaced by the present Board in 1970. Developing meaningful emission standards for this important pollutant has been one of our highest priorities.

That something must be done about sulfur dioxide is plain. Despite the effects of the City of Chicago's 1.0% sulfur coal ordinance, several stations within the City still report annual $SO_2$ concentrations above the Federal secondary air quality standard (Ex. 82). In addition, Argonne's calculations indicate that the sulfur dioxide concentration over substantial areas of Chicago is in excess of this limitation and will so remain unless additional measures are taken. (Imp. Plan, p. 6-3-4). In Peoria, and in the Illinois section of the St. Louis region, available monitoring data indicate $SO_2$ levels close to, or above the secondary standard, and ANL has determined that large areas of these two regions are or will be in violation of the standard given an annual growth rate of about 4% (Cohen, R. 172-188; Imp. Plan, p. 6-2-14, 6-2-16; Ex. 7).

Illinois-mined coal, extensively burned in Illinois, tends to be high sulfur content,often as high as 5.0% (see Simon, R. 663); its uncontrolled burning is a principal cause of our sulfur dioxide problems. To reduce emissions to a level that will produce acceptable air in the Chicago region will require either a shift to cleaner fuels or the installation of devices to remove sulfur dioxide from the exhaust gas.

The switch to cleaner fuels is in progress in the City of Chicago and in Cook County under pressure of the City and County prohibitions on the use of fuel containing over 1% of sulfur. This law has accelerated the trend toward natural gas and distillate oil in domestic and other small installations (See Implementation Plan, p.6-3-7) and has induced such large coal users as Commonwealth Edison Co. to obtain low-sulfur coal from the Western states (Rifakes, R 70-15, R. 855-57). It is clear from the diffusion modeling that these trends must be encouraged beyond the city limits. It is also demonstrated that a switch by small users to low-sulfur coal would not suffice to maintain compliance with the air-quality standards in Chicago; conversion to still cleaner gas or oil will be needed unless

growth is to be stifled altogether (See Implementation Plan, pp. 6-3-1 and 6-3-4). Thus the London Law that would have been in this region by Rule 203(g)(1)(A) is necessary, in addition to other sulfur control regulations, to keep sulfur as well as particulate levels in line with the air quality standards. The availability of fuel and the reasonableness of this requirement are discussed above.

For larger sources there is insufficient clean fuel at the present to permit a total conversion to oil or to gas. In the long run the gasification of coal holds promise that high-sulfur Illinois coal can be transformed into a safe fuel (R. 2651-52, 2087-88). In the meantime Commonwealth Edison has testified that it will be able to obtain sufficient Western coal of less than 1% sulfur content to comply throughout the Chicago region with our standard some time in 1974 (Rifakes, R 70-15, R. 863-64).

Our standard is phrased in terms of pounds of emission per unit of heat input rather than in terms of sulfur content of the fuel,both to discourage resort to fuels of low sulfur content and low heating value that might pollute just as badly as that they replaced,and to allow for the use of equipment to permit the combustion of high-sulfur fuels by removing sulfur dioxide from the exhaust gas. The testimony as to the availability of such equipment was hot and controverted. The dispute, however, was not significantly over issues of fact; it was over the ultimate question of judgment, which it is this Board's obligation to decide, as to whether on the generally agreed state of the technology it is appropriate to require the installation of sulfur removal devices.

It is undisputed that the chemistry of several processes for removing sulfur dioxide is simple and understood. Sulfur dioxide reacts with the oxides or carbonates of calcium or magnesium, for example, to form a solid product that can be separated from the gas stream by standard collection methods, or it can be oxidized and combined with water to form sulfuric acid that can be sold to recoup a part of the control cost (R. 630-632). It is also undisputed that a number of firms have constructed sulfur control plants of various sizes employing these and other principles of sulfur oxide treatment, quite a number of which are considerably beyond the laboratory stage. For example, three full-sized units employing a wet limestone process were constructed and operated in England for some time prior to the Second World War (Walsh Ex. 83, p. 5; Ex. 115). A Swedish company has installed a similar

unit on a hospital boiler; the unit has operated continuously for 6 months at a sulfur dioxide removal efficiency of 95-98% (ibid). Closer to home, both the federal and the state EPA gave extensive testimony as to existing demonstration projects all over the country embodying various technologies, several of them full-scale utility boilers of 100 megawatts or more. In Illinois alone Commonwealth Edison and Illinois Power Company are about to begin operation of new full-size units based respectively on limestone scrubbing and on catalytic oxidation (Ex. 83, Table 1). Manufacturers testified that they were prepared to sell sulfur removal equipment and to guarantee that it would meet our regulation (e.g., R. 605-620, 621-656). Nobody disputes that the time for demonstration of such units on a full-scale basis has come.

The dispute centers rather on whether it is time to require additional units beyond those already undertaken to be built. The power industry and other large industrial coal users, as well as the Illinois coal producers, argue vigorously that it is not. They point to acknowledged operating problems experienced in some of the existing installations such as those of Union Electric and of Kansas Power and Light (e.g., R. 2866, 2870, Ex. 46). They observe that the performance guarantees actually given them extend only to a limited test period (R. 2949), and they rely very heavily on a definition of "commercially available" technology given in a report of the National Academy of Sciences in discussing sulfur removal. According to NAS, commercial availability of a control device is defined as "satisfactory operation on a 100 megawatt or larger unit for more than one year" (R. 2280).

We have allowed until May of 1975 for compliance with the sulfur emission standard in order to give affected persons the opportunity to study the results of operation of the numerous units now about to be tested. On the basis of testimony as to the length of time required to design and construct these facilities (R. 638, 2690), we conclude that this liberal timetable will permit nearly a year of further information to be accumulated before commitments must be made. For those who feel the experience of the present demonstration units critical to minimize their own risks, therefore, we feel we have allowed ample time to acquire the information. Unless all of the present demonstrations fail, which seems highly unlikely, it is probable that even the restrictive NAS criteria will be satisfied by the time our standard requires action.

Even should the facts prove otherwise, however, we believe it imperative to enact a sulfur emission standard for the critical regions now. We are of course not bound by the NAS definition on what is, after all, not a scientific question but one of public policy.

Given the seriousness of the sulfur dioxide pollution problem in certain areas of the State, we believe we cannot continue to postpone action to bring relief. We cannot wait until all operating problems are solved; if we did, as observed by Professor Wesley Pipes in another context, we should even now not be benefiting from the long-accepted activated sludge process for sewage treatment (See Effluent Standards, #R 70-8, R. 1536-1537). We agree with Professor James Stukel of the University of Illinois, testifying for the Agency, that on the admitted facts the development of sulfur control technology has advanced to the point where we are justified in requiring additional installations to be made, in areas suffering from serious sulfur problems (R. 3473-3488). The issue of what requirements are reasonable is one that can be resolved only by balancing the benefits of the contemplated rule against its costs, as the statute makes clear. This means that greater costs may be justified, and greater risks of operating problems taken, when the need for pollution abatement is greater. The time to substitute action for study comes sooner when action is urgently needed. Moreover, the adoption of a strict sulfur regulation today will create needed pressure for the improvement of the technology. We must not allow ourselves to fall into the vicious cycle of no regulation because no technology, and no technology because no regulation.

In summary, we hold that there is need to limit sulfur dioxide emissions from coal-burning sources in the Chicago, St. Louis, and Peoria regions to 1.8 pounds per million btu as of May 30, 1975; that small coal users can be expected to meet this standard by switching to natural gas, to distillate oil, or, in St. Louis and Peoria, to low-sulfur coal; that larger coal users can be expected either to utilize low-sulfur coal, as Commonwealth Edison is doing, or to construct additional facilities for the removal of sulfur dioxide at the stack, such as is being done at the Will County and Wood River power stations and elsewhere in this country and abroad.

Outside these three metropolitan areas there is no evidence of acute region-wide sulfur dioxide concentrations in excess of the air-quality standards. This is no excuse for permitting unnecessary nuisances or the creation of new problems, and therefore the following regulations are applicable throughout the State. First, all new sources must comply with a strict emission

standard in order to prevent degradation. The federal new-source standard of 1.2 pounds per million btu, which should be attainable with devices for stack removal of $SO_2$, is applied to the larger sources already subject to the federal law; the 1.8 lb/MBtu standard is applied to other new sources, which have a smaller pollution potential, to allow for the alternative of low-sulfur coal. Second, oil-burning sources everywhere must conform with a standard of 1.0 lb/MBtu in the case of residual oil and 0.3 in the case of distillate, with the largest new residual users limited to 0.8. These provisions are in recognition that oil emissions can be kept substantially lower than those from coal even in the absence of stack control equipment, and the evidence sustains the proposition that the oil standards can be met by judicious choice of fuel (R. 1054-1068, 2026), Third, existing coal-burning sources are limited to 6.0 pounds of sulfur dioxide per million btu. This modest improvement on present practice at some facilities can be met in most cases by the washing of Illinois coal at relatively low cost (Simon, R. 657-668, Ex. 56 a, b, c), and will eliminate easily avoidable emissions. Fourth, Rule 204(e) embodies an equation designed to prevent local violation of the air quality standards as a result of emissions from point sources with short stacks. Roberts (R. 54-58) noted that the basis for this equation is an analysis of the local dispersion of $SO_2$ from an elevated stack under various meteorological conditions, and it is designed to prevent the Federal 3-hour air quality standard of 1300 $ug/m^3$ from being exceeded (36 Fed. Reg. 22384, Nov. 25, 1971). For stacks greater than 300 feet, the minimum allowable emission level will almost always be governed by Rules 204(a), (b) or (c) rather than 204(e). There was no particular objection to this aspect of the regulation. Finally, Rule 204(c)(1)(B)(ii) provides that the 1.8 lb/MBtu emission standard will also apply to any source within major metropolitan areas whose ambient sulfur dioxide concentrations approach the federal secondary standard.

We believe that this combination of measures will prove adequate, in the immediately foreseeable future, to protect against violation of the air quality standards throughout the State. In contrast to particulate matter, for which stack-cleaning technology is tried, proven, and in long-standing common use, we think it would not be wise to extend the strict sulfur dioxide emission standard state-wide at the present time. In the short term we prefer to permit operators in areas of the State not faced with acute sulfur problems to await further information on emerging technology before committing their resources. The corollary of the principle that the time for action comes sooner

in the face of need is that it comes later when the need is less. Moreover, it would not be prudent to dissipate the none-too-abundant supply of low-sulfur fuels by requiring their use in areas without serious air-quality problems.

The basic equation in Rule 204(d) for sources using a combination of fuels is consistent with the limitations for individual fuels. One potentially attractive method for reducing sulfur dioxide emissions (Roberts, R. 2651-52; Fancher, R. 2087-88) is the gasification of coal. This approach is encouraged by 204(d) by allowing a relaxed emission standard when such material is used, and the same reasoning is applied to refinery off gases and residual oil gasification.

The process sources covered by Rule 204(f) will usually be sulfuric acid plants and sulfur recovery units. Rook of American Cyanamid (R. 976-985), Weber of Monsanto (R. 1590-1595) and Hall of New Jersey Zinc (Ex. 114, No. 52) suggested 2000 ppm as a reasonable level for existing sulfuric acid plants which could be achieved under normal operating conditions. A stricter concentration limit would require plant derating or addition of auxiliary scrubbing systems and has not been shown to be uniformly necessary to meet air quality standards. Because sulfur recovery units in oil refineries serve as pollution control equipment greatly reducing emissions of noxious sulfur compounds, existing sulfur recovery systems are exempted from meeting the 2000 ppm limit provided they are equipped with tall stacks. Mowers (R. 3527-28) indicated that 10,000 ppm was a normal $SO_2$ concentration from such equipment, and the Agency's calculations (Ex. 113-I) indicate that stack heights of less than 150 feet will cause ground level concentrations to exceed the air quality standard. New sulfur recovery units will be required to meet the 2000 ppm level, and control processes are available to bring this about (Ex. 114, Nos.3, 162; Ex. 49).

The standard of four pounds of sulfur dioxide per ton of acid produced in new sulfuric acid plants is the Federal New Source standard. Objections to this emission rate were voiced by Rook (Ex. 114, No. 116) and Donovan of Monsanto (Ex. 114, No. 171) on the ground it was based on insufficient data, although the latter noted that new plants could be designed to meet this level. The Federal EPA also cited information on foreign plants that controlled to this standard (Ex. 115). The evidence available to us does not justify our abandoning the already applicable federal standard.

Rule 204(f)(2) limits sulfuric acid mist emissions to 0.15 pounds per ton of acid, for both new and existing plants. Walsh of the Federal EPA testified that high efficiency mist eliminators were adequate to achieve this degree of control for both new and existing plants (R. 2693-95) and Palm's testimony for New Jersey Zinc tended to confirm this statement (R. 3268-69). The Federal test data show levels well below 0.15 and are contained in Exhibit 112. The emission standard for acid mist is quite dependent on the test method specified. Weber of Monsanto (R. 3093-3096) and Palm (R. 3273-74) questioned the compatibility of the Federal test method of 204(g)(2) for acid mist with the emission standard. However, they admitted that they had not run the Federal test as specified in the Federal Register (36 Fed. Reg. p. 24893, Dec. 23, 1971). The only actual tests of which we have evidence indicate the standard will be met. The Federal New Source backup information also indicated that most objections to this test were based on theoretical grounds and not on parallel testing data. (Ex. 115; Fed. Reg. p. 5770, March 21, 1972).

Compliance with the process $SO_2$ standards, which is not complicated by advancing technology as in the case of fuel combustion, is expected of existing sources by the end of 1973.

Rule 205: Organic Material Emission Standards serves both to achieve and maintain compliance with the federal air quality standard for photochemical oxidants (0.08 ppm for one hour not more than once per year, 36 Fed. Reg.22385, Nov. 25, 1971) and to prevent local nuisances. Certain organic emissions are precursors of the type of irritating air pollution characteristic of Los Angeles, known as photochemical smog, whose existence is indicated by the presence of oxidants. The federal standard is set at a level at which smog is actively offensive. (See Exs. 63 and 64, Criteria for Photochemical Oxidants and for Hydrocarbons). This level was exceeded in the summer of 1971 in both Chicago (0.135 ppm) and St. Louis (0.125).

Automotive sources account for the greater part of the organic (hydrocarbon) emissions, and compliance with the federal requirements for exhaust controls on 1975 model vehicles will be necessary if the air quality standard is to be achieved (Implementation Plan, p. 7-3-1). However, stationary sources are estimated to contribute 19% and 20% of the total in Chicago and St. Louis, respectively. As federal vehicle controls are met and as stationary sources grow, the relative contribution of the latter will increase (id. pp. 7-3-1 to 7-4-12; Roberts, R. 66-67). Control of photochemically reactive emissions from these sources cannot be ignored if the requisite air quality is to be maintained.

We conclude that the air quality standard can be met throughout the State by the regulations in Rule 205 in combination with the federal vehicle limitations.

Although the federal EPA cautions that the distinction between more and less reactive compounds is an uncertain one and urges that all hydrocarbons should be considered reactive (36 Fed. Reg., p. 22407, Nov. 25, 1971), we have followed the example of Los Angeles County, where extensive tests demonstrated a rough hierarchy of reactivity (See Ex. 63,pp.2-8, 2-9, 2-10 Ex. 65, pp.3-24, 3-25; Ex. 60, pp.4, 7-48) and adopted a definition of reactivity designed to discourage the use of those materials generally considered at the present time to be most reactive. It is conceivable that in the future, the definition of photochemically reactive material may be expanded to cover more materials as further information becomes available about the interaction of substances in the atmosphere.

Not all the provisions of Rule 205, however, are limited to reactive materials, since photochemical smog is not the only adverse result of organic emissions. Rules 205(a), (b), (c), and (d), for example, apply to all volatile organic materials in light of testimony about such installations as oil refineries. These provisions are designed to require the use of equipment that is already in use at numerous facilities even if there is no substantial risk of Los Angeles smog. In addition, if local odor nuisances exist, 205(b) and (c)call for control of all organic materials.

The storage of petroleum and other volatile organic materials often results in substantial evaporation losses that can readily be prevented, as required for large units under Rule 205(a), by the use of floating roofs or vapor recovery systems, which tend to pay for themselves by avoiding the loss of valuable materials (See Ex. 65, Control Techniques for Hydrocarbons, pp. 4-1 to 4-4; Knowles, Ex. 60 pp. 13-44). Industrial testimony generally supported this provision as good engineering and good economics (Sullivan, Ex. 114, No. 37, p. 8; Faith, R. 2260, 2272).

Based on proof of hardship by the Illinois oil and gas producers, we have made an exception for storage tanks used in the production of Illinois crude oil because of the low vapor pressure and consequent low emission rate of the oil, the generally remote location of these installations, and the declining nature of the industry, which increases the burden of building floating roofs that would have to be abandoned in a short time (Brown, R. 1022-36; Ex. 114, Nos. 25, 100). The specification of positive pressure vent valves and vacuum breakers in such cases was suggested by the industry, (ibid).

Other witnesses (Spaeth, R. 1005-20; Lahey, Ex. 114, No. 8; Feldman, R. 776-82) argued that to require floating roofs or equivalent controls at bulk terminals would be destructively costly, suggesting that turnovers in the type of material stored might make it impossible to recoup the cost. Subsequent testimony by Spaeth, however, in response to our inquiry for more specific information, indicated that only 10% of their storage facilities are used for volatile materials and suggested that the restrictions of 205(b) and 205(c) be limited to the control of these substances, (Ex. 114, No. 149, 173). The evidence before us implies that bulk terminals have a rather considerable ability to segregate volatile organic materials in order to limit their investment in floating roofs to those tanks in which a significant product recovery can be expected, and consequently, do not require special consideration.

Other significant sources of offensive organic emissions are facilities for the loading of gasoline and other products, and for the separation of hydrocarbons from water. Rules 205(b) and (c) require such established good practices as submerged loading pipes, gas-tight connections for tank-truck loading, and enclosed separators with appropriate controls. See Hydrocarbon Techniques, supra, pp. 4-5 to 4-13; the supporting testimony of Conoco and Amoco as to loading (Ex. 114, Nos. 29, 37); EPA's backup document (Ex. 60); and the suggestion by Sullivan (Ex. 114, No. 37) and Knowles (Ex. 60, p. 24) that separators may be controlled without requiring the modification of existing vessels. Mechanical seals or equivalent measures can prevent leakage from pumps and compressors (Hydrocarbon Techniques, supra; R. 400-401); Rule 205(d) provides a performance standard for good practice in this regard based on industry testimony (Lopez, R. 3161-62).

The foregoing provisions apply principally to large installations that are likely if uncontrolled to cause nuisances; they can also generally be met by measures partly compensated for by product recovery. The sources affected by Rules 205(e) and (f), however, are neither so certain to be offensive nor so economical to control. Consequently in both paragraphs the emphasis is placed on limiting the use of photochemically reactive material. Where no active odor nuisance is shown, compliance with these provisions can be achieved by switching to a less reactive substitute, which was a principal means of compliance in Los Angeles and which can be accomplished without significant hardship. This is the sole solution contemplated by 205(e), which flatly restricts the use of large quantities of reactive architectural coatings under circumstances in which, as in outdoor applications, no emission control techniques are practicable.

A great variety of activities are included within the general limitation on organic emissions in Rule 205(f). Among them are the manufacture and spraying of paint and other coatings, dry cleaning, printing, degreasing, soybean processing, and other business in which solvents are employed. A variety of methods are available, at costs markedly variable from one industry to another, to reduce emissions from such activities, if necessary, by such means as absorption, adsorption, or incineration. Some types of dry-cleaning solvents, for example, are reduced by a factor of ten by adsorption on activated carbon in a process that pays for itself within a year or two with capital costs as low as $2300 (See Ex. 65, Hydrocarbon Techniques, especially pp. 4-31 to 4-33). However, the evidence establishes that for certain industries, such as paint spraying, some printing processes, and dry cleaning with standard solvents, the large volumes of exhaust gas or the low value of the product to be recovered render the costs of control very considerable indeed (R. 2355-65, 2410-14; Ex. 114, Nos.2, 53, 36; Ex. 103). Moreover, incineration, the only established emission reduction method in some cases, requires large volumes of scarce natural gas or distillate oil that might be put to good use in reducing particulate and sulfur emissions (Grotelueschen, R. 2413-14).

Consequently, while we will not hesitate to require that such emission controls be undertaken upon a showing that a nuisance exists, we have refrained from requiring them uniformly across the State. In the absence of such a showing a shift to less reactive materials, or to materials such as high-solids coatings or inks containing substantially less total organic matter, will suffice.

Rule 205(g) requires that hydrocarbons in the exhaust gases from catalytic cracking units and other petroleum or petrochemical processes be reduced to 100 ppm. These units, like other refinery facilities covered by Rule 205(a)-(d), can be major nuisance sources if uncontrolled and are commonly utilized as a heat source (Hydrocarbon Techniques, Ex. 65, p. 4-6). Industry testimony shows that in such installations the standard can be readily a achieved (Mowers, R. 3406). Vapor blowdown from other sources is commonly burned, and should be, in smokeless flares (Techniques, pp. 4-4, 4-5), a practice that has industry support subject to the careful provision in 205(g)(3) for unregulated safety valves, which was based on information supplied by industry (Ex. 97) to allow an exemption for valves that are seldom opened.

Rule 206: Carbon Monoxide. Federal vehicle regulations promise significant reductions in carbon monoxide emissions, which, together with Rule 206's provisions for control of stationary sources and the already adopted regulations on open burning (PCB Regs. Ch. 2, Part V), should suffice to meet the air quality standards (Implementation Plan, pp. 7-4-1, 7-4-5, 7-4-12, Ex. 79) and to prevent local nuisances. The Agency has announced its intention to study other measures such as vehicle inspection and maintenance and to propose additional regulations if they prove necessary.

Rule 206(a) limits CO emissions from most fuel combustion sources to 200 ppm. According to Strehlow's testimony (R. 1411) large fuel combustion sources will have no trouble meeting the 200 ppm standard. He added that existence of CO in power plant flue gas is an indication of inefficient combustion, which is undesirable from an economic as well as a pollution standpoint. See also Ex. 66, Carbon Monoxide Techniques, pp. 3-3 to 3-7, 6-1, confirming that proper operation of large sources will avoid most CO emissions from fuel combustion. The exemption for sources less than 10 MBtu/hr is a recognition of the fact that home furnaces and fireplaces often do not have efficient combustion. Because of the relatively small quantity of these emissions, they need not be everywhere restricted.

Strehlow also testified that a level of 500 ppm, prescribed by Rule 206(b), could easily be achieved by well-designed incinerators (R. 1413-1422). However, he noted that some small existing incinerators would possibly have trouble meeting this level. Consequently, an exemption has been given for those small existing incinerators which still conform to a particulate grain loading of 0.2 gr/scf, on the ground that such equipment does not constitute a major source of CO.

