ILLINOIS POLLUTION CONTROL BOARD
April 9, 1976

IN THE MATTER OF)
AMENDMENTS TO AIR POLLUTION) R75-4
EPISODE REGULATIONS)

INTERIM OPINION OF THE BOARD (by Mr. Goodman):

On March 21, 1975, the Illinois Environmental Protection Agency (Agency) filed proposed amendments to Chapter 2, Part II, Rule 205(f)(2)(c), and Part IV. The proposed amendments to Part IV were modified on May 19, 1975 and December 15, 1975. On August 14, 1975, the proposals were remanded by Order of the Pollution Control Board (Board) for further study and resubmittal. Six hearings were held and sixty-three exhibits received into evidence. The Board published the Agency proposals in the "Environmental Register" volumes #100 and #115, respectively.

The amendments to Part IV represent a change in Episode philosophy as that philosophy concerns photochemical oxidants. Professor Currie, in the Opinion accompanying the promulgation of the previous Episode regulations, stated Episode philosophy as it was generally accepted at that time:

> "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

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The Board expresses its appreciation to Mr. Joel D. Arnold and Ms. Donna O. Farley, Administrative Assistants to the Board, for their work in this proceeding.

> 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. In re Air Pollution Episode Revisions, R70-7 at 1 (December 9, 1970).

Although the Episode Regulations were amended on August 15, 1972, the Episode philosophy remained the same. See In the Matter of Proposed Amendments to Episode Regulation, R72-6. Since the promulgation of the current regulations, massive research on ozone and photochemical oxidants has been completed and more projects are currently underway. It has become apparent that ozone and photochemical oxidants are sui generis.

Medical Effects

A major question addressed by the proposed amendments is the effect of ozone on the health of the population and at what level certain strategies should be implemented with the object of reducing this ozone concentration. Ozone has been determined to be a serious pollutant, indeed Dr. Bertram W. Carnow (Director of the Environmental Health Resource Center of the Institute For Environmental Quality and Medical Director of the Chicago Lung Association), states that "ozone is certainly the most serious of all pollutants" (R.106). Photochemical oxidants affect the human mucus linings and lung tissue cause chromosomal breaks, are occular irritants and cause red blood cell fragility as well as enzyme modifications (Ex. 53).

During the hearings on the proposed amendments to the episode regulations, medical testimony was received from Dr. Carnow, Dr. Edward J. Calabrese (Assistant Professor of Environmental Medicine at the University of Illinois Medical School and Assistant Director of Environmental Health Resource Center of IEQ), Dr. Kent K. Knock (Illinois EPA Toxicologist), R.A. Wadden, PhD. (University of Illinois Medical Center) and J.W. Masterson (Chief Statistician, Chicago Board of Health).

The witnesses and their supporting exhibits stressed the importance of the fact that most research in the area involved healthy, low risk, members of the population. Therefore, the results of the research may not adequately reflect the danger to that portion of the population in the high risk categories. High risk categories would include young people, those carrying on heavy physical activity, people with asthma, chronic bronchitis, emphysema, heart disease, smokers, glucose-6-phosphate dehydrogenase (G-6 PD) deficient persons, and persons with dietary deficiencies with respect to vitamins C and E, protein, and selenium (Ex. 53).

Human exposure to 0.5 ppm of ozone for three hours per day, six days a week for twelve weeks, resulted in a decrease in lung capacity for as long as six weeks after exposure. Two hour exposure to 0.37 ppm resulted in a significant decrease in lung capacity for over 90% of the people tested (Ex. 7 and 53).

In a study of Los Angeles student nurses, daily eye discomfort increased as daily maximum photochemical oxidant levels exceeded 0.15 to 0.19 ppm. Cough and chest discomfort remained relatively constant until 0.30 to 0.39 ppm, at which time the rates of both symptoms increased markedly. Headache without fever began a slight but constant increase at levels of 0.1 to 0.14 ppm and marked acceleration occurred at 0.30 to 0.39 ppm. (Ex. 25)

The American Conference of Governmental Industrial Hygienists concluded that ozone is a "highly injurious and lethal gas at relatively low concentration (a few ppm) and at short exposure periods (a few hours)." At lower concentrations, ozone may "initiate, accelerate or exacerbate respiratory tract disease of bacterial origin." Although there is no manifest injury at concentrations of 0.1 ppm, this level may result in premature aging similar to continued exposure to ionizing radiation (Ex. 21). The Board notes that the Threshold Limit Value (TLV) for ozone is 0.1 ppm based upon an eight-hour exposure, five days per week.

