BEFORE THE ILLINOIS POLLUTION CONTROL BOARD

IN THE MATTER OF:	)	
	)	
PM-10 EMISSION LIMITS FOR THE	)	
MCCOOK AND LAKE CALUMET AREAS	)	R91-22
IN COOK COUNTY, ILLINOIS AND THE	)	
GRANITE CITY AREA IN MADISON	)	
COUNTY, ILLINOIS	)	

STATEMENT OF REASONS

The Illinois Environmental Protection Agency ("Agency") hereby submits this Statement of Reasons, pursuant to Section 27 of the Environmental Protection Act (Ill. Rev. Stat. 1989, ch. 111 1/2, par. 1027) and 35 Ill. Adm. Code 102.120, in support of this regulatory package.

The Clean Air Act requires that Illinois demonstrate attainment with the ambient air standards for numerous pollutants, including particulate matter emissions. The Clean Air Act Amendments of 1990 require that the State submit rules for PM-10 by November 15, 1991, which provide for attainment with the standards. This rule proposal responds to these requirements.

These proposed regulations are intended to regulate particulate matter with an aerodynamic diameter less than or equal to a nominal 10 micrometers, which is known as PM-10. This proposal represents one portion of the State's submittal of a complete State Implementation Plan ("SIP") for the control of PM-10 emissions in Illinois in order to assure attainment of the PM-10 national ambient air quality standards ("NAAQS").

On July 1, 1987, at 52 Fed. Reg. 24634 and pursuant to authority found in Sections 108 and 109 of the Clean Air Act ("CAA") (42 U.S.C. §§7408, 7409), the United States Environmental Protection Agency ("USEPA") promulgated the NAAQS for PM-10, fixing a 24-hour standard of 150 ug/m^3 and an annual standard of 50 ug/m^3.

On August 7, 1987, at 52 Fed. Reg. 29383, USEPA designated Cook County and Madison County as Group I areas for PM-10 because these areas had a 95% probability of not attaining the PM-10 NAAQS established by the USEPA.

On November 15, 1990, Section 188 of the Clean Air Act Amendments of 1990 (P.A. 101-549 (1990)) ("CAAA") designated the McCook and Lake Calumet areas of Cook County, the Granite City area in Madison County, and the Oglesby area of LaSalle County as nonattainment areas for PM-10 and imposed a SIP submittal date of November 15, 1991 (42 U.S.C. §7513(a)), thereby placing the State of Illinois under an obligation to adopt federally approvable and enforceable regulations for those areas by November 15, 1991 to ensure the attainment and maintenance of the PM-10 NAAQS. This obligation arises under Section 110 (a) of the Clean Air Act (42 U.S.C. §7401 et seq.) as amended by the CAAA, which requires that each state adopt and submit to the USEPA a plan which provides for the implementation, maintenance, and enforcement of the NAAQS (42 USC §7410).

The Agency previously submitted a regulatory proposal for the Oglesby area entitled "PM-10 Emission Limits for the Portland Cement Manufacturing Plant and Associated Quarry Operations Located South of the Illinois River in LaSalle County, Illinois," in Proceeding R91-6, and it remains pending before the Board.

This regulatory proposal is directed at the McCook, Lake Calumet and Granite City areas -- the remaining three of the four geographic areas in Illinois which require additional regulation to control PM-10 emissions -- and includes all the rules that will be necessary for the McCook and Lake Calumet areas to achieve attainment. While the majority of the Granite City sources will also be required to meet the general emissions limit of 0.03 grains of

PM-10 per standard cubic foot and the regulations for fugitive dust control as proposed herein, the Agency expects that a small number of sources in the Granite City area will require limits beyond those provided by the general rule in order for that area to demonstrate attainment. At this time, the Agency modeling required to determine the identity of those sources has not yet been completed. Failure to make a timely submittal to USEPA of rules demonstrating attainment with the PM-10 NAAQS would subject the State of Illinois to sanctions as provided by the CAA. Section 179(a)(3)(A) of the CAAA provides that a non-compliant state may be subject to one of two available sanctions, i.e., withholding highway funding §179(b)(1) and higher offset requirements (§179(b)(2)). However, should the Administrator find the state lacking in good faith in working toward compliance, both sanctions shall apply until such time as that state achieves compliance (§179(a)(4)). Because of the urgency surrounding the submission of this proposal created by new federal requirements, even though the the further specific restrictions for the Granite City area are not yet complete, the Agency believes it is incumbent upon it to submit all available information now and to supplement this proposal at a later time when additional limits relevant only to selected sources within the Granite City area have been determined.

Absent from this proposal are contingency measures as required by Section 172(c)(9) of the Clean Air Act (42 U.S.C. §7502). As outlined in greater detail in a later section entitled "Federal Approvability", the Agency has not proposed such measures at this time because both the Agency and the USEPA remain unsure of the meaning of this provision of the Act. At such time as these requirements are clarified, the Agency will propose appropriate contingency measures.

General Overview

A philosophy underlying environmental control law is that we must protect against the worst-case scenario. In the context of PM-10, this means that the environmental protection agencies, in determining whether an area is attainment for a given parameter, must assume that a facility will emit to the extent allowed by the law. Therefore, we must perform computer modeling based on the emissions limitations as promulgated regardless of the actual emissions levels in the area, because so long as regulations allow a facility to emit to that level, it may at some point in the future do so.

