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SUBMISSION TO THE MINISTER OF
THE ENVIRONMENT
ON THE REGULATION 308
DISCUSSION PAPER (CLEAN AIR PROGRAM)

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on behalf of:

- Canadian Environmental Law Association
- Pollution Probe
- Great Lakes United
- Energy Probe
- Citizens' Network on Waste Management

Canadian Environmental Law Association

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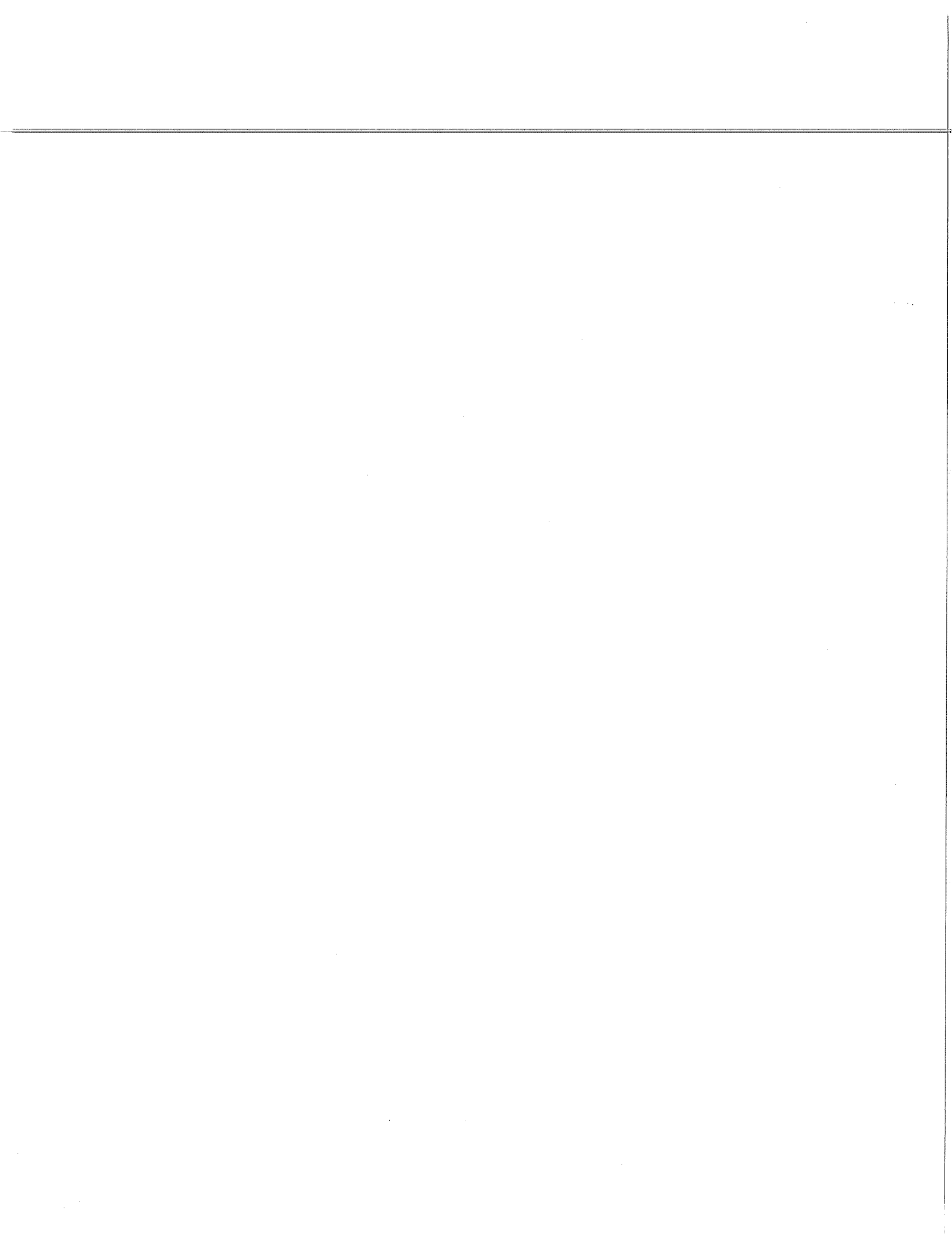
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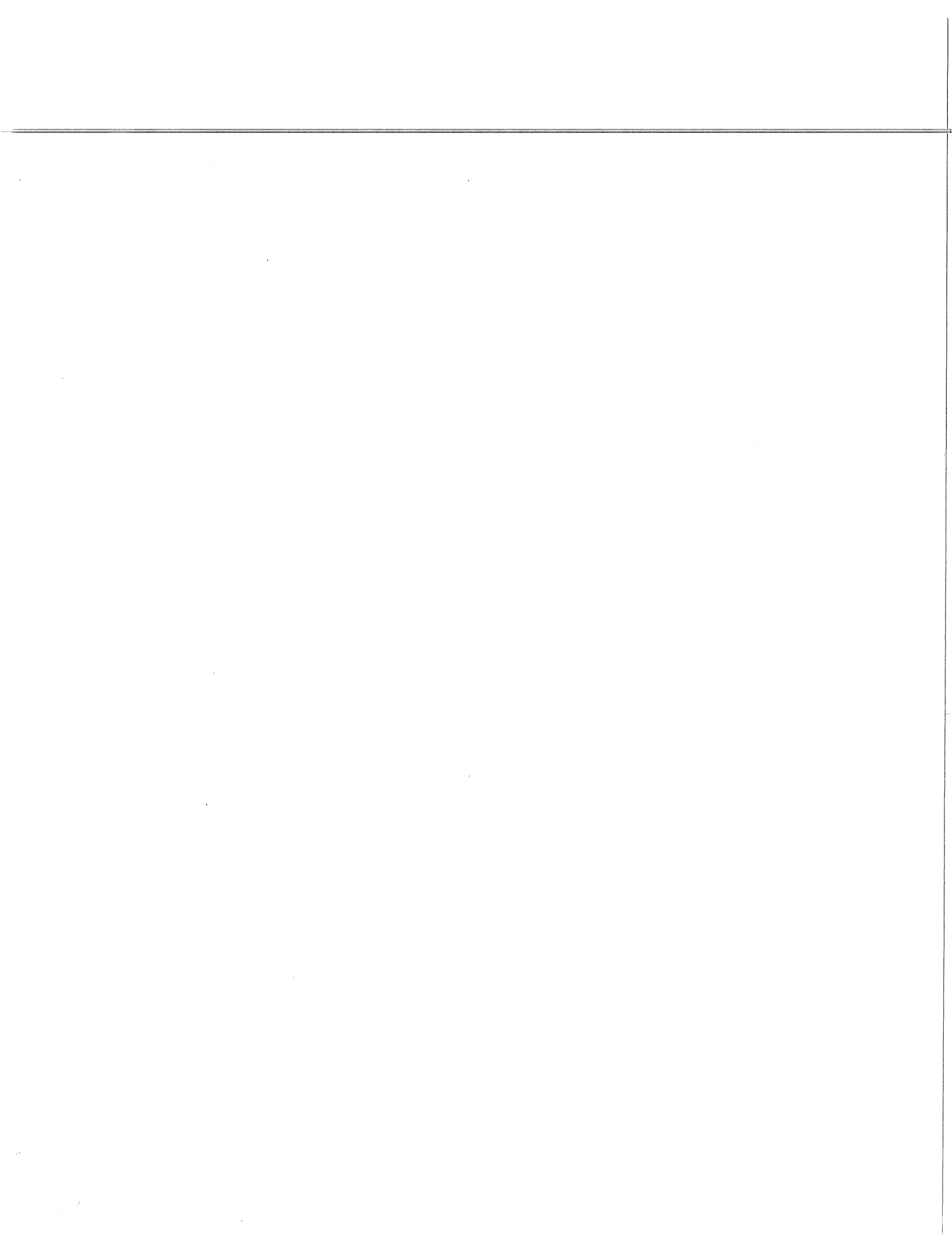
RECOMMENDATIONS

GENERAL

1. Revisions to Regulation 308 should be designed not only to overcome the limitations of the existing regulation but as well in anticipation of the problems ahead. The essential thrust must be to prevent rather than cure problems of environmental degradation.
2. Regulation 308 should begin with a clear statement that the purpose of the regulation is: to protect and enhance human health and environmental quality by addressing all causes of air pollution and by working towards the reduction of pollution and the virtual elimination of emissions of toxic air pollutants.
3. The government of Ontario should establish mechanisms that will integrate economic, energy and other planning with environmental policies in order to ensure both a healthy environment and a viable economy.
4. The Government of Ontario should substantially increase the resources of the Ministry of the Environment to allow timely implementation of reforms that are urgently needed to effectively address current and looming air and atmospheric pollution problems.

