NUCLEAR LAW Bulletin

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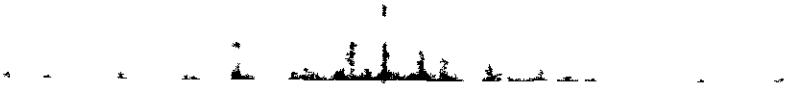

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LEGISLATIVE AND REGULATORY ACTIVITIES

• *Belgium*

NUCLEAR-POWERED SHIPS

Bill on the Liability of Operators of Nuclear Ships

A Belgian Bill on the Liability of Operators of Nuclear Ships, which has been drafted by the Ministry of Communications and the Ministry of Justice, is now in process of enactment.

It closely follows the provisions of the Brussels Convention of 25th May 1962, on the Liability of Operators of Nuclear Ships; the latter provisions would thus be, as it were, incorporated in Belgian national legislation. It is also intended that the entry into force of the new Act will be followed by Belgian ratification of the Convention of 25th May 1962, of which Belgium is, furthermore, the depository State.

A number of Articles of the Convention are reproduced almost word for word in the Bill; among such Articles are, in particular, those relating to the channelling of liability on to the operator of the nuclear ship, the nature of such liability, the amount thereof (i.e. the equivalent in national currency of 1,500 million gold francs), and the requirement laid upon the operator to maintain insurance or other financial security sufficient to cover it. Other provisions of the Convention that have been directly drawn upon by the draftsmen of the Belgian Act are those concerning the operator's right of recourse, cases where the operator is or may be exonerated from liability, time-limits for bringing actions for compensation, the setting up and disposal of the limitation fund, and the effect and enforceability of judgments

Besides the abovementioned financial security which the operator of a nuclear ship will be required to possess, the provision of additional security to cover any interest and costs awarded by the Court may be prescribed by Royal Decree. The Bill appoints the Court of First Instance of Antwerp as having exclusive original jurisdiction in respect of claims for compensation for damage due to a nuclear incident for which the operator of a nuclear ship is liable. The same Court will have jurisdiction in regard to the setting up and apportionment of the limitation fund.

A licence to operate a nuclear ship under the Belgian flag will be granted by the King. Such licence will be granted only if the applicant has proved that he possesses insurance or other financial security covering his liability to the extent specified by the Act and if the ship satisfies the conditions required by the maritime laws and regulations. The licence will be of such duration as is specified by the Decree authorizing it, and it may be withdrawn. Any Decree authorizing or withdrawing a licence will be notified to the operator concerned by the Minister responsible for the Administration of Shipping and Inland Navigation. When the Belgian State is itself the operator of a nuclear ship it will be dispensed from both the formality of authorization and the requirement to provide financial security.

Should the insurance or other financial security provided by a person operating a nuclear ship under the Belgian flag be insufficient for payment of compensation for nuclear damage up to the full amount specified by the Act, the Belgian State will in that event be collaterally liable to such compensation to the extent of the deficiency. Moreover, should it appear, after a nuclear incident, that the total damage is likely to exceed the limit of liability fixed by the Act, a finding to such effect will be required to be recorded by Royal Decree made in the Council of Ministers, which may also prescribe the measures to be taken for determining the persons who may have suffered nuclear damage, and fix the apportionment of compensation among them.

Any foreign nuclear ship may be denied access to the territorial sea and internal waters of Belgium if its operator and the flag State do not show that security at least equal to that required by the Act has been provided.

The entry into force of the Act will automatically entail the repeal of the Act of 9th August 1963, on the liability of the operator of a nuclear ship, which Act was passed on the occasion of the visit to the Belgian ports of the nuclear ship "N.S. Savannah". It is proposed to reproduce the text of the new Act when it is adopted.

RADIATION PROTECTION

Royal Decree of 23rd December 1970 /"Moniteur Belge" dated 17th February 1971/

This Royal Decree substantially amends that of 28th February 1963, which contained General Regulations for the protection of the population and the workers against the hazards of ionizing radiations, the basic enactment in the field of radiation protection in Belgium.

Among the various provisions of the General Regulations that are affected by the new Royal Decree are, in particular, the table of radionuclides, the basic norms concerning the maximum permissible doses for persons occupationally exposed, and the maximum permissible levels of contamination. These amendments take strict account of the Directive of 27th October 1966, of the Council of the European Atomic Energy Community amending the Directives fixing basic norms for the health protection of the population and workers.

The Royal Decree also amplifies the provisions of the General Regulations relating to protective measures for the prevention of contamination likely to result from the possession and use of radioactive substances, especially those in the form of unsealed sources.

However, the amendments introduced by the Royal Decree mainly affect Chapters V and VI of the General Regulations, which deal with the regime of authorization and the conditions governing the preparation, possession, or use for medical purposes, of radioisotopes in the form of unsealed sources, of radioactive substances, and of apparatus capable of emitting ionizing radiations. The new provisions, which are both more complete and wider in scope than the previous ones, deal with the control by recognized pharmacists of the preparation of radioisotopes, and with the conditions governing the putting into service of the various types of apparatus emitting ionizing radiations that are used for medical purposes; they also deal with the design of the premises containing such apparatus and the methods of installing the various types thereof. The Royal Decree also lays down the conditions to be fulfilled by persons using such apparatus and materials in order to obtain authorization to do so: such conditions concern, in particular, the diplomas or other certificates of qualification they may be required to possess and their technical proficiency, which may be required to be assessed by a board of physicians; it also defines the duties of protection and supervision incumbent on such users.

The Royal Decree further lays down, in greater detail, conditions as to prior authorization for the treatment by ionizing radiation of food, medicaments and surgical equipment. It redefines the conditions regarding official approval of the bodies responsible for inspection of the health physics services functioning in nuclear installations. Finally, certain amendments have been made in the Tables in the Annex relating to the maximum permissible concentrations of radionuclides or mixtures thereof in drinking water and inhaled air, in order to keep ir line with the changes in the relevant basic norms.

• *Finland*

THIRD PARTY LIABILITY

On 21st October 1969 the Finnish Committee on Nuclear Liability completed a draft of an Act on Nuclear Liability. The draft presupposes that Finland joins the Convention on Third Party Liability in the Field of Nuclear Energy, signed in Paris on 29th July 1960 and the Convention Supplementary to the Convention of 1960, signed at Brussels on 31st January 1963 (both as amended by their Additional Protocols signed in Paris on 28th January 1964), but technically the Act may be brought into force gradually pending the international coming into effect of the Supplementary Convention of 1963.

It is to be expected that the Finnish Government will shortly deal with the matter.

The abovementioned Act on Nuclear Liability, as proposed by the Committee, has been drafted in Nordic legislative collaboration (Denmark, Finland, Norway and Sweden), and thus the draft is materially, with the exception of some details of little importance, of the same content as the Act on Nuclear Liability brought into force in Sweden in 1968, and the Danish and Norwegian draft laws (see Supplements to Bulletins No. 1, 2 and 6).

During the inter-Scandinavian drafting Conferences, the national committees have assumed that the Nordic countries will join both the Paris and the Vienna Conventions. In accordance with this standpoint, there has been included in the Report of the Finnish Committee another draft in the event of the domestic bringing into force of the Vienna Convention and its optional Protocol, a matter which is now topical in the light of the number of ratifications required by Article 23 of the Vienna Convention.

The main features of the draft Act on Nuclear Liability (which it is hoped will be published before long so that the text can be included in the next issue of the Nuclear Law Bulletin) are understood to be as follows:

- it will not be applicable to nuclear incidents occurring in a non-Contracting State and will apply to nuclear damage suffered in the territory of such State only in the case of an incident occurring within Finnish territory and provided that liability lies with the operator of a nuclear installation situated in Finland. In relation to non-Contracting States, provision may be made for compensation for damage suffered there on a reciprocal basis;

- the maximum liability of the operator of a Finnish nuclear installation will be 42 million Finnish marks (approximately 10 million EMA u/a);

- the insurance which the operator is required to take out may be either on a per incident or per installation basis. Separate insurance may be required for liability for a transport incident;

- compensation will be payable out of public funds in certain circumstances, especially where the Supplementary Convention is applicable, in which case the total amount of compensation payable will be limited to 120 million EMA u/a;

- international agreements in the field of transport are preserved and, in accordance with Reservation No. 2 to the Paris Convention, the draft law will provide that national legislation founded on such international transport agreements are to be regarded as equivalent to such international agreements.

In general, like the Swedish law, the draft Act follows the Paris Convention and the Supplementary Convention closely.

RADIATION PROTECTION

Legislation concerning radiation protection in Finland extends over a number of years. In this connection, mention should be made of the Radiation Protection Act of 26th April 1957, amended by an Act of 8th January 1965, the Statutory Order on Radiation Protection of 27th September 1957, amended by an Order of 19th September 1958, and the Statutory Instrument on Radiation Protection issued by the Ministry for Social Affairs and Public Health on 5th November 1968. This latter instrument contains detailed provisions on the radiation dosages and the content limits of radioactive nuclear substances in respect of persons performing work under exposure to radiation, exemption from Safety Authorizations, inspection and supervision, and other safety provisions concerning radiographic installations and plants as well as radioactive materials. Safety regulations are further included in the Atomic Energy Act of 25th July 1957, in the Statutory Order on Atomic Energy of 14th February 1958, and in the Act on the Prevention of Pollution of the Seas of 5th March 1968.

• *France*

REGIME OF NUCLEAR INSTALLATIONS

Ministerial Order of 15th June 1970 /Official Gazette dated 30th June 1970/

This Order made by the Minister of Industrial and Scientific Development applies to nuclear reactor pressure vessels of concrete prestressed by means of metal reinforcement. In view of the fact that the coolant which they contain is generally a gas, such pressure vessels are made subject in this case to the same regulations as apply to plant containing gas under pressure, save for certain exceptions specified in the Order.

Before building the pressure vessel, the constructor must submit a complete file of specifications and documentation to the inspecting authority. The Order prescribes in detail how the pressure vessel is to be built and prepared for use, including, in particular, the materials and equipment to be employed, the stress calculations to be made, the model tests and experiments to be carried out, and the monitoring and safety devices to be installed. It also lays down instructions for the operation, maintenance and in-service monitoring and inspection of such pressure vessels.

Simultaneously with the publication of this Order, the Minister of Industrial and Scientific Development issued a circular on the application to nuclear reactor pressure vessels in prestressed concrete of the regulations for plant containing gas under pressure.

• *Germany*

REGIME OF NUCLEAR INSTALLATIONS

Nuclear Installations Ordinance 1960, as amended

The "Second Ordinance to Amend and Supplement the Nuclear Installations Ordinance" (see Nuclear Law Bulletin No. 6, page 9) was passed on 29th October 1970, and published in the Official Gazette, together with a revised version of the Nuclear Installations Ordinance /BGBL, I, 1970, No. 102, page 1517/.

Use of the Rhine for cooling nuclear power plants

Towards the end of 1970, negotiations were begun between the Federal Republic of Germany and Switzerland concerning the use of the Upper Rhine for cooling nuclear power plants. These negotiations have not yet been concluded, but it was agreed, however, that the cooling capacity of the Rhine waters should be divided fairly between the States, on the basis of an Agreement. Also the thermal load should not increase the natural temperature of the water by more than 3°C, and the average temperature of the Upper Rhine should not exceed 25°C.

THIRD PARTY LIABILITY

Financial Security Ordinance 1962

The "Second Ordinance to Amend the Financial Security Ordinance" (see Nuclear Law Bulletin No. 6, page 9) was passed on 10th November 1970 and published in the Official Gazette /BGBL, I, 1970, No. 102, page 1520/.

TRANSPORT OF RADIOACTIVE SUBSTANCES

Bill concerning the transport of dangerous goods

The Federal Ministry is currently preparing a comprehensive Bill concerning the transport of dangerous goods. This new text will adopt and harmonize all the provisions relating to the different means of transport. The Bill largely adopts the regulations of the international transport agreements, which otherwise will continue to be applicable for international traffic. The draft also contains regulations about the transportation of radioactive materials and of special fissionable materials.

NUCLEAR-POWERED SHIPS

Brussels Convention on the liability of operators of nuclear ships of 25th May 1962

The Federal Government intends to sign the Brussels Convention on the Liability of Operators of Nuclear Ships in 1971, and to present it to Parliament for ratification. A draft ratification Act is at present being prepared by the competent Ministries. As the Federal German Republic already has Regulations concerning liability for the operation of nuclear-powered ships, it will have to be established before ratification whether these Regulations which have been in force until now should be amended and whether thereby all legislation on liability for nuclear-powered ships should be adjusted to the Brussels Convention, or if the present Regulations concerning damage caused by ships from States not party to the Brussels Convention should be maintained.

• *Ghana*

ORGANISATION AND STRUCTURE

Legislation relating to activities in the field of nuclear energy was introduced in the Republic of Ghana with the adoption of the Atomic Energy Commission Act No. 204 on 3rd December 1963. This Act, to which two amendments have been made in 1966 and 1969 respectively, provides for the establishment of an Atomic Energy Commission which is solely responsible for administering matters relating to the peaceful use of atomic energy.

Following the Decrees of 1966 and 1969, a Management Committee composed of a Chairman and two other members, all nominated by the Head of State, was charged with the exercise of all the functions previously conferred on the members of the Atomic Energy Commission under the law of 1963.

The functions allocated to the Committee by this Act are the following:

- to maintain relations with the International Atomic Energy Agency and other similar international bodies,
- to make arrangements with other African countries and with the universities or other institutions of such countries for the conduct of research into matters connected with the peaceful uses of atomic energy;
- to make proposals to the Government for legislation in the field of atomic energy;

- to advise the Government on questions relating to atomic energy;

- to promote scientific and technical education in matters connected with the peaceful uses of atomic energy and to promote the establishment of the necessary installations for such education;

- to prospect for and use radioactive minerals and to produce, distribute and develop the uses of radioisotopes; and

- to supervise the carrying out of all requirements designed to secure the safety and health of persons employed in work in the course of which they may be exposed to the risk of injury from ionizing radiation.

In pursuance of its obligation to prevent nuclear damage in all its forms the Committee, in particular, must see to it that no such damage results from

- anything on its premises;

- anything which is being carried on its behalf to or from its premises; or

- any waste discharged on or from such premises.

The National Nuclear Research Institute, under the supervision of the Committee, is endowed with the responsibility to:

- supervise and control the building of any nuclear installation established by or on behalf of the Committee;

- to exercise supervisory and administrative functions related to the operation of any such installation;

- to promote, together with the universities, specialized teaching of and training in nuclear science and technology,

- to assure close co-operation between the universities in their teaching of and research into the peaceful uses of atomic energy; and

- to promote and maintain close co-operation between the Institute itself and other research or industrial bodies concerned with such teaching and research.

In exercising these functions the Institute is directly responsible to the Chairman of the Management Committee. The Institute, in fact, appears to be an agency largely dependent on the Committee, which may establish special provisions concerning the management of and procedures to be followed by the Institute.

The Committee, on the other hand, in discharging its various functions reports to the President of the Ghana Academy of Sciences who decides which parts of the Committee's atomic energy programme ought to be submitted to the Academy's Praesidium and which ought to be considered by the Research Committee of the Academy. The President of the Academy

has power to issue directions that must be complied with by the Committee, and is entitled to receive an annual activity report to be established by the latter, giving account of how it handled its affairs during the financial year.

The Head of State, in order to give effect to the provisions of this Act may make regulations whose purpose it is to:

- secure the safe operation of any nuclear installation operated under the supervision of the Nuclear Research Institute;
- to secure the safe carriage of any nuclear fuel, radioactive products or waste;
- to regulate and control the disposal of waste on or from any premises on which there is a nuclear installation, and
- to secure the maintenance of an efficient system for detecting and recording the presence and intensity of any ionizing radiations from anything discharged on or from such premises, or from anything in the course of carriage to or from such premises.