It was on this basis, then, that USEPA designated the geographic areas subject of this rulemaking as nonattainment. USEPA found there is a 95% probability, based on the current TSP rules, that these areas will not comply with the NAAQS for PM-10. The task then fell to the Agency to solve the problem posed by existence of the current rules in these industrialized areas, knowing that the actual emissions of PM-10 in these areas are very close to attainment.

Therefore, in approaching the task of demonstrating attainment in the McCook, Lake Calumet, and Granite City areas, the Agency made the following initial decisions: (1) the existing Board particulate regulations provide the basis for control of particulate matter; (2) the proposed regulations will reflect the levels of control that are actually in place for most sources; (3) regulations will require further control where they are specifically needed to demonstrate attainment with the NAAQS, and these control measures are technically feasible; (4) the Agency would engage in substantial outreach efforts and would work very closely with interested parties throughout the

rulemaking process; and (5) the Agency would work closely with the DENR during the development of the proposal to ensure the costs of the regulating proposal were reasonable. With these decisions made, the Agency proceeded to implement them.

The particulate regulations currently in effect in Illinois provide the backbone of our regulatory framework and will continue to do so. More stringent PM-10 limits are required only for certain sources in the three study areas cited above. Even for many sources in these areas the limits will remain unchanged from the current state rules, such as on boilers and incinerators.

The Agency PM-10 rulemaking proposal was developed to ensure that the regulations properly give credit towards demonstrating attainment for those control measures which are widely used by affected sources. It proposes additional reasonable controls only where necessary to demonstrate attainment of the air quality standards. One must recognize that when Illinois or any state determines whether its State Implementation Plan demonstrates attainment with the national ambient air quality standards for particulate matter, it must assume that each source will emit the maximum amount of particulate emissions allowed by regulation. The limits that are set in the regulations must protect the air quality standards, and the Agency must show through its modeling that sources operating at their maximum allowed limits would not cause violations of the NAAQS.

At any time, most facilities in Illinois do not emit to the maximum extent allowed by the Air Pollution Control Regulations found at 35 Ill. Adm. Code, Part 212. The pollutant levels measured by air quality monitors show that

actual air quality is better than that which would be measured if all sources were emitting at their allowable levels. The monitors in Granite City and Oglesby indicate violations, but still actual air quality is better than if all sources emitted at the levels currently allowed by regulation. The air monitoring data in McCook and Lake Calumet indicate PM-10 levels that only occasionally exceed the air quality standard.

The Agency has concluded that the present controls must be properly accounted for in order to provide the appropriate credit in the modeling assessment. The air monitoring data and subsequent modeling analyses substantiate that if limits are set to account for these existing control measures, the new regulations by themselves will come very close to adequately protecting air quality. The Agency strategy was to achieve this approach, and thereby reduce the need to place unnecessary burdens on Illinois sources. In order to achieve the further reductions necessary to reach the NAAQS in all cases, certain additional limits will be needed for specific sources or types of sources that analyses reveal remain potential violations.

In developing these rules, the Agency examined the potential for limiting the process sources, in particular, to more closely reflect what sources actually emit. This result was achieved by setting a general limit on these sources with more stringent limits where necessary for the Agency to demonstrate attainment.

The Agency also determined that open fugitive particulate matter emissions are significant in all three study areas. While most sources employ measures to control fugitive dust, some facilities may have to improve their levels of control. The rules proposed by the Agency provide the means and guidance for

them to do so, ensuring that the fugitive dust emissions will be appropriately controlled in these areas.

The Agency engaged in very successful outreach efforts that involved the regulated community and other interested groups in the development of this proposal. The Agency shared with the affected facilities and with other interested groups each step in the rule development activities including development of the emissions inventory, assessment of the air quality using the appropriate modeling techniques, and development of the rule language itself. The Agency worked jointly with affected facilities to develop the PM-10 inventory in order to ensure appropriate modeling results. This approach is reasonable and practicable and necessarily results in an open rulemaking process that assures regulations appropriate for the State of Illinois. A discussion of the outreach activities is presented in Exhibit C.

In order to assess the cost of various elements of the regulatory proposal while the rule proposal was being developed, the Agency and DENR worked very closely with an engineering/economic contractor. The feasibility of many control measures and the costs of implementing these controls were discussed and evaluated. The exchange of information was extremely valuable to both the Agency and DENR. A detailed report, which was prepared for the final rule proposal, is included as Exhibit G in this submittal.

General Information about Particulate Matter[1]

Particulate matter in the atmosphere is made up of solids, liquids, and liquids-solids in combination and are present in the air in great numbers. Particulates entering the atmosphere differ in size and chemical composition.

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[1]52 Fed. Reg. 24634 (July 1, 1987).

The effects of particulates on health and welfare are directly related to their size and chemical composition.

Suspended particulates generally refer to particles less than 100 micrometers in diameter (human hair is typically 100 micrometers thick). Particles larger than 100 micrometers will settle out of the air under the influence of gravity in a short period of time.

Particulate pollutants enter the body by way of the respiratory system and their most immediate effects are upon this system. The size of the particle determines its depth of penetration into the respiratory system. Particles over 5 micrometers are generally deposited in the upper respiratory system, the nose, and the throat. Particles ranging in size from 0.5 to 5.0 micrometers in diameter can be deposited in the air ducts (bronchi), with few reaching the air sacs (alveoli). Most particles deposited in the bronchi are removed by the cilia within hours. Particles less than 0.5 micrometer in diameter reach and may settle in the alveoli. The removal of particles from the alveoli is much less rapid and complete than from the larger passages. Some of the particles retained in the alveoli are absorbed into the blood.