Major sources of CO, in contrast, are the effluent gases from the regenerators of catalyst cracking units in petroleum refineries. Mowers of the Illinois Petroleum Council (R. 3406-3408), Bruggink of Clark Oil (R. 3694-3698), and Sullivan of American Oil (Ex. 114, No. 37) questioned the need for control of this type of source, arguing that contributions to ground level CO concentrations would be small from the elevated stacks of such equipment. However, Bruggink testified that each of Clark's regenerators emits 12,600 pounds of carbon monoxide per hour (R. 3720). Using average automobile emission factors from

Exhibit 31, this emission rate is equivalent to the CO emitted from 72,000 automobiles (1970 models) being driven 20 miles/day. It would be difficult to assume that such a large point source would not substantially reduce the assimilative capacity of the environment. Carbon monoxide is commonly burned as fuel in refineries in order not to waste its considerable heating value (CO Techniques, Ex. 66, pp. 4-1 to 4-13), and we think it should be so used, or controlled by equivalent measures, in all refineries to prevent massive emissions. As a consequence, Rule 206(c) calls for control of petroleum and petrochemical processes to a concentration of 200 ppm, a level suggested by Strehlow, which can be reached by various methods of control (Ex. 60, pp. 29-30); Ex. 108, pp. 2, 3). Sullivan suggested 90% removal of CO as an alternative standard. However, in terms of pounds per hour, this still results in a considerable and unnecessary emission of CO to the atmosphere, e.g. 1260 lb/hr using the above example.

Iron and steel-making processes can be significant sources of CO if not properly controlled. See Ex. 66, CO Techniques, pp. 4-1 to 4-13; Ex. 31, pp. 94-96. That blast furnace CO is utilized as fuel has already been mentioned; in other cases the 200 ppm standards of Rules 203(d) and (e) can be met with the use of inexpensive afterburners (See CO Techniques, pp. 4-9, 6-2, giving $2400 as the cost of a burner that reduced emissions from a foundry cupola from 250 pounds per hour to 8). The performance standard of 206(e) for foundry cupolas can also be easily met with an afterburner (R. 3012-14; Ex. 87, 88(a), (b)). The wording has been changed from an earlier draft on the basis of Armour's testimony (Ex. 114, No. 170) that such a level of control may well be attainable for basic oxygen furnaces and sinter plants without using afterburners or CO boilers. An exception has been included for blast furnace slips, based on Armour's testimony (R. 763) that this condition constitutes an uncontrolled explosion and that such occurences take place less than 20 times per year (R 70-15, R. 659, 665-66).

Rule 207: Nitrogen Oxides. Oxides of nitrogen are among the precursors of photochemical smog, but hydrocarbon control is thought to be the preferable method of minimizing smog formation (36 Fed. Reg. 22402, Nov. 25, 1971). The federal air-quality standard for nitrogen dioxide (0.05 ppm as an annual average) is based upon adverse implications of that compound itself for respiratory diseases. This standard is now being exceeded both in Chicago (0.056 ppm) and in downtown St. Louis (0.09 ppm) (Imp. Plan, pp. 7-4-5, 7-4-18). Concentrations on the Illinois side of the St. Louis region are estimated at 80% of the standard id., pp. 7-4-12 to 7-4-18).

Federal vehicle standards will help, but stationary sources account for 31.2% of the total $NO_x$ emissions in the Chicago region and a whopping 73% in St. Louis (Imp. Plan, pp. 7-3-28, 7-4-9). Control of major stationary sources is necessary to maintain compliance with the air quality standards. The Illinois EPA predicts that, even with the best anticipated vehicle controls, 4% annual growth in stationary sources would leave only a small margin between 1980 levels in the St. Louis region and the standard (Ex. 113-C)

Rules 207(a), (b),(c) impose control requirements on electric power stations, the largest category of stationary $NO_x$ sources. Their intent is to control emissions by burner adjustments or alterations in firing procedures, but not to require $NO_x$ removal systems on stacks. The technology for oil and gas firing control is well supported by extensive testing in California (Ex. 58, References 1 and 4). On the other hand, the application of such techniques to coal-fired furnaces is less clear cut. Some data indicated that such modifications may be successful for certain types of burners, e.g. those with tangential firing, but Stukel testified (R. 705) that cyclone burners could not meet a 0.9 lb/MBtu standard, and another source indicates the same may be true for horizontally opposed equipment (Ex. 58, Reference 1). Our regulation encourages the development of designs that will reduce $NO_x$ emissions from all new large fuel combustion units (207(a)(4)), but specifies somewhat more lenient standards for existing coal fired equipment (207(b)(2), 207(c)).

The emission limits of 207(a) for new sources track the Federal New Source Standards (supra), although the 0.7 lb/MBtu emission standard for coal fired units may well require further research into design methods for such equipment. The new-source regulation is applicable state-wide. New units should all be designed so as to avoid creating unnecessary new problems, especially since the control measures required do not involve the construction of expensive gas cleaning devices. Fancher (R. 3841-42) raised the question that new fast start peaking turbines will also be limited by the PCB regulation; but that these are not presently covered under the Federal New Source criteria. However, since the purpose of the standard is to control new operations which emit large concentrations and/or quantities of $NO_x$, these turbine units are also included.

The levels for existing sources in Rule 207(b) reflect the previously noted test results, with specific exemptions (207(c)) for coal fired cyclones and horizontally opposed burners, and for an oil fired cyclone power station, which

Commonwealth Edison admits may well be the only installation of this type in existence (Ex. 114, No. 137, p. 11). The 0.9 lb/MBtu limitation for other coal burner configurations should not require any controls aside from good operating practice (Ex. 60, pp. 161-216). Rule 207(b) applies only to the Chicago and St. Louis areas, in which ambient nitrogen oxide concentrations are at problem levels.

Rule 207(d) covers nitric acid manufacturing processes. Rules 207(d)(1) and (d)(3) follow the Federal New Source Standards (supra) for weak and concentrated nitric acid plants. These provisions were firmly supported by Weinstein's submission of a contract for the Joliet Arsenal which guarantees achievement of such emission levels (R. 1377-1382, Ex. 71). According to Weinstein (R. 1377-1390, Ex. 60, p. 249) existing nitric acid plants can meet the 5.5 lb/T limitation by installing control equipment for 2 to 3% of the product price. The technology is available and has been installed at a number of existing plants. Visible brown emissions, a frequent nuisance at nitric acid operations, will not ordinarily occur when these emission limits are met.

Rule 207(e) deals with other industrial processes using nitric acid. As with production facilities, the necessary control is available and has been installed (Ex. 60, pp. 236-241). Hackman of Monsanto (R. 1600, 1605-6) asked that the limit for existing processes be raised to 15 lbs. of nitrogen oxides/T acid, but admitted that control to the 10 lb. level was a feasible alternative. The exemption of 207(c)(3) is a recognition that small users are not big contributors to $NO_x$ air pollution problems.

Rules 207(d) and (e) apply statewide to require generally accepted control practices in order to prevent local nuisances.

Rule 303: Nondegradation, embodies the principle, already found in Illinois air quality standards (APCB Rules & Regs. Ch. 5) and in water pollution regulations (SWB-7 through SWB-15; PCB Regs. Ch. 3. Rule 208), that parts of the State now clean shall not be unnecessarily degraded. This does not forbid all new facilities, as some seem to have thought. It requires Agency consideration, in advance of issuing a construction permit, to assure that degradation not justified by need will not occur and that new facilities are not put in the wrong place.

Numerical air quality standards will be proposed in the near future to fill out Part III.

Existing provisions governing episode control, open burning, mobile sources, and asbestos have been renumbered and classified as parts of Chapter II.

ORDER

The following new regulations are hereby adopted and existing regulations hereby renumbered to conform to the table of contents as specified:

ILLINOIS POLLUTION CONTROL BOARD
RULES AND REGULATIONS
(May be cited as PCB Regs.)

CHAPTER 2: AIR POLLUTION

TABLE OF CONTENTS



I, Christan L. Moffett, Clerk of the Illinois Pollution Control Board, certify that the Board adopted the above Opinion and Order this 13th day of April, 1972 by a vote of 4-0.

Christan L. Moffett

ILLINOIS POLLUTION CONTROL BOARD
RULES AND REGULATIONS

Ch. 2: AIR POLLUTION

PART I: GENERAL PROVISIONS

EXCEPT AS HEREINAFTER STATED AND UNLESS A DIFFERENT MEANING OF A TERM IS CLEAR FROM ITS CONTEXT, THE DEFINITIONS OF TERMS USED IN THIS CHAPTER SHALL BE THE SAME AS THOSE USED IN THE ENVIRONMENTAL PROTECTION ACT.

ALL TERMS DEFINED IN PART 2 OF THIS CHAPTER WHICH APPEAR IN PART I OF THIS CHAPTER HAVE THE DEFINITIONS SPECIFIED BY RULE 201 OF PART 2 OF THIS CHAPTER.

Rule 101: DEFINITIONS.

Ambient Air: that portion of the atmosphere external to buildings comprising emission sources.

Ambient Air Quality Standard: those standards promulgated from time to time by the Board pursuant to authority contained in the Act, or by the United States Environmental Protection Agency pursuant to authority contained in Public Law 91-604, as amended from time to time.

Air Contaminant: any solid, liquid, or gaseous matter, any odor, or any form of energy, that is capable of being released into the atmosphere from an emission source.

Air Pollution Control Equipment: any equipment or facility of a type intended to eliminate, prevent, reduce or control the emission of specified air contaminants to the atmosphere.

Air Pollution: the presence in the atmosphere of one or more air contaminants in sufficient quantities and of such characteristics and duration as to be injurious to human, plant, or animal life, to health, or to property, or to unreasonably interfere with the enjoyment of life or property.

Commence: the act of entering into a binding agreement or contractual obligation to undertake and complete, within a reasonable time, a continuous program of construction or modification.

Construction: commencement of on-site fabrication, erection or installation of an emission source or of air pollution control equipment.

Emission Source: any equipment or facility of a type capable of emitting specified air contaminants to the atmosphere.

Existing Air Pollution Control Equipment: any air pollution control equipment, the construction or modification of which has commenced prior to the effective date of this Chapter.

Existing Emission Source: any emission source, the construction or modification of which has commenced prior to the effective date of this Chapter.

New Air Pollution Control Equipment: any air pollution control equipment, the construction or modification of which is commenced on or after the effective date of this Chapter.

New Emission Source: any emission source, the construction or modification of which is commenced on or after the effective date of this Chapter.

Modification: any physical change in, or change in the method of operation of, an emission source or of air pollution control equipment which increases the amount of any specified air contaminant emitted by such source or equipment or which results in the emission of any specified air contaminant not previously emitted. It shall be presumed that an increase in the use of raw materials, the time of operation, or the rate of production will change the amount of any specified air contaminant emitted. Notwithstanding any other provisions of this definition, for purposes of permits issued pursuant to Rule 103, the Agency may specify conditions under which an emission source or air pollution control equipment may be operated without causing a modification as herein defined, and normal cyclical variations, before the date operating permits are required, shall not be considered modifications.

Owner or Operator: any person who owns, leases, controls or supervises an emission source or air pollution control equipment.

Person: any individual, corporation, partnership, firm, association, trust, estate, public or private institution, group, agency, political subdivision of this State, any other State or political subdivision or agency thereof or any legal successor, representative, agent, or agency of the foregoing.

Specified Air Contaminant: any air contaminant as to which this Chapter contains emission standards or other specific limitations.

Standard Industrial Classification Manual: the United States Office of Statistical Standards, Standard Industrial Classification Manual (1967), as revised from time to time.

Rule 102: PROHIBITION OF AIR POLLUTION.

No person shall cause or threaten or allow the discharge or emission of any contaminant into the environment in any State so as, either alone or in combination with contaminants from other sources, to cause or tend to cause air pollution in Illinois, or so as to violate the provisions of this Chapter, or so as to prevent the attainment or maintenance of any applicable ambient air quality standard.

Rule 103: PERMITS.

(a) Construction Permits.

(1) Prohibition. No person shall cause or allow the construction of any new emission source or any new air pollution control equipment, or cause or allow the modification of any existing emission source of air pollution control equipment, without first obtaining a Construction Permit from the Agency, except as provided in paragraph (i) of this Rule 103.

(2) Application. An application for a Construction Permit shall contain, as a minimum, the following data and information: the nature of the emission source and air pollution control equipment, including the expected life and deterioration rate; information concerning processes to which the emission source or air pollution control equipment is related; the quantities and types of raw materials to be used in the emission source or air pollution control equipment; the nature, specific sources, and quantities of uncontrolled and controlled air contaminant emissions at the facility which includes the emission source or air pollution control equipment; the type, size, efficiency and specifications (including engineering drawings, plans and specifications certified to by a registered Illinois professional engineer) of the proposed emission source or air pollution control equipment; maps, statistics, and other data sufficient reasonably to describe the location of the emission source or air pollution control equipment. The Agency may waive the submission by the applicant of such engineering drawings, plans, specifications, or such other portions of the above data or information as it shall deem inappropriate or unnecessary to the Construction Permit application, provided that any such waiver by the Agency shall be given in writing to the applicant. The Agency may adopt procedures which require data and information in addition to and in amplification of the matters specified in

the first sentence of this paragraph (a)(2), which are reasonably designed to determine compliance with the Act, this Chapter, and ambient air quality standards, and which set forth the format by which all data and information shall be submitted. Such procedures and formats, and revisions thereto, shall not become effective until filed with the Index Division of the Office of the Secretary of State as required by "An Act concerning administrative rules," approved June 14, 1951, as amended.

(3) An application shall not be deemed to be filed until the applicant has submitted all information and completed all application forms required by paragraph (a)(2) of this Rule 103 and procedures adopted and effective pursuant thereto. Provided, however, that if the Agency fails to notify the applicant within 30 days after the filing of a purported application that the application is incomplete and of the reasons the Agency deems it incomplete, the application shall be deemed to have been filed as of the date of such purported filing. The applicant may treat the Agency's notification that an application is incomplete as a denial of the application for purposes of review.

(4) All applications and supplements thereto shall be signed by the owner and operator of the emission source or air pollution control equipment, or their authorized agent, and shall be accompanied by evidence of authority to sign the application.

(5) Standards for Issuance. No Construction Permit shall be granted unless the applicant submits proof to the Agency that:

(A) the emission source or air pollution control equipment will be constructed or modified to operate so as not to cause a violation of the Act or of this Chapter; and

(B) if subject to a future compliance date, the applicant has an approved Compliance Program and Project Completion Schedule in accordance with the provisions of Rule 104.

(6) Conditions. The Agency may impose such conditions in a Construction Permit as may be necessary to accomplish the purposes of the Act, and as are not inconsistent with the regulations promulgated by the Board thereunder. Except as herein specified, nothing in this Chapter shall be deemed to limit the power of the Agency in this regard. Such conditions may include conditions specifying any testing operations that may be conducted under the Construction Permit.

(b) Operating Permits.

(1) New Emission Sources and New Air Pollution Control Equipment:

Prohibition. No person shall cause or allow the operation of any new emission source or new air pollution control equipment of a type for which a Construction Permit is required by paragraph (a) of this Rule 103 without first obtaining an Operating Permit from the Agency, except for such testing operations as may be authorized by the Construction Permit. Applications for Operating Permits shall be made at such times and contain such information (in addition to the information required by paragraph (b)(3) of this Rule 103) as shall be specified in the Construction Permit.

(2) Existing Emission Sources:

Prohibition. No person shall cause or allow the operation of any existing emission source or any existing air pollution control equipment without first obtaining an Operating Permit from the Agency no later than the dates shown in the following schedule:

(A) Source Classification:

| SOURCE CLASSIFICATION | DATE OPERATING PERMIT REQUIRED |
|---|---|
| Primary Metal Industry Operations as defined by code 33 of the "Standard Industrial Classification Manual" . . . . . | By November 1, 1972 |
| Rubber and Plastics Products Industry Operations as defined by code 30 of the "Standard Industrial Classification Manual" . . . . . | By November 1, 1972 |
| Chemicals and Allied Products Industry Operations as defined by code 28 of the "Standard Industrial Classification Manual" . . . . . | By December 1, 1972 |

| | DATE OPERATING PERMIT REQUIRED |
|---|---|
| Food and Kindred Products Industry Operations as defined by code 20 and Printing and Publishing Industry Operations as defined by code 27 of the "Standard Industrial Classification Manual" | By January 1, 1973 |
| Petroleum and Coal Products Industry Operations as defined by code 29 of the "Standard Industrial Classification Manual" and bituminous cement (asphalt) plants . . . . . | By January 1, 1973 |
| Stone, Clay, and Glass Products and Paper and Allied Products Industry Operations as defined by code 32 and 26 of the "Standard Industrial Classification Manual" and all painting operations using in excess of 5,000 gallons of paint (including thinner) per year . . . . . | By February 1, 1973 |
| Incinerators . . . . . | By March 1, 1973 |
| Electric, Gas, and Sanitary Services as defined by code 49 of the "Standard Industrial Classification Manual" and coal fired boilers . . . | By April 1, 1973 |
| Gas and Oil fired boilers and all other emission sources or air pollution control equipment not listed previously in this paragraph except equipment excluded under paragraph (i) of this Rule . . . . . | By May 1, 1973 |

(B) All applications for Operating Permits shall be submitted to the Agency at least 90 days prior to the date on which an Operating Permit is required. Provided, however, the Agency may waive this 90 day requirement when appropriate. If necessary, to prevent an unmanageable workload as may be deemed appropriate, the Agency may extend the dates by which Operating Permits are required under Section 103(b)(2)(A) for a period not to exceed four months. The Agency shall notify the persons affected and the Board in writing of the extension at least four months before the dates set forth in Section 103(b)(2)(A).

(C) Nothing in this Rule shall preclude any person from applying for an Operating Permit earlier than the dates specified in part (b)(2)(A) of this Rule 103.

(3) Application. An application for an Operating Permit shall contain, as a minimum, the data and information specified in paragraph (a)(2) of this Rule 103. Each application shall list all individual emission sources for which a permit is sought. Any applicant may seek to obtain from the Agency a permit for each emission source, or such emission sources as are similar in design or principle of operation or function, or for all emission sources encompassed in an identifiable operating unit. To the extent that the above specified data and information has previously been submitted to the Agency pursuant to this Rule 103, the data and information need not be resubmitted; provided, however, that the applicant must certify that the data and information previously submitted remains true, correct and current. An application for an Operating Permit shall contain a description of the startup procedure for each emission source, the duration and frequency of startups, the types and quantities of emissions during startup, and the applicant's efforts to minimize any such startup emissions, duration of individual startups, and frequency of startups. The Agency may adopt procedures which require data and information in addition to and in amplification of the matters specified in the first sentence of this paragraph (b)(3), which are reasonably designed to determine compliance with the Act, this Chapter, and ambient air quality standards, and which set forth the format by which all data and information shall be submitted. Such procedures and formats, and revisions thereto, shall not become effective until filed with the Index Division of the Office of the Secretary of State as required by "An Act concerning administrative rules, approved June 14, 1951, as amended.

(4) An application shall not be deemed to be filed until the applicant has submitted all information and completed application forms required by paragraph (b)(3) of this Rule 103 and procedures adopted and effective pursuant thereto. Provided, however, that if the Agency fails to notify the applicant within 30 days after the filing of a purported application that the application is incomplete and of the reasons the Agency deems it incomplete, the application shall be deemed to have been filed as of the date of such purported filing. The applicant may treat the Agency's notification that an application is incomplete as a denial of the application for purposes of review.

(5) All applications and supplements thereto shall be signed by the owner and operator of the emission source or air pollution control equipment, or their authorized agent, and shall be accompanied by evidence of authority to sign the application.

(6) Standards for Issuance. No Operating Permit shall be granted unless the applicant submits proof to the Agency that:

(A) the emission source or air pollution control equipment has been constructed or modified to operate so as not to cause a violation of the Act or of this Chapter, or has been granted a variance therefrom by the Board and is in full compliance with such variance; and

(B) the emission source or air pollution control equipment has been constructed or modified in accordance with all conditions in the Construction Permit, where applicable; and

(C) the emission source or air pollution control equipment has been shown by tests in accordance with the provisions of Rule 106 to operate in accordance with the emission limitations set forth in this Chapter, provided that the Agency may waive the requirement for actual tests where sufficient standard testing information is available; and

(D) the applicant has taken all technically feasible measures, including changes in work rules, to minimize the duration and frequency of startups and to reduce the quantity of emissions during startup; and

(E) if subject to a future compliance date, the applicant has an approved Compliance Program and Project Completion Schedule in accordance with the provisions of Rule 104; and

(F) if required, the applicant has an approved episode action plan in effect in accordance with the provisions of Part IV of this Chapter; and

(G) if subject to a future compliance date, the applicant was, on the effective date of this Chapter, and is at the time of application for an Operating Permit pursuant to Rule 103(b)(2), in compliance with any

applicable emission standards of the Rules and Regulations Governing the Control of Air Pollution of the former State of Illinois Air Pollution Control Board; or was, on the effective date of this Chapter, in full compliance with any variance from those regulations granted by the Pollution Control Board; or has been, since the effective date of this Chapter, granted a variance from those regulations, and is in full compliance with such variance.

(7) Conditions. The Agency may impose such conditions in an Operating Permit as may be necessary to accomplish the purposes of the Act, and as are not inconsistent with the regulations promulgated by the Board thereunder. Except as herein specified, nothing in this Chapter shall be deemed to limit the power of the Agency in this regard. When deemed appropriate as a condition to the issuance of an Operating Permit, the Agency may require that the permittee adequately maintain the air pollution control equipment covered by the permit. To assure that such a maintenance program is planned, the Agency may require that the permittee have a maintenance program and keep such maintenance records as are necessary to demonstrate compliance with this Rule; provided, however, the Agency shall not have the authority to approve the maintenance programs required thereunder.

(8) Duration of Permit. No Operating Permit shall be valid for longer than five years or such shorter period as the Agency may specify in the Operating Permit as necessary to accomplish the purposes of the Act and this Chapter. Applications for renewal of an Operating Permit shall be submitted to the Agency at least 90 days prior to the expiration of the prior Permit, and shall conform to paragraphs (b)(3), (b)(4), and (b)(5) of this Rule 103. The standards for issuance of Renewal Permits shall be as set forth in paragraph (b)(6) of this Rule.

(c) Joint Construction and Operating Permits. In cases where the Agency determines that an emission source or air pollution control equipment is sufficiently standard so as to obviate the need for separate Construction and Operating Permits, the Agency may issue a Joint Construction and Operating Permit. The Agency may adopt procedures which: set forth the circumstances under which Joint Construction and Operating Permits may be issued; require data and information designed to determine compliance with the Act, this Chapter, and ambient air quality standards; and which set forth the format by which all data and information shall be submitted. Such procedures and formats, and revisions thereto, shall

not become effective until filed with the Index Division of the Office of the Secretary of State as required by "An Act concerning administrative rules," approved June 14, 1951, as amended. The standards for issuance of Joint Construction and Operating Permits shall be as set forth in paragraphs (a)(5) and (b)(6) of this Rule 103. The Agency may impose such conditions in a Joint Construction and Operating Permit as may be necessary to accomplish the purposes of the Act, and as are not inconsistent with regulations promulgated thereunder. Except as herein provided, nothing in this Chapter shall be deemed to limit the power of the Agency in this regard. No Joint Construction and Operating Permit shall be valid for longer than five years or such shorter period as the Agency may specify the Joint Construction and Operating Permit as necessary to accomplish the purposes of the Act and this Chapter. Applications for renewal of a Permit shall be submitted to the Agency at least 90 days prior to the expiration of the prior Permit, and shall conform to such procedures as may have been adopted by the Agency; and the standards for issuance of Renewal Permits shall be as set forth in paragraphs (a)(5) and (b)(6) of this Rule 103. The term "Operating Permit" as used elsewhere in this Chapter shall be deemed to include a Joint Construction and Operating Permit.

