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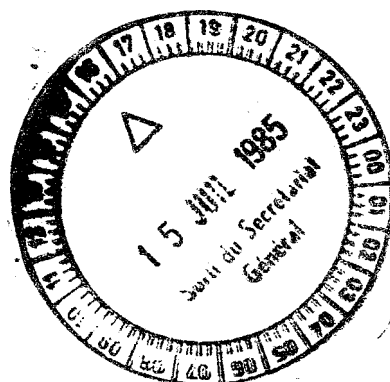
COMMISSION OF THE EUROPEAN COMMUNITIES

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Brussels, 11 July 1985

COMMUNICATION FROM THE COMMISSION TO THE COUNCIL

CONCERNING THE PROPOSITION OF A NO₂ LONG-TERM LIMIT VALUE FOR THE PROTECTION
OF TERRESTRIAL AND AQUATIC ECOSYSTEMS



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**COMMUNICATION OF THE COMMISSION TO THE COUNCIL OF MINISTERS CONCERNING
THE PROPOSITION OF A NO₂ LONG-TERM LIMIT VALUE FOR THE PROTECTION OF
TERRESTRIAL AND AQUATIC ECOSYSTEMS**

1. On request of the Council of Ministers of June 28th 1984 ¹⁾, the Commission has studied in cooperation with an international expert group the possibility of proposing a NO₂ long-term limit value for the protection of terrestrial and aquatic ecosystems.
2. The expert group studied the following issues in order to examine the question whether a long-term limit value for NO₂ is needed :
 - i. The effects of NO₂ as a single compound on vegetation
 - ii. The effects on vegetation of NO₂ in combination with other pollutants
 - iii. The contribution of NO₂ to effects on soil
 - iv. The effects of NO₂ on aquatic ecosystems
 - v. The effects of secondary pollutants on vegetation, in particular photochemical oxidants, which are created in processes involving NO_x
 - vi. The need to lay down a long-term limit value for administrative and air quality management purposes
 - vii. The consequences of a long-term limit value for the production of photochemical oxidants
 - viii. The consequences of such a value for emission reduction measures and monitoring.

1) 8604/84 ENV 127 of July 24th 1984.

3. The expert group summarized in its final report, that :

- long-term values of NO_2 should be kept in winter times under 75 ug/m^3 and in summer times under 190 ug/m^3 to protect vegetation from effects of NO_2 alone,
- there is some evidence of a no-adverse effect level of $40 \text{ ug/m}^3 \text{ NO}_2$ for more sensitive plants in combination with $40 \text{ ug/m}^3 \text{ SO}_2$; under fast growing conditions the same species may not be adversely affected until the concentration reaches $130 \text{ ug/m}^3 \text{ NO}_2$,
- there are preliminary indications that NO_2 -levels of 30 ug/m^3 can damage plants, when such concentrations are associated with SO_2 levels of 60 ug/m^3 and O_3 levels of 30 ug/m^3 ,
- very sensitive aquatic communities may be adversely affected by a supra-optimal nitrogen supply which may occur at concentrations of NO_2 as low as 10 to 20 ug/m^3 ,
- due to the lack of knowledge no single and universally justified value for a tolerable NO_2 deposition rate can be given,
- ozone, a product of NO_x in atmospheric reaction cycles, can reduce the yield and growth of plants when the 7-hr seasonal average concentration exceeds approximately 80 ug/m^3 ,
- the setting of a NO_2 long-term limit value is inappropriate for the reduction of ozone or other air quality management purposes.

4. The expert group recommends on the basis of its studies to take the following actions :

- i. the long-term guide value of the NO_2 Directive should be decreased to 30 ug/m^3 throughout a country, in zones of special environmental protection, a value of $10 \text{ ug/m}^3 \text{ NO}_2$ may be appropriate.

- ii. consideration should be given to emissions reductions from large combustion installations and motor vehicles that would lead to a substantial decrease of the overall air pollution, as a preventive measure.
 - iii. more studies of combined effects of air pollutants on plants and on the total N budget in the environment should be carried out.
 - iv. the models of long- and meso-scale transport of air pollutants, in particular of NO₂, SO₂ and O₃, should be improved.
 - v. multi-component monitoring of air pollutants in rural areas should be extended.
 - vi. the question of the need for a long-term limit value for NO₂ should be reviewed in approximately five years, with particular regard to combined effects.
 - vii. emphasis should be given to the effects of ozone on vegetation.
5. The recommendations of the expert group have to be evaluated in the context of the present air pollution control policy of the Commission²⁾ in order to identify deficiencies in relation to the need and the urgency for taking additional Community measures :

to i) The laying down of any long-term limit value throughout the Community seems to be inappropriate at present because the scientific backup for the fixing of such a value is still insufficient.

