ILLINOIS POLLUTION CONTROL BOARD
December 9, 1970

In re)
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) #R70-7
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Air Pollution Episode Revisions)

Opinion of the Board (by Mr. Currie)

"Episode" is a commonly accepted euphemism for an extraordinary buildup of air pollutants as a result of stagnant weather. When there is little wind and little vertical mixing, often because of the presence of a layer of warm air above the cool, emissions that cause relatively little harm under normal weather conditions can become extremely dangerous. Such instances have been thoroughly documented over the past forty years; among them are the 1948 tragedy in Donora, Pennsylvania, and the 1952 London disaster that is said to have claimed 4000 lives.

Illinois has had episodes that serve as grim reminders that disaster could strike at any time. The well-publicized episode of November 1969 in Chicago is one example.

It would be folly to ignore these warning signs and to rely for protection solely on the gradual process of reducing emissions on a regular basis. Moreover, it may be far less costly, after reducing regular emissions to a level far below those now encountered in our large metropolitan areas, to avoid remaining pollution peaks due to abnormal weather conditions by invoking extraordinary episode controls than to insist on controlling for the worst day every day. Consequently, the former Air Pollution Control Board in June 1968 adopted regulations for episode control, which because of an unfavorable Attorney General opinion as to the legality of imposing mandatory controls relied exclusively upon voluntary cooperation. This defect was remedied by statute in 1969, and the old Board adopted mandatory episode control regulations February 25, 1970.

The Environmental Protection Act, effective July 1, 1970 abolished the old Board and created in its stead this Board, with rule-making and adjudicative powers, and the Environmental Protection Agency, whose functions are administrative and prosecutorial. In response to a Board inquiry as to the adequacy of the existing episode regulations, the EPA on September 5 submitted to the Board a proposed revision of those regulations. The Board held three public hearings on this proposal, in Chicago, East St. Louis, and Edwardsville. At the third hearing

on October 28, I presented an alternative draft of the revisions, together with an explanatory statement. On November 9, on the basis of testimony in the record, the Board published a proposed final draft of the revisions. In accordance with our procedural rules, notice of the proposed final draft was sent to our entire mailing list of some 1500 persons, and copies of the draft itself were made available to all persons who appeared at the hearings and to anyone else requesting them. Additional comments were received until November 20, and the proposed final draft, with minor revisions, was adopted by the Board November 24, to become effective upon filing with the Secretary of State as required by statute.

The regulations as they stood before the present revisions consisted essentially of two types of provisions: specifications of the meteorological conditions and pollutant concentrations upon which various alert stages would be declared, and requirements of actions to be taken upon the declaration of an alert. To assure that the required actions were adequately planned and executed, the regulations provided for the submission of individual plans by persons operating emission sources, detailing, in accordance with objectives laid down in the regulations, exactly what action would be taken to control each source during an alert. The submission of individual plans was to be triggered by a request from the enforcement agency.

In addition to changing references to various agencies and the like to conform to the Environmental Protection Act, and in addition to a rearrangement of sections, the EPA's original proposal for amending the episode regulations embraced a number of important changes, which are discussed below. Our authority to adopt these and other episode amendments derives from sections 10(a), (b), (e), 27, and 49(c) of the Environmental Protection Act, which give the Board power to amend regulations of the old Air Board, to adopt air quality standards, emission standards, and other regulations to combat air pollution, with special authorization (§10(e)) for "alert and abatement standards relative to air-pollution episodes or emergencies constituting an acute danger to health or to the environment."

1. Alert Values. First, in order to bring Illinois' alert levels into accord with federal recommendations to avoid "substantial endangerment" to health, the EPA proposed to lower the sulfur dioxide yellow-alert value from 0.35 ppm to 0.30; to add sulfur-dioxide values for red alerts and emergencies (0.35 and 0.40 ppm); and to reduce the COH-SO_2 product emergency value from 3.0 to 2.4. These proposed new values, expressed as four-hour averages, have been correlated to the recommended 24-hour federal values by means of the standard Larsen formula. We have accepted this amendment.

According to Argonne National Laboratory, consultant to the EPA in this matter, we can expect perhaps four or five yellow alerts this year in the Chicago area on the basis of the revised criteria. (Sept. 28 hearing, p. 18).

2. Graduated Action. Second, the EPA proposed to create a time lag between the calling of a yellow alert and the declaration of more serious alert stages. Under the existing regulations a four-hour red-alert reading, given appropriate weather conditions, would lead immediately to the calling of a red alert, and a four-hour emergency level to an immediate emergency, without the necessity for calling a yellow alert first. The Agency asked us to provide that no red alert could be called until a yellow had been in effect for four hours, and no emergency until a red had been in effect for twelve. Thus under the EPA proposal, no matter how quick the buildup to emergency levels, the most stringent controls could not be applied until at least twenty hours had expired.