In a study of athletic performance in the Los Angeles area, an analysis was made of the correlation between poor performance and levels of several pollutants. Direct correlation was found with oxidant levels one hour before the race (Ex. 21).

It has been shown that ozone affects red blood corpuscles and the release of oxygen from hemoglobin (Ex. 53), and that it also results in chromosome breakage in man (Ex. 53, R.116, 1415).

It has also been shown that ozone and sulfur dioxide act synergistically. Using maximal expiratory flow rate (MEFR) at 50% vital capacity as an index, it was found that, at 0.37 ppm ozone, a two hour period was needed to show a significant effect of MEFR. However, when 0.37 ppm SO_2 was also present, only 30 minutes passed before substantially similar effects occurred. (Exs. 25, 53, and R.150). In addition, as mentioned previously, persons with a G-6 PD deficiency would have an acute hemolytic response; i.e., red blood cells are destroyed resulting in hemolytic anemia, when exposed to 0.3 or 0.4 ppm ozone for not more than 3 hours. It is significant that thirteen percent of the black population in Cook County or 240,000 persons in the Chicago Area have this deficiency (R.155-6).

Dr. Carnow testified that, according to the National Academy of Science, there is no threshhold below which everyone can be protected (R.1420). In addition, there is some evidence that ozone is a

co-carcinogen. Ozone inactivates an enzyme called benzopyrene hydroxylase, which destroys benzopyrene, a known carcinogen (R.1446). The Board notes that there is a need for more epidemiological investigations of ozone's health effects on exposed populations. From the foregoing review of the record, the Board must conclude that ozone is an extremely dangerous pollutant, not only at high concentrations (that is, above 0.37 ppm) but also at lower levels where symptoms are less pronounced.

Ozone Formation

Ozone (O_3) is the product of the photolysis of NO_2 in the air. In a reversible reaction NO_2 is photolyzed by ultraviolet light from the sun to form NO and 0; the O then reacts with O_2 to form O_3. In ordinary circumstances the NO will act as a scavenger, picking up the extra atom of oxygen from ozone to form NO_2 and O_2. However, the presence of hydrocarbons causes the reversible action to become unbalanced and NO is converted into NO_2 faster than NO_2 is dissociated into NO and O. This results in a build up of ozone in the atmosphere and at the same time reduces the amount of NO available to scavenge the ozone by reacting with it (Exs. 6, 22, 52). The diagram and chart on the following page illustrate the photolysis cycle.

Dr. Kent Knock, the Agency's Toxic Substance Specialist, supported the ozone formation theory as described above. In additior he stressed the importance of the ratios of hydrocarbons to nitrogen oxides in ozone production (R.440-41). Another factor in ozone production is hydrocarbon reactivity as measured by the speed with which they react photochemically. There is some evidence that less reactive organics may, due to their slower reaction rates, contribute to elevated ozone levels over wider areas and for longer periods of time than highly reactive organics (R.441). Sulfur compounds may also contribute to ozone formation (R.442).

The presence of high concentrations of ozone seems to follow a diurnal cycle. Ozone concentrations increase in the presence of sunlight to a mid-day peak then decrease in the evening. The decrease apparently results from the cessation of ozone formation at night accompanied by the continued scavenging effect of NO together with surface contact (R.444, Ex. 22). Other factors found to be associated with high ozone concentrations are high temperatures and low wind speed (Exs. 6, 28).

Quon and Wadden in Oxidants in the Urban Atmosphere analyze the ratio of hydrocarbons to nitrogen oxides and their effect on ambient ozone (Ex. 6). They conclude that low ozone concentrations will occur at very high or very low precursor ratios. Altering these ratios through emission control of one pollutant may increase or decrease ozone levels. This may be the cause of the phenomenon known as the "weekend effect." Often ozone increases during the weekend due to the change in the precursor ratio between hydrocarbons

