

# EUROPEAN COMMUNITIES



Information

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## SAFETY OF NUCLEAR POWER PLANTS

ction of reactor safety consists in taking precautions, based on the actual level of science and technology, against possible failures originating from construction and operation of nuclear power plants, and in defining safety requirements for the protection of the general public and the operation personnel.

To realize these aims an important number of national and multilateral institutions and organizations are involved including the European Communities.

### The programme of the European Communities

In the programme of the European Communities special attention is paid to the light-water-cooled reactors which constitute actually the most important share of commercially-utilized nuclear power plants in Europe. Besides the safety problems arising during operation of light-water-cooled reactors, the Commission, as laid down in its mandate, is engaged with safety problems of natrium-cooled fast-breeder reactors which are at present in the developing stage.

The basis for the activities of the Commission is given by the Euratom Treaty and a resolution of the nuclear safety technological problems which the Council of Ministers approved in 1975. This resolution aims primarily at a 'progressive harmonization of safety requirements and criteria inside the Community in order to provide an equivalent and satisfactory degree of protection of the population and of the environment against the risk of radiation resulting from nuclear activities...' and further at a 'coordination of applied research programmes in order to make the best possible use of the resources available in the Community and the Member States both technically and financially...'

An important safety research programme is under way at the Joint Research Centre of the European Communities in Ispra(\*) which is supplemented by a common programme in collaboration with national research institutes and laboratories.

In parallel to these research activities a working group deals with basic material and mechanical problems relating to design, fabrication and material failure modes which may result in the initiation of accidents.

Problems of non-destructive testing are at present of principal concern. The intention is to detect defects at some stage of the construction or defects initiated during operation of heavy nuclear components, as for example reactor pressure vessels in order to verify the adequacy of the completed construction and to assure that continued operation will not lead to a failure of the component.

#### Safety criteria and regulations for water-cooled reactors

Results in research and development as well as the experience gained during operation of nuclear power plants can influence updating and modification of existing national requirements and safety criteria.

Such an updating of existing national requirements, codes and standards is an important task of the Community; it is attempted in a harmonized way under participation of all Member States of the European Communities and with the involvement of all interested parties in a respective working group, so that know-how and advice of licensing and control organizations, of suppliers and plant operators can be utilized.

The very first step in the harmonization procedure of national rules and regulations starts with the investigation of origin and consequences of possible accidents. A certain category of possible accidents of particular importance for the safety of the plant have been selected. Also the experience gained by the accident of the Three Mile Island nuclear plant is thereby taken into consideration.

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(\*) The activities of the Joint Research Centre are reported separately.

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