EPA was sharply questioned during the hearings as to the reasons for building in additional delays before red alerts and emergencies could be called. A portion of the discussion follows:

> MR. CURRIE: Why is it that the proposal will make it more difficult for us to call alerts by building in additional delays before the episode can be triggered?
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> MR. STALLINGS (of EPA): . . . This is back to the concept of graduated action rather than a jump, and I think this was a difference that was brought out in our study with Argonne and their consulting with us, that the most practical episode is one which takes a graduated type of action rather than jumping from, say, watch into Red or watch into emergency.
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> CHAIRMAN CURRIE: But what about the people during that interim? If, for example, you have an SO_2 concentration of .40 parts per million or you have a product of 2.4 indicating that the emergency value is reached, and that happens at the very beginning of an episode and continues for four hours, why should you not immediately go to the most stringent control that you can put into effect . . . . ? . . . I am worried about what happens in the first 20 hours . . . .
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> MR. STALLINGS: As I understand the actuality of the situation not only is graduated action the most reliable in terms of what happens, but actually the pollutant concentrations would take place in a graduated step-wise fashion. . . .
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> MR. ROBERTS (of Argonne): I think that Mr. Stallings made it reasonably clear that we feel that to jump into episode control directly after, say, a four-hour period involves a substantial, in fact we feel an impossibly difficult operational task, and

considering the accuracy of forecasting HAPPAS and local HAPPAS as well as local forecasts, we feel that this is a very inappropriate way to go about a rational solution to an episode.

I further point out that the real episode problem is a problem that runs for 24 hours and longer, and consequently we feel, and especially the longer term episodes, the schedule that we have laid out will actually be effective.

CHAIRMAN CURRIE: I recognize that we are interested in long-term episodes, but I don't see that that requires us to wait until we have already had a long-term episode before we do anything about it. . . .

MR. ROBERTS: Well, the feeling is, you see, that the Yellow Alert controls and especially the Red Alert controls which are executed after 12 hours are likely to be very effective in reducing these levels. . . . without the extreme emergency measures . . . .

CHAIRMAN CURRIE: That is an important point. You have a sufficient degree of confidence in the Yellow and Red prescribed actions that you feel that it is not necessary to go farther?

MR. ROBERTS: Yes.

MR. CURRIE: Even if, for example, you had a four-hour average product of 2.4? That is the situation I am worried about.

MR. ROBERTS: You must understand, also, that as John [Stallings] pointed out, the arrival of an episode is a rather gradual event . . .

MR. ROSSIN (of Argonne): . . . I think the situation you describe, a very high level pollution at a localized area, can be dealt with under the guidelines very effectively without putting yourself in the position of suddenly forcing you to go into an emergency stage which involves an awful lot of actions that take an awful lot of preparation. . . . I certainly don't anticipate, for example, that an effective program for vehicle control would suddenly turn on like a faucet after four hours. I certainly anticipate that at the Red Alert level the wheels would start to get the law enforcement officials and the public warned that the situation is going to arise. . . . In the City of Chicago especially where you have extensive commuter traffic, you have a very practical situation, you can't stop traffic during the middle of the day and lock everybody in the city. I think we can believe that at the emergency level, a 24-hour minimum time for emergency,

that this is a practical interval within which to organize and effectively set up a vehicle control program . . . . (Sept. 24 hearing, pp. 26, 97 - 103).

The same approach was taken by the National Air Pollution Control Administration in a Regional Air Quality Management Workshop held in December 1969 (pp. 6-7):

> Because the first step is only a forecast, this allows source reduction actions to be taken in three increments. Each control step, or course, should be designed with the intent of preventing the next level concentration from being reached. The four-stage sequence provides protection to the public, and also provides for an orderly reduction of emissions from certain source categories. Its purpose is to avoid overkill or unnecessarily severe source abatement. . . .

Thus the reasons given for requiring the lapse of eight hours before Red Alert and of twenty before emergency are several: the unlikelihood that severe conditions will build up suddenly; the probability that yellow alert actions will be sufficient to reduce initial high concentrations without more drastic action; the fact that the SO_2 and particulate values of most significance for health are likely to be longer than four-hour exposures; the fact that some control actions may require a substantial lead time; and the desirability of avoiding action that is more restrictive, and therefore more costly, than is reasonably necessary to avoid health hazards.