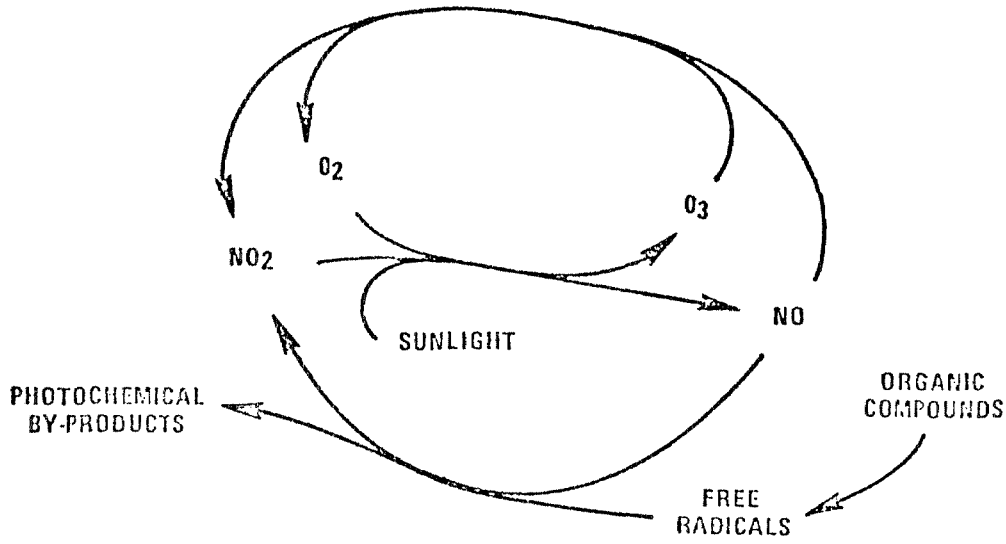

Figure 1. Photochemical production of oxidants.

TABLE 1. SIMPLIFIED SUMMARY OF CHEMICAL REACTIONS FOR PRODUCTION OF OXIDANTS

- OXIDATION OF ORGANIC COMPOUNDS TO FORM PEROXY RADICALS

  $CH_3CH = CH_2 + OH^{\cdot} \xrightarrow{O_2} CH_3CH_2\text{-}O\text{-}O^{\cdot} + H_2CO$

  PROPYLENE PEROXY RADICAL FORMALDEHYDE

- ALDEHYDES + O_2 + SUNLIGHT -> ADDITIONAL PEROXY RADICALS
- PEROXY RADICALS CONVERT NO TO NO_2

  $CH_3CH_2\text{-}O\text{-}O^{\cdot} + NO \rightarrow NO_2 + CH_3CH_2\text{-}O^{\cdot}$

  $CH_3CH_2\text{-}O^{\cdot} + O_2 \rightarrow HO_2^{\cdot} + CH_3HCO$ ACETALDEHYDE

  $HO_2^{\cdot} + NO \rightarrow NO_2 + OH^{\cdot}$

  UP TO FOUR CONVERSIONS FOR EACH CARBON ATOM

- OZONE FORMING REACTION

  $NO_2 + O_2 \xrightarrow[\text{ULTRA-VIOLET}]{} NO + O_3$

- OZONE SCAVENGING REACTION

  $NO + O_3 \rightarrow NO_2 + O_2$

- PHOTOCHEMICAL BY-PRODUCTS FORMED

  ALDEHYDES, PAN, AEROSOLS, NITRIC ACID, H_2O_2, $OH^{\cdot}$, CO_2

and nitrogen oxides which results in reducing the relative amount of NO available to scavenge ozone (Exs. 28, 52).

In the past, ozone control strategies have often been based upon reactivity scales which rank individual hydrocarbons on the basis of the celerity with which they react photochemically. The premise was that if the more reactive materials were controlled or replaced by less reactive materials, ozone concentrations would be reduced. Quon and Wadden feel that this is still a viable control technique (Ex. 6). Recent studies conclude that past reactivity classification has been incomplete and, at times, erroneous (Exs. 10, 52). Transport of atmospheric oxidants is also becoming recognized as a critical factor in ozone distribution (Ex. 52). The emerging theory is that all hydrocarbons react photochemically; the less reactive hydrocarbons affecting ozone concentrations farther downwind from the emission source (Ex. 52, R.441).

Transport

During the past few years it has become apparent that the photochemical oxidant problem is not limited to the urbanized areas of the country. Ozone levels in rural areas have been measured at levels equal to or greater than urban areas (Ex. 18, 28, 52, 60).

Sources of rural ozone include: (1) downward transport from the stratosphere; (2) generation from hydrocarbons emitted by vegetation; (3) man-made (anthropogenic) emissions from urban areas transported to rural areas (Ex. 52).

