NUCLEAR LAW Bulletin

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Contents

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Nuclear Energy Agency
Organisation for Economic Co-operation and Development

Pursuant to article 1 of the Convention signed in Paris on 14th December, 1960, and which came into force on 30th September, 1961, the Organisation for Economic Co-operation and Development (OECD) shall promote policies designed

- to achieve the highest sustainable economic growth and employment and a rising standard of living in Member countries, while maintaining financial stability, and thus to contribute to the development of the world economy,
- to contribute to sound economic expansion in Member as well as non-member countries in the process of economic development and
- to contribute to the expansion of world trade on a multilateral, non-discriminatory basis in accordance with international obligations

The Signatories of the Convention on the OECD are Austria, Belgium, Canada, Denmark, France, the Federal Republic of Germany, Greece, Iceland, Ireland, Italy, Luxembourg, the Netherlands, Norway, Portugal, Spain, Sweden, Switzerland, Turkey, the United Kingdom and the United States The following countries acceded subsequently to this Convention (the dates are those on which the instruments of accession were deposited) Japan (28th April, 1964), Finland (28th January, 1969), Australia (7th June, 1971) and New Zealand (29th May, 1973)

The Socialist Federal Republic of Yugoslavia takes part in certain work of the OECD (agreement of 28th October, 1961)

The OECD Nuclear Energy Agency (NEA) was established on 20th April 1972, replacing OECD s European Nuclear Energy Agency (ENEA) on the adhesion of Japan as a full Member

NEA now groups all the European Member countries of OECD and Australia Canada Japan and the United States The Commission of the European Communities takes part in the work of the Agency

The primary objectives of NEA are to promote co-operation between its Member governments on the safety and regulatory aspects of nuclear development and on assessing the future role of nuclear energy as a contributor to economic progress

This is achieved by

- *encouraging harmonisation of governments regulatory policies and practices in the nuclear field with particular reference to the safety of nuclear installations protection of man against ionising radiation and preservation of the environment radioactive waste management and nuclear third party liability and insurance*
- *keeping under review the technical and economic characteristics of nuclear power growth and of the nuclear fuel cycle and assessing demand and supply for the different phases of the nuclear fuel cycle and the potential future contribution of nuclear power to overall energy demand*
- *developing exchanges of scientific and technical information on nuclear energy particularly through participation in common services*
- *setting up international research and development programmes and undertakings jointly organised and operated by OECD countries*

In these and related tasks NEA works in close collaboration with the International Atomic Energy Agency in Vienna with which it has concluded a Co-operation Agreement as well as with other international organisations in the nuclear field

LEGAL NOTICE

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LEGISLATIVE AND REGULATORY ACTIVITIES

• *Australia*

RADIATION PROTECTION

Radiation Protection and Control Act, 1982 (South Australia)

Act No 49 on radiation protection was adopted on 29th April 1982 *It provides for the control of activities related to radioactive* substances and radiation apparatus as well as for protection against the harmful effects of ionizing radiation It also amends the Health Act, 1935-1980 by deleting certain provisions concerning, inter alia, radioactive substances and radiation apparatus

The Act states as its general objective that the competent authorities in the exercise of their duties and any person carrying on activities involving radioactive substances and equipment emitting ionizing radiation shall try to ensure that exposure of persons to ionizing radiation is kept as low as reasonably achievable, social and economic factors being taken into account (the ALARA principle recommended by the International Commission on Radiological Protection)

In connection with exposure limits, the Act refers in particular to compliance with codes, standards and recommendations issued under the Environment Protection (Nuclear Codes) Act 1978 (see Nuclear Law Bulletin No 23) *and by the ICRP or the International Atomic Energy Agency*

The South Australia Health Commission is responsible for administration of the Act and is also the licensing authority for the activities covered The Act sets up a Radiation Protection Committee and lays down its structure and terms of reference The purpose of the Committee is to provide advice on the formulation of regulations, on the conditions to be attached to licences for mining and for other activities governed by the Act and, in general, to investigate and report on any other matters coming in the ambit of the Act

The Act provides for a licensing system for the milling of radioactive ores, the use and handling of radioactive substances and operation of radiation apparatus, as well as for registration of radioactive sources and such apparatus It is expressly prohibited to undertake operations for the conversion or enrichment of uranium until such time as proper controls are imposed

Finally, the Governor of the State is empowered to make regulations for the control of activities governed by the Act and for

radiation protection. The regulations may specify standards to be observed, practices and procedures to be followed and measures to be taken in relation to such activities, they may also provide for protection of health and safety, radiation monitoring, medical examination of workers involved with radiation, etc

• *Belgium*

FOOD IRRADIATION

1983 Order on the treatment of food by ionizing radiation

This Order was issued by the Minister of Public Health and the Family on 29th September 1983 and was published in the Belgian Official Gazette of 5th November 1983 It amends the annex to the Order of 16th July 1980 which regulates the treatment by ionizing radiation of food for human and animal consumption (see Nuclear Law Bulletin No. 28) Certain spices and vegetables have now been included for purposes of irradiation , the Order also prescribes the technical specifications to be complied with in their respect.

• *Bolivia*

RADIATION PROTECTION

1982 Regulations on ionizing and electromagnetic radiations and isotopes

These Regulations were made on 15th March 1982 and lay down the procedures governing the use of sources of ionizing radiation and radioisotopes with a view to protecting the health and safety of persons working in that field

The Ministry of Social Welfare and Public Health is the authority responsible for implementation of the Regulations and for ensuring compliance with its provisions through the National Institute for Occupational Health. To this effect, the Regulations set up a Radiation Control Sub-unit, within the Institute, entrusted with this task

The responsibilities of the Radiation Control Sub-unit include

- assessing the hazards associated with the possession and use of sources of ionizing radiation,

- conducting R and D work on the prevention of such hazards,

- drafting regulations and standards for the adequate protection of the health and safety of persons against such hazards, and

- collecting and disseminating information connected with the control of sources of ionizing radiation

No persons may import, use, process or apply any type of source of ionizing radiation without having registered with and being licensed to do so by the Ministry of Social Welfare and Public Health

The licensing system laid down by the Regulations prescribes conditions to be complied with regarding already existing facilities containing sources of ionizing radiation in addition to licensing procedures for new facilities Registration and notification procedures for such sources are also detailed in the Regulations.

Finally, provision is made for regular control of staff by personal dosimetry Records of doses are kept by those responsible for the facility concerned

• *Canada*

REGIME OF RADIOACTIVE MATERIALS

1983 Amendment to the Atomic Energy Control Regulations

The Atomic Energy Control Regulations have been amended by Order of 19th May 1983, pursuant to Section 9 of the Atomic Energy Control Act (SOR/83-459 of 20th May 1983, Canada Gazette, Part II, Vol 117, No 11, of 8th June 1983).

The nature of the proposed amendments were reported in Nuclear Law Bulletin No. 29 and concern the requirements for the use and possession of exposure devices for the purposes of industrial radiography In particular, Section 18 is revoked and replaced by a more detailed section which consolidates and clarifies the conditions governing the operation of radiography devices

• *France*

REGIME OF NUCLEAR INSTALLATIONS

1983 Act on public enquiries

Until now there was no general framework for proceeding with public enquiries in France, they were carried out in the context of special procedures according to the particular system applicable to the type of operation involved For more important operations, enquiries were held to establish that the achievement considered was in the public interest, under conditions fixed for expropriations This was the case in particular for nuclear power plants, even where no expropriations were envisaged

Now Act No 83-630 of 12th July 1983 prescribes a public enquiry procedure, separate from expropriation procedures, and applicable to achievements, constructions, or works, public or private, likely to affect the environment Implementing decrees (not yet published) will fix the technical thresholds or criteria which will define the operations requiring a public enquiry These thresholds or criteria will be set according to the sensitivity of the environment

The purpose of the enquiry is to inform the public and obtain its comments, suggestions and counterproposals, it will be conducted by a Commissioner or an Enquiry Commission whose independence will be guaranteed by the fact that they will be designated by a magistrate, in principle the President of the Administrative Court They will be remunerated by the State No person may be nominated to serve in this capacity if he is personally involved in the operation or if he works with the constructor, the works owner or any firm concerned These exclusions may be extended by decree to persons having already been involved in this type of work

The enquiry will last at least a month It will take place in observance of secrets protected by law, in particular as regards national defence and industry The Commission or the Commissioner may hear any person and organise public meetings. If they order the communication of a document and the works owner refuses to provide it, his reasoned reply will be included in the file The costs of the enquiry (except for the remuneration of the Commissioner or members of the Commission) are borne by the works owner

The report and the reasoned conclusions of the Commissioner or the Enquiry Commission, which must include the public's counterproposals and any replies by the works owner, will be published at the end of the enquiry

When the public enquiry precedes the granting of an administrative permit, the latter must take the form of an explicit decision Furthermore, work subject to an enquiry must be undertaken within five years, after that period (unless it is extended officially) a new enquiry is compulsory

The unfavourable opinion of the Commissioner or the Commission does not stop the work from being undertaken, but a suit disputing the decision may automatically halt the work, provided serious reasons are given which justify cancellation of the decision by a court

• *Italy*

RADIATION PROTECTION

1983 Circular on nuclear emergencies

Circular No. 53 concerns the health aspects of the emergency plans to deal with nuclear incidents It was issued by the Ministry of Health on 2nd June 1983 and is addressed to regional health authorities involved with nuclear installations

These health authorities are in charge of organising the radiation protection aspects of nuclear emergencies in co-operation with the provincial committees set up under Presidential Decree No 185 of 13th February 1964 on radiation protection. These committees are responsible for the preparation of nuclear emergency plans

The Circular describes possible nuclear emergency scenarios, the therapy required and the measures to be taken for the recovery of victims The Appendices contain technical assumptions for emergency plans and useful indications for the doctors concerned They also provide measures for the population and explain how irradiation may occur, in addition, information is given concerning emergency assistance centres

• *Norway*

REGIME OF RADIOACTIVE MATERIALS

1983 Regulations on production, import and sale of radioisotopes

These Regulations were issued by the Ministry of Health and Social Affairs on 1st March 1983, pursuant to the Act of 19th June 1938 on the use of radium and X-rays etc. The Regulations came into force on the date they were issued.

The Regulations apply to radioisotopes used for industrial, commercial, agricultural, medical and scientific purposes They provide that the production, import and sale of radioisotopes is subject to permission or approval by the National Institute of Radiation Hygiene, in accordance with the conditions it prescribes.

• *Peru*

ORGANISATION AND STRUCTURE

National Nuclear Safety and Radiological Protection Authority

Resolution No 021-80-IPEN/AJ was made in the framework of the Decree-Law of 1977 establishing the Peruvian Nuclear Energy Institute (see Nuclear Law Bulletin No 20) It was issued by the Chairman of the Institute (IPEN) on 27th March 1980 and published in Official Gazette No 11950 of 21st April 1982 The Resolution establishes the organisation and functions of the National Nuclear Safety and Radiological Protection Authority. The Chairman of the Institute is also the Chairman of the Authority.

The Authority is responsible for issuing licences and making regulations in co-ordination with the health sector regarding the production and use of radioactive materials and equipment emitting ionizing radiations, and for supervising compliance with these regulations The functions of the Authority may be summarised as follows

- issuing standards, regulations, guidelines, and other provisions governing radiological protection and nuclear safety in Peru;
- issuing, suspending, and withdrawing licences for the use of radioactive materials and radiation-emitting equipment as well as nuclear and radioactive installations,
- ordering the necessary inspections and controls,
- supervising compliance with national standards, and reviewing the standards regularly to ensure consistency with international regulations and recommendations,
- supervising the use of nuclear and radioactive materials in order to prevent their use for unlicensed purposes

RADIATION PROTECTION

Radiological Protection Regulations of 1980

These Regulations were issued by the National Nuclear Safety and Radiological Protection Authority on 27th October 1980 pursuant to its responsibility to issue standards, regulations and guidelines governing radiological protection and nuclear safety in Peru.

These Regulations, which are very detailed, are based on the recommendations of the International Atomic Energy Agency (IAEA), the World Health Organisation (WHO), the International Labour Organisation (ILO) and the International Commission on Radiological Protection (ICRP) A series of procedures is established with a view to protecting workers, the general population, and the environment against ionizing radiation

The Regulations lay down exposure limits for workers, who are divided into two categories, and for the general public Specialised medical controls in accordance with conditions prescribed by the Ministry of Health are to be carried out with respect to the first category of workers (Class A) and general medical controls are provided for the second category (Class B) Records of all persons employed in nuclear or radioactive installations are kept by the Authority

Workers are to be licensed according to procedures established in the regulations This licensing also involves instruction on radiological protection measures and requires that such licensed workers are to instruct the workers under their supervision.

Persons working in contact with nuclear or radioactive materials or equipment emitting ionizing radiations are required to immediately notify their superiors of any abnormality or incident which they believe may cause a risk of irradiation or radioactive contamination

Standards for equipment containing radioactive materials and *equipment emitting ionizing radiations (radiotherapy and radiodiagnosis* equipment) are established Additionally, consumer goods containing radioactive materials or that emit X-rays (including televisions' are also regulated

The uncontrolled disposal of radioactive wastes into the environment is strictly prohibited. The National Authority is required to lay down guidelines prescribing concentrations, activity levels, and classifications of radioactive wastes with a view to their appropriate disposal A licence is required in order to dispose of solid, liquid, or gaseous radioactive wastes whose activity level is in excess of the prescribed limits

Finally, the transport of radioactive materials must be carried out in accordance with regulations issued by the Ministry of Transport and Communications in consultation with the Authority and in compliance with packaging conditions laid down in the present Regulations

REGIME OF NUCLEAR INSTALLATIONS

Regulations on installations containing sources of ionizing radiation (1980)

These Regulations were issued by the National Nuclear Safety and Radiological Protection Authority, also on 27th October 1980 They establish the rules and licensing procedures governing the siting, design, *construction, operation and decommissioning of nuclear and radioactive* installations as well as radiation-emitting equipment They also cover trade in radioactive substances and the manufacture of devices related to the use of ionizing radiation

Nuclear installations are classified in four categories nuclear power plants, nuclear reactors, processing plants and storage facilities The following licences must be issued in respect of nuclear installations a prior licence (not required in the case of installations intended for the storage of nuclear materials), a construction licence, and an operating licence

Radioactive installations and equipment emitting ionizing radiation are classified in three categories 1) industrial irradiation installations, 2) installations in which radioactive nuclides are handled or stored whose total activity corresponds to that indicated in the Appendix to these Regulations for an installation of that type, particle accelerators, subcritical units, and installations using neutron sources, and installations that use X-ray equipment whose peak voltage exceeds 200 KV, 3) installations in which radioactive nuclides are handled or stored whose total activity corresponds to that on the table indicated in the Appendix, and installations that use X-ray equipment whose peak voltage does not exceed 200 KV

A construction and an operating licence are required for installations in the first and second categories, and only an operating licence is required for installations in the third category

The National Safety and Radiological Protection Authority is responsible for implementation of the Regulations and for supervising compliance with its provisions It is also responsible for the inspection and control of nuclear and radioactive installations as well as radiation-emitting equipment

• *Switzerland*

THIRD PARTY LIABILITY

1983 Act on Nuclear Third Party Liability

The text of the Act of 18th March 1983 on Nuclear Third Party Liability (LRCN), which will enter into force soon, is reproduced in the Supplement to this issue of the Bulletin

• *Turkey*

REGIME OF NUCLEAR INSTALLATIONS

1983 Regulations on technical support for nuclear projects

The Regulations on provision of technical support for nuclear projects were published on 16th May 1983 They were made in compliance with the Act of 1982 establishing the Turkish Atomic Energy Authority (see Nuclear Law Bulletin No 30), which prescribes that the Authority will provide support for projects in the nuclear field

The Regulations lay down, inter alia, that the Authority will provide information and laboratory equipment where necessary as well as staff and financial assistance.