We cannot, on the basis of present knowledge, be certain that we have set the early levels tight enough, or required drastic enough action, to avert worse levels a few hours later. But we can only rely on the expert judgment of those closest to the actual operation of an episode control strategy until we have accumulated some experience in the enforcement of our own regulations, and until we have the benefit of a more sophisticated assessment based on mathematical modeling as to the effectiveness of various reduction strategies under episode conditions. We therefore think it best to accept the advice of Argonne, which has considerable experience in designing episode strategies for actual field application, and of the Agency, whose task it will be to enforce the regulations we adopt, and to amend the regulations to provide that Red Alerts and Emergencies can only be called after four and sixteen hours, respectively, of earlier alert stages.

3. Other Proposed Changes in Alert Criteria. Third, the Agency asked us to reorganize the sections providing for requirements for calling alerts to make separate provision according as a fromal High Air Pollution Potential Advisory is or is not in effect. In our view this double-column format with two entire sets of requirements is overly complicated, and without significantly altering the substance of the EPA proposal we have adopted a more simplified version that is easier to understand and,

we hope, easier to administer.

In response to our simplification of its proposal, EPA has asked us to simplify the criteria further by eliminating the two-hour difference between the time a yellow alert may be called when a HAPPA is in effect and the time the same alert may be called under other circumstances. The difference arises because in either case yellow alert may be called only after four hours of a Watch, and because in the absence of a HAPPA a Watch can be called only after two hours of high concentrations. EPA proposes to cure this discrepancy by linking the calling of a yellow alert to the adverse weather forecast rather than to the calling of a watch and allowing a watch to be called on the basis of either an adverse local forecast or of two-hour reading. One difficulty with this suggestion is that it would require a Watch to be called on the basis of an adverse forecast in an area with no significant emissions. While this difficulty could be avoided by redrafting, the gain does not seem worth the trouble at this late date.

The Agency's proposal would have required that the pollution levels during the last hour preceding the alert or emergency, exceed the requisite value, in addition to the average of the preceding several hours. This suggestion would permit a single abnormally low value due to transient conditions in the middle of an episode to postpone the whole program. The Agency's fear lest an alert be called when air quality is improving is taken care of by the requirement that the forecast is for continued adverse weather conditions.

The Agency asked us to continue the authorization for an alert in the Director's discretion on the basis of a subjective assessment of weather alone. We do not agree; despite the desirability of flexibility, we are persuaded that we must provide as much certainty as we reasonably can for the protection of persons who will be asked to make substantial sacrifices to reduce emissions. We cannot afford the possibility that an alert may be called on the basis of an administrator's whim. For the same reason, and also because, as Argonne suggests, the proposal is contrary to the principle of gradual alert stages discussed above, we reject the EPA suggestion, made at public hearing, to authorize red alerts or emergencies based on a subjective fear that yellow alert actions will be insufficient to avoid higher concentrations.

4. Area Affected by Alerts. Fourth, the Agency asks that we make clear that Yellow and Red Alerts may be called for only a portion of a metropolitan area or air quality control region when the episode is a local one. This principle was implicit in the existing regulations and was made clear in the hearings before

the old Air Board. We agree with the EPA that it should be made explicit. We have gone beyond the EPA suggestion by extending this reasoning to Emergencies as well, since there is no reason to close down sources that do not contribute to the episode condition regardless of its severity. This principle is a necessary corollary to the position, clearly stated in the existing and the amended regulations, that an alert or emergency may be called on the basis of readings at a single station. In the absence of this latter provision, persons subjected to unhealthy air would receive no relief unless the air was bad elsewhere as well, and such a situation would plainly be intolerable. We have also specified, as requested by an industry communication, that the Agency not only may but must limit its alert or emergency declaration to the area in which the problem is located. This means that when an alert is called those sources will be required to take action under existing or predicted weather conditions affect air quality in the area in which high pollutant values are observed. Such sources, of course, may be outside the area of high ambient concentrations. We have also attempted to be more specific than was the Agency in defining the factors that should influence the delineation of the affected areas. It is implicit in the provision for alerts limited to problem areas and in the concept of a step-by-step alert strategy that the contaminant concentrations required to trigger later alert stages must occur at stations within the area of a prior alert.

5. Watch Stage Preparatory Only. The Agency asks, and we have agreed, that we make the initial Watch stage merely preparatory, omitting the one mandatory action provision applicable to that stage in the existing regulations. Since that provision related to open burning, which is generally prohibited at all times, the omission should have no significant impact on the effectiveness of the program. The general question of the advisability of requiring action at the Watch stage was raised at the hearings:

MR. CURRIE: I have some reluctance to accept the notion that the watch stage should be only a preparatory stage. . . . Based on a prediction of adverse meterological conditions and the known rates of emission in the Chicago area, I think we can anticipate we may very well be in serious trouble from the calling of the watch alone. . . .

