

II

(Acts whose publication is not obligatory)

COUNCIL

COUNCIL DIRECTIVE

of 1 June 1976

laying down the revised basic safety standards for the health protection of the general public and workers against the dangers of ionizing radiation

(76/579/Euratom)

THE COUNCIL OF THE EUROPEAN COMMUNITIES,

Having regard to the Treaty establishing the European Atomic Energy Community, and in particular Articles 31 and 32 thereof,

Having regard to the proposal from the Commission, worked out after obtaining the opinion of a group of persons appointed by the Scientific and Technical Committee from among scientific experts, in the Member States,

Having regard to the opinion of the European Parliament ⁽¹⁾,

Having regard to the opinion of the Economic and Social Committee ⁽²⁾,

Whereas the Treaty establishing the European Atomic Energy Community prescribes that the basic standards for the protection of the health of the general public and workers against the dangers arising from ionizing radiations, as provided for in particular in Article 30 thereof, must be laid down in order to enable each Member State, in accordance with Article 33, to lay down the appropriate provisions by legislation, regulation or administrative action to ensure compliance with the basic standards,

to take the necessary measures with regard to teaching, education and vocational training and to lay down such provisions in harmony with the provisions applicable in this field in the other Member States;

Whereas the Council, on 2 February 1959, adopted Directives laying down such basic standards ⁽³⁾ and whereas these were last amended by Directive 66/45/Euratom ⁽⁴⁾;

Whereas the usefulness of a general review of these Directives has become progressively apparent in the light of increasing scientific knowledge of radiation protection and as a result of the practical experience of applying these Directives in national laws;

Whereas the protection of the health of workers and the general public requires that any activity involving danger arising from ionizing radiations must be made subject to regulation;

Whereas the basic standards must be adapted to the conditions under which nuclear energy is used and whereas they vary according to whether they are concerned with the individual safety of workers exposed to ionizing radiations or with the protection of the general public;

⁽¹⁾ OJ No C 40, 8. 4. 1974, p. 12.

⁽²⁾ Opinion delivered on 24. 5. 1973.

⁽³⁾ OJ No 11, 20. 2. 1959, p. 221/59.

⁽⁴⁾ OJ No 216, 26. 11. 1966, p. 3693/66.

Whereas the protection of the health of workers exposed to ionizing radiations requires, on the one hand, the organization of measures to restrict exposure and procedures for measuring exposure and, on the other hand, an adequate degree of medical surveillance;

Whereas the protection of the health of the general public entails a system of surveillance, inspection and, in the case of accident, intervention,

HAS ADOPTED THIS DIRECTIVE:

TITLE I

DEFINITIONS

Article 1

For the purposes of this Directive, the following terms have the meaning hereby assigned to them:

(a) Physical terms, quantities and units

Ionizing radiation: radiation consisting of photons or of particles capable of producing ions directly or indirectly.

Activity (A): the activity of a quantity of a radionuclide is the quotient of dN by dt , where dN is the number of spontaneous nuclear transformations which occur in this quantity in the time interval dt .

$$A = \frac{dN}{dt}$$

This definition does not apply to the words 'activity' and 'activities' in Articles 2, 3 and 4 and in Article 6 (3).

Curie (Ci): the curie is the special unit of activity. In the International System of Units the unit is the second to the power minus one: s^{-1} .

$$1 \text{ Ci} = 3.7 \times 10^{10} \text{ s}^{-1} \text{ (exactly)}$$

Absorbed dose (D): the quotient of $d\bar{e}$ by dm , where $d\bar{e}$ is the mean energy imparted by ionizing radiation to matter in a volume element and dm is the mass of matter in that volume element.

$$D = \frac{d\bar{e}}{dm}$$

Rad (rd): the rad is the special unit of absorbed dose. In the International System of Units, the unit used is the joule per kilogramme ($J \text{ kg}^{-1}$).

$$1 \text{ rd} = 10^{-2} \text{ J kg}^{-1}$$

Linear energy transfer or restricted linear collision stopping power (L_A) of charged particles in a medium is the quotient of dE by dl , where dl is the distance

traversed by the particle and dE is the energy loss due to collisions with energy transfers less than a given value ' Δ '.

$$L_A = \left(\frac{dE}{dl} \right)_\Delta$$

For radiation protection calculations, all the transferred energies are included, so that

$$L_A \text{ becomes } L_\infty$$

Fluence (Φ) of particles: the quotient of dN by da , where dN is the number of particles which enter a sphere of cross-sectional area da .

$$\Phi = \frac{dN}{da}$$

Fluence rate (φ): the quotient of $d\Phi$ by dt , where $d\Phi$ is the increment of particle fluence in the time interval dt .

$$\varphi = \frac{d\Phi}{dt}$$

(b) Radiological, biological and medical terms

Exposure: any exposure of persons to ionizing radiation. A distinction is made between:

- external exposure: exposure resulting from sources outside the body;
- internal exposure: exposure resulting from sources inside the body;
- total exposure: the sum of external and internal exposure.

Continuous exposure: external exposure where the source of radiation subjects the body or the critical organ to prolonged exposure (although its intensity may vary with time) or internal exposure due to continuous intake (although its level may vary with time).