• *United Kingdom*

THIRD PARTY LIABILITY

The Energy Act 1983

The Energy Act 1983 (the 1983 Act) received the Royal Assent on 9th May 1983 (see Nuclear Law Bulletin No. 31).

Part I of the 1983 Act is mainly concerned with the facilitation of the generation and supply of electricity by persons other than the State-controlled Electricity Boards, and was brought into force on 1st June 1983

Part II of the 1983 Act, which was brought into force on 1st September 1983, is concerned with nuclear installations, and had for its main purpose the amendment of the Nuclear Installations Act 1965 (see Supplement to Nuclear Law Bulletin No. 1) to give effect to the provisions of two 1982 Protocols to the Paris Convention on Third Party Liability in the Field of Nuclear Energy and the Brussels Convention Supplementary to the Paris Convention. The United Kingdom is a party to these Conventions, which were given effect to by the 1965 Act. The provisions of Part II of the 1983 Act, whose principal effect is to increase the sums available to meet claims for nuclear damage, will allow ratification of the Protocols

Section 27 of the 1983 Act amends Section 16 of the 1965 Act to increase the liability limit for operators of licensed sites from £5 million sterling to £20 million sterling per incident The lower limit of £5 million sterling is retained in the case of certain small, "prescribed", sites (see below the note on the Nuclear Installations (Prescribed Sites) Regulations 1983). There is also provision for these two limits to be increased by order contained in a statutory instrument, provided a draft of the instrument has been laid before the House of Commons and approved by resolution of that House, thus there will be no need for further primary legislation if the liability limits in the Paris Convention are increased at some future time. There are consequential amendments which require licensees to provide cover for their liabilities under the 1965 Act - they must provide cover up to £20 million sterling per incident - and to notify the appropriate authorities if claims against them exceed a specified proportion of the maximum liability - the proportion is now expressed as a fraction of the maximum rather than a specific cash amount.

Section 28 of the 1983 Act amends Section 18 of the 1965 Act to increase the total amount of public funds available to meet claims from £50 million sterling to the sterling equivalent of 300 million Special Drawing Rights of the International Monetary Fund. There is provision for the amount expressed in Special Drawing Rights to be increased by order,

following the same procedure as for increases in the liability limits. Section 28 also provides for reciprocity with other countries, to cover any period where the UK has, but the country in which the occurrence has happened has not, given effect to the new Protocols. Thus, the UK will not be obliged to contribute on the new scale to the cost of a major incident in another country unless that other country's law provides for contributions on the same scale in respect of accidents for which a UK operator is liable Where this reciprocity does not exist, topping up by the UK will only be to the level provided in the other country's law for incidents in respect of which that country's operators are liable

Section 29 of the 1983 Act amends Section 21 of the 1965 Act to express in Special Drawing Rights, in place of sterling, the minimum amount which must be left available (in an incident involving nuclear material in the course of carriage) for general claims as opposed to claims in respect of damage to the means of transport The minimum is set at 5 million Special Drawing Rights and it may be increased by order, in the same manner as the liability and topping up limits The Section also removes the need for insurance certificates under Section 21 of the 1965 Act in respect of nuclear material in the course of carriage if the carriage is wholly within UK territorial limits

Further provisions of Part II of the 1983 Act

- give a definition of what is meant by Special Drawing Rights (in effect, those Rights as defined by the International Monetary Fund),

- provide for the sterling equivalent of one Special Drawing Right at any particular time to be established by a certificate given by the Treasury,

- extend the category of nuclear material which is excepted from the application of the 1965 Act to include isotopes prepared for educational use,

- allow the amended provisions of the 1965 Act to be applied to the UK's overseas territories, and

- enable Section 17(5) of the 1965 Act to be brought into force This provision was intended to protect operators from liability in the UK for claims for damage caused by a nuclear incident in the territory of a state not a party to the Paris Convention, it prevented claimants who sued and obtained judgment in that non-Convention state from enforcing that judgment in the UK The provision could not be brought into force, because doing so would have been inconsistent with certain bilateral conventions on the enforcement of judgments. Since 1965, protocols to these bilateral conventions have been negotiated so that they now exclude nuclear judgments, in some cases, the difficulty has been overcome by other means Thus, all that was needed to enable Section 17(5) of the 1965 Act to be brought into force was the addition of a provision qualifying it so that it applies to all non-Convention states except those with whom the UK has a specific enforcement of judgments agreement - this addition was made by means of Section 31 of the 1983 Act

The Nuclear Installations (Prescribed Sites) Regulations 1983

These Regulations prescribe the sites whose licensees are subject to a lower limit of liability per incident under Section 16(1) of the Nuclear Installations Act 1965 as amended by the Energy Act 1983.

Essentially the sites prescribed are the sites of small installations They are prescribed in Regulation 3 by reference to the type and designed thermal power output of any nuclear reactor with its associated fuel (defined by Regulation 2) and by reference to the activity of other radionuclides which may also be present Higher levels of activity are permitted if there is no nuclear reactor They are also allowed in respect of radionuclides in the form of sealed sources which are defined.

The Regulations provide for cases where nuclear matter of different levels of activity is present. In such cases the activity of each such radionuclide is to be divided by the limit set for its class and the limit is set by adding together all the fractions thus produced The result must not be more than one.

The Regulations provide (Regulation 5) overall limits of mass for fissile material The levels are lower than critical mass Fissile material which may be in associated nuclear fuels is excluded in applying the limits

The amount of associated nuclear fuel which may be held on a site is controlled under the nuclear site licence

• *United States*

RADIOACTIVE WASTE MANAGEMENT

NRC technical criteria for geological disposal of high-level radioactive wastes (1983)

On 21st June 1983, the Nuclear Regulatory Commission (NRC) published a final rule containing technical criteria for disposal of high-level radioactive wastes in geologic repositories, as required by the Nuclear Waste Policy Act of 1982 (see Nuclear Law Bulletin No. 31). The criteria will be used to review any application from the US Department of Energy for a licence to receive and dispose of high-level waste at a geologic repository The rule sets forth requirements for the siting, design, and performance of a geologic repository and for the design and performance of the package containing the waste within the repository. Also included are criteria for monitoring and testing programmes, confirmation of performance, and training and testing of personnel

To account for the uncertainty in predicting the performance of a geologic repository over the thousands of years during which the waste may present a hazard to the public health and safety, the rule requires a multiple-barrier approach An engineered barrier system is required, and

the geologic setting must contribute significantly to isolation. The geologic setting, the engineered barrier system, and the shafts, boreholes and their seals should be selected and designed to ensure that, following permanent closure, releases of radioactive materials to the accessible environment will conform to generally applicable environmental standards under development by the US Environmental Protection Agency (EPA).

The engineered barrier system must be designed so that, under anticipated conditions 1) wastes will be contained within the waste packages for a period to be determined by the NRC (normally ranging from 300 to 1,000 years after permanent closure), and 2) thereafter, the release rate will not exceed one part in 100,000 per year of the inventory calculated to be present 1,000 years following permanent closure, or such other factor as the NRC may approve The geologic setting must be one where the pre-emplacement travel time for groundwater, along the fastest likely path of travel for radioactive material from the disturbed zone to the accessible environment, will be at least 1,000 years, or such other time as the NRC may approve. Finally, wastes placed in the repository must be retrievable for a period sufficient to confirm repository performance

TRANSPORT OF RADIOACTIVE MATERIALS

NRC revises regulations for transport of radioactive material (1983)

On 5th October 1983, the Nuclear Regulatory Commission (NRC) revised its regulations for the transport of radioactive material. The revisions are designed to make the NRC's regulations more compatible with those of the International Atomic Energy Agency (IAEA) and thus with those of most major nuclear nations of the world Several substantive changes were made in order to provide a more uniform degree of safety for various types of shipments However, the NRC's basic standards for packaging of radioactive material remain unchanged. The regulations apply to all holders of a specific licence from the NRC who place by-product, source, or special nuclear material into transport A special restriction on the air transport of plutonium is included

The US Department of Transportation promulgated corresponding amendments to its regulations governing the transport of hazardous materials earlier this year

• *Yugoslavia*

REGIME OF NUCLEAR INSTALLATIONS

1979 Regulation on the licensing of nuclear installations*

Regulation No 1380 of 19th April 1979 establishes conditions governing the siting, construction, commissioning, and operation of nuclear establishments and installations (published in the Yugoslav Official Gazette of 1st June 1979)

The purpose of this Regulation is to enumerate the necessary specifications with which a constructor or operator of a nuclear establishment or installation must comply This Regulation deals with the specific types of investigations that are required to be carried out in order to determine whether a proposed site is suitable (e g investigation of the seismological and geological properties of the site, the presence of surface water and groundwater, climatic conditions, characteristics of the local population, local agricultural activities, etc) Furthermore, an authorisation for a site may be granted if it is shown that the human environment will be protected against radioactive contamination and that the population will not be irradiated in excess of the prescribed limits (see Nuclear Law Bulletin Nos. 8 and 23).

Nuclear establishments may be constructed on approved sites on condition that the corresponding plans provide for measures to prevent accidents and other unforeseen occurrences, and to mitigate the adverse effects of such accidents or occurrences. Appropriate quality of design and components which affect the safety of the establishment or installation is also required

Plans for the provision of appropriate safety procedures and protective systems, particularly with regard to the handling of radioactive wastes, the monitoring of ionizing radiation levels, ventilation, and decontamination of liquid radioactive wastes must also be provided (see Nuclear Law Bulletin No 10)

Under the Regulation, safety systems of nuclear power plants are required to be designed in such a manner so that, in the event of any of them breaking down, the remainder of the safety systems will continue to function The details of the safety measures to be included in the design must accompany the submitted plans for the construction of a nuclear establishment or installation.

After an approval has been given for trial operation of the nuclear establishment or installation, ongoing operation may be commenced upon a showing that operation will not cause radioactive contamination of the human environment, or irradiation of the population or workers in the establishment or installation in excess of the prescribed limits

The recommendations of the International Atomic Energy Agency are made applicable in cases where relevant provisions are not contained in technical standards or in the present Regulation.

* This note has been prepared on the basis of information given in the World Health Organisation International Digest of Health Legislation, 1982, 33

CASE LAW

• *United States*

RISK OF PSYCHOLOGICAL HEALTH DAMAGE UNDER THE NATIONAL ENVIRONMENTAL POLICY ACT NOT REQUIRED TO BE CONSIDERED BY NRC (1983)

In an opinion rendered on 19th April 1983, the Supreme Court unanimously reversed the holding of the Court of Appeals for the District of Columbia that the Nuclear Regulatory Commission was required to consider whether the risk of an accident at the Three Mile Island Unit 1 nuclear power plant might cause harm to the psychological health and community well-being of residents of the surrounding area

The case arose in the context of the NRC's proceedings to determine whether the undamaged unit (TMI-1) should be restarted The NRC had published a notice of hearing specifying several safety related issues for consideration The NRC held extensive hearings on technical, managerial, operational, and emergency planning issues but refused to consider whether renewed operation of TMI-1 might cause psychological harm to neighbouring residents When the NRC decided not to take evidence of this contention, People Against Nuclear Energy (PANE) filed a petition for review in the Court of Appeals, contending that the National Environmental Policy Act (NEPA) required the NRC to take into account potential harm to psychological health and community well-being The Court of Appeals concluded that the NEPA did apply to post-traumatic anxieties, accompanied by physical effects and caused by fears of recurring catastrophe It directed the Commission to determine whether significant new information or conditions with respect to the potential psychological health effects of restarting TMI-1 had arisen

The Supreme Court held that in order for an effect to be cognizable under the National Environmental Policy Act (NEPA), there must be a "reasonably close causal relationship between a change in the physical environment and the effect at issue" Psychological health damage alleged to flow from the risk of a nuclear accident is beyond the reach of NEPA, the court reasoned, because the risk of an accident is not an effect on the physical environment, and the causal chain from renewed operation of TMI-1 to psychological health damage is too attenuated.

The Court recognised that if contentions of psychological health damage caused by risk were cognizable under NEPA, agencies would have to spend considerable resources developing psychiatric expertise, perhaps at the expense of their other important functions The Court also noted that NEPA is not directed at the effects of past accidents, nor is it intended to remedy past federal actions For this reason, it was irrelevant, in the Court's view, that psychological stress contentions were advanced in the wake of the TMI-2 accident

SUPREME COURT UPHOLDS CALIFORNIA'S MORATORIUM ON CONSTRUCTION OF NEW COMMERCIAL NUCLEAR POWER PLANTS (1983)*

Pacific Gas and Electric Company v. State Energy Resources Conservation and Development Commission

On 20th April 1983 the Supreme Court unanimously upheld the moratorium imposed by the State of California on the construction of new commercial nuclear power plants, pending a long-term solution for the disposal of nuclear waste (see Nuclear Law Bulletin No 28) The State had asserted that the moratorium was based on an economic concern - the possible effects on rate payers as a result of the lack of a federally-approved method of permanent waste disposal. The Court found this motive sufficient to avoid pre-emption under the Atomic Energy Act and declined to look behind it The Court noted that the states have traditionally regulated economic matters and that the Atomic Energy Act pre-empts only those state and local laws that infringe on the federal government's regulation of nuclear safety The Court also left it for the states to decide whether enactment of the Nuclear Waste Policy Act of 1982 represents "a sufficient federal commitment to fuel storage and waste disposal" to permit a resumption of licensing

In their concurring opinion, Justices Blackman and Stevens went even further, indicating that they would hold that a state could prohibit construction of nuclear power plants for safety reasons as well

SECOND CIRCUIT UPHOLDS REGULATIONS GOVERNING HIGHWAY TRANSPORT OF RADIOACTIVE MATERIALS (1983)

On 10th August 1983, the United States Court of Appeals for the Second Circuit reversed the judgment of the District Court for the Southern District of New York, which had invalidated regulations promulgated by the US Department of Transportation (DOT) governing the transport of large quantities of radioactive materials by highway through densely populated areas At issue was a provision of the Health Code of the City of New York, which effectively banned the highway transportation of spent fuel and other large quantities of radioactive material through the City. DOT regulations, promulgated pursuant to the federal Hazardous Materials Transportation Act, permitted such transport New York challenged the DOT regulations on procedural and environmental grounds, and the District Court invalidated the rules in so far as they pre-empted the City's health code The Second Circuit reversed, holding that the DOT regulations were valid and presumptively pre-empted the City's rule. Accordingly, the DOT rule would control unless the City could obtain a non pre-emption ruling from DOT, as provided in the statute.