The USEPA has found that particulates have been associated with increased respiratory diseases (asthma, bronchitis, emphysema), cardiopulmonary disease, and cancer. USEPA determined that regulating PM-10 provides the requisite margin of safety necessary to protect public health and established the NAAQS for that parameter. USEPA also found that particulate matter may adversely affect the surfaces and growth rates of vegetation, including agricultural crops. Particulate air pollution may also cause a wide range of damage to materials, including corrosion of metals and electrical equipment and the soiling of textiles and buildings.

Purpose and Effect of the Proposal

The protection of the health of persons in the three areas underlies the purpose of this proposal. The emissions limits proposed herein will reduce PM-10 emissions to the extent necessary to achieve and maintain attainment of the PM-10 NAAQS and thereby ensure the protection of public health with respect to PM-10 air quality in the McCook, Lake Calumet, and Granite City nonattainment areas.

Facts Supporting the Proposal

The support provided by the Agency for this proposal establishes all of the facts necessary for the Board to adopt the proposal and for the proposal, upon adoption, to be approved by USEPA as the PM-10 SIP for the McCook, Lake Calumet, and Granite City areas. The following four subsections contain a capsule description of the Agency's methodology, rationale, and conclusions underlying this regulatory package. For further detail, please see the respective exhibits as noted within each subsection.

A. Emissions Inventory

An essential component for preparation of the revised State Implementation Plan is development of a comprehensive inventory of emission sources. The development of the emissions inventory included review of the existing particulate inventory for total suspended particulates, verification of the source parameters, application of appropriate PM-10 emission factors, computation of the PM-10 inventory data, and quality assurance of the inventory. Since each of the three study areas is predominately industrial in nature, development of the PM-10 inventory concentrated on quantifying and

verifying the emissions from the industrial activities. Industrial sources of PM-10 emissions were grouped for dispersion modeling purposes into the following categories: point sources, process fugitive sources, and open fugitive dust sources. The methodologies used to identify, complete, and compile emissions from point, process fugitive, and open fugitive particulate sources are described in detail in Exhibit D.

Point sources are defined as sources that emit PM-10 into the atmosphere through a discrete stack, chimney, or vent. In many cases, the emission release for a point source is via a flue or vent on a pollution control device. The point source inventory consists of all stack sources within the defined boundaries of the study areas.

Process fugitive sources include sources with emissions resulting from industrial processes that are very diffuse or dispersed at the point of release. Process fugitive sources generally are not adequately treated in a dispersion model as point sources. Non-stack sources such as coke ovens (from pushing and charging of coke and from door leaks) and roof monitors on the steelmaking shops and cast houses are examples of process fugitive sources.

Open fugitive dust emissions result primarily from raw material handling and from reentrainment from vehicular activities on paved and unpaved plant roads. Open fugitive dust sources are generally distributed throughout an industrial facility and are typically located at or near ground level. All three of the priority PM-10 study areas contain sources of industrial fugitive dust.

The PM-10 inventory represents a cooperative effort by the IEPA staff and members of affected industries in the study areas. During 1990 and 1991 the

Agency held general meetings in Springfield with industry to discuss inventory and PM-10 SIP development and to review IEPA data. The Agency also held several sets of general meetings in the three study areas from the summer of 1990 through the summer of 1991. The earlier meetings focused on the specific inventories of each area. Discussion of modeling results and presentation of the general rule proposal provided the focus of the spring 1991 meetings, while the summer 1991 meetings focused on the proposed regulations. In addition, the Agency had extensive contacts with individual industries and groups of industries through meetings and telephone discussions to identify PM-10 sources, to clarify operating conditions, and to prepare PM-10 inventories. Exhibit C contains summaries of all the general meetings, lists of attendees at each meeting, and outlines of the topics discussed at each meeting.

The end result of the PM-10 inventory process is an emissions inventory for each of the study areas that represents a cooperative effort with affected industries using nationally acceptable PM-10 emission factors. These inventories are the basis for the air quality modeling that provides the required attainment demonstration.

B. Modeling of Air Quality

To develop control strategies for the achievement and maintenance of the PM-10 NAAQS, the Agency performed dispersion modeling to study the air quality in the three cited Illinois areas. The mcdeling was conducted consistent with Federal guideline procedures. The primary source of such guidance is contained in two USEPA documents: PM-10 SIP Development Guideline and the Guideline on Air Quality Models.

The modeling analysis demonstrates that the emissions limits contained in this regulatory package are sufficient to provide for attainment and maintenance of the PM-10 NAAQS. The procedure used by the Agency to determine these limits yielded the most reasonable level of control necessary to provide attainment. For the vast majority of PM-10 emission sources, the revised emission limits proposed by the Agency merely codify control practices already being used to reduce emissions. More stringent requirements are proposed only for those sources shown by the modeling to contribute significantly to violations of the PM-10 NAAQS. Both the magnitude of a source's air quality impact and the reasonableness of the required controls were considered before the Agency assigned emissions limits that were more stringent than the source currently achieves. The Agency considers this approach to be equitable in that it represents the least intrusive application of controls and requires only that which is necessary for attainment.

A detailed description of dispersion modeling, including the specific procedures needed to meet state and federal requirements, and the results of the air quality modeling studies are found in the supporting documentation of this proposal (Exhibit E).