(d) Design Criteria.

(1) The Agency may adopt procedures which set forth criteria for the design, operation or maintenance of emission sources and air pollution control equipment. These procedures shall be revised from time to time to reflect current engineering judgment and advances in the state of the art. Such procedures and formats, and revisions thereto, shall not become effective until filed with the Index Division of the Office of the Secretary of State as required by "An Act concerning administrative rules," approved June 14, 1951, as amended.

(2) Before adopting new criteria or making substantive changes to any criteria adopted by the Agency, the Agency shall:

(A) publish a summary of the proposed changes in the Board Newsletter or a comparable publication, at the Agency's expense; and

(B) provide a copy of the full text of the proposed changes to any person who in writing so requests; and

(C) defer adoption of the changes for 45 days from the date of publication to allow submission and consideration of written comments on the proposed changes.

(e) Hearings.

(1) The Agency may conduct hearings, prior to issuing a Permit pursuant to this Chapter, to determine whether an applicant has submitted proof that the emission source or air pollution control equipment is or will be in compliance with every Rule of this Chapter.

(2) The Agency shall adopt procedural regulations for the conduct of such hearings, which regulations shall be effective upon filing with the Index Division of the Office of the Secretary of State pursuant to "An Act concerning administrative rules," approved June 14, 1951, as amended. Revisions to such procedural regulations adopted by the Agency pursuant to this paragraph shall take effect in like manner.

(f) Revocation. Violation of any of the conditions of a Permit, or the failure to comply with any rule or regulation of this Chapter, shall be grounds for revocation of the Permit, as well as for other sanctions provided in the Act. Such sanctions shall be sought by filing a complaint with the Board.

(g) Revisions to Permits. The Agency may revise any Permit issued pursuant to this Rule 103, or any condition contained in such Permit, as follows:

(1) upon reapplication by the Permittee; or

(2) upon the revision of the Act or this Chapter.

(h) Existence of Permit No Defense. The existence of a Permit under this Rule 103 shall not constitute a defense to a violation of the Act or any rule or regulation of this Chapter, except for construction or operation without a permit.

(i) Exemptions. No Permit is required for the following classes of equipment:

(1) air contaminant detectors or recorders, combustion controllers, or combustion shutoffs;

(2) air conditioning or ventilating equipment not designed to remove air contaminants generated by or released from associated equipment;

(3) fuel burning emission sources for indirect heating systems and for heating and reheating furnace systems used exclusively for residential or commercial establishments using gas and/or fuel oil exclusively with a total capacity of less than 50 million BTU per hour input;

(4) fuel burning emission sources other than those listed in (3) above for indirect heating systems with a total capacity of less than one million BTU per hour input;

(5) mobile internal combustion and jet engines, marine installation, and locomotives;

(6) laboratory equipment used exclusively for chemical or physical analysis;

(7) painting operations using not in excess of 5,000 gallons of paint (including thinner) per year;

(8) any emission source acquired exclusively for domestic use, except that a Permit shall be required for any incinerator and for any fuel burning emission source using solid fuel with a total capacity of 50 million BTU per hour input or more;

(9) stationary internal combustion engines of less than 1500 horsepower;

(10) stacks or vents used to prevent the escape of sewer gases through plumbing traps;

(11) safety devices designed to protect life and limb, provided that safety devices associated with an emission source shall be included within the Permit for such emission source;

(12) storage tanks for liquids used for retail dispensing;

(13) all printing operations using less than 750 gallons of organic solvents per year;

(14) storage tanks of organic liquids with a capacity of less than 5000 gallons;

(15) flanged and threaded pipe connections, vessel manways and process valves capable of discharging specified air contaminants to the atmosphere; and

(16) sampling connections used exclusively to withdraw materials for laboratory testing and analyses.

(j) Former Permits. Any Permit issued by the Agency, or any predecessor, is subject to the requirements of this Rule 103, and shall be revised or revoked as necessary to conform to this Rule.

(k) Appeals from Conditions in Permits. An applicant may consider any condition imposed by the Agency in a Permit as a refusal by the Agency to grant a Permit, which shall entitle the applicant to appeal the Agency's decision to the Board pursuant to Section 40 of the Act.

(l) Bonds. The Agency may require, as a condition to the issuance of a Permit, the posting of a bond to insure compliance by the permittee with any condition or undertaking related to such Permit. The Board shall have jurisdiction of proceedings to adjudicate facts related to forfeiture of any such bond.

Rule 104: COMPLIANCE PROGRAMS AND PROJECT COMPLETION SCHEDULES.

(a) Prohibition. No person shall cause or allow the operation of an emission source which is not in compliance with the standards or limitations set forth in Part 2 of this Chapter (after the date by which such emission source is required to have an Operating Permit pursuant to Rule 103) without a Compliance Program and a Project Completion Schedule approved by the Agency.

(b) Contents of Compliance Programs and Project Completion Schedules.

(1) A Compliance Program shall contain, as a minimum, the following data and information: the nature and/or type of the proposed air pollution control equipment or proposed air pollution control technique which has been chosen to achieve compliance; the cost, availability and technical reasonableness of the proposed air pollution control equipment or proposed air pollution control technique, including detailed cost analyses and copies of engineering reports or studies sufficient to prove to the Agency that the Compliance Program will result in compliance with applicable standards and limitations of Part 2 of this Chapter.

(2) A Project Completion Schedule shall contain, as a minimum, the following data and information: a final compliance date, which date shall be no later than the applicable date prescribed in Part 2 of this Chapter; and interim dates by which various increments of the proposed compliance program shall be completed, such as dates when contracts will be awarded, dates for equipment delivery, and dates for construction of preliminary structural work.

(3) The Agency may adopt procedures which require data and information in addition to and in amplification of the matters specified in paragraph (b)(2) of this Rule 104, and which set forth the format by which all data and information shall be submitted. Such procedures and formats, and revisions thereto, shall not become effective until filed with the Index Division of the Office of the Secretary of State as required by "An Act concerning administrative rules," approved June 15, 1951, as amended.

(c) Standards for Approval. No Compliance Program and Project Completion Schedule shall be approved unless the applicant submits proof to the Agency that:

(1) the Compliance Program will result in timely compliance with applicable standards and limitations of Part 2 of this Chapter; and

(2) the owner or operator has provided adequate proof that it is committed to the Compliance Program and Project Completion Schedule, including, in the case of a corporation, certification by a duly authorized officer of such corporation that such corporation approves each and every provision of such program and of such schedule.

(d) Revisions. The owner or operator of an emission source or air pollution control equipment subject to an approved Compliance Program and Project Completion Schedule may request a revision of such Program or Schedule at any time. In addition, the Agency may require a revision upon any change in the Act or this Chapter. The Agency shall not approve any revision which contains a final compliance date later than the applicable date prescribed in Part 2 of this Chapter.

(e) Effects of Approval. The approval of a Compliance Program and Project Completion Schedule shall be a condition precedent to the issuance and effectiveness of a Permit pursuant to Rule 103. An approved Compliance Program and Project Completion Schedule, and full compliance therewith, and a current Operating Permit, shall be a prima facie defense to any enforcement action alleging a violation of the standards or limitations set forth in Part 2 of this Chapter with respect to any air contaminant included in such Program and Schedule during the period of the program. Failure to adhere to an approved compliance schedule shall constitute a violation of this Part for which appropriate sanctions may be sought in accordance with the Act.

(f) Records and Reports. Any person subject to this Rule shall maintain such records and make such reports as may be required in procedures adopted by the Agency pursuant to Rule 107.

Rule 105: MALFUNCTIONS, BREAKDOWNS OR STARTUPS.

(a) Prohibition. No person shall cause or allow the continued operation of an emission source during a malfunction or breakdown of the emission source or related air pollution control equipment if such operation would cause a violation of the standards or limitations set forth in Part 2 of this Chapter, unless the current Operating Permit granted by the Agency provides for operation during a malfunction or breakdown. No person shall cause or allow violation of the standards or limitations set forth in Part 2 of this Chapter during startup unless the current Operating Permit granted by the Agency provides for violation of such standards or limitations during startup.

(b) Contents of Request for Permission to Operate During a Malfunction, Breakdown or Startup.

(1) A request for permission to continue to operate during a malfunction or breakdown, if desired, shall be included as an integral part of the application for an Operating Permit pursuant to Rule 103, and shall include as a minimum: a full and detailed explanation of why such continued operation is necessary; the anticipated nature, sources and quantities of emissions which will occur during such continued operation; the anticipated length of time during which such operation will continue; all measures, such as use of off-shift labor or equipment which will be taken to minimize the quantity of air contaminant emissions and length of time during which such operation will continue. When the standards or limitations of Part 2 of this Chapter will be violated during startup, a request for permission to violate such standards or limitations shall be an integral part of the application for an Operating Permit pursuant to Rule 103, and shall include, as a minimum: a description of the startup procedure for each emission source, the duration and frequencies of such startups, the types and quantities of emissions during such startups, and the applicant's efforts to minimize any such startup emissions, duration of individual startups, and frequency of startups.

(2) The Agency may adopt procedures which require data and information in addition to or in amplification of the matters set forth in paragraph (b)(1) of this Rule 105, and which set forth the format in which all data and information shall be submitted. Such procedures and formats, and revisions thereto, shall not become effective until filed with the Index Division of the Office of the Secretary of State as required by "An Act concerning administrative rules," approved June 14, 1951, as amended.

(c) Standards for Granting Permission to Operate During a Malfunction, Breakdown or Startup. Permission shall not be granted to allow continued operation during a malfunction or breakdown unless the applicant submits proof to the Agency that: such continued operation is necessary to prevent injury to persons or severe damage to equipment; or that such continued operation is required to provide essential services; provided, however, that continued operation solely for the economic benefit of the owner or operator shall not be a sufficient reason for granting of permission. Permission shall not be granted to allow violation of the standards or limitations of Part 2 of this Chapter during startup unless the applicant has affirmatively demonstrated that all reasonable efforts have been made to minimize startup emissions, duration of individual startups, and frequency of startups.

(d) Records and Reports. Any person who causes or allows the continued operation of an emission source during a malfunction or breakdown of the emission source or related air pollution control equipment when such continued operation would cause a violation of the standards or limitations set forth in Part 2 of this Chapter shall immediately report such incident to the Agency by telephone, telegraph, or such other method as constitutes the fastest available alternative, except if otherwise provided in the Operating Permit. Thereafter, any such person shall comply with all reasonable directives of the Agency with respect to the incident. In addition, any person subject to this Rule shall maintain such records and make such reports as may be required in procedures adopted by the Agency pursuant to Rule 107.

(e) Continued Operation or Startup Prior to Granting of Operating Permit. Any person desiring to continue to operate or to startup in accordance with paragraph (a) of this Rule prior to the date when an Operating Permit is required pursuant to Rule 103 shall make immediate application for Permission to Operate during a Malfunction, Breakdown or Startup in accordance with paragraph (b) of this Rule 105.

(f) Effect of Granting of Permission to Operate During a Malfunction, Breakdown or Startup. The granting of permission to operate during a malfunction or breakdown, or to violate the standards or limitations of Part 2 of this Chapter during startup, and full compliance with any terms and conditions connected therewith, shall be a prima facie defense to an enforcement action alleging a violation of paragraph (a) of this Rule 105, of the emission and air quality standards of this Chapter, and of the prohibition of air pollution during the time of such malfunction, breakdown, or startup.

Rule 106. MONITORING AND TESTING.

(a) Monitoring Equipment.

(1) Every emission source or air pollution control equipment shall be equipped with such monitoring instruments as may be required in procedures adopted by the Agency or as a condition to a permit issued by the Agency. Such procedures and formats, and revisions thereto, shall not become effective until filed with the Index Division of the Office of the Secretary of State as required by "An Act concerning administrative rules," approved June 14, 1951, as amended. The Agency may require that such monitoring instruments be continuous or intermittent. Such monitoring instruments shall be installed, maintained and operated at the expense of the owner or operator of the emission source or air pollution control equipment.

(2) Before adopting or making substantive changes to any such procedures adopted by the Agency, the Agency shall:

(A) publish a summary of the proposed changes in the Board Newsletter or a comparable publication, at the Agency's expense; and

(B) provide a copy of the full text of the proposed changes to any person who in writing so requests; and

(C) defer adoption of the changes for 45 days from the date of publication to allow submission and consideration of written comments on the proposed changes.

(b) Testing. Every emission source or air pollution control equipment shall be subject to the following testing requirements for the purpose of determining the nature and quantities of specified air contaminant emissions and for the purpose of determining ground level and ambient air concentrations of such air contaminants:

(1) Testing by Owner or Operator. The Agency may require the owner or operator of the emission source or air pollution control equipment to conduct such tests in accordance with procedures adopted by the Agency, at such reasonable times as may be specified by the Agency and at the expense of the owner or operator of the emission source or air pollution control equipment. The Agency may adopt procedures detailing methods of testing and formats for reporting results of testing. Such procedures, and revisions thereto, shall not become effective until filed with the Index Division of the Office of the Secretary

of State, as required by "An Act concerning administrative rules," approved June 14, 1951, as amended. All such tests shall be made by or under the direction of a person qualified by training and/or experience in the field of air pollution testing. The Agency shall have the right to observe all aspects of such tests.

(2) Testing by the Agency. The Agency shall have the right to conduct such tests at any time at its own expense. Upon request of the Agency, the owner or operator of the emission source or air pollution control equipment shall provide, without charge to the Agency, necessary holes in stacks or ducts and other safe and proper testing facilities, including scaffolding, but excluding instruments and sensing devices, as may be necessary.

(c) Records and Reports. Any person subject to this Rule shall maintain such records and make such reports as may be required in Procedures adopted by the Agency pursuant to Rule 107.

Rule 107: RECORDS AND REPORTS.

(a) Records.

(1) The owner or operator of any emission source or air pollution control equipment shall maintain, as a minimum: records detailing all activities pursuant to any Compliance Program and Project Completion Schedule pursuant to Rule 104; records detailing all Malfunctions, Breakdowns or Startups pursuant to Rule 105; and records of all Monitoring and Testing conducted pursuant to Rule 106, plus records of all Monitoring and Testing of any type whatsoever conducted with respect to specified air contaminants. All such records shall be made available to the Agency at any reasonable time.

(2) The Agency may adopt procedures which:

(A) require additional records be maintained consistent with these regulations; and

(B) set forth the format in which all records shall be maintained.

Such procedures and formats, and revisions thereto, shall not become effective until filed with the Index Division of the Office of the Secretary of State as required by "An Act concerning administrative rules," approved June 14, 1951, as amended.

(b) Reports.

(1) The owner or operator of any emission source or air pollution control equipment shall submit to the Agency as a minimum, annual reports detailing the nature, specific sources, and total annual quantities of all specified air contaminant emissions; provided, however, that the Agency may require more frequent reports where necessary to accomplish the purposes of the Act and this Chapter.

(2) The Agency may adopt procedures which require that additional reports be submitted, and which set forth the format in which all reports shall be submitted. Such procedures and formats, and revisions thereto, shall not become effective until filed with the Index Division of the Office of the Secretary of State as required by "An Act concerning administrative rules," approved June 14, 1951, as amended.

(3) All emission data received by the Agency relative to specified air contaminants shall be correlated by the Agency with any emission limitations or standards set forth in Part 2 of this Chapter.

(4) All emission data received by the Agency, shall be available for public inspection at reasonable times and upon reasonable notice.

Rule 108. PROOF OF EMISSIONS

Notwithstanding other provisions of this Chapter, evidence that specified air contaminant emissions, as calculated on the basis of standard emission factors or other factors generally accepted as true by those persons engaged in the field of air pollution control, exceed the limitations prescribed by this Chapter shall constitute adequate proof of a violation, in the absence of a showing that actual emissions are in compliance.

Rule 109. CIRCUMVENTION:

Except as provided in paragraphs 203(g)(3), 204(d), and 204(e) of Part 2 of this Chapter, and except as further provided by Rule 110 of this Chapter, no person shall cause or allow the construction or operation of any device or any means, including the creation or use of any corporations or other business entities having interlocking directorships or substantially identical ownerships which, without resulting in a reduction in the total amount of any air contaminant emitted, conceals, dilutes or permits air contaminant emissions which would otherwise violate these regulations.

Rule 110. DESIGN OF EFFLUENT EXHAUST SYSTEM.

No person shall cause or allow the operation of an emission source or of air pollution control equipment without providing one or more stacks or vents that are designed to prevent the concentration of any air contaminant from:

(1) exceeding any applicable ambient air quality standard, either alone or in combination with air contaminants from other sources; or,

(2) causing or tending to cause air pollution, either alone or in combination with air contaminants from other sources; or,

(3) exceeding the emission standards and limitations of Part 2 of this Chapter.

Exception: This Rule 110 shall not apply to emission sources, such as stock piles of particulate matter which, because of the disperse nature of such emission sources, cannot reasonably be expected to be emitted through a stack.

Rule 111: BURDEN OF PERSUASION REGARDING EXCEPTIONS.

In any proceeding pursuant to this Chapter, if an exception stated in this Chapter would limit an obligation, limit a liability, or eliminate either an obligation or a liability, the person who would benefit from the application of the exception shall have the burden of persuasion that the exception applies and that the terms of the exception have been met.

Rule 112. ANNUAL REPORT.

The Agency shall annually prepare and submit to the Board an Air Contaminant Emission Report which lists the emission sources in the State for which an operating permit is required under Rule 103, describes the type, quantity and concentrations of the various specified contaminants being emitted, and describes the existing and planned controls and the scheduled dates for completion of improvements.

Rule 113: SEVERABILITY.

If any provision of these rules or regulations is adjudged invalid, or if the application thereof to any person or in any circumstance is adjudged invalid, such invalidity shall not affect the validity of this Chapter as a whole or of any part, sub-part, sentence or clause thereof not adjudged invalid.

Rule 114: REPEALER.

Each provision of the Rules and Regulations Governing the Control of Air Pollution, as amended August 19, 1969, applying to an emission source shall remain in full force and effect unless and until such source is required to comply with a corresponding provision of this Chapter.

PART II: EMISSION STANDARDS AND LIMITATIONS FOR STATIONARY SOURCES

Rule 201: DEFINITIONS.

ALL TERMS DEFINED IN PART 1 OF THIS CHAPTER WHICH APPEAR IN PART 2 OF THIS CHAPTER HAVE THE DEFINITIONS SPECIFIED BY RULE 101 of PART 1 OF THIS CHAPTER.

Actual Heat Input: The quantity of heat produced by the combustion of fuel using the gross heating value of the fuel.

Architectural Coating: Any coating used for residential or commercial buildings or their appurtenances, or for industrial buildings which is site applied.

British Thermal Unit: The quantity of heat required to raise one pound of water from 60°F to 61°F (abbreviated btu).

Complete Combustion: A process in which all carbon contained in a fuel or gas stream is converted to carbon dioxide.

Concentrated Nitric Acid Manufacturing Process: Any acid producing facility manufacturing nitric acid with a concentration equal to or greater than 70 percent by weight.

Distillate Fuel Oil: Fuel oils of grade No. 1 and 2 as specified in detailed requirements for fuel oil A.S.T.M. D396-69 (1971).

Effluent Water Separator: Any tank, box, sump, or other apparatus in which any organic material floating on or entrained or contained in water entering such tank, box, sump, or other apparatus is physically separated and removed from such water prior to outfall, drainage, or recovery of such water.

Emission Rate: Total quantity of any air contaminant discharged into the atmosphere in any one-hour period.

Excess Air: Air supplied in addition to the theoretical quantity necessary for complete combustion of all fuel and/or combustible waste material.

Excessive Release: A discharge of more than 0.65 pounds of mercaptans and/or hydrogen sulfide into the atmosphere in any five minute period.

Floating Roof: A roof on a stationary tank, reservoir or other container which moves vertically upon change in volume of the stored material.

Fuel Combustion Emission Source: Any furnace, boiler, or similar equipment used for the primary purpose of producing heat or power by indirect heat transfer.

Fugitive Particulate Matter: Any particulate matter emitted into the atmosphere other than through a stack, provided that nothing in this definition or in Rule 203(f) shall exempt any source from compliance with other provisions of Rule 203 otherwise applicable merely because of the absence of a stack.

Gross Heating Value: Amount of heat produced when a unit quantity of fuel is burned to carbon dioxide and water vapor, and the water vapor condensed as described in A.S.T.M. D 2015-66, D 900-55, D 1826-64, and D 240-64.

Incinerator: Combustion apparatus in which refuse is burned.

Indirect Heat Transfer: Transfer of heat in such a way that the source of heat does not come into direct contact with process materials.

Major Metropolitan Area (MMA): Any county or group of counties which is defined by Table A.

One Hundred Per Cent Acid: Acid with a specific gravity of 1.8205 at 30°C in the case of sulfuric acid and 1.4952 at 30°C in the case of nitric acid.

Opacity: A condition which renders material partially or wholly impervious to transmittance of light and causes obstruction of an observer's view. For the purposes of these regulations, the following equivalence between opacity and Ringelmann shall be employed:

| Opacity Percent | Ringelmann |
|---|---|
| 10 | 0.5 |
| 20 | 1 |
| 30 | 1.5 |
| 40 | 2 |
| 60 | 3 |
| 80 | 4 |
| 100 | 5 |

TABLE A

MAJOR METROPOLITAN AREAS IN ILLINOIS

(MMA's)

| | MMA | COUNTIES INCLUDED IN MMA |
|---|---|---|
| (1) | Champaign - Urbana | Champaign |
| (2) | Chicago | Cook, Lake, Will, DuPage, McHenry, Kane, Grundy, Kendall, Kankakee |
| (3) | Decatur | Macon |
| (4) | Peoria | Peoria, Tazewell |
| (5) | Rockford | Winnebago |
| (6) | Rock Island - Moline | Rock Island |
| (7) | Springfield | Sangamon |
| (8) | St. Louis (Illinois) | St. Clair, Madison |
| (9) | Bloomington - Normal | McLean |

Organic Material: Any chemical compound of carbon including diluents and thinners which are liquids at standard conditions and which are used as dissolvers, viscosity reducers or cleaning agents, but excluding methane, carbon monoxide, carbon dioxide, carbonic acid, metallic carbonic acid, metallic carbide, metallic carbonates, and ammonium carbonate.

Organic Vapor: Gaseous phase of an organic material or a mixture of organic materials present in the atmosphere.

Particulate Matter: Any solid or liquid material, other than water, which exists in finely divided form.