• *Ireland*

ORGANISATION AND STRUCTURE

Bill on Nuclear Energy Board

A Nuclear Energy Bill is at present before the House of Representatives (having been passed by the Senate), and may be expected to become law before long, to provide for the establishment of a Nuclear Energy Board and matters connected therewith.

According to the Bill in its present form, the functions of the Board would include inter alia advising the Government and others on nuclear reactors or radioactive devices for training or research, advising the Minister of Transport and Power on the construction and operation of nuclear power stations, preparing safety codes and regulations, taking into account the relevant international standards, and the promotion of nuclear science and technology generally. The Board may also be given, by order of the Minister of Transport and Power, various functions concerning fissionable materials and radioactive substances (including waste) and the safe operation of reactors.

Provision is made for regulating, except under licence by the Minister (or by the Board as his agent), all dealings with and use of fissionable materials and other radioactive substances.

A number of formal provisions are included in the Bill concerning membership, remuneration, meetings and procedure of the Board and the preparation of accounts and annual reports of the Board.

• *Israel*

FOOD IRRADIATION

Food irradiation in Israel is governed by Regulations dated 5th July 1967, concerning the preservation of foodstuffs by radiation; these Regulations, made in accordance with a Public Health (Rules as to Food) Ordinance 1935, were subsequently amended by Regulations dated 25th July 1968.

These Regulations subject irradiated foodstuffs and the sale thereof to the following requirements: the foodstuff must be specified in the Schedule to the Regulations (at present onions and potatoes), it must also be submitted to the class of radiation specified by the Regulations; the Director General, Ministry of Health, must issue a written permit for it, containing directions on the method of irradiation to be employed. When irradiated foodstuffs are imported, the importer is required to produce to the Customs Authorities, prior to their sale, a certificate from the competent authority of the exporting country attesting that the above conditions have been complied with.

The packaging of the irradiated foodstuff must mention the treatment it has undergone.

• *Italy*

RADIATION PROTECTION

Decree of the Minister for Health made in agreement with the Minister for Labour and Social Security, of 2nd February 1971 /Official Gazette of the Italian Republic, No. 58, 6th March 1971/

The Decree of the President of the Republic No. 185 of 13th February 1964 laid down the main provisions applicable in Italy relating to the protection of the health of workers and the population against the hazards of ionizing radiations.

The general protection measures established by the 1964 Decree provide, in particular, that any person who produces, processes, handles, uses, sells or holds natural or artificial radioactive substances, or who uses apparatus containing such substances or producing ionizing radiations, must take the measures necessary for ensuring that the population as a whole, or special population groups do not risk exposure to inadmissible radiation doses.

The Ministerial Decree of 2nd February 1971 which supplements the provisions of Section III of the 1964 Decree of the President of the Republic specifically aims to determine, for the purposes of protection against the hazards of ionizing radiations, the values of the maximum permissible doses, the maximum permissible concentrations, and the relative biological effectiveness for the population as a whole, and for the special population groups.

A translation of this Decree is included in the Chapter "Texts" of the present Bulletin.

NUCLEAR-POWERED SHIPS

At present, the Italian Senate is examining a Bill concerning the approval and implementation of the Agreement, concluded in Rome on 23rd November 1964, between Italy and the United States relating to the use of Italian ports by the nuclear-powered ship "Savannah", as well as an Exchange of Notes which took place on the subject on 16th December 1965.

The object of this Exchange of Notes dated 16th December 1965, was to fix the legal regime applicable if a nuclear incident involving the Savannah were to occur, in Italian territorial waters, or beyond them during a voyage to or from an Italian port, and in case the damage would be suffered in Italy or on board a ship flying the Italian flag

The first Exchange of Notes raises to $500 million (made available by an Act of the United States Congress) the limitation of liability of the operator in case of an incident. This text also lays down the rules of procedure relating to the competence of the Italian Courts, and the determination of the nature of the liability.

The second Exchange of Notes fixes absolute limits for the disposal in Italian territorial waters of solid, gaseous or liquid wastes. Any disposal whatever within these limits, which were determined in complete agreement with the competent Italian authorities, will be subject to prior authorization by the Ministry of the Merchant Navy.

The Agreement concluded in Rome on 23rd November 1964, and these two Exchanges of Notes on the Savannah therefore aim to supplement regulations on hazards inherent to nuclear navigation. In this respect, the development in the not too distant future, of a nuclear-powered merchant navy, will make it necessary at that time to elaborate specific legislation for nuclear-powered navigation, based on the principles of the Brussels Convention of May 1962, as has been the case in France and in Spain.

Finally, it should be noted that the Agreement of 23rd November 1964, is not applicable in its entirety to both Governments, as it was amended by the Exchange of Notes of December 1965, to take account of

the change effected in the legal position of the Savannah. In fact, in 1964, the ship was operated directly by the United States Merchant Navy, on the basis of a contract concluded with the United States Atomic Energy Commission, whereas in 1965, the Savannah passed under the control of a Company (FAST) set up especially for this purpose. Consequently, the provisions of the 1964 Agreement establishing the direct liability of the United States Government for the operation of the Savannah, are no longer applicable. The abovementioned Exchange of Notes takes account of this change, and leave to the discretion of the Minister of the Merchant Navy, the establishment from time to time, of conditions which the Savannah must meet, to operate within Italian territorial waters.

• *Japan*

THIRD PARTY LIABILITY

Following studies carried out for the revision of the 1961 Law on Compensation for Nuclear Damage by the "Specialist Committee on Nuclear Liability", the latter submitted its conclusions to the Atomic Energy Commission of Japan at the end of last year (see Bulletin No. 6).

The provisions of this Law concerned by the proposals for amendment, are mainly those relating to the conditions for the State's financial intervention, and to the operator's right of recourse. Although harmonization with the terms of nuclear conventions and other nuclear legislation was thought to be advisable in the long-term, the Committee was of the opinion that, for the benefit of the nuclear industry, it would be preferable not to upset the applicable legal regime in the immediate future. In addition, it was decided that the 1961 Law which concerns the liability of the operators of terrestrial nuclear installations, should also cover liability in the field of nuclear ship propulsion, until such time when specific legislation is adopted.

Following these recommendations, a Bill amending the 1961 Law was elaborated, and will be submitted to the Diet.

• *Korea*

NUCLEAR LEGISLATION

The Atomic Energy Law dated 11th March 1958 and subsequently amended several times is the basic law for nuclear energy activities in Korea (a short analysis of this Act was published in Nuclear Law Bulletin, No. 6).

Its implementation is dependent upon the promulgation of a number of legislative and regulatory texts, the most important of which are listed below:

- Ordinance on the Control of Radioisotopes and the Like and Safeguards against Radiation Hazards due to Radioisotopes (State Council Ordinance No. 244, of 18th April 1961);

- Regulations concerning Installation, Operation and Management, etc. of a Reactor (Presidential Decree No. 4055, of 10th September 1969);

- Regulations for the Operator's and Senior Operator's Licences of a Reactor (Presidential Decree No. 4534, of 22nd January 1970);

- Regulations concerning Technical Standard and Safety Measures, etc. of Reactor Facilities (Presidential Decree No. 5493, of 22nd January 1971);

- Regulations concerning Handling of Nuclear Fissionable Materials and Source Materials and concerning the Related Facilities thereto (Presidential Decree No. 5494 of 22nd January 1971).

There are also several texts which deal with questions of nuclear third party liability, namely:

- The Nuclear Damage Compensation Law (Law No. 2094), promulgated on 24th January 1969;

- The Ordinance on the Control of Radioisotopes and the Like and Safeguards against Radiation Hazards due to Radioisotopes (State Council Ordinance No. 244), of 18th April 1961;

- The Indemnity Agreement Law for Compensation of Nuclear Damage and Implementing Decree (Bills);

- The Regulations concerning Technical Standard and Safety Measures, etc. of Reactor Facilities (Presidential Decree No. 5493) of 22nd January 1971;

- The Regulations concerning Handling of Nuclear Fissionable Materials and Source Materials and concerning the Related Facilities thereto (Presidential Decree No. 5494), of 22nd January 1971;

- The Implementing Decree of Nuclear Damage Compensation Law (Presidential Decree No. 5396), of 3rd December 1970.

A brief analysis is given below of the main provisions contained in these texts.

REGIME OF NUCLEAR INSTALLATIONS

Conditions for authorization and control of reactors

The acquisition, construction and operation of nuclear reactors are subject to an authorization from the Director General of the Office of Atomic Energy, granted upon the advice of the Atomic Energy Commission. In addition, the agreement of the Minister for Commerce and Industry is necessary in the case of a nuclear power plant, and that of the Minister of Transport is necessary in the case of a nuclear ship.

There are four essential conditions to be observed for authorization to be granted:

- the reactor must not be used for purposes other than those applied for;
- construction of the reactor must be carried out in conformity with the national programmes of research, development and utilization of atomic energy;
- the applicant must provide all the necessary guarantees as regards his technical ability and financial position;
- the location, structure and equipment of the reactor should conform to the standards set out in the Regulations, so as to make it possible to prevent hazards which might arise from the reactor proper, and from the presence of fissionable materials.

The applications for authorization must include the necessary information concerning the identity of the applicant, the site proposed (in the case of a nuclear ship, the address of the shipyard), the purpose for which the reactor is to be used, and the technical characteristics regarding its structure and method of operation: for example, methods of handling and storing the fissionable materials and wastes, instrumentation and control systems, radiation monitoring systems and methods for radioactive waste disposal, etc.

Detailed provisions are also set out as regards the authorization which may be granted by the Director General of the Office of Atomic Energy for the operation of a nuclear-propelled ship (notably in the case where a foreign nuclear ship is operated in Korean territorial waters).

The design and method of construction of a reactor must be approved by the Director General of the Office of Atomic Energy. At this stage, a detailed inspection is carried out by the officials from the Office of Atomic Energy, under the Director General's authority. Before the entry into operation, another inspection is made in order to ensure that the operational characteristics, the performance, and the safety of the reactor are in line with the technical standards set out in the Regulations (in particular, Presidential Decree, No. 5493 of 22nd January 1971).

For the purpose of operating a reactor, the owner must designate the holder of a reactor operator's licence or a senior reactor operator's licence, and inform the Director General of the Office of Atomic Energy accordingly.

Any modification in the design, construction or operation of a reactor is also subject to an authorization of the Director General of the Office of Atomic Energy.

Authorization for a reactor may be withdrawn or withheld by the Director General of the Office of Atomic Energy, in particular when operation of the reactor did not begin within the period prescribed or when operation was suspended during one year without valid reason, and more generally, when the provisions of the Law have been violated This is also the case when the safety measures the operator is bound to take for the benefit of the workers and the population, and when the safety rules he has to draw up, are found to be inadequate.

Regime for authorization and control of nuclear installations, fissionable materials and source materials

An authorization from the Director General of the Office of Atomic Energy, granted upon the advice of the Atomic Energy Commission, is necessary for the construction and operation of a refining, manufacturing or reprocessing facility, or for the importation thereof.

"Refining" means the processing of nuclear fissionable materials or source materials in order to increase the content of uranium or thorium contained in the nuclear fissionable materials or source materials.

"Fabricating" means the physical or chemical processing of fissionable materials to give them the form and composition necessary for their use as reactor fuel.

"Reprocessing" means the chemical processing of the fissionable materials used as reactor fuel, and produced by a fission process to separate fissionable materials from other useful materials.

Similarly, an authorization is necessary in order to acquire, produce, hold, import, export, etc. fissionable materials. However, this authorization is not required when the applicant is already the holder of a licence for a refining, manufacturing, or reprocessing facility, or when the operator of a reactor uses such materials for the reactor. The Office of Atomic Energy is also exempted from authorization, and in other cases, exemptions have been prescribed according to the nature and quantities of fissionable materials which are to be handled.

As regards authorizations for facilities, the application must include the necessary information, such as the name and address of the applicant, the proposed site, and description thereof, the structure and equipment of the facility and the processes to be used, as well as the type and quantity of fissionable materials to be processed. As regards acquisition, production, etc. of fissionable materials, similar information has to be provided, namely, the purpose for which these materials will be used, their estimated annual quantity, the estimated period of use, the methods of disposal of fissionable materials, and the technical details concerning the facilities where these materials are to be used, stored, etc.

The general conditions to be observed when granting an authorization for facilities are similar to those already described for reactors: compatibility of the proposed activity with the national programmes of research, development and utilization of nuclear energy; technical ability and financial situation of the applicant; conformity of the facilities with the technical standards laid down in the Regulations so as to ensure adequate radiation protection.

The authorization may also include specific conditions as the Director General of the Office of Atomic Energy may find appropriate. In addition, the use or transfer of certain materials and equipment may be subject to certain limitations in order to comply with international commitments, notably in the field of safeguards.

The procedure for the authorization proper includes the approval by the Director General of the Office of Atomic Energy of the design and methods of construction of the facility, as well as an inspection which is carried out under the supervision of the Office of Atomic Energy before the entry into operation of the facility.

The entry into service of the facility must be notified to the Director General of the Office of Atomic Energy. Also, in order to apply and supervise the radiation protection measures, the operator of the facility, or the user of fissionable materials, etc., has to appoint a person who is the holder of a licence for supervising the handling of fissionable materials or has obtained a licence of senior operator of a reactor, and must inform the Director General of the Office of Atomic Energy accordingly. Periodic reports must be sent to the Office, and must also be sent following any incident which may have occurred during operation. Furthermore, the Office of Atomic Energy may order any inspection it deems necessary to be carried out.

Similar provisions to those already described for reactors also deal with cases of suspension or revocation of the authorization, and with measures to be taken in case of discontinuance of operation.

Regime for authorization and control of radioisotopes and protection against radiation

The State Council Ordinance No. 244 of 18th April 1961 sets out the regime for authorization and control of import, export, use, sale, acquisition, holding and transfer of radioisotopes, as well as the use of particle accelerators. This Ordinance also defines the technical and safety standards which apply to these activities proper as well as to the relevant facilities. Finally, the Ordinance contains the provisions to be complied with in respect of radiation protection when handling radioisotopes. Annexed thereto is a list of radioisotopes divided into four classes; there is for each class, a minimum level of activity, below which the provisions of the Ordinance are not applicable.

Activities involving radioisotopes are subject to a licence granted by the Director General of the Office of Atomic Energy. The applications for use, import, export, or sale of radioisotopes must include, in general, information concerning the identity of the applicant, the type and quantity of radioisotopes, a description of the premises and equipment intended for the sale, storage and disposal of radioisotopes. The characteristics of particle accelerators, and their purpose must also be stated.

Before granting the licence, the Director General of the Office of Atomic Energy must ensure that the facilities where these activities will be carried out conform to the technical standards set out in the Ordinance.

The licence stipulates the purpose for which it is granted, the type and quantity of radioisotopes, the place where activities will be carried out, etc. In addition, the Director General of the Office of Atomic Energy, when granting the licence, reserves the right to prescribe such conditions as he may deem necessary in order to ensure protection against radiation.

The holder of a licence for the use, import, export, or sale of radioisotopes must establish rules for radiation protection and submit them to the Director General of the Office of Atomic Energy before commencing the relevant business. Also, he must appoint a person in charge of radiological control, who is the holder of a radiological safety officer's licence; in case the holder of the licence is not himself the operator, he must appoint a qualified person and inform the authorities accordingly.

The use of radioisotopes for medical purposes is subject to a special licence, the holder of which must set up a Specialist Committee entrusted with the task of examining and controlling such use.

The technical standards established by the Ordinance mainly concern the characteristics of the facilities for use, storage or disposal of radioisotopes as well as particle accelerators, (site, equipment, radiation shielding, fire protection, boundary of the controlled areas, etc.).

The Ordinance also sets out provisions to ensure radiological protection when using, distributing, storing, and transporting radioisotopes, and when using particle accelerators (exposure and maximum permissible doses for workers in controlled areas, concentration of radionuclides, inhaled air and in water, measurement of contamination during work, safety instructions, etc.).