TECHNOLOGY BASED STANDARDS

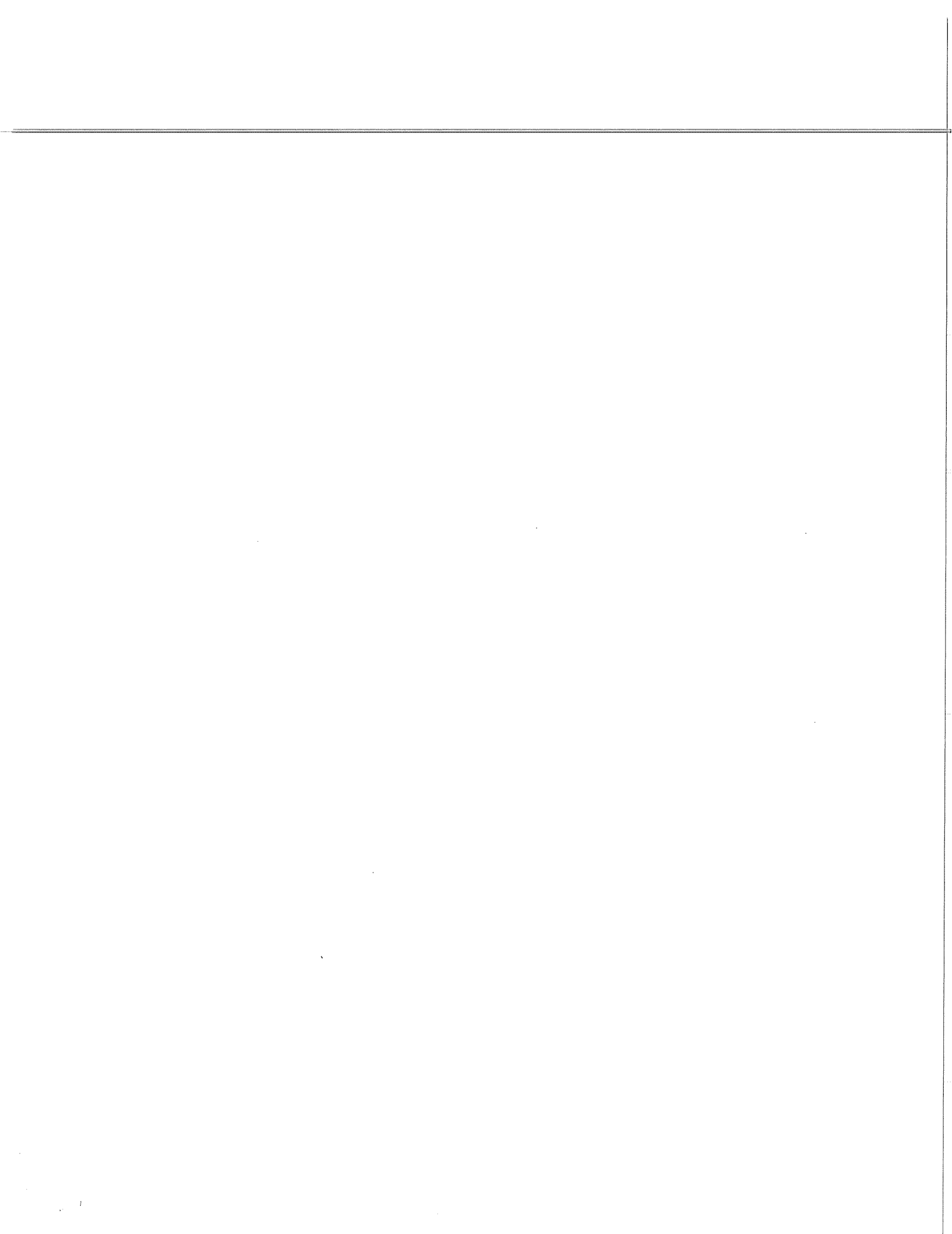
5. LAER technology ^{to be used} should be used to control the emission of all contaminants unless sufficient data is available to establish that such controls are unnecessary to protect health and/or the environment.
6. The ranking of contaminants should include an assessment of secondary effects. Contaminants that contribute to regional or global impacts should require LAER controls.
7. Minimum emission control requirements should be established and based upon LAER and BACT-EA constructs that are clearly defined by Regulation. To achieve the goal of zero discharge reforms should also allow for the implementation of additional or supplemental controls where LAER fails to provide adequate abatement.
8. Finite emission limits for persistent toxic substances should be established and based on total environmental loadings.
9. ~~Responsibility for standard setting, including emission rates and ambient quality air should be given to a new,~~



permanent committee with a broadly based membership. (Also see recommendation #13).

AMBIENT AIR STANDARDS

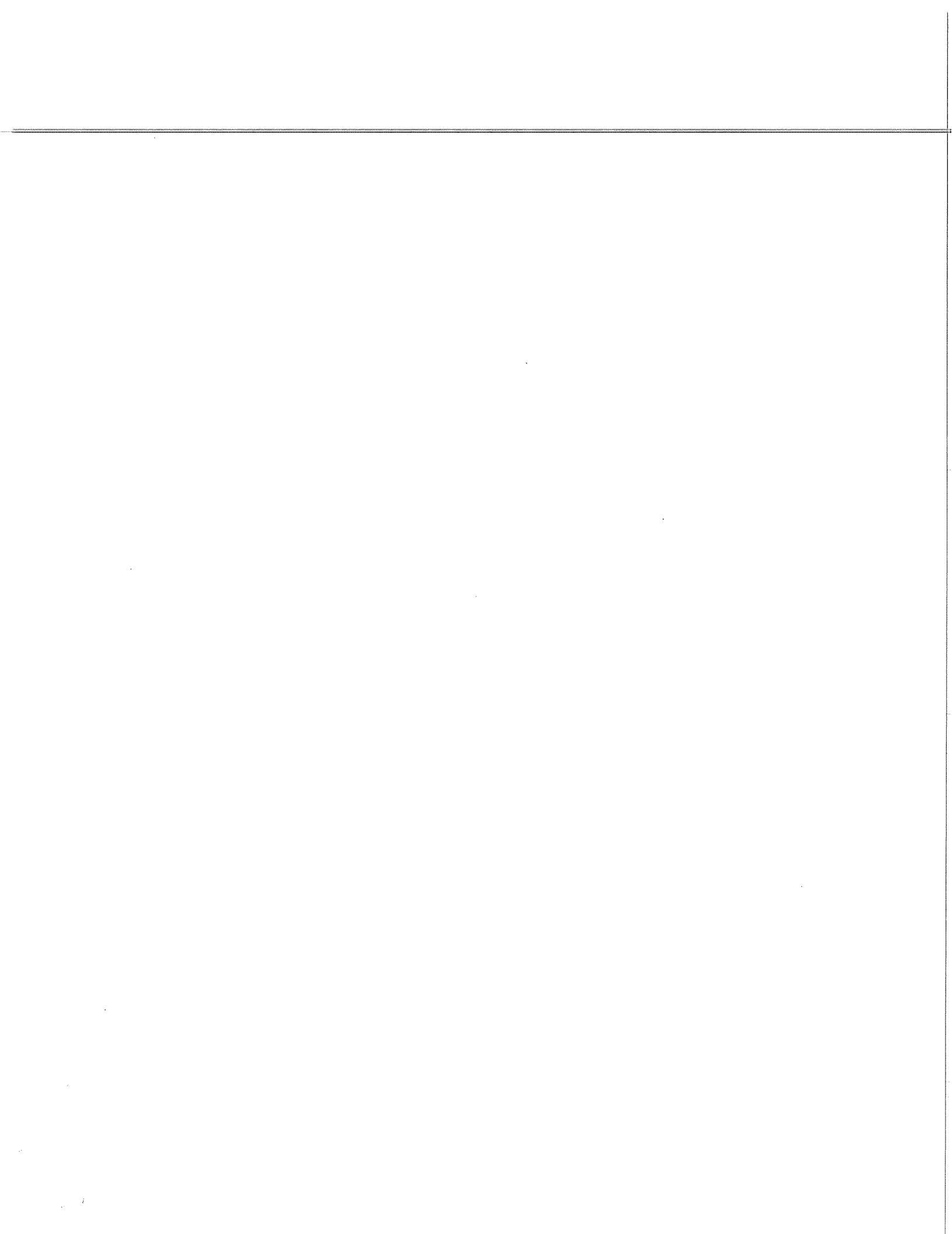
10. Ambient air standards should be adopted to assure that air quality objectives are not exceeded. For many contaminants, however, concentration in air is not the only or even the primary consideration.
11. For contaminants with effects beyond a local area and for persistent toxic substances, a total loadings approach should be used. Standards should reflect all routes of exposure and all environmental sources of such contaminants. For these contaminants it is the absolute mass or quantity of pollutants emitted, not concentration in the atmosphere, that should be the determining factor.
12. Where ambient standards are likely to be exceeded, no certificate of approval should be issued to a new source and where modelling indicates an existing problem, control orders should be issued to ensure that air quality standards are met.
13. Revisions to Regulation 308 should set out the procedures that will provide for public participation in standing setting processes, key features of which should include:
 - . the requirement that notice be published in the Ontario Gazette of proposed standards and that a minimum period of sixty days be allowed for comment;
 - . a direction to provide notice to specific interested parties of proposed standards together with a statement of the purpose and rationale for the proposals;
 - . a requirement that a regulation making docket be kept that would include all documents, material and comment upon a proposed standard. The docket would be accessible to the public;
 - . a right by any interested party to request review of existing standards or the establishment of new ones together with an obligation that such requests be responded to by the Minister explaining why it was either being granted or declined;
 - . provisions for judicial review of Ministry actions if unsupported by "substantial evidence".