Photochemically Reactive Material: Any organic material with an aggregate of more than 20 per cent of its total volume composed of the chemical compounds classified below or the composition of which exceeds any of the following individual percentage composition limitations:

(1) A combination of hydrocarbons, alcohols, aldehydes, esters, ethers or ketones having an olefinic or cyclo-olefinic type of unsaturation: 5 per cent. This definition does not apply to perchloroethylene or trichloroethylene.

(2) A combination of aromatic compounds with eight or more carbon atoms to the molecule except ethylbenzene: 8 per cent.

(3) A combination of ethylbenzene, ketones having branched hydrocarbon structures or toluene: 20 per cent.

Whenever any photochemically reactive material or any constituent of any organic material may be classified from its chemical structure into more than one of the above groups of organic materials numbered (1), (2), (3), it shall be considered as a member of the most reactive group, that is, that group having the least allowable per cent of the total organic materials.

Portland Cement Process: Any facility manufacturing portland cement by either the wet or dry process.

PPM (Vol) - (Parts Per Million) (Volume): A volume/volume ratio which expresses the volumetric concentration of gaseous air contaminant in a million unit volumes of gas.

Pressure Tank: A tank in which fluids are stored at a pressure greater than atmospheric pressure.

Process: Any stationary emission source other than a fuel combustion emission source or an incinerator.

Process Weight Rate: The actual weight or engineering approximation thereof of all materials except liquid and gaseous fuels and combustion air, introduced into any process per hour. For a cyclical or batch operation, the process weight rate shall be determined by dividing such actual weight or engineering approximation thereof by the number of hours of operation excluding any time during which the equipment is idle. For continuous processes, the process weight rate shall be determined by dividing such actual weight or engineering approximation thereof by the number of hours in one complete operation, excluding any time during which the equipment is idle.

Residual Fuel Oil: Fuel oils of grade No. 4, 5 and 6 as specified in detailed requirements for fuel oils A.S.T.M. D 396-69 (1971).

Restricted Area: The area within the boundaries of any "municipality" as defined in the Illinois Municipal Code, plus a zone extending one mile beyond the boundaries of any such municipality having a population of 1000 or more according to the latest federal census.

Ringelmann Chart: The chart published and described in the Bureau of Mines, U.S. Department of Interior, Information Circular 8333 (Revision of IC7718) May 1, 1967, or any adaptation thereof which has been approved by the Agency.

Safety Relief Valve: A valve which is normally closed and which is designed to open in order to relieve excessive pressures within a vessel or pipe.

Sandblasting: The use of a mixture of sand and air at high pressures for cleaning and/or polishing any type of surface.

Set of Safety Relief Valves: One or more safety relief valves designed to open in order to relieve excessive pressures in the same vessel or pipe.

Shotblasting: The use of a mixture of any metallic or non-metallic substance and air at high pressures for cleaning and/or polishing any type of surface.

Smoke: Small gas-borne particles resulting from incomplete combustion, consisting predominantly but not exclusively of carbon, ash and other combustible material, that form a visible plume in the air.

Smokeless Flare: A combustion unit and the stack to which it is affixed in which organic material achieves combustion by burning in the atmosphere such that the smoke or other particulate matter emitted to the atmosphere from such combustion does not have an appearance, density, or shade darker than No. 1 of the Ringelmann Chart.

Splash Loading: A method of loading a tank, railroad tank car, tank truck or trailer by use of other than a submerged loading pipe.

Stack: A flue or conduit, free-standing or with exhaust port above the roof of the building on which it is mounted, by which air contaminants are emitted into the atmosphere.

Standard Conditions: A temperature of 70°F and a pressure of 14.7 pounds per square inch absolute (psia).

Standard Cubic Foot (SCF): The volume of one cubic foot of gas at standard conditions.

Startup: The setting in operation of an emission source for any purpose.

Stationary Emission Source: An emission source which is not self-propelled.

Submerged Loading Pipe: Any loading pipe the discharge opening of which is entirely submerged when the liquid level is six inches above the bottom of the tank. When applied to a tank which is loaded from the side, any loading pipe the discharge of which is entirely submerged when the liquid level is 18 inches or two times the loading pipe diameter, whichever is greater, above the bottom of the tank. This definition shall also apply to any loading pipe which is continuously submerged during loading operations.

Sulfuric Acid Mist: Sulfuric acid mist as measured according to the method specified in Rule 204(g)(2).

Unregulated Safety Relief Valve: A safety relief valve which cannot be actuated by a means other than high pressure in the pipe or vessel which it protects.

Volatile Organic Material: Any organic material which has a vapor pressure of 2.5 pounds per square inch absolute (psia) or greater at 70°F.

Weak Nitric Acid Manufacturing Process: Any acid producing facility manufacturing nitric acid with a concentration of less than 70 per cent by weight.

Woodworking: The shaping, sawing, grinding, smoothing, polishing and making into products of any form or shape of wood.

Rule 202: Visual Emission Standards and Limitations.

For purposes of this Rule 202, all visual emission opacity standards and limitations shall be considered equivalent to corresponding Ringelmann Chart readings, as described under the definition of opacity.

(a) Visual Emission Standards and Limitations for Certain New Emission Sources.

(1) New Fuel Combustion Emission Sources with Actual Heat Input Greater than 250 Million BTU per Hour. No person shall cause or allow the emission of smoke or other particulate matter into the atmosphere from any new fuel combustion emission source with actual heat input greater than 250 million btu per hour, having an opacity greater than 20 per cent. Exception: The emissions of smoke or other particulate matter from any such emission source may have an opacity greater than 20 per cent but not greater than 40 per cent for a period or periods aggregating 3 minutes in any 60 minute period, providing that such more opaque emission permitted during any 60 minute period shall occur from only one such emission source located within a 1,000 foot radius from the center point of any other such emission source owned or operated by such person, and provided further that such more opaque emissions permitted from each such fuel combustion emission source shall be limited to 3 times in any 24 hour period.

(2) New Portland Cement Processes. No person shall cause or allow the emission of smoke or other particulate matter from any new portland cement process into the atmosphere having an opacity greater than 10 per cent.

(b) Visual Emission Standards and Limitations for All Other Emission Sources.

No person shall cause or allow the emission of smoke or other particulate matter from any other emission source into the atmosphere of an opacity greater than 30 per cent. Exception: The emission of smoke or other particulate matter from any such emission source may have an opacity greater than 30 per cent but not greater than 60 per cent for a period or periods aggregating 8 minutes in any 60 minute period provided that such more opaque emissions permitted during any 60 minute period shall occur from only one such emission source located within a 1,000 foot radious from the center point of any other such emission source owned or operated by such person,

and provided further that such more opaque emissions permitted from each such emission source shall be limited to 3 times in any 24 hour period.

(c) Exceptions to Rules 202(a) and 202(b).

(1) Startup.

Rules 202(a) and 202(b) shall apply during times of startup except as provided in the Operating Permit in Rules 103 and 105.

(2) Emissions of Water and Water Vapor.

Rules 202(a) and 202(b) shall not apply to emissions of water or water vapor from an emission source.

(3) Compliance with Rule 203 a Defense.

Rules 202(a) and 202(b) shall not apply if it is shown that the emission source was, at the time of such emission, in compliance with the applicable mass emission limitations of Rule 203.

(d) Determination of Violations of Rule 202.

Violations of Rule 202(a) and 202(b) shall be determined:

(1) by visual observations; or

(2) by the use of a calibrated smoke evaluation device approved by the Agency as specified in Rule 106 of Part I of this Chapter; or

(3) by the use of a smoke monitor located in the stack and approved by the Agency as specified in Rule 106 of Part I of this Chapter.

(e) Compliance Dates.

(1) Every owner or operator of a new emission source shall comply with the emission standards and limitations of this Rule 202 on the effective date of Part 2 of this Chapter.

(2) Every owner or operator of an existing emission source shall comply with the emission standards and limitations of this Rule 202 by December 31, 1972; except that every owner or operator of an emission source subject to paragraph (g) of Rule 203, shall comply with the emission standards and limitations of this Rule 202 by May 30, 1975.

Rule 203: Particulate Emission Standards and Limitations.

(a) Particulate Emission Standards and Limitations for New Process Emission Sources.

Except as further provided in this Rule 203, no person shall cause or allow the emission of particulate matter into the atmosphere in any one hour period from any new process emission source which, either alone or in combination with the emission of particulate matter from all other similar new process emission sources at a plant or premises, exceeds the allowable emission rates specified in Table 2.1 and in Figure 2.1.

Table 2.1

Standards for New Process Emission Sources

| Process Weight Rate Pounds Per Hour | Process Weight Rate Tons Per Hour | Allowable Emission Rate Pounds per Hour |
|---|---|---|
| 100 | 0.05 | 0.55 |
| 200 | 0.10 | 0.77 |
| 400 | 0.20 | 1.10 |
| 600 | 0.30 | 1.35 |
| 800 | 0.40 | 1.58 |
| 1,000 | 0.50 | 1.75 |
| 1,500 | 0.75 | 2.40 |
| 2,000 | 1.00 | 2.60 |
| 4,000 | 2.00 | 3.70 |
| 6,000 | 3.00 | 4.60 |
| 8,000 | 4.00 | 5.35 |
| 10,000 | 5.00 | 6.00 |
| 20,000 | 10.00 | 8.70 |
| 30,000 | 15.00 | 10.80 |
| 40,000 | 20.00 | 12.50 |
| 50,000 | 25.00 | 14.00 |

| Process Weight Rate Pounds Per Hour | Process Weight Rate Tons Per Hour | Allowable Emission Rate Pounds per Hour |
|---|---|---|
| 60,000 | 30.00 | 15.60 |
| 70,000 | 35.00 | 17.00 |
| 80,000 | 40.00 | 18.20 |
| 90,000 | 45.00 | 19.20 |
| 100,000 | 50.00 | 20.50 |
| 200,000 | 100.00 | 29.50 |
| 300,000 | 150.00 | 37.00 |
| 400,000 | 200.00 | 43.00 |
| 500,000 | 250.00 | 48.50 |
| 600,000 | 300.00 | 53.00 |
| 700,000 | 350.00 | 58.00 |
| 800,000 | 400.00 | 62.00 |
| 900,000 | 450.00 | 66.00 |
| 1,000,000 | 500.00 | 67.00 |

Interpolated and extrapolated (up to process weight rates of 450 tons per hour) values of the data in Table 2.1 shall be determined by using the equation:

$$E = 2.54\ (P)^{0.534}$$

where: E = allowable emission rate in pounds per hour;

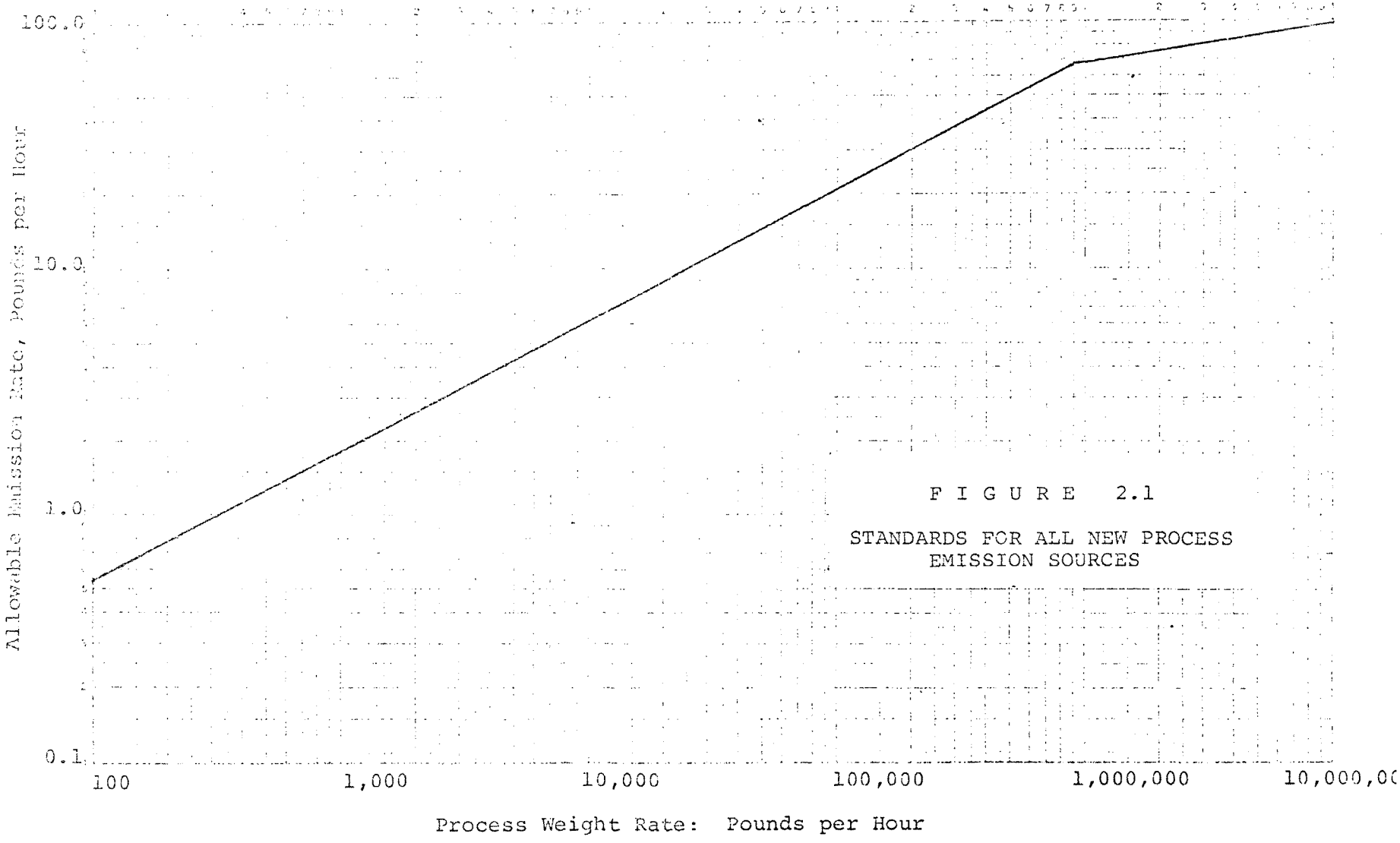
and P = process weight rate in tons per hour.

Interpolated and extrapolated values of the data of Table 2.1 for process weight greater or equal to 450 tons per hour shall be determined using the equation:

$$E = 24.8\ (P)^{0.16}$$

where: E = allowable emission rate in pounds per hour.

and P = process weight rate in tons per hour.




F I G U R E 2.1

STANDARDS FOR ALL NEW PROCESS
EMISSION SOURCES

(b) Particulate Emission Standards and Limitations for Existing Process Emission Sources.

Except as further provided in this Rule 203, no person shall cause or allow the emission of particulate matter into the atmosphere in any one hour period from any existing process emission source which, either alone or in combination with the emission of particulate matter from all other similar new or existing process emission sources at a plant or premises, exceeds the allowable emission rates specified in Table 2.2 and in Figure 2.2.

Table 2.2

Standards for Existing Process Emission Sources

| Process Weight Rate Pounds Per Hour | Process Weight Rate Tons Per Hour | Allowable Emission Rate Pounds Per Hour |
|---|---|---|
| 100 | 0.05 | 0.55 |
| 200 | 0.10 | 0.87 |
| 400 | 0.20 | 1.40 |
| 600 | 0.30 | 1.83 |
| 800 | 0.40 | 2.22 |
| 1,000 | 0.50 | 2.58 |
| 1,500 | 0.75 | 3.38 |
| 2,000 | 1.00 | 4.10 |
| 4,000 | 2.00 | 6.52 |
| 6,000 | 3.00 | 8.56 |
| 8,000 | 4.00 | 10.40 |
| 10,000 | 5.00 | 12.00 |
| 20,000 | 10.00 | 19.20 |
| 30,000 | 15.00 | 25.20 |
| 40,000 | 20.00 | 30.50 |
| 50.000 | 25.00 | 35.40 |

| Process Weight Rate Pounds Per Hour | Process Weight Rate Tons Per Hour | Allowable Emission Rate Pounds Per Hour |
|---|---|---|
| 60,000 | 30.00 | 40.00 |
| 70,000 | 35.00 | 41.30 |
| 80,000 | 40.00 | 42.50 |
| 90,000 | 45.00 | 43.60 |
| 100,000 | 50.00 | 44.60 |
| 200,000 | 100.00 | 51.20 |
| 300,000 | 150.00 | 55.40 |
| 400,000 | 200.00 | 58.60 |
| 500,000 | 250.00 | 61.00 |
| 600,000 | 300.00 | 63.10 |
| 700,000 | 350.00 | 64.90 |
| 800,000 | 400.00 | 66.20 |
| 900,000 | 450.00 | 67.70 |
| 1,000,000 | 500.00 | 69.00 |

Interpolated and extrapolated values of the data in Table 2.2 for process weight rates up to 30 tons per hour shall be determined by using the equation:

$$E = 4.10 \cdot (P)^{0.67}$$

and interpolated and extrapolated values of the data for process weight rates in excess of 30 tons per hour shall be determined by using the equation:

$$E = [55.0 \cdot (P)^{0.11}] - 40.0$$

where: E = allowable emission rate in pounds per hour,

and P = process weight rate in tons per hour.

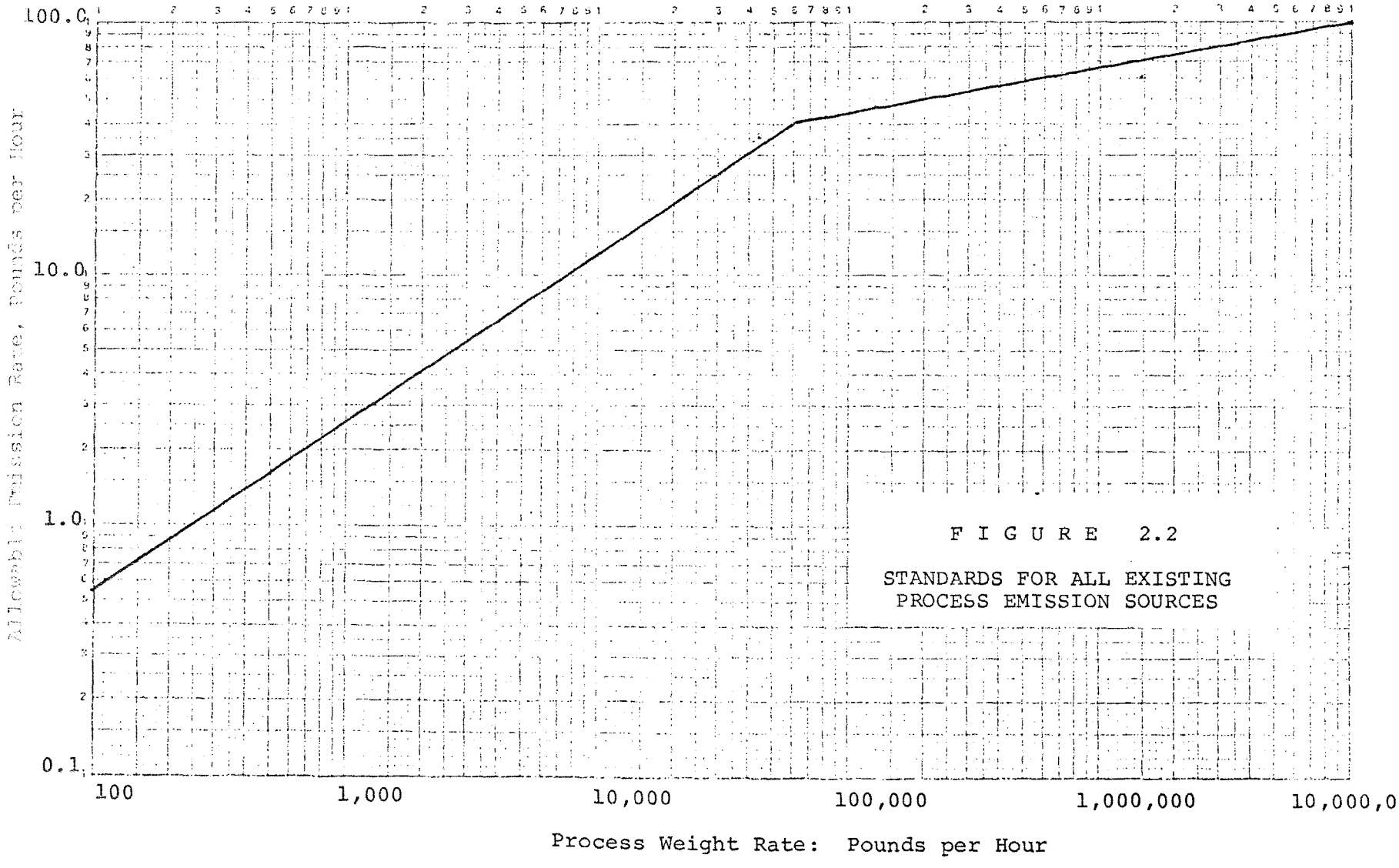



FIGURE 2.2

STANDARDS FOR ALL EXISTING PROCESS EMISSION SOURCES

(c) Compliance by Existing Process Emission Sources. Except as otherwise provided in this Rule 203, every existing process emission source that is not in compliance with paragraph (b) of this Rule 203 as of the effective date of Part 2 of this Chapter, shall comply with paragraph (a) of this Rule 203, unless both the following conditions are met:

(1) The source is in compliance, as of the effective date of Part 2 of this Chapter, with the terms and conditions of a variance granted by the Pollution Control Board, or, within sixty (60) days of the effective date of this Chapter, the source is the subject of a variance petition filed with the Pollution Control Board, which variance is subsequently granted by the Board; and,

(2) As of the effective date of Part 2 of this Chapter, construction has commenced on equipment or modifications sufficient to achieve compliance with paragraph (b) of this Rule 203.

(d) Exceptions to Rules 203(a), 203(b) and 203(c).

(1) Catalyst Regenerators of Fluidized Catalytic Converters. Rules 203(a), 203(b) and 203(c) shall not apply to catalyst regenerators of fluidized catalytic converters. No person shall cause or allow the emission rate from new and existing catalyst regenerators of fluidized catalytic converters to exceed in any one hour period the rate determined using the following equations:

$E = 4.10\ (P)^{0.67}$ for P less than or equal to 30 tons per hour.

$E = [55.0\ (P)^{0.11}]-40.0$ for P greater than 30 tons per hour.

where,

E = allowable emission rate in pounds per hour

P = catalyst recycle rate, including the amount of fresh catalyst added, in tons per hour.

(2) Sinter Processes. Rules 203(a), 203(b) and 203(c) shall not apply to any sinter process. No person shall cause or allow the emission of particulate matter into the atmosphere from the breaker stack of any sinter process to exceed the allowable emission rate specified by Table 2.1 of Rule 203(a). No person shall cause or allow the emission of particulate matter into the atmosphere from the main windbox of any sinter process to exceed 1.2 times the allowable emission rate specified by Table 2.1 of Rule 203(a).