MR. MC MAHON: (of EPA) Well, definitely one of the aspects to the change is something to the effect of fearing crying wolf too often, and we really feel that the enforcement mechanism can and should have a period of time to be geared up, and we feel that the levels set for the watch procedures are sufficiently low that this is a period of time within which maximum safety to the public will allow the air pollution agencies to gear up their machinery. (September 24 hearing, pp. 31-33).

This position was taken with the concurrence of Argonne, and is in accord with Chapter 3 of the detailed Air Pollution Incident Control Operations Manual prepared by Argonne.

In short we accept the position of those closest to the operation of an episode strategy that the inexactness of weather forecasting and the lead time required for effective control actions justify the omission of mandatory control actions during the preliminary Watch stage.

6. Public Notice. The Agency asks us to eliminate the requirement that the public and all sources subject to alert action requirements be notified that a Watch is in effect. This request is not easy to reconcile with the Agency's insistence that the Watch stage is one at which people who must take action at later stages are expected to prepare themselves, and indeed the Agency assured us at the hearings that it will notify those who really need to know . We are not persuaded that there is any harm in requiring the public to be told what is going on; a simple spot announcement on radio and television will serve, and there is no merit to the notion that such an announcement may unduly alarm the people. The people have a right to know that there is a danger of high pollution values, and if the announcement causes concern, that is as it should be. The threat of an air pollution episode is legitimate cause for public concern. We have more sympathy, however, with the request that we delete the requirement of individual notice to all sources required to submit Yellow Alert plans. This requirement imposes a substantial administrative burden on the understaffed EPA at the time when it needs all its resources to prepare itself and others for possible alert action. The Agency's request for some discretion to determine who really needs special notification is reasonable, especially since those required to take later action can be expected to listen for the mandatory public announcement, and we have rewritten the section accordingly.

7. Automotive Sources and Carbon Monoxide Alerts. The EPA initially asked that we postpone mandatory control of automotive traffic from the Yellow to the Emergency stage. The reason given was the practical difficulties of traffic control, especially once a permit system is developed, as contemplated by the Act, whereby essential vehicles would be certified for travel during episodes by special insignia issued by the Secretary of State. It was thought more appropriate to prescribe a single level for the curtailment of all but essential driving. At the third hearing the Agency revised its recommendation, asking us to move mandatory vehicle control forward again to the Red Alert stage.

This issue becomes entangled with the more complex one of the relation between sulfur-and-particulate alerts on the one hand, and carbon monoxide alerts on the other. The existing regulations, and the EPA proposal, build carbon monoxide criteria into the same provisions that govern SO_2 and particulate alerts. But, as became increasingly evident from the testimony, the problems are quite distinct, and so are their solutions. Even the existing rules provide that if an alert is called solely on the basis of carbon monoxide the only sources affected are those which produce that particular pollutant. It seemed more appropriate to us, and the Agency agrees, to make an entirely separate provision for CO alerts, with a single level at which selective action is taken against significant CO sources. Our initial draft of this separate provision

included a requirement that industrial CO sources file alert action plans and curtail emissions during CO alerts. But we are persuaded by the testimony of the City of Chicago that the overwhelming percentage of CO emissions are automotive, and that the limited resources of the control agencies should not be squandered in efforts to control the small contributions from stationary sources imposing a general ban on the burning of wastes.

The next problem was to determine the carbon monoxide level at which mandatory action against mobile sources was to begin. Under the existing rules that level (Yellow Alert) was 30 ppm for four hours. Under the final EPA proposal it was 35 ppm (Red Alert) for four hours. At one point during the controversy, I published an alternative draft setting the level at 20 ppm for four hours, on the basis of testimony from the Clean Air Coordinating Committee that significant adverse health effects could occur at exposures above that level. The Agency strenuously opposed the 20 ppm level, stressing that the purpose of episode control is not to prevent all health effects but only to eliminate "imminent and substantial endangerment to health", and pointing out that the 20 ppm standard would require "approximately 20 to 40 alerts a year in the Chicago region". Argonne too argues that 20 ppm is too low a level for mandatory traffic controls.