The U.S. EPA classify the first two sources as "natural" sources. These natural sources may contribute up to 0.05 ppm to rural ozone levels (Ex. 52). Levels above 0.05 in rural areas have some anthropogenic contribution. Recent Illinois data show that transport together with natural emission sources may result in levels exceeding 0.15 ppm. (Ex. 60, 61). Agency testimony stated that Illinois could exceed 0.07 ppm even on days when industry and mobile sources had completely ceased emissions (R.1510).

The U.S. EPA, in its latest publication with reference to control of photochemical oxidants, made the following assessment of the transport-formation problem:

> Oxidants can be formed over long time periods during stagnant conditions in high pressure systems or during transport of oxidants and

> precursors. This implies that the long-term behavior of oxidants and precursors is an important contributor to oxidant concentrations. It also implies that less reactive organic compounds...can contribute to observed oxidant levels....The studies indicate that man-made emissions of hydrocarbons are...the predominant source of the highest levels of oxidant. (Ex. 52)

L.G. Polgar and R.J. Londergan, in an Article entitled "Ozone Formation and Transport" came to the following conclusion:

> Local contributions to ground level ozone, at least out to 30 km, appear to be definitely a minority...component of net ambient ozone... [L]ocal, or even small-regional scale strategies may not prove to be as successful in reducing ambient ozone as had been thought (Ex. 28).

We conclude that in the summer there exists an "ocean of ozone" which often blankets large areas of the country. This blanket, at least in concentrations below .15 ppm, does not seem to react to episode emission control strategies in local areas (R.1306-08, 1317, 1497, Exs. 28, 52, 60).

Control Strategies

In the past, episode strategies have been based upon the premise that reduction of emissions would result in immediately measurable reduction of pollution levels. Ozone, however, does not react in the same manner as most pollutants. As we have discussed above, high ozone concentrations may blanket parts of the State, without regard to local influences. (See also P.C. March 16, 1976, Memo to Board Members from D.O. Farley Re: APCA Ozone Specialty Conference.)

Unlike other controlled air pollutants, ozone is formed in the air, and is not emitted from a source. It cannot be traced to specific sources due to the involvement of numerous precursors and to the strong influence of meteorology on its distribution. The following variables influence the capability of controlling short-term episodes at high ozone concentrations:

1. Prediction of the occurrence or reoccurrence of high ozone levels. There is general concensus that initial high ozone occurrence cannot be predicted. Given high ozone on one day, however, the Agency believes it can predict its reoccurrence on the following day. This is based on monitoring the meteorological conditions over an area,

in which ozone levels are accumulating (R.684-744, 806-875).

2. Identification of the sources of hydrocarbon and NO_x emissions which are the precursors of high ozone in an area. This involves determining what fraction of the ozone or precursors are transported into the area with incoming air masses. From there, the location of the sources of precursor emissions (both local and transported) must be identified, in order to apply episode controls to those emissions. Dispersion analyses presently available for source identification are crude methods (R.684-744, 1322).

3. Implementation of an emission control strategy, to reduce emissions from the identified sources. The Agency strategy is to reduce hydrocarbon and NO_x emissions from stationary and vehicular sources. The effectiveness of the strategy will depend on the validity of emission inventories being used to estimate reductions, the strength of source action plans, and the effectiveness of vehicular controls (R.1010-1041, 1083-1100, Exs. 23, 27, 44).

4. The resulting effect of emission reduction on ambient levels of ozone. Control will be most effective if a large fraction of local ambient ozone is obtained from local emissions. This would be most likely to occur when a stagnant high pressure system is over an area, with pollutants accumulating in it and little transport taking place. The effectiveness may also depend on the resulting ratio of hydrocarbons to NO_x in the air, and on the change in mix of hydrocarbons in terms of their reactivities. It is conceivable that emission reduction actions could be followed by unchanged or even increased ozone concentrations. All of the meteorological, chemical, and control variables must interact effectively to yield an ozone reduction (R.684-744, 764-801).