Finally, the Ordinance sets out the measures to be taken in case of an incident caused by irradiation during the handling of radioisotopes.

The Office of Atomic Energy, as well as any other organisation or institute under its jurisdiction, are not subject to the provisions of the Ordinance.

THIRD PARTY LIABILITY

"Nuclear Damage Compensation Law" is the title of the Act by which the liability of operators of nuclear installations for nuclear damage is regulated in the Republic of Korea. This Act, dating from 24th January 1969, pursues the double objective of providing for appropriate protection of victims and of securing a sound development of nuclear industry.

In the context of this Act the term "Nuclear Operator" covers any person who has obtained a licence for building or operating a reactor, for operating a nuclear fuel production or reprocessing plant

and for using fissionable materials, as well as research institutes, the Atomic Energy Development Organisation and the Atomic Energy Production Organisation (Section 2).

The Act establishes strict liability (i.e. one that is not based on fault) and covers any damage caused by the fission process which fissionable material is undergoing, by the radiation effects of fissionable material or material contaminated by fissionable material, or by the toxic effects of such materials (Section 2). Not covered by this liability, however, is damage or injury suffered by the nuclear operator himself or any of his employees while performing professional duties. Furthermore, no liability is incurred in case of the damage being due to an extraordinary natural catastrophe (Section 3, subsection 1).

Liability for damage falling within the terms of this Act, if occurring during transport of fissionable material, is imposed on the operator of the receiving installation (Section 3, subsection 2).

Where the damage is caused by a wilful act or omission of a third person, the nuclear operator who has paid compensation for such damage has a right of recourse against the person responsible for the damage. In this way he can recover the amount he paid from the latter. Against persons rendering services in connection with the operation of the installation, whether suppliers or employees, such a right of recourse can be exercised only when they have caused the damage intentionally or by way of gross negligence (Section 4).

In order to ensure that sufficient means be at the disposal of an operator to compensate for damage arising out of his nuclear activities the operator is obliged to provide for financial security in the form of an insurance contract complemented by an indemnity agreement to be concluded with the Government (a Bill governing such indemnity agreements is at present in the drafting stage), or by way of a deposit. Such financial security has to be approved by the Minister of Science and Technology. Its amount, which may not exceed 1.5 billion Won, (equalling about 5 million U S. dollars) is further determined by a Presidential Decree (Section 5, subsection 2 and Section 6, subsection 1). Where they require supplementary means to enable an operator to cover his liability in case of new damage, the Minister of Science and Technology may order such further means to be provided by the operator concerned within a period of time equally determined by the Minister (Section 6, subsection 2).

Apart from the case where the Government intervenes to indemnify an operator for losses incurred through payment of damages because of the existence of an indemnity agreement the Government undertakes to come to the aid of the operator where the financial security to be provided by him proves insufficient to cover all the claims arising out of his nuclear liability (Section 14, subsection 1).

A dispute Reconciliation Committee whose function it is to bring about an extrajudicial settlement of claims for compensation of nuclear damage by way of mediation is established as a body attached to the Ministry of Science and Technology. This Committee, in particular, is involved in the investigation of nuclear damage and in the assessment of its amount (Section 15, subsections 1 and 2).

Under Section 22, a Presidential Decree has been made on 22nd January 1970 for the more detailed implementation of this Act.

• *Netherlands*

NUCLEAR-POWERED SHIPS

Bill on the Liability of Operators of Nuclear Ships

A Bill concerning the third party liability of operators of nuclear ships has been prepared in the Netherlands, and is now submitted to Parliament. This Bill includes the provisions of the Brussels Convention of 1962 on the Liability of Operators of Nuclear Ships, and also lays down the supplementary provisions which the Convention left for national legislation to establish, as well as stipulations relating to nuclear ships from non-Contracting States. The text of this Bill forms the Supplement to this issue of the Nuclear Law Bulletin.

It should also be noted that the Treaty concluded between the Netherlands and the Federal Republic of Germany, concerning the visit of the nuclear ship "Otto Hahn", was approved by the Parliament of the Netherlands in December 1970, and should come into force at any moment now.

• *Sweden*

REGIME OF NUCLEAR INSTALLATIONS

Decree of 11th December 1970

In accordance with the Atomic Energy Act of 1956 the acquisition, possession, transfer and treatment of nuclear fuels require prior authorization from the Minister for Industry. However, a Royal Decree of 1959 provided certain exemptions from the obligation to hold an individual permit. The conditions for such exemptions have just been redefined by a new Decree made in 1970 (SFS 1970/749).

The main provisions of this Decree are the following: any person may acquire, possess or treat, 15 grammes of U 235 in enriched uranium, or of plutonium, in a quantity equal to or less than 15 grammes, or natural or depleted uranium in a quantity equal to or less than 5 kilogrammes, without authorization from the Minister for Industry. No

quantitative limitations are stipulated for natural or depleted uranium used for research purposes by universities and scientific institutes or for certain technical purposes such as radiation protection shielding. Furthermore, no authorization is required for handling materials with a maximum content of 50 grammes of uranium per ton.

Authorization is no longer required for the transit of nuclear fuels over Swedish territory. It should be noted, that in accordance with the Radiation Protection Act, a special permit may be required for the cases mentioned above.

Following a recent decision of the Government of Sweden, all applications for permits made under the Atomic Energy Act, must be sent to the Atomic Energy Board. In some cases, the Board may refer the final decision to the Government. This Decree came into force on 1st January 1971, and therefore repealed the previous Decree No. 608 of 1959.

NUCLEAR-POWERED SHIPS

Act on Compensation for Damage caused by the Operation of Nuclear Ships

The text of the Swedish Act of 17th May 1963 on Compensation for Damage caused by the Operation of Nuclear Ships, fully refers to certain provisions of the Act on nuclear third party liability, namely, the Nuclear Liability Act of 3rd June 1960; consequently, these provisions apply mutatis mutandis to the operators of nuclear ships. In addition, it was provided that the Act of 17th May 1963 would remain in force for as long as the Act of 3rd June 1969, which had itself been adopted provisionally. When, after the entry into force on 8th March 1968 of Act No. 45 on nuclear third party liability, the previous Act of 3rd June 1960 had ceased to be applicable, it was decided, however, that the Act of 17th May 1963 would continue to remain in force until 31st December 1970, and that the provisions of the Act of 3rd June 1960 which are referred to in the Act of 17th May 1963, would also remain applicable. During 1970, the validity of the Act of 17th May 1963 on Compensation for Damage caused by the Operation of Nuclear Ships was extended until 31st December 1973. The regime of liability of operators of nuclear ships in Sweden, has not been affected, therefore, by the Act of 8th March 1968.

• *Turkey*

RADIATION PROTECTION

Regulations of 6th December 1968 on Radiation Protection

Important Regulations concerning radiation protection were published in Turkey on 6th December 1968. They were enacted under the Decree of the Council of Ministers on radiation protection of 25th April 1967 (No. 6/7946).

These Regulations, which henceforth constitute the basic legal text on radiation protection in Turkey, deal in detail with the regime of authorization and control regarding substances and equipment emitting ionizing radiations, basic norms for protection against ionizing radiations, and the organisation of such protection in industrial installations and medical establishments respectively.

The regime of prior authorization and control applies to all radioactive sources. The Regulations contain separate provisions for nuclear raw materials, radioactive substances, and equipment capable of emitting ionizing radiations, respectively.

Authorizations are issued by the Turkish Atomic Energy Commission, the latter is empowered to make the issue of each authorization subject to special conditions besides the general conditions prescribed by the Regulations. The use of radioactive sources for medical purposes comes under a separate regime from that applying to other uses. In parallel with the system of authorization for radioactive sources, the latter are also subject to requirements as to registration with the Atomic Energy Commission. For users of radioactive sources, there is a further requirement in that a whole series of checks and tests is prescribed in connection with these.

The basic norms for radiation protection laid down by the Regulations fix in detail the maximum permissible doses for workers exposed to ionizing radiations. Such doses vary, as is always the case, according to whether persons are exposed within a controlled area or not, according to whether they are exposed to external radiation or to internal contamination, and according to the organs affected. Persons under 16 years of age are not permitted to work in a controlled area, in the case of persons under 18, special limits are imposed on their exposure to radiation and radioactive contamination.

The Regulations also deal with the organisation of protection for workers exposed to ionizing radiations. Such protection is ensured by educating workers about the special risks to which they are liable, by signs warning of the radiation danger, and by health physics procedures. A user of radioactive sources is required to record the amounts of radiation emitted and to report immediately all amounts exceeding the authorized norms. Workers must also be kept informed of the radiation doses which they have received. The Regulations also set forth, more specifically, special rules to be observed in the case of certain activities and the correct methods of using certain equipment, such as, in particular, industrial or medical X-ray equipment. The handling of sealed sources used for medical purposes is also governed by special rules, which, like those applying in the previous cases, include requirements as to the technical proficiency and the protection of the handlers, methods of control and storage of sources, design of premises, and protection systems.

The Prime Minister is responsible for the application of the provisions of the Regulations. They entered into force on the date on which they were published, i.e. 6th December 1968.

• *United Kingdom*

ORGANISATION AND STRUCTURE

Secretary of State for Trade and Industry

A Statutory Instrument entitled "the Secretary of State for Trade and Industry Order 1970" /S.I.1970/1537/ came into operation on 20th October 1970. This Order, which was one of several giving effect to changes in departmental responsibilities within the Government, had as its purpose the unification of the functions of the Board of Trade and most of those of the Ministry of Technology. The new Department succeeded to the responsibilities in the field of nuclear energy of the former Ministry of Technology, which included the law relating to nuclear third party liability, licensing and inspection of nuclear installations, the United Kingdom Atomic Energy Authority and the Central Electricity Generating Board.

Atomic Energy Authority Act 1971

This Act which has just been published on 16th March 1971 provides for the transfer of property, rights, liabilities and obligations of parts of the undertaking of the United Kingdom Atomic Energy Authority, to two new Companies set up for this purpose: the British Nuclear Fuels Limited, and the Radiochemical Centre Limited. An analysis of the structural reorganisation of the Authority has already been published in Bulletin No. 5.

Patents, licences and registered designs owned by the Authority at the time of the transfer are not included therein. The Secretary of State for Commerce and Industry is empowered by the Act to direct the procedure for such transfer, and in particular, to appoint the date therefor. The Act also includes amendments to the Nuclear Installations Act 1965, notably as regards permits to operate granted to a body corporate. Finally, the Schedule to this Act lays down a certain number of provisions relating to security and the preservation of secrets.

REGIME OF NUCLEAR INSTALLATIONS

Nuclear Installations Regulations No. 381

These Regulations, made by the Secretary of State for Trade and Industry (jointly with the Secretary of State for Scotland), replace the previous Nuclear Installations Regulations published in 1965.

These Regulations, in particular, extend the classes of installations which were submitted to the regime of prior authorization fixed by the Nuclear Installations Regulations 1965. The new installations governed by the present Regulations are the following:

(1) Installations in which any process is carried on in the production of nuclear fuel from enriched uranium or plutonium in any form, and the production of enriched uranium, or plutonium in any form, compound or combination;

(2) Installations comprising sub-critical assemblies;

(3) Installations for the bulk storage of radioactive materials resulting from the production or use of nuclear fuel;

(4) Installations in which uranium or plutonium are extracted from irradiated materials;

(5) Installations for the enrichment of uranium;

(6) Installations for the production of radioisotopes for industrial, chemical, agricultural, medical or scientific purposes.

These Regulations provide that the abovementioned Secretaries of State may exempt any installation from this regime of authorization, when it is not considered a relevant installation under the provisions of the 1965 Act. The present Regulations came into operation on 29th March 1971.

CARRIAGE OF RADIOACTIVE MATERIALS

Regulations entitled "the Radioactive Substances (Carriage by Road)(Great Britain) Regulations 1970" /S.I.1970/1826/ were made on 4th December 1970 and will come into operation on 31st May 1971.

Under these Regulations radioactive materials must not be consigned or carried by road in Great Britain otherwise than in accordance with the provisions of the Regulations. Besides certain general prohibitions, requirements are imposed on consignors, carriers and drivers so as to prevent injury being caused, by the transport of radioactive materials, to the health of persons engaged therein and other persons. The Regulations refer to the Regulations for the Safe Transport of Radioactive Materials recommended by the International Atomic Energy Agency (1967 Edition) and give effect to the relevant provisions of those Regulations.

Subject to certain exemptions, the Regulations apply to the carriage in Great Britain by road in a vehicle of any radioactive substance whose specific activity exceeds 0.002 microcuries per gramme.

Carriage by public transport is prohibited, as is carriage on a vehicle carrying explosive, inflammable or other dangerous substances. Causing wilful damage, opening or removing without reasonable cause any package containing radioactive substances are prohibited. Consignors, carriers and drivers must exercise reasonable care to ensure that the

radioactive material does not cause injury to the health of any person during carriage.

Consignors must ensure that the material is safe to carry, is contained in an appropriate package and appropriately labelled. Low specific activity material and material to be carried as a specially approved consignment is exempted from these requirements. A certificate giving full details of the consignment has to be completed and given to the carrier (or the driver as the case may require).

Carriers must ensure that the vehicle is appropriately labelled and carries the prescribed notice. Limits are imposed on the number of yellow label packages that may be carried in one consignment and action is prescribed in the case of a radiation accident.

Drivers of vehicles carrying radioactive material must take reasonable care to ensure that material is not lost or removed, must not leave the vehicle unattended in public places, nor park the vehicle for more than one hour unless precautions are taken, and must notify any loss, removal of material or damage thereto.

Packages containing small quantities which are completely safe to handle are exempted from the foregoing requirements. Similarly, empty packaging which satisfies certain requirements is exempt, as is radioactive waste if being transported in accordance with a waste disposal authorization.

The Regulations prescribe in Schedules certain standard forms of notice, label and sign to be used.

The Regulations lay down obligations in general terms and are supplemented by two more detailed Codes of Practice which do not have legal effect. They are the Code of Practice for the Carriage of Radioactive Materials by Road, and the Code of Practice for the Storage of Radioactive Material in Transit. These Codes conform generally with the recommendations in the International Atomic Energy Agency's Regulations for the Safe Transport of Radioactive Materials (1967 Edition).

• *United States*

NUCLEAR LEGISLATION

Amendments to the Atomic Energy Act 1954

Two important amendments to the United States Atomic Energy Act took effect on 19th December 1970.

Licensing system

The first eliminated the requirement for a finding of practical value before nuclear power reactors and fuel reprocessing plants can be licensed under the commercial section of the law.

Previously, the law provided in Section 102 that, whenever the Atomic Energy Commission made a finding that any type of reactor has been sufficiently developed to be of practical value for industrial or commercial purposes, the Commission would thereafter licence that type of reactor under Section 103, otherwise known as the commercial section.

Since such a finding has not been made by the Commission (although it has been under consideration) all nuclear power reactors and fuel reprocessing plants licensed prior to the date of the new law had been issued under Section 104(b) (the research and development section). Under the new law, all such licences, with some exceptions, will now be issued under Section 103. The exceptions include reactors in the Commission's Power Demonstration Programme and facilities for which Section 104(b) licences are specifically authorized by the law.

One of the main effects of licensing under the commercial section is that it provides for antitrust review of applications for construction and operation of these nuclear facilities. The Commission has issued new regulations implementing the law. These provide procedures for carrying out the Commission's responsibilities concerning antitrust matters, which include obtaining advice and recommendations from the Attorney General, giving public notice and providing for hearings on antitrust matters where appropriate. These hearings would generally be held separately from the Commission's public hearings related to radiological safety matters.