(3) Portland Cement Manufacturing Processes. Rules 203(a) and 203(c) shall not apply to the kilns and coolers of portland cement manufacturing processes.

(A) The kilns and clinker coolers of existing portland cement manufacturing processes shall comply with the emission standards and limitations of Rule 203(b).

(B) The kilns and clinker coolers of new portland cement manufacturing processes shall comply with the following emission standards and limitations:

(i) No person shall cause or allow the emission of particulate matter into the atmosphere from any such kiln to exceed 0.3 pounds per ton of feed to the kiln.

(ii) No person shall cause or allow the emission of particulate matter into the atmosphere from any such clinker cooler to exceed 0.1 pounds per ton of feed to the kiln.

(4) Corn Wet Milling Processes.

Rules 203(a), 203(b) and 203(c) shall not apply to feed and gluten dryers in corn wet milling processes, where the exit gases have a dew point higher than the ambient temperature and the specific gravity of the material processed is less than 2.0. No person shall cause or allow the emission of particulate matter into the atmosphere from any such process:

(A) after the effective date of Part 2 of this Chapter, so as to exceed 0.3 grain per standard cubic foot of effluent gas; and

(B) on or after May 30, 1975, so as to exceed the emission standards and limitations specified in Rule 203(b).

(5) Grinding, Woodworking, Sandblasting and Shotblasting.

Rule 203(a), 203(b) and 203(c) shall not apply to the following industries, which shall be subject to Rule 203(f):

(A) Grinding,

(B) Woodworking,

(C) Sandblasting or Shotblasting.

(6) Coke Manufacturing Processes.

Rules 203(a), 203(b) and 203(c) shall not apply to coke manufacturing processes.

(A) Beehive Coke Ovens. No person shall cause or allow the use of beehive ovens in any coke manufacturing process.

(B) By-Product Coke Plants.

(i) Charging.

(aa) Sixty (60) days after the effective date of Part 2 of this Chapter and until December 31, 1973, no person shall cause or allow the emission of smoke or other particulate matter from any coke oven charging port into the atmosphere after withdrawal of the charging sleeve, except for a period or periods aggregating 20 seconds during any one coke oven charging operation. The charge car shall remain over the charging ports only as long as is needed to complete the charging operation.

(bb) On and after December 31, 1973, all coke oven facilities shall be equipped with automated, negative pressure charging systems, or shall employ alternative methods of comparable effectiveness in reducing emissions during charging; and after said date, no person shall cause or allow the emission of visible particulate matter, other than water, from any coke oven charging port into the atmosphere, except for a period or periods aggregating 15 seconds during any one coke oven charging operation. During such charging operation the emission of smoke or other particulate matter from the charging port or from the charging system into the atmosphere shall have an opacity of no greater than 30 per cent.

(ii) Pushing and Quenching.

(aa) On and after July 1, 1972, no person shall cause or allow the emission of smoke or other particulate matter, other than water, of an opacity greater than 30 per cent, from a coke manufacturing process quench tower into the atmosphere.

(bb) On and after December 31, 1974, all coke oven facilities shall be equipped with enclosed pushing and quenching systems with particulate collection equipment, or shall employ alternative methods of comparable effectiveness in reducing emission during pushing and quenching.

(iii) Work Rules. No person shall cause or allow the operation of a by-product coke plant without operating and maintenance work rules approved by the Agency. Such work rules shall be submitted to and approved by the Agency no later than 60 days after the effective date of Part 2 of this Chapter. No such plan shall be approved by the Agency unless it contains, as a minimum, information sufficient to prove to the Agency that the emission of specified air contaminants will conform to the requirement of this Rule 203.

(iv) Coke Oven Doors.

(aa) On and after July 1, 1972, no person shall cause or allow the operation of a coke oven that emits any specified air contaminants into the atmosphere during coking from the coke oven doors for more than ten minutes after commencement of the coking cycle. During such ten minutes the emission shall have an opacity no greater than 30 per cent.

(bb) On and after July 1, 1972, no person shall cause or allow the operation of a coke oven unless

(bb-1) there is, on the plant premises, an inventory of spare coke oven doors and seals at all times, and

(bb-2) there is, on the plant premises, a repair facility capable of prompt and efficient repair of coke oven doors and seals.

(7) Certain Small Foundries. Rules 203(a), 203(b) and 203(c) shall not apply to foundry cupolas if all the following conditions are met:

(A) The cupola was in existence prior to April 15, 1967; and,

(B) The cupola process weight rate is less than or equal to 20,000 lb/hr. and,

(C) The cupola as of the effective date of Part 2 of this Chapter, either;

(i) is in compliance with the following Table 2.3; or,

(ii) is in compliance with the terms and conditions of a variance granted by the Pollution Control Board and, construction has commenced on equipment or modifications sufficient to achieve compliance with Table 2.3.

Table 2.3

Allowable Emissions from Small Foundries

covered by Rule 203(d)(7).

| Process Weight Rate Pounds Per Hour | Allowable Emission Rate Pounds Per Hour |
|---|---|
| 1,000 | 3.05 |
| 2,000 | 4.70 |
| 3,000 | 6.35 |
| 4,000 | 8.00 |
| 5,000 | 9.58 |
| 6,000 | 11.30 |
| 7,000 | 12.90 |

| Process Weight Rate Pounds Per Hour | Allowable Emission Rate Pounds Per Hour |
|---|---|
| 8,000 | 14.30 |
| 9,000 | 15.50 |
| 10,000 | 16.65 |
| 12,000 | 18.70 |
| 16,000 | 21.60 |
| 18,000 | 23.40 |
| 20,000 | 25.10 |

For process weight rates not listed in Table 2.3, straight line interpolation between two consecutive process weight rates shall be used to determine allowable emission rates.

(8) Stock Piles. Rules 203(a), 203(b) and 203(c) shall not apply to emission sources, such as stock piles of particulate matter, to which, because of the disperse nature of such emission sources, such rules cannot reasonably be applied.

(e) Particulate Emission Standards and Limitations for Incinerators

(1) No person shall cause or allow the emission of particulate matter into the atmosphere from any incinerator burning more than 60,000 pounds of refuse per hour to exceed 0.05 grains per standard cubic foot of effluent gases corrected to 12 per cent carbon dioxide.

(2) No person shall cause or allow the emission of particulate matter into the atmosphere from any incinerator burning more than 2000 pounds of refuse per hour to exceed 0.08 grain per standard cubic foot of effluent gases corrected to 12 per cent carbon dioxide.

(3) No person shall cause or allow the emission of particulate matter into the atmosphere from all other existing incinerators to exceed 0.2 grains per standard cubic foot of effluent gases corrected to 12 per cent carbon dioxide.

(4) No person shall cause or allow the emission of particulate matter into the atmosphere from all other new incinerators to exceed 0.1 grains per standard cubic foot of effluent gases corrected to 12 per cent carbon dioxide.

(5) Exception: Subparagraphs (1), (2) and (4) of this Rule 203(e) shall not apply to incinerators which burn wood wastes exclusively, if all the following conditions are met:

(A) The emission of particulate matter from such incinerator does not exceed 0.2 grains per standard cubic foot of effluent gases corrected to 12 per cent carbon dioxide; and,

(B) The location of such incinerator is not in a restricted area, and is more than 1000 feet from residential or other populated areas; and,

(C) When it can be affirmatively demonstrated that no economically reasonable alternative method of disposal is available.

(f) Fugitive Particulate Matter.

(1) No person shall cause or allow the emission of fugitive particulate matter from any process, including any material handling or storage activity, that is visible by an observer looking generally toward the zenith at a point beyond the property line of the emission source.

(2) No person shall cause or allow the emission of fugitive particulate matter from any process, including any material handling or storage activity, in such a manner that the presence of such particulate matter shown to be larger than forty (40) microns (mean diameter) in size exists beyond the property line of the emission source.

(3) Rules 203(f)(1) and 203(f)(2) shall not apply to emissions of fugitive particulate matter from stockpiles of materials when the wind speed is greater than 25 miles per hour. Determination of wind speed for the purposes of this rule shall be by a one-hour average at the nearest official station of the

U.S. Weather Bureau, by interpretation of surface weather maps by a meteorologist, or by wind speed instruments installed on the stockpile site.

(4) No person shall cause or allow the operation of a vehicle of the second division as defined by Ill. Rev. Stat., Ch. 95 1/2, §1-217, as revised, or a Semitrailer as defined by Ill. Rev. Stat., Ch. 95 1/2, §1-187, as revised, without a covering sufficient to prevent the release of particulate matter into the atmosphere, provided that this paragraph (f)(4) of this Rule 203 shall not apply to automotive exhaust emissions.

(5) Except for the stockpiling of materials, Rule 203(f) shall not apply to emissions resulting from the manufacture of coke.

(6) Rule 203(f) shall not apply to emissions of water and water vapor from cooling towers.

(g) Particulate Emission Standards and Limitations for Fuel Combustion Emission Sources.

(1) Fuel Combustion Emission Sources Using Solid Fuel Exclusively.

(A) Existing Fuel Combustion Emission Sources Using Solid Fuel Exclusively Located in the Chicago Major Metropolitan Area. No person shall cause or allow the emission of particulate matter into the atmosphere from any existing fuel combustion source using solid fuel exclusively, located in the Chicago major metropolitan area, to exceed 0.1 pounds of particulate matter per million btu of actual heat input in any one hour period except as provided in sub-paragraph (C) of this Rule 203(g)(1).

(B) Existing Fuel Combustion Emission Sources Using Solid Fuel Exclusively Located Outside the Chicago Major Metropolitan Area. No person shall cause or allow the emission of particulate matter into the atmosphere from any existing fuel combustion source using solid fuel exclusively, located outside the Chicago major metropolitan area, to exceed the limitations specified in Table 2.4 and Figure 2.3 in any one hour period except as provided in sub-paragraph (C) of this Rule 203(g)(1):

Table 2.4

| Fuel Combustion Emission Source Actual Heat Input million btu per hour | $S_s$ Allowable Emission Standard pounds per million btu |
|---|---|
| less than or equal to 10 | 1.0 |
| greater than 10 but smaller than 250 | $\frac{5.18}{(H_s)^{0.715}}$ |
| greater than or equal to 250 | 0.1 |

$S_s$ = allowable emission standard in pounds per million btu of actual heat input

$H_s$ = actual heat input, million btu per hour

(C) Existing Controlled Fuel Combustion Emission Sources Using Solid Fuel Exclusively.

Notwithstanding sub-paragraphs (A) and (B) of this Rule 203(g)(1), any existing fuel combustion source using solid fuel exclusively may emit up to, but not exceed, 0.2 pounds per million btu, if, as of the effective date of Part 2 of this Chapter, either of the following conditions is met:

(i) The emission source has an emission rate based on original design or equipment performance test conditions, whichever is stricter, which is less than 0.2 pounds per million btu of actual heat input, and the emission control of such source is not allowed to degrade more than 0.05 pounds per million btu from such original design or acceptance performance test conditions; or,

(ii) The source is in full compliance with the terms and conditions of a variance granted by the Pollution Control Board sufficient to achieve an emission rate less than 0.2 pounds per million btu, and construction has commenced on equipment or modifications prescribed

under that program; and emission control of such source is not allowed to degrade more than 0.05 pounds per million btu from original design or equipment performance test conditions, whichever is stricter.

(D) New Fuel Combustion Emission Sources Using Solid Fuel Exclusively.

No person shall cause or allow the emission of particulate matter into the atmosphere in any one hour period from any new fuel combustion emission source using solid fuel exclusively, to exceed 0.1 pounds of particulate matter per million btu of actual heat input.

PROVISO: Nothing in this rule 203(g)(1) shall be construed to apply in any manner inconsistent with the following paragraph 8(B) of an order of the Circuit Court of Cook County dated April 13, 1972 in case no. 72 CH 1484:

"The defendants, and each of them, their agents, employees, and attorneys, are hereby restrained for a period of ten days from the date hereof from (1) adopting or from (2) holding or conducting, scheduling or rescheduling public hearings pertaining to the adoption of proposed Rule 203(g)(1)(A) of the Illinois Pollution Control Board and so much of proposed Rule 203(g)(1)(C) of the Illinois Pollution Control Board as pertains to proposed Rule 203(g)(1)(A), insofar as such rules pertain to the use of coal as a source of fuel in residential and commercial buildings in the Chicago Major Metropolitan Area, or from (1) adopting or from (2) holding or conducting public hearings to adopt a rule which would eliminate or ban the use of coal as a source of fuel in residential and commercial buildings in the Chicago Major Metropolitan Area as such area is defined by the Illinois Pollution Control Board, unless there is a provision in said proposed rule for just compensation to owners of businesses in the class represented by plaintiffs and to owners of commercial and residential buildings whose property rights would be affected by said rule wherever said rule is effective."

And such further orders as may be entered by the Court.

(2) Fuel Combustion Emission Sources Using Liquid Fuel Exclusively. No person shall cause or allow the emission of particulate matter into the atmosphere in any one hour period to exceed 0.10 pounds of particulate matter per million btu of actual heat input from any fuel combustion emission source using liquid fuel exclusively.

(3) Fuel Combustion Emission Sources Using More Than One Type of Fuel. No person, while simultaneously burning more than one type of fuel in a fuel combustion emission source, shall cause or allow the emission of particulate matter into the atmosphere in any one hour period in excess of the following equation:

$$E = S_S H_S + 0.10\ H_l$$

where:

$E$ = allowable particulate emission rate in pounds per hour;

$S_S$ = solid fuel particulate emission standard which is applicable, pounds per million btu of actual heat input;

$H_S$ = actual heat input from solid fuel in million btu per hour; and

$H_l$ = actual heat input from liquid fuel in million btu per hour.

(4) Aggregation of Existing Fuel Combustion Sources.

Rule 203(g)(3) may be applied to the aggregate of all fuel combustion emission sources vented to a common stack provided that after January 26, 1972:

(A) ductwork has not been modified so as to interconnect such existing fuel combustion emission sources;

(B) the actual heat input to any such existing fuel combustion emission source is not increased; and,

(C) no new fuel combustion emission source is added to reduce the degree of control of emissions of particulate matter required by paragraph (g) of this Rule 203.

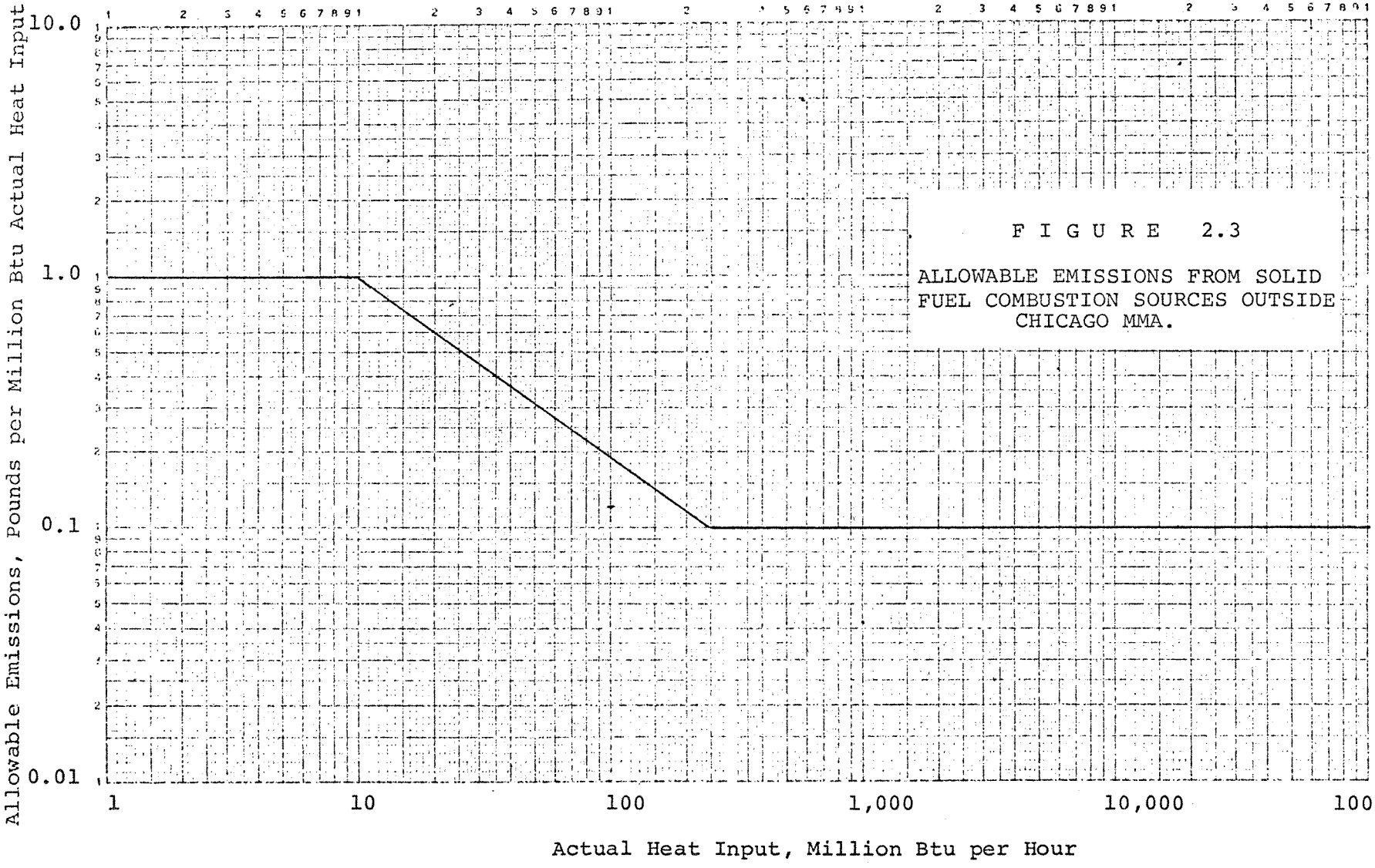



FIGURE 2.3

ALLOWABLE EMISSIONS FROM SOLID FUEL COMBUSTION SOURCES OUTSIDE CHICAGO MMA.

(h) Measurement Methods. Particulate emissions from stationary emission sources subject to Rule 203, shall be determined by the procedures described in the ASME Power Test Code 27-1957 as revised from time to time, or by any other equivalent procedures approved by the Agency.

(i) Compliance Dates.

(1) Every owner or operator of a new emission source shall comply with the standards and limitations of Rule 203 of the effective date of Part 2 of this Chapter.

(2) Except as otherwise provided in paragraph (d)(4), (d)(6), (i)(3), (i)(4), and (i)(5) of this Rule 203, every owner or operator of an existing emission source shall comply with the standards and limitations of Rule 203 by December 31, 1973.

(3) Every owner or operator of an existing emission source subject to paragraph (f) of this Rule 203 shall comply with the standards and limitations of this Rule 203:

(A) six months after the effective date of Part 2 of this Chapter when the emissions from such source are caused by the stockpiling of materials;

(B) six months after the effective date of Part 2 of this Chapter for emission sources subject to paragraph (f)(4) of this Rule 203; and

(C) one year after the effective date of Part 2 of this Chapter for all other emission sources subject to paragraph (f) of this Rule 203.

(4) Every owner or operator of an existing emission source subject to paragraph (g) of this Rule 203 shall comply with the standards and limitations of Rule 203 by May 30, 1975.

(5) Notwithstanding any other provisions of Rule 203 of this Part 2, every owner or operator of an existing emission source which:

(A) is required to comply with Rules 2-2.51, 2-2.52, 2-2.54, 3-3.111, 3-3.2110, 3-3.2130 and 3-3.220 of Rules and Regulations Governing the Control of Air Pollution as amended August 19, 1969; and

(B) which is in compliance with such rules, as of the effective date of this Chapter, or is in compliance with paragraphs 203(c)(1) and (2) of this Chapter.

shall comply with the applicable emission standards and limitations of this Rule 203, by May 30, 1975.

Rule 204: Sulfur Standards and Limitations.

(a) Sulfur Dioxide Emission Standards and Limitations for New Fuel Combustion Emission Sources with Actual Heat Input Greater than 250 Million Btu per Hour.

(1) Solid Fuel Burned Exclusively. No person shall cause or allow the emission of sulfur dioxide into the atmosphere in any one hour period from any new fuel combustion emission source greater than 250 million btu per hour, burning solid fuel exclusively, to exceed 1.2 pounds of sulfur dioxide per million btu of actual heat input.

(2) Liquid Fuel Burned Exclusively. No person shall cause or allow the emission of sulfur dioxide into the atmosphere in any one hour period from any new fuel combustion emission source greater than 250 million btu per hour, burning liquid fuel exclusively;

(A) to exceed 0.8 pounds of sulfur dioxide per million btu of actual heat input when residual fuel oil is burned; and,

(B) to exceed 0.3 pounds of sulfur dioxide per million btu of actual heat input when distillate fuel oil is burned.

(b) Sulfur Dioxide Emission Standards and Limitations for New Fuel Combustion Emission Sources with Actual Heat Input Smaller Than, or Equal to, 250 Million Btu per Hour.

(1) Solid Fuel Burned Exclusively. No person shall cause or allow the emission of sulfur dioxide into the atmosphere in any one hour period from any new fuel combustion source with actual heat input smaller than, or equal to, 250 million btu per hour, burning solid fuel exclusively, to exceed 1.8 pounds of sulfur dioxide per million btu of actual heat input.

(2) Liquid Fuel Burned Exclusively. No person shall cause or allow the emission of sulfur dioxide into the atmosphere in any one hour period from any new fuel combustion source with actual heat input smaller than, or equal to, 250 million btu per hour, burning liquid fuel exclusively;

(A) to exceed 1.0 pounds of sulfur dioxide per million btu of actual heat input when residual fuel oil is burned; and,

(B) to exceed 0.3 pounds of sulfur dioxide per million btu of actual heat input when distillate fuel oil is burned.

(c) Sulfur Dioxide Emission for Existing Fuel Combustion Sources.

(1) Solid Fuel Burned Exclusively.

(A) Existing Fuel Combustion Sources Located in the Chicago, St. Louis (Illinois) and Peoria Major Metropolitan Areas. No person shall cause or allow the emission of sulfur dioxide into the atmosphere in any one hour period from any existing fuel combustion source, burning solid fuel exclusively, located in the Chicago, St. Louis (Illinois) and Peoria major metropolitan areas, to exceed 1.8 pounds of sulfur dioxide per million btu of actual heat input, on or after May 30, 1975.

(B) Existing Fuel Combustion Sources Located Outside the Chicago, St. Louis (Illinois) and Peoria Major Metropolitan Areas. No person shall cause or allow the emission of sulfur dioxide into the atmosphere in any one hour period from any existing fuel combustion source, burning solid fuel exclusively, located outside the Chicago, St. Louis (Illinois) and Peoria major metropolitan areas, to exceed the following:

(i) 6.0 pounds of sulfur dioxide per million btu of actual heat input, on and after May 30, 1975; and

(ii) 1.8 pounds of sulfur dioxide per million btu of actual heat input for all such fuel combustion emission sources located within any MMA other than Chicago, Peoria, and St. Louis (Illinois) which, according to any one ambient air monitoring station operated by or under supervision and control of the Agency within such MMA, has an annual arithmetic average sulfur dioxide level greater than;

$60\ ug/m^3$ (0.02 ppm) for any year ending prior to May 30, 1976, or

$45\ ug/m^3$ (0.015 ppm) for any year ending on or after May 30, 1976.