The Agency's control strategies as expressed in their original episode proposal in this proceeding were based upon the orthodox episode strategy; i.e., a reduction in emission at point X will result in a lowering of pollutant levels at that same place (Ex. 1). This strategy was based upon a ozone monitoring system of ten operational ozone monitors (R.30). By the end of the 1975 ozone season, the Agency had twenty-four ozone monitors in operation throughout the state (R.1251). After analyzing the data from these monitors the Agency shifted its control strategy emphasis (Ex. 47). The Agency discovered that ozone control actions at levels below 0.15 ppm are very likely to be meaningless due to the ozone blanket containing concentrations in excess of 0.1 ppm (R.1306-7, 1319). The

Agency stated that the complexity of the ozone cycle would make strong emission reductions in both the mobile and stationary source areas of doubtful efficacy at levels before 0.15 to 0.2 ppm (R.1319). Therefore, the Agency proposes that strong emission control strategies be moved to the Red Alert levels of 0.3 ppm (Ex. 47). At levels below the Red Alert, the Agency contends that it is hopeless to reduce the concentrations throughout the state through episode strategies (R.1508). This theory is supported by the Federal experience (Ex. 52).

At levels below 0.3 ppm, the proposed control strategies are nearly 100% nondisruptive (R.1373). The Agency believes that the best episode plan of action at these levels is to notify persons who are highly susceptible and to advise those persons of possible health precautions which they can take to protect themselves from ozone exposure (R.1306-7, 1508). The Board believes that these conclusions are well founded and that for photochemical oxidant episodes such a shift in episode strategy is mandatory.

The proposed strategies above the level of 0.3 ppm would allow the Agency to control emissions not only in areas experiencing elevated levels but also in those areas contributing to the elevated levels due to transport (R.1312 see proposed Rule 402(f)).

While controls below 0.3 ppm are generally voluntary (except for prohibition of incineration and open burning), above that level, controls become mandatory. The mandatory actions include strong mobile as well as stationary source control.

The Board believes that the only effective method for controlling ozone episodes is a constant emission reduction strategy. (R.1506, Ex. 6, 26, 28, 52). The oxidant problem is not a local problem and will not respond to local remedies. What is needed is a regional or perhaps nation-wide precursor reduction program.

The Board will adopt the Agency's December 15, 1975 proposal for amendment to the Episode Regulations as these amendments relate to photochemical oxidants, except for certain minor changes. The Board will dismiss that portion of the Agency's proposal which relate to pollutants other than photochemical oxidants due to the lack of evidence in the record to support those changes. The Board will also adopt those internal procedural amendments proposed by the Agency.

The following is a rule by rule explanation of the major amendments to the Episode Regulations:

Rule 401: The Preamble has been deleted. The definitions

pertinent to Part IV have taken the Preamble's place, excluding those definitions previously defined in Parts I and II of Chapter 2. Minor definitional changes have been made for clarity. Definitions of the terms "Episode," "Fleet Vehicle," "Indirect Source," "Low Sulfur Fuel," and "Parking Lots," have been added.

Rule 402(a): This rule is new and clarifies the role of the Agency as the sole authority for declaration of episode stages and is intended to prevent the issuance of conflicting emergency orders.

Rule 402(b): This rule is substantially the same as old Rule 404.

Rule 402(c): This rule presents the basic sources of meteorological information which the Agency may rely upon. It is a non-exclusive list and is intended to provide the Agency with needed flexibility. In the case of ozone Episodes, the following minimal guidelines will be used by the Agency in addition to those which may be developed as more research is undertaken:

1) No significant air mass change for the next twenty-four hours;

2) Forecast a maximum temperature equal to or exceeding 58°F.;

3) Forecast sky conditions for 1100 hours local time of 0.8 cloud coverage or less;

4) Surface winds southerly less than 20 MPH. If not southerly, less than 15 MPH (R.1202, 1927).

The Board feels that the language contained in this Rule must be "general" as the state of the art changes from month to month.

Rule 402(d): The purpose of this Rule is to provide the Agency with added flexibility in that all emission information sources may be consulted in determining expected contaminant emissions.

Rule 402(e): These Rules are substantially the same as old Rule 405. As the Board believes these matters to be of regional or national concern, it is in the State's best

interest to follow Federal guidelines rather than initiating its own. 402(e)(2) requires that sampling instruments be checked for accuracy before their data are utilized.

Rule 402(f): This Rule provides the procedures to be followed in determining which areas will be subject to Watch, Advisory, Alert, or Emergency declarations. Note that this Rule allows the Agency to initiate Episode actions in those areas contributing to an Episode occurrence in another area.