The new law is not retroactive in that all facilities which have been licensed under Section 104(b) (the research and development section) will continue to be licensed under that section. The law and the new regulations define how antitrust matters will be handled in pending cases at various stages. For example, provision is made for hearings at the operating licence stage in those cases where persons had sought to intervene on these grounds at the construction permit stage, provided requests are filed within 25 days after notice of receipt of the application for an operating licence is published in the Federal Register. Also, in order to avoid delays in licensing, in some cases permits or licences may be issued which include a condition which preserves the Commission's authority to add requirements later relating to antitrust matters if it is found to be necessary.

Among other effects of the new law are:

- notice of application must be published for four consecutive weeks in the Federal Register and notice must be given to various regulatory agencies and others;

- charges for use of source and special (fissionable) nuclear material may not be waived by the Commission for a Section 103 licence and charges must be made for consumption of nuclear fuel.

The new amendments to Parts 2 and 50 of the Atomic Energy Commission Regulations became effective on publication in the Federal Register on 29th December 1970.

Charges for uranium enrichment

The other significant recent amendment to the Atomic Energy Act provides that the charge for uranium enrichment work shall be establish d on the basis of assuring recovery of appropriate Government costs for work done in existing Government plants. Shortly after this provision was enacted, the Commission submitted to the Joint Committee on Atomic Energy the proposed new Uranium Enrichment Services Criteria based on the provisions of the new amendment.

At the same time, the Commission stated that the charge for enriching services on the basis of the amended Criteria will be set at $32.00 per kilogramme unit of separative work. An increase in the previously established charge of $28.70 is necessary because of increases in the projected costs of separative work, principally the cost of electrical power.

Enrichment of uranium involves the separation of the fissionable U 235 isotope, which makes up only seven-tenths of one per cent of natural uranium, from the more abundant U 238. The work is performed by the United States Government at three gaseous diffusion plants at Oak Ridge, Tennessee; Paducah, Kentucky; and Portsmouth, Ohio.

Under the Atomic Energy Act, the proposed new Criteria are required to be submitted to the Joint Committee on Atomic Energy for consideration during a period of 45 days while Congress is in session before they may be established by the Commission. After this period has expired, the Commission expects to establish the new Criteria and give formal notification of the new charge of $32.00 by publication in the Federal Register. It would then go into effect 180 days after such publication.

• *Zambia*

ORGANISATION AND STRUCTURE

National Council for Scientific Research

The National Council for Scientific Research was set up by an Act published on 11th August 1967. This Act was amended by an Act submitted to Parliament in 1969, and published on 12th January 1970. The National Council is a body corporate and also has a certain administrative and legal autonomy. It is chaired by the Vice-President of the State, the Vice-Chairman being the Minister of Education; the other members of the Council, fourteen at the most, are appointed for a three-year period by the President of the Council, and represent the Ministry responsible for National Development and Planning, as well as university, industrial and agricultural circles, and the Health Services. The Council is empowered to set up special Committees to further its activities.

A Secretary-General, appointed by the Council, manages the business of the Council; he may be assisted by a Deputy Secretary-General.

The functions of the Council are to deal with all activities of a scientific nature; they consist, in particular, of advising on, promoting, and encouraging scientific research and the development of scientific and technological activities required to meet Zambia's economic needs. The powers it has been vested with for this purpose are quite extensive and permit it to play an active role in this field Its resources are mainly drawn from funds voted by Parliament.

In addition, it should be noted that there is a Bill on Radiation Protection, which sets up, in particular, a Committee on Protection against Ionizing Radiation. Also, a Code of Practice is currently being prepared for persons handling or utilizing radiation sources and radioactive substances.

INTERNATIONAL ORGANISATIONS AND AGREEMENTS

INTERNATIONAL ORGANISATIONS

• *International Atomic Energy Agency*

AGENCY SAFEGUARDS IN THE CONTEXT OF THE NON-PROLIFERATION TREATY

As reported in the last issue of the Bulletin, the Safeguards Committee (1970) began its second series of meetings on 13th October 1970 in order to continue its discussions with respect to the content of agreements required in connection with the Treaty on the Non-Proliferation of Nuclear Weapons. Over the period extending from October 1970 to February 1971 the Committee held a total of 44 meetings during which it formulated material for the structure and content of Part II of such agreements and made consequential adjustments to the material which it had formulated for Part I of such agreements in its earlier series of meetings.

Part II of agreements specifies the procedures to be applied for the implementation of the safeguards provisions of Part I. It includes material on matters such as national systems of accounting for and control of nuclear material, the starting point of safeguards, exemptions from safeguards and termination thereof, the provision of design information pertaining to facilities as necessary for safeguarding nuclear material, the keeping of records, provision to the Agency of reports in respect of nuclear material, detailed provisions covering the purposes and scope of inspections as well as access therefor, the frequency and intensity of routine inspections, notice of inspections, and the designation of inspectors; a series of provisions is also included with respect to the international transfer of nuclear material. Finally, a set of definitions was included with respect to special terms to be used in agreements.

On 23rd February 1971, the Board of Governors of the Agency authorized the Director General to use the material formulated by the Safeguards Committee as a basis for negotiating agreements required by

Article III of NPT. In addition, the Board noted that the Safeguards Committee had not yet made recommendations on questions relevant to the financing of safeguards, but had made arrangements to continue its deliberations on the subject.

Following earlier discussions which it had held on the subject of the financing of safeguards, the Committee began a new series of meetings on 2nd March 1971.

TRAINING IN NUCLEAR LAW

Under the International Law Programme of the United Nations Institute of Training and Research (UNITAR), an official from the Ministry of Foreign Affairs of the United Arab Republic received training in nuclear law at the IAEA Headquarters from August to December 1970. He also attended the Inter-regional Training Course on the Legal Aspects of Nuclear Energy, held in Athens, Greece, from 7th to 18th December 1970.

It may be recalled that the first of such training courses was organised on a fully international basis by the IAEA in Vienna in April 1968. This was followed by a Seminar on the Development of Nuclear Law, held in Bangkok, Thailand, in April 1970 for countries in Asia and the Far East. The Inter-regional Training Course conducted by the IAEA in Athens in December 1970 was intended for Member States in Africa, the Middle East and Eastern Europe and was attended by 25 participants and observers from the following 13 countries: Bulgaria, Czechoslovakia, Ghana, Greece, Iran, Lebanon, Nigeria, Romania, Sudan, Syria, Turkey, U.A.R. and Zambia.

Review papers on the current status of nuclear legislation in these countries were presented by the participants, followed by a series of lectures given by two IAEA staff members and seven visiting experts provided by ENEA, the Federal Republic of Germany, India, Spain, the U.S.A. and two insurance associations: the British Insurance (Atomic Energy) Committee in London and the European Insurance Committee in Brussels. The programme of the course, which gave emphasis to the discussion of practical issues in nuclear law, covered recent legislative developments in nuclear safety and environment protection, the functions of a national authority on atomic energy, the IAEA safety standards and recommendations, the IAEA advisory services to Member States in the framing of nuclear legislation, the concept of nuclear liability and its implementation by law, nuclear insurance problems, the international conventions as well as bilateral agreements and national legislation relating to nuclear ships, the legal arrangements for supply of nuclear materials through the IAEA, and the Treaty on the Non-Proliferation of Nuclear Weapons and the safeguards agreements connected therewith.

It is expected that through such training schemes a growing number of Member States, especially developing countries, will benefit from the experience of others and the advice of qualified international bodies in the elaboration of legislation to keep pace with the development of their national programmes of nuclear activities.

EXEMPTION OF SMALL QUANTITIES OF NUCLEAR MATERIAL FROM THE SCOPE OF THE VIENNA CONVENTION ON CIVIL LIABILITY FOR NUCLEAR DAMAGE

In February 1971, the Agency convened an informal working group of experts on the problem of the exclusion of small quantities of nuclear material from the application of the Vienna Convention on Civil Liability for Nuclear Damage. This problem has been under review within the Agency for some time following earlier work undertaken by ENEA. The Working Group had before it, in particular, a recommendation made by the Standing Committee on Civil Liability for Nuclear Damage at its last meeting in 1967 and the texts of two draft decisions resulting from the work of an ENEA ad hoc Group of Legal and Technical Experts. General agreement was reached on criteria for exclusion and the IAEA Secretariat was requested to prepare a draft decision to be submitted to the Standing Committee at its forthcoming series of meetings later this year.

NUCLEAR EXPLOSIONS FOR PEACEFUL PURPOSES

A group of experts convened by the Director General met in Vienna from 23rd to 27th November 1970 to study the question of the international observation of peaceful nuclear explosions in connection with Article V of NPT and the role that the Agency might perform in that connection.

The group suggested definitions of the purpose and character of international observation and elaborated a framework for the implementation by the Agency of international observation functions. The Board of Governors considered the matter at its meeting on 24th February 1971 and decided to proceed further with work on this subject on the basis of the group's report and to invite Member States, should they wish to do so, to express their views on the report.

• *European Nuclear Energy Agency*

A meeting of the Group of Governmental Experts on Third Party Liability in the Field of Nuclear Energy was held in Paris on 16th and 17th November 1970. Among the matters discussed and decisions taken were the following:

Paris Convention

(1) The position of the various countries was stated in relation to their ratification of the Paris, Brussels Supplementary and Vienna Conventions, and of the Brussels Convention on Nuclear Ships;

(2) It was reported that the exclusion of small quantities of nuclear substances from the application of the nuclear Conventions, having been already agreed upon in principle by the Experts and embodied in the form of draft decisions sent to IAEA for comments, would be

considered by a working group of Experts of IAEA's Member States before submission to the IAEA Standing Committee (see Note under IAEA above),

(3) The question of the extension of the Paris Convention to incidents occurring and damage suffered in the territory of non-Contracting States was discussed. It was agreed that a recommendation should be made to the Steering Committee of ENEA that nuclear damage suffered in a Contracting State or on the high seas should be included in the scope of the Convention, even if the incident occurred in a non-Contracting State,

(4) It was agreed that the problem of imposing a higher limit of liability on operators responsible for the transit of nuclear substances through a Contracting Party's territory [Article 7(e) of the Paris Convention] involved difficulties and that further use of this provision should not be made without consultations;

(5) When both the Paris and Vienna Conventions are in operation a number of conflicts will be in theory possible owing to their simultaneous application and to the fact that all the parties to the two Conventions will not be the same. The most likely circumstances involving conflicts were considered and it was agreed that certain solutions to these should be recommended to ENEA's Steering Committee for the information of and use by countries which might ratify both Conventions;

MARITIME CARRIAGE OF RADIOACTIVE SUBSTANCES

(6) The divergencies between nuclear and maritime Conventions were discussed. A short new draft maritime Convention, aimed at overcoming these divergencies, will be presented to the Legal Committee of the International Maritime Consultative Organisation (IMCO) in April 1971, and it is hoped that this will become the subject of a Diplomatic Conference subsequently;

(7) The organisation of a Symposium on maritime carriage of nuclear substances (to follow up the Monaco Symposium held in 1968) was discussed It was agreed to set up a Programme Committee to assist in the preparation of the Symposium and the date, place and topics to be discussed will be decided later.

NUCLEAR-POWERED SHIPS

(8) At its last meeting the Group of Governmental Experts also examined the possibility of including in the group's programme of work, the study of legal problems raised by the visit of nuclear ships in ports and territorial waters. The various ways of carrying out this study were reviewed, in particular the elaboration on a multilateral basis, of a model agreement on third party liability problems which might serve as a model for bilateral negotiations between Member countries. The fact that the Brussels Convention on the Liability of Operators of Nuclear Ships is not yet in force, as well as the difficulties created by the lack of harmonization between national laws, and their frequent maladjustment with respect to specific problems raised by the visit of nuclear ships, are a serious obstacle to the conclusion of bilateral agreements for visits, and might well hinder the development of commercial navigation of nuclear-powered ships. After this review, it was agreed to set up a Restricted Working Party made up of countries interested by the study of such problems and willing to participate.

This Restricted Working Party met for the first time in March 1971 and undertook to define the general principles of third party liability which should be included in a model agreement. Following the progress made during these discussions, it was decided that the Restricted Working Party would meet again during the year to achieve the elaboration of this agreement.

• *Euratom*

APPLICATION OF EURATOM TREATY

Among the reforms tending to facilitate the subsequent application of the EURATOM Treaty, it seemed necessary to grant greater autonomy, with respect to the Commission and its central services in Brussels, to the Joint Research Centre (CCR) whose four Establishments are spread over the territory of the Community, while associating representatives of the Member States to its management in an advisory capacity.

In consequence, on 13th January 1971, the Commission made a Decision concerning the reorganisation of the EURATOM Joint Nuclear Research Centre (Official Gazette No. L 16, 20th January 1971). This Decision grants extended powers to the Director General of CCR, both as regards the management of the Centre and the execution of research programmes, and for the elaboration of proposals for programmes. In support of the Director General, it sets up a General Consultative Committee made up of representatives designated by the Governments of Member States, as well as a CCR Scientific Committee made up of "senior officials responsible for departments and projects", together with representatives of the scientific and technical personnel.

A Resolution of the Council, dated 17th December 1970, concerning the procedure for the adoption of the research and educational programmes, and a Resolution of the representatives of Member States, convened within the Council, concerning the designation of members of the General Consultative Committee of the Joint Research Centre, were published in the same issue of the Official Gazette of the European Communities.

AGREEMENTS

• *Finland*

BILATERAL AGREEMENTS ON COLLABORATION IN THE FIELD OF PEACEFUL UTILIZATION OF NUCLEAR ENERGY

On 24th May 1968 a collaboration agreement on peaceful uses of nuclear energy was signed between Finland and the United Kingdom, and a similar agreement was signed with Sweden on 15th October 1968.

Both these agreements contain provisions to the effect that the parties consider it desirable to apply as soon as possible internationally agreed rules on the measures to be taken in order to effect compensation and economic security in regard to damage caused by the peaceful utilization of nuclear energy.

A similar agreement was also signed with the Soviet Union on 14th May 1969 and this contains rules on the liability for damages, which are based on the principle of reciprocity.

In addition, under an Agreement for co-operation concerning civil uses of atomic energy signed between Finland and the U.S.A. on 8th April 1970, the Government of Finland agreed to indemnify and save harmless the Government of the U.S.A. against all liability (including third party liability) with respect to nuclear material after delivery by the USAEC to the Government of Finland or to any person under its jurisdiction. This stipulation is related to the U.S. domestic legislation on this subject (Price-Anderson Act).

• *Germany – Portugal*

NUCLEAR-POWERED SHIP "OTTO HAHN"

On 29th January 1971, a Treaty was signed between Portugal and the Federal German Republic concerning the entrance of "N.S. Otto Hahn"

into Portuguese territorial waters and ports. The provisions of the Treaty correspond to those of the Agreement with the Netherlands (see Nuclear Law Bulletin No. 2) and with Liberia (see Nuclear Law Bulletin No. 6). The Agreement with the Netherlands came into force on 18th March 1971.

• *Philippines*

REGIONAL CO-OPERATION ON THE PEACEFUL APPLICATIONS OF ATOMIC ENERGY

The Government of the Republic of the Philippines, through its Secretary of Foreign Affairs, has informed the International Atomic Energy Agency (IAEA) that the Philippine Government desires to formally conclude a regional co-operation agreement on research and training projects in nuclear science and technology with the Agency and with other Member States from the region of South East Asia, the Pacific and the Far East. The proposal for regional co-operation was initially discussed at an Organisational Meeting held in Manila on 14th-16th March 1969 and later at the Group Meeting in Bangkok on 9th-10th July 1970, both of which were sponsored by the Agency. The latter meeting was attended, in addition to those representing the Agency, by representatives of 12 Member States belonging to said region including observers from France, United States and the South East Asian Ministries of Education Organisation. Project proposals for collective effort were discussed at the meeting. The co-operative projects where there was community of interest are: activation analysis, neutron spectrometry, food preservation and production of wood plastic composites. The Philippine representative expressed a desire for undertaking a co-operative project in advanced neutron spectrometry with India and Indonesia.