14. A review of all current standards should be undertaken as expeditiously as possible. Again the best of intentions will accomplish little if adequate resources are not provided.

IMPLEMENTATION

15. Priorities should be established for phasing in the new Regulation, with appropriate interim deadlines. All sources emitting contaminants requiring zero discharge or LAER controls should be made subject to new regulation within two years.
16. A standard 10-year review period for certificates of approval should be adopted but there should be provision for review and renewal within that period, if justified.
17. Certificates of approval should include consistent and comprehensive conditions that are clear, unambiguous and enforceable. Sector based protocols for the control of fugitive emissions and the maintenance of monitoring devices should be developed and included as conditions on all pertinent certificates. An application, and annual renewal fee should be charged.
18. The Environmental Protection Act should be amended to:
 - i) require notice of all applications for certificates of approval under section 8 to be given to those in the community that may be affected;
 - ii) allow for public hearings with respect to all facilities that may emit LAER contaminants or that may contribute to significant health or environmental impact and;
 - iii) provide for a right of appeal by an interested party from all decisions by the Ministry concerning certificates of approval.
19. Revisions to Regulation 308 should clearly set out process, emission control and stack monitoring requirements. The regulation should also stipulate that:
 - . certificates of approval specify all monitoring requirements and include pertinent protocols;
 - . all monitoring data be made available immediately to the ministry and that, in any event, all stack tests be reported within 3 months of the date of the test, and be made available to the public upon request.



I. INTRODUCTION

Twenty years ago air pollution was thought to be primarily a problem of local air quality. Today we are beginning to understand that the impacts of human activity upon the atmosphere often have far-reaching and much more profound implications than we had suspected, including impacts that may fundamentally alter the character and viability of the global ecosystem. It is with respect to these newly identified dimensions of atmospheric pollution that our most difficult regulatory task lies. It is clear that if these problems are to be effectively addressed, we must fundamentally revise our approach to regulating the effects of our activities upon our environment.

Ministry of the Environment plans to reform Ontario's Air Pollution Regulation are a welcome and timely initiative. The Clean Air Program (CAP) discussion paper offers the first major proposal to reform Ontario's air pollution control philosophy in 16 years and revisions to Regulation 308 will significantly determine environmental quality in Ontario well into the next century. It is essential therefore, that reforms be designed to deal not only with current air pollution problems but as well with those that may be anticipated in the years ahead.

The time has come for strong action on the environment and the logic of that action must be prevention. People in Ontario consistently report the environment as the issue of greatest

concern to them and indicate a willingness to pay for improvements in Environmental quality.¹ The public mandate is clear and we believe it incumbent upon the Ministry to move quickly and effectively to put needed reforms in place.

This response to the CAP proposals begins with a general description of the nature of the problem confronting us. It continues with an articulation of the principles that should guide the reform process. Finally we respond to the specific proposals of the Discussion Paper. Throughout, a number of recommendations are made that we hope will contribute to the establishment of a workable and effective framework for environmental protection for Ontario.

¹ See, for example Beppi Crosariol, "Most feel pollution hurting health: Poll" The Whig Standard, April 19, 1988, p.1 discussing Environics Research Group's Survey that found that 90% of Canadians believe their health has deteriorated because of pollution and that 75% of Canadians would be willing to pay higher taxes to reduce pollution.

II. THE NATURE OF THE PROBLEM

A. Shortcomings of the Existing Regulation

Air pollution in Ontario is a multifaceted problem, caused by numerous sources which contribute to local, regional and global impacts of differing significance. Over the years, implementation of Regulation 308 has resulted in improvements to air quality in Ontario, particularly for conventional pollutants in areas close to major point sources. However our experience with Regulation 308 has also revealed its various shortcomings, many of which are identified by the Ministry's Discussion Paper.

Some of the Regulation's deficiencies are clearly the product of its own inherent limitations. Perhaps the most fundamental of these is that no pre-treatment is required before contaminants are emitted to the environment. Rather our current regulation is primarily founded upon the premise that dilution is a sufficient mechanism of environmental protection. Because dispersion was sanctioned as a means for achieving compliance with point of impingement standards, local air quality problems were often "solved" by building taller stacks. The results are now well known.

Other underlying assumptions have also undermined the effectiveness of our current regulatory approach. Because standards are only set when there is considerable certainty about the effects

of a particular contaminant, chemicals are, in effect, assumed to be safe until proven otherwise. Yet there are many substances whose impacts only became known years after first being released into the environment, including the organochlorine pesticides, PCBs, mercury and chlorofluorocarbons. The legacy of these contaminants is still with us, in some cases a decade or more after use was banned or severely restricted. To maintain this approach would be to deny the need for prevention, and to continue the reactive game of catch-up we have played for too long.

Our current regulatory approach is also far too fragmented. Standards and approvals for air, water and waste are often dealt with in isolation by different branches of the Ministry, as if various aspects of environmental quality were unrelated. As a result, more stringent controls in one medium may put pressure on other media where controls may be weaker. There is also a lack of coordination between programs in different jurisdictions intended to address common problems.

Our present regulatory process is also undemocratic. Standards are set by government committees whose work is not subject to peer review or public comment. Certificates of approval for air emissions are granted without notice or public review, regardless of the significance of the potential impacts. Not only is the process unfair but it suffers from not having the benefit of the critical analysis and comment that a more public process offers.

In addition, Regulation 308 has been extremely difficult to enforce. The complexity of present air pollution models, the lack of fit between standards and monitoring techniques and the expense associated with monitoring have all contributed to the problem. Perhaps the most telling indictment is the fact that less than a handful of prosecutions have proceeded, for offences concerning exceedances of point of impingement standards, during the 16 years that Regulation 308 has been in effect.

There has also been a virtual absence of any monitoring to determine whether a point source is in compliance with the Act or its certificate of approval. Indeed we suspect that the overwhelming majority of 20,000 odd point sources that have been licenced have never been tested to ascertain whether emission projections, made to obtain a certificate of approval, were even approximately correct. We say "suspect" because there is no data collection system in place that would allow anyone to ascertain the extent, frequency or results of testing that has been carried out.