The Court concluded that the Act did not require the Secretary of Transportation to maximize safety, but rather authorised the Secretary to set acceptable levels of safety for each mode of transportation Thus, it was sufficient for the Secretary to conclude that highway transportation of radioactive materials, even through densely populated areas, was acceptably safe. The Court rejected the argument that DOT had failed to comply with the National Environmental Policy Act (NEPA) by giving

*A Commentary of the Decision of the Supreme Court is reproduced in the "Articles" Chapter of this issue of the Bulletin.

insufficient consideration to barging as an alternative, both nationwide and for New York City. The Court further concluded that DOT did not err in determining that the regulations would not have a significant environmental impact In this regard, the Court examined the DOT's probabilistic assessment of the risk of accidents DOT had found that the likelihood of a catastrophic accident was approximately once in 300 million years and had concluded that, although the consequences would be serious, the risk was not significant for NEPA purposes because the possibility was so remote The Court found that DOT's conclusion was not an abuse of discretion.

INTERNATIONAL ORGANISATIONS AND AGREEMENTS

INTERNATIONAL ORGANISATIONS

• *The OECD Nuclear Energy Agency*

INTERPRETATION AND APPLICATION OF THE RECOMMENDATIONS OF THE ICRP (1983)

The NEA Committee on Radiation Protection and Public Health is currently involved in reviewing the problems raised by the interpretation and application to national practices and regulations of the system of dose limitation recommended by the International Commission on Radiological Protection - ICRP (see Nuclear Law Bulletin No 30)

In this context, the Committee initiated during 1983 a number of reviews aiming to further clarify certain concepts of difficult interpretation or not sufficiently developed in the ICRP Recommendations Each of these reviews took the form of a report based on information obtained from Member countries and on the opinions expressed within the Committee.

The first report considers the meaning of dose equivalent limits for members of the public, these problems concern essentially the handling of the distribution of individual doses and risks within groups of members of the public as well as in time. The second report, on the management of over-exposure of workers, deals with the handling, from the administrative and work organisation viewpoints, of persons who have received an over-exposure. Both reports refer to the nature of the problems encountered by national authorities and to possible options envisaged for their solution

The third report analyses the use of the annual average radiation dose to workers for risk comparison purposes and discusses the meaning to be attributed to the concept of annual average dose equivalent to large worker groups as opposed to the concept of annual dose equivalent limit recommended by the ICRP. It contains a statement issued by the ICRP at its October 1983 meeting specifying its intentions on this subject
In discussing dose equivalent limits for workers in ICRP Publication 26 the Commission compared their average risks with those in various industries

The Commission did not imply that there should be a specific limit for the average dose equivalent Rather, the collective dose equivalent, and thus the average dose equivalent, should be limited by the process of optimisation of protection, i e it should be kept as low as reasonably achievable, economic and social factors being taken into account *

The Committee on Radiation Protection and Public Health considered that these reviews would be of interest to national authorities as useful reference material, and recommended dissemination of the reports to national regulatory bodies and other institutions competent for the protection of workers and the population against ionizing radiation

• *Euratom*

PROPOSED DECISIONS BY COUNCIL OF MINISTERS ON NUCLEAR ACTIVITIES (1983)

The activities of the Commission of the European Communities in the nuclear sector have concentrated on a series of proposed decisions submitted to the Council These proposals concern research programmes prepared in the framework of the procedure set up by Article 7 of the Treaty establishing the European Atomic Energy Community

Radiation protection

On 6th June 1983, the Commission put before the Council a proposed decision defining a pluriannual research and training programme in radiation protection. This programme extends the previous one adopted for the period 1980-1984 and covers 1985-1989. It covers research and training on potential risks which might result from exposure to ionizing radiation, and, with a co-operative effort at European level, it aims to provide an objective assessment of the effects and hazards caused by such exposure.

Safety of installations

On 17th June 1983, the Commission put before the Council a proposed decision concerning a research programme on reactor safety for the period 1984-1987

This programme covers the safety of liquid-metal fast breeder reactors. Half of its cost is included in the Community budget and the remaining expenditure should be covered by national budgets or by contractors

*Dose equivalent means the absorbed radiation dose weighted for the biological harmfulness of different types of radiation.
Collective dose equivalent means the total dose equivalent to a group of people from a source of radiation This is the sum of the dose equivalence to the individuals within the group

Decommissioning of power plants

On 17th June 1983 the Commission also put before the Council a proposed decision on a research programme on the decommissioning of nuclear installations for the period 1984-1988. The Commission intends to study problems of restoration and recovery of sites and materials used by nuclear installations.

New programme of the Joint Research Centre

On 17th June 1983 the Commission put before the Council a proposed decision on the pluriannual programme of the Joint Research Centre for the period 1984-1987. These proposals define the Centre's future tasks The main topics in the programme include·

- safety and protection of the environment;
- standardisation of nuclear materials and measurements as well as standardisation of the development of new materials for industry

• *International Atomic Energy Agency*

NEW MEMBERS OF THE IAEA

Namibia, represented by the United Nations Council for Namibia, became a Member of the IAEA on 17th February 1983 by depositing an instrument of acceptance of the Statute with the Government of the United States of America which is the depositary Government

The IAEA now has 111 members

The 27th session of the General Conference, held in Vienna, Austria, from 10th to 14th October 1983, has approved the membership of the People's Republic of China in the IAEA and its membership will become effective on the day of the deposit of its instrument of acceptance of the Statute with the depositary Government

IAEA SAFETY STANDARDS

Under the sponsorship of the IAEA and the World Health Organisation (WHO), a code of practice on the safe operation of critical assemblies and research reactors was published in 1971 in the IAEA Safety Series (No 35) as part of the IAEA safety standards Since then, there have been significant developments in several safety-related areas (e g quality assurance, radiological protection, emergency planning, security) that are important for the safe operation of such installations In addition, valuable operating experience has been accumulated worldwide, including experience in applying the 1971 edition of the code to reactor operations

In the light of these developments and experience, the code was revised and updated during the period 1981-83, in co-operation with relevant international organisations The revised Code of Practice on the Safe Operation of Research Reactors and Critical Assemblies, which is aimed at defining minimum requirements for the safe operation of research reactors and provides guidance and information for such operation, was approved by the Board of Governors in October 1983 as part of the IAEA safety standards to be applied, as appropriate, to operations assisted by the IAEA The Board also recommended to all Member States to take into account the Code of Practice, as far as practicable, in the formulation of national regulations or in carrying out of other regulatory activities.

GUIDELINES FOR MUTUAL EMERGENCY ASSISTANCE ARRANGEMENTS

In February 1982, the Board of Governors requested the Director General to convene a group of experts, open to all Member States, to study the most appropriate means of responding to the need for mutual assistance in connection with nuclear accidents and of facilitating international co-operation in the area of nuclear safety An expert group was convened in Vienna from 28th June to 2nd July 1982 It comprised participants from the following Member States Argentina, Australia, Austria, Belgium, Brazil, Canada, Denmark, Egypt, Finland, France, Federal Republic of Germany, Hungary, India, Iraq, Italy, Japan, Republic of Korea, Mexico, Netherlands, Norway, Portugal, Saudi Arabia, South Africa, Spain, Sweden, Switzerland, Turkey, United States of America, Union of Soviet Socialist Republics and Yugoslavia The meeting of the expert group was also attended by observers from the Holy See, the United Nations Office of the Disaster Relief Co-ordinator (UNDRO) and the European Atomic Energy Community (EURATOM) The expert group recommended, *inter alia*, the prompt development of a single set of provisions setting forth, in the form of an information circular (INFCIRC), the terms and conditions that could be applied to emergency assistance and could

a) serve as a model for the negotiation of bilateral or regional agreements, which are to be encouraged; and

b) be readily agreed bwtween a requesting State and an assisting party at the time of a nuclear emergency

In September 1982, the Board of Governors approved that recommendation and authorised the Director General to implement it in 1983. Another group of experts to consider guidelines for mutual emergency assistance arrangements was convened in Vienna from 25th to 29th April 1983 Experts and observers from the following Member States and international organisations took part in the meeting Argentina, Austria, Belgium, Finland, France, India, Indonesia, Iraq, Israel, Italy, Japan, Netherlands, Pakistan, Portugal, South Africa, Spain, Sweden, Switzerland, Union of Soviet Socialist Republics, United Kingdom of Great Britain and Northern Ireland, United States of America and Yugoslavia, UNDRO, EURATOM and the OECD/NEA The expert group recommended a set of Guidelines for Mutual Emergency Assistance Arrangements in Connection with a Nuclear Accident or Radiological Emergency, together with a Technical Annex which provides information on the nature and extent of the assistance which may be required in such circumstances

These Guidelines will be published as an IAEA Information Circular (INFCIRC document) for use by Member States as appropriate

PHYSICAL PROTECTION OF NUCLEAR INSTALLATIONS AND MATERIAL

The 27th session of the General Conference on 14th October 1983 adopted a resolution in which it urges all Member States to make, individually and through competent international organs, every possible effort for the adoption of binding international rules prohibiting armed attacks against any nuclear installation devoted to peaceful purposes

The General Conference also adopted another resolution in which it expressed the hope that the International Convention on the Physical Protection of Nuclear Material of 1979 will enter into force at the earliest possible date and that it will obtain the widest possible adherence (The status of signatures and ratifications of the Convention is provided under "Multilateral Agreements" below)

SEMINAR ON NUCLEAR LAW

An interregional seminar on nuclear law and safety regulations was held in Rabat, Morocco, from 30th May to 4th June 1983 It was organised by the IAEA in co-operation with the Ministry of Energy and Mines and the National Electricity Board of Morocco The purpose of the seminar was to provide an overview of the major areas of nuclear regulation and to consider both the elaboration and implementation stages

More than one hundred participants from Algeria, Morocco and Tunisia took part in the seminar which was opened by the Minister for Energy and Mines Lectures were presented by IAEA staff members and experts from France, Spain, the French nuclear insurance pool* and the OECD/NEA The lectures and discussions covered nuclear safety control, radiation and environmental protection, functions of a nuclear regulatory body, licensing requirements, site selection and environmental impact assessment, national systems of materials control, nuclear third party liability and insurance Emphasis was laid on the regulatory steps required in the planning and implementation of a nuclear power programme

ADVISORY SERVICES IN NUCLEAR LEGISLATION

Advisory services were provided by the IAEA to the Government of Morocco in January 1983 in the elaboration of legislation for radiation protection and for the control of nuclear installations These regulatory activities are being carried out under the responsibility of the Ministry of Energy and Mines, in the context of preparations for the implementation of a nuclear power programme

Under its Technical Co-operation Programme, the IAEA also provided advisory services to the Government of Tunisia in November 1983 in the framing of radiation protection regulations A decree has been drafted, which embodies the IAEA Basic Safety Standards for Radiation Protection of 1982, jointly sponsored by WHO, OECD/NEA and the International Labour Organisation, and which thus reflects the latest recommendations of the International Commission on Radiological Protection

*The text of the paper presented is reproduced in the "Articles" Chapter of this issue of the Bulletin.

• *INLA*

NUCLEAR INTER JURA '83

Approximately 150 officials, magistrates, university professors, corporation lawyers, attorneys and insurers attended the Sixth Congress of the International Nuclear Law Association (INLA) held from 12th to 15th September 1983 in San Francisco, United States, at the invitation of Mr. Howard K Shapar, President of the Association.

The first Session, chaired by Mr. Pierre Huet, *Conseiller d'Etat* (France), dealt with international co-operation which, although not always active, should certainly be strengthened in the long-term in the areas of physical protection, technology transfers and nuclear power production

The second Session, chaired by Mr. Manning Muntzing, President of the American Nuclear Society, covered the evolution of national regulations on safety standards and noted that the quality assurance programmes and clauses helped to improve supplier/operator collaboration throughout the nuclear power plant construction period.

The third Session, chaired by Professor Riccardo Monaco, Rome University (Italy), considered the different aspects - constitutional, regulatory, social and economic - of public attitudes towards nuclear power plants, with attention focussed on the problem of siting such plants in border areas

The fourth Session, chaired by Mr. Barton Cowan (United States), dealt with certain contractual changes in the nuclear fuel cycle field *force majeure* and revision clauses enabling contracts to be saved despite monetary and economic impacts - the so-called "de-enrichment" contract, and exceptions made to the principle of the consignor's liability in the case of transport of radioactive materials being stopped by sabotage.

The fifth Session, chaired by Mr Ivor Manley, Deputy Secretary, Department of Energy (United Kingdom) was devoted to radioactive waste management It discussed possible solutions for financing disposal expenditures and the problem of liability for the post-operational period which was likely to be assumed at State level or by several States.

At the sixth Session, which was chaired by Professor Ernesto Hermida (Argentina), certain speakers regretted present distortions in the ceilings of the amounts for third party liability channelled to nuclear operators for compensation of damage to third parties, while noting that insurance coverage generally available today seemed satisfactory and could be adapted to increased requirements As for supplier/operator relationships, it would be opportune for them to be established in a contractual, non-regulated, framework Mention was also made of the position of repair facilities located outside the site of installations processing or using fuel. Finally, particular attention was paid to regulations on decommissioning of nuclear installations at the end of their useful life or prematurely as well as to financing decommissioning costs and possible insurance coverage.

AGREEMENTS

• *Argentina - Chile*

CO-OPERATION AGREEMENT ON THE PEACEFUL USES OF NUCLEAR ENERGY

The Governments of Argentina and Chile had signed this Agreement on 3rd November 1976, but it was approved only recently by Act No 22 886 adopted on 31st August 1983 by the competent authorities in Argentina

The Agreement provides a framework for nuclear co-operation between both countries to be implemented under the responsibility of the Argentine Atomic Energy Commission and the Chilean Nuclear Energy Commission respectively.