A consensus on a draft agreement for co-operation was also arrived at during the meeting. It was also agreed that the final version of the agreement would be circulated to Member States before submitting it to the Agency's Board of Governors for approval.

The agreement consists of a preamble which in substance states that the Agency's assistance on research and development and in the practical application of atomic energy can be fulfilled by further regional co-operation between Member States and by assisting their atomic energy programmes, that Governments party to the agreement recognize that there are areas of common interest in their individual atomic energy programmes wherein mutual co-operation can promote the efficient utilization of available resources and that under the auspices of the Agency, the Governments party to the agreement desire to enter into regional agreement to encourage co-operative activities.

The last statement of the preamble leaves open the date when the Agency's Board of Governors has approved its participation in the co-operative agreement.

Article I of the agreement consists of a statement of an undertaking that the Governments, in co-operation with each other and with the Agency, agree to promote and co-ordinate co-operative research, development and training projects in nuclear science and technology through their appropriate national atomic energy institutions.

Article II prescribes the mechanics for concluding agreements on co-operative projects. Any Government party to the agreement may propose a co-operative project by submitting it to the Agency which in turn must notify the other Governments party to the agreement. The other Governments, upon receipt of the notification, must inform the Agency whether, in principle, they are interested in participating in the proposed co-operative project. The Agency will negotiate with the interested Governments for the establishment of the project whenever at least two Governments including the proponent of the project are interested in participating therein. Upon completion of the negotiation, the Agency will prepare a draft agreement which will:

(a) define the parties, the co-operative project and the manner of implementing it;

(b) provide for the application of those health and safety measures specified in the Agency's Document INFCIRC/18;

(c) provide the undertaking by the Governments against the military use of the assistance provided for in the projects;

(d) provide for the settlement of disputes;

(e) specify liability of the parties thereto; and

(f) set further other provisions where appropriate.

With the consent of the parties in the agreement, any Member State may participate in the project or enter into a collaborative agreement with the parties thereto.

Article III creates a Co-ordinating Committee composed of a representative of the Agency and one representative from each of the Governments party to the agreement. The Chairman is elected annually from among the members of the Committee. The secretary of the Committee will be provided by the Agency. The meeting of the Committee will be once a year in conjunction with the annual sessions of the General Conference of the Agency. At the meeting, the Committee will consider the progress of the work in the co-operative projects and will consider proposals for the establishment of other co-operative projects.

Article IV of the agreement permits any Member State of the Agency in the areas of "South Asia", South East Asia, or the Far East to become a party to the co-operative agreement notifying the Director General of the Agency of its acceptance of the agreement and provides the entry into force of the agreement upon receipt by the Agency of the second acceptance from the Member State party to the agreement.

With respect to Governments accepting the agreement following its entry into force, it shall enter into force with respect to such Governments upon the date of their acceptance. The agreement has force and effect for the period of five years starting from the date of the second notification of acceptance.

• *United Kingdom – Euratom*

CO-OPERATION AGREEMENT IN THE PEACEFUL USES OF ATOMIC ENERGY

The agreement for co-operation in the peaceful uses of atomic energy, concluded between the European Atomic Energy Community and the Government of the United Kingdom, has just been extended for a second time on 29th January 1971, by an exchange of letters between the representatives of both parties.

This agreement, which was signed in London on 4th February 1959, had been extended for the first time on 3rd February 1969 for a period of two years. The new prolongation came into force as from 4th February 1971 for a period of one year. It was agreed that before the end of October 1971, the Contracting Parties would begin consultations together with a view to determining the duration of any further prolongation.

• *Euratom*

TREATY OF 22nd APRIL 1970

The "Decision of the Council of the European Communities of 21st April 1970 concerning the Financial Contributions of the Member States by the Communities' own means" was ratified in Germany by an Act of 4th December 1970 (BGBL 1970, II, No. 62, page 1261). This Act also ratifies the "Treaty of 22nd April 1970 for the Amendment of Certain Budget Regulations of the Treaty Founding the European Communities and the Treaty to Appoint a General Council and a General Commission of the European Communities" (BGBL 1970, II, No. 63, page 1281). In addition, this Decision was published in France by Decree No. 71-168 of 26th February 1971 (J.O.R.F. of 5th March 1971). This Decision came into force in France on 1st January 1971. Another Decree, No. 71-169, made and published simultaneously with the preceding Decree, publishes the Treaty of 22nd April 1970, amending certain budgetary provisions of the Treaties founding the European Communities, and the Treaty appointing a General Council, and a General Commission of the European Communities.

MISCELLANEOUS

ERRATUM

• *European Nuclear Energy Agency*

In Nuclear Law Bulletin No. 6, in the English text only of the note on the signing of the Agreement on a new International Food Irradiation Project on page 39, the second sentence should read as follows

"The original Signatories were organisations in Austria, Belgium, Canada, Denmark, France, Germany, Israel, Italy, Japan, Netherlands, Norway, Portugal, South Africa, Spain, Sweden, Switzerland, Turkey, United Kingdom and the United States."

ENEA ANALYTICAL STUDY ON NUCLEAR LEGISLATION

UPDATING OF ENEA ANALYTICAL STUDY ON NUCLEAR THIRD PARTY LIABILITY *

• *Canada*

The Act respecting civil liability for nuclear damage (Bill C.158), was passed by the Canadian House of Commons on 19th June 1970. It will come into force on a date to be fixed by Proclamation.

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* This study has been updated on the basis of information made available to the Secretariat and in no way involves the responsibility of the national authorities.

NATURE OF THIRD PARTY LIABILITY

I - DAMAGE ENTAILING LIABILITY

Nuclear activities in Canada are subject to the requirement of a licence issued pursuant to the Atomic Energy Control Act.

Act of 19.6.1970
Sections 2 and 3

The holder of a licence to operate a nuclear installation is under a duty to secure that no injury (including loss of life) to any other person, or a damage to any property of any other person, is occasioned by any nuclear material connected with his activities as an operator.

Thorium, natural or depleted uranium, and radioisotopes in their final state are not regarded as nuclear material for the purposes of the Act.

Section 2

Under the Act, the operator of a nuclear installation (the holder of a licence) is liable for a nuclear incident, i.e. an occurrence resulting in injury or damage that is attributable to a breach of the abovementioned duty.

Section 6

Injury or damage that, though not attributable to a breach of such duty, is not reasonably separable from injury or damage that is attributable to a breach thereof, is deemed, for the purposes of the Act, to be attributable to that breach of duty.

Section 34

An operator is not liable for any injury or damage occasioned outside Canada that is attributable to a breach of the duty imposed upon him or for which he may be liable pursuant to any law of a place outside Canada. The Governor in Council may, however, determine otherwise and grant reciprocal treatment to any country which takes measures providing for compensation under substantially similar conditions to those laid down by Canadian law.

II - PERSONS LIABLE

(a) Installations

Sections 4 and 11

A nuclear operator is absolutely, exclusively and completely liable for a breach of the duty imposed upon him by the Act.

Section 5

Where such liability is incurred by two or more operators, their liability shall be joint and several. The operator is not liable for damage caused by a nuclear incident to the nuclear installation, to property on the premises of the nuclear

Section 9

installation that is used or to be used in connection with the nuclear installation, to the means of carriage or to the place where the nuclear material is stored in the course of carriage.

Section 33

Where the Crown in right of Canada (the State) operates a nuclear installation, it is deemed, as regards liability, to be the operator thereof.

(b) Carriage

Section 3

An operator is liable for injury or damage caused by nuclear material that is in the course of carriage from outside Canada to the nuclear installation of which he is the operator or is in a place of storage incidental to that carriage.

(c) Rights of recourse

Section 10

Section 12

A nuclear operator has no right of recourse except where the injury or damage occurred wholly or partly as a result of an unlawful act or omission of any person done or omitted to be done with intent to cause injury or damage.

III - EXONERATION FROM LIABILITY

Section 7

A nuclear operator is not liable for injury or damage if the nuclear incident occurred as a direct result of an act of armed conflict in the course of war, invasion or insurrection.

Section 8

Nor is the operator liable for damage or injury suffered by a person where the nuclear incident results wholly or partly from an unlawful act or omission of that person done or omitted to be done with intent to cause injury or damage.

FUNCTIONING OF THIRD PARTY LIABILITY

I - FINANCIAL SECURITY

(a) Limitations of liability and insurance

Section 15

A nuclear operator must, for each installation of which he is the operator, maintain with an insurer approved by the competent Minister insurance against the liability imposed on him by the Act.

Such insurance consists of basic insurance for such term and such amount not exceeding Can. $75 million (about 70 million EMA/units of account) as may be prescribed by the Atomic Energy Control Board with the approval of the Treasury Board,

Section 15

and of supplementary insurance for the same term and for an amount equal to the difference, if any, between the amount prescribed for the basic insurance and a maximum of Can. $75 million.

Section 16

Subject to the approval of the Treasury Board, the competent Minister may, with respect to such supplementary insurance, enter into a reinsurance agreement with an approved insurer, upon such terms and conditions as the Minister deems appropriate.

Section 17

Any such agreement must be laid before Parliament within fifteen days. All amounts payable by the Government pursuant to such agreement are to be charged to a special account in the Consolidated Revenue Fund and all amounts received by the Government pursuant thereto are to be credited to that account.

(b) State intervention

Section 18

Where the Governor in Council is of the opinion that the liability of an operator in respect of a nuclear incident could exceed Can. $75 million, or as a result of any injury or damage attributable to a nuclear incident, it is in the public interest to provide special measures for compensation, he must by Proclamation declare that the special measures provided by the Act apply in respect of that nuclear

Section 19

incident. In such a case, the operator who would normally be liable ceases to be liable to persons who have suffered injury or damage, all claims for compensation, including legal proceedings already brought, are forever stayed, and the State steps into the shoes

Section 20

of the operator. The latter is, nevertheless, liable to the Government for an amount equal to the lesser of: either the amount of the basic insurance he is required to maintain, or the aggregate of all amounts paid out of the Consolidated Revenue Fund in respect of compensation orders issued by a Nuclear Damage Claims Commission and in respect of any interim financial assistance, the provision of which has been decided by the Governor in Council. In the event of failure by the operator to pay such an amount, the approved insurer is liable to the Government therefor.

Section 20

Moreover, the aggregate of the amounts so demanded from the operator may not in any year exceed the aggregate of the amounts paid in respect of compensation orders and interim financial assistance during that year in respect of the nuclear incident.

Section 31

The provision of interim financial assistance may be decided by the Governor in Council where it is necessary because of distress or suffering to persons affected by a nuclear incident. In such case the Governor in Council makes regulations providing for the payment of the necessary sums by the competent Minister out of the Consolidated Revenue Fund and specifying the persons to whom such amounts may be paid. The Governor in Council may authorize a Nuclear Damage Claims Commission to perform this function.

Section 32

Except as otherwise authorized by Parliament, the aggregate of all amounts paid in respect of compensation orders and interim financial assistance may not, in respect of any one nuclear incident, exceed Can. $75 million.

(c) Nuclear Damage Claims Commissions

In the event of special measures for compensation being brought into force by proclamation, the Governor in Council must establish a Nuclear Damage

Section 21

Claims Commission to deal with claims for compensation arising out of the nuclear incident described in the Proclamation. The Commission is to consist of a Chairman, a Vice-Chairman, and other Members, all appointed by the Governor in Council from among persons who are judges of Canadian Courts, or barristers or advocates at a Canadian bar. The Chairman is the chief executive officer of a Commission.

Section 22

A Commission, which may employ such officers and employees as it considers necessary for the proper

Section 24

conduct of its activities, has exclusive original jurisdiction to hear and determine every claim brought before it for compensation arising out of the nuclear incident in respect of which it was established (or

Section 23

in respect of any other nuclear incident to which its jurisdiction may be extended), and in its discretion, to decide the amount of compensation to be awarded in respect of such claim.

Section 24

A Commission may make its own rules of procedure as regards, in particular, the determination of

Section 25

claims, and may also make, or cause to be made, all necessary examinations and investigations.

Where a Commission rules in favour of a claim, it must issue an Order specifying the amount of compensation awarded and the amount of any payments that may have already been made by the liable operator to the person named in the Order. Such Orders are to be sent to the compentent Minister. They are final and conclusive.

II - COMPENSATION

Section 28

The competent Minister may, upon receipt of a compensation Order, and subject to any special regulations applying to the payment of compensation, pay out of the Consolidated Revenue Fund to the person entitled thereto an amount equal to the amount of compensation awarded in the Order less any amounts already paid to that person either by the operator or in respect of interim financial assistance.

Section 29

The Governor in Council may, with respect to any compensation awarded by an Order, make regulations providing for its payment by instalments or pro rata. Such regulations may also establish priorities among persons claiming compensation or exclude, temporarily or permanently, any kind or class of injury or damage from compensation. Any such regulations must be laid before Parliament.

Section 12

Certain rights such as rights arising under any insurance required to be maintained by an operator, or under schemes of health or hospitalization insurance, employees' compensation or occupational disease compensation, or superannuation or pension funds or plans subsist without any limitation, notwithstanding the Act.

III - LIMITATION IN TIME

Section 13

Actions in respect of claims for injury (other than loss of life) or for damage to property, are barred after three years from the earliest date upon which the person making the claim had knowledge or ought reasonably to have had knowledge of the injury or damage. In the case of a claim for loss of life, actions are barred after three years from the date of the death, or where conclusive evidence of the death is not available, after three years from the date an Order presuming the death is made by a Court having jurisdiction in such matters.

Section 13

In no case may any such action be brought after ten years from the date the cause of action arose.

IV - COMPETENT COURT AND MISCELLANEOUS PROVISIONS

Section 14

The Court having jurisdiction in actions for damages is either the Court having jurisdiction in the place where the injury or damage was occasioned, or in cases where more than one Court would otherwise have jurisdiction as aforesaid, the Court having jurisdiction in the place where the nuclear installation was situated. The Court so having jurisdiction is deemed to have jurisdiction throughout Canada.

The rules prescribed in the Act as to the jurisdiction of Courts may be modified by any special arrangements entered into by the Governor in Council with reciprocating countries, so far as concerns compensation for injury or damage of nuclear origin.

Section 35

The Act is to come into force on a day to be fixed by Proclamation.

Comments

The Canadian Bill, while having a more limited objective, is on some points fairly close to the United Kingdom Nuclear Installations Act, which came into force in 1965. Despite the fact that Canada is not a Signatory to any Convention on nuclear third party liability, the principles laid down by these Conventions have undoubtedly influenced Canadian legislation. It should be pointed out that the ceiling of Can. $75 million set for the liability of the nuclear operator is much higher than that specified in the Paris and Vienna Conventions, doubtless in order to provide a rate of private financial cover comparable to that of United States operators, although the total amount of compensation that may be awarded is lower than the ceiling of 120 million EMA/units of account provided for in the Brussels Supplementary Convention. The importance of the duties entrusted to the Nuclear Damage Claims Commission should be emphasized, since this body has scarcely any counterpart in nuclear legislation elsewhere.

Finally, special mention should be made of the original nature of the method whereby the liable operator's obligations in terms of compensation payable are limited financially, without there being an official limitation of liability.

• *Italy*

MINISTERIAL DECREE OF 2nd FEBRUARY 1971

Determination of the values of the maximum permissible doses, maximum permissible concentrations and relative biological effectiveness for the population as a whole and for the special population groups, for the purposes of protection against the hazards of ionizing radiations*

THE MINISTRY FOR HEALTH, WITH THE CONCURRENCE OF THE MINISTRY FOR LABOUR AND SOCIAL SECURITY:

HAVING REGARD to Article 111 (Determination of maximum permissible doses and concentrations) of the Decree of the President of the Republic No. 185 of 13th February 1964, relating to the safety of installations and the protection of the health of the workers and the population against the hazards of ionizing radiations;

HAVING REGARD to Act No. 1203 of 14th October 1957, relating to the ratification and implementation of the Treaty setting up the European Atomic Energy Community;

HAVING REGARD to the Directives adopted by the European Atomic Energy Community fixing the basic norms relating to the protection of the health of the population and the workers against the hazards of ionizing radiations;

RECOGNIZING the necessity of determining the maximum permissible doses and concentration in a manner consistent with the requirements of the protection of the population against the hazards of ionizing radiations arising from the peaceful use of nuclear energy;

ON THE ADVICE of the National Committee for Nuclear Energy;

AFTER CONSULTING the Interministerial Council for Consultation and Co-ordination,

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* Unofficial translation by the Secretariat.