We cannot, of course, accept the view that common occurrences, no matter how dangerous, never are appropriate for episode control. While episode measures are themselves too disruptive to be an ideal solution for frequent crises, we could not in good conscience accept a threat to health because it happened more than half a dozen times a year. But we are convinced that the present carbon monoxide situation, while giving no reason for complacency, is not of that nature. The significant determinant of the harmful effects of CO is the level of carboxyhemoglobin in blood, and the lowest COHb level at which heart patients--an especially vulnerable group--have been found to experience "physiologic stress" is 5%, according to the federal criteria document on carbon monoxide (p. 10-6). Below that level there are health effects, to be sure; 2-2-1/2% COHb is said to cause "impaired time interval discrimination" (Ibid). Such effects are important and should not be overlooked in designing routine air quality standards to be achieved by overall emission reductions, but they do not in our view constitute the "imminent and substantial endangerment ot health" that is the basis for the federal recommendations as to episodes. Episode control is too disruptive, especially in the case of automotive emissions, to be justified as frequently as would be required by a 20 ppm standard in Chicago by the desire to avoid the kinds of health effects that are associated with such levels. Five percent COHb, according to NAPCA, is achieved after an eight-hour exposure to 30ppm of carbon monoxide. To call

an alert after four hours of 35 ppm, we believe, will give sufficient assurance that the 5% level will be avoided, especially since high CO concentrations tend to be limited to areas of high traffic density which can be avoided during a carbon monoxide episode.

In light of the peculiar problems associated with carbon monoxide episode control, including the fact that the principal sources are mobile, that concentrations tend to vary according to daily traffic peaks, and that medical responses are determined by a time-concentration ratio unlike that of sulfur or particulate pollution, Argonne has proposed that we consider an entirely new strategy for controlling CO episodes, in which we determine whether or not to call an alert on the basis of a predicted COHb level calculated in terms of ambient concentrations, weather conditions, and the character of the neighborhood, which affects the probable exposure time of persons to elevated concentrations. Identical CO levels, for example, would be more serious in residential areas than along major traffic arteries, since most people could be expected to remain in the area affected for longer periods. Moreover, because of the substantial lead time required to impose an effective traffic ban over a large area without imposing significant hardships, Argonne proposes two markedly different strategies for reacting to sudden CO episodes caused by traffic accidents and the like and to incidents of several days' duration attributable to lingering stagnation.

We find the Argonne proposal for CO alerts most intriguing and highly promising, but Argonne agrees we cannot delay the amendment of the existing regulations while the new strategy is being perfected. We shall continue to investigate the potential of the proposed new strategy, and when more objective criteria for predicting COHb levels can be written into the proposal we shall seriously consider adopting it. In the meantime, however, we agree with the Agency that mandatory traffic controls after four hours at 35 ppm constitute an acceptable interim provision.

Argonne suggests that since we have separated the CO criteria and strategies from those related to SO_2 and particulates, we should delete the requirement that traffic be curtailed at the emergency level of an SO_2- particulate episode. We disagree, for two reasons. First, automobiles are a significant source of particulate emissions which should not be overlooked in control of a particulate problem. Second, the buildup of high concentrations of sulfur and particulates under adverse weather conditions indicates that other pollutants are building up as well. We do not yet have episode criteria for such automotive pollutants as nitrogen oxides, hydrocarbons, lead, and photochemical oxidants. Until we develop them, the presence of adverse weather and high levels of other pollutants constitutes the best danger signal we have that something should be done to reduce the output of these contaminants as well.

The present regulations at the chosen level impose a flat ban on driving except "in emergencies with the approval of local or state police". The EPA asks us to change this to restrict driving to "essential uses as designated by the Director". It was the Agency's plan, as described by Mr. McMahon, that "the Director will promulgate prior to any episode coming into effect a permanent plan or a plan relating both to motor vehicles and aircraft flight. This plan as presently conceived could be implemented as to automobiles by the issuance through the Secretary of State's office a specialized license sticker indicating those vehicles which would be allowed to operate during an episode. . . ." (September 24 hearing, p. 41). We agree that in the short run we must rely to a large extent on the Agency to work out a tentative plan in the light of consultations with police and other agencies, but in the interest of assuring fair and equal treatment, we believe it advisable to insert as many guidelines as we feasibly can to guide the Agency's discretion. Accordingly, the essential uses which may be permitted are defined as "police, fire and health services, the delivery of food, and essential fuel, waste collection, utility on pollution control emergency repairs, and such comparable uses as may be designated by the Agency." Moreover, in light of the Agency's acknowledgement that when the Agency's plan reaches the stage of development at which it is ready for promulgation the responsibility for its adoption is the Board's, we have inserted the requirement that the Agency report to the Board as soon as is practicable with recommendations for a more explicit regulation. We emphatically agree with the EPA's plan to involve the Secretary of State in the issuance of emergency-vehicle permits; such a procedure is expressly contemplated by section 48 (b) of the Act, and it will greatly facilitate the otherwise formidable task of enforcing traffic controls.