C. Contact with Environmental Control Agencies

The Agency consulted USEPA throughout development of this proposal to ensure that the most current guidance and interpretations are included. Since the revised national PM-10 standard became effective in 1987, the Agency has made every effort to ensure that the state is meeting federal requirements and guidance regarding monitoring activities, emissions inventory development, air

quality modeling, regulatory approach and regulatory language. As explained later in this document, the process used by the Agency reflects current federal guidance.

In addition to consultation with the USEPA, the Agency consulted other states and reviewed their regulatory development efforts. The Agency considered this in developing these proposed regulations and, to that end, reviewed particulate data, proposed and current regulations, and required control measures of certain other states. The Agency's primary focus in this regard was states within USEPA Region V, notably Michigan, Indiana, Minnesota, and Ohio; however, sixteen other states were contacted during the complete rule development process. Since greatest attention was given to the information provided from states within Region V, Agency contacts with most of the other states resulted in minimal impact on this effort.

Each of the four Region V states has at least one PM-10 nonattainment area, and they are all currently involved in the development of revised state implementation plans for PM-10. These states have also found that control of fugitive dust is an important element of their PM-10 regulations, and several of the Region V states also reported the use of a general limit for the control of point sources.

D. Application of Data

As noted previously, the Agency examined the possibility of adopting a general rule which would be applicable to the majority of Illinois process sources in the nonattainment areas and carving out source-specific exceptions for the few remaining sources in order to meet attainment. In this proposal

the Agency seeks to establish emissions limits that reflect control measures that are already in place for most industries.

Several sets of preliminary modeling were performed for the three study areas. The three assessments evaluated the air quality for each of the following: 1) the allowable emissions limits for existing particulate rules, 2) the actual PM-10 emissions levels, and 3) an assumed limit of 0.03 gr/scf as a general rule for point sources with various levels of fugitive dust controls (i.e., no fugitive control, fugitive control at actual levels, and at reasonable additional fugitive control). The model assessments with the 0.03 gr/scf limit and reasonable additional fugitive dust control showed dramatic improvements over the evaluation of existing rules. As discussed in foregoing subsection (A), the numerical limit of 0.03 gr/scf as a general rule and the issues regarding fugitive dust control were discussed at the informational meetings held with industry representatives in all three study areas.

The Agency subsequently determined that the majority of sources in each of the three study areas are able to meet the general limit of 0.03 gr/scf. Indeed, that general limit is a standard that most process emission sources are meeting currently and can continue to meet comfortably. This general emissions limit, therefore, may be fairly applied to all but a few sources, and for those, alternative standards have been provided.

Concerning fugitive particulate matter emissions, the Agency has proposed that opacity is appropriate as a surrogate indicator of fugitive dust emissions for ensuring that adequate control measures are being applied for certain types of fugitive dust sources. The use of opacity limits is consistent with existing Illinois rules for the control of particulate matter

and with practices in other states. The opacity limits included in this proposal reflect the Agency's intent to ensure that appropriate control practices are implemented and enforced. Exhibit F provides an extensive discussion of opacity as an indicator of control efficiency.

Federal Approvability

The USEPA's review of the Agency's proposal allows the Agency to represent its belief that this proposal is federally approvable. There are, however, two issues arising from the Clean Air Act Amendments which require further discussion: (1) a requirement that reasonably available control technology be imposed; and (2) as earlier discussed, a provision requiring contingency measures.

The CAAA requires imposition of reasonably available control technology to control PM-10:

> Section 172(c)(1) requires all nonattainment plan provisions to provide for the implementation of all reasonable available control measures as expeditiously as practicable (including such reductions in emissions from existing sources in the area as may be obtained through the adoption, at a minimum, of reasonably available control technology) and shall provide for attainment of the national primary ambient air quality standard. (42 U.S.C. 7502)

USEPA has interpreted these requirements to hold that the controls necessary to bring about attainment constitute reasonably available control technology. (April 2, 1991 USEPA Memorandum, "PM-10 Moderate Area SIP Guidance: Final Staff Work Product", from J. Calcagni to Regional Air Directors, included in Exhibit D.) This memorandum clarifies that USEPA believes it is unreasonable to require control measures that are not needed to demonstrate attainment. Consistent with this policy, the Agency has concentrated on proposing those rules necessary to demonstrate attainment of the NAAQS for development of the

PM-10 rules for the three study areas. The Agency maintains the emissions standards set forth in this proposal are necessary to achieve attainment of the PM-10 NAAQS and, therefore, the controls constitute reasonably available control technology.

The second Clean Air Act issue is the requirement for contingency measures found in Section 172(c)(9) which states:

> Such plan shall provide for the implementation of specific measures to be undertaken if the area fails to make reasonable further progress, or to attain the national primary ambient air quality standard by the attainment date applicable under this part. Such measures shall be included in the plan revision as contingency measures to take effect in any such case without further action by the State or the Administrator. (42 U.S.C. §7502)

As the Agency and USEPA remain unsure of the meaning of this provision, it cannot be determined at this time what additional regulations detailing contingency measures are necessary for federal approvability of this proposal. Therefore, the Agency has not proposed any contingency measures in this proposal. When this information is known, the Agency will act accordingly. Notwithstanding the contingency measures provision, the Agency maintains that this rule, if promulgated and implemented, will bring about attainment of the PM-10 air quality standards and is federally approvable as part of the PM-10 SIP.