ON THE ADVICE of the Commission of the European Atomic Energy Community;

D E C R E E S :

Article 1

The maximum permissible dose which is genetically significant for the population at large shall be 5 rems per capita accumulated up to the age of 30 years.

Such dose shall be determined so as to take into account, by a system of weighting, the doses received by persons occupationally exposed and by special population groups.

It shall not take into account any doses from exposure to natural background radiation or from medical examinations or treatment.

In order to ensure that in relation to the population at large the abovementioned maximum permissible dose is not exceeded, concentrations of radionuclides in drinking water and inhaled air outside controlled and monitored areas shall not exceed one thirtieth of the values specified by Article 9 of the Decree made on 6th June 1968, by the Ministry for Industry, Commerce and Crafts in pursuance of Article 87 of the Decree of the President of the Republic No. 185 of 13th February 1964

Such concentrations shall be taken as average values for an entire solar year.

Article 2

For the special population groups (1) and (2), as defined in Article 9(h) of the Decree of the President of the Republic No 185 of 13th February 1964, the maximum permissible doses are fixed as follows.

1.5 rem in a year for the gonads and blood-forming organs,

4.5 rems in 13 weeks and 18 rems in a year for the extremities (hands, arms, feet, ankles);

2.4 rems in 13 weeks and 9 rems in a year for the skin and the bone tissue;

1.2 rem in 13 weeks and 4.5 rems in a year for the other organs taken singly and for the lenses of the eyes.

In no case may the maximum permissible dose arising from total aggregate (internal plus external) radiation sources as defined in Article 2 of the abovementioned Ministerial Decree of 6th June 1968 exceed 1.5 rem in a year.

For population group (1) referred to in the preceding paragraph, the maximum permissible concentrations of radioactive nuclides in drinking water and inhaled air shall be the same as those specified in Article 9 of the abovementioned Ministerial Decree of 6th June 1968.

For population group (2), the abovementioned maximum permissible concentrations are fixed at one-third of those specified for population group (1), provided that in neither case may the maximum permissible doses referred to in the preceding paragraph be exceeded.

Article 3

For special population group (3) as defined in Article 9(h) of the Decree of the President of the Republic of 13th February 1964, the maximum permissible doses are fixed as follows:

0.5 rem in a year for the gonads and blood-forming organs;

6 rems in a year for the extremities (hands, arms, feet, ankles);

3 rems in a year for the skin and the bone tissue;

1.5 rem in a year for the other organs taken singly and for the lenses of the eyes.

In no event may the maximum permissible dose resulting from total aggregate irradiation exceed 0.5 rem in a year.

The maximum permissible concentrations of radioactive nuclides in drinking water and inhaled air for population group (3) referred to in this Article shall not exceed, in the case of persons over 5 years of age, one-tenth of the values specified in Article 9 of the abovementioned Ministerial Decree of 6th June 1968, and, in the case of persons under 5 years of age, one-thirtieth of such values.

Such concentrations shall be taken as average values for an entire solar year.

The maximum permissible concentrations in the food of persons of any age shall be determined by reference to those specified for drinking water, and on the basis of the relative proportions by weight of food and water ingested in the same period of time, so that the total intake of radioactivity shall be kept within the limits fixed in the preceding paragraph.

Article 4

The Relative Biological Effectiveness for the different types of radiation shall be the same as that specified in Article 20 of the abovementioned Ministerial Decree of 6th June 1968.

Article 5

This Decree shall enter into force ninety days after its publication in the Official Gazette of the Italian Republic.

Done in Rome, on 2nd February 1971.

STUDIES AND ARTICLES

ARTICLES

LEGAL ASPECTS OF THE USE OF SOURCES OF IONIZING RADIATION

A. De Los Santos Lasurtegui

Legal Adviser, Junta de Energia Nuclear, Spain

The use of sources of ionizing radiation such as X-ray apparatus, natural radioactive substances and artificial radioisotopes in many activities such as medicine, industry and agriculture has conferred many benefits upon mankind but has also exposed it to certain risks.

Since the discovery and early applications of X-rays and natural radioactivity at the end of the last century, the harmful effects of these radiations have been increasingly revealed with the intensification of research. But simultaneously with a better understanding of the risks involved, the introduction and enormous development of nuclear energy has extended the use of radiation. The risks have therefore not remained limited to a small number of persons and large numbers of workers and the population have become exposed.

Such a situation could not fail to have repercussions at juridical level and its legal implications are of vital importance. The use of ionizing radiation involves risks which must neither be ignored nor exaggerated but appreciated at their just value. Damage must be prevented but the legal measures adopted must encourage and not obstruct

* The ideas expressed and the facts given in this article are under the sole responsibility of the author.

this activity from which so many benefits are derived. There has been a steady improvement in the technical measures applied to the safety and protection of workers and the population and it is certain that, at present, there is far less danger from radiation than from other factors in our environment that are not subject to so many precautions and are accepted by the population without apprehension.

Nevertheless, in view of the high level of safety now attained, the law itself must play an important part in the development of radioactive applications.

From the moment that these activities emerge from the experimental and laboratory stage to enter that of practical application in the various fields, the whole community is affected; it benefits from the advantages but it also incurs the risks. New situations arise that must be dealt with by the law by adequate methods to control the special characteristics of these risks prohibiting, in many cases, a solution for the problems involved without recourse to specific legal measures. The legal problems that arise relate to two basic questions: the prevention of and compensation for damage caused by ionizing radiation. The solution of these two problems in the best possible conditions is the great task facing legal science today.

1. THE NECESSITY FOR LEGAL NORMS

The need for legal means to ensure a satisfactory protection against radiation became apparent as the resultant damage was revealed.

Thus, only ten years after Roentgen's discovery of X-rays, the first German radiological congress, in 1905, stressed the urgent need for the establishment of appropriate norms. It was during that congress that the recommendation was made for the control of the use of ionizing radiation by legislation in order to reduce the number of accidents which, even at that time, had begun to assume fairly large proportions.

Subsequently, a number of professional associations in various countries proceeded to formulate norms and recommendations on radioprotection and in 1928 the preparation of radioprotection norms became the responsibility of an international organisation known as the "International Commission on Protection against X-rays and Radium" which in 1950 became the "International Commission on Radiological Protection (ICRP)".

However, apart from the need for regulations incorporating the basic principles for protection, the public authorities were obliged to exercise strict control on activities involving radioactivity and which in some cases are performed illegally or by unqualified personnel. From time to time the specialized press has voiced this need and some scientists demand a control of this nature to prevent such harmful and abusive utilizations. One example is the employment, in certain cases, of the well-known depilatory effects of X-rays in beauty establishments by wholly untrained staff. The persons, mostly women, who have undergone the treatment have sometimes received so high a dose that serious injury has resulted. Similarly, radium has been used to excess; thus an American firm had sold a vast quantity of bottles of water with a high radium concentration that many purchasers drank to treat various infections. The resulting damage remained unrecognized in most cases until many years later or was attributed, when discovered, to other causes.

All this explains why the authorities in some countries have undertaken to control the use of radiation sources, prohibit certain applications and insist that others must be performed by qualified persons.

Similarly, the problem of compensation for damage caused by radiation was raised at an early date.

In the United States, for example, a series of cases of damage occurred in the 1920's, including some deaths, caused by radium. The victims were employed in a factory painting timepiece dials with a paint whose composition included radium and they formed the habit of sucking the brushes to give them a point. The victims or their heirs claimed damages in the Courts but for the most part the pleas were rejected because no provision for the damage caused and the manner in which it occurred was made in existing legislation. In particular, too long a period had elapsed between the date on which the claimants had quitted the employment giving rise to the damage and the date on which the damage was discovered; in addition, the time-limits prescribed for bringing actions for damages had been exceeded.

Other difficulties also arose in connection with the cause and effect relationship between the damage sustained and the work involving the use of radium, etc.

Nevertheless, very few countries passed legislation in this field until after the Second World War when the question arose of the peaceful application of the recently discovered nuclear energy and the control of natural and artificial radioactive substances became imperative. It became increasingly urgent to apply norms and regulations for the prevention of, or compensation for damage. It may, however, be asserted that in many countries, it is only recently that laws relating to sources of ionizing radiation have been embodied in the legislation.

2. SCOPE AND CONTENT OF LEGISLATION

At the present time, most countries have, in varying degrees, passed legislation regulating the use of sources of ionizing radiation. A relatively high degree of uniformity has been achieved primarily because account has been taken of the recommendations put forward in the various international organisations.

But for all this it remains true that legislations vary in their scope and content so that whilst many States have promulgated "Nuclear Acts" regulating various questions in relation to nuclear installations, they have adopted different legislative provisions in so far as radioactive and X-ray generating equipment is concerned.

2.1. Scope

In general the regulation concerning nuclear installations is more homogeneous and is embodied in legislative acts together with a number of complementary provisions. Moreover, in view of the fact that such installations may cause a major catastrophe, considerable importance has been attached to the prevention of and compensation for any damage involved.

On the other hand, the use of sources of ionizing radiation other than in nuclear installations is regulated in many countries in different ways by regulations of varying scope issued by different authorities. This situation is due to historical reasons and to the fact that measures had to be taken as and when the need arose and, since these sources of radiation were in many cases being used before the existence of nuclear installations, when the relevant act was prepared, it did not incorporate the other activities giving rise to the generation of ionizing radiation.

Since the harmful effects of a given type of radiation are the same, whatever their source, it seems logical for legislation to cover all types of exposure, whether to X-rays or to radiation from radioactive substances. This, however, has not always been the case. In particular, legislative measures taken in recent years relate primarily to the control of radioactive isotopes and frequently fail to mention X-rays although they have contributed considerably to the population's exposure to radiation.

Thus, in Canada, the Federal Republic of Germany and South Africa, for example, legislation has been passed applying to radioactive substances but not to X-rays. Other countries like Denmark have two separate Acts, one regulating the use of radioactive substances and the other relating to X-rays.

In Spain, an Order of the Government Presidency, dated 29th May 1961 regulates the use, storage and acquisition of radioactive isotopes and other sources of ionizing radiation within the national territory. In the same year, a Decree also made by the Government Presidency of 30th November, promulgated Regulations for the Control of Unpleasant, Unhealthy, Harmful or Dangerous Activities, the provisions of which are applicable to activities utilizing nuclear energy and radioactivity.

Subsequently, the Nuclear Energy Act dated 29th April 1964 defined as nuclear installations, installations of any kind containing a source of ionizing radiation, the apparatus generating it and the laboratories, factories and installations which produce, handle or stock radioactive materials.

For the moment, the use of X-ray apparatus and of natural and artificial radioactive substances, with a few exceptions we shall examine later, is controlled by the provisions of this Act although other norms and regulations of varying scope and purpose are also applicable such as those prepared in implementation of the Act.

As regards the radiation sources not covered by this legislation, the only ones excluded are those which, because of their low intensity, do not represent any serious risk, such as luminous dial timepieces and television equipment although in some countries studies are now proceeding on the control to be exercised over the latter. Sometimes, as in Switzerland, timepieces with luminous dials are the subject of special legislation. On the other hand, in three countries and in particular in the United Kingdom, many sources of radiation such as the radioactive substances used in fire detectors and given quantities of certain radioactive substances used for purposes of civil defence exercises and certain instruments and timepiece parts containing luminescent substances are not covered by the provisions of the United Kingdom Radioactive Substances Act of 1960.

In Spain the Nuclear Act lays down that installations, apparatus and materials, where the intensity of the field of irradiation produced involves no risk, are not included in the radioactive installation classification. A similar exemption appears in the regulation covering nuclear risks approved by the Decree of 22nd July 1967, which lays down that the use, handling and storage of radioactive materials or the production or use of installations and apparatus capable of generating ionizing radiation is exempt when the intensity of the field of radiation does not represent any risk in accordance with the norms in force.

As regards the statutory provisions relating to ionizing radiation, legislations are generally at variance.

Some confine themselves to laying down protection standards and establishing a control system whilst others are setting up a special system for the compensation of damage.

Many legislations provide such a system only for compensating damage produced in a nuclear installation, thus retaining the criterion adopted by the two International Conventions on Third Party Liability (Paris Convention of 29th July 1960 and Vienna Convention of 21st May 1963) which stipulate that the damage caused by radiation sources situated outside a nuclear installation shall be governed by common law, other countries, however, in view of the problems which might arise and which could result in damage going uncompensated, have preferred to set up a special system for regulating third party liability for such damage

Spanish legislation is relatively broad in scope since it covers both protection and compensation for damage caused by ionizing radiation both in nuclear and radioactive installations. Some questions, however, remain which must be covered by the implementing regulations provided in the Act.

2.2. Prevention of damage

Certain international organisations have played an important part in the formulation of norms for the prevention of damage by ionizing radiation.

The first of these is the International Commission on Radiological Protection (ICRP) to which reference has already been made. The work of this organisation is to study available information on the effects of radiation and, on this basis, to establish fundamental principles of protection against radiation. From time to time it publishes its recommendations on various questions such as permissible radiation doses to which various categories of the population may be exposed, and the countries incorporate these recommendations in their legislation when necessary.

The establishment of maximum permissible doses is based on the concept that all exposure to radiation assumes the acceptance of a certain degree of risk; however, since man cannot be expected to abandon the use of this ionizing radiation, the purpose is to set limits to the dose so that the risk is not unacceptable for individuals and for the population. Thus the permissible doses for an individual are those which, on the basis of present knowledge, represent a negligible probability of serious somatic or genetic damage.

The Commission draws a distinction between various categories of exposure such as occupationally exposed persons, the population in general, or even certain persons such as children or pregnant women. For occupationally exposed persons, the permissible exposure doses are higher than those permitted for other individuals.

The recommendations, codes of practice and norms published by the Commission have played an important role because they have been embodied in many national legislations. In Danmark, for instance, it has even been laid down that they should be directly applied as and when published by the ICRP, thus assimilating them to internal law. Similarly, many international organisations take these norms into consideration when preparing recommendations in this field for Member States.

Apart from the ICRP, other international organisations formulate norms and recommendations in the field of radiation protection so that their Member States may subsequently incorporate them in their national legislation.

In 1959, the European Nuclear Energy Agency set up in 1957 within the framework of the OEEC (now the OECD), published radiation protection norms (revised in 1962 and 1968). These norms include figures of "maximum permissible doses", although the term is not defined, and limits and maximum permissible concentrations of radionuclides in water and the atmosphere.

Again in 1962, the International Atomic Energy Agency prepared basic norms for protection against radiation; these were intended for use in operations in which the Agency was to be involved and to form a basis for Member States in the formulation of their national legislation.

Since these norms are intended to form a starting point from which the States to whom they are available may prepare suitable regulations, they contain, apart from the dose levels and maximum permissible concentrations, provisions relating to licensing systems, registration and control, medical surveillance, etc., which do not appear in the norms published by the other international organisations.

Apart from the aforementioned organisations, other international organisations have also prepared norms in this field such as the International Labour Organisation, Euratom, etc.

All of them also contribute in the same way to the prevention of risks by organising training courses, giving technical assistance to countries requesting it and similar forms of co-operation.

A notable feature of the development of international norms in the field of protection is the progressive reduction in the doses held to be permissible. Despite the fact that in general, exposure lies below the permissible limits it has been considered wise and feasible to reduce the latter progressively.