Rule 402(g): This Rule provides that those persons who fail to comply with the lawful orders of the Agency during an Episode will be subject to the penalties enumerated in the Act.

Rule 402(h): This Rule limits the Agency's sealing powers to those provided by the Act.

Rule 403: Rules 403(a),(b),(c) and (d) are substantially the same as old Rules 411(b)(1),(2),(3) and (4). Rule 403(e) is new and requires local agencies to file with the Agency Episode operation plans describing procedures local agencies intend to implement in their routine and Episode operations.

Rule 404: This Rule replaces old Rule 410. Its purpose is to require plans from significant air contaminant emission sources.

Rule 404(a): This Rule requires the submission of plans designed to reduce the emission of contaminants during Episodes, on forms to be provided by the Agency, within 180 days of Part IV's effective date. Note that Rule 404(c)(2) may require the submission of a plan within 30 days of notification.

Rule 404(b): This Rule lists those facilities which are required to file action plans with the State. Note that nuclear power stations are exempted by subsection (1). Subsection (2) exempts those fuel combustion emission sources which are not required, by Part I of this Chapter, to obtain a permit. Subsection (5) exempts those parking lots in major metropolitan areas exceeding 200 spaces which predominantly serve residences, medical facilities, transportation terminals, grocery stores and pharmacies, and employee lots.

Similarly, subsection (6) exempts fleet vehicles used for delivery of grocery, pharmaceutical and medical products. The purpose of this Rule is to require action plans from all significant air contaminant emission sources. The fact that a source is not required to file an action plan does not relieve it of its duty to conform to those actions required by Part IV.

Rule 404(c): This Rule requires facilities filing action plans to inform the Agency of any operational changes which might affect action plans. The Agency may require action plans to be revised. Subsection (2) allows the Agency to request an action plan within 30 days of notification. Subsection (1) enumerates those Agencies to which action plans are to be submitted on the basis of geographical area.

Rule 404(d): This Rule specifies the minimal contents of action plans including significant air contaminant source locations, emission reduction plans and expected effectiveness thereof for each episode level. Subsection (2) requires stockpiling of low sulfur fuel for certain facilities. Subsections (3) and (4) are related to plans for parking lots and fleet vehicles. Subsection (5) requires that plans include methods by which compliance with the emission reduction action tables will be achieved.

Rule 404(e): This Rule merely restates old Rule 410(f),(h) and (i).

Rule 405: This Rule describes the criteria for declaring the episode stages.

Rule 405(a): This is a chart which sets the levels and averaging time for each episode stage. The only changes which have been made are found in the ozone criteria. We have deleted the watch level and replaced it with an "advisory" at .07 ppm based upon a two-hour average. The purpose of an advisory is to alert those portions of the population which are considered to be high risk. An ozone advisory does not initiate that portion of watch procedures requiring 24 hour surveillance of monitors. It does require the Agency to issue a warning to the high risk group described previously in this Opinion. Although the Agency contended that setting the level at .07 ppm would result in a blasé attitude on the part of the news media and those affected, the Board believes that the health consequences are significant enough to retain this level. The Board believes that those persons in the high

risk category must be warned. As the Agency has provided no evidence to show that this group would ignore repeated warnings, the 0.07 ppm standard is retained.

The Yellow Alert level has been set at 0.17 ppm based upon a one-hour average. The level is derived from medical evidence presented to the Board. Its purpose is threefold: 1) To warn those portions of the population which, although not in the high risk category, may be affected at these levels. As most of the research shows adverse effects at levels of 0.2 ppm and above for young healthy adults, the 0.17 ppm level is to warn those portions of the population which may not be young or healthy but at the same time are not within the high risk category. (2) The Yellow Alert places the Agency on 24 hour alert and initiates voluntary and required actions. (3) The Yellow Alert will announce to those facilities having action plans that they must begin consideration of the implementation of those plans.

The Red Alert level is 0.30 ppm on a one-hour average. While this level is also based upon health, in that the entire population is adversely affected, it is also the level at which emission reductions will affect ozone formation.

The Emergency level has been lowered to 0.50 ppm on a one-hour average to conform to Federal guidelines and prevent the occurrence of 0.6, the significant harm level.

Rule 405(b): This Rule states the criteria for declaring a Watch or, in the case of ozone, an Advisory. The criteria are based upon meteorological factors. Note the improved language reflecting ozone's peculiar diurnal cycle throughout Rule 405.