Finally, this proposal is consistent with the USEPA "Federal Continuity Policy" which requires that the Illinois SIP for total suspended particulates (TSP) remain in place until a PM-10 SIP is approved. This transition policy, which seeks to avoid unnecessary disruption of the existing control program, reads in pertinent part as follows:

> The particulate matter control strategies in existing TSP SIP's reduce ambient concentrations of PM_{10} as well as TSP. Therefore, to avoid unnecessary disruption of the existing particulate matter control program, States will want to utilize existing SIP requirements as much as possible in their PM_{10} SIP's. The regulatory requirements of a State's existing TSP SIP must remain in effect, therefore, until a PM_{10} SIP is approved by EPA (see Section 110(i), 42 U.S.C. 7410(i)). The existing regulations will continue to be enforced by Federal and State agencies and through citizen suits during the period of transition from a TSP SIP to a PM_{10} SIP.
>
> It is unlikely that the level of control required by the current SIP is significantly more than will be necessary to attain and maintain the PM_{10} NAAQS. Therefore, regulations in the existing SIP cannot be relaxed without a demonstration that the revision will not interfere with attainment or maintenance of the PM_{10} NAAQS. 52 Fed. Reg. 24679 (July 1, 1987).

The foregoing is consistent with the Agency's intent to keep all regulations for particulate matter promulgated as part of the TSP SIP in place to the extent possible as part of the PM-10 SIP. The three areas involved in this rulemaking require additional regulation for the control of PM-10 emissions in order to demonstrate attainment and more stringent limits will be required only for certain sources in those three areas. The Agency will propose the adoption of the PM-10 national ambient air standards and repeal of the TSP air quality standards in a forthcoming docket.

THE AGENCY'S PROPOSAL

The following is a section by section summary of the Agency's Proposal.

Section 211.122 Definitions

The Agency has proposed widely accepted definitions of "Crushing" and "Screening", both definitions adapted from definitions that appear in 40 CFR 60, Subpart 000, "Standards of Performance for Nonmetallic Mineral Processing Plants". Also, the definition of "PM-10", earlier proposed in Proceeding R91-6, remains pending before the Board.

Section 212.107 Measurement Methods for Visible Emissions

The USEPA requires each state in its SIP to present an applicable measurement method for each emission limit imposed. If a state fails to do so, its SIP is deemed incomplete (40 CFR 61.111 (1987)). Sections 212.107 through 212.110 address this requirement.

In Section 212.107 the Agency proposes to adopt by reference the standard federal test method for the detection of visible emissions found in 40 CFR 60, Appendix A, Method 22.

Section 212.108 Measurement Methods for PM-10 Emissions

In this Section, the Agency proposes to incorporate by reference the two test methods for PM-10 emissions that USEPA has specifically adopted for suggested inclusion in State Implementation Plans. The methods are 40 CFR 51, Appendix M, Methods 201 and 201A, and are considered to give equivalent results. The Agency also proposes to allow compliance to be demonstrated by 40 CFR 60, Appendix A, Method 5. Use of this method would ordinarily result in a larger value of emissions, because Method 5 is a test method for total particulate rather than just for that portion of the total particulate which is less than 10 micrometers in aerodynamic diameter (PM-10). The option of Method 5 is proposed because it is simpler, thus more inexpensive to perform, than are Methods 201 and 201A, and because it provides a more conservative result. Section 212.108 also proposes Agency prerogatives to require testing for PM-10 emissions.

One requirement by USEPA for PM-10 is that the impact of condensible emissions must be included in the assessment. Condensible emissions are those which are a gas when in the stack but which condense to form particulate

matter immediately upon contact with cooler air outside the stack. The Agency accounted for these condensible emissions in its analyses, but it has not identified the need to control such emissions for its demonstration of attainment. All PM-10 reductions are to be accounted for in reductions of the non-condensible emissions. Therefore, no test method is proposed in this Section for measuring the condensible emissions. Such a method was proposed as part of the Oglesby PM-10 rule because it was needed there.

Section 212.109 Measurement Methods for Opacity

This proposed Section would adopt as a Board regulation the generally recognized procedure for determining the opacity of an emission source, 40 CFR 60, Appendix A, Method 9, as applicable for the first time to all sources having a percentage opacity limitation in the Board's Air Pollution Regulations. Currently, only certain Board opacity regulations refer to Method 9 (e.g., Section 212.126 or some of Part 212 Subpart R). Since many opacity limitations require compliance to be determined merely "by visual observations," the Agency proposal corrects an omission in the current regulations.

The proposed Section also would modify Method 9 for roadways and parking lots that have visible emissions only intermittently when vehicles travel over paved or unpaved surfaces. The modification is necessary because of the intermittent nature of these sources. Method 9 specifies that 24 consecutive opacity readings be taken at 15 second intervals in a six-minute period. The 24 readings are then to be averaged for a compliance determination. Compliance would always be assured for most roadways, however, because readings taken during the standard six-minute time period would show zero percent opacity if no vehicle passes occurred during that period. The

Agency's proposed modification of the testing procedure for roadways and parking lots approximates an instantaneous opacity by averaging many readings taken at frequent intervals during the short time when plume opacity is at or near a maximum. The Agency has identified roadways and parking areas as the only significant sources with emissions that are intermittent and of short duration. The emissions inventory compiled by the Agency to support this rulemaking shows that 88% of the emissions from fugitive dust sources are from roadways and parking lots. In terms of their impact on air quality, roadways and parking lots are by far the most dominant fugitive dust sources. Most of the remaining 12% of the emissions from fugitive dust sources either operate continuously, such as conveyors, or are uncontrollable, such as blasting of limestone at quarries. For all other emission sources except roadways and parking lots, Method 9 remains the applicable test method.