The Agency similarly requests that the absolute ban on outgoing aircraft flights during the Emergency state be modified to give absolute discretion to the Director to determine what restrictions are desirable. We cannot go along with this request because of its inherent potential for arbitrary action. The powers of enforcement officials should be as explicitly defined as practicality permits. We recognize the need for exceptions to the aircraft prohibition based on strong countervailing policies; we have authorized the Agency to allow flights during emergencies "for reasons of public health or safety".

8. Emergency Action by Facilities Without Plans. The most significant change proposed by the Agency in regard to actions required at various episode stages is the suggestion that we delete the explicit emergency prov isions requiring the curtailment of industrial emissions not covered by individual alert plans and requiring the closing of a number of named enterprises. We do not accept this proposal. While we agree that the closing of banks would impose a hardship disproportionate to the benefit, we have retained the rest of the list in its entirety. The only reason given by the Agency for the request that we delete these provisions was the allegation that the regulation as written was "too vague.

. . . It affected facilities where everybody else would not know what to do". (September 24 hearing, p. 47). We do not see the merit of this argument. There is nothing vague about the requirement that a business shut its doors, and anyone instructed to curtail emissions " to the extent possible without causing injury to persons or serious damage to equipment" will know very precisely what to do. Argonne has suggested another reason for deletion: Many of the sources to be closed down are "non-polluters." But we believe this characterization is too simple. It certainly does not apply to industrial emission sources. As for schools, government agencies, and many others on the list, it seems clear that their closing will eliminate the necessity for heating the buildings, for the use of electricity on the premises, and for commuting to work, all of which can cause substantial pollution. At the emergency stage there is a real danger that people are going to die. It does not seem too much to ask that most businesses close at that point to help avoid this risk.

9. Space Heating and Electricity. The Agency has asked us to include one important new requirement at the Emergency stage: a limitation on the heating of buildings to 65° by day and 50 to 55° at night. There is precedent for this restriction in the New York City Air Pollution Implementation Manual for a High Air Pollution Alert and Warning System (1968), p. 15. We think it has considerable merit. Not only is the reduction of emissions from coal and oil burning for residential and other space heating absolutely essential to combat episodes in some areas--there are places where upwards of 60% of SO_2 concentrations are of local space-heating origin--but the curtailment of space heating by gas makes more gas available for other uses such as power generation which otherwise would require larger amounts of polluting fuels.

We have modified the Agency proposal, however, in one respect. The Agency urged that we require even lower temperatures at night than in the day in the interest of fuel saving and reduction of night emissions. We are advised by gas utility, however, that the resultant drain on its reserves during the early morning warmup period would impose a serious burden on fuel supplies, and by an industrial witness that the increased emissions during the morning peak, at a time when meteorology is likely to be most unfavorable, might more than counterbalance the nighttime savings.

Along the same lines, we have added a new provision requiring curtailment of unnecessary uses of electricity at the Emergency stage. There is precedent for this too in the New York City plan for episode control, and it is advocated in the Argonne manual. We have been asked to accelerate that restriction to the Yellow Alert stage, on the ground that decorative use of electricity should be curtailed at least as early as more important emission sources. There is an appeal to this suggestion, but it appears more important to get the amendments on the books as quickly as we reasonably can than to take further time obtaining additional views on this proposal.

At our Edwardsville hearing one industrial witness questioned our authority to require the closing of a business during emergencies. This contention ignores the whole history of episode control in Illinois as well as the plain purport of the statute. It was for want of such authority that the old Board sought and received statutory power to impose mandatory episode controls in 1969, and the present statute quite explicitly gives the same power to this Board: to adopt not only (§ 10 (a)) whatever regulations are needed to prevent air pollution, but specifically (§ 10 (e)) "alert and abatement standards relative to air pollution episodes. . ." "Abatement standards" clearly include whatever action is necessary to avert or alleviate an episode; we see no reason to distinguish within that broad authority between closing of a business and any other mandatory action such as a required fuel switch or a ban on traffic. This conclusion is buttressed by the explicit new authority given the Environmental Protection Agency, in §34 (a) of the Act, to seal any equipment or facility operated in violation of the episode regulation. At the Agency's request we have added a section to the regulations incorporating this statutory sealing power.