At national level, the existence of these international norms has resulted in the attainment of a high degree of harmonization. The most important differences reside in the fact that some States have not revised their legislation in line with the subsequent revisions of the international organisations. When preparing their protection norms, however, countries may adopt different approaches. Some, such as Canada and Norway, have chosen to reduce legislation on this question to a minimum, considering that the uses of radiation and technical methods of

protection are subject to continuous change and that detailed legislation will become rapidly out-of-date. Legislation in these countries, therefore, is couched in very general terms and reliance is largely placed on users for the adoption of measures of protection against radiation, the official bodies being confined to a consultative role. The contrary attitude has been adopted by countries such as Belgium, Switzerland and the Soviet Union, where practically every question relating to protection against radiation of a clearly defined type is covered by legislation

In Spain, radiation protection norms are contained in an Order of the Government Presidency dated 22nd December 1959. These norms are based on the recommendations put forward by the OEEC (now OECD). A new Presidential Order was issued on 10th July 1962, bringing the provisions of the earlier Order up-to-date in respect of the instructions concerning the work of women and young persons below the age of eighteen in radioactive industries.

The content of these protection norms is essentially as follows figures of concentrations and radiation and radioactive contamination levels; limitation of radioactive doses received by occupationally exposed persons to the lowest possible level; ban on any activity giving rise to exposure to radiation for those under eighteen years of age, for married women of child-bearing age or for unmarried women three months prior to marriage. The norms also prescribe that exposure in case of emergency must not result in the reception of higher doses than those laid down, that these doses cannot be received more than once in a lifetime and finally that women of child-bearing age must not be exposed to them. There are also provisions regarding compulsory medical surveillance of occupationally exposed persons, the use of dosimeters, etc.

The appendices to this Order give maximum permissible doses both for normal conditions and for emergencies.

In addition, the Order deals with certain questions of an administrative nature. Thus it provides for the creation of an Ionizing Radiation Protection Section in the General Health Directorate to work in close association with the protection department of the Junta de Energia Nuclear. Similarly, the formation of an Ionizing Radiation Protection Commission in the Junta was decreed, consisting of members of the General Health Directorate, a representative of the Spanish Radiological Society and a representative of the Institute of Industrial Health and Safety. Apart from its work of co-ordinating activities in the radioprotection field, this Commission has a consultative function.

As already mentioned, legislation in the field of protection has reached a high degree of uniformity, and despite the continuance of certain differences, the norms and regulations cover fairly similar questions.

Apart from the norms relating to the protection of occupationally exposed persons, measures have been taken, within the framework of the protection of the population in general, on the safety conditions characterizing an installation, particularly as regards the disposal of waste into the atmosphere and in water in order to prevent contamination Thus the Spanish Nuclear Act lays down that installations working with radioactive substances shall provide special arrangements for storing, transporting and handling radioactive residue.

Apart from these protection measures, legislations also provide for the control of the use of radiation sources, in order to prevent the hazards involved, through registration and licensing procedures and also by inspection. Registration simply means that use of these sources is notified to the competent authorities so that any problems likely to arise may be assessed and remedial measures taken. In other legislations and for certain types of radiation sources, a licence must be obtained; this means that the use of radiation is conditional on prior authorization, granted if the various conditions relative to protection and safety are fulfilled. The licence has the advantage over registration in that the safety conditions are checked before the start of activities and, since its issue is dependent on compliance with certain requirements if the norms imposed are infringed or the conditions in which the licence has been granted are altered, the licence can be withdrawn immediately. In some countries legislation, whilst referring only to registration, has been compelled to impose certain conditions and requirements with the result that registration can be cancelled when these conditions are not observed. In this case it seems both more appropriate and more logical to speak of licensing. This is true of the United Kingdom, for example, where the 1960 Act on Radioactive Substances calls for the "registration" of all premises where radioactive substances are to be stored or used. The use of this term aroused some criticism as it might give rise to confusion and as the Act contains provisions whereby registration may be refused, it would be more appropriate to speak of licensing.

Certain uses of radiation are sometimes exempt from control formalities. In Germany, for example, medical uses of X-rays are traditionally not covered by legislation and are merely subject to the rules laid down by the Deutscher Normenausschuss in collaboration with the German Radiological Society, the view being held that legislative measures could restrict the doctor's freedom of choice of treatment and thus interfere in the doctor-patient relationship.

In Spain the aforementioned Order setting up the control of radioactive isotopes on the national territory lays down that radioactive isotopes or other radioactive sources including teletherapy sources can be acquired or used only by a person, entity or institute expressly licensed by the Junta de Energia Nuclear as an isotope user. The Order also lays down penalties for non-compliance with these provisions.

As regards the Nuclear Energy Act, this establishes a system of control of radioactive installations making the construction, assembly and operation of these installations conditional on the prior issue of a licence. The Act also provides for the inspection of these installations in order to check compliance with the requisite conditions.

The control system laid down in the Act applies to radioactive installations which must additionally observe all the provisions in force regarding protection and safety; X-ray apparatus, however, used for medical purposes is not covered by this control but is subject to regulations laid down by the Ministry of the Interior in agreement with the Ministry for Industry.

The legislation in force also requires that personnel working in radioactive installations must fulfil certain qualification conditions. Similarly, the use of isotopes demands the special qualification of "isotope user" conferred by the Junta de Energia Nuclear.

In this respect there are two categories of authorization: the first, awarded personally and of a professional character, entitles its holder to carry out activities involving the use of radioactive sources, the second applies to premises where such activities may be carried out or where radioactive material may be stored, in other words the installation.

The holder of the former authorization, or "user" need not be the same as the person holding the authorization for operating the installation or "operator" as he is called in Spanish legislation. There is, however, an unavoidable relationship between the two as the "user" must carry out his activities in an installation and the latter, in order to be licensed, needs to have at least one "user". Actually, whether or not "user" and "operator" are one and the same person, it is the latter who is responsible under Spanish nuclear law which is based on the concept of the installation.

2.3. Compensation for damage

The special characteristics of damage caused by radiation are well known. Exposure to radiation may remain unnoticed by the person afflicted and its harmful effects may appear many years later. The phenomenon causing the exposure may be due neither to a fault or negligence nor even to a failure in the safety mechanisms. A fortuitous cause may lead to the contamination of water or food which may, after ingestion, cause internal irradiation and consequent damage. Furthermore, damage caused by radiation may frequently be attributed to other causes.

All these factors make it difficult to compensate for this damage in law since the prescription periods for bringing an action for damages may terminate before the effects of the damage caused by radiation appear, or it may be impossible to provide sufficient proof that the damage was caused through the fault or negligence of the defendant.

In view of the special characteristics of this type of damage, it has been found advisable to adopt appropriate measures to facilitate compensation. For this purpose, therefore, legislation has provided for a special system of compensation. However, most countries confuse the application of such a system to damage caused by accidents occurring in nuclear installations.

The criteria in question are taken from the two main aforementioned International Conventions - the Paris and Vienna Conventions The provisions apply only to damage originating in an accident occurring in a nuclear installation or caused by the carriage of nuclear substances from one nuclear installation to another.

The legislations of Western Europe incorporate to a greater or larger degree the provisions laid down by these two Conventions, they do not, however, apply to damage caused by ionizing radiation even though they permit the Contracting States to include such damage in their legislation when sustained within a nuclear installation. This system has been adopted by various countries which thus exclude damage caused by radiation from apparatus or radioactive substances not situated in a nuclear installation.

The reason for this exclusion lies in the fact that neither X-ray apparatus nor radioactive substances can cause a grave catastrophe likely to affect whole populations (an eventuality in view of which the Conventions were established). Such damage, therefore, was not considered to be serious whether as regards the number of victims or the nature of the damage itself, and could be compensated under common law.

Some countries, however, have elaborated a system similar to that providing for compensation for damage caused inside a nuclear installation and applicable to risks involved in other activities related to ionizing radiation. This solution is fully justified by the fact that the damage caused by radiation has similar characteristics whether occurring inside or outside a nuclear installation even though the risk incurred in the latter case is much less grave.

This criterion applies to the Austrian Federal Act of 29th April 1964, for example, relating to third party liability in the field of nuclear energy. Under this Act, damage for which compensation is payable is that which results from a nuclear incident caused by nuclear installations, radioactive substances or radioisotopes, except for damage caused by X-ray generating apparatus. Certain provisions apply specifically to radioisotopes to which considerable attention has been given, as they are singled out and treated differently from other radioactive substances. This may perhaps be explained by the fact that they are considered to represent a lower hazard.

The Spanish Nuclear Act and the regulations on the covering of hazards govern compensation of damage caused by the performance of activities using radioactive materials or devices capable of generating ionizing radiation in the same way as for damage due to accidents occurring in a nuclear installation. The principles on which the system is based are similar in the two cases as are the obligations laid on the operator, except where a limitation exists. The main points of the regulations are. damage, the person liable and the victim.

2.3.1. Damage

In nuclear legislation, death and all physical or material damage originating directly or indirectly from ionizing radiation is termed "nuclear damage" whether resulting from an incident occurring in a nuclear installation or in the context of other activities using radioactive materials or apparatus capable of generating ionizing radiation.

Nevertheless, in view of the fact that the appearance of this nuclear damage may, because of the well-known characteristics of the biological effects of radiation, occur many years after the irradiation causing it, legislations have endeavoured to find a formula which would allow for compensation for personal nuclear damage and reconcile the various interests involved.

On the one hand, the period allowed for bringing an action for damages must be sufficiently long to avoid prescription, even if the damage is revealed after a very long latency period. On the other hand, the person responsible or the insurer must not be left in permanent uncertainty as to the damage for which compensation is due.

The solution has been found by the adoption of a formula defining two categories of nuclear damage: immediate damage, that is damage occurring and noticed by, or brought to the notice of, the responsible person within a period of ten years, and deferred damage, that is damage revealed beyond this period.

The practical importance of this distinction lies in the fact that immediate damage is compensated by the responsible person whereas deferred physical damage is compensated by the State.

But not all damage is compensated in accordance with this particular system; it does not cover damage, compensation for which is subject to other provisions and which originates in armed conflict, hostilities, civil war, uprisings or natural catastrophes of an exceptional nature. Other damage excluded is that arising from the administration of radioactive substances to persons undergoing therapeutic treatment, damage sustained by occupationally exposed persons and damage occurring inside an installation or which is caused by devices generating ionizing radiation and in general, by material goods available to the operator or the installation.

2.3.2. Person liable

Under the Act, the operator of an installation producing or using radioactive substances or devices generating ionizing radiation is held liable for nuclear damage.

Actually the administrative authority to operate the installation confers upon its holder the right to perform activities on which he may make a profit and at the same time lays an obligation on him to compensate for damage caused by such activities.

There is a great difference between this principle and the traditional rule of law under which a person can only be held liable for damage as a result of a judgment establishing negligence or guilty conduct in the absence of which the damage would not have occurred.

It is none the less true that the rule declaring any person performing a given activity absolutely liable for the damage such activity may have caused without there being any proof of fault or negligence, has already been embodied in certain legal provisions, as, for example, in the Act of 24th December 1962 on the use and circulation of motorized vehicles.

According to nuclear law the operator is under an obligation to compensate for damage whether or not this is attributable to fault or negligence on his part. The only difference lies in the fact that in the former case, apart from his third party liability, he will also be liable penally. Similarly, he must compensate for the damage even if another person is found liable for it and will only be exonerated from all or part of his liability if he can prove that the victim of the damage contributed to causing the damage by his own fault or negligence

As a counterpart to this obligation, his liability is not unlimited as in law, but is based on a fixed amount predetermined by law.

The extent of the operator's third party liability, i.e. his liability to compensate for nuclear damage caused by an incident in his installation, is limited in two spheres· as regards the amount and as regards the prescription, to the extent that he is liable only for immediate damage.

However, since this limitation would result in the non-compensation for damage, the State assumes liability for compensating physical damage not met by the operator, either because the amount available for this purpose would prove inadequate or because the ten-year period of prescription after the accident may have elapsed.

In this connection, a further obligation is laid upon the operator. he must constitute a guarantee sufficient to meet the payment of compensation that would be due in case of an incident. The State, when acting as operator, is exempt from this obligation.

This guarantee can be constituted in one of the following ways subscribing to an insurance policy, deposit of an amount in cash or public or industrial securities or exceptionally and with the approval of the Ministry of Finance, a joint bank guarantee.

It is also possible to combine these different possibilities, provided that the total amount of the guarantees is not less than the total amount of cover required and provided the express authorization of the Ministry of Finance is obtained in each case.

2.3.3. Victim

In view of the special characteristics of this system, any person sustaining physical damage of nuclear origin must obtain compensation in a Court within the prescribed time-limits: ten years for immediate damage and twenty years for deferred damage. In the former case, compensation is paid by means of the fund comprising the operator's financial guarantees or else the compensation is effected by his insurance company. In the second case, that of deferred damage, compensation is paid out of public funds.

Although the amount of compensation is fixed by the Court, it may in no case be less than the corresponding compensation that would be paid for an occupational accident.

The compensation of physical damage takes priority; when material damage is also incurred, physical damage is compensated first.

Compensation for material damage can be claimed only within the period of ten years, when the sum available proves insufficient for full compensation, either because of the compensation for physical damage or because the amount of compensation exceeds the amount available, victims will receive compensation in proportion to the damage sustained.

2.3.4. Conclusions

In view of the foregoing, it may be said that legislations which, like Spain, have adopted similar systems for compensation for nuclear damage caused by activities relating to the use of radioactive substances or ionizing radiation-generating apparatus, have been prompted by various motives. First there is the desire to consider the interests of possible victims by giving them the benefit of a form of compensation which provides that damage can, in no case, remain uncompensated, at least as regards physical damage. The obligations imposed on the operator and the nature of his third party liability correspond to this objective.

It may thus be said that:

- making the operator exclusively liable for damage even in the absence of fault or negligence, without attributing liability to any third party (unless that person is also the victim) has the advantage, from the victim's point of view, of his knowing, at any time, against whom he should bring an action for damages;

- the fact that the operator must cover his liability by means of an insurance policy or other financial guarantee implies that payment of compensation will always be made without any risk of it being compromised by the insolvency of the person liable,

- the limitation of liability as regards the period of prescription and as regards the amount is clearly to the advantage of the operator who can thus be assured that in no case will he be held responsible for an amount or beyond a period other than those prescribed.

In addition, it has been considered desirable not to place too heavy an obligation on the operator in view of his absolute liability except in cases which are known and within the limits expressly prescribed in the Act, and in order not to form an obstacle to the development of his activities.

Finally, compensation by the State for physical damage that cannot be compensated because the period of the operator's liability has been exceeded, is ensured, as has already been mentioned, with the object of encouraging the various peaceful uses of ionizing radiation and of avoiding, in every case and as far as possible, that victims are left without adequate compensation.

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S U P P L E M E N T T O N° 7

NETHERLANDS : BILL ON THE LIABILITY OF OPERATORS OF NUCLEAR SHIPS

April 1971

N E T H E R L A N D S

BILL CONTAINING REGULATIONS CONCERNING THE LIABILITY OF OPERATORS OF NUCLEAR SHIPS *

The purpose of this Bill is to lay down regulations concerning the liability of operators of nuclear ships, and also to implement the Convention of Brussels of 25th May 1962 on the Liability of Operators of Nuclear Ships.**

Section 1

For the purposes of the present Act:

(a) "Nuclear ship" means any ship equipped with a nuclear power plant;

(b) "Operator" means the person authorized by a State to operate a nuclear ship under its flag, or the State that operates a nuclear ship;

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* Unofficial translation prepared by the Netherlands authorities.