B. Present and Emerging Air Pollution Problems

Other shortcomings of the current regulation are the inevitable result of the fact that it was devised long before many of our most pressing and intractable air pollution and atmospheric problems were identified. We have during the last decade and a half become far more sophisticated in our ability to comprehend the complex characteristics and interrelationships of our ecosystem. This process of discovery has revealed some very disturbing environmental problems, several of which are of unprecedented proportion. The result has been a fundamental shift in our perception of air pollution and the problems of highest priority.

The following offers a brief description of the most important of the atmospheric problems that have emerged since the promulgation of Regulation 308, 16 years ago.

1. Long-range transport

Air pollution can clearly no longer be treated exclusively as a local problem. Emissions of gases and fine particulates can travel substantial distances through the atmosphere before being deposited or destroyed. Many of these substances are transformed in the atmosphere into chemicals that have deleterious effects far from the source of precursor emissions. While we are keenly aware that ~~Ontario's environment is affected by emissions from other~~

jurisdictions, it is important that we also recognize our own contribution to both regional and global impacts.

The best known examples of long-range transport and transformation is the problem of acid rain, which is caused by the atmospheric transformation of sulphur dioxide and oxides of nitrogen. Acid deposition has been responsible for acidification of lakes in Ontario and other parts of eastern North America, and has also been cited as a contributor to forest damage, respiratory illness and masonry deterioration.² Another significant and related problem is due to photochemical oxidants, usually called smog, which are formed in the atmosphere from oxides of nitrogen and volatile organic compounds. These pollutants are responsible for more than \$20 million worth of crop damage in Ontario every year and are a likely contributor to forest damage as well.³

² For discussion of extent and impacts of acid deposition in Canada, see, Ontario Ministry of the Environment Acid Precipitation in Ontario Study (APRIOS), Annual Program Report, Fiscal Year 1986, Fiscal Year 1986/1987 (Toronto: MOE, July 1987) and Canada, House of Commons Standing Committee on Fisheries and Forestry, Sub-Committee on Acid Rain, Still Waters (1981) and Time Lost (1984).

³ For discussion of crop damage due to smog episodes in Ontario and Eastern Canada, see, Ontario Ministry of Environment, Ozone Effects on Crops and Related Monetary Values, ARB-13-84 (Toronto: MOE, 1984) and Environmental Protection Service, Initial Assessment Report on Photochemical Oxidant Air Pollutants in Canada (Downsview, Ont.: DOE, 1984).

Forest damage in Europe and North America is increasingly attributed to oxidants in combination with acid deposition. See, S. Linzon "Effects of Gaseous Pollutants on Forests in Eastern North America", (1986), 31 Water, Air and Soil Pollution 537, and Bernhard Prinz, "Causes of Forest damage in Europe: Major Hypotheses and Factors"

2. Global effects

Two of the other environmental problems caused by long-range transport of air contaminants have the potential for disastrous impacts upon the earth's atmosphere.

Global warming, or the "greenhouse effect", is caused by increasing ambient concentrations of carbon dioxide and other gases due primarily to fossil fuel combustion, and secondarily to deforestation. The problem is closely associated with the rate of fossil fuel use, an estimated 60% of the build-up of CO₂ levels since the industrial revolution is estimated to have occurred since 1960. If levels of CO₂ continue to increase, dramatic changes in world climate and weather are predicted.⁴

Potential effects upon agriculture, fisheries, ocean levels and rain fall may yield disastrous environmental consequences of global proportions. Particularly problematic is the fact that the

(1987), 29(9) Environment 10.

⁴ The consensus of current scientific understanding is that, if present emission trends of carbon dioxide, nitrous oxide, methane, ozone and CFCS continue, the combined concentrations of these "greenhouse gases" will cause a significant warming of global climate, of between 1.5 and 4.5 O^C, as early as 2030. World Climate Program and Report of the International Conference on the Assessment of the Role of Carbon Dioxide and of other Greenhouse Gases in Climate Variations and Associated Impacts, Villach, Austria, p-15 Oct. 1985 (Geneva: WHO, 1986).

consequences of global warming may not be fully apprehended until it is effectively too late to do very much to abate it.

The other looming threat to the planet's atmosphere is presented by the depletion of ozone in the stratosphere. The ozone layer high above the earth's surface protects living organisms from the harmful effects of ultraviolet and infrared radiation. A diminution of the protection afforded by this ozone layer is predicted to result in substantial increases in the rate of skin cancer and cataracts, reductions in crop yields, and disruption to the marine food chain.⁵

During the early 1970's research scientists projected significant depletions of the earth's ozone layer because of the interactive effect of various inert gases released into the earth's atmosphere. Of these gases chlorofluorocarbons (CFC) appear to be the major problem. Empirical research since that time has confirmed the validity of these projections and a dramatic depletion of the ozone layer is predicted to occur during the next 50 years if present rates of CFC use and production are continued. CFCs are also a significant contributor to the effect of global warming.

⁵ Guy Brasseur, "The Endangered Ozone Layer", (1987), 29(1) Environment 6.

3. Cross-media transport

Another air pollution problem that has only recently been documented is the effect of cross-media transport. While emissions are controlled on the basis of their effects in ambient air, it is obvious that the atmosphere is an important pathway to other components of the environment. In some cases the atmosphere is the predominant source of contamination in other media. For example, in Lake Superior, more than 80% of the PCBs and lead entering the lake comes through the air.⁶ Conversely volatile chemicals can enter the air from water or land to be transformed or deposited elsewhere. Failing to consider how pollutants cycle through the environment can result in significant misapprehensions about the true impacts associated with various emissions.

4. Toxic Substances

Another measurable indication of the failure of existing regulation is the detectable build up of various persistent and toxic substances in the food chain. We have unfortunately grown accustomed to the notion that we must limit our consumption of various species of fish because they are too contaminated to be safely eaten.

⁶ Great Lakes Science Advisory Board, A Perspective on the Problem of Hazardous Substances in the Great Lakes Basin Ecosystem, 1980 Annual Report, Appendices A and B (Windsor: 15C, 1980).

Levels of PCBs, in Beluga whales have been measured at many times the threshold necessary to characterize these living creatures as hazardous waste. Data published by Environment Canada has revealed average levels of PCB contamination of mother's milk at levels four times higher than would be acceptable for cow's milk.⁷ A substantial proportion of this problem can be attributed to the cross-media transport of toxic air emissions.

Unfortunately several factors complicate the task of effectively controlling many toxic air pollutants. For example, many sources of toxic air pollution contribute only trace amounts that are nevertheless of concern because the substances are either harmful in trace amounts or are persistent or bioaccumulative. In addition, information is often incomplete about the sources, fates and effects of these toxic chemicals, and this is true even for those substances which have been the subject of intense interest such as dioxins, PCBs mercury and cadmium.

5. Non point sources

The overwhelming focus of current regulatory controls has been on emissions from point sources. For some pollutants however, emissions

⁷ Michael Keating, "An Ecosystem Health Report", Seasons (Autumn 1987), p.38. Also see Environment Canada, "Storm Warning" (Frank et al 1983 a.b.)

from non point sources can account for a significant contribution to total environmental loadings. For example ⁸, more than 25% of volatile organic emissions are caused by leaks from industrial processes and from solvent use. Motor vehicles and other transportation sources are major contributors of lead (70%), NOx (30%) and hydrocarbon (38%, including 80% of benzene pollution). Pesticide drift due to aerial application and volatilization of certain gases from waste disposal sites are also important non-point sources.

It is apparent from this discussion that the task before us is both complex and pressing. There are many indications that our ability to alter our environment has outstripped our ability to apprehend or control the consequences of our activities. The ecological imperative is very clear.

It is essential then, in devising reforms to our present approach to air pollution regulation, that we fully address all of the deficiencies of the present regime. In doing so we must apprehend not only the air pollution problems for which Regulation 308 was intended, but as well those problems that have only recently emerged.

⁸ M. Mellon, L. Nitts, S. Garrod, M. Valiante, The Regulation of Toxic and Oxidant Air Pollution in North America (Toronto: CCH Canadian Ltd. 1986), pp. 24-36.