Rules 405(c)(d) and (e): These Rules state the criteria for declaring yellow, red and emergency episode stages, respectively. Each requires that the previous episode stage has been in effect for a specified time period, i.e., 4 hours each for Yellow and Red Alerts, 12 hours for Emergency. In addition the alert level for that episode stage must have been equaled or exceeded and meteorological forecasts indicate that no substantial improvements in conditions will occur in the next 12 hours. The Red Alert or Emergency episode stage may also be declared even though its contaminant level has not been equalled or exceeded if the previous alert level has been equalled or exceeded for the preceding 24 hour period and all other requirements have been met.

Rule 405(f): This Rule provides the Agency with authority to terminate Episode stages.

Rule 406: This Rule sets forth those parties to be notified in the event of an episode stage and the contents of the notification.

Rule 407(a): This Rule describes actions to be taken at the Watch or Advisory Stage. Note that in the case of an ozone Advisory, the Agency need not gear up until the Yellow Alert level is reached.

Rule 407(b): This Rule describes the actions to be taken at the Yellow, Red and Emergency stages. This would include the implementation of approved action plans and those actions set forth in the "Required Emission Reduction" charts. Chart 2 does not change actions from those required in the present Rules; it merely combines them into one chart. Exhibits 27 and 44 present estimated ozone precursor emission reductions based upon the actions enumerated in Chart I at the Red Alert stage. The total reduction for organics would be approximately 60%. The total reduction in nitrogen oxides would be approximately 32%. Note that mobile sources account for 50% of the organic emissions.

Chapter 2, Part II, Rule 205(f)(2)(c) deletes the exception to the eight pound per hour rule during a watch, alert or emergency stage.

Emergency Regulation

On March 15, 1976, the Agency filed a motion with the Board seeking the enactment of these amendments under the emergency provisions of the Environmental Protection Act. Chapter 111 1/2 section 1027(b) of the Illinois Revised Statutes (1975) states that before adoption of any regulations or amendments to existing regulations, the Board must conduct economic impact hearings. That same section provides an exception to the economic impact hearing procedure where a severe public health emergency is involved:

> When the Board finds that a severe public health emergency is involved in relation to any proposed regulation, the Board may provide that such regulation shall take effect without delay and permit the Board to proceed with the required hearings and studies while the regulation continues in effect.

The Board holds that a severe public health emergency is involved in relation to the proposed episode regulations. The ozone season begins in May, and to wait until economic impact hearings are held would result in delaying promulgation of these regulations until the 1977 ozone season. Therefore the proposed amendments to the Episode Regulations shall take effect without delay, and the Board will proceed with economic impact hearings and studies while the regulations continue in effect.

Section 1028 of Chapter 111 1/2 of the Illinois Revised Statutes (1975) provides:

> No rule or regulation, or amendment or repeal thereof, shall become effective until a certified copy thereof has been filed with the Secretary of State, and thereafter as provided in "An Act concerning administrative rules," approved June 14, 1951 as amended.

Section 266 of "An Act concerning administrative rules" (Ill. Rev. Stat. 1975, Chapter 127 §266) states:

> 266. Certified copies of new rules to be filed with Secretary of State-Effective date of rules] §4. A certified copy of every rule adopted by an agency subsequent to the effective date hereof shall be filed with the Secretary of State and no such rule shall become effective less than ten days after the copy thereof has been so filed, except that, in case of emergency, a rule may become effective immediately upon such filing if accompanied by a certificate executed by the director, chairman or officer in charge of the agency stating the specific reasons for the emergency.

The proposed regulations will be filed with the Secretary of State in the manner prescribed by Section 266 so as to become effective immediately upon said filing.

In promulgating these regulations, the Board is of the opinion that a necessary corollary to them is effective continuous emission control of ozone precursors. The Board therefore strongly urges that the Agency, the Institute and the U.S. EPA quickly review their current continuous control philosphy. This would include a redefinition of reactivity and a close scrutinization of current precursor emission limitations.

Mr. Jacob D. Dumelle concurs and will file a Concurring Opinion.

I, Christan L. Moffett, Clerk of the Illinois Pollution Control Board hereby certify the above Interim Opinion was adopted on the 9th day of April, 1976 by a vote of 5-0.

Christan L. Moffett, Clerk
Illinois Pollution Control Board