In the main, co-operation will cover exchange of scientific and technical information between both nuclear organisations Exchange of personnel and supply of equipment will also be encouraged

• *Eurochemic - Belgium*

SECOND PROTOCOL ON THE CONDITIONS OF EXECUTION OF THE CONVENTION BETWEEN THE BELGIAN GOVERNMENT AND THE EUROCHEMIC COMPANY

The Convention of 24th July 1978 between the Belgian Government and the Eurochemic Company on takeover of the Company's installations and execution of its legal obligations (see Nuclear Law Bulletin No 22) provides for the takeover of the Company's industrial site by a Belgian company or body which would operate the site and complete the works not terminated by Eurochemic. It was foreseen that Eurochemic would terminate its own technical activities by the end of 1981 By Section 179 of the Act of 8th August 1980 *on budgetary proposals for 1979-1980* (Loi relative aux propositions budgétaires 1979-1980), the Government was authorised to take a 50% participation in a mixed company having the object of managing nuclear fuel cycle activities except those reserved to the public body responsible for radioactive waste and fissile materials management (ONDRAF, see Nuclear Law Bulletin No. 27). This company may take over all or part of Eurochemic's installations However, the same Section stipulates that *reprocessing may be resumed in Belgium only after the legislature has* pronounced itself on the principle

However, by the end of 1981, the general energy debate of the Belgian Parliament during which the position on reprocessing had also to be adopted, had not yet taken place. Eurochemic and the Belgian Government therefore concluded a Protocol on the conditions of execution of the above-mentioned Convention This Protocol provided that Eurochemic would manage the site and installations on behalf of the Belgian Government for a transitional period ending on 31st December 1983 In 1982 and 1983, both Houses of the Belgian Parliament pronounced themselves in favour of recommissioning Eurochemic's former reprocessing plant, and by Royal Order of 8th March 1983, the National Investment Company (Société nationale d'investissements) was authorised to confer the statute of a specialised subsidiary on the Synatom Company by taking a 50% participation in the latter's capital This company, the capital of which was formerly held by private Belgian utilities only, is now named the Belgian Company for Nuclear Fuels - Synatom (Société belge des Combustibles Nucléaires Synatom). The new Synatom company constituted a study syndicate under the name of "Sybelpro" in which the French Compagnie Générale des Matières Nucléaires (Cogema) and the Deutsche Gesellschaft fur Wiederaufarbeitung von Kernbrennstoffen mbH (DWK) participate with 20% each. Sybelpro has the task of establishing a preliminary safety report as well as a detailed cost estimate of the plant recommissioning so as to allow a definite decision on recommissioning and the eventual constitution of a company which would take over Eurochemic's industrial site and refurbish and operate the plant.

As the definite decisions in this respect will not be taken before the second quarter of 1984, Eurochemic and the Belgian Government have concluded a second Protocol on the conditions of execution of the 1978 Convention which extends the transitional period until 31st December 1984. The new Protocol provides further that the Belgian Government must notify Eurochemic, by 30th April 1984 at the latest, of the decision on the future of the plant, if before 30th June 1984 the Government has not notified the decision to recommission the plant, it will be considered as having renounced to do so

• *International Atomic Energy Agency*

SAFEGUARDS AGREEMENTS

Safeguards agreements connected with the Treaty on the Non-Proliferation of Nuclear Weapons were concluded between the IAEA and the Ivory Coast and Papua New Guinea respectively, on 8th September 1983 and on 13th October 1983

An agreement between Cuba and the IAEA for the application of safeguards in connection with the supply of a zero-power nuclear reactor from Hungary was concluded on 7th October 1983 The light-water-moderated reactor will be installed at the Nuclear Research Institute of the Academy of Sciences of Cuba and used for training purposes

SUPPLY AGREEMENTS

On 23rd February 1983 the IAEA, the United States and Yugoslavia concluded an agreement for the transfer of approximately 20,200 grams of uranium of United States origin, enriched to less than 20%, for use in the operation of the TRIGA Mark II research reactor at Jozef Stefan Institute in Ljubljana in Yugoslavia.

Two other agreements for the supply of enriched uranium by the IAEA to Romania and Vietnam respectively were concluded on 1st July 1983 These are the first two cases where enriched uranium is provided by the Union of Soviet Socialist Republics through the IAEA, and paid for by the IAEA under its Technical Co-operation Programme

Five kilograms of uranium dioxide powder containing 4 5 kilograms of 20% enriched uranium have been supplied to Romania for the fabrication of experimental fuel elements for use in irradiation tests in a TRIGA research reactor, and in post-irradiation studies at the Institute of Nuclear Power Reactors at Pitesti. In the case of Vietnam, 140 fuel elements containing 3.6 kilograms of 36% enriched uranium have been supplied for the operation of a TRIGA-type research reactor, which is being reconstructed and upgraded at the Nuclear Research Institute in Da Lat

On 2nd December 1983, an agreement was concluded between the IAEA, Morocco and the United States concerning the transfer of about 12,896 grams of uranium enriched to less than 20% for use as fuel in a TRIGA Mark I research reactor The reactor will be installed at and operated by the National School for the Mineral Industry in Rabat for training and research

The Board of Governors approved in October 1983 an agreement to be concluded between the IAEA, Canada, Jamaica and the United States for the transfer of about 906 grams of 93% enriched uranium of United States origin The material will be used for the operation of a research reactor supplied by Canada to Jamaica. The reactor has been installed at the Centre for Nuclear Sciences of the University of the West Indies in Kingston

MULTILATERAL AGREEMENTS

• *Italy*

LONDON CONVENTION ON THE PREVENTION OF MARINE POLLUTION BY THE DUMPING OF WASTES AND OTHER MATTER

The London Convention of 29th December 1972 (see Nuclear Law Bulletin Nos. 24, 26 and 28) was ratified by the President of the Italian Republic by Act No. 305 of 2nd May 1983 and published in the Supplement of the Official Gazette No. 174 of 27th June 1983.

• *International Atomic Energy Agency*

CONVENTION ON THE PHYSICAL PROTECTION OF NUCLEAR MATERIAL

Status of signatures and ratifications

	Name of State/Organisation	Date of Signing	Place of Signing	
1	United States of America	03 03 1980	New York, Vienna	ratified 13 12 1982
2	Austria	03 03 1980	Vienna	
3	Greece	03 03 1980	Vienna	
4	Dominican Republic	03 03 1980	New York	
5	Guatemala	12 03 1980	Vienna	
6	Panama	18.03 1980	Vienna	
7	Haiti	09.04 1980	New York	
8	Philippines	19 05.1980	Vienna	ratified 22 09 1981
9	German Democratic Republic	21 05 1980	Vienna	ratified 05 02 1981
10	Paraguay	21.05 1980	New York	
11.	USSR	22 05 1980	Vienna	ratified 25 05 1983
12	Italy	13 06 1980	Vienna - signed as	Member State of Euratom
13	Luxembourg	"	"	"
14	Netherlands	"	"	"
15	United Kingdom	"	"	"
16	Belgium	"	"	"
17	Denmark	"	"	"
18	Germany, Federal Republic of	"	"	"
19	France	"	"	
20	Ireland	"	"	"
21	Euratom	"	"	"
22	Hungary	17 06.1980	Vienna	
23	Sweden	02 07 1980	Vienna	ratified 01 08 1980
24	Yugoslavia	15 07.1980	Vienna	
25	Morocco	25.07 1980	New York	
26	Poland	06 08 1980	Vienna	ratified 05 10 1983
27	Canada	23.09 1980	Vienna	
28	Romania	15 01 1981	Vienna	
29	Brazil	15 05 1981	Vienna	
30	South Africa	18 05 1981	Vienna	
31	Bulgaria	23 06 1981	Vienna	
32	Finland	25.06 1981	Vienna	
33	Czechoslovakia	14 09 1981	Vienna	ratified 23 04 1982
34	Korea (Republic of)	29 12 1981	Vienna	ratified 07 04 1982
35	Norway	26.01 1983	Vienna	
36	Israel	17.06 1983	Vienna	
37	Turkey	23 08 1983	Vienna	

STUDIES AND ARTICLES

ARTICLES

INTERNATIONAL CO-OPERATION IN PROVIDING INSURANCE COVER FOR NUCLEAR DAMAGE TO THIRD PARTIES AND FOR DAMAGE TO NUCLEAR INSTALLATIONS*

Jacques DEPRIMOZ**
Doctor of Law,
Director, French Atomic Risk Insurance Pool

I COVER FOR DAMAGE CAUSED TO THIRD PARTIES BY FIXED NUCLEAR INSTALLATIONS

Origins

What a remarkable career the law on compensation for nuclear incidents has had It made its first appearance almost twenty-five years ago, has now come of age and - for the greater good of mankind and to the disappointment of the lawyers - has not yet really been put to the test'

By virtue of the Price-Anderson amendment of 2nd September 1957 to the 1954 Atomic Energy Act in the United States and subsequently by virtue of legislation based on or stemming from the Paris Convention of 29th July 1960 and the Vienna Convention of 1st May 1963, all public and private operators of nuclear installations built in some thirty countries are subject, with some variations, to four *iron laws* which are easy to state and remember their liability is a) absolute b) channelled c) limited in amount and d) limited in time

These four principles are designed to protect victims of the rash or careless behaviour of those who dare to handle the atom, by

*Paper read at the Inter-regional Seminar on Nuclear Law and Safety Regulations, organised by the International Atomic Energy Agency, at Rabat, Morocco from 30th May to 4th June 1983

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

providing them with watertight arguments and simplified procedures for obtaining compensation

However, as the law on nuclear third party liability cheerfully completes its first quarter of a century, do you know that insurance against this liability is almost as old?

The fact is that law and insurance both made their appearance on almost the same day.

The first lawmakers saw very clearly and realised at once that the potentially vast sums which might have to be paid out as compensation after a major nuclear incident called for the provision of some form of financial protection for operators before an operating licence was granted

At hearings held in the United States in 1956, the Congressional Committee interviewed the leading market insurers and was told that they were prepared to organise pools to provide the utilities with cover which was then considered to be very substantial (60 million dollars for any one incident) In consequence, Section 170 of the Price-Anderson Act of 1957 was able to stipulate: that *each licence shall have as a condition the requirement that the licensee have financial protection of such type and in such amounts as the Commission shall require*, that *the amount shall be . the amount of liability insurance available from private sources* and lastly, that the said amount may be revised, taking into consideration such factors as the cost and terms of private insurance, the type, size and location of the licensed activity and other factors pertaining to the hazard

The United States Congress therefore called on insurers to do, not the impossible, but everything in their power

Under this arrangement, the State was to take over, up to a maximum of 500 million dollars, less any indemnities payable by private insurers, compensation claims payable by any operator of a reactor or plant required to hold or process fissile materials and able to produce proof of having taken out the *top available* insurance

This effective, pragmatic approach in a liberal economy has fortunately been maintained over the past twenty-five years, because the original cover of 60 million dollars, provided by the two American Pools (NELIA - now ANI - formed by 135 insurance corporations and MAELU - now MAERP - formed by 105 mutual insurance companies) has been steadily increased to 160 million dollars (including about 40 million from other countries), so that the State commitment is now limited to the difference between 160 and 500 million dollars.

What of the rest of the world?

Official approval of the role allotted to United States insurers in 1956 quickly encouraged their counterparts in other countries to set up pools along the same lines, with rules which will be discussed later.

Under the auspices of the European Insurance Committee, the most go-ahead of them, including the company which was to found the French Pool, arrived at their decision in the brilliant and invigorating atmosphere of a meeting held at Rocco di Papa, not far from Rome

Listed in order of formation, pools are now operating in the following twenty-two countries

1956 SWEDEN, UNITED KINGDOM, UNITED STATES

1957 BELGIUM, DENMARK, FINLAND, FRANCE, FEDERAL REPUBLIC OF GERMANY, ITALY, NORWAY, SWITZERLAND

1958 CANADA, NETHERLANDS

1963 TURKEY

1964 JAPAN

1968 SPAIN

1971 KOREA

1972 PORTUGAL

1975 TAIWAN

1977 YUGOSLAVIA

1981 BRAZIL

1982 SOUTH AFRICA

Thus, in the months before the Paris Convention was signed in July 1960, insurers from twelve European countries (whose representatives had been duly interviewed by government experts) could already declare themselves to be in a position to provide cover for operators using nuclear energy for peaceful purposes

Basic Texts

For European and several other countries, the cornerstone of the financial protection system is Article 10 of the Paris Convention

Article 10

a) To cover the liability under this Convention, the operator shall be required to have and maintain insurance or other financial security of the amount established pursuant to Article 7 and of such type and terms as the competent public authority shall specify

b) No insurer or other financial guarantor shall suspend or cancel the insurance or other financial security provided for in paragraph (a) of this Article without giving notice in writing of at least two months to the competent public authority or in so far as such insurance or other financial security relates to the carriage of nuclear substances, during the period of the carriage in question

c) The sums provided as insurance, reinsurance or other financial security may be drawn upon only for compensation for damage caused by a nuclear incident

The terms of Article VII of the Vienna Convention of 1963 are substantially the same, with the additional proviso that no insurance or financial protection is required for hazards originating from installations directly operated by the State

Three basic ideas in these two texts, which are repeated in varying forms in subsequent national legislation, call for further consideration

1 insurance is only one option among other forms of financial protection to be defined;

2. insurance, if chosen, can only be provided on terms subject to regulation,

3. third parties who are victims of nuclear incidents must have a preference claim on insurance compensation.

Public Liability Insurance: One of Several Legal Options

What are the other possible options and what do they offer?

1. First, a straightforward State guarantee seems to be the simplest and, at first sight, the most attractive because it requires no pre-financing by the building up of funds.

   The advantages would however, appear to be confined to installations operated by State or para-State agencies Furthermore, it is not clear that the State would in all circumstances pay the indemnity due *at no cost*. It might require sureties, particularly when the public operator is a financially autonomous industrial establishment

   In France, for example, where Section 7 of the Act of 30th October 1968 provides for a State guarantee as an alternative to insurance, Electricité de France had to deposit shares in order to obtain a guarantee for its nuclear power stations Because of the risk of losing its shares completely, the EDF used this arrangement for a very short time and very quickly came back to private insurance, preferring to include in its running costs an annual insurance premium which could be measured and exprapolated accurately, rather than suffer the *shock* of a major incident or a series of incidents on any scale

   There can of course be little question of a direct guarantee for private undertakings

2. On the other hand, a bank surety would theoretically be possible for private operators. Once again, though, such an arrangement may leave the firm having to pledge its assets, with the possible threat of total insolvency In practice, we have no knowledge of any arrangement approved by the government authorities

3. Finally, therefore, third party liability insurance is the option generally taken, even by government establishments such as the CEA (Atomic Energy Commission) and the EDF in France since 1957, ENEL (National Electricity Board) in Italy and the CEGB (Central Electricity Generating Board) in the United Kingdom

Insurance Subject to Regulations

In practice, the special regulations for third party liability insurance for nuclear operators are limited to a few points a) the object and extent of cover, b) cancellation terms

a) As regards the *object and extent* of cover, it is virtually enough to state that the insurer guarantees, without any limitation whatsoever, compensation for any loss or damage for which the operator may be liable under national law. In France, the Act implementing the Paris Convention dates from 30th October 1968 This is the Act referred to in the French standard contract of 20th October 1969, which has the official approval of the Insurance Division of the Ministry of Economy and Finance.