III. PRINCIPLES FOR REGULATION

Regulation is of course a reflection of policy and it is necessary, in our view, to clearly state the main policy objectives before addressing the specifics of how those objectives are to be achieved.

The purpose of the Environmental Protection Act, expressed by Section 2, is the protection and conservation of the natural environment. It has in recent years become quite clear that to achieve this goal will require working towards pollution reduction for all chemicals and toward zero discharge (virtual elimination) for persistent or bio-accumulative toxic substances.

Zero discharge of persistent toxic substances is necessary if we are to effectively address the risks presented by the cumulative, persistent and ubiquitous contamination of our environment. A zero discharge objective would also be consistent with the principles of the Canada-U.S. Great Lakes Water Quality Agreement and MISA. Pollution reduction and the "virtual elimination of toxic air pollution" are also the stated goals of the Clean Air Program.⁹

⁹ Ontario Ministry of the Environment, Stopping Air Pollution at its Source, Clear Air Program Explanatory Notes (Toronto: MOE, Dec. 1987), p.6.

Secondly, notwithstanding the risks presented by the presence of various toxins in the environment, it may well be that the most pressing threat to our ecosystem is presented by substances that influence the composition, temperature or stability of the atmosphere. Whether the result of deforestation activities or the ever-increasing combustion of fossil fuels, it is essential that our approach to air pollution be comprehensive and directly address all risks to the atmosphere of whatever character or origin.

Thirdly, our approach to environmental regulation must be far more comprehensive than it has been and must adopt a preventive approach. The work of the Brundtland Commission has made clear the links between development policies and Environmental stress as it has the need to integrate decision-making about the economy and the environment in order to ensure a viability of both.¹⁰ Regulatory initiatives respecting air, water and waste management must therefore be integrated with economic and industrial policy.

We must also recognize the need to shift emphasis from an exclusive focus on emission controls to one that includes mechanisms to emphasize the use of less, or non-polluting processes and products. This will in turn necessitate changes in policies respecting energy, transportation, industrial development and agriculture in order to minimize environmental impacts.

¹⁰ World Commission on Environment and Development, Our Common Future (N.Y.: Oxford, 1987), pp.37-41; 310-312.

Another important policy objective, articulated by the CAP discussion paper, is the need to provide much greater public participation in the regulatory process. We fully support this objective.

In addition to these primary policy objectives there are two other factors that will fundamentally influence the efficacy of reforms to Regulation 308. The first requires that the design of any future regulation be devised to facilitate monitoring and enforcement. The second requires that sufficient resources be allocated to implement reforms that are forthcoming.

THEREFORE WE RECOMMEND THAT:

1. The revision to Regulation 308 should be designed not only to overcome the limitations of the existing regulation but as well in anticipation of the problems ahead. The essential thrust must be to prevent rather than cure problems of environmental degradation.
2. Regulation 308 begin with a clear statement that the purpose of the regulation is: to protect and enhance human health and environmental quality by addressing all causes of environmental degradation and by working towards the reduction of pollution and the virtual elimination of emissions of toxic air pollutants.
3. The government of Ontario establish mechanisms that will integrate economic, energy and other planning with environmental policies in order to ensure both a healthy environment and a vibrant economy.
4. The Government of Ontario substantially increase the resources of the Ministry of the Environment to allow timely implementation of reforms, that are urgently needed

to effectively address current and looming air and atmospheric pollution problems.

IV. A RESPONSE TO THE MINISTRY'S CLEAN AIR PROGRAM

A. Overview

The Clean Air Program (CAP) proposes a number of valuable innovations to air pollution regulation in Ontario that have the potential to achieve important policy objectives. The use of emission controls in combination with the requirement to maintain ambient air quality objectives is likely to result in reducing many air pollution problems. In addition, the principle of regulating according to the degree of hazard, with more stringent controls on sources of more hazardous contaminants, offers a rational approach for allocating abatement resources.

We strongly endorse the Ministry's proposal to reduce atmospheric contamination by imposing direct emission limits and bottom of the stack controls for all pollution sources of significance. We also support the Ministry's proposals to promulgate technology based standards appropriate to specific contaminants that will be ranked in order of the seriousness of the impacts they will have upon the environment and public health.

The expressed desire to open up the process to public involvement is also one we strongly support. The use of renewable ~~operating certificates of approval will allow the system to respond~~

to changes in technology and knowledge about air pollution effects. The use of emission standards together with enhanced monitoring requirements will facilitate enforcement. We support these objectives as well.

While it contains many laudable proposals, the CAP is vague or noncommittal about others. While a five year phase-in period is discussed for application to existing sources, there is no timetable for the development of the emission control standards upon which implementation will depend.

The CAP is also focused somewhat narrowly on pollution control standards and technology and not more broadly on policies to modify the structural causes of pollution, such as energy policy, or waste reduction. Further the program addresses stationary point sources only and fails for that reason to address important non point contributors to air pollution. It also avoids mention of special measures to control Ontario's contribution to global warming or stratospheric ozone depletion and fails to satisfactorily deal with the problems of long-range transport. CAP also fails to emphasize the need to work with those who are developing water standards or waste management programs in order to limit total loadings of persistent toxic substances into the environment.

In addition, the Discussion Paper recognizes the failure of our existing approach for dealing with additive or synergistic effects of

various contaminants but does not explain how these factors will now be taken into account. Finally, CAP does not address how this ambitious program can be implemented given the overtaxed resources of the MOE.

The following build presents our suggestions with respect to several of these issues. We have organized our comments in accordance with the structure of the Discussion Paper, and included additional elements where appropriate.

B. New Air Emission Control Strategy

1. Technology-based standards

As we have indicated we believe that it is appropriate to have the levels of pollution control reflect the nature of the contaminants at issue, so that more stringent controls are applied where they are most needed to protect health and the environment. The key to determining the appropriate level of control is the toxicity scoring system. Of course this system will only be as good as the data available to plug into it. Unfortunately for most chemicals information is incomplete to allow thorough analysis¹¹.

¹¹ For example, the Conservation Foundation has estimated that for the approximately 60,000 chemicals in use in North America, less than 2% have sufficient data to make a complete hazard assessment. Conservation Foundation, State of the Environment: An Assessment at Mid-Decade (Wash. D.C. CF. 1984) pp. 39-40.

Without complete data, assessment can at most give an indication of the potential for adverse environmental or public health impacts. In such circumstances it would be inappropriate then to use a strict numerical scoring system to make the assessment. When there is uncertainty about the effects of a contaminant and consequently about which level of pollution control to require, the source should be required to meet the more stringent level. Not only is such an approach consistent with the promise of prevention, but would also put the onus on the polluter to conduct the tests necessary to complete the data required for informed judgment.

WE THEREFORE RECOMMEND:

5. That LAER technology be used to control the emission of all contaminants unless sufficient data is available to establish that such controls are unnecessary to protect health and/or the environment.

The factors to be considered in scoring contaminants should reflect, as the Discussion Paper proposes, the physical characteristics that contribute to problems such as toxicity, persistence, bioaccumulation, long-range transport and other parameters described in Appendix A. The range of impacts associated with emissions should also be expanded as justified and as experience is gained. Information about human impacts should not be limited to cancer data but should address all debilitating consequences of exposure.

While most of the factors of concern are mentioned in Appendix A, it is not clear how long-range transport and transformation would affect the ranking of precursor emissions such as NO_x. One way to build in controls to prevent photochemical oxidant episodes, stratospheric ozone depletion or global warming would be to require the most stringent controls (LAER), even with respect to "conventional" pollutants. A similar approach could be used for the biologically active components of toxic contaminants as they degrade.

WE THEREFORE RECOMMEND:

6. The ranking of contaminants should include an assessment of secondary effects. Contaminants that contribute to regional or global impacts should require LAER controls.

As noted we support the adoption of a two-level approach of pollution control delineating technology based standards derived from LAER and BACT-EA constructs. Achieving the goal of zero discharge for persistent toxic substances, however, will not be possible unless LAER becomes increasingly stringent or process/product changes are also required. It is important then that the revised Regulation 308 allow for the implementation of additional or supplemental controls where LAER or BACT-EA fail to provide adequate or efficient controls.