10. Local Responsibility. Finally, we have added at EPA's request a new section detailing the relative responsibilities of state and local agencies in the event of an episode. This section makes clear that the state EPA has ultimate responsibility for directing the episode control strategy. The City of Chicago objected to the original form of this provision, asking in substance for an exemption from the state law and regulations because of its "demonstrated effective administrative procedures for implementing episode control programs". Chicago's position has the support of the Clean Air Coordinating Committee, which argues that state oversight of local responsibilities could result in a duplication of effort at a time when staffs are overburdened and that "the city officials have requisite skills to properly operate this apparatus whereas Agency members may not".

We agree that the Agency should not be required to squander its limited personnel in occupying the offices of every little local agency during an episode, and the rule is clear that it need not. But the City's request for an exemption is one that we cannot honor consistent with our responsibilities under either federal or state law. The concept of local exemptions from state control was deliberately omitted from the Environmental Protection Act, as we held in repealing the regulations providing for such exemptions in #R70-1. Exemptions had made it impossible for the state to operate an effective state-wide program; the state could no longer afford to delegate its responsibility for protecting its citizens--both inside and outside of the exempted areas--to the vagaries of local control. Moreover, the federal requirements are clear:

> The various requirements included in an implementation plan must be enforceable by State action. This does not mean that States must assume exclusive responsibility for enforcement. They may rely on the capabilities of local and regional agencies; however, to comply with the Air Quality Act, states must have the legal authority necessary to conduct enforcement activities. This authority must be broad enough to permit the State to enforce requirements for the orderly application of control techniques in accordance with the timetable set forth in the implementation plan and, when necessary, to curtail air-polluting activities on an interim basis to prevent the occurrence of short-term episodes of high pollutant concentrations.

Guidelines for the Development of Air Quality Standards and Implementation Plans, USDHEW 1969, pp. 10-11.

We have no intention of preventing the City from taking whatever action it considers necessary and appropriate to combat an episode or any other pollution problem. What we mean to ensure by the new rule is merely that there is some coordination rather than duplication of effort between local and state agencies and that if the local agency fails to take adequate action a state official will be on the scene with authority to do so. At Mr. Dumelle's suggestion, however, we have amended the EPA proposal so that the State representative may direct only the activities of pollution sources and not those of local enforcement officials.

Chicago also argues that certain of the requirements in the amended regulations conflict with its own ordinances. We have removed a proposed provision that might have been interpreted as requiring storage of oil on the premises in violation of local fire laws. But the contention that our definition of low-sulfur fuel to permit oil containing 1.5% sulfur conflicts with the Chicago ordinance is wholly without merit. At present Chicago allows fuels to contain more sulfur than that under non-episode conditions; it is clearly the obligation of the State to prescribe more stringent regulations in order to protect the public health in times of special danger. Chicago will require a lower sulfur content than our episode regulations require in 1972, but there is no conflict in that; the Environmental Protection Act plainly contemplates that cities may enact restrictions more restrictive than those of the State in order to protect the health of their people.

11. More Specific Action Requirements. In addition to accepting a number of changes proposed by EPA, the Board has amended the episode regulations in several respects in response to suggestions made by Board members and others at the hearings.

The most significant change from the existing regulations and the EPA proposal is to write into the regulations themselves more specific requirements as to actions to be taken to reduce pollution emissions during various alert levels. The exact actions to be taken will continue to be spelled out in alert action plans filed by individual pollution sources. However, the new regulations seek both to give greater guidance for the contents of those plans and to assure that reasonably adequate measures will be taken to reduce the emission of contaminants whether or not such plans have actually been approved. Under the EPA proposal, for example, it is difficult to see what would be done if an alert were to be called in the East St. Louis area this winter, since the Agency's efforts toward nailing down action plans have so far centered on the most acute problem, namely Chicago. Specific provision is made in the amended regulations to require the assurance of four days' supply of low-sulfur fuels and to require facilities for the storage and handling for four days' accumulation of wastes. It is made clear that, if low-sulfur fuel is not available, all non-essential large fuel-burning facilities shall be shut down during a Yellow Alert, as was already suggested in the guidelines sent out by the Agency to individual emission sources. The unnecessary use of electricity is prohibited during Emergencies. The automobile and aircraft sections have been modified to make them more specific and more restrictive, and the provision of the existing regulations providing for mandatory closing of certain named businesses during Emergencies, which would have been omitted under the EPA proposal, is retained.