In clear terms, this means that our contracts cover absolute, channelled liability, allowing no possibility of a claim against suppliers or any other third party, and open to claims for ten years after the incident up to a maximum of 50 million francs for any one incident

The only exclusions other than those allowed by the Paris Convention (armed conflict, civil war, insurrection, grave natural disaster of an exceptional character) which have been added relate to

- damage caused by nuclear fuels, radioactive products or waste *after deliberate dumping*,

- damage caused by *weapons or devices* designed to be exploded by modifying the structure of the nucleus of the atom

In France, provision had to be made for these two kinds of damage to be taken over by a public body - the *Caisse Centrale de Réassurance* (Central Reinsurance Fund) - in the very unlikely event of a nuclear operator being liable.

b) As regards *cancellation terms*, the standard contract of 20th October 1969 provides that, even after an incident, the insurer has to give two months' notice to the Minister responsible for atomic energy As the authority responsible, the Minister then has to rule within two months on the form of the new *financial security* which is to replace the cancelled insurance contract

Victims of Nuclear Accidents are Preferential Creditors

It was the intention of the authors of the Paris and Vienna Conventions that the insurer's commitment, up to the operator's maximum liability, should be wholly assigned to the indemnification of third parties In particular, no deduction was to be made from the guaranteed cover for payment of legal fees and expenses. Such payments therefore require additional cover, for an amount to be agreed between the insurer and the insured.

It was most praiseworthy on the part of our legislators to try to ensure that all the sums available from insurance should go to the innocent victims' But do their texts, as they now read, guarantee that this principle is applied in full? We shall return to this question later on the subject of *damage to on-site property*

Insurance Contracts taken over by Pools

Under the terms of the Paris and Vienna Conventions and all legislation on nuclear insurance, operators are completely free to choose their insurer from among companies operating on the national market

At the same time, the cover provided has to be both sound and continuing

- it has to be *sound*, so that outgoings which may very far exceed expected income from premiums over several decades can be met without shilly-shallying. It is in fact impossible for individual insurers to charge *outsize* premiums or to count reasonably on achieving a balance by spreading the risks (in 1960 there were in all about fifteen power reactors operating in the West and by the end of 1982 the number had risen to only 228),

- it must be *continuing*, in view of the fact that the life of an experimental plant is from five to fifteen years, while a power reactor is programmed to last twenty to thirty years, and also of the fact that damage caused to third parties by operating incidents may be progressive and even deferred, with the result that legislation on nuclear liability quite properly sets a prescription time of up to ten years after the incident, for both the operator who is liable and for his insurer who takes his place

It was chiefly for these two reasons that the formation of insurance pools on each national market was considered to be essential from the outset, by the United States Congress in 1956 and later by the OECD governmental experts.

Official recognition of the *need for pools* is clearly stated in paragraph 4 of the Exposé des Motifs of the Paris Convention which reads

The possible magnitude of a nuclear incident requires international collaboration between national insurance pools Only an effective marshalling of the resources of the European insurance market by co-insurance and reinsurance will enable sufficient financial security to be made available to meet possible compensation claims. The establishment of uniform third party liability regulations throughout Europe is a vital factor if this collaboration is to be achieved.

These vital sentences, endorsed by the sixteen states which signed the Paris Convention not only point to pools as national acceptance agencies but also look forward to inter-pool co-operation

What are Insurance Pools?

a) Whether or not covered by regulations (for example the French Pool is a *Groupement d'Intérêt Economique* (Group of Economic Value) subject to the Order of 23rd September 1967), and whether or not they are empowered to issue policies direct (the French Pool is not), the pools in the twenty-two countries listed earlier have all been set up by private agreement between insurers operating in the same market (agreements renewable from year to year), under the terms of which each member of the pool sets the sum for which he will be solely liable, without personal reinsurance, in respect of any claim on policies passed on to the pool. This sum is known as his *retention limit* The total

of retention limits, which can be revised annually, is the national capacity of the pool Each member takes his share of the premiums and of claims in proportion to his retention limit, in relation to national capacity. Quota-share co-reinsurance is really the simplest arrangement!

By this method, the some 120 French and foreign Insurance and Reinsurance Companies operating in France have been able to increase as follows the retainer national capacity of the French Pool in respect of national third party liability risks,

1957	7 million francs	1977	49 million francs
1959	10 million francs	1979 :	59 million francs
1967	15 million francs	1982 :	66 million francs
1972	19 million francs	1983 :	81 million francs

While a tenfold increase in twenty-five years from the original capacity may seem a very considerable achievement, the present capacity of 81 million francs, in absolute terms, as third party liability cover may still appear modest ... particularly as compared with the DM 184 million of the German Pool, the £27 million of the United Kingdom Pool and the $120 million of the two United States Pools The reason in France's case is that the cover which has to be provided is still limited to the 50 million francs required by the Act of 30th October 1968 and not revised for fifteen years If, as is highly probable, this legal limit is raised in the near future, the capacity of our Pool to provide cover for French operators will be adjusted accordingly.

It should at once be added that the underwriting capacity of a market organised as a pool is only measured correctly by aggregating its third party liability capacity and its capacity in respect of liability for direct damage to nuclear installations - as both may be involved by one and the same incident. For the French Pool, the total is now almost 300 million francs, which is a more than creditable figure in the international league table (about 10% of aggregate world capacity estimated at 3 billion for direct damage).

b) In addition, soundness and continuity - those two essentials of atomic insurance - are based on a solidarity clause in the rules of all the pools, under the terms of which the share of any defaulting member in any sums underwritten for the year of default is divided between the others in proportion to their retentions

c) The rules of every pool (and naturally of the French Pool) specify that mutual reinsurance agreements may be concluded between pools - as specially recommended in paragraph 4 of the Exposé des Motifs of the Paris Convention

In this way, all national retention capacities throughout the world can be associated, as required, on a sharing basis

One technical point must be clarified in this connection total retention capacity as cover for national risks is calculated by aggregating the retentions of all national members *and of foreign members* operating in the country to which the

pool belongs Conversely, total reinsurance acceptance capacity for foreign risks cannot include the contributions of established foreign members, who generally reserve for their own national pool all their commitment capacity for national risks.

Consequently, the total acceptance capacity of any given pool for foreign risks is substantially lower than its total retention capacity for national risks

For the last twenty-five years, therefore, mutual aid machinery has operated regularly between pools - and is still operating today - by way of reinsurance agreements which are either optional (policy for policy) or automatic (all policies for any year) As a result, it is now possible to mobilise - if necessary - up to the equivalent of 1,400 million francs for the third party liability insurance of an installation

Regardless of whether reactors, fuel manufacturing plants, enrichment or reprocessing plants are involved, a remarkable degree of mutual trust exists between the heads of all national pools, so that the available capacity of each country is generally pooled without hitches or delays, on sight of the quotations proposed by the pool in the country where the nuclear operator requiring insurance is established.

In the field of international insurance, this is really an outstanding achievement, when the presumed risks to be covered are so enormous and so difficult to assess!

Concerted Evaluation of Risks

Quite obviously, a pool can only hope to obtain outside assistance if the business for which a request is made is quoted for in accordance with internationally-accepted standards The pool management therefore has to advise an insurer who is asked to quote for a new risk, not only of its own opinion based on the findings of its technical and legal services but also of the margin for negotiation compatible in the particular case with reinsurance requirements and therefore with the views of the other pools

Does this mean a charge of dominant positions and concerted agreements?

The first point to make here is that public or private operators looking for insurance are very few in number, very well advised by their brokers and not likely to have the wool pulled over their eyes

Furthermore, over and above these purely commercial contingencies, this special feature of nuclear hazard insurance has in no way escaped the attention of the General Directorate for Competition of the European Economic Community in Brussels.

Paragraph 3 of Article 85 of the Treaty of Rome (EEC) of 25th March 1957 provides that the prohibition of *concerted practices* may be declared inapplicable when such practices *contribute to improving the production or distribution of goods or to promoting technical or economic progress* . In 1962, the five atomic insurance Pools of the Federal Republic of Germany, Belgium, France, Italy and the Netherlands, followed in 1973 by those of the United Kingdom and Denmark accepted the procedure for requesting a *negative attestation* on the basis of the

following three main arguments a) risks still not well known, b) damage could be on a catastrophic scale, c) co-operation between pools seems to be the best way for combining all existing cover capacity

As there were no objections, the case was won'

Claims

It has to be acknowledged that mishaps for which nuclear operators have been liable under the terms of relevant national legislation have so far been on a minor scale.

Among a mass of small claims, the incident at Three Mile Island in 1979 stands out, this seems likely to cost members of the American Pools and of the European Pools (including the French Pool) around 25 million dollars (made up of 20 million for health checks and temporary accommodation for people living in the neighbourhood and 5 million for radiopathological research)

Does this mean that other claims reported to insurers and settled by them are unimportant and without interest?

Two claims recently processed and settled by the French Pool would appear to prove the opposite

The first dates from 1977 The claim arose from the fracture, during routine maintenance, of a valve on a container holding uranium hexafluoride There was no panic but it was decided to evacuate all teams working on the site for three to five hours and these teams included 940 employees of several public works contractors working on new buildings, many of whom were sent for a medical check-up with satisfactory results in all cases

These workers, employed by contractors, were unquestionably third parties within the meaning of the Paris Convention and of the French Act of 30th October 1968 But I would put a question to the lawyers Is it really possible to speak of a *nuclear incident* within the meaning of the same Convention and the same Act when there was no damage directly attributable to the radioactive or toxic properties of the fluid which leaked? In the specific case, the financial loss claimed by the firms on the site was nevertheless indemnified by the Pool at a total cost of about 650,000 francs But would we have had to pay out ten times as much for a stoppage of work lasting ten times as long?

The second case also involves interpretation of the Paris Convention In 1981, fire broke out in a silo used for storing medium-level radioactive waste Although confined within the boundaries of the installation site, radioactive contamination affected the plant and equipment of several construction and maintenance firms Costs incurred for decontamination of this on-site property, for the destruction and scrapping of items which could not be decontaminated and, as in the previous case, for hours of stoppage of work, are assessed at 6 million francs

A first question of principle has to be answered the Paris Convention excludes damage to property on the site used *in connection with the nuclear installation* How does this flexible formula apply to worksite equipment?

A second specific question also arose One item of equipment was being used direct by the operator but under a leasing contract so that the real owner is still the lessor who claims to be the injured party

Is he to be indemnified on the same footing as the other third parties? It is safe to wager that the authors of Article 3(a)(ii) of the Paris Convention did not think of leasing contracts, under which the undertaking directly concerned with using the property on the nuclear site regains the status of innocent victim

These two cases actually experienced by French insurers show, if there were any need to do so, that the facts are still surprising legal theoreticians - and should lead them to amend progressively the rules dreamed up twenty-five years ago The nuclear industry has not so far unleashed damage on a catastrophic scale - and for this we must all be thankful But if a serious incident does occur, both the law and insurance *must be able to cope* with it

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Today, nuclear law and nuclear insurance may be likened to a couple celebrating their *silver wedding*, safe from the storms outside

Let us wish them the same destiny as Philemon and Baucis whom the gods transformed into oak trees, with their branches and protective leaves entwined for the whole of eternity'

II COVER FOR DAMAGE CAUSED TO THIRD PARTIES DURING THE CARRIAGE OF NUCLEAR SUBSTANCES

History

In addition to the four *iron laws* enumerated at the beginning of Part I, as defining the liability of operators of nuclear installations, there is of course a fifth equally significant law, stemming from the same desire to protect victims from procedural snares and traps, every operator of an installation built to store, improve, consume or reprocess nuclear substances has sole liability for any incident involving any substances which he consigns by road, sea or air transport, up to the time that such substances arrive at another nuclear installation, unless such liability has been expressly transferred by written contract to the receiving operator

If loads consigned by different operators are carried together by the same means of transport, all such operators are in principle jointly and severally liable for any damage caused to third parties up to the highest limit of liability which can be applied to any one of them by virtue of his national legislation.

We shall not go into details, because this is a fair summary of the well-balanced formulas of Articles 4 and 5 of the Paris Convention and Article II of the Vienna Convention - and there is every reason to believe that these main rules are already applied or will one day be applied by all countries which have signed one or other of these two Conventions

Thus, it was the intention of our legislators that if containers holding radioactive cargos fracture during transport, the persons liable shall be clearly identifiable within the family of consigning operators - even to the extent that in the case of carriage by sea, the Brussels

Convention of 17th December 1971 declares all other Conventions to be void and waives the liability of all other undertakings involved (shipowner, shipper, forwarding agent or lighterman to whom all or part of carriage is sub-contracted, or the owner of a ship in collision)

The same texts stipulate that before despatch by road, rail, sea or air is sanctioned, the consigning operators must prove to the competent supervisory authorities that they are properly *covered* by a financial guarantee or special insurance

Insurance is generally chosen

This brings us back to the options enumerated in Part I for risks involved in holding and use at a fixed point

State guarantee? Bank surety? No serious move has been made in that direction because, in the sixties, insurers were very quickly ready to issue nuclear operators they were about to cover for fixed-point risks with *Carriage of nuclear substances - third party liability* policies meeting the requirements of national legislation

And as Article 10(a) of the Paris Convention - once again' - referred to terms of insurance approved by regulation, operators' insurers drafted standard General Terms for third party liability carriage insurance and obtained the approval of their authorities

In France, this document was approved by the Insurance Division of the Ministry of the Economy and Finance, on 27th April 1973.

There is only one specific exclusion, damage caused by any radioactive materials after *dumping* in the course of a *disposal operation*

Voluntary deep sea campaigns which were in fact ordered for French waste in 1969 and have not been repeated since, were covered by insurance only for incidents between the port of loading and the point of dumping The *Caisse Centrale de Réassurance* would have taken over beyond that point

Damage caused by accidental *jettisoning* or more generally due to loss or theft is covered, however, provided a claim is lodged against the insured within twenty days from jettisoning, loss or theft

Open Contracts in France

From the outset, French operators have been offered renewable twelve-month *open* contracts In other words, these policies cover all risks associated with carriage movements declared during the year on monthly or quarterly statements

An *open* contract can only be cancelled by two months' notice and carriage movements in progress at the date of notice continue to be covered until carriage is completed

Open contracts issued in France cover the widest possible range of transport movements of radioactive materials, provided each consignment is properly declared and identified This means that the same contract covers

- carriage by land, sea and air,

- carriage of full load, of materials with low specific activity (for example, sodium uranates) of new radioactive materials requiring A, BU or BM standard packaging in accordance with the 1973 Edition of the IAEA Regulations for irradiated materials and waste,

- carriage movements guaranteed up to the limit of the territorial waters of the receiving country, or, otherwise, up to unloading at quay,

- combined *road-rail-sea* or *road-air* carriage movements without trans-shipment, throughout the world, provided the consignor (or recipient) is a French operator

Victims have Preferential Claims on Insurance Compensation

We have seen, in connection with incidents at land-based installations, that the Paris Convention and national legislation exclude damage to *property on the site used in connection with such installations* Their owners are in fact third parties entitled to less protection because they can insure their property direct against the risk of accidental radioactive contamination.