Such an approach will be necessary where LAER technology is simply not capable of providing the measure of environmental protection warranted. ~~Sweden's decision to implement a small~~

battery reclamation program was the result of its' conclusion that even the most advanced gas cleaning equipment could not effectively remove methyl mercury from the combustion stream of a waste incinerator.

The definitions of the required levels of control should be clarified and set out in the regulation. LAER should be defined so that economic factors do not influence the choice of technology. While economic factors are appropriate for BACT-EA, the factors that can be taken into account should be clearly specified by regulation. Wherever possible, process modifications and product substitutions should be encouraged as a means for reducing the amount of contaminants actually created.

Controls should also be applied to nonpoint as well as point sources. Control of non point source air pollution will require a flexible approach that will involve various strategies including management practices and alternative technologies. For motor vehicles, a mandatory maintenance and inspection program should be instituted.

WE RECOMMEND THAT:

7. Minimum emission control requirements be established and based upon LAER and BACT-EA constructs that are clearly defined by Regulation. To achieve the goal of zero discharge reforms should also allow for the implementation of additional or supplemental controls where LAER fails to provide adequate abatement.

2. Emission Rates

The Ministry has presented a number of options for establishing emission rates that would be technologically based. All of the options foresee the establishment of standards that will regulate emission rates or concentrations. No discussion is offered of the need to establish finite emission limits that would actually control total loadings of a contaminant to the environment regardless of its rate of release. Yet with respect to many contaminants the need to limit total loadings is apparent.

The notion of emission rates carries forward the precept that dilution or dispersion will cure pollution. Yet it is precisely the fallacy of that approach that has led us to our present realization of the need to reform Regulation 308. While the concept of regulating the rate or concentration of contaminant emissions may be sufficient for pollutants that are not toxic, persistent or bioaccumulative in the environment, it is certainly not appropriate for substances that have these effects.

Unless we are to simply prescribe zero discharge for all such substances it will be necessary, at first instance, to determine acceptable total loadings to the environment for particular contaminants. It may be that, for various substances, present ~~concentrations in the environment are already too high. It was after~~

undertaking just such an exercise with respect to dioxins that the Swedish government declared a moratorium on energy from waste facility licencing pending the promulgation of a mandatory retrofit program for all existing facilities.

A zero discharge objective with respect to toxics and other pollutants also requires vigorous control of any additional releases to the environment that may be sanctioned. Establishing total loading limits also requires co-ordination among those responsible for controlling air emissions, water discharges and waste management.

WE THEREFORE RECOMMEND THAT:

8. Finite emission limits for persistent toxic substances be established and based on total environmental loadings.

3. Establishing Emission Limits

We regret that we do not have the expertise necessary to fully appreciate the strengths and weaknesses of the various proposals for establishing specific emission limits. However it seems inevitable that more than one approach will be necessary to apprehend all of the sources of air pollution that must be addressed. Thus emission limits for dioxins may be promulgated on a sectoral basis, while emission rates adopted for sulphur dioxide may be process specific. In addition specific technologies or management practices may be necessary for non point sources of atmospheric pollution.

We are however, able to comment upon the process as opposed to the techniques used to accomplish this task. We believe that the job of setting standards for both emission rates and ambient air quality should be given to a permanent, legislatively-constituted committee composed of people with a wide range of experience and perspectives relevant to air pollution. The committee should include members of the public, who should serve in their personal capacity.

In addition, the process for setting standards should provide for notice and comment. Before finalizing a standard, the Ministry should respond to the comments it receives and its response should form part of the record. (A more detailed description of the particular procedures we suggest is offered under Part C-3 below.)

The committee we propose would be responsible for setting new standards and for reviewing existing standards periodically. Any person should be entitled to nominate a contaminant for standard-setting or review. Because of the large amount of work involved, particularly during the phase-in period, the committee should, we believe, work full-time. The committee should also coordinate its activities with appropriate MISA committees.

WE THEREFORE RECOMMEND THAT:

9. Responsibility for standard setting, including emission rates and ambient air should be given to a new, permanent committee with a broadly based membership. (Also see recommendation #13).

It is also clear that if a comprehensive strategy is to be developed that a great deal more effort is necessary to integrate the task of air pollution control with economic planning and industrial development. For example, if the causes of global warming are to be effectively abated, an important element of the strategy will have to include energy efficiency and conservation programs. Air pollution objectives then, will have to be incorporated as part of the energy policy and planning process. This will in turn require coordination among the various branches of government responsible for these matters. Co-operation and consultation with the Round Tables recommended by the National Task Force on Environment and Economy should also prove useful.¹²

4. Non point Sources and Motor Vehicles

A very substantial proportion of present atmospheric pollution is caused by non point and mobile sources. The former would include: agricultural and forestry use of pesticides; emissions from landfill sites, sewage treatment plants and other waste management facilities; and fugitive emissions from thousands of industrial establishments. Adequate attention must be paid to these numerous and various

¹² National Task Force on Environment and Economy, Report Submitted to the Canadian Council of Resource and Environment Ministers, Sept. 24, 1987, pp.10-11. The Task Force was established to respond to the Brundtland Commission's conclusions and recommendations and to promote environmentally sound development in Canada

sources and a substantial effort will be necessary to develop and implement appropriate technological and operational abatement strategies.

At present the Ministry has in place several policies and guidelines concerning the operation of various air pollution sources, from asbestos milling operations to grain elevators. However, there are many non point sources of air pollution that have not been addressed. We are pleased that the Ministry will be reviewing its current guidelines and policies. The task of developing abatement strategies for non point and mobile sources is one that could be carried out by the committee that will establish emission limits and ambient air standards. When developed, appropriate control strategies should, where possible, be made schedules to the general air regulation so that they will have the force of law.

Federal and Provincial regulation interact to require certain classes of motor vehicles to be equipped with specific anti pollution devices. The effect has been to make cars cleaner and more fuel efficient. However motor vehicle emissions continue to pose a significant threat to human health and a renewed effort is necessary to address this serious source of air pollution.

For example, diesel emissions from trucks and buses are a main ~~source of particulate and NO^x emissions in urban areas. Gasoline~~

vapour poses a significant risk to public health and the environment and emanate from all phases of gasoline marketing. Motor vehicles are also the overwhelming source of carbon monoxide pollution in urban areas. Lead emissions from leaded gasoline still present an important health hazard.

A number of initiatives will be necessary if these and other pollution problems associated with motor vehicle use are to be effectively addressed. Standards for particulates, NO_x emissions and carbon monoxide should be reduced. Mandatory controls for gasoline vapour should be put in place. Inspection and maintenance programs should be established that require regular inspection of motor vehicles to ensure compliance with emission limits. The benefits will be measured by decreased illness and cleaner cities.

Establishing appropriate emission limits is obviously a crucial step in the regulatory process. We have attempted to illustrate the need for a comprehensive approach to this task, one that will address all of the important sources of air pollution, of whatever character or origin. Because of the importance of this aspect of the regulatory regime we believe that every effort should be made to place these limits in regulation to encourage compliance. Again the need for increased resources is apparent as, we trust, is the cost effectiveness of making the necessary commitment.

C. Ambient Air Requirements

The CAP program proposes the use of technology-based emission standards as the necessary and minimum level of air pollution control. A source must also meet ambient air standards in order to obtain and comply with its certificate of approval. Assessing the potential impact of a source upon ambient air quality will be done through the use of dispersion models which apparently offer improvements over current models.

The concept of a "second line of defence" is a good one because it provides a way to assess the impact of the particular source upon actual environmental quality near the source. However, focusing only on ambient air quality will in many instances give far too limited a picture of a particular contaminants' effects. In many instances emissions that may not offend local air quality objectives will nevertheless be environmentally unacceptable because of adverse impacts upon regional or global air pollution problems or because of cross media effects upon water or soil quality.

1. Total Loadings Approach

As we have advocated, total loading limits must be established for many pollutants and the process of pollutant characterization ~~must identify those substances for which absolute loading limits will~~

be necessary. For this type of contaminant, it will be total loading as opposed to concentration that will determine whether, or under what terms, a certificate of approval may issue. In determining the appropriate limit, global, regional and even local considerations may predominate. Ozone depletion offers an example of a pertinent global consideration while levels of lead contamination of a particular inner city neighbourhood may dictate a local constraint.