Section 212.110 Measurement Methods for Particulate Matter

This Section of the Board's current regulations is proposed for amendment because the standard method for measuring total particulate emissions, 40 CFR 60, Appendix A, Method 5, is referred to in proposed Section 212.108. Also, Method 5, rather than the ASME power test code currently referred to in Section 212.110, is actually specified by the Agency as the method by which compliance with particulate emission limits is to be verified. (The present wording that particulate emissions can be determined "by any other equivalent procedures approved by the Agency" allows for this.) Consequently the Board regulations would reflect actual practice if the proposal for amendment to this Section is adopted. In addition, the Agency proposal would allow compliance to be tested by Methods 5A, 5D, or 5E which are also standard reference methods for certain types of sources.

Section 212.113 Incorporation by Reference

The Agency is proposing to amend this Section by removing Subsection (a) which refers to the ASME power test code. As explained above under Section 212.110, Method 5, rather than the ASME power test code, is the method by which compliance will be verified. Therefore, the inclusion of information regarding the ASME power test code is superfluous. Elimination of Subsection (a) will result in Subsections (b) through (e) to be relettered accordingly.

The Agency is proposing to amend Subsection (b) to include the most recent year of revision, 1990, and eliminate the year "1987".

In Subsection (e), the Agency has proposed the addition of 40 CFR 51 (1990), which is the location of PM-10 measurement methods for stack testing.

Section 212.302 Geographical Areas of Application

In existing Subsection (a), the Agency currently requires selected industries in certain geographical areas to control sources of fugitive particulate matter emissions.

Subsection (b) of the Agency's proposal incorporates proposed Section 212.316, thereby tightening the emission limits within the Granite City, Lake Calumet, and McCook areas and making those new limits applicable to industries included in existing Subsection (a), as well as additional industries enumerated in proposed Subsection (b). The justification for adding the applicability of proposed Section 212.316 to Section 212.302 will be provided in the Section 212.316 portion of this discussion.

Subsection (c) indicates that compliance with these rules must occur one year following their effective date, or December 10, 1993, whichever is earlier.

Section 212.309 Operating Program

This existing Section requires that a fugitive emission source subject to any of Sections 212.304 through 212.308 be operated in accordance with an operating program. The Agency's proposed amendments would extend that requirement to those sources subject to proposed Section 212.316. The Agency's proposal also clarifies that an operating program must comply with the existing Sections 212.310 and 212.312.

The Agency is extending the applicability of Section 212.309 to Section 212.316 in order to facilitate enforcement. Section 212.316 proposes that fugitive particulate emission sources not exceed specified opacity limits but, in order to afford industry flexibility, the proposed rule does not require a specific work practice to ensure that limit. However, the Agency, as well as the USEPA, must know the practices employed in order to monitor compliance. The Agency has chosen to obtain this information by requiring a company to submit an operating program. Under existing regulations, most sources that will be subject to proposed Section 212.316 are already under an obligation to submit an operating program.

The Agency, however, does not intend to construe work practices described in an operating program as a basis for approving or disapproving an operating program submitted for review. As will be explained in the discussion of proposed Section 212.316, compliance with a specific opacity limit would indicate that a fugitive particulate emission source is in compliance with the proposed regulations. On the other hand, if the work practices described in an operating program fail to achieve the required opacity limit, the operating program in question would need to be amended.

Subsection (b) indicates that compliance with these rules must occur one year following their effective date or December 10, 1993, whichever is earlier.

Section 212.316 Emission Limitations for Sources in Certain Areas

This proposed Section specifies the opacity limits for sources of fugitive particulate matter emissions necessary to maintain the PM-10 NAAQS for the Granite City, Lake Calumet, and McCook areas. The Agency determined these opacity limits following the air quality modeling of the three study areas. It should be noted, however, that because the Agency has not yet completed its modeling analyses for the Granite City area, additional proposed emission limitations for that area may be forthcoming.

Subsection (a) indicates that this proposed section is applicable to any industry listed in Section 212.302 and one that is located within that geographical area outlined in proposed Section 212.324 which defines the three study areas.

Subsection (b) fixes an opacity limit of 10% for any crushing or screening of slag, stone, coke or coal.

Subsection (c) states that emissions from any roadway or parking area cannot exceed 10% opacity. However, if a roadway or parking area is located within a quarry with a certain production capacity, the opacity limit is further reduced to 5%.

Subsection (d) limits emissions from storage piles to 10%.

Subsection (e) fixes an opacity limit of 20% for all sources not otherwise specified in Subsections (b) through (d). Subsection (e) further states that if Subparts R or S contains an emissions limit for sources not specifically named in Subsections (b) through (d), the emissions limit within those Subparts would prevail over the 20% opacity limit of Subsection (e).

Subsection (f) delineates recordkeeping and reporting procedures to ensure continuous use of work practices needed to achieve compliance. Subsection (f)(5) requires a quarterly report of those incidents where necessary control

measures were not implemented. This provision recognizes that there may be occasions when a company will not apply control measures consistent with its work practice plan and, in some instances, the company's failure to do so will be deemed reasonable. For instance, if a company must apply wet suppressants on its roadways twice weekly to meet the opacity limit and, immediately prior to the application of the suppressants, several inches of rain occur, the company would be acting reasonably in not applying the control measures under those circumstances at that time. Similarly, it would be unnecessary to apply control measures to a frozen stockpile since no emissions are likely to result from the pile in light of its frozen state and, moreover, the application of control measures under those circumstances might cause a hazardous condition by the movement of control equipment in and around the frozen stockpile area. This provision does not constitute an automatic exemption from enforcement but, rather, provides a defense to an enforcement action that otherwise might be considered non-compliance with a work practice plan filed with the Agency.