Would the same apply to damage caused during carriage to the actual means of transport?

Article 7(c) of the Paris Convention provides that national legislation may so decide or, on the contrary, may include radioactive damage caused by the cargo to the means of transport within the scope of nuclear liability and therefore of third party liability insurance

In France, the Act of 30th October 1968 explicitly included such damage which is covered by our policies and allowed for in our premiums Our premiums also allow for combined consignments of radioactive and neutral materials and for the risk that the former may contaminate the latter.

Cover for accidents involving French law is up to 50 million francs per incident However, in the case of international carriage movements our contracts provide cover in accordance with the limits applicable in the countries through which the goods pass This adjustment applies also to carriage by air or sea to Japan, the United States or the USSR up to figures which can now easily attain 150 million francs - with the *reinsurance* share of the other national pools

Call on Pools

The fact is that these *worldwide* policies covering all radioactive materials at risk in hundreds of packages were only made available on our market by virtue of all being transferred to the French nuclear risks insurance Pool which, in this sector, can pride itself on having set the pattern for several other markets We exchange cover with the Belgian, Italian, Japanese, Spanish, Swedish, Swiss and Yugoslav Pools

For this type of risk, it may be asked whether the pools really need to be used Some markets thought they could do without and the intervention of Protection and Indemnity Clubs and conventional maritime insurers cannot be ignored

There are, however, at least two arguments in favour of transferring risks to pools:

- the clients are the same as for fixed-point land risks all are nuclear operators (and very occasionally major specialised carriers who take out insurance for and on behalf of operators),

- the ability of pools' technical offices to collect information and know-how,

- and also, consideration has been given for a long time to the possibility of introducing, for international carriage by land, sea or air, a scheme based on the *green card* used for the indemnification of international road traffic accidents. The pools would then play a dual role in issuing certificates and managing losses under rules very similar to those adopted in January 1949 by the Road Transport Sub-Committee of the Economic Commission for Europe.

As long ago as June 1967, the NEA Steering Committee produced a standard financial security certificate to meet the requirements of Article 4(c) of the Paris Convention and for issue to road, railway, sea and air carriers It is already used for carriage movements insured by the various pools

By widening the scope of a number of bilateral management agreements negotiated between the French Pool and a number of neighbouring pools, the introduction of an *Inter Pools* Convention, similar to the Inter Bureaux Convention becomes a reasonable possibility based not on *green cards* but on *neutron colour* cards

III COVER FOR DAMAGE CAUSED TO NUCLEAR INSTALLATIONS

If we take account of the sums at risk and the volume of business created, the third and last part of this paper should be much longer than the first two parts concerned with third party liability insurance

As a guide, gross turnover on national risks insured by the French Atomic Pool in 1982 was about 17 million francs for third party liability risks as against around 56 million for risk of material damage

Furthermore, in the same year 1982, while our maximum commitments (or retentions) were only 65 million francs for each third party liability claim, they stood at 260 million as cover for direct damage to installations

Despite this difference of scale, our third section will be shorter because the history of *material damage* pools largely coincides with that of the *third party liability* pools.

Public Liability and Material Damage Pools created at almost the Same Time

There is of course no atomic energy legislation in any country which requires the operator of a nuclear installation to take out insurance to cover his own damage

In the matter of risk management, freedom of choice (between self insurance, pooling of risks through a tied company, normal insurance above a variable excess) remains sacrosanct for public and private nuclear operators just as for any manufacturer

Nevertheless, when the Price Anderson Act of 1956 led the American utilities to seek third party liability cover from the insurers, those same insurers to a man offered insurance for damage to the same utilities At that time, they declared an overall capacity of 60 million dollars (50 million from companies belonging to NELIA and 10 million from mutual societies belonging to MAERP)

And the utilities, wishing to protect their assets, quickly found satisfaction in the comprehensive policies offered by the drafting services of the two Pools

Since then, American insurance has set the tone in Europe and elsewhere In the twenty-two countries listed in Part I and at the dates given for the creation of the *Third Party Liability* pools, *Damage* pools were set up either jointly or in parallel

- Same members national insurers and reinsurers, foreign insurers and reinsurers.

- Same arrangement for sharing risks: quota-share co-reinsurance for a first line of commitment.

- Same operating methods: policies drawn up by the insurers approached and wholly transferred to the national pools on terms fixed by agreement with the technical and legal services

- Same reasons for member companies wish to share technical know-how concerning risks but principally the need to mobilise full potential strength, that is the full financial capacity available for commitment on the national market

Capacity for Major Risks

The growing and ever-changing problem to be faced is that of matching national and world cover capacity to the value of the installations to be insured

In the United States, under pressure from those seeking insurance, the 1957 figure of 60 million dollars rose to 100 million by 1971, 130 million in 1974 and 209 million in 1982 This purely national cover, augmented by contributions from the other pools, now amounts to 500 million dollars (or over 3 billion francs)

In France, a start was made in 1957 with 5 million francs As the table below shows, the French Pool's total capacity for national risks (using the contributions of French and foreign insurers and reinsurers, and of the *Caisse Centrale de Réassurance*) has risen as follows

- by 1972 to about 40 million francs
- by 1976 to about 100 million francs
- by 1980 to about 190 million francs
- by 1982 to about 260 million francs
- by 1983 to about 300 million francs

And our current acceptance capacity for reinsurance on foreign *material damage* policies stands at about 172 million francs

These are more than creditable figures in the world context It is still an open question, however, whether they match up to the requirements of nuclear operators seeking maximum cover

So far as can be judged, the current replacement value of a 1200 MWe PWR (Pressurized Water Reactor) is about 5 billion francs (or 700 billion ECU) The total value of the EURODIF fuel enrichment plant at Tricastin is in the region of 25 billion francs (or 3.5 billion ECU) This means that, however great the world capacity of the pools - standing as it does at 3 billion francs - it cannot cover the full cost of a reactor which is completely destroyed or cannot be repaired

What has to be done, of course, is to estimate *the maximum likely claim* for a single site, allowing for the risk of transfer from one building to another This is not always easy

The risk of total loss may lie more with outside causes such as earthquake or flood, than with internal causes (even though nuclear installations are specially designed and constructed to withstand natural disasters). It is a fact, however, that operators are increasingly asking insurers for cover for outside causes of destruction, as well as for acts of violence and sabotage

The Content of Contracts

A highly technical analysis of guarantees would go well beyond the scope of this paper Briefly, it can be stated that

1 Policies distinguish between property in the hot zone (for example, reactor, primary cooling system and pumps in the same building), in the warm zone (secondary system and auxiliaries) and in the cool zone (conventional equipment)

2 The guarantees for the hot and warm zones cover without distinction the risk of fire, explosion (and sometimes electrical damage and breakage of machinery also) and abnormal radioactive contamination In the cool zone, conventional risks are not usually covered by the policies transferred to pools but property in that zone is covered for accidental radioactive contamination.

3 Finally, there is specific cover for the cost of decontaminating material insured for direct damage and for the cost of decontaminating the ground and any other property on the installation site Special attention is given to these costs which can be very heavy and can sometimes exceed the replacement value of the damaged property

Lastly, Loss Claims

At variable levels, claims on *material damage* policies accepted by French and foreign Pools are much more frequent than might be imagined

The assessment of claims is generally very time-consuming and involves repeated expert appraisals To no-one's surprise, it is sometimes a very costly process

We shall not comment on the most recent claims received by the French Atomic Pool and will go far enough back in time

- In 1968, metallic debris from the internal structure of the pressure vessel of a pressurised water reactor hammered a primary system equipment and forced fuel element assemblies out of shape it cost almost 3 million francs at the time (or today probably 6 to 7 million francs or 1 million ECU),

- the incident which occurred in 1979 on No.2 Unit at Three Mile Island probably cost all the insurers involved (American Pools and other reinsurance pools) about 300 million dollars (that is 2 billion francs today). The French Pool has already contributed about 18 million dollars to the compensation paid to the American operator of the Harrisburg power station.

Under the arrangements fully described in this paper, whereby the twenty-two national pools operating in the world exchange quota-share reinsurance, these pools find themselves financially involved each year in around ten claims, costing each of them a good million dollars after deduction of contracted excesses retained by operators The picture is completed by a series of minor loss claims

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This is a picture of direct damage insurance with the precise structural lines and deep perspectives which recall the sea canvasses of Claude Gelée known as Le Lorrain. This reference to a great and understanding classical master is to be preferred to a reference to a Picasso or a Miro who would rather suggest the vision of a world in ruins'

GROWTH OF MEMBER COMPANIES' RETENTIONS
(IN THOUSANDS OF FRANCS) SINCE THE POOL WAS FORMED

Year	National Risks		Acceptances of Foreign Risks	
	Third Party Liability	Material Damage	Third Party Liability	Material Damage
	Aggregated		Aggregated	
1957	14,000		10,035 5	
1958	18,000		11,804	
1959	20,000		13,000	
1960	20,000		13,000	
1961	20,000		13,000	
1962	20,000		13,000	
1963	30,000		22,260	
1964	30,000		22,260	
1965	30,000		22,235	
1966	46,235		36,835	
1967	47,335		36,935	
1968	47,585		36,935	
1969	51,270		38,225	
1970	56,013		41,586	
1971	57,370 5		41,586	
1972	57,885 5		42,101	
1973	57,885 5		42,336	
1974	85,249		59,924	
1975	93,500		62,110	
	Separate	Separate	Separate	Separate
1976	47,400	99,500	27,000	59,700
1977	49,400	104,800	27,200	61,300
1978	52,150	151,000	28,400	92,500
1979	59,700	173,000	32,100	101,600
1980	59,175	188,450	33,130	113,950
1981	58,310	210,100	34,250	126,650
1982	65,583	259,050	38,170	151,220
1983	81,390	297,200	46,335	172,100
The overall retentions for 1983 are as follows by type of company				
FRENCH COMPANIES				
- nationalised	18,760	68,200	13,800	54,503
- private	16,826	76,721	14,938	60,606
- mutual and similar	5,615	26,699	5,615	25,949
- reinsurance	9,082	29,540	8,782	23,042
FOREIGN COMPANIES				
- insurance and reinsurance	23,107	76,040	-	-
CAISSE CENTRALE DE REASSURANCE	8,000	20,000	3,200	8,000

THE IMPLICATIONS OF THE SUPREME COURT'S CALIFORNIA NUCLEAR MORATORIUM DECISION*

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and

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A recent decision of the US Supreme Court, upholding a moratorium imposed by the state of California against new construction of nuclear plants until certain conditions are met, is being hailed by critics of nuclear power as a devastating defeat for the nuclear and electric utility industries - one which will severely cripple, if not eliminate altogether, the further development of nuclear power in the US The authors disagree with this characterisation of the decision and believe that its impact is limited in scope and there are some positive aspects with respect to the decision Furthermore, the recently enacted Nuclear Waste Policy Act at the federal level would seem to satisfy state requirements for the availability of nuclear waste disposal The future of nuclear power will depend more on its relative economics than on this court decision Accordingly Congress should act expeditiously and approve licensing reform legislation so as to allow nuclear power to compete equitably with other energy sources

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Initial reports may be misleading about the implications of the recent US Supreme Court decision upholding the constitutionality of a California Statute that imposed a moratorium on the construction of new nuclear power plants until such time as nuclear waste disposal has been *demonstrated*

Critics of nuclear energy instantly hailed the decision as a devastating defeat for the nuclear industry - one which will severely cripple, if not eliminate altogether, the future development of nuclear power in the US. Many initial assessments of the decision's implications were made with little thoughtful analysis, and most were made with an eye to capture the next day's headlines A more careful analysis reveals that the decision is narrow in scope and is not likely to have the attendant disastrous effects for the nuclear industry which are claimed by some Moreover, the decision contains some positive elements which will directly benefit the nuclear industry both in the short and long term.

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Any analysis of the implications of the US Supreme Court decision in Pacific Gas & Electric Co *et al* v State Energy Resources Conservation and Development Commission *et al* Docket No 81-1945, must begin with a precise understanding as to what the high court was asked to determine and how it reached its decision

THE CASE

The case arose from challenges to the constitutionality of certain amendments adopted in 1976 to California's Warren-Alquist State Energy Resources Conservation and Development Act (California Public Resources Code, Sections 25000 *et seq.*)* These amendments prohibit the construction of new nuclear power plants until the California Energy Commission (CEC) has made certain findings under Sections 25524 2(a) and 25524 1(b).

Section 25524 2(a) prohibits the issuance of a certificate for construction of a nuclear power plant until the Energy Commission finds that the federal government, through its authorised agency, the US Nuclear Regulatory Commission (NRC), *has approved and there exists a demonstrated technology or means for the disposal of high-level nuclear waste* (*the CEC disposal finding*) /By *disposal* is meant *permanent and terminal disposition* Id Section 25524 2(c)/ Section 25524 1(b) requires a finding by the Energy Commission on a case-by-case basis that there will be *adequate capacity* for interim storage (*the CEC storage findings*)

Two electric utilities, Pacific Gas and Electric Company and Southern California Edison Company, filed an action in federal district court in California seeking a declaration that these provisions were invalid under the Supremacy Clause of the United States Constitution, because the provisions were pre-empted by the Atomic Energy Act of 1954 (AEA), as amended The federal district court, after finding that the issues presented by the two statutory provisions were *ripe* for judicial review, held in April 1980, that they were in fact pre-empted by the AEA The US court of appeals for the ninth circuit reversed in October 1981, agreeing that the challenge to the required CEC disposal finding was ripe for review, but holding that the challenge to the required CEC storage finding was not, because it could not be known whether the California Energy Commission would ever find a nuclear plant's storage capacity to be inadequate The court of appeals found that the required CEC disposal finding was not pre-empted by the AEA and, hence, was constitutional

The two utilities then sought and obtained Supreme Court review, at which point the federal government joined the case for the first time as a friend of the court and in support of the utilities' position On 20th April 1983, the Supreme Court unanimously upheld the ninth circuit's finding that the required CEC disposal finding is not pre-empted by the AEA The Supreme Court also upheld the decision of the court of appeals concerning the lack of ripeness of the challenge to the required CEC storage finding

THE DECISION

The California opinion was written by Justice Byron White, who said the case emerged from *the intersection of the federal government's efforts to ensure that nuclear power is safe with the exercise of the historic state authority over the generation and sale of electricity*

*See Nuclear Law Bulletin Nos 28 and 30

He noted that it is well-established law that, within constitutional limits, Congress may pre-empt state authority either by so stating in express terms or by a pervasive occupation of the field. The utilities and the federal government contended that the California Statute - because it was predicated allegedly on safety concerns - ignored the division between federal and state authority created by the AEA and, hence, fell within the field that the federal government has preserved for its own exclusive control. In addition, the utilities and the federal government argued that the statute, and the judgments that underlie it, conflict with decisions concerning the nuclear waste disposal issue made by Congress and the NRC, and that the California Statute frustrated the federal goal of development of nuclear technology as a source of energy

In determining the constitutionality of the required CEC disposal finding, the Court scrutinized the extent of federal pre-emption under the AEA The Court concluded that *Congress, in passing the 1954 act and in subsequently amending it, intended that the federal government should regulate the radiological safety aspects involved in the construction and operation of a nuclear plant, but that the states retain the traditional responsibility in the field of regulating electrical utilities for determining questions of need, reliability, cost, and other related state concerns* In so concluding, the Court reaffirmed in the strongest terms ever the federal pre-emption over public health and safety issues The Court stated that *the federal government has occupied the entire field of nuclear safety concerns, except the limited powers expressly ceded to states* (emphasis added). The Court concluded that a state moratorium on nuclear construction grounded in safety concerns *falls squarely within the prohibited area.* Such a state judgment that nuclear power is not safe enough to be developed, the Court noted, would conflict directly with the counteravailing judgment of the NRC that nuclear construction may proceed notwithstanding extant uncertainties as to waste disposal (the NRC is examining this issue in its ongoing *waste confidence* rule making) In addition, the Court noted that a state prohibition on nuclear construction for safety reasons would also be *in the teeth of the Atomic Energy Act's objective to ensure that nuclear technology be safe enough for widespread development and use - and would be pre-empted for that reason*

This being the case, the Court proceeded to determine whether there was a non-safety rationale for the California Statute The California utilities and the federal government had conceded that states have been free to regulate nuclear energy based on need for power and economics, but argued that the California statute had been motivated by perceived safety considerations. At the oral argument before the Court in January, it was apparent (to the authors) that the decision could turn on the underlying purpose of the required CEC disposal finding Unfortunately, the Court accepted the state's argument that the Statute was aimed at economic problems, not radiation hazards, declining to *become embroiled in attempting to ascertain California's true motive* Once the Court accepted California's avowed economic purpose as the rationale for enacting the Statute, it was consistent with past decisions for the Court to conclude that the Statute lay outside the field of nuclear safety regulation occupied by the AEA. If the Court had looked beyond the economic rationale and concluded that the state had safety considerations in mind, as the utilities and federal government argued, the result presumably would have been different. The Court also found that the California Statute did not conflict with congressional nuclear development and waste management policies.