While total loading considerations should be taken into account when establishing ambient standards, it is important to recognize that modelling local air quality is a far less direct and precise means for controlling the emission of this type of contaminant. Of greatest importance will be the actual quantity or mass of pollutant emitted, not the concentration of the contaminant either in stack gases nor in the atmosphere at some distance from the stack. The most direct and reliable way to regulate such pollutants is to measure and control emissions at the stack.

While ambient air standards for these substances are not inappropriate it is important to keep the emphasis where it properly belongs. That is, upon total loadings measured at the source as mass, not concentration.

For this class of contaminant, ambient standards must also account for all secondary and cross media impacts. In addition, and ~~where the limit will be determined in accordance with human health~~

objectives, all sources of exposure must obviously be considered. The discussion paper indicates that, for contaminants of "special concern", a detailed multi-media analysis of total exposure for all sources is carried out. It is also important however that the circumstances of a particular setting be taken into account to guard against exposures that may not be typical. Thus ambient air standards must be recognized as having been derived from norms that may not reflect local conditions, such as high levels of lead soil contamination or a community more reliant on fish in its diet. In such circumstances a normative ambient air standard may not provide adequate protection.

2. Modelling

To this point our comments have related to those substances for which local air quality is not the only or even a pertinent, consideration. For the many pollutants where ambient air considerations are important or predominant, the proposed standards will obviously have a vital role to play. In this regard we support the approach described by the CAP program for utilizing such standards in the approvals process and as a second line of defence. We are particularly in favour of requiring physical modelling for complex terrains and of limiting stack height for modelling purposes.

It is apparent from the Discussion Paper's Appendix H that considerable effort has been made to develop new dispersion models.

~~The new models will cover special circumstances not adequately~~

addressed by existing models, which will allow a much more accurate prediction of ambient air quality. The accuracy of the models is, of course, crucial to their effective use. The division of sources into Type A and Type B for the purpose of determining how much modelling will be required is appropriate, but all predictions should be verified by ambient air sampling where possible.

Where modelling shows that an exceedance of ambient air quality is likely, an application for a new certificate of approval should not be granted. Applicants would, in such circumstances, be required to either redesign their facility to include better emission controls or find a new site. Existing sources should also be modelled and those exceeding ambient air quality standards should be issued control orders. In areas where air quality is relatively unpolluted, sources that would contribute to "significant deterioration" in air quality, even if meeting ambient standards, should not be approved.

Ambient air quality standards that reflect an adequate level of environmental and health protection are essential to the program. Averaging times must be appropriate for the particular contaminant but must also facilitate monitoring and enforcement. All the existing standards should be reviewed by the new statutory committee we have advocated.

WE THEREFORE RECOMMEND:

10. Ambient air standards should be adopted to assure that air quality objectives are not exceeded. For many contaminants, however, concentration in air is not the only or even the primary consideration.
11. For contaminants with effects beyond a local area and for persistent toxic substances, a total loadings approach should be used. Standards should reflect all routes of exposure and all environmental sources of such contaminants. For these contaminants it is the absolute mass or quantity of pollutants emitted, not its concentration in the atmosphere, that should be the determining factor.
12. Where ambient standards are likely to be exceeded, no certificate of approval should be issued to a new source and where modelling indicates an existing problem, control orders should be issued to ensure that air quality standards are met.

3. Setting the Standards: Public Participation

We strongly support the Ministry's policy to encourage public participation in the standard-setting process. We note that a similar intention was declared as long ago as October, 1983 by then Minister Andy Brandt in remarks to the Standing Committee on Resources Development. We trust that after a somewhat lengthy period of incubation, public participation will soon hatch to full blown reality.

As noted, it is important, in our view, that the tasks of pollutant characterization, setting emission limits and establishing

ambient standards be closely integrated. Our comments with respect to public participation are as pertinent to each of these aspects of the regulatory process.

Facilitating greater participation in the standard-setting process should include two elements. The first would be to nominate non-governmental representatives to the standard-setting committee. The other would be to make the process of setting standards a much more public and accountable one.

We believe that the mechanisms of public participation in the process should be made part of the revised regulation to make them an integral and necessary element of the regulatory process. It would also be desirable for the Regulation to set out the number and general qualifications of representatives to pertinent committees. The regulation should also set out the procedures that will make the process more open and accountable to the public at large.

WE THEREFORE RECOMMEND:

13. Revisions to Regulation 308 set out the procedures that will provide for public participation in standing setting processes, key features of which should include:
 - . the requirement that notice be published in the Ontario Gazette of Proposed Standards and that a minimum period of sixty days be allowed for comment;
 - . a direction to provide notice to specific interested parties of proposed standards together with a statement of the purpose and rationale for the proposals;

- . a requirement that a regulation making docket be kept that would include all documents, material and comment upon a proposed standard. The docket would be accessible to the public;
- . a right by any interested party to request review of existing standards or the establishment of new ones together with an obligation that such requests be responded to by the Minister explaining why it was either being granted or declined;
- . provisions for judicial review of Ministry actions if unsupported by "substantial evidence".

4. Revising Current Standards

Several current and proposed ambient standards are urgently in need of revision. Many were derived from occupational limits that included no consideration of environmental transport, persistence or bioaccumulation. Others are based on data and criteria that are now very much out of date. Exposures to various carcinogens that could be sanctioned by present limits are dangerously close to or actually in excess of acceptable daily intake levels without other routes of exposure even being taken into account.

WE THEREFORE RECOMMEND:

14. A review of all current standards be undertaken as expeditiously as possible. Again the best of intentions will accomplish little if adequate resources are not provided.

D. Implementation

The Discussion Paper proposes that the new regulatory requirements will be applied immediately to new sources and within five years to existing sources. Application to existing sources will be phased in on the basis of some yet to be determined priorities. No new certificate will be required for sources that do not require LAER controls and that are making changes which will result in an improvement in ambient air quality.

Because of the ambitious nature of the CAP, timely phase-in will require a major commitment of resources by the MOE. Application of the new program cannot begin until there are emission standards in place. Priorities must be set for standard setting and for sources requiring control. Interim deadlines should also be established.

Priorities should, in our view, be set by the standard-setting committee on the basis of seriousness of potential impact. Contaminants requiring zero discharge or LAER controls should be dealt with as soon as possible but in any event within two years. Existing sources making improvements should be allowed to continue as suggested, but all sources should be required to comply with the new regulation by the end of the five-year phase-in period.

WE THEREFORE RECOMMEND THAT:

15. Priorities should be established for phasing in the new Regulation, with appropriate interim deadlines. All sources emitting contaminants requiring zero discharge or LAER controls should be made subject to new regulation within two years.

1. Certificates of Approval

Ministry proposals offer two reforms to the present certificate of approval issuing process. The first will require separate certificates of approval to construct and operate a pollution source. The second will require renewal of certificates every ten years. It is not clear from the Discussion Paper why the first of these proposals is necessary. If a two-stage certificate granting process is adopted it will be essential to ensure that predicted emissions will be acceptable before construction certificates are issued. The Ministry proposal to require renewable certificates is one we strongly endorse.

Periodic review of all certificates of approval is essential if the CAP program is to respond to changes in standards, technology and knowledge concerning contaminants. In addition, mandatory review and renewal will provide an incentive for change to less polluting processes and for the further development of new technology.

Incentives that must exist if pollution reduction and 'zero discharge' objectives are to be achieved over the long term.

A standard ten-year renewal period is fair, but it would be desirable to allow a review of a certificate to be triggered upon request by any person if there is reason to believe that the source is out of compliance with the Act, is failing to meet regulatory objectives, or if new information is available about the impacts of emissions. If certain criteria are met during such a review, for example that a source should move from BACT-EA to LAER controls, a renewal would be required.

WE THEREFORE RECOMMEND:

16. A standard 10-year review period for certificates of approval should be adopted but there should be provision for review and renewal within that period, if justified.