Subsection (g) indicates that compliance with these rules must occur one year following their effective date or December 10, 1993, whichever is earlier.

Section 212.324 Process Emission Sources in Certain Areas

Subsection (a)(1) defines the three areas of applicability by reference to Universal Transmercator (UTM) coordinates because all sources and receptors in the modeling were mathematically specified by UTMs. For ease of reference, the Agency has prepared maps for each of the three study areas which will be appended to Part 212. The subsection also identifies each area by its common name.

Subsection (a)(2) states that the process weight rates within existing Section 212.321 and 212.322 for new and existing process sources remain

applicable and, therefore, the more stringent rule between that found in the existing regulations and that proposed will prevail.

Subsection (a)(3) states that this proposed Section will apply to those process emissions sources subject to Subparts N, O, R, or S only if those Subparts do not contain a specific emissions limitation for those sources. This limit represents one that is technically feasible and economically reasonable for most sources to meet, while a higher (less stringent) limit would not provide attainment.

Subsection (b) specifies a 0.03 grain per standard cubic foot as a general emissions limitation for process emission sources.

Subsection (c) indicates more stringent emissions limits for certain sources where reduced limits are necessary to demonstrate attainment.

Subsection (d) allows an exemption from the proposed emission limits in both Subsections (b) and (c) in those instances where the source has no visible emissions. Absence of visible emissions represents a reduction of the 0.03 gr/scf limit. This exemption will obviate the need for a stack test for many sources and will also simplify enforcement.

Subsections (e) and (f) provide maintenance and recordkeeping requirements.

Subsection (g) indicates that compliance with these rules must occur one year following their effective date or December 10, 1993, whichever is earlier.

Section 212.362 Sources in Certain Areas (Subpart N: Food Manufacturing)

Subsection (a) is designed to apply only to the Corn Products (CPC) Bedford Park facility. CPC has many process sources which, if allowed to emit the general emissions limit of 0.03 gr/scf, would violate the PM-10 NAAQS in that vicinity. CPC sources are currently well-controlled and are expected to

comfortably meet the limits as proposed in Subsection (b). Agency modeling shows that the PM-10 NAAQS will not be violated if the limits proposed herein are met.

Subsection (c) allows an exemption from the proposed emissions limits in the event a source has no visible emissions.

Subsection (d) incorporates the maintenance and recordkeeping requirements outlined in Section 212.324, Subsections (e) and (f).

Subsection (e) indicates that compliance with these rules must occur one year following their effective date or December 10, 1993, whichever is earlier.

Sections 212.425 Sources in Certain Areas (Subpart Q: Stone, Clay Glass and Concrete Manufacturing)

Proposed Section 212.425 applies to selected sources at three facilities: the Owens-Corning Fiberglass Corporation's roofing products plant in Summit (sources indicated in Subsections (b)(1) through (b)(4)); the Marblehead Lime Company's lime manufacturing plant in Chicago (sources indicated in Subsections (b)(5) and (b)(6)); and the Ball-Incon Glass Packaging Corporation's plant in Dolton (source indicated in Subsection (b)(7)).

Most of the Owens-Corning sources are proposed to have a lower limit than 0.03 gr/scf as they are in compliance with these limits. Also, the Agency modeling indicates that, at the general limit of 0.03 gr/scf, those sources would cause PM-10 air quality nonattainment. On the other hand, most of the asphalt blowing stills emit more than 0.03 but less than 0.04 gr/scf and will not cause nonattainment at such rate.

Limits more stringent than 0.03 gr/scf are proposed for Marblehead Lime and Ball-Incon to prevent a violation of the PM-10 NAAQS. Sources at both facilities currently meet these proposed limits. At Ball-Incon's request, the

limitation is expressed as 0.65 pounds of PM-10 per ton of glass produced, rather than 0.020 gr/scf, its equivalent at maximum capacity.

Subsection (c) allows an exemption from the proposed limits in the event a source has no visible emissions.

Subsection (d) incorporates the maintenance and recordkeeping requirements outlined in Section 212.324, subsections (e) and (f).

Subsection (e) indicates that compliance with these rules must occur one year following their effective date or December 10, 1993, whichever is earlier.

Section 212.458 Sources in Certain Areas (Subpart R: Primary and Fabricated Metal Products and Machinery Manufacture)

The proposed limitations contained in this section are designed to apply only to Acme Steel Company, except for the rule relating to coal handling that applies to LTV Steel Company. Subsection (b)(1) indicates the proposed emissions limit of 0.04 lbs. of PM-10 per mmbtu of heat input for the fuel combustion emission sources at its Chicago facility. Subsections (b)(2) through (b)(5) contain proposed emission limits applicable to process emission sources at Acme's Riverdale plant. The proposed limits represent more stringent limitations than those allowed by the general 0.03 gr/scf emission limit proposed in Section 212.324 because Agency modeling demonstrated more stringent rates were necessary to meet PM-10 air quality standards.