THE IMPLICATIONS

The Court's ruling simply reaffirms the traditional division of responsibility between the state and federal government in the regulation of nuclear energy Thus, the Court's decision preserves the status quo with regard to the division of regulatory responsibilities under the AEA states are permitted to regulate need and economic considerations, and the federal government is exclusively responsible for the regulation of public health and safety matters On 2nd May 1983, the Supreme Court reinforced this conclusion by refusing to hear appeals challenging two decisions of courts of appeals that declared unconstitutional attempts by the states of Illinois and Washington to impose restrictions within those states on storage and transportation of nuclear materials

So what impact should the California decision have on the nuclear industry? First, the Court's decision does not affect nuclear plants which are operating, awaiting operation, or under construction. The Court itself recognised that would *pose a different case* The decision has no immediate impact even in California, since utilities have no present plans to construct any new nuclear power plants there Similarly, there are no current plans to construct any additional nuclear power plants in any of the other states with similar statutes, such as Connecticut, Maine, Montana, Oregon, and Wisconsin.

Moreover, since the recent recession and other factors have resulted in sufficient electrical generating capacity in the near future (either operating or under construction), it is not expected that any new orders for nuclear plants will be placed within the next several years. By the time utilities are ready to order new nuclear plants, sufficient progress should have been made in the implementation of the recently enacted Nuclear Waste Policy Act of 1982 to convince most states that there indeed exists a demonstrated means for the disposal of nuclear wastes

With respect to state concerns regarding nuclear waste management, the Supreme Court was persuaded by California's argument that, without a permanent means of disposal, the nuclear waste problem could lead to unpredictably high costs to contain the problem or, worse, to shutdowns of reactors The Court declined to find that the recent passage of the Nuclear Waste Policy Act totally removed the economic uncertainty that it found had motivated California The Court said that, while the passage of the Nuclear Waste Policy Act may convince state authorities that there is now a sufficient federal commitment to waste management that licensing of nuclear reactors may resume (and that this seems to be one of the Nuclear Waste Policy Act's purposes in the Court's view), it does not appear that Congress intended to make that decision for the states through this new legislation The Court referred to the McClure Amendment to the Senate bill that had attempted to do precisely that Senator James A McClure's (Republican, Idaho) amendment, which was adopted by the Senate without debate, specifically provided that the Nuclear Waste Policy Act satisfied any legal requirements for the existence of an approved technology and facilities for waste disposal The Court noted that, during subsequent House hearings, it was strongly urged that this language be omitted so as not to affect the California case. The bill that emerged from the House committee did not contain the Senate language, and Representative Richard L Ottinger (Democrat, New York) stated to the House that the language was deleted *to ensure that there would be no pre-emption* The bill ultimately signed into law followed the House version The Court said that, while it was *correctly reluctant to draw inferences from the failure of Congress to act, it would, in this case, appear improper to give a reading to the Waste Policy Act that Congress considered and rejected*

Because the California decision does highlight the legitimate role of the states in regulating the costs of electricity, it is more important than ever that waste management not be perceived as a *clog* in the nuclear fuel cycle and that the Nuclear Waste Policy Act be implemented promptly The Nuclear Waste Policy Act reaffirms that the federal government is responsible for the management and disposal of high-level nuclear waste and establishes a process and programme for the siting, licensing, and construction of a permanent disposal facility - a geologic repository. The Nuclear Waste Policy Act also requires that the federal government must accept high-level nuclear waste and spent fuel from utilities beginning not later than 1998

The Department of Energy (DOE) has just published a final contract for disposal services which DOE intends to enter into with all the utilities currently operating nuclear power plants For utilities which have nuclear plants under construction or awaiting operation, the utility has until commencement of operation to enter into a contract. When these contracts are signed, the federal government will be both legally and contractually obligated to take title and possession of high-level nuclear waste and spent fuel from utilities by a date certain and safely to dispose of this material in a geologic repository.

The Nuclear Waste Policy Act should settle the issue of how much it will cost utilities to dispose of nuclear waste - a matter of direct concern in the California Statute. The Nuclear Waste Policy Act levies on nuclear-generated electricity a tenth of a cent per kilowatt-hour (one mill per kilowatt-hour) fee which is deposited in a separate account in the US Treasury. Recent estimates by the Congressional Budget Office and DOE indicate that the revenues generated from such a fee are more than adequate to pay the costs of the federal waste management programme These studies show that the fee is sufficient even if the actual costs are assumed to double over current estimates.

With a one mill per kilowatt-hour disposal fee established by the Nuclear Waste Policy Act and if continued progress is made in developing the facilities envisioned in the Nuclear Waste Policy Act, states will be able to compare the costs of electricity from nuclear and other sources without being concerned about waste management uncertainties that previously might have influenced their decisions It then will be easier to compare not only the health effects of the nuclear and, for example, coal fuel cycles, but the projected costs as well

SUMMARY

As previously described, the near-term effects of this recent US Supreme Court decision are minimal - mostly confined to the adverse publicity attendant upon the announcement and reporting of the decision which can only serve to weaken further the confidence of both the public and investment community in the nuclear option.

In the long term, less is certain as to what specific ramifications the decision may have on the development of nuclear energy in the United States. For the moment, since there exists sufficient electrical capacity throughout most regions of the United States, utilities are not presently planning to place any new orders of base-load electrical plants, either nuclear or otherwise. However, if the present economic recovery currently under way is sustained, the demand for electricity is certain to increase and will in time lead utilities to resume ordering additional capacity It is at this juncture where the effects of this US Supreme Court decision will be manifested By that time, given adequate

oversight by Congress, sufficient progress should have been made in the implementation of the recently enacted Nuclear Waste Policy Act to convince most states that there indeed exists a demonstrated means for the disposal of nuclear wastes. In this regard, it is incumbent upon the nuclear and electric industries to monitor closely the progress in the implementation of the Nuclear Waste Policy Act and to participate actively in the timely resolution of any issues which may impede the expeditious implementation of the programme

In other areas, the decision would seem to emphasise the need for the nuclear and electric utility industries to maintain an economically competitive product Otherwise, this decision may encourage other states to enact nuclear power plant moratorium statutes that are legitimately based on economic grounds. Capital costs and construction schedules must be brought under control and reduced This could be accomplished, in part, by the greater use of standardised plant designs. Moreover, the Nuclear Regulatory Commission's licensing process must be reformed to provide a more rational and systematic approach to licensing and regulation Frequent regulatory changes and added requirements (backfits) must be stabilised and be made cost effective

Both the DOE and NRC have transmitted legislation to Congress to reform the NRC licensing process Although these legislative proposals differ somewhat in approach, both are in agreement as to the necessity to reform the licensing process Rather than attempting to curtail the traditional rights of states to regulate nuclear energy on economic grounds, as some would suggest, Congress should act expeditiously to approve a package of licensing reforms so as to allow the nuclear option to compete equitably with other energy sources

Nuclear energy's future ultimately will be determined by its relative economics in the marketplace, not by the effects of this US Supreme Court decision

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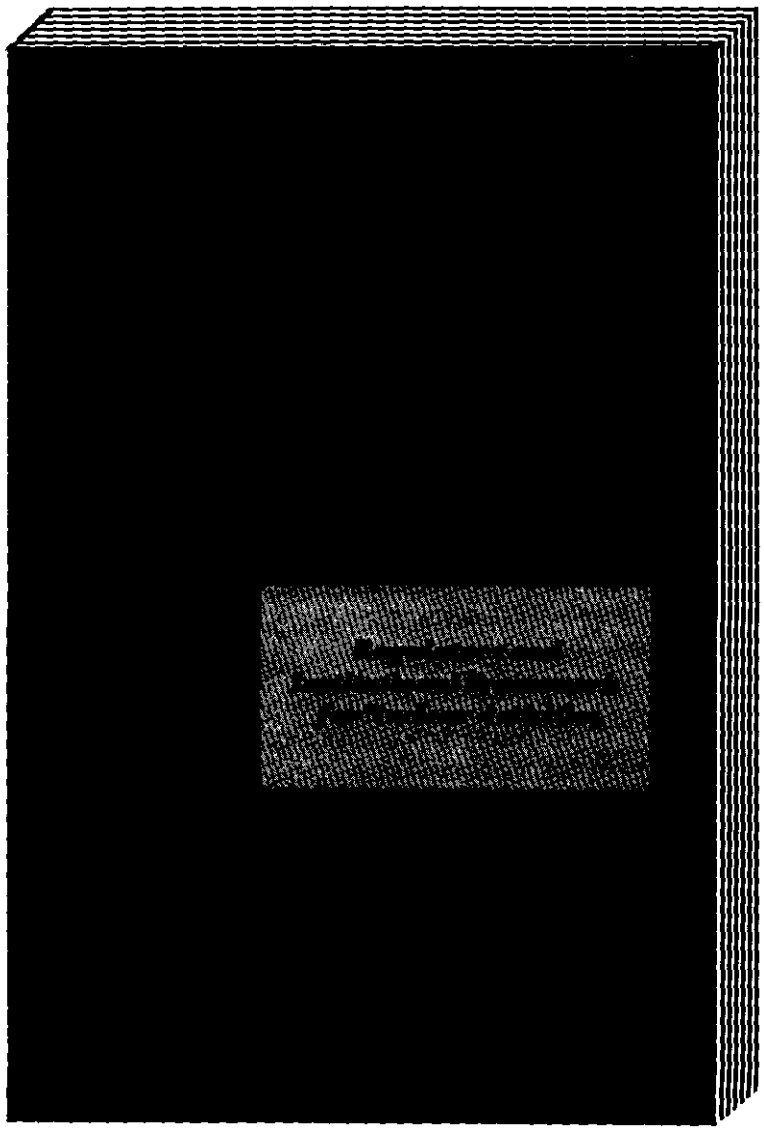

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NUCLEAR LAW
Bulletin

SUPPLEMENT TO Nº 32

SWITZERLAND

ACT OF 18TH MARCH 1983
ON NUCLEAR THIRD PARTY LIABILITY

December 1983

ACT OF 18TH MARCH 1983
ON NUCLEAR THIRD PARTY LIABILITY*

The Federal Assembly of the Swiss Confederation,

having regard to Article 24*quinquies* of the Federal Constitution;
having regard to the Message of the Federal Council dated 10th December 1979,

enacts:

C H A P T E R I

SCOPE AND DEFINITIONS

Section 1 Scope

1. This Act governs third party liability for nuclear damage caused by nuclear installations or by the carriage of nuclear materials, and the cover thereof.

2. It shall not apply to damage caused by radioisotopes used or intended to be used outside a nuclear installation for industrial, commercial, agricultural, medical or scientific purposes.

3. The Federal Council may exempt nuclear materials of low radioactivity from the application of this Act.

Section 2 Definitions

1. "Nuclear damage" shall mean:

a) injury, loss or damage caused by the radioactive, toxic, explosive or other hazardous properties of nuclear materials;

b) loss following from measures ordered or recommended by the authorities to avert or mitigate an immediately threatening nuclear danger, excluding loss of profits.

*Unofficial translation edited by the Secretariat.

2. "Nuclear substances" shall mean nuclear fuel, radioactive products and waste.

3. "Nuclear fuel" shall mean fissile materials in the form of uranium or plutonium metal, alloy or chemical compound and any other fissile material designated by the Federal Council.

4. "Radioactive products and waste" shall mean radioactive materials produced, or materials having become radioactive, by exposure to radiation resulting from the production, use, storage, reprocessing or carriage of nuclear fuels.

5. "Nuclear installations" shall mean installations for the production of nuclear energy or for the production, use, storage or reprocessing of nuclear materials.

6. "Nuclear energy" shall mean any form of energy released in any process of nuclear transmutation.

7. "Operator of a nuclear installation" shall mean any person who builds or possesses a nuclear installation or has relinquished possession thereof without the agreement of the competent authority.

C H A P T E R II

THIRD PARTY LIABILITY

Section 3 Principle

1. The operator of a nuclear installation shall be liable without limit for nuclear damage caused by nuclear substances in his installation.

2. He shall also be liable for nuclear damage caused by nuclear substances coming from his installation and which, at the moment when the damage was caused, had not yet been taken over by the operator of another nuclear installation. Nuclear substances shall be deemed to have been taken over at the moment when they cross the boundary of the other nuclear installation or a boundary fixed by contract outside Swiss territory.

3. Where the operator of a nuclear installation receives nuclear substances from abroad, he shall be liable for nuclear damage in Switzerland caused by those substances in the course of carriage to his installation. Any right of recourse against the foreign shipper shall not be affected hereby.

4. If the installation does not belong to the operator, the owner shall be jointly liable with the operator.

5. If nuclear substances cause nuclear damage while in transit through Switzerland, the holder of the transport licence shall be liable. If he has no domicile in Switzerland he shall by means of a declaration in writing submit himself to the jurisdiction of the Swiss courts and elect a domicile in Switzerland with regard to any claims under this Act.