Compliance with this paragraph (ii) of Rule 204(c)(1)(B) shall be on and after three years from the date upon which the Board promulgates an Order for Compliance.

Before promulgation of such Order for Compliance, the Board shall:

(aa) publish in the Board Newsletter, within 21 days of receipt from the Agency, a proposed Order for Compliance along with the data used to obtain said annual arithmetic average sulfur dioxide level; and,

(bb) serve a copy of such proposed Order and supporting data, within 21 days of receipt from the Agency, upon the owner or operator of each such emission source located within the MMA; and,

(cc) defer promulgation of the Order for Compliance for at least 45 days from the date of publication to allow submission and consideration of additional written comments.

(2) Liquid Fuel Burned Exclusively. No person shall cause or allow the emission of sulfur dioxide into the atmosphere in any one hour period from any existing fuel combustion emission source, burning liquid fuel exclusively;

(A) to exceed 1.0 pounds of sulfur dioxide per million btu of actual heat input when residual fuel oil is burned; and,

(B) to exceed 0.3 pounds of sulfur dioxide per million btu of actual heat input when distillate fuel oil is burned.

(d) Combination of Fuels. No person shall cause or allow the emission of sulfur dioxide into the atmosphere in any one hour period from any fuel combustion emission source burning simultaneously any combination of solid, liquid and gaseous fuels to exceed the allowable emission rate determined by the following equation:

$$E = S_S H_S + 0.3\ H_d + S_R H_R$$

where:

E = allowable sulfur dioxide emission rate, in pounds per hour;

$S_S$ = solid fuel sulfur dioxide emission standard, in pounds per million btu, which is applicable;

$S_R$ = residual fuel oil sulfur dioxide emission standard, in pounds per million btu, which is applicable;

$H_S$ = actual heat input from solid fuel, in million btu per hour;

$H_R$ = actual heat input from residual fuel oil, in million btu per hour;

$H_d$ = actual heat input from distillate fuel oil, in million btu per hour;

and where that portion of the actual heat input that is derived:

(1) from the burning of gaseous fuels produced by the gasification of solid fuels shall be included in $H_S$;

(2) from the burning of gaseous fuels produced by the gasification of distillate fuel oil shall be included in $H_d$;

(3) from the burning of gaseous fuels produced by the gasification of residual fuel oil shall be included in $H_R$;

(4) from the burning of gaseous fuels produced by the gasification of any other liquid fuel shall be included in $H_R$; and,

(5) from the burning of by-product gases such as those produced from a blast furnace or a catalyst regeneration unit in a petroleum refinery shall be included in $H_R$.

(e) Combination of Fuel Combustion Emission Sources. No person shall cause or allow the total emissions of sulfur dioxide into the atmosphere in any one hour period from all fuel combustion emission sources owned or operated by such person and located within a 1 mile radius from the center point of any such fuel combustion emission source to exceed the emissions determined by the following equations:

$$E = 20{,}000 \left( \frac{H_S}{300} \right)^2$$

$$H_S = \frac{P_1H_1+P_2H_2+ \ . \ . \ . \ +P_nH_n}{100}$$

(Note: $P_1+P_2+ \ . \ . \ . \ +P_n=100$)

where:

E = total emission of sulfur dioxide, in pounds per hour, into the atmosphere in any one hour period from all fuel combustion emission sources owned or operated by such person and located within a 1 mile radius from the center point of any such emission source.

$P_i$,i = 1,2, . . . , n = percentage of total emissions E emitted from source i;

$H_i$,i = 1,2, . . . , n = physical height in feet above grade of stack i.

(f) Sulfur Standards and Limitations for Process Emission Sources.

(1) Sulfur Dioxide Standards and Limitations.

(A) Except as further provided by paragraphs (f)(1)(B), (f)(1)(C) and (f)(1)(D) of this Rule 204, no person shall cause or allow the emission of sulfur dioxide into the atmosphere from any process emission source to exceed 2000 ppm.

(B) Paragraph (f)(1)(A) of this Rule 204 shall not apply to new sulfuric acid manufacturing processes. No person shall cause or allow the emission of sulfur dioxide into the atmosphere from any new sulfuric acid manufacturing plant to exceed 4.0 pounds of sulfur dioxide per ton of acid produced.

(C) Paragraph (f)(1)(A) of this Rule 204 shall not apply to processes designed to remove sulfur compounds from the flue gases of fuel combustion emission sources.

(D) Paragraph (f)(1)(A) of this Rule 204 shall not apply to existing processes designed to remove sulfur compounds from the flue gases of petroleum and petrochemical processes, providing that the sulfur dioxide emissions from such removal processes do not exceed the emissions determined by the equations of Rule 204(e).

(2) Sulfuric Acid Mist Standards and Limitations.

No person shall cause or allow the emission of sulfuric acid mist into the atmosphere from any process emission source to exceed 0.15 pounds of acid mist per ton of acid used or manufactured.

(g) Measurement Methods.

(1) Sulfur Dioxide Measurement.

Measurement of sulfur dioxide emissions from stationary sources shall be made according to the procedure published in 36 Fed. Reg. 24890, Method 6, or by

measurement procedures specified by the Agency according to the provisions of Part 1 of this Chapter and application of standard emission factors as published in Public Health Service Publication 999-AP-42, Compilation of Air Pollutant Emission Factors, as revised from time to time.

(2) Sulfuric Acid Mist and Sulfur Trioxide Measurement.

Measurement of sulfuric acid mist and sulfur trioxide shall be according to the Barium-thorin titration method as published in 36 Fed. Reg. 24893.

(3) Solid Fuel Averaging Measurement.

If low sulfur solid fuel is used to comply with subparagraphs (a), (b), (c), and (d) of this Rule 204, the applicable solid fuel sulfur dioxide standard shall be met by a two month average of daily samples with 95 per cent of the samples being no greater than 20 per cent above the average. A.S.T.M. procedures shall be used for solid fuel sampling, sulfur and heating value determinations.

(h) Compliance Dates.

(1) Every owner or operator of a new emission source shall comply with the standards and limitations of Rule 204 by the effective date of Part 2 of this Chapter.

(2) Every owner or operator of an existing fuel combustion emission source shall comply with the standards and limitations of Rules 204(c)(1)(A), 204(c)(2), 204(d) and 204(e) by May 30, 1975.

(3) Every owner or operator of an existing process emission source shall comply with the standards and limitations of Rule 204(f) by December 31, 1973.

Rule 205: Organic Material Emission Standards and Limitations.

(a) Storage. No person shall cause or allow the storage of any volatile organic material in any stationary tank, reservoir or other container of more than 40,000 gallons capacity unless such tank, reservoir or other container:

(1) is a pressure tank capable of withstanding the vapor pressure of such materials, so as to prevent vapor or gas loss to the atmosphere at all times; or,

(2) is designed and equipped with one of the following vapor loss control devices:

(A) A floating roof which rests on the surface of the volatile organic material and is equipped with a closure seal or seals to close the space between the roof edge and the tank wall. Such floating roof shall not be permitted if the volatile organic material has a vapor pressure of 12.5 pounds per square inch absolute or greater at 70°F. No person shall cause or allow the emission of air contaminants into the atmosphere from any gauging or sampling devices attached to such tanks, except during sampling.

(B) A vapor recovery system consisting of:

(i) a vapor gathering system capable of collecting 85% or more of the uncontrolled volatile organic material that would be otherwise emitted to the atmosphere; and,

(ii) a vapor disposal system capable of processing such volatile organic material so as to prevent their emission to the atmosphere. No person shall cause or allow the emission of air contaminants into the atmosphere from any gauging or sampling devices attached to such tank, reservoir or other container except during sampling.

(C) Other equipment or means of equal efficiency approved by the Agency according to the provisions of Part 1 of this Chapter 3; or,

(3) is an existing cone roof tank used exclusively for the storage of Illinois crude oil, if all the following conditions are met:

(A) The vapor pressure of such crude oil is less than 5 pounds per square inch absolute (psia); and,

(B) the location of such tank is outside a major metropolitan area; and,

(C) such tank is equipped with positive pressure tank vent valves and vacuum breakers.

(b) Loading.

(1) No person shall cause or allow the discharge of more than 8 pounds per hour of organic material into the atmosphere during the loading of any organic material from the aggregate loading pipes of any loading facility having a throughput of greater than 40,000 gallons per day into any railroad tank car, tank truck or trailer, unless each such loading pipe is equipped with air pollution control equipment capable of reducing by 85 per cent or more the uncontrolled organic material that would be otherwise emitted to the atmosphere if splash loading were employed.

(2) No person shall cause or allow the loading of any organic material into any stationary tank having a storage capacity of greater than 250 gallons, unless such tank is equipped with a permanent submerged loading pipe or an equivalent device approved by the Agency according to the provisions of Part 1 of this Chapter, or unless such tank is a pressure tank as described in Rule 205(a)(1) or is fitted with a recovery system as described in Rule 205(a)(2)(B).

(3) Exception: If no odor nuisance exists the limitations of subparagraph (b) of this Rule 204 shall only apply to volatile organic material.

(c) Organic Material-Water Separation.

(1) No person shall use any single or multiple compartment effluent water separator which receives effluent water containing 200 gallons a day or more of organic material from any equipment processing, refining, treating, storing, or handling organic material unless such effluent water separator is equipped with air pollution control equipment capable of reducing by 85 per cent or more the uncontrolled organic material emitted to the atmosphere. Exception: If no odor nuisance exists the limitations of this Rule 205(c)(1) shall only apply to volatile organic material.

(2) Rule 205(c)(1) shall not apply to water and crude oil separation in the production of Illinois crude oil, if both the following conditions are met:

(A) The vapor pressure of such crude oil is less than 5 pounds per square inch absolute (psia); and,

(B) The location of such tank is outside a major metropolitan area.

(d) Pumps and Compressors. No person shall cause or allow the discharge of more than two cubic inches of liquid volatile organic material into the atmosphere from any pump or compressor in any 15 minute period at standard conditions.

(e) Architectural Coatings. No person shall cause or allow the sale or use in the Chicago or St. Louis (Illinois) Major Metropolitan Areas of any architectural coating containing more than 20 per cent by volume of photochemically reactive material in containers having a capacity of more than one gallon.

(f) Use of Organic Material. No person shall cause or allow the discharge of more than 8 pounds per hour of organic material into the atmosphere from any emission source, except as provided in paragraphs (f)(1) and (f)(2) of this Rule 205 and the following: Exception: If no odor nuisance exists the limitation of this Rule 205(f) shall apply only to photochemically reactive material.

(1) Alternative Standard. Emissions of organic material in excess of those permitted by Rule 205(f) are allowable if such emissions are controlled by one of the following methods:

(A) flame, thermal or catalytic incineration so as either to reduce such emissions to 10 ppm equivalent methane (molecular weight 16) or less, or to convert 85 per cent of the hydrocarbons to carbon dioxide and water; or,

(B) a vapor recovery system which adsorbs and/or absorbs and/or condenses at least 85 per cent of the total uncontrolled organic material that would otherwise be emitted to the atmosphere; or,

(C) any other air pollution control equipment approved by the Agency capable of reducing by 85 per cent or more the uncontrolled organic material that would be otherwise emitted to the atmosphere.

(2) Exceptions. The provisions of Rule 205(f) shall not apply to:

(A) the spraying or use of insecticides, herbicides, or other pesticides;

(B) fuel combustion emission sources;

(C) the application of paving asphalt and pavement marking paint from sunrise to sunset and when air pollution watch, alert or emergency conditions are not declared:

(D) any owner, operator, user or manufacturer of paint, varnish, lacquer, coatings or printing ink whose Compliance Program and Project Completion Schedule, as required by Part 1 of this Chapter, provides for the reduction of organic material used in such process to 20 per cent or less of total volume by May 30, 1975.

(g) Waste Gas Disposal.

(1) Petroleum Refinery and Petrochemical Manufacturing Process Emissions. No person shall cause or allow the discharge of organic materials into the atmosphere from:

(A) any catalyst regenerator of a petroleum cracking system; or,

(B) any petroleum fluid coker; or,

(C) any other waste gas stream from any petroleum or petrochemical manufacturing process;

in excess of 100 ppm equivalent methane (molecular weight 16.0).

(2) Vapor Blowdown. No person shall cause or allow the emission of organic material into the atmosphere from any vapor blowdown system or any safety relief valve, except such safety relief valves not capable of causing an excessive release, unless such emission is controlled:

(A) to 10 ppm equivalent methane (molecular weight 16.0) or less; or,

(B) by combustion in a smokeless flare; or,

(C) by other air pollution control equipment approved by the Agency according to the provisions of Part 1 of this Chapter.

(3) Sets of Unregulated Safety Relief Valves Capable of Causing Excessive Releases. Rule 205(g)(2) shall not apply to any set of unregulated safety relief valves capable of causing excessive releases, provided that the owner or operator thereof, by October 1, 1972, provides the Agency with the following.

(A) an historical record of each such set (or, if such records are unavailable, of similar sets which, by virtue of operation under similar circumstances, may reasonably be presumed to have the same or greater frequency of excessive releases) for a three-year period immediately preceding October 1, 1972, indicating:

(i) dates on which excessive releases occurred from each such set; and,

(ii) duration in minutes of each such excessive release; and,

(iii) quantities (in pounds) of mercaptans and/or hydrogen sulfide emitted into the atmosphere during each such excessive release.

(B) proof, using such three-year historical records, that no excessive release is likely to occur from any such set either alone or in combination with such excessive releases from other sets owned or operated by the same person and located within a ten-mile radius from the center point of any such set, more frequently than 3 times in any 12 month period; and

(C) accurate maintenance records pursuant to the requirements of paragraph (g)(3)(A) of this Rule 205 of this Chapter; and

(D) proof, at three-year intervals, using such three-year historical records, that such set conforms to the requirement of paragraph (g)(3)(C) of this Rule 205.

(h) Emissions During Clean-up Operations and Organic Material Disposal. Emissions of organic material released during clean-up operations and disposal shall be included with other emissions of organic material from the related emission source or air pollution control equipment in determining total emissions.

(i) Testing Method for Determination of Emissions of Organic Material. The total organic material concentrations in an effluent stream shall be measured by a Flame Ionization Detector, or by other methods approved by the Agency according to the provisions of Part 1 of this Chapter.

(j) Compliance Dates.

(1) Every owner or operator of a new emission source shall comply with the standards and limitations of Rule 205 on the effective date of Part 2 of this Chapter.

(2) Every owner or operator of an existing emission source shall comply with the standards and limitations of Rule 205 by December 31, 1973.

Rule 206: Carbon Monoxide Emission Standards and Limitations.

(a) Fuel Combustion Emission Sources With Actual Heat Input Greater Than 10 Million Btu per Hour. No person shall cause or allow the emission of carbon monoxide into the atmosphere from any fuel combustion emission source with actual heat input greater than 10 million btu per hour to exceed 200 ppm, corrected to 50 per cent excess air.

(b) Incinerators. No person shall cause or allow the emission of carbon monoxide into the atmosphere from any incinerator to exceed 500 ppm, corrected to 50 per cent excess air. Exception: This Rule 206(b) shall not apply to existing incinerators burning less than 2000 pounds of refuse per hour which are in compliance with Rule 203(e)(3).

(c) Petroleum and Petrochemical Processes. No person shall cause or allow the emission of a carbon monoxide waste gas stream into the atmosphere from a petroleum or petrochemical process unless such waste gas stream is burned in a direct flame afterburner or carbon monoxide boiler so that the resulting concentration of carbon monoxide in such waste gas stream is less than or equal to 200 ppm corrected to 50 per cent excess air, or such waste gas stream is controlled by other equivalent air pollution control equipment approved by the Agency according to the provisions of Part 1 of this Chapter.

(d) Sintering Plants, Blast Furnaces and Basic Oxygen Furances. No person shall cause or allow the emission of gases containing carbon monoxide into the atmosphere from any sintering plant, from any blast furnace, or from any basic oxygen furnace to exceed a concentration of 200 ppm, corrected to 50 per cent excess air. Exception: This Rule 206(d) shall not apply to blast furnaces during abnormal movement of the furnace burden when it is necessary to relieve pressure for safety reasons.

(e) Cupolas. No person shall cause or allow the emission of gases containing carbon monoxide into the atmosphere from any cupola with a manufacturer's rated melt rate in excess of 5 tons per hour, unless such gases are burned in a direct flame after burner so that the resulting concentration of carbon monoxide in such gases is less than or equal to 200 ppm corrected to 50 per cent excess air or such gas streams are controlled by other equivalent pollution control equipment approved by the Agency according to the provisions of Part 1 of this Chapter.

(f) Measurement Methods. Carbon monoxide concentrations in an effluent stream shall be measured by the Non-dispersive Infrared Method or by other methods approved by the Agency according to the provisions of Part I of this Chapter.

(g) Compliance Dates.

(1) Every owner or operator of a new emission source shall comply with the standards and limitations of Rule 206 by the effective date of Part 2 of this Chapter.

(2) Every owner or operator of an existing emission source shall comply with the standards and limitations of Rule 206 by December 31, 1973.

Rule 207: Nitrogen Oxides Emission Standards and Limitations.

(a) New Fuel Combustion Emission Sources. No person shall cause or allow the emission of nitrogen oxides into the atmosphere in any one hour period from any new fuel-combustion emission source with an actual heat input equal to or greater than 250 million btu per hour to exceed the following standards and limitations:

(1) for gaseous fossil fuel firing, 0.20 pounds per million btu of actual heat input;

(2) for liquid fossil fuel firing, 0.30 pounds per million btu of actual heat input;

(3) for dual gaseous and liquid fossil fuel firing, 0.30 pounds per million btu of actual heat input;

(4) for solid fossil fuel firing, 0.7 pounds per million btu of actual heat input; and

(5) for fuel combustion emission sources burning simultaneously any combination of solid, liquid and gaseous fossil fuels an allowable emission rate shall be determined by the following equation:

$$E = \left( \frac{0.3\ (P_g + P_i) + 0.7\ P_s}{P_g + P_i + P_s} \right) Q$$

where: $E$ = allowable nitrogen oxides emission rate in pounds per hour;

$P_g$ = per cent of actual heat input derived from gaseous fossil fuel;

$P_i$ = per cent of actual heat input derived from liquid fossil fuel;

$P_s$ = per cent of actual heat input derived from solid fossil fuel;

$Q$ = actual heat input derived from all fossil fuels in million btu per hour

Note: $P_i + P_s + P_g = 100.0$

(b) Existing Fuel-Combustion Emission Sources in the Chicago and St. Louis MMA. No person shall cause or allow the emission of nitrogen oxides into the atmosphere in any one hour period from any existing fuel-combustion emission source with an actual heat input equal to or greater

than 250 million btu per hour, located in the Chicago and St. Louis (Illinois) major metropolitan areas to exceed the following limitations;

(1) for gaseous and/or liquid fossil fuel firing, 0.3 pounds per million btu of actual heat input;

(2) for solid fossil fuel firing, 0.9 pounds per million btu of actual heat input;

(3) for fuel combustion emission sources burning simultaneously any combination of solid, liquid and gaseous fuel the allowable emission rate shall be determined by the following equation:

$$E = \left( \frac{0.3 \ (P_g + P_i) + 0.9 \ (P_s)}{P_g + P_i + P_s} \right) Q$$

E = allowable nitrogen oxides emission in pounds per hour;

$P_g$ = per cent of actual heat input derived from gaseous fossil fuel;

$P_i$ = per cent of actual heat input derived from liquid fossil fuel;

$P_s$ = per cent of actual heat input derived from solid fossil fuel;

Q = actual heat input derived from all fossil fuels in million btu per hour.

Note: $P_i + P_s + P_g = 100.0$

(c) Exceptions to Rule 207(b). Paragraph (b) of this Rule 207 shall not apply to existing fuel combustion sources which are either cyclone fired boilers burning solid or liquid fuel, or horizontally opposed fired boilers burning solid fuel.

(d) Nitric Acid Manufacturing Processes.

(1) New Weak Nitric Acid Processes. No person shall cause or allow the emission of nitrogen oxides into the atmosphere from any new weak nitric acid manufacturing process to exceed the following standards and limitations:

(A) 3.0 pounds of nitrogen oxides (expressed as $NO_2$) per ton of acid produced (100 per cent acid basis);

(B) visible emissions in excess of 5 per cent opacity;

(C) 0.1 pounds of nitrogen oxides (expressed as $NO_2$) per ton of acid produced (100 per cent acid basis) from any acid storage tank vents.

(2) Existing Weak Nitric Acid Processes. No person shall cause or allow the emission of nitrogen oxides into the atmosphere from any existing weak nitric acid manufacturing process to exceed the following standards and limitations:

(A) 5.5 pounds of nitrogen oxides (expressed as $NO_2$) per ton of acid produced (100 per cent acid basis);

(B) visible emissions in excess of 5 per cent opacity;

(C) 0.2 pounds of nitrogen oxides (expressed as $NO_2$) per ton of acid produced (100 per cent acid basis) from any acid storage tank vents.

(3) Concentrated Nitric Acid Processes. No person shall cause or allow the emission of nitrogen oxides into the atmosphere from any concentrated nitric acid manufacturing process to exceed the following standards and limitations:

(A) 3.0 pounds of nitrogen oxides (expressed as $NO_2$) per ton of acid produced (100 per cent acid basis);

(B) 225 ppm of nitrogen oxides (expressed as $NO_2$) in any effluent gas stream emitted into the atmosphere;

(C) visible emissions in excess of 5 per cent opacity.

(4) Nitric Acid Concentrating Processes. No person shall cause or allow the emission of nitrogen oxides into the atmosphere from any nitric acid concentrating process to exceed the following limitations:

(A) 3.0 pounds of nitrogen oxides (expressed as $NO_2$) per ton of acid produced (100 per cent acid basis);

(B) visible emissions in excess of 5 per cent opacity.

(e) Industrial Processes: General

(1) New Industrial Processes. No person shall cause or allow the emission of nitrogen oxides into the atmosphere from any new process producing products of organic nitrations and/or oxidations using nitric acid to exceed the following standards and limitations:

(A) 5.0 pounds of nitrogen oxides (expressed as $NO_2$) per ton of nitric acid (100 per cent acid basis) used in such new process.

(B) visible emissions in excess of 5 per cent opacity

(2) Existing Industrial Processes. No person shall cause or allow the emission of nitrogen oxides into the atmosphere from any existing process producing products of organic nitrations and/or oxidations using nitric acid to exceed 10.0 pounds of nitrogen oxides (expressed as $NO_2$) per ton of nitric acid (100 per cent acid basis) used in such process.

(3) Exemption. Paragraphs (e)(1) and (e)(2) of this Rule 207 shall not apply to any industrial process using less than 100 tons of nitric acid (100 per cent acid basis) annually or which produces less than 1 ton of nitrogen oxides (expressed as $NO_2$) per year.