** Note by the Secretariat.

(c) "Nuclear fuel" means any material which is capable of producing energy by a self-sustaining process of nuclear fission, and which is used or intended for use in a nuclear ship;

(d) "Radioactive products or waste" means any material, including nuclear fuel, made radioactive by neutron irradiation incidental to the utilization of nuclear fuel in a nuclear ship;

(e) "Nuclear damage" means loss of life or personal injury and loss or damage to property which arises out of, or results from, the radioactive properties, or a combination of radioactive properties with toxic, explosive or other hazardous properties of nuclear fuel or of radioactive products or waste;

(f) "Nuclear incident" means any occurrence, or series of occurrences having the same origin, which causes nuclear damage;

(g) "Nuclear power plant" means any power plant in which a nuclear reactor is, or is to be, used as the source of power, whether for propulsion of the ship or for any other purpose;

(h) "Nuclear reactor" means any installation containing nuclear fuel in such an arrangement that a self-sustained chain process of nuclear fission can occur therein without an additional source of neutrons.

Section 2

1. The operator of a nuclear ship shall be absolutely liable for any nuclear damage upon proof that such damage has been caused by a nuclear incident involving the nuclear fuel of, or the radioactive products or waste produced in, such ship.

2. Except as otherwise provided in this Act, no person other than the operator shall be liable for such nuclear damage. The operator shall not be liable for nuclear damage except in virtue of the present Act.

3. Nuclear damage suffered by the nuclear ship itself, its equipment, fuel or stores shall not be covered by the operator's liability as defined in the present Act.

4. The operator shall not be liable with respect to nuclear incidents occurring before the nuclear fuel has been taken in charge by him or after the nuclear fuel or radioactive products or waste have been taken in charge by another person duly authorized by law and liable for any nuclear damage that may be caused by them.

5. If the operator proves that the nuclear damage resulted wholly or partially from an act or omission done with intent to cause damage by the individual who suffered the damage, the competent court may exonerate the operator wholly or partially from his liability to such individual.

6. Notwithstanding the provisions of paragraph 1, the operator shall have a right of recourse:

(a) if the nuclear incident results from a personal act or omission done with intent to cause damage, against the individual who has acted, or omitted to act, with such intent;

(b) if the nuclear incident occurred as a consequence of any wreck-raising operation, against the person or persons who carried out such operation without the authority of the operator or of the State having licensed the sunken ship or of the State in whose waters the wreck is situated;

(c) if recourse is expressly provided for by contract.

Section 3

1. The liability of the operator as regards one nuclear ship shall be limited to the equivalent in guilders of 1,500 million francs in respect of any one nuclear incident, notwithstanding that the nuclear incident may have resulted from any fault of privity of that operator; such limit shall include neither any interest nor costs awarded by the competent court in actions for compensation in pursuance of the present Act.

2. A franc, as referred to in paragraph 1 is a unit of account constituted by 65.5 milligrams of gold of millesimal fineness 900.

Section 4

The operator shall be required to have and maintain coverage for his liability in accordance with Section 5, 6 or 7 up to the amount referred to in paragraph 1 of Section 3.

Section 5

1. The operator of a nuclear ship flying the Netherlands flag shall be required to have and maintain insurance or other financial security, of such type and on such terms as specified by Our Minister of Finance, up to an amount to be fixed by General Administrative Order, which shall make due allowance for the opportunities open to the operator of obtaining such coverage. Other provisions concerning the aforesaid financial security may be made by such Order.

2. If, in the opinion of Our Minister of Finance, an operator as referred to in paragraph 1 cannot obtain adequate financial security as referred to in that paragraph, or none at all, or if such financial security can be obtained only for what Our Minister of Finance considers to be unreasonable premiums or payments, Our aforesaid Minister shall be authorized to enter into insurance contracts on behalf of the State as insurer, or to provide other guarantees on behalf of the State on such terms and for such premiums or payments as he shall determine.

3. Paragraphs 1 and 2 shall not apply to any ship operated by the State.

Section 6

1. In so far as the funds becoming available under Section 5 prove insufficient to compensate for the nuclear damage, the State shall make public funds available to the operator up to the amount referred to in paragraph 1 of Section 3.

2. In so far as the lack of financial security referred to in Section 5 is due to any fault on the part of the operator, the State shall have a right of recourse against the operator in respect of any public funds made available by the State by reason of such lack of financial security.

3. Any interest or costs as referred to in Section 3 payable by an operator as referred to in Section 5 shall be borne by that operator and by the State in proportion to the funds made available under Section 5 and paragraph 1 of the present Section respectively.

4. If and in so far as the State has made public funds available to the operator under paragraph 1 it shall have the operator's right of recourse referred to in paragraph 6 of Section 2. In the exercise of such right the State shall have precedence over the insurers or other persons who have provided financial security as referred to in paragraph 1 of Section 5.

Section 7

In the case of an operator of a nuclear ship flying a foreign flag, the coverage for his liability referred to in Section 4 shall, in the opinion of Our Minister of Finance, be satisfactory.

Section 8

Whenever both nuclear damage and damage other than nuclear damage have been caused by a nuclear incident or jointly by a nuclear incident and one or more other occurrences and the other damage cannot reasonably be separated from the nuclear damage, the entire damage shall, for the purposes of the present Act, be deemed to be nuclear damage caused exclusively by the nuclear incident. However, where damage is caused jointly by a nuclear incident covered by the present Act and an emission of ionizing radiation or an emission of ionizing radiation in combination with the toxic, explosive or other hazardous properties of a source of radiation not covered by this Act, the present Act shall not affect the liability, either as regards the victims or by way of recourse or contribution, of any person who may be held liable in connection with the emission of ionizing radiation or with the toxic, explosive or other hazardous properties of that source of radiation.

Section 9

1. The right to compensation under the present Act shall be extinguished if an action is not brought, or the right to compensation is not acknowledged, within ten years from the date of the nuclear incident.

2. Where nuclear damage is caused by nuclear fuel, or by radioactive products or waste which were stolen, lost, jettisoned, or abandoned, the period established under paragraph 1 shall be computed from the date of the nuclear incident causing the nuclear damage, but such period shall in no case exceed 20 years from the date of the theft, loss, jettison or abandonment.

3. Without prejudice to the period of extinction established in paragraph 1 or 2, a period of prescription of 3 years shall apply to an action for compensation for damage under the present Act, computed from the date on which the interested person or, if he has a legal representative, the latter, had knowledge, or can reasonably be deemed to have had knowledge, of the damage and of the operator liable. Section 2013 of the Civil Code shall apply analogously.

Section 10

If and in so far as, in respect of compensation for nuclear damage there are rights to benefits under Netherlands social security legislation, the right to compensation for that damage under the present Act shall accrue to those paying the benefits, it being understood that in the case of periodic benefits the capitalized value of the benefits payable shall be regarded as the damage.

Otherwise the provisions of the said legislation shall remain in force.

Section 11

1. Where nuclear damage engages the liability of more than one operator and the damage attributable to each operator is not reasonably separable, the operators involved shall be jointly and severally liable for such damage. However, the liability of any one operator shall not exceed the amount referred to in paragraph 1 of Section 3.

2. In the case of a nuclear incident where the nuclear damage arises out of or results from nuclear fuel or radioactive products or waste of more than one nuclear ship of the same operator, that operator shall be liable in respect of each ship up to the amount referred to in paragraph 1 of Section 3.

3. In case of joint and several liability, and subject to the provisions of paragraph 1:

(a) Each operator shall have a right of contribution against the others in proportion to the fault attaching to each of them;

(b) Where circumstances are such that the degree of fault cannot be apportioned, the total liability shall be borne in equal parts.

Section 12

No liability under this Act shall attach to an operator in respect of nuclear damage caused by a nuclear incident directly due to an act of war, hostilities, civil war or insurrection.

Section 13

The funds provided in pursuance of Section 4 shall be used exclusively for payment of compensation due under the present Act.

Section 14

1. The right to compensation for nuclear damage shall be exercised only against the operator liable in pursuance of the present Act.

2. A Netherlands national who has paid compensation for nuclear damage under the law of another State or under an international convention shall, up to the amount that he has paid, acquire by subrogation the rights that the person so compensated would have enjoyed under the present Act. However, no rights shall be so acquired by any person if and to the extent that the operator has a right of recourse or contribution against such person under the present Act.

3. For the purposes of paragraph 2, the term "Netherlands national" shall include any public or private body established in the Netherlands, whether corporate or not, and the State.

Section 15

Actions brought under this Act and applications made under paragraph 1 of Section 18 and paragraph 1 of Section 21 must, in the first instance, be instituted at the District Court (Arrondissementsrechtbank) at the Hague.

Section 16

1. The operator of a nuclear ship flying the Netherlands flag shall inform Our Minister of Finance forthwith:

(a) of any nuclear incident that may have caused damage for which he is liable;

(b) of any claim for the compensation of damage brought against him out of court in connection with a nuclear incident;

(c) of any claim for the compensation of damage brought against him in law in connection with a nuclear incident;

(d) of any compensation for damage paid by him in connection with a nuclear incident.

2. In so far as the State makes available public funds as referred to in paragraph 1 of Section 6 of this Act for the compensation of nuclear damage with respect to which any of the notifications referred to in paragraph 1 has not been made, the State shall have the right of recourse against the operator as regards the sum thus paid.

Section 17

1. Any operator of a nuclear ship flying the Netherlands flag shall admit and meet claims for compensation and make settlements concerning such claims only with the approval of Our Minister of Finance.

2. Acts contravening the provision of paragraph 1 of this Section shall be legally null and void. They shall be so pronounced by the competent Court ex officio.

Section 18

1. On application by any interested person the District Court may rule that the insurers and other persons providing the coverage referred to in Section 4 shall pay direct to the persons concerned the funds they have to make available in virtue of claims admitted or awarded. The Court may revoke such a ruling at any time.

2. The Court shall not decide on an application as referred to in paragraph 1 until the person making the application, Our Minister of Finance and the operator have been heard or summoned.

3. The Court shall give its ruling at a public session and the Clerk of the Court shall cause the ruling to be published in the Government Gazette. Any interested person may appeal to a higher Court against the ruling within fourteen days of its publication in the Government Gazette.

4. The Court of Appeal shall give its ruling at a public session and the Clerk of the Court of Appeal shall cause the ruling to be published in the Government Gazette. Any interested person may appeal to the Court of Cassation against the ruling within three weeks of its publication in the Government Gazette.

5. A ruling as referred to in the first sentence of paragraph 1 shall be enforceable forthwith. Even if it is quashed by the Court of Appeal or by the Court of Cassation, any payments made in accordance with the ruling before the ruling by which it is quashed has become final shall be valid and binding.

Section 19

1. Our Minister of Finance may order at any time that, on behalf of the operator of a nuclear ship flying the Netherlands flag, he shall exercise all the operator's rights and obligations, or such of the operator's rights and obligations, as shall be designated by the Order, as regards settlement of the nuclear damage, if necessary in deviation from any agreements concluded between the operator and the insurers or other persons who have provided financial security as referred to in paragraph 1 of Section 5.

2. An Order as referred to in paragraph 1 shall be published in the Government Gazette and may contain further rules concerning the submission of claims for the compensation of nuclear damage.

Section 20

1. If the aggregate of compensation for nuclear damage to be paid by the operator exceeds the amount referred to in paragraph 1 of Section 3, the claims for compensation shall be reduced proportionately.

2. As regards the contingencies to which paragraph 1 applies, rules concerning the manner of settling claims for compensation may be laid down by General Administrative Order.

Section 21

1. If the contingency referred to in Section 20 may reasonably be expected to occur and the exact amounts to be paid as compensation have not yet been fixed, any interested person may apply to the Court for an embargo upon payment by the operator of any compensation for nuclear damage. The Clerk of the Court shall notify the operator of such an application without delay and, in the contingency referred to in Section 18, he shall likewise without delay notify the insurers or other persons providing the coverage referred to in Section 4.

2. The operator and, in the contingency referred to in Section 18, the insurers or other persons providing the coverage referred to in Section 4, may not pay any compensation for nuclear damage from the date on which they submitted an application as referred to in paragraph 1, or knew of the submission of such an application, until the date on which a ruling concerning the application has become final.

3. If the Court holds that there are valid grounds for the application, it shall place an embargo upon payment by the operator and, where a ruling as referred to in the first sentence of paragraph 1 of Section 18 is in force, by the insurers or other persons providing the coverage referred to in Section 4. Paragraphs 2, 3 and 4 of Section 18 shall apply analogously to such a ruling or to a ruling to the effect that the Court has failed to find valid grounds for the application.

4. Acts contravening the provisions of paragraph 2 or a ruling as referred to in the first sentence of paragraph 3 of this Section

shall be legally null and void. They shall be so pronounced by the Court ex officio.

5. The Court may lift the embargo upon payment referred to in paragraph 3 ex officio or on application by an interested person.

Section 22

During the period that the embargo upon payment referred to in Section 21 is in force, the amount of any claims for compensation for damage admitted or awarded shall bear interest at a rate to be fixed by Our Minister of Finance.

Section 23

1. Where the operator of a nuclear ship flying the Netherlands flag is liable, Our Minister of Finance may grant to those concerned such advances as may be required.

2. Our Minister of Finance shall determine the sums to be advanced, taking into account the nature and extent of the nuclear damage suffered, the probable sum that the interested person will be able to claim and his private circumstances.

3. Any advance shall be deducted from the sum to be paid as compensation by the operator to the person concerned.

4. Notwithstanding the provisions of paragraphs 3 and 4 of Section 21, Our Minister of Finance may, during the time the embargo on payment is in force, require the insurers or other persons providing the coverage referred to in paragraph 1 of Section 5, to make available to him the funds referred to in paragraph 1 of Section 5, as and when sums for compensation for nuclear damage have been admitted or awarded, up to an amount equal to the advances granted by him.

Section 24

1. During the periods in which, pursuant to paragraphs 2 and 3 of Section 21, no payments may be made by the operator of a nuclear ship flying a foreign flag in compensation for nuclear damage, the Court may, on application by any interested person, impose upon the operator, the insurers or other persons providing the coverage referred to in Section 4, the obligation to grant such advances as may be necessary to the persons concerned. Paragraphs 2, 3 and 4 of Section 18 shall apply analogously to such an order and to any order dismissing the application.

2. Paragraphs 2 and 3 of Section 23 shall apply analogously.

Section 25

In cases in which the Brussels Convention of 25th May 1962 on the Liability of Operators of Nuclear Ships (Netherlands Treaty Series

No. 90, 1968) does not apply, no licence as referred to in Section 15 of the Nuclear Energy Act shall be granted to the operator of a nuclear ship, until such operator has undertaken explicitly by agreement with the State to compensate nuclear damage for which he is liable in pursuance of the regulations laid down in the present Act, without any limitations other than those specified in the said regulations.

Section 26

We reserve the right to conclude with States not parties to the Brussels Convention of 25th May 1962 on the Liability of Operators of Nuclear Ships agreements that may deviate from the provisions of the present Act with regard to liability in respect of nuclear warships and government nuclear ships used exclusively on public service, provided such States provide what We consider is at least equivalent security.

Section 27

The present Act shall apply to a nuclear ship under construction in the Netherlands from the date of its launching. Between the date of launching and that on which it is entitled to fly a flag, the ship shall be deemed to be operated by the owner and to be flying the Netherlands flag.

Section 28

1. The present Act shall apply to nuclear damage caused by a nuclear incident occurring in any part of the world and involving the nuclear fuel of, or radioactive products or waste produced in, a nuclear ship flying the Netherlands flag.

2. The present Act shall apply to nuclear damage caused by a nuclear incident involving the nuclear fuel of, or radioactive products or waste produced in, a nuclear ship flying a foreign flag if either the nuclear incident occurred on Netherlands territory or the nuclear damage was suffered there.

Section 29

1. In the event of nuclear damage involving the nuclear fuel of, or radioactive products or waste produced in, a nuclear ship the operation of which, at the time of the nuclear incident, was not licensed by any State, the owner of that ship shall, for the purposes of the present Act, be deemed to be an operator, it being understood that Section 3 shall not then apply.

2. In a case such as that referred to in paragraph 1, the State shall have a right of recourse against the owner of the nuclear ship in respect of the public funds made available in pursuance of Section 6.