12. Summary of Required Actions. The action required to be taken at each stage of alert under the revised regulations can be briefly described. The air pollution Watch, as under the EPA proposal, is a purely preparatory stage during which the public, governmental agencies and major facilities required to take action at later stages are notified that they may be required to take action in the next few hours. During the Yellow Alert maximum use is to be made of low-sulfur fuels; manufacturing industries are to reduce emissions to those allowed by the particulate emission regulations, notwithstanding any existing variance or program for delayed compliance*; and all open burning and incineration are prohibited, except that incinerators satisfying the particulate emission regulations may be operated during hours of maximum atmospheric turbulence. The public is also to be requested, but not required at Yellow Alert to avoid the unnecessary use of automotiles or of electricity.

* To require proportional reductions by all sources would seem unfair to those facilities which have installed expensive equipment to control emissions.

Yellow Alert procedures are continued during the Red and Emergency levels. In addition, at the Red Alert level all incineration and open burning are prohibited, and manufacturing industries required to submit Red Alert plans are required to curtail production to the greatest extent possible without causing injury or serious damage to equipment.

In an Emergency the unnecessary use of electricity, and most automobile and aircraft uses, are prohibited; heat must be reduced in most buildings; a number of named businesses and other activities must cease operations; and manufacturing facilities not covered by preceding requirements are required to curtail production, again without causing injury to persons or serious damage to the equipment.

In a Carbon Monoxide Alert incineration, open burning, and unnecessary motor-vehicle or aircraft use are prohibited.

13. Further Comments. The EPA proposal and the Board's proposed final draft were submitted to the National Air Pollution Control Administration for comment as soon as they were available. On November 19, informally and for the first time, NAPCA suggested that for inclusion in an approvable implementation plan the episode regulations should contain additional alert criteria based on COH readings alone and should permit the calling of a Watch on the basis of a twelve-hour rather than of a 24-hour adverse forecast. We have sympathy for these suggestions, and we shall explore at a later date the possibility of amending the regulations to embrace them. But we do not think it would be fair to other interested parties to adopt these suggestions without allowing an opportunity for comment. It is perhaps for this reason that the statute and our procedural rules permit us to revise proposed regulations without further hearing "on the basis of suggestions made at the hearing".

At the November 24 meeting Mr. Dumelle proposed two sugnificant additional revisions: to list activities permitted rather than those prohibited during Emergencies, and to extend the Emergency ban on aircraft to incoming as well as outgoing flights. In the interest of time he agreed to postpone consideration of these changes as well until a later date.

We have been asked to schedule further hearings or to allow additional time for comments on the proposed final draft. We cannot do so without jeopardizing the effectiveness of an episode plan for the present heating season. When the EPA filed with us its proposed amendments on September 5, it was with the express purpose of securing an adequate set of regulations to make possible an operative control strategy for this season. We have already taken a good deal of time in soliciting public views and in making necessary emendations to the proposal. We have given a greater opportunity for comment than the statute requires, for in accord with our rules the proposed final draft was made available to all who wished it two weeks before final action was taken. Numerous comments have been received, and several have been adopted by the Board. The only changes we made in adopting the ultimate draft were relatively minor ones in accordance with

the latest suggestions received. We think no one can legitimately claim that he was denied an adequate chance to be heard on any significant issue before the Board. There must be a time for an end to discussion if action is ever to be taken. We believe that time has come. The Board is of course open at any time to suggestions for amending the regulations. The present plan is the best we can do at the present state of our knowledge; we have every intention of improving it in the light of experience in its administration, mathematical modeling to determine its adequacy, and new information.

It should be said that the adoption of these amended regulations is no panacea for the elimination of the dangers of air pollution episodes. We already have had mandatory episode regulations for over six months, and what is needed now is their rapid and efficient implementation. It is of the first importance that the individual action plans for various alert stages be nailed down, since even under the Board's amendments a great deal still rests on the assurance of exactly what each emitter will do if an episode is called. We repeat with some concern the Agency's frank statement in its latter of November 16 to the Board:

> I feel that it is important at this point to go on record with the facts that the Agency currently does not have sufficient monitoring equipment in potential episode areas, nor a sufficient number of personnel to carry out the porposed regulations effectively.

What can be done about this lack of enforcement capability we do not know. We have attempted, in light of anticipated difficulties of this nature, to make the regulations as nearly self-executing as possible with regard to what must be done to abate emissions during an episode. But no regulations can be effective without enforcement; and there may be no more important pollution problem than the air pollution episode. We trust the Agency will move as rapidly as it can to remedy the disturbing deficiencies in its enforcement and detection machinery, deficiencies which no doubt stem in large part from a long history, until very recently, of starvation budgets resulting from legislative inattention to the seriousness of the pollution problem.

I concur:

I dissent:

I, Regina E. Ryan, certify that the Board has approved the above opinion this 9th day of December, 1970.

Regina E. Ryan
Clerk of the Board