(f) Measurement Method. Measurement of nitrogen oxides shall be according to the Phenol Disulfonic Acid Method as published in 36 Fed. Reg. 15718, Method 7.

(g) Compliance Dates.

(1) Every owner or operator of a new emission source shall comply with the standards and limitations of Rule 207 by the effective date of Part 2 of this Chapter.

(2) Except as otherwise provided in paragraph (g)(3) of this Rule 207, every owner or operator of an existing emission source shall comply with the standards and limitations of Rule 207 by December 31, 1973.

(3) Every owner or operator of an existing coal fired fuel combustion emission source shall comply with the applicable standards and limitations of Rule 207 by May 30, 1975.

Rule 208: Compliance Dates.

Notwithstanding the issuance of an Operating Permit, no person shall cause or allow the operation of an emission source which is not in compliance with the standards and limitations set forth in this Part 2 after December 31, 1973, unless otherwise provided by a compliance date specifically set forth for a particular category of emission source in this Part 2.

## Part III: Air Quality Standards

Rule 303: Nondegradation.

Existing ambient air quality which is better than the established ambient air quality standards at the date of their adoption will be maintained in its present high quality. Such ambient air quality shall not be lowered unless and until it is proved to the Agency that such change is justifiable as a result of necessary economic and social development and will not interfere with or become injurious to human health or welfare.

## PART IV: EPISODES

(As amended November 24, 1970)

Rule 401 — Preamble. These regulations, adopted pursuant to sections 10, 27 and 49 of the Environmental Protection Act, are designed to prevent high levels of air pollution which may cause acute harmful health effects during periods of atmospheric stagnation. Atmospheric stagnation, with low vertical or horizontal ventilation, occurs when three meteorological conditions exist in the same place at the same time;

1. High pressure air mass over an area;
2. Very low wind speed;
3. A temperature inversion.

Low ventilation may also occur under other meteorological conditions. Other factors, such as humidity, may also have an effect. A temperature inversion is an atmospheric condition in which a mass of warm air accumulates over an area, imprisoning the cooler air beneath it. The warm air prevents cooler air from rising and, in effect, places a lid over the affected region. Pollutants emitted into the air are literally trapped.

If, in a heavily populated area, atmospheric stagnation persists, pollution may reach unusually high levels, and a serious threat to public health may result. During recorded stagnation periods, cases of illness and death have increased, with substantial evidence that air pollution was the cause.

Rule 402 Definitions.

Act: The Environmental Protection Act of 1970.

Agency: The Environmental Protection Agency established by the Act.

Board: The Pollution Control Board established by the Act.

COH: Particulate matter as measured by the automatic paper tape sampler method and reported as COH's (Coefficient of Haze) per 1000 linear feet.

Director: The Director of the Environmental Protection Agency.

HAPPA: A High Air Pollution Potential Advisory issued by the NOAA National Weather Service, whether on the basis of regional or local weather conditions.

NOAA: The National Oceanic and Atmospheric Administration, U. S. Department of Commerce.

Product: The arithmetic product of the hourly sulfur dioxide concentration in parts per million and the hourly particulate concentration in COH's per 1000 linear feet.

SIC: Standard Industrial Classification according to the Standard Industrial Classification Manual prepared by the U. S. Office of Statistical Standards in 1967.

$SO_2$: Sulfur Dioxide as measured by the continuous, modified West-Gaeke method. Until sufficient automatic real-time West-Gaeke units are in operation, the Director shall utilize data from other real-time monitoring units.

SMSA: Standard Metropolitan Statistical Areas defined by the Bureau of Census to include a county which has at least one city with a population of 50,000 or more and the surrounding counties which contain the suburban areas for these cities.

Rule 403 Alert and Emergency Values.

(a) Yellow Alert Value:
Product ($SO_2$ X COH) of 1.0
or
$SO_2$ concentration of 0.30 ppm.

(b) Red Alert Value:
Product ($SO_2$ X COH) of 2.0
or
$SO_2$ concentration of 0.35 ppm.

(c) Air Pollution Emergency Value:
Product ($SO_2$ X COH) of 2.4
or
$SO_2$ concentration of .40 ppm.

Rule 404 Area Affected by Alert or Emergency. Certain of the Standard Metropolitan Statistical Areas of the State, such as Chicago and East St. Louis, are very large. While most of the region may have acceptable air quality, one or more monitoring stations may report levels of air contaminants high enough to call for episode control actions. In such a case, corridors of the region shall be defined, depending upon meteorological factors, emission inventory data, mathematical simulation modeling, and/or isopleth area tables such as those in the Air Pollution Incident Control Operations Manual developed by Argonne National Laboratory, and alerts or emergencies shall be called for one or more individual corridors.

Rule 405 Monitoring: Monitoring stations used in determining alert levels shall be officially recognized stations located according to the guidelines for establishing monitoring networks as developed by the National Air Pollution Control Administration.

If only a few monitoring stations report high readings and the weather conditions are such that high air contaminant concentrations would not be expected, a check of the sampling equipment will be made before the data is used in initiating an alert.

Rule 406 Air Pollution Watch. (a) Requirements for Initiating Watch. The Director or his designated representative shall declare an Air Pollution Watch whenever either of the following conditions is met:

(1) A HAPPA is received for an area including all or part of an SMSA or of the Chicago or St. Louis Air Quality Control Regions; or

(2) The Yellow Alert Values are equalled or exceeded as the arithmetic mean of the preceding two-hour period at any monitoring station, and the official National Weather Service local forecast indicates that adverse weather conditions for air contaminant dispersion may exist for the next 24 hours.

(b) Actions During Watch.

(1) The Agency shall notify the Board, concerned Agency personnel, and federal, local and other state air pollution agencies that Air Pollution Watch conditions exist, and shall coordinate its activities with those of the other agencies.

(2) The Agency, or a local agency designated by the Agency, shall notify major facilities which will require significant lead time for alert or emergency actions that air pollution watch conditions exist and that they may be required within a short time to take action to reduce emissions.

(3) The Agency shall notify the public by radio and/or television that meteorological conditions are such that there is a substantial danger of an air pollution episode; that the public may be asked within a few hours to take steps to minimize air pollutant emissions; and that persons suffering from respiratory or heart conditions should take appropriate precautions.

Rule 407 Yellow Alert. (a) Requirements for Initiating Yellow Alert. The Director or his designated representative shall declare a yellow alert whenever all of the following conditions are met:

(1) An Air Pollution Watch has been in effect for four (4) hours; and

(2) An official National Weather Service forecast indicates that adverse conditions for air contaminant dispersion may exist for the next 12 hours; and

(3) The Yellow Alert values are equalled or exceeded as the arithmetic mean of the preceding four-hour period at any monitoring station.

(b) Actions During Yellow Alert.

(1) The Agency shall notify the Board, concerned Agency personnel, the federal, local and other state air pollution control agencies that a Yellow Alert is in effect.

(2) The Agency, or a local agency designated by the Agency, shall notify major facilities required to take Yellow Alert action that a Yellow Alert is in effect and that they are required to take action in accord with these regulations.

(3) The Agency shall notify the public by radio and/or television that a Yellow Alert is in effect; that the public is required to take action in accord with these regulations; that the public is requested to avoid the unnecessary use of automobiles and of electricity; and that persons suffering from respiratory or heart conditions should take appropriate precautions.

(4) Electric power generating facilities shall effect the maximum feasible reduction of sulfur and particulate emissions by utilizing fuels having low ash content and less than 1.0% sulfur by weight (1.5% in the case of fuel oil); by limiting soot blowing and boiler lancing, where essential, to periods of high atmospheric turbulence; by diverting power generation to facilities outside the area for which the alert is in effect; or by any other means approved by the Agency. Such reduction shall be in accord with the Yellow Alert plan if such a plan has been approved for that facility.

(5) Heating facilities having a rated heat input in excess of 10 million Btu/hr. and burning coal or fuel oil shall effect the maximum feasible reduction of sulfur and particulate emissions by utilizing fuels having low ash content and less than 1.0% sulfur by weight (1.5% in the case of fuel oil); by limiting soot blowing and boiler lancing, where essential, to periods of high atmospheric turbulence; or by any other means approved by the Agency. Such reductions shall be in accord with the Yellow Alert plan if such a plan has been approved for that facility. If fuels of low ash and sulfur content are not available, such facilities, with the exception of those serving residences, hospitals and other essential facilities as designated by the Agency, shall curtail heating to the maximum degree consistent with avoiding injury to persons or severe damage to property.

(6) Manufacturing industries required to submit Yellow Alert plans shall curtail or defer production and allied operations to the extent necessary to avoid emissions in excess of those which would be discharged if the facility were operated in accord with the limitations prescribed by the regulations limiting particulate emissions, insofar as such reductions can be achieved without creating injury to persons or severe damage to property. Such reductions shall be made notwithstanding any variance or program of delayed compliance with the particulate regulations, and shall be in accord with the Yellow Alert plan if such a plan has been approved for that facility.

(7) All open burning, and all incineration except as provided in subsection (8) of this Rule, are prohibited. Certain burning of explosive or pathological wastes may be exempted from this restriction by the Agency in writing upon specific written application.

(8) Incinerators equipped with emission control devices meeting the particulate emission regulations may be operated only during the hours of maximum atmospheric turbulence (12:00 noon to 4:00 p.m. Standard Time).

Rule 408 Red Alert. (a) Requirements for Initiating Red Alert. The Director or his designated representative shall declare a Red Alert whenever:

(1) A Yellow Alert has been in effect for four (4) hours; and

(2) An official National Weather Service forecast indicates that adverse conditions for air contaminant dispersion may exist for the next 12 hours; and either

(3a) The Red Alert values are equalled or exceeded as the arithmetic mean of the preceding four-hour period at any monitoring station, or

(3b) The Yellow Alert values are equalled or exceeded as the arithmetic mean of the preceding twenty-four hour period at any monitoring station.

(b) Actions During Red Alert.

(1) The Agency shall notify the Board, concerned Agency personnel and federal, local and other state air pollution agencies that a Red Alert is in effect.

(2) The Agency, or a local agency designated by the Agency, shall notify major facilities required to take Red Alert action that a Red Alert is in effect and that they are required to take action in accord with these regulations.

(3) The Agency shall notify the public by radio and/or television that a Red Alert is in effect; that the public is required to take action in accord with these regulations; that the public is requested to avoid the unnecessary use of automobiles or of electricity; and that persons suffering from respiratory or heart conditions should take appropriate precautions.

(4) All Yellow Alert actions shall be continued.

(5) All incineration and all open burning are prohibited. Certain burning of explosive or pathological wastes may be exempted from these restrictions by the Agency in writing upon specific written application.

(6) Manufacturing industries required to submit Red Alert plans shall curtail production to the greatest extent possible without causing injury to persons or severe damage to equipment.

Rule 409 Emergency. (a) Requirements for Initiating Emergency. The Director or his designated representative shall declare an Emergency whenever:

(1) A Red Alert has been in effect for twelve hours; and

(2) An official National Weather Service forecast indicates that adverse conditions for air contaminant dispersion may exist for the next 12 hours; and any of the following conditions is met:

(3A) The Emergency values are equalled or exceeded as the arithmetic mean of the preceding four-hour period at any monitoring station: or

(3B) The Red Alert values are equalled or exceeded as the arithmetic mean of the preceding twenty-four hour period at any monitoring station: or

(3C) The Yellow Alert values are equalled or exceeded as the arithmetic mean of the preceding thirty-six hour period at any monitoring station.

(b) Actions During Emergency.

(1) The Agency shall notify the Board, concerned Agency personnel, and federal, local and other state air pollution agencies that an Emergency is in effect.

(2) The Agency shall notify the public by radio and/or television that an Emergency is in effect; that the public is required to take action in accord with these regulations; and that persons suffering from respiratory or heart conditions should take appropriate precautions.

(3) The Agency, or a local agency designated by the Agency, shall notify major facilities required to take Emergency

action that an Emergency is in effect and that they are required to take action in accord with these Regulations.

(4) All Yellow and Red Alert actions shall be continued.

(5) The unnecessary use of electricity, such as for decorative or amusement purposes, is prohibited.

(6) The use of motor vehicles is prohibited except for essential uses such as police, fire, and health services, delivery of food or essential fuel, waste collection, utility or pollution control emergency repairs, and such comparable uses as may be designated by the Agency. As soon as is practicable, the Agency shall submit a list of such uses for the Board's consideration.

(7) All aircraft flights leaving the area of the emergency are forbidden except for reasons of public health or safety as approved by the Agency in advance.

(8) Buildings shall be maintained at temperatures no greater than 65° F., except for hospitals and for other buildings approved by the Agency for reasons of health or severe damage to property.

(9) All manufacturing facilities shall curtail production to the greatest extent possible without causing injury to persons or severe damage to equipment.

(10) All facilities or activities listed below shall immediately cease operations.

Mining and Quarrying.
Contract Construction Work.
Wholesale Trade Establishments.
Schools and Libraries.
Governmental agencies except those needed to administer air pollution alert programs

and other essential Agencies determined by the Agency to be vital for public safety and welfare.

Retail trade stores except those dealing primarily in the sale of food or pharmacies.

Real estate agencies, insurance offices and similar businesses.

Laundries, cleaners and dryers, beauty and barber shops and photographic studios.

Amusement and recreational service establishments such as motion picture theaters.

Automobile repair and automobile service garages.

Advertising offices, consumer credit reporting, adjustment and collection agencies, printing and duplicating services, rental agencies and commercial testing laboratories.

Rule 410 Carbon Monoxide Alert. (a) Requirements for Initiating Alert. The Director or his designated representative shall declare a Carbon Monoxide Alert whenever all three of the following conditions are met:

(1) An Air Pollution Watch has been in effect for four hours; and

(2) An official National Weather Service forecast indicates that adverse conditions for air contaminant dispersion may exist for the next 12 hours, and

(3) A carbon monoxide concentration of 35 ppm is equalled or exceeded as the arithmetic mean of the preceding four-hour period at any monitoring station.

(b) Actions During Alert.

(1) The Agency shall notify the Board, concerned Agency personnel and federal, local and other state air pollution agencies that a Carbon Monoxide Alert is in effect.

(2) The Agency shall notify the public by radio and/or television that a Carbon Monoxide Alert is in effect; that the public is required to take action in accord with these regulations; and that persons suffering from respiratory or heart conditions should take appropriate precautions.

(3) All incineration and all open burning are prohibited. Certain burning of explosive or pathological wastes may be exempted from this restriction by the Agency in writing upon specific written application.

(4) The use of motor vehicles is prohibited, except for essential uses such as police, fire and health services, the delivery of good, or essential fuel, waste collection, utility or pollution control emergency repairs, and such comparable uses as may be designated by the Agency. As soon as is practicable, the Agency shall submit a list of such uses for the Board's consideration.

(5) All aircraft flights leaving the area are forbidden except for reasons of public health or safety as approved by the Director in advance.

Rule 411

Alert and Emergency Plans. (a) Submission of Plans. All persons responsible for the operation of a facility of a type set forth in paragraph (b) of this Rule shall prepare written action plans, consistent with safe operating procedures, for reducing the emission of air contaminants during Yellow Alerts, Red Alerts, and Emergencies. These plans shall be designed to reduce or eliminate emissions of air contaminants in accordance with the provisions of these Rules. Further guidelines interpreting these requirements may be developed by the Agency and shall be filed with the Board.

(b) Facilities for which Plans Required. Plans are required for the following types of facilities:

(1) Electric power generating facilities;

(2) Heating facilities having a rated heat input in excess of 10 million Btu/hr. burning coal or fuel oil.

(3) *Manufacturing industries of* the following SIC group designations which employ more than 20 employees at any one location:

Paper and allied products industries Group 26.
Chemicals and allied products industries Group 28.
Petroleum refining and related industries Group 29.
Stone, glass, clay and concrete products industries Group 32.
Primary metals industries Group 33.

(4) Public and commercial refuse disposal operations.

(5) Other facilities certified by the Agency as significant sources of sulfur oxides or particulate matter.

(c) Action plans shall list all possible sources of air contaminants within the facility; shall describe the manner in which contaminant emissions will be reduced during Yellow Alert, Red Alert and Emergency; and shall specify the approximate magnitude of the reduction of emissions that will be achieved.

(d) Action plans for heating and electric generating facilities shall specify the means whereby a supply of low-ash, low-sulfur fuel adequate for at least four days operation will be assured.

(e) Action plans for incinerators shall specify what preparations have been made to handle and store the amount of refuse that could accumulate during four days, including the acquisition of leak-proof, covered containers of a design acceptable to the local sanitation authorities.

(f) Action plans required by this rule shall be submitted to the Agency within 30 days after notification by the Agency or by a local agency designated by the Agency that such plans must be submitted. If any plan does not conform

with or effectively implement the requirements of this Part, the Agency may disapprove the plan, state the reasons for disapproval, and require the plan to be revised.

If any person required to submit plans fails to submit plans satisfactory to the Agency, the Agency may file a formal complaint with the Board pursuant to Title VIII of the Act.

(g) The Agency shall file action plans with the Board within ten days after their receipt, and shall file with the Board by December 31, 1970, and every 3 months thereafter, a status report regarding progress in implementing the regulations in this Part.

(h) During alerts or emergencies, plans required by this Part shall be made available at the facility in question to any person authorized to carry out the provisions of this Part.

Rule 412 Local Responsibilities during Air Pollution Episodes. (a) The Agency has primary responsibility for the conduct of air contaminant monitoring source surveillance and enforcement activities during air pollution episodes which affect any portion of the State of Illinois.

(b) Local air pollution control agencies shall cooperate with the Agency in monitoring, surveillance and enforcement activities to the extent of their capabilities during any air pollution episode. This cooperation shall meet the following specific conditions:

(1) At any time other than during an episode such local agencies with real-time monitoring equipment shall operate all such monitoring equipment at a minimum level necessary to determine whether any level of air contaminants specified in this Part has been reached.

(2) Such local agencies shall report to the office of the Director within thirty minutes by either telephone or telemetry when any of the Watch, Alert or Emergency values specified in this Part has been reached.

(3) Local agencies with air contaminant sampling networks connected by telemetry with the headquarters of the Agency shall operate their networks in such a manner as to provide valid data to the Agency through these connections.

(4) In regions where local agencies are participating with the Agency in episode control activities, the Director shall designate one or more Agency representatives and alternates who shall station themselves at the control center of the local agency. Such designated representatives shall have authority to cause data to be transmitted by telephone or other rapid form of communication to Agency headquarters and to require the initiation, alteration or termination of control strategy by persons required to take action under this Part as directed by the Director.

Rule 413 Sealing of Offenders. The Agency may seal any equipment, vehicle, vessel, aircraft, or other facility operated in violation of this Part or contributing to an immediate danger to health.

Rule 414 Termination of Alerts. When the Watch, Alert, or Emergency values specified in this Part no longer prevail and when, in the judgement of the Director or his representative, meteorological conditions and pollutant concentrations are such as to warrant discontinuance of any alert condition, he shall notify the Board and concerned personnel of the Agency and issue a public notice that the alert condition has been discontinued.

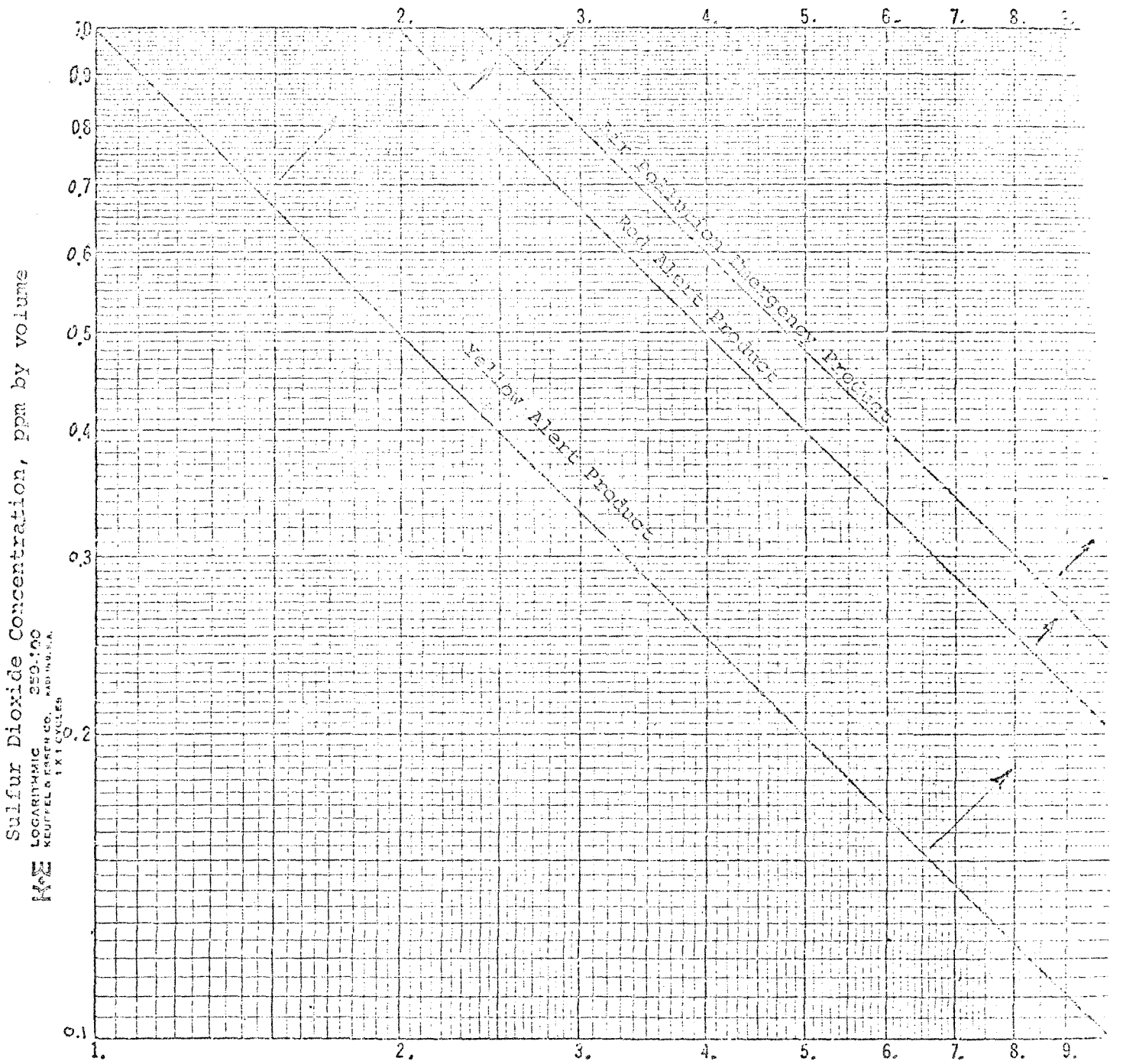
## APPENDIX

If the sulfur dioxide concentration hourly average and the particulate matter concentration are plotted on the attached graph and are on the Alert or Emergency lines or to the right of the lines, then the product Alert or Emergency values have been reached.