6. Persons other than those named in paragraphs 1 to 5 above shall not be liable towards injured parties for nuclear damage. Persons liable under international Conventions shall have a right of recourse against the person liable under this Act.

Section 4 Costs of measures taken by the authorities

The costs of measures taken by the competent authorities to avert or mitigate any imminent nuclear hazard may be charged to the operator of the nuclear installation or the holder of the transport licence.

Section 5 Exoneration

1. The operator of a nuclear installation or the holder of a transport licence shall be relieved of liability if he proves that the injured party caused the damage intentionally.

2. He may be totally or partially relieved of liability if he proves that the injured party caused the damage by gross negligence.

Section 6 Recourse of the person liable

The person liable by virtue of Section 3 shall have the right of recourse only against persons:

a) who have caused the damage intentionally;

b) who have stolen or unlawfully received the nuclear substances from which the damage arose;

c) who have granted him such a right by contract; the person liable can only invoke such a right against an employee if the latter has caused the damage intentionally.

Section 7 Damages, solatium

1. The nature and extent of damages and the granting of a solatium shall be governed by the principles of the Code of Obligations relating to liability in tort. Section 44 paragraph 2 of the Code of Obligations shall not apply.

2. Where the victim of the damage is in receipt of an unusually high income, the Court may, taking all the circumstances into account, reduce compensation on a fair basis.

Section 8 Agreements

1. Agreements excluding or restricting liability under this Act shall be null and void.

2. Agreements specifying manifestly inadequate compensation may be challenged within three years of the date of their conclusion.

Section 9 Accident insurance

1. Injured parties who are insured under the Accident Insurance Act shall retain their rights under that Act, subject to the provisions of Section 44 of the said Act. Insurers shall be entitled to the right of recourse in accordance with Sections 41 to 44 thereof.

2. Benefits paid to an injured party under a non-compulsory accident insurance the premiums for which have been paid in whole or in part by the operator or the holder of the transport licence shall be deducted from the amount of compensation to be paid by the latter in proportion to his share in the premium payment, unless otherwise provided by the contract of insurance.

Section 10 Limitation and extinction of claims

1. Proceedings under this Act shall be statute-barred three years from the date on which the injured party became aware of the damage and of the identity of the person liable or responsible for cover. The right to take action shall be extinguished, with the exception of actions relating to deferred damage (Section 13), if no proceedings are brought within a period of thirty years following the occurrence having caused the damage; if the damage is due to prolonged effects, such period shall begin from the moment when these effects cease.

2. With respect to the right of recourse the three-year period shall begin from the day on which the person enjoying such a right becomes aware of the amount of the payments that he has to make.

3. Where the state of health of the injured party deteriorates after the judgment or the signing of the settlement, or if new facts or evidence come to light, application may be made for revision of the judgment or amendment of the settlement within three years of the date on which the injured party became aware thereof, but in no case later than thirty years from the date of the occurrence having caused the damage.

4. An interruption of the period of limitation effective against the person alleged to be liable, against an insurer or against the Confederation shall be equally valid against the other two parties.

C H A P T E R III

COVER

PART 1: PRIVATE INSURER

Section 11

1. Any person liable under this Act shall, in order to cover the insurable risk, take out insurance with an insurer authorised to operate in Switzerland for at least Sw.Frs 300 million per nuclear installation, plus at least Sw.Frs 30 million for interest payable and procedural costs in proportion to the insurance payments. For each transit of nuclear substances through Switzerland the amount to be insured shall be at least Sw.Frs 50 million plus at least Sw.Frs 5 million for interest payable and procedural costs.

2. Where the insurance market offers higher cover on acceptable terms, the Federal Council shall increase these minimum amounts.

3. The Federal Council shall define the risks that private insurers may exclude from cover irrespective of injured parties.

PART 2: CONFEDERATION

Section 12

The Confederation shall cover the person liable for nuclear damage up to a total of Sw.Frs 1000 million per nuclear installation or transport operation, plus Sw.Frs 100 million for interest payable and procedural costs, in so far as such damage exceeds the cover granted by private insurance or is excluded therefrom (Section 11 paragraph 3).

Section 13 Deferred damage

The Confederation shall cover, up to the amount specified in Section 12, nuclear damage for which compensation can no longer be claimed from the person liable because the thirty-year extinction period has run out (Section 10 paragraph 1).

Section 14 Contributions by the persons liable

1. For the purpose of covering its obligations under Sections 12 and 13 the Confederation shall levy contributions from the operators of nuclear installations and the holders of transport licences. Such contributions shall be calculated so as to comply as far as possible with the principle of covering costs.

2. The Federal Council shall determine the amount of the contributions.

3. The authority designated by the Federal Council shall calculate and levy the contributions. Its decisions may be challenged in the Federal Court by way of proceedings under administrative law.

Section 15 Nuclear damage fund

The Confederation shall establish a fund into which shall be paid the contributions collected under Section 14 as well as the interest they earn.

Section 16 Special cases

1. In addition, the Confederation shall, in so far as the injured party has not caused the damage intentionally, cover nuclear damage, out of general funds and up to the amount specified in Section 12:

a) where the person liable cannot be identified;

b) where the damage is caused by an uninsured nuclear installation or an uninsured transport operation;

c) where the insurer cannot cover the damage because of insolvency and the person liable is also unable to do so;

d) where the person who has suffered nuclear damage in Switzerland as a result of an occurrence abroad cannot obtain compensation equivalent to that available under this Act in the country concerned.

2. The Confederation may reduce or refuse payment where the injured party has caused the damage by gross negligence.

3. Where the Confederation makes a payment in accordance with paragraph 1, it may take recourse against the person liable. It may also exercise any right of recourse open to the latter.

PART 3: OTHER PROVISIONS ON INSURANCE

Section 17 Exemptions from compulsory insurance

1. The Federal Council may exempt the person liable from the obligation to take out private insurance if he offers equivalent security for the injured parties by other means.

2. The Confederation is not subject to compulsory insurance for nuclear installations which it operates.

Section 18 Reinstatement of full cover

1. Where the private insurer or the Confederation make payments or set up reserves for an occurrence having caused damage, cover is reduced by that amount. Where the payments or reserves amount to one-tenth of the cover, the insurer shall notify the policy-holder and the competent Federal authority.

2. In that case, the policy-holder shall take out additional insurance to reinstate the full initial cover. This additional insurance shall, however, only cover damage caused after its entry into effect. In case of doubt the competent authority shall decide as to the obligation of the policy-holder to increase his cover, taking into account the amounts reserved.

3. An amount reserved for settlement of damage caused before the entry into effect of the additional insurance but not required therefor shall not be used to cover damage caused after the entry into effect of the additional insurance.

Section 19 Direct action, exceptions

1. The injured party may bring direct action against the insurer and the Confederation within the limits of the amount covered by insurance.

2. Exceptions under the contract of insurance or under the Federal Act on contracts of insurance may not be invoked against the injured party.

Section 20 Right of recourse of insurers

1. The private insurer and the Confederation shall have a right of recourse against the policy-holder or the insured party to the extent that they are entitled to refuse or reduce payment by virtue of the contract of insurance or of the Federal Act on contracts of insurance. They shall only avail themselves of such rights of recourse in so far as the interests of the injured parties are not prejudiced thereby.

2. The private insurer and the Confederation shall be entitled to exercise the rights of recourse of the person liable in so far as the interests of the injured parties are not prejudiced thereby.

Section 21 Suspension and termination of the insurance

The insurer shall inform the competent authority of the suspension and termination of the insurance. Unless the insurance is replaced by another beforehand, such suspension and termination shall be effective only six months from the date of receipt of such notification.

C H A P T E R IV

PROCEDURE

Section 22 Conservation of evidence

1. After the occurrence of damage of a serious nature, the Federal Council shall order an enquiry into the circumstances. It shall, by published notice, require all persons who consider they have suffered nuclear damage to make themselves known to a body designated by the Federal Council within three months of the publication of the notice, with the mention of the date and place of occurrence of the damage.

2. The notice shall specify that failure to observe the period prescribed will not lead to loss of possible rights to compensation, but may make it more difficult to establish proof of a causal link between the damage and the occurrence.

Section 23 Sole Cantonal instance

The Cantons shall designate a court which shall have sole jurisdiction for the whole Canton for claims brought with respect to nuclear damage.

Section 24 Forum

1. If damage is caused by a nuclear installation, the court of the Canton in which the nuclear installation is situated shall have jurisdiction.

2. If damage is caused during the carriage of nuclear substances, jurisdiction shall lie with the court of the Canton in which the occurrence causing the damage took place. If the place of the occurrence cannot be determined, the competent court shall be:

a) where the operator of a nuclear installation is liable, the court of the Canton in which the nuclear installation is situated;

b) where the holder of a transport licence is liable, the court of the Canton in which the holder of the transport licence resides or has elected domicile.

3. Actions against the Confederation under Sections 13 and 16 shall be brought before the highest court of the Canton of Bern, unless one of the fora specified in paragraphs 1 or 2 applies.

Section 25 Appeals

In accordance with the provisions of the Federal Act on the Organisation of the Courts, an appeal against a judgment of the Cantonal Court may be brought before the Federal Court.

Section 26 Principles of procedure

1. The Cantonal Court shall *ex officio* determine the facts relevant to the judgment. It shall establish the necessary evidence and shall assess that evidence in its own discretion. It shall not be bound by the submissions of the parties. If it intends to go beyond the submissions of the plaintiff in its judgment, it shall give the parties an opportunity to state their views on the subject beforehand.

2. If a claim is brought against a person liable, against a private insurer or against the Confederation, the Court shall also give the other two parties an opportunity to defend their interests in the proceedings.

Section 27 Determination of Court costs and parties' costs

In determining Court costs and parties' costs the Court may take into consideration the financial circumstances of the party liable therefor.

Section 28 Provisional payments

If there are grounds for anticipating that the legal proceedings will last a considerable time, the Court may award provisional payments on account without prejudice to its final judgment.

C H A P T E R V

MAJOR OCCURRENCES

Section 29 Principles

1. If there are grounds for anticipating that the financial resources of the person liable, the private insurer and the Confederation, available for covering the damage, will not be sufficient to satisfy all claims (major occurrence), the Federal Assembly shall establish an indemnity scheme by means of a Federal Order of general application, not subject to referendum. This Order may cancel the right of recourse against the person liable of all public and private insurers and sickness insurance funds, subject to the provisions of Section 20. If necessary, the Confederation may pay additional contributions in respect of damage not otherwise covered.

2. The Order shall determine the general principles for compensation of the injured parties in order to ensure the equitable distribution of all available funds. In so doing it may derogate from the provisions of this Act.

3. The Federal Assembly may entrust a special independent body with the implementation of the indemnity scheme. Appeals to the Federal Court against decisions of this body shall be permissible.

4. The Federal Council shall take any provisional measures that may be necessary.

Section 30 Modification of insurance premiums, retrospective premiums

1. Where a state of emergency is created by a major occurrence the Federal Council is empowered to issue regulations relating to private insurance on:

a) the modification of the insurers' liability;

b) the levying of retrospective premiums on policy-holders;

c) the deduction of such retrospective premiums from insurance payments.

2. This power shall not extend to the insurance for third party liability required to be taken out by virtue of Sections 11, 12 and 18. The Federal Council may take corresponding measures in relation to social insurance and third party liability insurance.

C H A P T E R VI

PENAL PROVISIONS

Section 31 Failure to fulfil an obligation to obtain insurance or financial security

1. Any person who deliberately fails to fulfil his obligation to obtain insurance or financial security shall be punishable by imprisonment and by a fine not exceeding Sw.Frs 100,000.

2. If the guilty party has so failed through negligence, he shall be punishable by imprisonment for up to one year or by a fine of up to Sw.Frs 20,000.

Section 32 Offences

Any person who intentionally or by negligence fails to comply with any provision of this Act, or of any regulations made thereunder, or with any decision by any authority made in accordance therewith, shall be punishable by imprisonment or by a fine of up to Sw.Frs 20,000.

Section 33 Jurisdiction

The Federal Act on Administrative Penal Law shall be applicable. The Federal Energy Office shall be the competent prosecuting and judging authority.

C H A P T E R VII

RECIPROCITY

Section 34

In respect of nuclear damage suffered abroad by persons resident abroad and for which the operator of a nuclear installation in Switzerland or the holder of a transport licence issued by Switzerland is responsible, compensation is due under this Act to the extent that the foreign State concerned has made provision for at least equivalent treatment with regard to Switzerland. The maximum cover shall not in this case be lower than Sw.Frs 50 million, even if the foreign State concerned provides for a lower limit for third party liability.

C H A P T E R VIII

CONCLUDING PROVISIONS

Section 35 Implementation

The Federal Council shall implement this Act.

Section 36 Amendment and repeal of existing legislation

1. The Federal Act on the Federal Organisation of Justice shall be amended as follows:

Section 41.b

The Federal Court is the only jurisdiction competent for:

b. civil actions by private persons or corporations against the Confederation where the amount at issue is at least Sw.Frs 8,000; save for actions under the Federal Act of 28th March 1905 on liability of railway and steamship undertakings and the Post Office, under the Federal Act on Road Traffic and under the Federal Act on Nuclear Third Party Liability of 18th March 1983 and all actions against the Federal Railways.

Section 45.c

Appeals are receivable, regardless of the amount at issue, in civil actions relating to a right of a pecuniary nature:

c. in disputes relating to liability for nuclear damage (Act on Nuclear Third Party Liability of 18th March 1983).

Section 117.a^{bis}

1. An action under administrative law is not receivable where:

a^{bis} a right of appeal under civil law by virtue of Section 45.c is allowed.

2. The Federal Act of 23rd December 1959 on the Peaceful Uses of Atomic Energy and Protection against Radiation shall be amended as follows:

Sections 12 to 28

Repealed

Section 35, first paragraph

1. Any person who intentionally or negligently infringes this Act or the provisions for its execution, and in particular any person who undertakes any action for which a licence is required without such licence or who fails to observe conditions or obligations attached to the issue of a licence, shall, provided that his conduct does not also constitute any more serious offence, be liable to a fine not exceeding Sw.Frs 20,000. An attempt to commit and complicity in, an offence shall also be punishable.

Section 37 Transitional provisions

1. In respect of nuclear damage caused before entry into force of this Act and discovered only after such entry into force, the Confederation shall in place of the person liable indemnify the injured party in accordance with the provisions of this Act to the extent that such person was not liable under the previous Act.

2. The assets of the Delayed Atomic Injury Fund (Section 19 of the Federal Act of 23rd December 1959 on the Peaceful Uses of Atomic Energy and Protection against Radiation) shall be transferred to the nuclear damage fund created under Section 15 of this Act.

Section 38 Referendum and entry into force

1. This Act is subject to an optional referendum.

2. The date of entry into force of this Act shall be fixed by the Federal Council.