Moreover, the definition of a long-term limit value requires cost/benefit studies which are not available at present.

²⁾ For further information see "Report on the Actions of the Commission of the European Community on Acid Depositions", Doc. XI/886/84-EN, published in December 1984.

The Commission appreciates the recommendations made by the experts for a general guide value of 30 ug/m³ NO₂ and a value of 10 ug/m³ NO₂ which may be appropriate for zones of special environmental protection, but notes that :

- no appropriate and cost-effective control strategy for the combined abatement of NO₂, SO₂ and O₃ has been developed yet;
- the knowledge of the effects on aquatic ecosystems and combined effects of NO₂, SO₂ and O₃ on vegetation is still incomplete, but rapidly increasing.

Moreover, in Article 4(2) Member States are requested to fix values which are generally lower than the guide values in zones where they consider that special environmental protection should be afforded and Article 5 gives the right to Member States to fix values more stringent than those laid down in the Directive. In principle, these two articles allow Member States to set out long-term goals for the protection of ecosystems, where necessary.

In the light of these possibilities already foreseen the Commission is of the opinion that the adopted NO₂-Directive provides already a basis for more stringent environmental goals. Nevertheless, it is understood that due to the long range transport the achievement of such a goal would require international emission reduction measures.

to ii) The Commission welcomes this statement. It can be expected that the total NO₂-emission reductions which are achievable by Commission's proposals COM(83) 704 final³⁾ and COM(84) 226 final⁴⁾, if they were adopted by the Council, would account for approximately 15 to 30% by 1996. This would lead to a reduction of the annual averaged ambient air concentrations by approximately the same percentage. Therefore these measures cannot ensure that ambient air concentrations will be lowered to 30 ug/m³ throughout the Member States. However, it would most likely allow 10 to 20 ug/m³ to be achieved in large parts of rural areas and 40 ug/m³ in suburban areas. The application of the most advanced technology for the reduction of automotive NO_x-emissions would lead to a decrease in total emission by approximately 35 to 48%. Such a reduction would bring NO₂ concentrations most likely below 10 to 20 ug NO₂/m³ in most rural areas, below 30 ug/m³ in most suburban, and partly in urban areas of the Community. Further reductions would require taking more stringent actions against existing larger combustion installations and diesel-powered vehicles⁵⁾. The Commission is of the opinion that a consistent global reduction policy is the most appropriate strategy to combat air pollution. Therefore, the Commission invites all Member States to adopt the proposals already on the table of the Council.

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- 3) Proposal for a Council Directive on the limitation of the emissions of pollutants into the air from large combustion plants.
 - 4) Proposals relating to limits on emissions from motor vehicles and on lead in petrol.
 - 5) On the 972nd meeting of the Council the Commission stated, that it is examining possible additional measures which could be taken concerning in particular : particulate emissions from diesel cars, emissions from passenger or goods vehicles over 3,5 t, speed limits.

- to iii) The Commission is already carrying out such studies and plans to reinforce its activities in all of the mentioned research fields ^{2) 6)}.
- to iv) The Commission started to study the applicability of models for control purposes in 1984 and hopes to get first results in 1986. More extended studies on modelling are in preparation.
- to v) The Commission has already taken actions in this direction by its proposal COM(83) 375 final ⁷⁾. Further activities are planned.
- to vi) The Commission will take up this question again in a couple of years, when the scientific results on combined effects are more adequate.
- to vii) The Commission is aware of these effects and is studying the possibilities of appropriate countermeasures with the highest priority.

6. In conclusion the Commission

- is of the opinion that at present neither a NO₂-long-term limit value can be proposed nor the long-term guide value set out in the NO₂-Directive requires adaptation, but it will keep under review the ongoing development and make proposals when appropriate;
- invites Member States to make extensive use of Articles 4 and 5 of the NO₂-Directive;

6) J.O. L71 of 14th March 1984, page 13.

7) COM(83) 375 final

"Proposition de règlement du Conseil instaurant une action communautaire destinée à accroître la protection des forêts dans la Communauté contre les incendies et les pluies acides".

- invites Member States to agree on substantial global emission reductions for NO_x as well as for SO_2 and hydrocarbons and to adopt, as a first step, the proposals 8), 9) made by the Commission;
- invites Member States to stimulate general international reductions of transboundary fluxes of NO_2 and other pollutants.

The Commission will take the necessary steps to reinforce its scientific and monitoring activities and will prepare proposals on combating photochemical air pollutants.

8) COM(83) 704 final

9) COM(84) 226 final