While Acme is currently in compliance with the limits as proposed in Subsections (b)(2) through (b)(5), the limits contained in Subsection (b)(1) may require some adjustment to Acme's current practice since the proposed rule will prohibit the burning of residual fuel oil exclusively in those boilers.

Subsection (c) allows an exemption from the proposed limits in the event a source has no visible emissions.

Subsection (d) incorporates the maintenance and recordkeeping requirements

outlined in Section 212.324, subsections (e) and (f).

Subsection (e) indicates that compliance with these rules must be achieved by December 10, 1993.

Section 212.464 Sources in Certain Areas (Subpart S: Agriculture)

Subsection (a) applies to only those sources located within the Lake Calumet area and indicates that the standards contained within existing Section 212.461 will not apply to any source subject to this proposed Section.

Subsection (b)(1) states that all grain-handling sources will be subject to a 0.01 gr/scf limit, the limit necessary to provide attainment.

Subsection (b)(1) provides an exception for column dryers and truck or rail unloading systems because a grain loading limitation is unsuitable for these sources. Therefore, Subsection (b)(2) provides a 5% opacity limit for truck or rail unloading systems. Subsection (b)(3) disallows the exemption currently provided in existing Section 212.461(g) to emit at a higher rate. Column dryers need only to meet the equipment standards contained in existing Section 212.463 to meet the PM-10 NAAQS.

Subsection (c) allows an exemption from the proposed emission limits in the event a source has no visible emissions.

Subsection (d) incorporates the maintenance and recordkeeping requirements outlined in Section 212.324, Subsections (e) and (f).

Subsection (e) indicates that compliance with these rules must occur one year following their effective date or December 10, 1993, whichever is earlier.

Enforceability

Enforceability is the ability in practice to compel compliance with particular legal requirements. The Agency proposal in this rulemaking is enforceable. The emissions limits and specified control measures accompanied

by provisions for testing and other compliance procedures, including record-keeping and self-reporting, are quantifiable and appropriate given the nature of the processes. The compliance records are sufficient to fairly demonstrate continuous compliance.

Technical Feasibility and Economic Reasonableness

The Agency made a concerted effort to ensure that these regulations proposed control measures that were reasonable and practical. The control measures that are actually in place were considered in the inventory development, and the modeling assessment and rule proposal allowed credits to be taken for those control measures. Through the Agency outreach activities, sources were consulted regarding existing control measures and the feasibility of additional control measures were discussed where they were needed.

For the majority of point sources, Agency information indicates that these sources currently meet the proposed emissions limits. For those few instances where sources were not in compliance, the Illinois Department of Energy & Natural Resources ("IDENR") has provided cost estimates for the installation and operation of additional control equipment. Negotiations between the Agency and certain companies have since resulted in commitments from these companies to changes in operation, i.e. increases in stack heights or fuel restrictions, to reduce air quality impacts. The willingness of these companies to accommodate changes in their operation indicates a recognition that compliance with these rules is economically feasible. However, further investigation may reveal that some of the emissions sources to which IDENR has assessed cost impacts already comply with the proposed limitations.

Concerning fugitive particulate matter emissions sources, many of the companies with fugitive sources currently have operational fugitive dust

control plans which were not reflected in IDENR's assessment of costs related to the adoption of fugitive dust controls. Therefore, the total cost impact of this proposal for all sources should not exceed that as determined by IDENR and should, in fact, reflect a lower estimate.

Lastly, in its assessment of required controls, IDENR reviewed well-established strategies used to control fugitive dust sources and currently available control equipment for point sources. The universal application of the suggested work practices and control equipment more than suggests that the methodology required for compliance with these proposed rules is technically feasible.

The economic reasonableness and technical feasibility of the changes necessary to meet the emission standards set forth in the Agency's proposal are addressed to the extent reasonably practicable in the testimony.

Conclusions

The Agency's PM-10 rule proposal is consistent with the Agency philosophy as discussed early in this document. The existing Board regulations remain in place as a basis for controlling particulate matter. To the extent possible, the proposed PM-10 regulations reflect the levels of control that are already being achieved by most sources. The regulatory proposal requires further control only where it is specifically needed to demonstrate attainment. The Agency has provided a new outreach effort as part of its rulemaking activities. Also, the DENR and the Agency have worked closely to provide an economic assessment of the costs of this proposal.

The Agency's proposal for control of PM-10 emissions in this rulemaking is limited to sources within the McCook, Lake Calumet and Granite City areas in Illinois. As previously discussed in the introductory segment of this

Statement of Reasons, this regulatory package does not yet contain the complete set of proposed regulations that will be necessary for the Granite City area to demonstrate attainment. The Agency expects to complete all relevant modeling within the near future, at which time the Agency will supplement this package with proposed additional limits for a small number of selected sources within that area.

The Agency's proposed regulations establish certain additional point source and fugitive control requirements while keeping existing particulate matter regulations in place. Upon submittal of the supplemental information needed to complete the Granite City Area portion of this regulatory package, this proposal will then contain a set of regulations for the remaining three geographic areas in Illinois which require additional regulation to control PM-10 emissions. The proposed regulations will result in the demonstration that the limits provide for attainment of the PM-10 national ambient air quality standards.

Promulgation of this proposal is necessary for the State to demonstrate attainment and maintenance of the NAAQS in the three-study area and is federally approvable as part of the Illinois PM-10 SIP. The proposed regulation is economically reasonable and technically feasible. The Board should adopt the Agency's proposed regulation in the format as submitted.

Respectfully submitted,

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