(a) What to Include

It is also important that more effort be made to draft appropriate terms and conditions for certificates of approval. Current procedures are ad hoc, inconsistent and often ineffective. To address these problems, routine protocols should be developed upon a sectoral basis to ensure that all certificates include appropriate and consistent conditions drafted with sufficient rigour to be clear, unambiguous and enforceable. This will be particularly important with respect to matters such as protocols for controlling fugitive

emissions or maintaining monitoring devices, that will not be part of the regulation itself. Operating, monitoring and reporting obligations should, as a routine matter, be included as conditions of all certificates, as should all emission limits for which the certificate is granted.

We also believe that it would be appropriate to require both an application and annual operating fees with respect to certificates of approval. The fee should be significant and related to the character and size of the source. We require such fees for a host of other activities in society from driving a motor vehicle to sidewalk vending. The cost of operating the Ministry's approval processes is substantial and will grow considerably with proposed reforms. There is no reason for not requiring the beneficiaries of this system to bear some of the costs of its operation.

WE THEREFORE RECOMMEND:

17. Certificates of approval should include consistent and comprehensive conditions that are clear, unambiguous and enforceable. Sector based protocols for the control of fugitive emissions and the maintenance of monitoring devices should be developed and included as conditions on all pertinent certificates.. An application, and annual renewal fee should be charged.

(b) Public Participation

Notwithstanding the fact that the Discussion Paper identifies the ~~lack of public participation as a failing of the present~~

certificating process, no reforms are advanced for addressing this deficiency. We believe that the certificate of approval process should be democratic, equitable and recognize the interests of those who will be subject to source emissions. At present it is only the proponent's right to due process that is protected by the Act.

Public participation should, we believe, be an integral element of the certificate granting process along the lines provided for under Part V of the Act. There are several good reasons to effect such a reform.

1. It is simply unfair to significantly affect the quality of a community's environment without giving it any notice of, or opportunity to influence, a decision to allow such impacts.
2. Part X of the Act entitles anyone who applies for or who is in possession of a certificate of approval to notice of, and right of appeal from, Ministry decisions that may affect that person's application or certificate. No similar right is accorded to anyone else who may be affected by the application or source. Accordingly the right to pollute is being clearly preferred to the interest of a community, or of society, to a clean environment, an approach that is inconsistent with both the objectives of the Act and contemporary notions of justice.

3. Part V of the Act establishes participatory rights with respect to waste management undertakings. Yet many air pollution sources have environmental consequences far more significant than those associated with waste management facilities. The inconsistency is even more apparent when one notes that a facility burning refuse derived fuel or even PCBs, not "principally for the function of waste management", would be exempt from any notice or hearing requirement under the Act. Participatory rights should be consistent and available wherever activities may significantly affect environmental quality or public health.

4. Public participation in the licencing process has consistently improved the quality of the regulatory process by providing an important and effective mechanism of quality control. Rarely does public participation not result in improvements to the proposal.

5. Public participation provides a mechanism of accountability to the local community that can significantly contribute to confidence in the proposal.

IT IS THEREFORE RECOMMENDED THAT:

18. The Environmental Protection Act be amended to:

- i) require notice of all applications for certificates of approval under section 8 to be given to those in the community that may be effected;
- ii) allow for public hearings with respect to all ~~facilities that may emit LAER contaminants or that may~~

contribute to significant health or environmental impact and;

- iii) provide for a right of appeal by an interested party from all decisions by the Ministry concerning certificates of approval.

2. Monitoring

We are strongly in favour of the monitoring requirements proposed by Ministry's Discussion Paper that would require, inter alia:

- . continuous process/emission control monitoring for all sources and;
- . stack testing of all sources within six months of facility start-up and thereafter;
- . annually for LAER sources and
- . as directed for all others

The absence of compliance monitoring is the weakest link of our current regulatory regime. No matter how well conceived, present reforms will fail to accomplish the task of pollution control and abatement unless far greater emphasis is placed upon the need for process, pollution control and stack monitoring.

Maintaining process parameters and emission control devices at optimal performance is of course impossible without appropriate monitoring that provides timely, accurate and useful information about operating conditions. The first and most important element for

controlling emissions must be properly designed and carefully maintained process/emission control systems. The revised regulation therefore should stipulate that all certificates of approval include the process/monitoring devices that are necessary for proper operation.

Accurate characterization of the emission stream clearly requires stack testing and the Ministry's proposals are welcome and appropriate. The requirement to, and the frequency of, stack monitoring should be set out by regulation which should also require that all certificates of approval specify the parameters that are to be tested.

Monitoring and testing protocols should be revised, or developed where necessary, to ensure that data collected are useful and reliable. All certificates of approval should specify adherence to pertinent protocols.

Monitoring data which is generated must be made available to the Ministry in a timely fashion if it is to allow for effective response to problems that are identified. Reporting requirements should also be made explicit and set out by regulation. A specific time limit of three months should apply with respect to the reporting of stack test results, from the date of testing.

Once data is reported to the Ministry it is essential that it be managed in a way that will optimize accessibility and use. Annual reports, similar to the Discharges Report prepared by the Water Resources Branch should be included as an element of the Ministry's annual Air Quality Report. The Ministry should also make clear as a matter of policy the fact that public access to such data and reports will be unimpeded.

WE THEREFORE RECOMMEND THAT:

19. Revisions to Regulation 308 clearly set out process, emission control and stack monitoring requirements. The regulation should also stipulate that:
 - . certificates of approval specify all monitoring requirements and include pertinent protocols;
 - . all monitoring data be made available immediately to the ministry and that, in any event, all stack tests be reported within 3 months of the date of the test, and be provided to the public upon request.
20. The Ministry include, as part of its annual Air Quality Report, the monitoring data reported to it. The voluminous data will require summary but the report should communicate to the people of Ontario, as does the current Discharges Report, a clear sense of whether air quality objectives are being achieved and where compliance problems exist.
3. Control Orders and Enforcement

When air pollution problems are identified it currently falls to regional abatement staff to deal with the problem. We believe that experience has shown that the effectiveness of the Ministry's response to such problems has been quite varied and at times far from

satisfactory. Part of the problem has been a lack of resources at the regional level. At other times staff do not have the expertise necessary for dealing with complex operations or processes. Yet another problem has been the absence of detailed or comprehensive protocols for carrying out inspections, drafting certificates of approval or the terms of a control or other order.

When problems are identified it is essential that the Ministry respond quickly and effectively. When stack testing results reveal a lack of compliance with the Act, regulations or certificates of approval, operations should cease immediately and there should be no discretion to allow "out of compliance" operation. Section 9 of Regulation 308 should accordingly be amended to repeal the Provincial Officer's authority to sanction such violations.

It is also incumbent upon the Ministry to develop a protocol that will outline the procedures to be followed for allowing such facilities to recommence operation.

Of particular importance is the Ministry's ability to issue orders with respect to sources out of compliance. In our experience Ministry staff have often been unable to respond to such situations effectively. Orders when drafted have often been vague and incomplete. When a more thorough job is done, it often takes several months to complete. Good precedents developed in one region are not readily available in another.

For these reasons considerably greater attention must be paid to facilitating the drafting and issuing of such orders. Prototypes, pertinent to specific operations should be developed and made available through the Air Resources Branch as should precedent orders. Because of the need to ensure enforceability and consistency, it may be desirable to designate specific staff at Legal Services and the Investigation and Enforcement Branches in order to ensure that these objectives are met. The result would we expect actually save Ministry staff time by making the process a more efficient one.

WE THEREFORE RECOMMEND:

21. When testing results indicate that a source is out of compliance, operations should cease and S.9 of the Regulation, authorizing a provincial officer to allow out of compliance operation, should be repealed.
22. Greater attention should be given to ensuring consistency in the drafting and issuing of control and other orders. To that end prototype conditions should be developed for specific operations, vetted by Legal Services and Investigations and Enforcement Branches and made readily accessible to all Ministry abatement staff.

V. CONCLUSION

The Ministry of the Environment should be congratulated on its efforts to reform air pollution regulation in Ontario. There are many positive reforms proposed in the Discussion Paper. However, in many ways, reforms do not fully reflect current knowledge of existing air pollution problems. Not only is a broader approach needed, but so is a new direction - a preventive strategy that will allow meaningful and lasting improvements to be made to air quality in Ontario.