Also, excessive concentrations of sulfur dioxide alone may trigger Yellow or Red Alerts or Air Pollution Emergencies.

Calculation Chart for

Alert and Emergency Level Products



## PART V: OPEN BURNING

Rule 501 Definitions.

(a) Agricultural Wastes: Any refuse, except garbage and dead animals, generated on a farm or ranch by crop and livestock production practices, including such items as bags, cartons, dry bedding, structural materials, and landscape wastes.

(b) Domicile Waste: Any refuse generated on single-family domiciliary property as a result of domiciliary activities. The term includes landscape waste, but excludes garbage and trade waste.

(c) Garbage: Refuse resulting from the handling, processing preparation, cooling, and consumption of food or food products.

(d) Landscape Waste: Any vegetable or plant refuse, except garbage. The term includes trees, tree trimmings, branches, stumps, brush, weeds, leaves, grass, shrubbery, yard trimmings, and crop residues.

(e) Open Burning: The combustion of any matter in such a way that the products of the combustion are emitted to the open air without originating in or passing through equipment for which a permit could be issued under Section 9(b) of the Act.

(f) Refuse: Any discarded matter; or any matter which is to be reduced in volume, or otherwise changed in chemical or physical properties, in order to facilitate its discard, removal or disposal.

(g) Restricted Areas: The area within the boundaries of any "municipality" as defined in the Illinois Municipal Code, plus a zone extending one mile beyond the boundaries of any such municipality having a population of 1,000 or more according to the latest federal census.

(h) Trade Waste: Any refuse resulting from the prosecution of any trade, business, industry, commercial venture, utility or service activity, and any government or institutional activity, whether or not for profit. The term includes landscape waste but excludes agricultural waste.

Rule 502 Prohibitions.

(a) No person shall cause or allow open burning, except as provided in Rules 503, 504, and 505 of this Part.

(b) No person shall cause or allow the burning of any refuse in any chamber or apparatus, unless such chamber or apparatus is designed for the purpose of disposing of the class of refuse being burned.

Rule 503 Exemptions. The following activities are not in violation of Section 9(c) of the Environmental Protection Act or of this Part unless they cause air pollution as defined in the Act. Nothing in this Rule shall exempt such activities from applicable local restrictions.

(a) The open burning of agricultural waste, but only:

(1) on the premises on which such waste is generated; and

(2) in areas other than restricted areas; and

(3) when atmospheric conditions will readily dissipate contaminants; and

(4) if such burning does not create a visibility hazard on roadways, railroad tracks, or air fields;

(5) more than 1000 feet from residential or other populated areas; and

(6) when it can be affirmatively demonstrated that no economically reasonable alternative method of disposal is available.

(b) The open burning of domicile waste, but only:

(1) on the premises on which such waste is generated; and

(2) in areas other than restricted areas; and

(3) when atmospheric conditions will readily dissipate contaminants; and

(4) if such burning does not create a visibility hazard on roadways, railroad tracks, or air fields;

(5) notwithstanding subparagraph (2) of this paragraph (b), this exemption shall apply to residents in restricted areas who do not have refuse collection service available to them, but only until July 1, 1972.

(c) The setting of fires to combat or limit existing fires, when reasonably necessary in the judgment of the responsible government official.

(d) The burning of fuels for legitimate campfire, recreational, and cooking purposes, or in domestic fireplaces, in areas where such burning is consistent with other laws, provided that no garbage shall be burned in such cases;

(e) The burning of waste gases, provided that in the case of refineries all such flares shall be equipped with smokeless tips of comparable devices to reduce pollution;

(f) Small open flames for heating tar, for welding, acetylene torches, highway safety flares, and the like.

Rule 504 Permits.

(a) The Environmental Protection Agency may grant permits for open burning in the following instances:

(1) For instruction in methods of fire fighting; or for testing of equipment for extinguishing fires, of flares and signals, or of experimental incinerators, or for research in control of fires;

(2) For the destruction of vegetation on site under circumstances in which its removal would necessitate significant environmental damage;

(3) For research or management in prairie or forest ecology;

(4) For the destruction of landscape wastes, provided that such burning shall not occur:

(i) in restricted areas, unless burning is conducted with the aid of an air-curtain destructor or comparable device to reduce emissions substantially; or

(ii) within 1000 feet of any residential or other populated area; or

(iii) after July 1, 1972 except with the aid of an air-curtain destructor or comparable device to reduce contaminant emissions substantially.

(5) For the destruction of oil sludges in petroleum production for safety reasons where alternative means including product recovery are impracticable; provided, that when emergency conditions require, such burning may be done without a permit, and a report shall be filed with the Agency within ten days thereafter, indicating the place and time of such burning, the quantities burned, the meteorological conditions, and the reasons why emergency burning was necessary.

(b) An application for a permit shall be in such form and shall contain such information as shall be required in procedures adopted by the Agency. Such application shall contain, as a minimum, data and information sufficient to inform the Agency with respect to: the exact quantities and types of material to be burned; the exact nature and exact quantities of air contaminant emissions which will result; the exact frequency, including dates where appropriate, when such burning will take place; the exact location of the burning site, including a map showing distances to residences, populated areas, roadways, air fields, etc.; the methods or actions which will be taken to reduce the emission of air contaminants; the reasons why alternatives to open burning are not available; and the reasons why such burning is necessary to the public interest.

(c) No permit shall be granted unless the applicant proves to the satisfaction of the Agency that the open burning: is necessary to the public interest; will be conducted in such a time, place and manner as to minimize the emission of air contaminants; and will have no serious detrimental effect upon adjacent properties or the occupants thereof.

(d) The Agency may impose such conditions in the permit as may be necessary to accomplish the purposes of the Act or this Part.

(e) No permit shall be valid for longer than one year. Applications for renewal of a permit shall be submitted to the Agency at least 90 days prior to the expiration of the prior permit, and shall conform to Rule 504 (b). The standards for issuance of renewal permits shall be as set forth in Rule 504 (c).

(f) Violation of any of the conditions of the permit shall be grounds for revocation of the permit by the Agency, as well as for other sanctions provided in the Act.

(g) The Agency may revise any permit granted pursuant to this Rule, or any condition contained in any such permit.

Rule 505 Explosive Wastes.

Open burning of wastes creating a hazard of explosion, fire, or other serious harm, unless authorized by other provisions in this Part, shall be permitted only upon application for and grant of a variance as provided by the Act and by Chapter 1 of these Rules and Regulations.

Rule 506 Local Enforcement.

It shall be the obligation of local governments, as well as of the Environmental Protection Agency, to enforce by appropriate means the prohibitions in this Part.

Part VI: Asbestos and Spray Insulation and Fireproofing

Table of Contents

## SECTION I: INTRODUCTION

Rule 601. Authority

Pursuant to the authority in Sections 9, 10 and 13 of the Environmental Protection Act which empower the Board to adopt regulations forbidding the "sale, offer, or use for reasons of air pollution control" of any article, and to set "standards specifying the maximum amounts or concentrations of various contaminants that may be discharged into the atmosphere"; and to set standards for the issuance of permits for the operation of any equipment or facility capable of causing or contributing to air pollution; and to promulgate "conditions regarding the... use of any....article determined by the Board to constitute an air pollution hazard"; and to adopt effluent standards limiting the amounts of contaminants that may be discharged into the water of Illinois, the Board adopts the following rules and regulations:

Rule 602. Policy

It is the purpose of the General Assembly in adopting the Environmental Protection Act to maintain and enhance the purity of the air and water of Illinois in order to protect health, welfare and the quality of life. Accordingly, it is hereby determined that the uncontrolled discharge of asbestos fiber into the environment tends to severely endanger the public health and welfare and that the uncontrolled spraying of fiber-containing materials unreasonably interferes with the enjoyment of life and property.

## PART VII: EMISSION STANDARDS AND LIMITATIONS FOR MOBILE SOURCES

Rule 701. Preamble. As the state of knowledge and technology relating to the control of emissions from motor vehicles shall permit and make appropriate, and in furtherance of the purposes of the Illinois Air Pollution Control Act, the Illinois Air Pollution Control Board shall provide for by rules and regulations the control of emissions from motor vehicles. Such rules and regulations shall prescribe requirements for the installation and use of equipment designed to reduce or eliminate emissions and for the proper maintenance of such equipment and of vehicles. Any rules or regulations pursuant to this section shall be consistent with provisions of Federal Law, if any, relating to control of emissions from the vehicles concerned.

Rule 702. Definitions.

Diesel Engine All types of internal-combustion engines in which air is compressed to a temperature sufficiently high to ignite fuel injected directly into the cylinder area.

Fleet Five or more vehicles.

Motor Vehicle As used in this section "motor vehicle" shall have the same meaning as in the Illinois Motor Vehicle Law.

Persons Liable All persons owning, operating or in charge of control of any equipment who shall cause or permit or participate any violation of these rules and regulations either as owner, operator, lessee or lessor.

Rule 703. Prohibitions. Except as permitted or authorized by law, no person shall fail to maintain in good working order or remove, dismantle, or otherwise cause to be inoperative any equipment or feature constituting an operational element of the air pollution control systems or mechanisms of a motor vehicle as required by rules or regulations of the Illinois Air Pollution Control Board and the United States Department of Health, Education, and Welfare to be maintained in or on the vehicle.

Rule 704. Inspection.

704(a) When the Illinois Air Pollution Control Board has issued rules and regulations requiring the maintenance of features or equipment in or on motor vehicles for the purpose of controlling emissions therefrom, no motor vehicle shall be issued an inspection sticker as required pursuant to those Rules and Regulations Governing

the Control of Air Pollution, unless all such required features or equipment have been inspected in accordance with the standards, testing techniques and instructions furnished by the Illinois Air Pollution Control Board and has been found to meet those standards.

704(b) Motor vehicle engines, having the manufacturers' air pollution control systems installed, shall comply with Rule 706(a).

704(c) Motor vehicle engines not having the manufacturers' air pollution control systems installed, shall be maintained to comply with Rule 706(a).

Rule 705. Penalties — Any violations of any provisions of this chapter shall be subject to the penalties as set forth in Section 15 of the Illinois Air Pollution Control Act.

Rule 706. Smoke Emissions.

706(a) There shall be no visible emissions of smoke from a motor vehicle, zero opacity.

706(b) Motor vehicles travelling Illinois Public Highways from out of state must comply with Rule 706(a).

706(c) No used motor vehicle shall be sold or transferred in Illinois unless that said vehicle meets Rule 706(a).

Rule 707. Diesel Engine Emission Standards.

707(a) The visible emission standard in Rule 706 shall n apply to diesel engines.

707(b) Diesel engines manufactured before Jan y 1, 1970, shall not be operated in such a manner as to emit smoke which is equal to or greater than 30% opacity except for individual smoke. Individual puffs of smoke shall not exceed 15 seconds in duration.

707(c)(1) Diesel engines shall be operated only on the specific fuels as specified in the engine manufacturers' specifications for that specific engine, or on fuels exceeding engine manufacturer's specifications.

707(c)(2) Persons liable for operating diesel engined fleets wholly within S.M.S.A. shall furnish to the Technical Secretary of the Illinois Air Pollution Control Board, once each year, proof that the fuel purchased and used in their operations conforms to Rule 707(c)(1).

It is the purpose of these regulations to control the amount of asbestos fiber released into the environment from the major sources of emission. Such control is necessary not only to protect those members of the public who are in proximity to heavy concentrations of asbestos fiber but also to safeguard the health of future generations endangered by the continuous discharge of asbestos fiber which can be toxic and which tends to be cumulative both in the atmosphere and in the human body.

Where health can be protected by the adoption of an emission standard or of procedural safeguards, such a course has been pursued. In those instances where restriction is unfeasible because of the unusual nature of the emission source (spray asbestos at construction sites) a product ban has been resorted to. This prohibition has been made with full consideration given to the available alternative materials.

It is also the purpose of these regulations to reduce the emission of non-asbestos particulate from spray-fireproofing and insulation. To protect against these emissions, the biological effects of which are unknown, procedural safeguards have been enacted.

Rule 603. Definitions

| | |
|---|---|
| Agency | The Illinois Environmental Protection Agency |
| Asbestos | Any fiber or any mixture containing fiber of hydrated silicate mineral, which, on the basis of its crystalline structure, falls into one of two categories:<br>(1) pyroxenes - chrysotile fiber;<br>(2) amphiboles - crocidolite, amosite, tremolite, actinolite or anthophilite fiber. |
| Board | The Pollution Control Board of Illinois. |
| Commercial Activity | Any activity done for hire or having financial profit as a primary aim. |
| Debris | Asbestos-containing waste produced by the demolition of a structure. |
| Spraying | The pneumatic application of material used for fireproofing or insulation. |
| Waste | Any asbestos-containing matter which has been or is intended to be discarded. |

## SECTION II: General Requirements

Rule 621. After June 30, 1972 no commercial activity, not otherwise hereinafter prohibited, involving the potential discharge of visible amounts of asbestos fiber or asbestos-containing materials into the ambient air from the construction, alteration, repair or demolition of a structure or from the processing or manufacturing of asbestos-containing products, shall be conducted unless the person or entity in charge of such activity complies with the following regulations:

(a) Personnel shall be designated to exercise full-time supervisory authority over all aspects of the activity from which the release of asbestos fiber into the environment could result, in such a manner as to insure compliance with the pertinent asbestos control regulations.

(b) Each employee engaged in such activity shall complete a course of instruction on the potential hazards of exposure to asbestos fiber, including the precautions that must be observed to prevent or restrict the dispersion of asbestos fiber into the environment.

(c) Facilities shall be provided and procedures instituted and supervised that prevent the removal from the site of visible amounts of asbestos-containing material on the clothing of the employees.

(d) Asbestos-containing wastes shall be immediately vacuumed or otherwise collected where vacuuming is impossible, and shall be placed in a container resistant to tearing or breaking under normal handling conditions, which shall be tightly sealed and clearly marked as containing asbestos waste. Such containers shall be placed directly upon a vehicle for disposal by burial at a sanitary landfill.

Rule 621(d) shall not apply to the demolition of a structure, except as provided in Rule 641 (d) and (e) or to the disposal of sludge waste except as provided in Rule 656.

Rule 622. After June 30, 1972 the manufacturing or processing of asbestos containing products is prohibited unless the person or entity in charge of such activity has obtained a permit from the Agency. Before obtaining such permit the applicant shall demonstrate compliance with Rule 621 and such additional standards as are hereinafter specifically required.

## SECTION III: Construction, Alteration and Repair of a Structure

Rule 631. The spraying of asbestos-containing material is prohibited after March 31, 1972.

Rule 632. Non-asbestos fibrous matter shall not be sprayed in an area open to the atmosphere unless the following procedures are taken:

(a) The entire floor or area to be sprayed shall be enclosed with plastic or plastic-coated tarpaulins in a manner which shall preclude the escape of fiber-containing material from the enclosure. All interior open areas such as elevator shafts and stairwells shall be enclosed in a manner which shall prevent the escape of fiber-containing material from the working area.

(b) The entire sprayed area, all ledges and surfaces including tarpaulins within the enclosure shall be thoroughly vacuumed upon completion of the spraying operation and immediately before the enclosure is dismantled.

Rule 633. (a) The cutting, trimming, fitting or stripping of asbestos-containing material in the construction, alteration or repair of a structure which is done at the site of such structure in an area open to the atmosphere shall be conducted within a special enclosure designed to preclude the escape of asbestos fiber from the immediate area of such enclosure.

(b) The mechanical exhaustion of dust from such enclosure to the ambient air is prohibited unless such exhaust system is equipped with a properly sized fabric filter for dust collection or an equivalent device as approved by the Agency.

Rule 634. Compliance with Rules 632 and 633 notwithstanding, visible emissions of fiber-containing material in an area open to the atmosphere shall be considered a violation.

Rule 635. Asbestos-containing material applied in the construction, alteration or repair of a structure shall be coated with a sealant, provided with a cover or installed in some other manner so as to preclude emission of the asbestos-containing material to the circulating air. Any plenum or other structure coated with or containing asbestos-containing insulation and used in the circulation of air in a building shall be thoroughly cleaned of all debris and waste insulation.

## SECTION IV: Demolition

Rule 641. Where the risk of public exposure to asbestos fiber from the dislodging of asbestos-containing materials is present, no demolition of a structure shall be initiated unless all safeguards necessary and practicable to reduce the emission of dust are taken.

Such procedures shall include, but are not necessarily limited to:

(a) Boilers and pipes and steel members insulated or fireproofed with asbestos-containing material shall be wetted and stripped before toppling of walls is begun. This procedure shall be followed, where practicable, as to all other asbestos-lined surfaces. Such asbestos waste shall be immediately bagged and disposed of in accordance with Rule 621(d).

(b) When demolition by toppling occurs such reasonable enclosure for dust emission control as is compatible with the character of the structure shall be employed.

(c) Before the demolition or toppling of any section or wall of the structure, adequate wetting to suppress the dust shall be employed.

(d) Asbestos-containing debris shall not be dropped or thrown from any floor but shall be transported by dust-tight chutes or buckets. Asbestos-containing debris in chutes or buckets shall be sufficiently wetted to preclude dust dispersion at the point of discharge.

(e) All asbestos-containing debris shall be thoroughly wetted before loading into trucks, other vehicles or containers. During transport such waste shall be enclosed or covered so as to prevent dust dispersion. Asbestos-containing debris shall be disposed by burial at a sanitary landfill.

## SECTION V: Manufacturing

Rule 651. (a) After June 30, 1972 a factory, plant or enterprise which engages in the processing or manufacturing of any asbestos-containing product shall discharge no visible emission of particulate matter from such manufacturing or processing into the ambient air and shall emit no concentrations of asbestos fiber into the ambient air in excess of 2 fibers per cubic centimeter of air.

(1) Sampling of emissions shall be by the membrane filter method and according to the procedures recommended in the ASME Power Test Code 27-1957, or other procedures generally accepted by persons knowledgeable in the state of the art.

(2) Counting shall be according to the procedure outlined in Edwards, G.H., and Lynch, J.R., "The Method Used by the U.S. Public Health Service for Enumeration of Asbestos Dust on Membrane Filters," Ann. Occupational Hyg. (Oxford), 11 (1): 1-6, Jan. '68; with 20 fields per sample, counted at random using phase contrast microscopy at 430 x magnification and counting only fibers 5 microns or greater in length, with a length to breadth ratio of 3 to 1 or greater.

Rule 652. Any factory, plant or enterprise which engages in the processing or manufacturing of any asbestos containing product shall control all asbestos handling facilities so that exhaust air can be ducted through necessary air pollution control equipment and samples taken of the gases which are emitted into the ambient air.

Rule 653. Any factory, plant or enterprise for which a permit is sought or has been granted pursuant to Rule 622 hereunder shall be subject to inspection by the Agency at any reasonable time, without prior notice.

Rule 654. At a frequency to be determined by the Agency, any factory, plant or enterprise which engages in the processing or manufacturing of any asbestos-containing product shall sample the exhaust from such factory, plant or enterprise and submit the emission data to the Agency.

Rule 655. A factory, plant or enterprise the manufacturing processes of which add asbestos fiber to water shall not discharge such process waste water to the sewers or waters of Illinois unless such process waste water is given the best available treatment consistent with technological feasibility and economic reasonablenes

Rule 656. Waste sludge containing asbestos and collected from settling ponds shall be enclosed during transport and shall be disposed by burial at a sanitary landfill.

Rule 657. No product which may emit asbestos-fiber during its transportation shall be transported unless such product is enclosed so as to preclude the emission of asbestos fiber into the ambient air.

Rule 658. Notwithstanding compliance with Rules 656 and 657 the visible emission of particulate matter in the course of such transportation shall be considered a violation.

## SECTION VI: Local Enforcement

Rule 661. It shall be the obligation of local governments as well as the Agency to enforce by appropriate means the requirements of Rule 621 of Sections III, IV and of Rules 656. 657 and 658.

## PART VIII: ODORS

Rule 801: Definitions.

Animal and Marine Matter: any product or derivative of animal life.

Food Service Establishment: for purposes of this regulation, a food service establishment shall be defined as follows: Any fixed or mobile restaurant; coffee shop; cafeteria; short order cafe, luncheonette, grill; tea room; sandwich shop; soda fountain; tavern; bar; cocktail lounge; nightclub; roadside stand; industrial feeding establishemnt; private, public, or non-profit organization or institution routinely serving food; catering kitchen; commissary or similar place in which food is placed for sale or served on the premises or elsewhere; and any other eating or drinking establishment or operation where food is served or provided for the public, with or without charge.

Odor Concentration: the number of cubic feet that one cubic foot of sample will occupy when diluted to the odor threshold. It is a measure of the number of odor units in one cubic foot of the sample. It is expressed in odor units per cubic foot.

Odor Unit: one cubic foot of air at the odor threshold.

Person: any individual, partnership, co-partnership, firm, company, corporation, association, joint stock company, trust, estate,political subdivision, state agency, or any other legal entity, or their legal representative, agent or assigns.

Process: any action, operation, or treatment and the equipment used in connection therewith, and all methods or forms of manufacturing or processing that may emit smoke, particulate matter or gaseous matter.

Rendering: any heating process, including cooking, drying, dehydrating, digesting, evaporating and protein concentrating of animal or marine matter.

Rule 802: Inedible Rendering Process.

(a) The provisions of this regulation shall not apply to any device, machine, equipment, or other contrivance used exclusively for the processing of food for human consumption and to food service establishments.

(b) No person shall operate or use any device, machine, equipment, or other contrivance for the inedible rendering of animal or marine matter unless all gases, vapors and gas entrained effluents from these processes shall be controlled in such manner as to effectively abate any objectionable odor nuisance. In the event that the rendering processes of more than one company are contributing to the objectionable odor nuisance, abatement shall be deemed effective when the odor concentration from each process is not more than 120 odor units/cubic foot as determined by Mills* adaptation of ASTM D-1391-57.

(c) An objectionable odor nuisance exists when a trained state inspector, upon the receipt of a complaint from one resident or property owner in the area affected shall determine that these odors cause a nuisance as outlined in Rule 802(d).

(d) Objectionable Odor Nuisance Determination. An objectionable odor nuisance exists:

On or adjacent to residential, recreational, institutional, retail sales, hotel or educational premises when odor is detectable in the ambient air after it is diluted with eight volumes of odor-free air as measured by the Scentometer;

On or adjacent to industrial premises when odor is detectable in the ambient air after it is diluted with twenty-four volumes of odor-free air as measured by the Scentometer;

On or adjacent to premises other than those above when odor is detectable in the ambient air after it is diluted with sixteen volumes of odor-free air as measured by the Scentometer;

When concurrent determinations made by three trained inspectors as outlined above in any given one hour period and at intervals of not less than fifteen minutes result in two positive determinations in each series of three determinations; and

Provided that any quantitative odor level measurements taken to arrive at a determination that an objectionable odor nuisance exists shall be at or beyond the property line or at or near places where people live or work.

*As described in paper entitled "Quantitative Odor Measurement" by John L. Mills, et al, presented at the 56th Annual Meeting of APCA, Sheraton-Cadillac Hotel, June 9-13, 1963, Detroit, Michigan.